Fire Protection Plan
Daley Ranch Resort
APN's 187-080-05, 07, 08, and 190-080-13
Escondido, California

January 10, 2018

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Daley Ranch
FIRE PROTECTION PLAN

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Executive Summary

This Fire Protection Plan (FPP) evaluates the proposed Daley Ranch Resort development to ensure it does not unnecessarily expose people or structures to fire risks and hazards. The FPP identifies and prioritizes the measures necessary to adequately mitigate those impacts. The FPP has considered the property location, topography, geology, combustible vegetation (fuel types), climatic conditions and fire history. It considers water supply, access, structure ignitability and fire resistive 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 City of Escondido Fire Department and the Valley Center Fire Protection District along with the California Department of Forestry and Fire Protection (CAL FIRE) and other 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 wildfire event in the area. Response times and the proximity of the development to the Wildland Urban Interface (WUI), in a Very High Fire Hazard Severity Zone, require that fire sprinklers be installed in all new residences.

In addition, this FPP lists fuel modification requirements to mitigate the exposure of people or structures from a significant risk of loss, injury or death from wildland fires. Zone 1 will be an irrigated landscaped zone and is commonly called the defensible space zone for fire suppression forces and protects structures from radiant and convective heat. This landscaped zone is permanently irrigated and consists of fire resistant and maintained plantings. Zone 2 is the area beyond Zone 1 and excludes all prohibited highly combustible native vegetation, but permits plantings with very specific criteria and reduces the existing native vegetation by 50%. Together Zone 1 & 2 provide 100 feet of fuel modification. A Home Owners Association will be responsible to the Escondido Fire Department Fire Marshal for the annual completion of all designated Fuel Modification Treatments in common areas prior to June 15th or when fuels become cured.

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

Daley Ranch Resort
FIRE PROTECTION PLAN

1.0 INTRODUCTION

This Fire Protection Plan (FPP) has been prepared for the Daley Ranch Resort development. The purpose of this FPP is to assess the potential impacts resulting from wildland fire hazards and identify the measures necessary to adequately mitigate those impacts. As part of the assessment, the plan has considered the property location, topography, geology, combustible vegetation (fuel types), climatic conditions, and fire history. The FPP addresses water supply, access (including secondary/emergency access where applicable), structural ignitability and fire resistive building features, fire protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management. The FPP also identifies and prioritizes areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more-at-risk communities and essential infrastructures. The FPP recommends measures that property owners will take to reduce the probability of ignition of structures throughout the area addressed by the plan.

The FPP will be submitted to and approved by the City of Escondido Fire Department and is based upon requirements of the City of Escondido and San Diego County regarding Wildland Fire Protection Plans, including: pertinent local Fire Ordinance No. 2016-09; the Wildland-Urban Interface (WUI) Development Standard Guidelines; 2017 San Diego County Consolidated Fire Code; California Code of Regulations Title 24, Part 9; 2016 California Fire Code and Local Amendments including appendices to Chapters 1 & 4 and appendices B, F & H; the International Fire Code (2015 edition); Chapter 7A-California Building Code; the California State and Local Responsibility Area Fire Hazard Severity Zone Map; California Government Code, sections 51175 through 51189; the California Code of Regulations, Title 14, section 1280; California Public Resources Codes sections 4201 through 4204; and the National Fire Protection Association Standards 13, 13-R & 13-D, 2016 Editions.

1.1 PROJECT LOCATION, DESCRIPTION AND ENVIRONMENTAL SETTING

1.1.1 Project Location - The proposed Daley Ranch Resort development is located on a currently undeveloped, vacant site located northeast of the City of Escondido, west of Valley Center Road, east and north of Daley Ranch, and south of Red Iron Bark Drive in the unincorporated area of the County of San Diego, and within the Sphere of Influence of the City of Escondido. The subject site consists of four parcels totaling 207.6 acres (APN 187-080-05, 07, 08, and 190-080-13) and is approximately 20 miles east of the Pacific Ocean (see Photo #1).

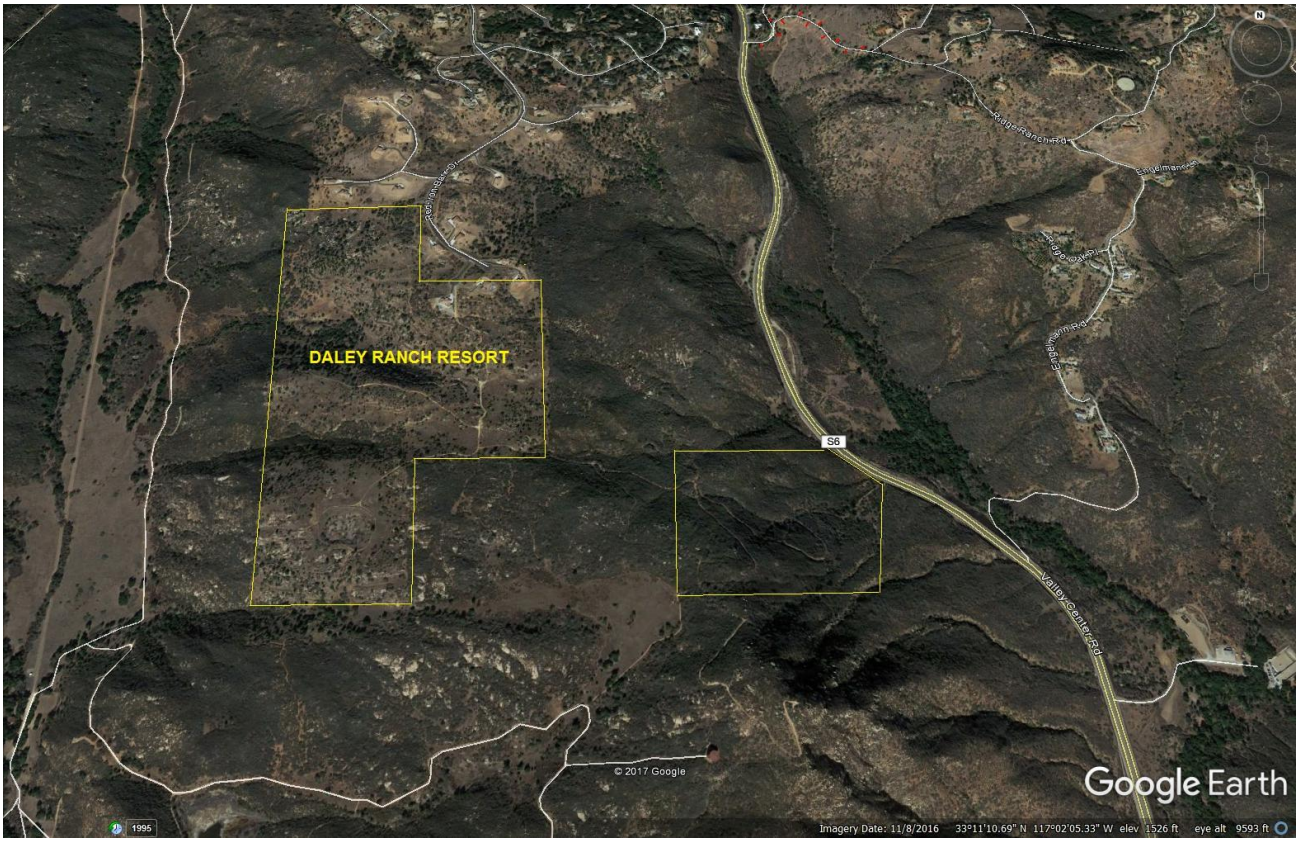


Photo #1 - Daley Ranch Resort Project Area

1.1.2 Project Description - The proposed Daley Ranch Resort development is a low-density, single-family community and resort located on approximately 207.7 acres in the unincorporated area of San Diego County and within the Sphere of Influence of the City of Escondido. The site is within the San Diego County Local Agency Formation (LAFCO) designated Sphere of Influence (SOI) for the City of Escondido. A request for annexation is being proposed.

The proposed project consists of residential and resort uses. A total of 203 residences has been proposed across the 207.7-acre site, in four (4) different product types with 144.4 acres, or 70% of the project site, as natural and unimproved open space, 1.3 acres of community park space, and 15.6 acres of roadways. Large custom home sites will be located in the northwestern section of the site, while a mix of small lot, detached single-family homes and clustered, detached, courtyard-style single-family homes will be located toward the central portion of the site, and a small, multi-family area is proposed adjacent to the courtyard-style homes. In addition, the resort will occupy the southwestern portion of the site with up to 225 rooms, and is intended to cater to outdoor recreationalists and tourists. Exhibit #1 depicts the proposed site layout.

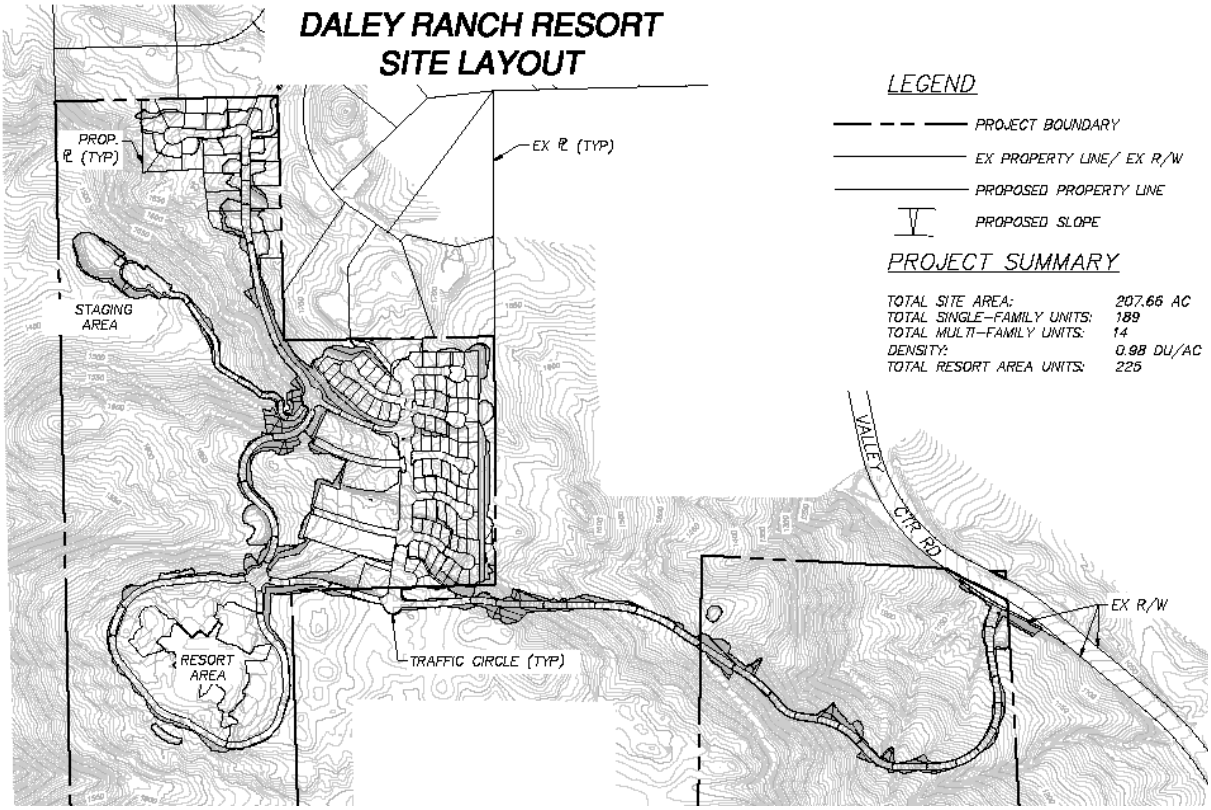


Exhibit #1 – Proposed Development

1.1.3 Environmental Setting

1.1.3.1 Dates of Site Inspections/Visits Conducted - A site visit was completed to determine pertinent information regarding the environmental setting.

Site Visit & Purpose	Date
Field visit Evaluate vegetation, topography, road conditions, and fire access	August 10, 2017

1.1.3.2 Topography - The site is undeveloped land and is generally characterized as the top of a mostly flat (<20% slope) north-trending mesa, and includes three smaller westerly-trending mesas and two intervening canyons which lead to the valley floor of the adjacent Daley Ranch. The steepest slopes are on the western side of the property, on the sides of the ridges. Less than 30% of the site has slopes over 30% in steepness.

Site elevations range from approximately 1,120 to 1,720 feet MSL across the property. Close to Valley Center Road, elevations range from approximately 1,120 to 1,250 feet, while adjacent to Daley Ranch, elevations range from 1,430 to 1,600 feet MSL. The elevation along the northern property line ranges from 1,540 to 1,720 feet MSL. The eastern portion of the site has the lowest elevations, while the highest portion of the site is towards the middle of the site.

1.1.3.3 Climate - The climate within the project area is characterized as a Mediterranean type climate with generally mild, wet (14 -16 inches per year) winters, with the bulk of the annual precipitation falling between January and March. Long, hot and very dry summer seasons frequently occur with occasional, multi-year droughts.

The most critical wind pattern to the project area is an off-shore wind coming out of the north/northeast, typically referred to as a Santa Ana wind. 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 generally occur in the late fall (September through November) when non-irrigated vegetation is at its lowest moisture content.

The typical prevailing summer time wind pattern is out of the south or southwest and normally is of a much lower velocity (5-15 MPH with occasional gusts to 30-MPH) and is associated with higher relative humidity readings (> 30% and frequently more than 60%) due to a moist air on-shore flow from the ocean. All other wind directions may be occasionally strong and gusty, but they are generally associated with cooler moist air and have higher relative humidity (> 40%). They are considered a serious wildland fire weather condition when wind speeds reach > 20-MPH.

Fire agencies throughout the western United States rely on a sophisticated system of Remote Automated Weather Stations (RAWS) to monitor weather conditions and aid in the forecasting of fire danger. The closest RAWS to the project is the Alpine RAWS. The data acquired from RAWS is important to modeling wildland fire behavior. ***FIRE*WISE 2000, Inc.** determined that the Alpine RAWS is relatively new, having only been in operation since April of 2001. Another RAWS that was evaluated was the San Miguel RAWS which has only been in operation since March of 2002. This RAWS is located westerly of the Project where winds are likely to be lower and relative humidity levels higher. The Alpine RAWS captured significant weather data during the major southern California fires of October 2007 as shown in Figures 1 and 2. In reviewing the figures, note that in late October the winds were strong and relative humidity was very low, an indicator of a Santa Ana wind event.

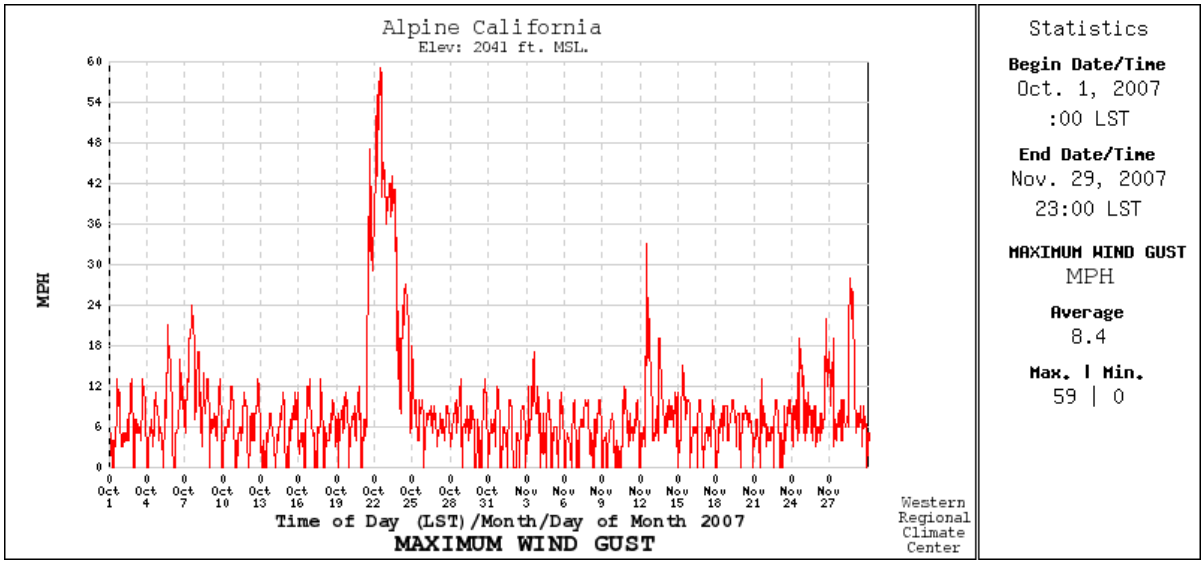


Figure 1 – Maximum Wind Gust – Fall, 2007

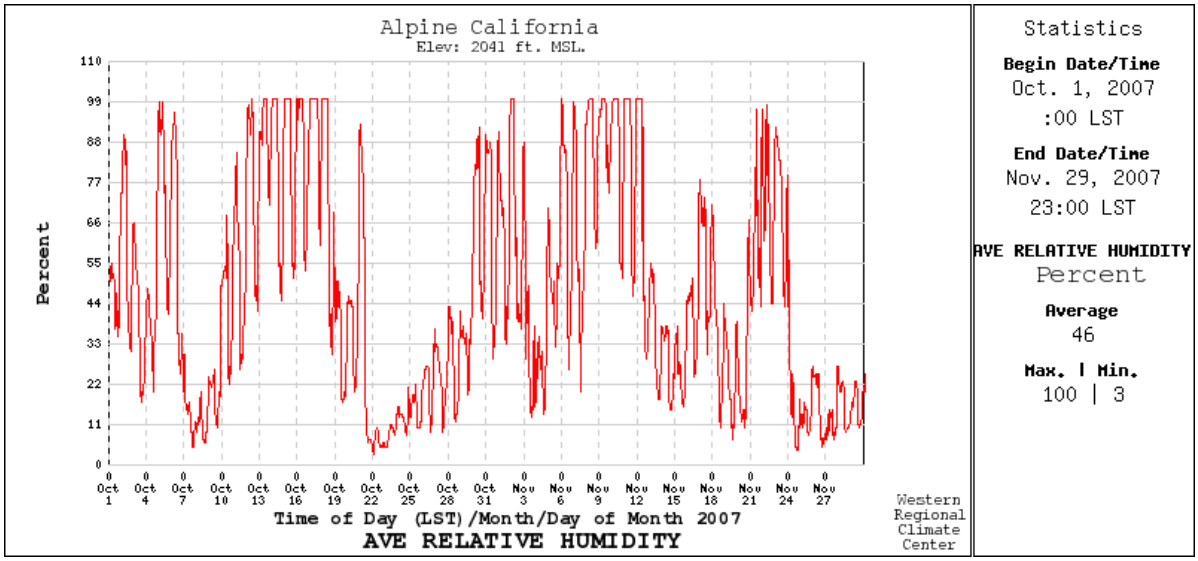


Figure 2 – Relative Humidity. Note That When The Peak Wind Gusts Occurred On October 23, 2007, This Was Also When Relative Humidity Was In The Single Digits.

The above weather event combined with dry brush combined with an ignition resulted in several major wildland fires in San Diego County including the Cedar and Paradise Fires. Combined, these fires destroyed over 2,400 homes and lead to several deaths, mostly due to residents trying to flee.

1.1.3.4 On and Off-site Vegetation – Much of the project area has been disturbed in the past with most of the land either previously cleared and planted with macadamia trees or burned in the 2003 Paradise fire. Those areas not disturbed include several plant communities consisting of Diegan Coastal Sage, Oak and Coast Live Oak woodlands, Southern Mixed Chaparral, native and non-native grassland, and riparian areas. Species found in the area include Ceanothus, chamise, black sage, California buckwheat, deer weed, mountain mahogany, interior scrub oak, coast live oak, toyon, mustard, laurel sumac, manzanita, remnant macadamia nut trees, and native and non-native grasses.

If left undisturbed, the natural vegetation in the project area can be characterized by several Fuel Models. The north and east boundaries of the proposed large estate lots (Lots 91 – 101) and the resort area can be considered a Fuel Model gs1 Low Load Dry Climate Grass Shrub with 1-hour fuels of .2 tons/acre (see Photo #2). The eastern boundary of the project, where the smaller single-family homes are to be located (Lots 11,12, 24, 25, 37, 38, 50, 51, 62, & 63), can be characterized as a Fuel Model 4 with 1-hour fuels of 4 tons/acre and 10-hour fuels of 4 tons/acre and 100-hour fuels of 2 tons/acre (see Photo #3). The north boundary of Lots 63 - 67, 72, & 73 can be considered a Fuel Model gs2 Moderate Load Dry Climate Grass-Shrub with 1 and 10-hour fuels of .5 tons/acre respectively (see Photo #4).

The most notable wildland fire threat to this proposed development is from firebrands/burning embers from both off-site and on-site highly flammable native and non-native vegetation, particularly from the northern and eastern boundary areas as embers from these areas are likely, during strong winds, to travel over a mile.

Photo #2 - Looking South from the North Boundary. Typical Vegetation in Vicinity of the Estate Lots and Resort Area. Note the Remnant Macadamia Trees.

Photo #3 - Old Chaparral Vegetation Typical of What is on the East Side of the Project

Photo #4 - North Boundary of Lots 63-67, 72, & 73

1.1.3.5 Fire History - The available data suggests that in the second half of the 20th Century the frequency of small fires increased in southern California while their average size decreased. This was due primarily to human caused fires and rapid fire suppression. In San Diego County, this has resulted in an increased rate of burning in low elevation coastal scrubland, especially the coastal sage scrub formation near the urban development areas. It also indicates over 600 large fires of over 100 acres in the foothills and mountains from 1910-1999. Recently, several years of drought have contributed to major fires (in excess of 50,000 acres) that have swept through San Diego County resulting in large losses of property and damaged watershed.

The most recent major wildfire in the project area was the Paradise Fire in 2003 (shown in pink on Figure 3). It burned 56,700 acres in and around the project area, resulting in the loss of 221 homes and 2 deaths. Smaller fires mostly likely have occurred in the area in the past but there is no record.

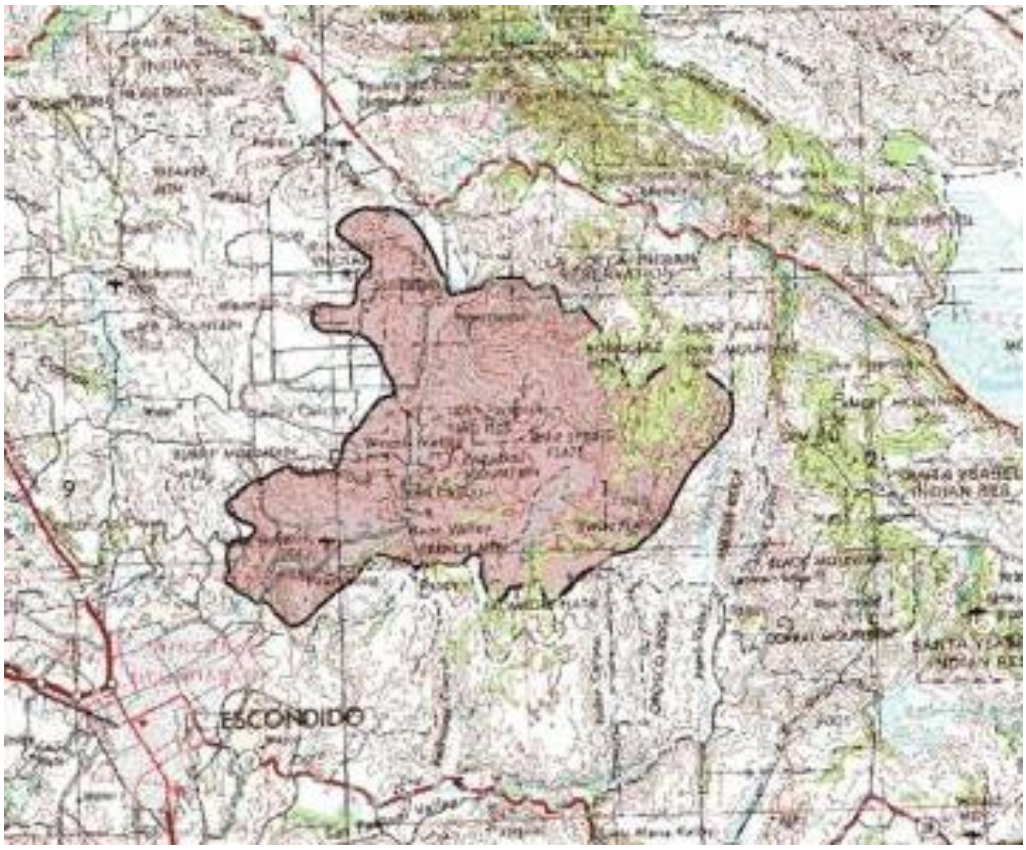


Exhibit 2 - 2003 Paradise Fire Shown in Pink

Based on the above information, the fuel modeling in this report reflects the worst case scenarios that could be expected in future wildfire events.

1.1.3.6 On-site and Off-site Land Uses - The existing parcels of land proposed for development are currently either in a natural state or reverting to native vegetation from previous agricultural activity or wildfires. The surrounding land is either rural residential developed and undeveloped land, or protected open space.

1.1.3.7 Public and Private Ownership of Land in the Vicinity - The applicant owns all property within the proposed development. All other properties in the vicinity are existing undeveloped and developed private parcels or set aside as open space. Escondido City's Daley Ranch Preserve forms the boundary of the project site on the west and south; a gated estate home community (Valley View Estates) to the north; vacant parcels, a Bureau of Land Management parcel, and Valley Center Road to the east.

2.0 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE

A Fire Protection Plan (FFP) evaluates the potential adverse environmental effects that the Daley Ranch Resort and Residential development may have from wildland fire and proposes appropriate mitigations for any adverse impacts to ensure that this development does not unnecessarily expose people or structures to a significant risk of loss, injury or death due to wildland fires. The following guidelines for the determination of significance are used:

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

   The project is partially bordered by existing development on the north and where wildlands are adjacent to the project, fuel modification and other requirements outlined in this FPP reduce the exposure of people or structures to a less than significant risk of loss, injury or death involving wildland fires.

2. Would the project result in inadequate emergency access?

   The addition of a secondary access road and roads throughout the project built to county standards will provide improved emergency access.

3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically-altered governmental facilities, need for new or physically-altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance service ratios, response times or other performance objectives for fire protection?

   As described in Section 4.1, the EFD has indicated existing facilities are adequate to provide acceptable emergency service and response times when all requirements in this FPP are in place.

4. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

   There will be sufficient water available, provided by Valley Center Municipal Water District, when all listed improvements described in Section 4.3 are in place.

3.0 ANTICIPATED FIRE BEHAVIOR IN THE VICINITY

Based on the vegetation, topography, and fire history outlined in Section 2, the table below shows a summary of the anticpated fire behavior for the boundaries of the project in the worst-case scenarios and the change in fire rate of spread, intensity and flame length following the completion of the required fuel modification. See Section 4.6 for details of the Fire Behave Modeling.

TABLE 3.1

Fire Scenario #1 (Fuel Model gs1 – 65 mph Northeast Wind)

Prior to Fuel Treatment			After Fuel Treatment	
Rate of Spread	244.4 ft/min		Rate of Spread	41.4 ft/min
Fireline Intensity	1,535BTU/ft/sec	VS.	Fireline Intensity	67 BTU/ft/sec
Flame Length	**13.1 Feet**		Flame Length	**3.1 Feet**

Fire Scenario #2 (Fuel Model gs2 – 65 mph Northeast Wind)

Prior to Fuel Treatment			After Fuel Treatment	
Rate of Spread	552.5 ft/min		Rate of Spread	244.4 ft/min
Fireline Intensity	5,653BTU/ft/sec	VS.	Fireline Intensity	1,535 BTU/ft/sec
Flame Length	**23.9 Feet**		Flame Length	**13.1 Feet**

Fire Scenario #3 (Fuel Model 4 – 65 mph Northeast Wind)

Prior to Fuel Treatment			After Fuel Treatment	
Rate of Spread	2267.2 ft/min		Rate of Spread	183.5 ft/min
Fireline Intensity	130,380 BTU/ft/sec	VS.	Fireline Intensity	4742 BTU/ft/sec
Flame Length	**101.4 Feet**		Flame Length	**22.1 Feet**

Fire Scenario #3 (Fuel Model gs2 – 30 mph Southwest Wind)

Prior to Fuel Treatment			After Fuel Treatment	
Rate of Spread	163.5 ft/min		Rate of Spread	38.3 ft/min
Fireline Intensity	1634 BTU/ft/sec	VS.	Fireline Intensity	326 BTU/ft/sec
Flame Length	**13.5 Feet**		Flame Length	**6.4 Feet**

4.0 ANALYSIS OF PROJECT EFFECTS

The project demonstrates compliance, or offers the "*same practical effect"*, with applicable fire regulations, including but not limited to the California Fire Code, California Code of Regulations, and the City of Escondido Fire Code.

The Fire Protection Plan and the project design are consistent with the City of Escondido recommendations including fuel modification.

The project meets the emergency response objectives identified in the City of Escondido General Plan or offers Same Practical Effect.

4.1 Adequate Emergency Services

The project site is presently located within the Valley Center Fire Protection District (VCFPD), however, annexation to the City of Escondido is pending and, when completed, the Escondido Fire Department (EFD) will have jurisdiction over the development. The closest fire station to the project is VCFPD Fire Station #3 located at 14946 Vesper Road, Valley Center,

approximately 6.5 miles from the furthest lot in the northwestern portion of the project site. Using NFPA Standard 1142 (2007 ed) Table C1.11 (b) and Google Maps, the expected emergency travel time to the furthest lot in the northwest portion of the project from this station is estimated at 11.7 minutes via the new access road.

The next closest fire station EFD Station #2 located at 421 N. Midway Drive in Escondido, approximately 8.7 miles from the furthest lot in the northwestern portion of the project site. Using NFPA Standard 1142 (2007 ed) Table C1.11 (b) and Google Maps, the expected emergency travel time to the furthest lot in the northwest portion of the project from this station is estimated at 15.5 minutes via the new access road.

The City of Escondido's General Plan states *"For out-lying areas beyond a five (5) minute travel time or further than three (3) miles from the nearest fire station, all new structures shall be protected by fire sprinkler systems"*. Since all structures within the development shall be built with fire sprinkler systems (see Section 5.3), the project would not directly result in the expansion of the areas fire protection services. CAL FIRE (under the SRA Agreement), as well as other fire departments, can be requested under a Mutual Aid agreement to respond to wildfire events.

4.2 Fire Access

Access to the project will be provided from a new two-lane private street (36-foot right of way) that will connect to Valley Center Road. A median break in Valley Center Road between Lake Wohlford Road and Woods Valley Road will allow for left turn access onto and off of northbound Valley Center Road. Valley Center Road will be modified and re-striped to allow for acceleration and deceleration lanes that will facilitate safe access to the project. In addition, a new three-way traffic signal will be installed on Valley Center Road, and will control access for inbound and outbound traffic of the property.

All access roads within the development shall be a minimum of 24 feet wide, have an all-weather surface capable of supporting 75,000 pounds and maintain 13 feet 6 inches of vertical clearances. On 28-feet-wide streets, parking is only allowed on one side with one side marked as "Fire Lane"; on streets 36-feet-wide or greater, parking is allowed on both sides. Red curbs with 4-inch white lettering that says, "NO PARKING FIRE LANE" is required in the turn-arounds and provisions to provide ongoing maintenance must be reflected in the CC&Rs. Red curbs with 4-inch white lettering that says, "NO PARKING FIRE LANE" signs are required in 24-feet-wide access areas and provisions to provide ongoing maintenance must be reflected in the CC&Rs.

No roadways accessing or within the subdivision shall exceed a grade of 20%. Roadways or sections of roadways that are over 15% shall not be permitted without mitigation. Minimal mitigation for roads over 15% must include a Portland cement concrete [PCC] surface with a deep broom finish perpendicular to the direction of travel to enhance traction. The angle of departure and angle of approach of a fire access roadway shall not exceed 7 degrees or 12% or as approved by the Chief of the EFD.

All dead-end roadways exceeding 150 feet in length require a Fire Department turn-around and may require a turn-out near the mid-point. Minimum radius for a cul-de-sac must be 36 feet measured from the inside edge of the improvement. A 28-foot inside turning radius will be required on all corners. Roadway design features (speed bumps, humps, dips, etc.) that may interfere with emergency apparatus responses shall not be installed on fire access roadways.

The Daley Ranch Resort is not planned to be a gated community and all roadway are to be private roads. However, any future gates to be installed shall be set back 30 feet from entrance roadways, be automatic, equipped with electric switches accessible from both sides and operable by dual-keyed Knox switches for both fire and police, overriding all command functions and opening the gate(s). Gates shall also be equipped with an approved emergency tract control-activating strobe light sensor(s) or other devices approved by the Fire Marshal, 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. Gates shall allow automatic egress without the use of codes or remote devices (e.g., the use of pressure pads, metal detection or infrared sensors).

Road name signs shall comply with County of San Diego Department of Public Works Design Standard #DS-13. Signs, postings, red curbs and white stencils shall conform to the requirements of Section 22500.1 of the California Vehicle Code and shall be maintained in perpetuity. On paved roads, “blue dot” markers shall be installed on the pavement to indicate the location of each fire hydrant. Signs or notices shall be maintained in a clean and legible condition at all times and replaced or repaired when necessary to provide adequate visibility. Fire lane signs and fire lane curb painting shall conform to Escondido City requirements.

Due to the size of the development and to increase safety, a gated secondary access road shall be provided in the northeastern part of the proposed development. This road is intended to be used for emergency ingress and egress. It will be located within an existing access easement that runs from the southern termination of Red Iron Bark Drive to a cul-de-sac located at the northern end of the subdivision. It will conform to the gate requirements listed above in this section.

4.3 Water

The Valley Center Municipal Water District is the water provider for the project. In order to serve the project, connections to existing facilities will be provided in two places:

1. A connection to an existing 12” main located to the north of the subject site in a utility easement that extends between the development and Red Iron Bark Drive.
2. A connection will be made to an existing 18” main located approximately 4,200 feet north of the project entrance, on Valley Center Road. This connection will be made via a proposed offsite 12” main.

Since water facilities do not currently exist on the project site, a 12” water main will be installed to provide water throughout the project area. The water main will be located in the private roadways.

Due to the elevation difference across the project site, a pressure reducing station will be required. This will ensure adequate, consistent water pressure.

The required fire flow for the project is 2500 gpm, per Section 903.4.2.2, of the San Diego Consolidated Fire Code requirements, at pressures required to supply fire sprinklers and provide 20 PSI residual pressure at hydrants during periods of maximum peak domestic demand. Pressure demands for fire sprinklers will be higher. A letter from the water provider shall be provided by the developer stating that the required fire flow in gallons per minute is available to the site.

Fire hydrants shall be located within 350 feet of structures, at intersections, at the beginning radius of cul-de-sacs and every 300 feet along fire access roadways as located and approved by the EFD Fire Marshal.

The design of the water system shall be submitted to the EFD and the Valley Center Municipal Water District for approval prior to issuance of building permits. The water supply system and fire hydrants shall be installed, tested, and approved by the EFD Fire Marshal prior to bringing any combustible building materials onto the development.

4.4 Ignition Resistant Construction and Fire Protection Systems

All structures shall comply with the ignition-resistive construction requirements for buildings located in an Wildland Urban Interface Area under the 2016 California Fire Code (CFC); Chapter 7A of the California Building Code (CBC); the California Residential Code (CRC) R337; and City of Escondido Building and Fire Codes (see Appendix 'E'). All habitable structures shall have automatic residental fire sprinklers per Escondido City Code. The fire sprinkler system for interior fire protection shall meet the requirements of National Fire Protection Standard (NFPA) 13 and 13D to the satisfaction of the EFD. The EFD shall review and approve fire sprinkler installations prior to the issuance of an occupancy permit. Each homeowner shall inspect and maintain their ignition-resistant construction features listed in APPENDICES 'D' and 'E' of this document. Additional construction requirements are also required in those areas where extreme fire behavior is predicated.

4.4.1 Structure Setbacks From Protected Land - Minimum structure setback from property lines abutting national forests, open space preserves, and designated riparian areas is 100 feet.

4.4.2 Setbacks From Slopes - Single-story structures shall have a minimum setback of fifteen (15) feet, measured horizontally, from the top of slopes to the farthest projection of the roof. A two-story structure shall have a minimum setback of thirty (30) feet, measured horizontally, from the top of slopes to the furthest projection of the roof. Structures greater than two-stories in height may be required to have a greater slope setback to be determined by the EFD Fire Marshal.

4.5 Defensible Space and Vegetation Management

4.5.1 Off-site Fire Hazard and Risk Assessment - Daley Ranch Resort is located in a Very High Fire Hazard Severity Zone approximately twenty (20) miles inland from the ocean. The Daley Ranch conservation area is located to the west and south of the proposed development, while a newer, large lot custom residential development is located to the north. Additional open space and scattered large lot custom home sites are located to the east, across Valley Center Road.

A notable wildland fire threat will come from a wildland wildfire burning in the adjacent highly flammable native and non-native vegetation to the east of the proposed subdivision. This is a mix of rural developed and undeveloped land and the greatest threat to this development will be firebrands carried a long distance (one mile or more) by fire drafts or strong winds. An additional wildfire threat is possible from the Open Space land to the south and west under typical or extreme prevailing southwest wind conditions.

4.5.2 On-site Fire Hazard and Risk Assessment - A portion of the area within the project

has had periodic disturbances. In addition to the 2003 Paradise Fire, there is a high likelihood that the project area has experienced wildfires in the past and conditions exist for structures to be exposed to wildland fire in the future. If left undisturbed by natural events or without any fire hazard abatement practices, the project area's vegetation would again become a mature chaparral/Coastal Sage Scrub community.

The mixed chaparral east of the proposed homes, characterized as a Fuel Model 4, will be of the most concern for the project area during a worst-case scenario northeastern wind pattern (Santa Ana), with hot dry wind speeds that could reach in excess of 60 MPH. These conditions would be similar to what was experienced in the Cedar and Paradise Fires in 2003 and the Witch Creek Fire in 2007. In this vegetation type, a high percentage of the vegetation would have an abundance of dead material. This is due to the effects of the local Mediterranean climate where warm wet winters promote new growth, and long, hot and very dry summer seasons sometimes occur. Occasionally, multi-year droughts cause significant parts of these plants to die back. All of these plants are adapted to the intense wildfires that they need for species regeneration. However, when fire occurs at too frequent intervals, the chaparral plant community reverts to a more flammable, less desirable community of short-lived annual grasses with little wildlife value and poor ability to protect the soil. The on-site wildland fire threat from this native vegetation can be mitigated within the development with the required fuel modification and utilization of "*firewise*" landscaping criteria.

In summary, any wind or topography-driven wildfire burning under a northeast (*Santa Ana*) wind pattern creates a very high wildland fire hazard, especially for wildland fires starting northeast of the development. Also a typical fire day with a southwest wind will create a high wildland wildfire hazard. However, the proposed fuel modification treatments, "*firewise*" landscaping, ignition resistant building requirements (which include the use of Class "A" roof and non-combustible fire resistive exterior wall materials), and additional construction requirements will mitigate the potential loss of structures to less than significant levels due to direct fire impingement, wind driven embers, or radiant heat around the perimeter of the houses.

4.6 Vegetative Fuels Assessment/Fire Behavior

The minute-by-minute movement of a wildland fire will probably never be totally predictable, certainly not from weather conditions forecast many hours before the fire. Nevertheless, practice and experienced judgment in assessing the fire environment coupled with a systematic method of calculating fire behavior, yield surprisingly good results (Rothermel 1983).

The BehavePlus Fire Modeling System (Version 5.0.5) has been used to predict the wildland fire behavior (rate-of-spread, fireline intensity and flame length) for the vegetative fuels in the Daley Ranch Resort project. The BEHAVE: Fire Behavior Prediction and Fuel Modeling System–Burn Subsystem, Part 1 by Patricia L. Andrews, is one of the best systematic methods for predicting wildland fire behavior. The BEHAVE fire behavior computer modeling system was developed by USDA–Forest Service research scientists at the Intermountain Forest Fire Laboratory, Missoula, Montana, and is utilized by wildland fire experts including fire behavior analysts nationwide. Since the model was designed to predict the spread of a fire, the fire model describes the fire behavior only within the flaming front. The primary driving force in the fire behavior calculations are the dead fuels less than one-fourth inch in diameter; these are the fine fuels that carry the fire. Fuels larger than three (3") inches in diameter are not included in the calculations at all (Andrews 1986).

BehavePlus, Version 5.0.5 is an updated and enhanced form of the original BEHAVE System. The BEHAVE fire model describes a wildfire spreading through surface fuels, which are the burnable materials within six (6') feet of the ground and contiguous to the ground. Regardless of the limitations expressed, experienced wildland fire managers can use the BEHAVE modeling system to project the expected fire intensity, rate-of-spread and flame lengths with a reasonable degree of certainty for use in fire protection planning purposes.

The ***FIREWISE* 2000, Inc.** evaluation team used the computer-based BEHAVE Plus 5.0.5 Fire Behavior Prediction Model to make the fire behavior assessments and projections for the hazardous vegetative fuels on the areas in proximity to the proposed residential building lots in the Daley Ranch Resort (See APPENDIX 'C' for actual calculations from the BEHAVE Plus program). The projections are based on "worst-case" fire assumption scenarios for this portion of San Diego County.

Four (4) different fire scenarios are presented below. Each fire scenario displays the expected Rate of Fire Spread (expressed in feet per minute), Fireline Intensity (expressed in British Thermal Units per foot per second) and Flame Length (expressed in feet) for two (2) separate BEHAVE Plus predications: one for the untreated fuels; and one for the treated fuels following the completion of the required fuel modification work. The tables also include the calculation inputs used in the BEHAVE Plus program which were obtained from project site observations, expected climax vegetation type and fuel moisture levels typically observed during the local fire season. All of the detailed fire behavior calculations can be found in APPENDIX 'C'.

Table 4.6.1
Fire Scenario # 1 - N&E Boundaries of Lots 91-101 & Resort
(Late Fire Season With 65 MPH North, Northeast And East Wind Conditions)

Fire Behavior Calculation Input Data	**Anticipated Fuel Moistures**
• **10 percent slope** • **65 mph 20-foot wind speed** • **180º aspect from north** • **45º wind direction from north**	*** 1-Hour Fine Fuel Moisture of……..…2%** *** 10-Hour Fuel Moisture of……..……3%** *** 100-Hour Fuel Moisture of....……..…….5%** *** Live Herbaceous Fuel Moisture of…....30%** *** Live Woody Fuel Moisture of…….....50%**
Expected Fire Behavior **Fuel Model gs1 Low Load Dry Climate Grass-Shrub**	
Rate of Spread - 244.4 feet/minute	
Fireline Intensity - 1,535 BTU's/foot/second	
Flame Length - 13.1 feet in length	
Expected Fire Behavior in Treated Fuels **Fuel Model gr1 Short, Sparse Dry Climate Grass**	
Rate of Spread - 41.4 feet/minute	
Fireline Intensity - 67 BTU's/foot/second	
Flame Length - 3.1 feet in length	

Table 4.6.2 ***Fire Scenario # 2 - Lots 63-67, 72, & 73 N Boundary*** ***(Late Fire Season With 65 MPH North, Northeast And East Wind Conditions)***	
Fire Behavior Calculation Input Data • 10 percent slope • 65 mph 20-foot wind speed • 180º aspect from north • 45º wind direction from north	**Anticipated Fuel Moistures** * 1-Hour Fine Fuel Moisture of……2% * 10-Hour Fuel Moisture of……3% * 100-Hour Fuel Moisture of……5% * Live Herbaceous Fuel Moisture of……30% * Live Woody Fuel Moisture of……50%
Expected Fire Behavior **Fuel Model gs2 Moderate Load Dry Climate Grass-Shrub**	
Rate of Spread - 552.5 feet/minute	
Fireline Intensity - 5,653 BTU's/foot/second	
Flame Length - 23.9 feet in length	
Expected Fire Behavior in Treated Fuels **Fuel Model gs1 Low Load Dry Climate Grass-Shrub**	
Rate of Spread - 244.4 feet/minute	
Fireline Intensity - 1,535 BTU's/foot/second	
Flame Length - 13.1 feet in length	

Table 4.6.3 ***Fire Scenario # 3 – East Boundary*** ***Lots 11,12, 24, 25, 37, 38, 50, 51, 62, & 63*** ***(Late Fire Season With 65 MPH North, Northeast And East Wind Conditions)***	
Fire Behavior Calculation Input Data • 20 percent slope • 65 mph 20-foot wind speed • 90º aspect from north • 45º wind direction from north	**Anticipated Fuel Moistures** * 1-Hour Fine Fuel Moisture of……2% * 10-Hour Fuel Moisture of……3% * 100-Hour Fuel Moisture of……5% * Live Herbaceous Fuel Moisture of……30% * Live Woody Fuel Moisture of……50%
Expected Fire Behavior **Fuel Model 4 - Chaparral**	
Rate of Spread - 2267.2 feet/minute	
Fireline Intensity - 130,380 BTU's/foot/second	
Flame Length - 101.4 feet in length	
Expected Fire Behavior in Treated Fuels **Fuel Model sh2 Moderate Load Dry Climate Shrub**	
Rate of Spread - 183.5 feet/minute	
Fireline Intensity - 4742 BTU's/foot/second	
Flame Length - 22.1 feet in length	

Table 4.6.4 ***Fire Scenario # 4 Lots 83 – 90 & Resort South & West Boundaries*** ***(Late Fire Season With Above Average 30 MPH South, West and Southwest Wind Conditions)***	
Fire Behavior Calculation Input Data • **20 percent slope** • **30 mph 20-foot wind speed** • **225º aspect from north** • **225º wind direction from north**	**Anticipated Fuel Moistures** *** 1-Hour Fine Fuel Moisture of ……..…2%** *** 10-Hour Fuel Moisture of....……..……3%** *** 100-Hour Fuel Moisture of ……..…….5%** *** Live Herbaceous Fuel Moisture of…...30%** *** Live Woody Fuel Moisture of…….....60%**
Expected Fire Behavior **Fuel Model gs2 – Moderate Load, Dry Climate Grass-Shrub**	
Rate of Spread - 163.5 feet/minute	
Fireline Intensity - 1,634 BTU's/foot/second	
Flame Length - 13.5 feet in length	
Expected Fire Behavior in Treated Fuels **Fuel Model gs1 Low Load Dry Climate Grass-Shrub**	
Rate of Spread - 118.9 feet/minute	
Fireline Intensity - 729 BTU's/foot/second	
Flame Length - 9.3 feet in length	

4.7 Required Fuel Modification Zones for Buildings, Structures and Access Roads

Projects located in Hazardous Fire Areas shall include Fuel Management Zones (FMZ) surrounding all structures that are greater than 250 square feet in size. San Diego County and the Escondido Fire Code stipulate that the FMZ be a minimum of 100-foot area surrounding and extending in all directions from all structures, in which flammable vegetation or other combustible growth is cleared away or modified, **except for:**

- Single specimens of trees or other vegetation that are well-pruned and maintained;
- Grass and other vegetation located more than 50 feet from the structure and less than 18 inches in height above the ground; and
- All ornamental landscaping that is consistent with the customized County Wildland Interface plant list (See APPENDIX 'A').

Maintenance of fuel treatment zones is highly important. Latham (1989) found that ember ignitions of surface fuels were primarily a function of ground fuels, especially litter depth. Also important to ignition of a ground fuel is moisture content, size of the litter material as well as the mineral content of the dead vegetation. To the benefit of the eventual homeowners, surface fires burn with less intensity and spread more slowly than an aerial fuel.

Below are the detailed definitions and required treatments for the Fuel Modification Zones within the project. See the attached Fuel Treatment Map and Section 5.3 for details on the fuel treatments. There are two basic fuel modifcation zones required for the Daley Ranch subdivision, a 50-foot irrigated zone and a 50-foot 50% thinning zone, including the removal of target species, for a total of 100 feet of fuel treatment on all sides of all lots. In some cases, the required fuel treatments are interlinked to homes adjacent to the project. In addition, the edge of roadways and driveways must be fuel treated to prevent ignition starts and to provide

relatively safe ingress and egress should a wildfire occur. Each of these zones is described below in greater detail.

All distances in this plan are measured horizontally. These distances are depicted on the attached Fuel Treatment Map. Prior to construction on any building site, all roads (primary and secondary) for this development shall be accepted by the FAHJ Fire Marshal.

The responsibility for the fuel modification maintainence defined below shall remain with the current owners and any subsequent owners, and as such shall run with the land. In the event the project is repossessed or sold, the unit/agency holding title to the Daley Ranch Resort property will be responsible for such maintenance. Fuel Modification Zones will be the responsibility of the individual homeowners on their respective lots and the responsibility of the Daley Ranch Resort HOA in common areas.

Fuel Modification Zone 1A (Lot Owner Maintained) - *(Shown as* No Color *on the Fuel Treatment Map)*

Defined

Zone 1A comprises the entire lot around a structure (front, back and side yards) and is commonly called the *defensible space zone*. It is an irrigated zone and shall be free of all combustible construction and materials. Concrete patios, concrete walkways, swimming pools or other non-combustible structures are permitted within this zone. See APPENDIX 'D' for possible non-combustible decks, patio covers, and railing considerations within Zone 1A. Because actual house locations have not been established, this zone is shown covering each residential lot in its entirety and will varry in size. For all residential lots, Zone 1A shall be interlinked with adjacent lot owners. It shall be the responsibility of each lot owner of the Daley Ranch Resort project to maintain their lot to Zone 1A criteria.

Required Landscaping

Zone 1A will be cleared of all existing native vegetation and replanted with drought tolerant and irrigated fire resistant lawns, ground covers and shrubs. Landscaping shall be irrigated and primarily consist of fire-resistant, maintained native or ornamental plantings usually less than 18 inches in height. However, this zone may contain occasional fire resistant trees and single well spaced ornamental shrubs up to 48 inches in height, intermixed with ground covers and lawn. Shrubs and ground covers may be located no closer than 5 feet from the structure provided these plants will not carry fire to the structure. Non-flammable concrete patios, driveways, swimming pools, walkways, boulders, rock, and gravel can be used to break up fuel continuity within Zone 1A.

Plants in this zone need to be fire resistant and should not include any pyrophytes that are high in oils and resins such as pines, eucalyptus, cedar, cypress or juniper species. Thick, succulent or leathery leaf species with high moisture content are the most "fire resistant". Refer to APPENDIX 'A' for a customized plant list specific to the project site based on the County of San Diego's desirable plant list and APPENDIX 'B' for Prohibited Plants for landscape plant selection.

Trees must be planted so when they reach maturity, the tips of their branches are at least 10 feet away from any structure and must have a minimum of 6 feet of vertical separation from low growing irrigated vegetation beneath the canopy of the tree.

Required Maintenance

The residential lots shall be maintained year round by the individual property owner(s) within their property boundary (lot lines) as required by this FPP or the Fire Marshal. Shrubs and trees are to be annually maintained free of dead material. Trees will be maintained so that their crown cover will be more than ten (10) feet from any structure. All mature tree crowns will be separated by twenty (20) feet and maintained to keep a separation of 6 feet between the ground fuels (shrubs and ground covers) and the lower limbs thus eliminating ladder fuels. Combustible ground cover (mulch, wood chips etc.) shall not be any closer than 12 inches to any structure. All trees must be maintained to the current ANSI A300 standards [*Tree, Shrub, and Other Woody Plant Maintenance —Standard Practices (Pruning)]* (see www.treecareindustry.org/public/gov_standards_a300.htm).

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

Defined

Zone 1B is an irrigated zone that includes manufactured slopes and is maintained to Zone 1A criteria.

No Build Zone (Lot Owner Maintained – (Shown as *Red* on the Fuel Treatment Map)

Defined

The No Build Zone is 15 feet in width and has the same landscaping and maintenance requirements as Zone 1A. No combustible structures, which include the house, can be built within this zone.

Fuel Modification Zone 2A (Lot Owner Maintained) - *(Shown as Pink on the Fuel Treatment Map)*

Defined

Zone 2A is a non-irrigated thinning zone beginning at the outer edge of Zone 1B.

Required Landscaping

All flammable native plants (see San Diego County prohibited plant list in APPENDIX 'B') shall be removed with the resulting treated area containing low growing (maximum 18 inches in height) and low fuel volume "ground cover" vegetation or native grasses and occasional well-spaced (separated by a minimum of twenty (20) feet), low growing (maximum height 15 feet) fire resistant trees (see APPENDIX 'A').

Required Maintenance

The intent is to achieve and maintain an overall 50-percent reduction of the vegetative canopy cover spacing, a 50-percent reduction of the original fuel loading and the 100 percent removal of all dead and dying plant material including prohibited plants. Low growing plants and ground covers are to be maintained to a height of 18 inches or less. Each tree will be limbed to maintain a separation of 6 feet between the ground fuels (shrubs and ground covers) and the lower limbs. Maintenance shall be on-going throughout the year as needed. Native annual and perennial grasses will be allowed to grow and produce seed during the winter and spring. As grasses begin to cure (dry out), they will be cut to 4 inches or less in height.

Fuel Modification Zone 2B (HOA Maintained) - *(Shown as Orange on the Fuel Treatment Map)*

Defined

Non-irrigated thinning zone with Zone 2A criteria.

Fuel Modification Zone 3 (HOA Maintained)- *(Shown as Blue on the Fuel Treatment Map*

Defined

This zone includes areas distrurbed by grading and will be planted and temporarily irrigated until such time as the plants are established.

Required Landscaping and Maintenance

Same requirements as Zone 2B after plant establishment.

Streets and Roadways – HOA Maintained *(Shown as Purple on the Fuel Treatment Map)*

Required Maintenance

Twenty (20) feet on each side of of the pavement edge on all fire access roads shall be annually cleared of vegetative growth or maintained to Zone 1B requirements (See Fuel Treatment Map -Section 5.3).

4.8 Cumulative Impact Analysis

The combination of San Diego County's weather, fuel, and terrain has often contributed to intense, uncontrolled wildland fires. This was evident in the devastating Cedar, Paradise and Otay Fires of October 2003 and the Witch Creek and Rice Fires of November 2007.

Typically, the areas of greatest concern are adjacent to urbanized areas or where residences are intermixed with wildlands. As the population of San Diego County increases and the Wildland Urban Interface (WUI) expands, fire hazards and risks will continue to be encountered. Increased vehicular access for this residential subdivision by way of improving existing roads and building a new secondary access road will increase human activities in the immediate area and therefore increase the risk of property loss, injury or death within the interface with wildlands.

The approval of this proposal, the already approved developments in the area, dedicated open space, and future development proposals will increase the concern of wildland fires as the area becomes more urbanized. At present, the density of development in this part of San Diego County, is relatively low, and is likely to remain so, and includes properties compliant with the fuel modification and weed abatement requirements of the County of San Diego.

5.0 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

- All newly constructed structures will be built to ignition-resistant building requirements (see APPENDIX 'E') which includes the installation of automatic fire sprinkler systems (National Fire Protection Association – NFPA Standard 13D), including residential attics and garages where required. Additional construction requirements are listed in Section 5.3 to mitigate for extreme projected fire behavior and subsequent embers.

- A minimum of 100 feet of fuel treatment shall be placed around all structures that abut flammable native vegetation, which includes an irrigated zone and a thinning zone.

- This report and its requirements shall be incorporated by reference into the final project Conditions of Approval to ensure compliance with codes/regulations and significance standards. This plan also sets forth a requirement to manage and control invasive (exotics) in open space easements.

5.1 Requirements for Inclusion in the CC&R's:

1. Each lot owner is personally responsible for all fuel treatment measures within their property.

2. The Home Owners Association (HOA) shall not allow a lot owner to store any combustible materials beneath any projection, deck or overhang exposed to wildland fuels.

3. All property owners will be members of the HOA and will financially support the annual maintenance of all required fuel modification areas, fire access roadways, signs, and gates within the common areas of the subdivision.

4. All roadside fuel treatment within the subdivision is the maintenance responsibility of the HOA except for private driveways which are the maintenance responsibility of individual lot owners.

5. Each lot owner will be responsible to keep their roof area including gutters and downspouts free of combustible debris including leaves, limbs and similar materials.

6. The Daley Ranch Resort HOA will have the authority for enforcing required fuel treatment measures on all lots and restrictions on combustible structures in all restricted areas.

7. Trash dumping or disposal of yard trimmings in the fuel treatment zones is prohibited.

8. The Fuel Treatment Zones, as depicted on the Fire Protection Plan Map, shall be shown on the CC&R's and recorded against all lots. The HOA will be responsible for enforcing all required fuel modification treatments on all lots.

9. The Daley Ranch Resort HOA Board will be responsible to the Escondido Fire Department Fire Marshal for the completion of all required Fuel Modification Treatments prior to the annual fire season. This includes the perpetual management of invasive (exotic) and prohibited plant species in any fuel treatment zone within the development.

10. All individual yard landscaping plans, including additional structures, shall be approved by the HOA Board and will comply with the Fire Protection Plan. Any disputes relating to HOA Board approval of individual yard landscaping or fuel treatment, with regard to interpretation of the Fire Protection Plan, will be decided by the Escondido Fire Department Fire Marshal. The Fire Marshal's decision will be final and binding on the landowner.

11. Trees shall be placed and maintained so that their crown cover at maturity will be more than ten (10) feet from any structure.

12. All plants will be in accordance with the customized San Diego County recommended plant list (See APPENDIX 'A'), or as approved by the County Fire Marshal.

13. Upon the sale of a lot to a new owner, a copy of the Fire Protection Plan shall be provided as a condition of the sale.

14. The Escondido Fire Department (EFD) will be designated as a third-party beneficiary of the HOA's duty to perform "Fire Prevention Maintenance" (as defined below) for all portions of the Association Property (or Common Area) that constitute Fuel Modification Zones and designated interior/manufactured slopes to be maintained by the homeowners' association, and of any owner's duty to comply with any Fuel Modification Zone restrictions applicable to their Lot. Additionally, the EFD shall have the right, but not the obligation, to enforce the HOA's duty to perform such Fire Prevention Maintenance, and to enforce compliance by any owner with any Fuel Modification Zone restrictions applicable to their Lot. In furtherance of such right, the EFD shall be entitled to recover its costs of suit, including its actual attorneys' fees, if it prevails in an enforcement action against the HOA and/or an individual lot owner.

    As used herein, "Fire Prevention Maintenance" shall mean the following:
    a. All portions of the Association Property (or Common Area) that constitute Fuel Modification Zones or designated interior/manufactured slopes shall be regularly maintained by the HOA on a year-round basis in accordance with the Fire Protection Plan on file with the property manager for the development.
    b. The irrigation system for Fuel Modification Zones or designated interior/manufactured slopes shall be kept in good condition and proper working order at all times.

5.2 Additional Requirements

- Brush removal shall be completed prior to commencing any flammable construction. During construction, at least 50 feet of clearance around the structures shall be kept free of all flammable vegetation as an interim fuel modification zone during construction of structures.

- Debris and trimmings produced by thinning and pruning will be removed from the site, or, if left, shall be converted into mulch and evenly dispersed to a maximum depth of four inches. Such trimmings will not be located within 50 feet of structures.

- Any damaged or replacement window, siding, roof coverings, and specific non-combustible wall will meet or exceed the original intent of the fire protection discussed in this plan.

- This plan and its requirements shall be incorporated by reference into the final project Conditions of Approval.

5.3 Additional Construction Requirements for all Residential Lots

To mitigate the hazard for the projected extreme fire behavior on the east side of the project site and the subsequent ember showers to the entire subdivision, the following additional construction requirements shall be implemented on all residential Lots:

- Houses 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.
- Fire sprinklers shall be installed in all attics and garages. All interior fire sprinklers will require a four (4) head calculation for the sprinkler design. The four head calculation must have a minimum .05 density design, QR and intermediate temperature heads; the

heads may be of a small orifice type such as 3/8" or 7/16". Listed domestic demand shutoff valves may be used to try to minimize upgrading meter sizes where possible. Copper piping is required in the attics; CPVC will only be permitted in the attic if listed heads are used in accordance with their listing.

- All vents in structures shall be "Brandguard", "O'Hagin Fire & Ice® Line – Flame and Ember Resistant" or equivalent type vents.
- All operable windows shall be provided with metal mesh bug 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.
- All swinging exterior doors shall be self closing (e.g., pneumatic or spring loaded hinges).
- A solid 6-foot non-combustible wall shall be erected along the eastern subdivision property line, as shown on the Fuel Treatment Map. Any access gates to the open space or trails must be non-combustible. If non-solid gates are used metal screens such as security screens with minimum ½ inch mesh must be installed over any grillwork or openings. Any access gates into the open space shall be equipped with Knox padlocks or Knox boxes with keys for fire department access.

5.4 Fuel Treatment Map

The Fuel Treatment Map Exhibit is attached to this FPP depicting the location of all proposed lots, subdivision boundary, fire access roads, fuel modification treatment locations, and other mitigation measures for the Daley Ranch development.

6.0 HOMEOWNER EDUCATION

Each homeowner, by reviewing this FPP, shall be aware of the herein described fire protection measures; the types of non-combustible construction; and the plant materials that are allowed within their lot boundary. Of particular importance are APPENDICES 'A', 'B', and 'D' of this plan. These provide guidance in the types of plants that are 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.

A copy of this plan shall be provided to each lot owner by the builder/developer at the time of the intial sale to the first owner. In the event of the sale of the property, the new property owner shall be provided with a copy of this FPP by the HOA to insure continued compliance with all Fuel Modification maintenance and construction requirements. The HOA shall yearly provide the lot owners with information regarding the wildfire mitigation efforts necessary for community fire safety that are contained within this FPP.

Ready, Set, Go is the evacuation strategy proposed for this project. 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 and range facilities. 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 or other safety officials on site.*

7.0 CONCLUSION

This FPP evaluated the adverse environmental effects that a proposed residential and resort development may have from wildland fire and identified means to 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 involving wildland fires.

- The requirements of this FPP provide the fuel modification standards to mitigate the exposure of people or structures to a significant risk of loss, injury or death. Zone 1A consists of the first 50' from a structure, including the level building pad and provides the defensible space zone for fire suppression forces and will protect structures from radiant and convective heat. This zone will be a landscaped zone that is permanently irrigated and consists of fire resistant and maintained plantings. Zones 2A and 2B are the next 50-100 feet from a structure and include all manufactured slopes and provide removal of 50 percent of the native vegetation at a minimum, including all prohibited highly-combustible native vegetation, but permits plantings with very specific criteria.
- The development will have adequate emergency access in terms of access and construction standards for roadways and streets. EFD, Valley Center FPD, CAL FIRE and nearby fire departments, through mutual aid, will provide fire protection. Due to response times, the proximity of the development to the Wildland Urban Interface (WUI), and a location in a Very High Fire Hazard Severity Zone, fire sprinklers are required in all residences.

- Water supplies via pipelines, hydrants, and related requirements will provide adequate water for fire protection.

- In areas where extreme fire behavior is predicted additional construction requirements shall be implemented to mitigate the effects of flame impingement, radiant heat, and embers.

8.0 LIST OF PREPARERS, PERSONS AND ORGANIZATIONS CONTACTED

8.1 List of Preparers

The principal author and preparer of this Fire Protection Plan is Ronald J Woychak, President of ***FIRE****WISE* **2000, Inc.,** a San Diego County DPLU certified wildland fire consultant. Mel Johnson, Senior Wildland Fire Associate for ***FIRE****WISE* **2000, Inc.** also contributed to this plan with comments and peer review.

8.2 List of Persons Contacted During the Course of this Project

1. Alphonso Dobynes, Fire Marshal City of Escondido
2. Ryan Hanley, J. Whalen Associates, Inc.
3. James Whalen, J. Whalen Associates, Inc.
4. Brian Fredrick, McCullough Landscape Architecture
5. Alex Wade, McCullough Landscape Architecture
6. Rebecca Ferguson, Landmark Consulting

9.0 DEFINITIONS

For the purposes of this Fire Protection Plan, the following definitions apply to the terms used in this document. Where terms are not included, common usage of the terms shall apply.

ASPECT - Compass direction toward which a slope faces.

CLIMAX VEGETATION - The final stage in ecological plant succession in which a relatively constant environment is reached and species composition no longer changes in a directional fashion, but fluctuates about some mean, or average, community composition.

COMBUSTIBLE – Any material that, in the form in which it is used and under the conditions anticipated will ignite and burn or will add appreciable heat to an ambient fire.

COMBUSTIBLE VEGETATION – Means material that in its natural state will readily ignite, burn, and transmit fire from native or landscape plants to any structure or other vegetation. Combustible vegetation includes dry grass, brush, weeds, litter or other flammable vegetation that creates a fire hazard.

CC&Rs – Acronym for Conditions, Covenants & Restrictions. A set of rules and procedures developed for a community. The community HOA is responsible for implementing these rules and procedures.

DEFENSIBLE SPACE – Is an area either natural or human-made, where material capable of allowing a fire to spread unchecked has been treated, cleared or modified to slow the rate and intensity of an advancing wildfire and to create an area for fire suppression operations to occur.

EXTREME FIRE BEHAVIOR – "Extreme" implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One of more of the following is usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously.

FIRE AUTHORITY HAVING JURISDICTION (FAHJ) – An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

FIRE BEHAVIOR – The manner in which a fire reacts to the influences of fuel, weather and topography.

FIRE HAZARD SEVERITY ZONES – Are geographical areas designated pursuant to California Public Resources Code sections 4201 through 4204 and classified as Very High, High and Moderate in State Responsibility Areas or as Local Agency Very High Fire Hazard Severity Zones designated pursuant to California Government Code sections 51175 through 51189. The California Code of Regulations, Title 14, Section 1280 entitles maps of these geographical areas as "Maps of the Fire Hazard Severity Zones in the State Responsibility Area of California."

FIRE RESISTIVE – Construction designed to provide reasonable protection against fire.

FIRE RESISTIVE PLANTS – Plants that do not readily ignite from a flame or other ignition sources. These plants can be damaged or even killed by fire; however, their foliage and stems do not significantly contribute to the fuel and, therefore, the fire's intensity.

FLAME LENGTH – The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface); an indicator of fire intensity.

FUEL MOISTURE – The quantity of moisture in vegetative fuels expressed as a percentage of the weight when thoroughly dried at 212 degrees F.

FUEL MODEL – Simulated fuel complex (or combination of vegetation types) for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified. Fuel models are utilized in the BehavePlus Fire Model to aid in forecasting fire behavior.

FUEL MODIFICATION – Any manipulation or removal of fuels to reduce the likelihood of ignition or the resistance to fire control.

GROUND FUELS - All combustible materials such as grass, duff, loose surface litter, tree or shrub roots, rotting wood, leaves, peat, or sawdust that typically support combustion.

HOA – Acronym for Homeowner's Association. A private association formed by a real estate developer for the purpose of managing and maintaining future development. Responsible for implementation and management of community CC&Rs.

LADDER FUELS – Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

MITIGATION – Action that moderates the severity of a fire hazard or risk.

ONE-HOUR FUEL - 1-hour fuels consist of those portions of vegetation that are < 0.625 cm (0.25 in.) in diameter. 1-hour fuels are the most important for carrying surface fires and their moisture content governs fire behavior.

RADIANT HEAT – Transfer of heat in straight lines through a gas or vacuum other than by heating of the intervening space.

RELATIVE HUMIDITY – A weather term, the amount of moisture in the air as a percentage of the maximum the air will hold at a given temperature. The amount of moisture in a given parcel of air expressed as a percentage of the maximum amount that parcel of air could hold at the same air temperature.

REMOTE AUTOMATED WEATHER STATION – Is a combination of sensors, radios and related electronic equipment installed in wildland areas that are designed to monitor the weather and provide weather data that assists land management agencies with a variety of projects such as monitoring air quality, fire danger rating, and providing information for research applications.

SHALL - Indicates a mandatory requirement.

RISK – The measure of the probability of ignition and severity of adverse effects that result from an exposure to a wildland fire (direction flames, radiant heat, or firebrands (embers).

SLOPE – Is the variation of terrain from the horizontal; the number of feet, rise or fall per 100 feet, measured horizontally, expressed as a percentage.

TEN-HOUR FUELS – 10-hour fuels are those portions of plant material that are between (0.625 - 2.5 cm (0.25 to 1 in.) in diameter. Ten-hour fuels are readily consumed when dead fuel moistures are low.

WILDFIRE – Is any uncontrolled fire spreading through vegetative fuels that threaten to destroy life, property, or resources as defined in Public Resources Code sections 4103 and 4104.

WILDFIRE EXPOSURE – One or a combination of radiant heat, convective heat, direct flame contact and burning embers being projected by vegetation fire to a structure and its immediate environment.

WILDLAND-URBAN INTERFACE – The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

10.0 REFERENCES

1. Andrews, Patricia L. 1986. BEHAVE: Fire behavior prediction and fuel modeling system-burn subsystem, part 1. Gen Tech. Rep. INT-194. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 130 p.

2. Andrews, Patricia L.; Carolyn H. Chase. 1989. BEHAVE: Fire behavior prediction and Fuel Modeling System—BURN subsystem, Part 2. Gen. Tech. Rpt. INT-260. Ogden, UT: USDA Forest Service, Intermountain Research Station. 93 p.

3. *BehavePlus Fire Modeling System, Version 4.0 User's Guide.* General Technical Report RMRS-GRT-106WWW Revised. July, 2009. Patricia L. Andrews, Collin D. Bevins, Robert C. Seli. United States Department of Agriculture - Forest Service, Rocky Mountain Research Station, Missoula, Montana.

4. 2016 California Fire Code and Local Amendments including Appendices to Chapters 1 & 4 and Appendices B, F & H

5. International Fire Code 2015 edition

6. California Government Code, sections 51175 through 51189

7. Chapter 7A, California Building Code

8. California Code of Regulations (CCR) Title 24 part 9 and Title 14, Section 1280

9. *California Public Resources Code 4201 through 4204*

10. County of San Diego *Consolidated Fire Code 2017*

11. City of Escondido Fire Department Requirements Ordinance No. 2016-09

12. Escondido Weed Abatement 9-2014 Standards

13. Escondido Fire Prevention Requirements

14. Escondido Wildland/Urban Interface Standard Development Guidelines

15. County Health and Safety Code Section §*13869.7. 2008.*

16. County of San Diego. *Guidelines for Determining Significance and Report Format and Content Requirements Wildland Fire and Fire Protection.* Land Use and Environment Group - Department of Planning and Land Use and the Department of Public Works. December 19, 2008. 19 pages.

17. County of San Diego*. Plant List and Acceptable Plants for a Defensible Space in Fire Prone Areas.* Department of Planning and Land Use, December 15, 1998.

18. Fire Planning and Mapping Tools. California Fire Alliance

19. California State and Local Responsibility Area Fire Hazard Severity Zone Map

20. Latham, D. J. and J. A. Schleiter. (1989) Ignition Probabilities of Wildland Fuels Based on Simulated Lightning Discharges. USDA Forest Service General Technical Report INT-411, Ogden, UT. (6,497 KB; 20 pages)

21. National Fire Protection Association - NFPA 1142 Standard on Water Supplies for Suburban and Rural Fire Fighting, 2012 Edition

22. National Fire Protection Association - NFPA 1144 *Standard for Reducing Structure Ignition Hazards from Wildfire* 2013 edition

23. National Fire Protection Association (NFPA) Standard 13-D, 2016 Edition

24. Rothermel, R. C. (1983), "How to Predict the Spread and Intensity of Forest Fire and Range Fires", Gen. Tech. Rep. INT-143. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 161 pages.

25. Scott, Joe H.; Burgan, Robert E. 2005. Standard fire behavior fuel models: a comprehensive set for use with Rothermel's surface fire spread model. Gen. Tech. Rep. RMRS-GTR-153. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station; 72 p.

26. Western Garden Book 2007 Edition. Editor: Kathleen Norris Brenzel. ISBN-0376039175. Published by: Sunset Publishing Corporation. Menlo Park, CA. 768 Pages.

27. 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 the following web site: http://www.raws.dri.edu/index.html

28. *Wildland/Urban Interface Development Standards.* San Diego County Fire Chief's Association, originally Developed by Orange County Wildland/Urban Interface Task Force Subcommittee on Open Space Management, July, 1994, Modified by the San Diego County Wildland/Urban Interface Task Force, November, 1995, Revised August, 1997.

APPENDIX ‘A’

Recommended Plant List

APPENDIX 'A'

COUNTY OF SAN DIEGO
ACCEPTABLE PLANTS FOR DEFENSIBLE SPACE
IN FIRE PRONE AREAS

ALL NATIVE PLANTS ON THE FOLLOWING LIST are considered to be drought tolerant in the particular climate zone they are found. Those that grow best in riparian areas, as indicated by the "R", are generally the least drought-tolerant plants on the list.

SPECIAL NOTE: When planting, it is necessary to water deeply to encourage the plant roots to seek natural moisture in the soil. This watering should continue for at least three years to allow the plants to naturalize. More water should be provided in summer and less (if any) in the winter. These plants should be weaned off the supplemental irrigation and become less dependent on it over the establishment period.

No plant is totally fire resistant. The plants listed were chosen to due to their high water content, minimum amount of flammable resins and/or low fuel volume.

Definitions:

Drought-Tolerant Plant Materials: Trees, shrubs, groundcovers, and other vegetation capable of sustained growth and reproduction with only natural moisture. Occasional supplemental irrigation is necessary only in extreme drought situations.

Establishment Period: The time it takes for a plant to become drought-resistant. This is usually a period of three years and is the time when supplemental irrigation is necessary.

Native or Naturalizing Plant Species: Plant species native to the region or introduced which, once established, are capable of sustaining growth and reproduction under local climatic conditions without supplemental irrigation.

***FIREWISE* 2000, Inc. Note:** The plant list which follows was developed using the plants found on the San Diego County approved plant list. This list was then compared to those plants which are suitable for the climatic zone in which the project is located. Only those plants suitable for the project area are listed below. The list is therefore shorter than that provided by the County. By providing this custom list, plants that are likely to be killed or seriously damaged by frost or will not perform in hot dry conditions have been eliminated. ***FIREWISE* 2000, Inc.** believes that the planting of species suited to the site is essential to fire management goals and is an environmentally sound practice.

San Diego County
Customized Acceptable Plant List
For The Daley Ranch Resort Project

No.	Type	Genus	Species	Common Name
1	Annual	Lupinus spp.	nanus	Lupine
2	Groundcover	Achillea	millefolium	Yarrow
3	Groundcover	Aptenia	cordifolia	Aptenia
4	Groundcover	Arctostaphylos spp.		Manzanita
5	Groundcover	Cerastium	tomentosum	Snow-in-Summer
6	Groundcover	Coprosma	kirkii	Creeping Coprosma
7	Groundcover	Cotoneaster spp.		Redberry
8	Groundcover	Drosanthemum	hispidum	Rosea Ice Plant
9	Groundcover	Dudleya	brittonii	Britton's Chalk Dudleya
10	Groundcover	Dudleya	pulverulenta	Chalk Dudleya
11	Groundcover	Dudleya	virens	Island Live-Forever
12	Groundcover	Eschscholzia	californica	California Poppy
13	Groundcover	Ferocactus	viridescens	Coast Barrel Cactus
14	Groundcover	Gaillardia	grandiflora	Blanket Flower
15	Groundcover	Gazania spp.		Gazania
16	Groundcover	Helianthemum spp.		Sunrose
17	Groundcover	Lantana spp.		Lantana
18	Groundcover	Lasthenia	californica	Common Goldfields
19	Groundcover	Lasthenia	glabrata	Coastal Goldfields
20	Groundcover	Lupinus spp.		Lupine
21	Groundcover	Myoporum spp.		Myoporum
22	Groundcover	Pyracantha spp.		Firethorn
23	Groundcover	Rosmarinus	officinalis	Rosemary
24	Groundcover	Santolina	chamaecyparissus	Lavender Cotton
25	Groundcover	Santolina	virens	Santolina
26	Groundcover	Trifolium	frageriferum	O'Connor's Legume
27	Groundcover	Verbena	rigida	Verbena
28	Groundcover	Viguiera	laciniata	San Diego Sunflower
29	Groundcover	Vinca	major	Periwinkle
30	Groundcover	Vinca	minor	Dwarf Periwinkle
31	Perennial	Coreopsis	gigantea	Giant Coreopsis
32	Perennial	Coreopsis	grandiflora	Coreopsis
33	Perennial	Coreopsis	maritima	Sea Dahlia
34	Perennial	Coreopsis	verticillata	Coreopsis
35	Perennial	Heuchera	maxima	Island Coral Bells
36	Perennial	Iris	douglasiana	Douglas Iris
37	Perennial	Kniphofia	uvaria	Red-Hot Poker
38	Perennial	Lavandula spp.		Lavender
39	Perennial	Limonium	californicum perezii	Coastal Statice
40	Perennial	Limonium	californicum var. mexicanum	Coastal Statice
41	Perennial	Oenothera spp.		Primrose
42	Perennial	Penstemon spp.		Penstemon
43	Perennial	Satureja	douglasii	Yerba Buena
44	Perennial	Sisyrinchium	bellum	Blue-Eyed Grass

45	Perennial	Sisyrinchium	californicum	Golden-Eyed Grass
46	Perennial	Solanum	xantii	Purple Nightshade
47	Perennial	Zauschneria	'Catalina'	Catalina Fuschia
48	Perennial	Zauschneria	californica	California Fuschia
49	Perennial	Zauschneria	cana	Hoary California Fuschia
50	Shrub	Agave	americana	Desert Century Plant
51	Shrub	Agave	Amorpha fruticosa	False Indigobush
52	Shrub	Agave	deserti	Shaw's Century Plant
53	Shrub	Agave	shawii	NCN
54	Shrub	Agave		Century Plant
55	Shrub	Arctostaphylos spp		Manzanita
56	Shrub	Atriplex	canescens	Hoary Saltbush
57	Shrub	Baccharis	pilularis	Coyote Bush
58	Shrub	Baccharis	salicifolia	Mule Fat "R"
59	Shrub	Carissa	macrocarpa	Natal Plum
60	Shrub	Ceanothus spp.		California Lilac
61	Shrub	Cistus spp.		Rockrose
62	Shrub	Cneoridium	dumosum	Bush rue
63	Shrub	Comarostaphylis	diversifolia	Summer Holly
64	Shrub	Convolvulus	cneorum	Bush Morning Glory
65	Shrub	Dalea	attenuata v orcuttii	Orcutt's Delea
66	Shrub	Elaeagnus	pungens	Silverberry
67	Shrub	Encelia	californica	Coast Sunflower
68	Shrub	Encelia	farinosa	White Brittlebush
69	Shrub	Eriobotrya	deflexa	Bronze Loquat
70	Shrub	Eriophyllum	confertiflorum	Golden Yarrow
71	Shrub	Escallonia spp.		Escallonia
72	Shrub	Feijoa	sellowiana	Pineapple Guava
73	Shrub	Fremontodendron	californicum	Flannelbush
74	Shrub	Fremontodendron	mexicanum	Southern Flannelbush
75	Shrub	Galvezia	juncea	Baja Bush-Snapdragon
76	Shrub	Galvezia	speciosa	Island Bush-Snapdragon
77	Shrub	Garrya	elliptica	Coast Silktassel
78	Shrub	Garrya	flavescens	Ashy Silktassel
79	Shrub	Heteromeles	arbutifolia	Toyon
80	Shrub	Lantana spp.		Lantana
81	Shrub	Lotus	scoparius	Deerweed
82	Shrub	Mahonia spp.		Barberry
83	Shrub	Malacothamnus	clementinus	San Clemente Island Bush Mallow
84	Shrub	Malacothamnus	fasciculatus	Mesa Bushmallow
85	Shrub	Melaleuca spp.		Melaleuca
86	Shrub	Mimulus spp.		Monkeyflower
87	Shrub	Nolina	parryi	Parry's Nolina
88	Shrub	Photinia spp.		Photinia
89	Shrub	Pittosporum	crassifolium	NCN
90	Shrub	Pittosporum	rhombifolium	Queensland Pittosporum
91	Shrub	Pittosporum	tobira 'Wheeleri'	Wheeler's Dwarf
92	Shrub	Pittosporum	undulatum	Victorian Box
93	Shrub	Pittosporum	viridiflorum	Cape Pittosporum
94	Shrub	Plumbago	auriculata	Cape Plumbago

95	Shrub	Prunus	caroliniana	Carolina Laurel Cherry
96	Shrub	Prunus	ilicifolia	Hollyleaf Cherry
97	Shrub	Prunus	lyonii	Catalina Cherry
98	Shrub	Puncia	granatum	Pomegranate
99	Shrub	Pyracantha spp.		Firethorn
100	Shrub	Quercus	dumosa	Scrub Oak
101	Shrub	Rhamus	alaternus	Italian Buckthorn
102	Shrub	Rhamus	californica	Coffeeberry
103	Shrub	Rhaphiolepis spp.		Rhaphiolepis
104	Shrub	Rhus	continus	Smoke Tree
105	Shrub	Rhus	integrifolia	Lemonade Berry
106	Shrub	Rhus	laurina	Laurel Sumac
107	Shrub	Rhus	ovata	Sugarbush
108	Shrub	Rhus	trilobata	Squawbush
109	Shrub	Romneya	coulteri	Matilija Poppy
110	Shrub	Rosa	californica	California Wild Rose
111	Shrub	Rosa	minutifolia	Baja California Wild Rose
112	Shrub	Salvia spp.		Sage
113	Shrub	Sambucus spp.		Elderberry
114	Shrub	Symphoricarpos	mollis	Creeping Snowberry
115	Shrub	Syringa	vulgaris	Lilac
116	Shrub	Tecomaria	capensis	Cape Honeysuckle
117	Shrub	Teucrium	fruticans	Bush Germander
118	Shrub	Verbena	lilacina	Lilac Verbena
119	Shrub	Xylosma	congestum	Shiny Xylosma
120	Shrub	Yucca	schidigera	Mojave Yucca
121	Shrub	Yucca	whipplei	Foothill Yucca
121	Tree	Acer	macrophyllum	Big Leaf Maple
122	Tree	Acer	saccharinum	Silver Maple
123	Tree	Alnus	rhombifolia	White Alder "R"
124	Tree	Arbutus	unedo	Strawberry Tree
125	Tree	Archontophoenix	cunninghamiana	King Palm
126	Tree	Brahea	armata	Blue Mexican Palm
127	Tree	Brahea	edulis	Guadalupe Palm
128	Tree	Ceratonia	siliqua	Carob
129	Tree	Cercis	occidentalis	Western Redbud
130	Tree	Cornus	stolonifera	Redtwig Dogwood
131	Tree	Eriobotrya	japonica	Loquat
132	Tree	Erythrina	caffra	Kaffirboom Coral Tree
133	Tree	Gingko	biloba "Fairmount"	Fairmount Maidenhair Tree
134	Tree	Juglans	californica	California Walnut
135	Tree	Lagerstroemia	indica	Crape Myrtle
136	Tree	Ligustrum	lucidum	Glossy Privet
137	Tree	Liquidambar	styraciflua	Sweet Gum
138	Tree	Liriodendron	tulipifera	Tulip Tree
139	Tree	Lyonothamnus	floribundus asplenifolius	Fernleaf Catalina Ironwood
140	Tree	Melaleuca spp.		Melaleuca
141	Tree	Myoporum spp.		Myoporum
142	Tree	Nerium	oleander	Oleander
143	Tree	Parkinsonia	aculeata	Mexican Palo Verde

144	Tree	Pistacia	chinensis	Chinese Pistache
145	Tree	Pistacia	vera	Pistachio Nut
146	Tree	Pittosporum	phillyreoides	Willow Pittosporum
147	Tree	Pittosporum	viridiflorum	Cape Pittosporum
148	Tree	Platanus	acerifolia	London Plane Tree
149	Tree	Platanus	racemosa	California Sycamore "R"
150	Tree	Populus	alba	White Poplar
151	Tree	Populus	fremontii	Western Cottonwood "R"
152	Tree	Populus	trichocarpa	Black Cottonwood "R"
153	Tree	Prunus	caroliniana	Carolina Laurel Cherry
154	Tree	Prunus	cersifera 'Newport'	Newport Purple-Leaf Plum
155	Tree	Prunus	ilicifolia	Hollyleaf Cherry
156	Tree	Prunus	lyonii	Catalina Cherry
157	Tree	Prunus	xblireiana	Flowering Plum
158	Tree	Quercus	agrifolia	Coast Live Oak
159	Tree	Quercus	engelmannii	Engelmann Oak
160	Tree	Quercus	suber	Cork Oak
161	Tree	Rhus	lancea	African Sumac
162	Tree	Salix spp.		Willow "R"
163	Tree	Tristania	conferta	Brisbane Box
164	Tree	Ulmus	parvifolia	Chinese Elm
165	Tree	Ulmus	pumila	Siberian Elm
166	Tree	Umbellularia	californica	California Bay Laurel "R"
167	Vine	Antigonon	leptopus	San Miguel Coral Vine
168	Vine	Distictis	buccinatoria	Blood-Red Trumpet Vine
169	Vine	Keckiella	cordifolia	Heart-Leaved Penstemon
170	Vine	Lonicera	japonica 'Halliana'	Hall's Honeysuckle
171	Vine	Lonicera	subspicata	Chaparral Honeysuckle
172	Vine	Solanum	jasminoides	Potato Vine

For plants to be used in fuel treatment Zones 1 or 2 that are not found on this list, acquire approval from your local fire department first before installing them. Only "*firewise"* plants can be used in these zones.

APPENDIX ‘B’

Prohibited/Invasive Plant List

UNDESIRABLE PLANT LIST

The following species are highly flammable and should be avoided when planting within the first 50 feet adjacent to a structure. The plants listed below are more susceptible to burning due to rough or peeling bark, production of large amounts of litter, vegetation that contains oils, resin, wax, or pitch, large amounts of dead material in the plant, or plantings with a high dead to live fuel ratio. Many of these species, if existing on the property and adequately maintained (pruning, thinning, irrigation, litter removal, and weeding) may remain as long as the potential for spreading a fire has been reduced or eliminated.

BOTANICAL NAME	COMMON NAME
Abies species	Fir Trees
Acacia species	Acacia (trees, shrubs, groundcovers)
Adenostoma sparsifolium**	Red Shanks
Adenostoma fasciculatum**	Chamise
Agonis juniperina	Juniper Myrtle
Araucaria species	Monkey Puzzle, Norfolk Island Pine
Artemesia californica**	California Sagebrush
Bambusa species	Bamboo
Cedrus species	Cedar
Chamaecyparis species	False Cypress
Coprosma pumila	Prostrate Coprosma
Cryptomeria japonica	Japanese Cryptomeria
Cupressocyparis leylandii	Leylandii Cypress
Cupressus forbesii**	Tecate Cypress
Cupressus glabra	Arizona Cypress
Cupressus sempervirens	Italian Cypress
Dodonea viscosa	Hopseed Bush
Eriogonum fasciculatum**	Common Buckwheat
Eucalyptus species	Eucalyptus
Heterotheca grandiflora**	Telegraph Plant
Juniperus species	Junipers
Larix species	Larch
Lonicera japonica	Japanese Honeysuckle
Miscanthus species	Eulalia Grass
Muehlenbergia species**	Deer Grass
Palmae species	Palms
Picea species	Spruce Trees
Pickeringia Montana**	Chaparral Pea
Pinus species	Pines
Podocarpus species	Fern Pine
Pseudotsuga menziesii	Douglas Fir
Rosmarinus species	Rosemary
Salvia mellifera**	Black Sage
Taxodium species	Cypress
Taxus species	Yew
Thuja species	Arborvitae
Tsuga species	Hemlock
Urtica urens**	Burning Nettle

** San Diego County native species

APPENDIX 'B' References:

Gordon, H. White, T.C. 1994. Ecological Guide to Southern California Chaparral Plant Series. Cleveland National Forest.

Willis, E. 1997. San Diego County Fire Chief's Association. Wildland/Urban Interface Development Standards

City of Oceanside, California. 1995. Vegetation Management. Landscape Development Manual. Community Services Department, Engineering Division.

City of Vista, California 1997. Undesirable Plants. Section 18.56.999. Landscaping Design, Development and Maintenance Standards.

www.bewaterwise.com. 2004. Fire-resistant California Friendly Plants.

www.ucfpl.ucop.edu. 2004. University of California, Berkeley, Forest Products Laboratory, College of Natural Resources. Defensible Space Landscaping in the Urban/Wildland Interface. A Compilation of Fire Performance Ratings of Residential Landscape Plants.

County of Los Angeles Fire Department. 1998. Fuel Modification Plan Guidelines. Appendix I, Undesirable Plant List, and Appendix II, Undesirable Plant List.

APPENDIX ‘C’

FIRE BEHAVIOR CALCULATIONS
BEHAVE PLUS 5.0.5

BehavePlus 5.0.5 (Build 307)

Daley Ranch N&E Lots 91-101 Untreated

Fri, Jan 05, 2018 at 14:56:29

3.9.1I. Input Worksheet

Inputs: SURFACE

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		gs1
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	3
100-h Moisture	%	5
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	50
Weather		
20-ft Wind Speed	mi/h	65
Wind Adjustment Factor		0.40
Wind Direction (from north)	deg	45
Terrain		
Slope Steepness	%	10
Aspect	deg	180
Notes		

3.9.1II. Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

3.9.1III. Results

Output Variable	Value	Units
Surface Rate of Spread (maximum)	244.4	ft/min
Fireline Intensity	1535	Btu/ft/s
Flame Length	13.1	ft

Daley Ranch N&E Lots 91-101 Treated
Fri, Jan 05, 2018 at 14:57:33

3.9.1IV. Input Worksheet

Inputs: SURFACE

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		gr1
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	3
100-h Moisture	%	5
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	50
Weather		
20-ft Wind Speed	mi/h	65
Wind Adjustment Factor		0.40
Wind Direction (from north)	deg	45
Terrain		
Slope Steepness	%	10
Aspect	deg	180
Notes		

3.9.1V. Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

3.9.1VI. Results

Output Variable	Value	Units
Surface Rate of Spread (maximum)	41.4	ft/min
Fireline Intensity	67	Btu/ft/s
Flame Length	3.1	ft

BehavePlus 5.0.5 (Build 307)

Daley Ranch E Lots Untreated
Fri, Jan 05, 2018 at 14:45:26

3.9.1VII. Input Worksheet

Inputs: SURFACE

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		4
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	3
100-h Moisture	%	5
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	50
Weather		
20-ft Wind Speed	mi/h	65
Wind Adjustment Factor		0.50
Wind Direction (from north)	deg	45
Terrain		
Slope Steepness	%	20
Aspect	deg	90
Notes		

3.9.1VIII. Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

3.9.1IX. Results

Output Variable	Value	Units
Surface Rate of Spread (maximum)	2267.2	ft/min
Fireline Intensity	130380	Btu/ft/s
Flame Length	101.4	ft

BehavePlus 5.0.5 (Build 307)

Daley Ranch E Lots treated

Fri, Jan 05, 2018 at 14:31:30

3.9.1X. Input Worksheet

Inputs: SURFACE

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		sh2
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	3
100-h Moisture	%	5
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	50
Weather		
20-ft Wind Speed	mi/h	65
Wind Adjustment Factor		0.50
Wind Direction (from north)	deg	45
Terrain		
Slope Steepness	%	20
Aspect	deg	90
Notes		

3.9.1XI. Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

3.9.1XII. Results

Output Variable	Value	Units
Surface Rate of Spread (maximum)	183.5	ft/min
Fireline Intensity	4742	Btu/ft/s
Flame Length	22.1	ft

Daley Ranch Lots 83-90 S Untreated
Fri, Jan 05, 2018 at 14:50:44

3.9.1XIII. Input Worksheet

Inputs: SURFACE

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		gs2
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	3
100-h Moisture	%	5
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	60
Weather		
20-ft Wind Speed	mi/h	30
Wind Adjustment Factor		0.40
Wind Direction (from north)	deg	225
Terrain		
Slope Steepness	%	20
Aspect	deg	225
Notes		

3.9.1XIV. Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

3.9.1XV. Results

Output Variable	Value	Units
Surface Rate of Spread (maximum)	163.5	ft/min
Fireline Intensity	1634	Btu/ft/s
Flame Length	13.5	ft

Daley Ranch Lots 83-90 S Treated
Fri, Jan 05, 2018 at 15:12:41

3.9.1XVI. Input Worksheet

Inputs: SURFACE

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		gs1
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	3
100-h Moisture	%	5
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	60
Weather		
20-ft Wind Speed	mi/h	30
Wind Adjustment Factor		0.40
Wind Direction (from north)	deg	225
Terrain		
Slope Steepness	%	20
Aspect	deg	225
Notes		

3.9.1XVII. Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

3.9.1XVIII. Results

Output Variable	Value	Units
Surface Rate of Spread (maximum)	118.9	ft/min
Fireline Intensity	729	Btu/ft/s
Flame Length	9.3	ft

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 to the State Fire Marshal's Office for more information on the Building Material List for non-combustible and fire resistant building materials:
http://osfm.fire.ca.gov/strucfireengineer/pdf/bml/wuiproducts.pdf

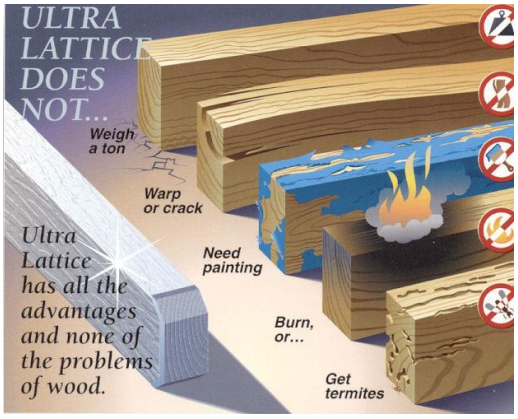
Examples of non-combustible & fire resistant building materials for balconies, carports decks, patio covers and floors are as follow:

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.

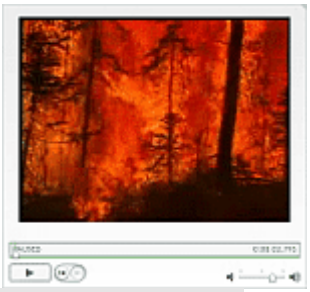
FRX Exterior Fire-Retardant Treated Wood

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. The International 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

- Balconies
- Decks



Homeowners and Residential Architects: See this 2-minute video and the diagram below.

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

Decking (SFM Standard 12-7A-4)

III. TREX COMPANY, INC –"Trex Accents ®: Fire Defense ™ " wood and polyethylene composite deck board, nominal 5/4" thick x 5-1/2" width, nominal density of 0.036 lb/in^3.

Trex Accents®: Fire Defense™

The perfect blend of beauty and brawn.

Trex's #1 selling platform, Trex Accents®, exceeds the strict fire regulations set by the State of California and San Diego County.

- Offers superior safety performance:
  - Exceeds ASTM E84 Class B Flame Spread.
  - Exceeds 12-7A-4 Part A (underflame) and Part B (Burning Brand).
- Self-extinguishing even under extreme fire exposure.
- Approved for use by the California State Fire Marshal's Office and San Diego County. Read the California Department of Forestry and Fire Protection, Office of the State Fire Marshal WILDLAND URBAN INTERFACE (WUI)PRODUCTS Report. (PDF)

IV. SOLID “WOOD” DECKING

❖Company Name: Various Manufacturers
Product Description: Solid “Wood” decking: “Redwood”, “Western Red Cedar”, “Incense Cedar”, “Port Orford Cedar”, and “Alaska Yellow Cedar”.
Sizes: Minimum nominal 2” thickness (American Softwood Lumber Standard PS 20).
Lumber grades: Construction Common and better grades for Redwood, 3 Common and better grades for Cedars, and commercial decking or better grades for both Redwood and Cedars.

Special instructions: solid wood decking shall be installed over solid wood joists spacing 24” or less on center.

APPENDIX ‘E’

Ignition-Resistant Building Requirements

APPENDIX 'E'

As of the date of this FPP, the following is a list of ignition resistant construction requirements for buildings located in an Wildland Urban Interface Fire Area under the 2016 California Fire Code (CFC), Chapter 7A of the California Building Code (CBC) and the California Residential Code (CRC) R337. 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 all of the CBC Chapter 7A ignition resistance requirements, CRC R337, CFC and local requirements in force at the time of building permit application. See the currrent applicable codes for a detailed description of these requirements and any exceptions.

1. All structures will be built with a Class A Roof Assembly, including a Class A roof covering, Roofs shall have a roofing assembly installed in accordance with its listing and the manufacturer's installation instructions.

2. Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames and embers, be fire stopped with approved materials or have one layer of No. 72 ASTM cap sheet installed over the combustible decking.

3. When provided, exposed valley flashings shall be not less than 0.019-inch (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36-inch-wide underlayment consisting of one layer of No. 72 ASTM cap sheet running the full length of the valley.

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

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

6. All chimney, flue or stovepipe openings will have an approved spark arrester. An approved spark arrester is defined as a device constructed of nonflammable materials, 12 gauge minimum thicknesses or other material found satisfactory by the Fire Protection District, having ½-inch perforations for arresting burning carbon or sparks. It shall be installed to be visible for the purposes of inspection and maintenance.

7. The exterior walls surface materials shall be non-combustible or ignition resistant. In all construction, 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.

8. All eaves, fascias 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.

9. Paper-faced insulation shall be prohibited in attics or ventilated spaces.

10. All residential structures will have automatic interior fire sprinklers installed according to the National Fire Protection Association (NFPA) 13D - *Standard for the Installation of Sprinkler*

Systems in One and Two-family Homes and Manufactured Homes . Fire sprinklers are not required in unattached non-habitable structures greater than 50 feet from the residence.

11. Roof vents, dormer vents, gable vents, foundation ventilation openings, ventilation openings in vertical walls, or other similar ventilation openings shall be louvered and covered with 1/8-inch, noncombustible, corrosion-resistant metal mesh or other approved material that offers equivalent protection. Turbine attic vents shall be equipped to allow, one-way direction rotation only; they shall not free spin in both directions.

12. Attic or foundation ventilation louvers or ventilation openings in vertical walls shall not exceed 144 square inches per opening and shall be covered with 1/8-inch mesh corrosion-resistant metal screening or other approved material that offers equivalent protection. Attic ventilation shall also comply with the requirements of the Uniform Building Code (U.B.C.). Ventilation louvers and openings may be incorporated as part of access assemblies.

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

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

15. 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.

16. 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.

17. Detached accessory structures located less than 50 feet from a building containing habitable space shall be constructed in accordance with Chapter 7A of the Building Code.

18. Exterior doors shall be approved non-combustible construction, solid core wood and shall conform to the performance requirements of standard SFM 12-7A-1 or shall be of approved noncombustible construction, or solid core wood having stiles and rails not less than 1⅜ inches thick with interior field panel thickness no less than 1¼ inches thick, or shall have a fire-resistance rating of not less than 20 minutes when tested according to ASTM E2074.

19. All glass or other transparent, translucent or opaque glazing materials including skylights shall be constructed multi-layered glazed panels one layer of which must be tempered glass.

20. Vinyl window assemblies are deemed acceptable if the windows have the following characteristics:
    - Frame and sash are comprised of vinyl material with welded corners
    - Metal reinforcements in the interlock area

- Glazed with insulating glass, annealed or tempered (one layer of which must be tempered glass).
- Frame and sash profiles are certified in AAMA Lineal Certification Program
- Certified and labeled to ANSI/AAMA/NWWDA 101/LS2-97 for Structural Requirements

City of Escondido General Requirements

1. All awnings attached to any structure shall meet the 15-foot structure setback requirement and be identified as fire rated. Additionally, the awning shall be contained in a metal, self-enclosing or box-protected cover.
2. Portable awnings shall have UL Approved Fire Retardant Rating and be no closer than 20 feet from any combustible structures.
3. The following requirements apply to both pool heating and power supply. Solar panels located less than 20 feet to a combustible structure shall have a metal frame, otherwise the size and type of materials of the entire solar panel system will determine the separation distance to combustible structures. All solar panels placed on a roof top shall comply with the Class “A” roof assembly and materials requirements.
4. Trash enclosures or trash can storage shall be located at least 10 feet or more from any structure. Trash enclosures trellis or roof should be non-combustible or made of heavy timber.
5. Small storage buildings shall be located at least 20 feet from any structure.
6. Clearance too combustibles shall be kept a minimum of 10 feet from any propane tanks or containers.

AUXILLARY STRUCTURES: PAVILIONS, TRELLISES, ARBORS, PERGOLAS, CABANAS, PALAPAS, AND PLAYGROUND EQUIPMENT

Auxiliary Structures are evaluated for a fire event (i.e., type of combustible materials, size of structure, distance from house and intended use). In addition, if structure is more than 50% covered, a Class A noncombustible roof is required.

ATTACHED, AUXILLARY STRUCTURE TO HOME; i.e., Overhead covers and decking not enclosed on three sides:

1. 100-foot Fuel Modification Zone extends from the attached structure perimeter.
2. Maximize the use of non-combustible material. Columns must be non-combustible masonry and/or stucco or pre-cast concrete.
3. Nominal timber size requirements (4”x 6”) for fire resistive construction will be required.
4. Attached structure may not extend into the pre-determined, structure setbacks.
5. Any covered area shall be required to be protected with fire sprinkler system when the dimension from the wall of the structure to the edge of the covered area exceeds ten feet.

DETACHED, AUXILLARY STRUCTURES LESS THAN 250 SQUARE FEET; i.e., small playground equipment, gazebos, shed, trellis, palapas and arbor:

1. When structure is 250 square feet or less, the 100-foot Fuel Modification Zone extends from the house outwards, not the auxiliary structure.
2. The structures shall be a minimum of 20 feet from other combustible structures.
3. Maximize the use of non-combustible material. Columns must be non-combustible Masonry and/or stucco or pre-cast concrete.
4. Nominal timber size requirements (4”x 6”) for fire resistive construction will be required
5. Structure may not extend into the fuel modification setbacks from top of slope.
6. The canvas awnings for playground equipment shall be identified and maintained, annually, as fire retardant.
7. Structures enclosed on three or more sides may require an automatic fire sprinkler system.

8. All palapas with thatched roof shall be at a minimum 30 feet from any combustible structure. Roofing materials shall be applied with a fire retardant chemical. Proof of application and UL rating of fire retardant chemical shall be provided to Fire District prior to installation of palapas.

DETACHED AUXILLARY STRUCTURES GREATER THAN 250 SQUARE FEET; i.e., large playground equipment (*e.g., King Kong Clubhouse*), guesthouse, cabana, palapas and pool house)

1. When structure is 250 square feet or greater, the 100-foot Fuel Modification Zone extends from the auxiliary structure.
2. The structures shall be a minimum of 30 feet from other combustible structures, unless otherwise permissible by local zoning requirements.
3. Maximize the use of non-combustible material. Columns must be non-combustible Masonry and/or stucco or pre-cast concrete.
4. Nominal timber size requirements (4"x 6") for fire resistive construction will be required.
5. Structure may not extend into the fuel modification setbacks from top of slope.
6. The canvas awnings for playground equipment shall be identified and maintained, annually, as fire retardant.
7. Structures enclosed on three or more sides may require an automatic fire sprinkler system.10-30-2007 – cfh/ms.

Additional Construction Requirements for all Residential Lots

To mitigate the hazard for the projected extreme fire behavior on the east side of the project the following additional construction requirements shall be implemented on all residential Lots.

- Houses 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.
- Fire sprinklers shall be installed in all attics and garages. All interior fire sprinklers will require a four (4) head calculation for the sprinkler design. The four head calculation must have a minimum .05 density design, QR and intermediate temperature heads; the heads may be of a small orifice type such as 3/8" or 7/16". Listed domestic demand shutoff valves may be used to try to minimize upgrading meter sizes where possible. Copper piping is required in the attics; CPVC will only be permitted in the attic if listed heads are used in accordance with their listing.
- All vents in structures shall be "Brandguard", "O'Hagin Fire & Ice® Line – Flame and Ember Resistant" or equivalent type vents.
- All operable windows shall be provided with metal mesh bug 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.
- All swinging exterior doors shall be self closing (e.g., pneumatic or spring loaded hinges).
- A solid 6-foot non-combustible wall shall be erected along the eastern subdivision property line, as shown on the Fuel Treatment Map. Any access gates to the open space or trails must be non-combustible. If non-solid gates are used metal screens such as security screens with minimum ½ inch mesh must be installed over any grillwork or openings. Any access gates into the open space shall be equipped with Knox padlocks or Knox boxes with keys for fire department access.