

**FIRE PROTECTION PLAN
88 SUNNYSIDE LANE, MS 2015-001**

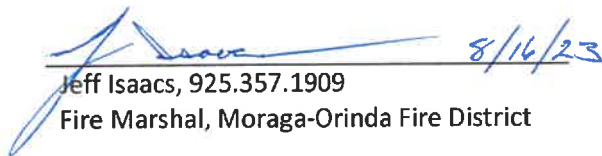
ORINDA, CALIFORNIA

Prepared by:

LSA
157 Park Place
Pt. Richmond, California 94801
510.236.6810

Project No. DMD2101

Approved by:

 8/16/23
Jeff Isaacs, 925.357.1909
Fire Marshal, Moraga-Orinda Fire District

LSA

August 2023

TABLE OF CONTENTS

TABLE OF CONTENTS.....	i
PROJECT DESCRIPTION.....	1
ADJACENT PROPERTIES.....	1
ACCESS.....	1
LOCATION.....	1
TOPOGRAPHY.....	1
CLIMATE.....	1
HYDROLOGY.....	2
VEGETATION.....	2
FIRE HISTORY.....	2
WILDFIRE HAZARD ASSESSMENT.....	2
Wildfire Risk Conclusions.....	3
FIRE PROTECTION.....	4
PLAN IMPLEMENTATION.....	4
Construction Phase.....	4
Homeowners.....	4
Zone 0.....	4
Zone 1.....	5
Zone 2.....	5
Fuel Break Requirements.....	6
CITY OF ORINDA CONDITIONS OF APPROVAL.....	7
MORAGA-ORINDA FIRE DISTRICT SUBDIVISION FIRE PROTECTION MEASURES.....	7
Roadside Vegetation Management.....	9

ATTACHMENTS

Parcel Map
MOFD Plan Approval Email

FIRE PROTECTION PLAN

PROJECT DESCRIPTION

The 88 Sunnyside Lane project subdivides the existing 24.02-acre property into four parcels, creating three parcels suitable for new single-family residences and a fourth parcel for the existing residence (Parcel B). Parcel size ranges from 5.32 to 7.44 acres. Building envelopes are designated on each parcel. The development rights on a total of 8.1 acres will be granted to the City, preserving these areas in their undeveloped condition.

Sunnyside Lane, an existing private road, will be widened to a width of 20' to provide fire truck access. Driveways to the three new parcels will also be 20' wide. Hammerhead turnarounds for fire apparatus will be located at the three new building sites. Adequate turnaround space for fire apparatus already exists at the existing residence. Two fire hydrants will be installed inside, one adjacent to the existing residence and the second along the access road to Parcels C and D.

ADJACENT PROPERTIES

The site is located in an area adjacent to large residential development, a tennis/swim club, and open lands. Bear Creek Road is located to the north of the site. Briones Reservoir and its watershed lands are located north and west of Bear Creek Road.

ACCESS

Access to the homes will be from the widened Sunnyside Lane. Sunnyside Lane intersects with Van Tassel Lane which leads to Lombardy Lane, Miner Road, ultimately connecting with Camino Pablo, a local thoroughfare.

LOCATION

The site is located along the northern edge of the City of Orinda south of Bear Creek Road/Briones Reservoir and north of the Sleepy Hollow neighborhood, north of Miner Road.

TOPOGRAPHY

The development area is located along the crest of a spur ridge which connects to the Black Hills above the south side of Briones Reservoir. The remainder of the property consists of the steep side slopes of this spur ridge. The development envelopes on all three new lots are on flat pads that were graded in the past.

CLIMATE

The climate of the Orinda area, as is typical of the larger San Francisco Bay Area is characterized by warm dry summers and cool wet winters. Due to its location on the east side of the Berkeley Hills Orinda does not fully feel the marine influence of areas west of the Berkeley Hills crest. As a result, it can be hotter in the summer and cooler in the winter. Summer fogs frequently crest the Berkeley Hills into Orinda. Orinda can also be affected by interior heat waves, driving temperatures above 100 degrees for several days. Rainfall averages approximately 28 inches with wide swings in wet and

dry years. Winds are primarily from the western quadrants, averaging approximately ten miles per hour. During the fall strong easterly winds (Santa Ana or Diablo winds) accompanied by low humidity can occur which greatly increases fire risk.

HYDROLOGY

The site lies within the watershed of Lauterwasser Creek, a tributary of San Pablo Creek. The majority of the property consists of ridgetop and as a result the site contains no defined drainages. There are no other types of waterbodies on the property. Runoff consists of overland flows that ultimately enter hillside ephemeral drainages.

VEGETATION

The project site contains three vegetation types: oak/bay/Monterey pine woodland, coastal scrub and grassland/ruderal habitat. Ornamental vegetation is present around the existing home.

The oak/bay/pine woodland is present on all four lots and borders the building pads on each of them. Woodland is also present on adjacent parcels. Coast live oak (*Quercus agrifolia*), California bay (*Umbellularia californica*) and introduced Monterey pine (*Pinus radiata*) are the dominant woodland trees. Many of the pines are dead or dying.

Coast scrub is present on Parcel D and is adjacent to Parcels B and C on their west side. Coyote brush (*Baccharis pilularis*) and poison oak (*Toxicodendron diversilobum*) are the dominant species in this type. A patch of scrub composed of California sagebrush (*Artemisia californica*) and sticky monkeyflower (*Diplacus aurantiacus*) is present on Parcel D. Coyote brush and poison oak are also present in the woodland understory in many locations.

Annual grassland composed primarily of introduced species is present on the side slopes of Parcels B, C and D. The previously graded pads on all four parcels support a ruderal plant cover composed of herbaceous weedy invasive species that have colonized these disturbed areas. Annual grasses form the majority of this plant cover.

Adjacent areas contain a mosaic of undeveloped and developed land. Vegetation in undeveloped areas is composed of the same three vegetation types found on the project site. Briones Reservoir watershed lands between Bear Creek Road and the reservoir contain more extensive native vegetation. Oak-bay woodland is the primary habitat type on this north facing slope. Further to the west is a stand of chaparral and a large area of grassland is present further to the east.

FIRE HISTORY

There have been no reports of fires on or adjacent to the project site.

WILDFIRE HAZARD ASSESSMENT

The three existing pads will be cleared of all vegetation in preparation of home construction. Vegetation adjacent to the pads includes annual grassland, coastal scrub, and oak/bay/Monterey pine woodland. The fuel loading of each type and the influence of topography on them is described below:

Annual Grassland – The grasslands occur in patches on the steep side slopes on and off the site adjacent to Parcels C and D. They are not grazed, and the annual grasses can be tall depending on soil depth with accumulations of thatch. Fuel loads are low but the steep slopes increase flame lengths and rate of potential fire spread.

Coastal Scrub – Patches of coastal scrub are located downslope of the access road to Parcels C and D growing on a west facing slope and east of the homesite on Parcel D on a north to east facing slope. The scrub stand are mature with high fuel loads. A fire burning uphill towards either Parcel C or D could spread rapidly depending on wind direction and be carried into the woodland vegetation bordering the building pads.

Oak/Bay/Pine Woodland – This woodland type borders the perimeters of the building pads on Parcels C and D and essentially all of Parcel A is located within this type. Woodland is also the most common vegetation type adjacent to the property. Fuel loads vary depending on the amount of understory vegetation. Where understory vegetation is sparse fuel loads are moderate. The presence of dense shrub understory increases fuel loading.

Monterey pines were planted around the perimeters of the building pads and along the access roads to the building pads. The condition of the pines is mature to over mature and many are either dead or dying. The presence of the pines, particularly those that are dead or dying around the home sites increases fire hazard.

Wildfire Risk Conclusions

The project site is located in a wildland urban Interface fire area. Low density residential development intermixed with undeveloped land border the site. The land to the northeast is the exception to this description where a mosaic of the native vegetation types found on the property extends to Bear Creek Road and EBMUD's Briones Reservoir watershed lands and their more extensive stands of native vegetation.

Wildfire risk results from a combination of factors including regional climate, topography, existing fuels and in the wildland urban interface the interspersion of developed/undeveloped land. These factors as they relate to the project site are described above. Orinda, and all of the Bay Area, has a Mediterranean climate with dry, hot summers and can be subject dry, hot offshore Diablo winds in the fall when wildland vegetation is at its driest. The proposed home sites are located along a ridge top with steep side slopes which support dense woody vegetation with no reported fire history, indicating fuels have built up over time. Surrounding the site is large lot residential development set among a larger landscape of natural lands.

Fire threat exists from the semi-rural nature of surrounding development due to the presence of unmaintained ornamental vegetation and pockets of natural vegetation. Threat of wildfire spread is also a potential from structure fires, particularly from embers which could be blown onto the site.

The wildfire risk under existing conditions is high due to the hilltop locations of all building pads, the steep slopes that surround the ridgetop, the extent of woody vegetation surrounding the pads, and the presence of a large number of dead and dying Monterey pine on the site.

FIRE PROTECTION

Fire protection on the site will occur around the homes, the perimeter of the lots and along the access road leading to the lots. As described previously the project consists of four lots, one of which contains an existing home. Access to the lots is from Sunnyside Lane, an existing private road and a one-lane driveway that leads to the existing home on Parcel B. An existing paved area suitable for use as a fire truck turnaround is present on Parcel B. The three new lots all contain existing pads that were graded at some point in the past. These pads now support a cover of ruderal herbaceous vegetation and some trees and shrubs. The pads will be cleared of existing vegetation prior to home construction. The project does not include any common open space. Specific fire protection measures are described below.

PLAN IMPLEMENTATION

Construction Phase

The contractor selected for road construction and utility installation will be responsible for implementing construction measures during that phase of the project including vegetation clearing along the access road and driveways, ensuring an adequate water supply is available for fire protect prior to the initiation of home construction of the first lot and maintaining fire access.

During the construction of the individual homes the home builder(s) will be responsible for plan compliance.

Homeowners

The individual homeowners will be responsible for maintaining their lots consistent with the MOFD requirements described below in this plan or as updated by MOFD in the future.

Zone 0

Zone 0 extends from 0 to five feet from any structure, attached deck or outbuilding.

- Maintaining the Zone 0 area free of any vegetation and combustible ground cover including mulch and bark.
- Maintaining 6 feet of vertical clearance between a tree/shrub canopy and the roof of homes.
- Maintaining any tree, shrub, or other plant adjacent to or overhanging Zone 0 free of dead limbs, branches or other combustible material that is determined to be a fire hazard.
- Locating wood piles 30 feet or more from a home.
- Maintaining the Zone 0 area free of ground litter.

- Maintaining roofs and roof gutters free of combustible materials (leaves, pine needles, etc.).
- Not storing combustible materials beneath decks.
- Maintaining adjacent trees so that foliage, twigs or branches are greater than 6 feet above the ground.

Zone 1

Zone 1 extends 30 feet from buildings, structures, decks, etc. or to the property line, whichever is closer.

- Removing hazardous vegetation and combustible material capable of being ignited and endangering property.
- Cutting and removing annual grasses to less than 3 inches in height no later than 1 June of each year.
- Removing all hazardous vegetation including all non-irrigated brush.
- Maintaining trees to remove ladder fuels so that foliage, twigs or branches are greater than 6 feet above the ground or surface fuels within 100 feet of any structure, or within 10 feet of the paved edge of any fire apparatus access road.
- New trees shall be planted and maintained so that the tree's drip line at maturity is a minimum of 10 feet from any combustible structure.
- The horizontal distance between crowns of new trees and crowns of adjacent trees shall not be less than 10 feet.
- Liquid propane gas (LPG) storage tanks, out buildings and wood piles shall have the following minimum clearance: ten feet (10 ft.) of clearance to bare mineral soil and no flammable vegetation for an additional ten feet (10 ft.) around their exterior.

Zone 2

Zone 2 extends from 30 feet to 100 feet out from buildings, structures, decks, etc., or to the property line, whichever is closer.

- Removing hazardous vegetation including all non-irrigated brush and combustible material capable of being ignited and endangering property.
- Cutting and removing annual grasses to less than 3 inches in height no later than 1 June of each year.

- Maintaining trees to remove ladder fuels so that foliage, twigs or branches are greater than 6 feet above the ground or surface fuels within 100 feet of any structure, or within 10 feet of the paved edge of any fire apparatus access road.
- New trees shall be planted and maintained so that the tree's drip line at maturity is a minimum of 10 feet from any combustible structure.
- The horizontal distance between crowns of new trees and crowns of adjacent trees shall not be less than 10 feet.
- All exposed wood piles must have a minimum of 10 feet of clearance, down to bare mineral soil, in all directions and no flammable vegetation for an additional 10 feet around their exterior or must be enclosed with fire resistant material or covering.
- Create a separation between trees, and items that could catch fire, such as patio furniture, wood piles, swing sets, etc.
- Liquid Propane Gas (LPG) storage tanks, out buildings and wood piles shall have the following minimum clearance: ten feet (10 ft.) of clearance to bare mineral soil and no flammable vegetation for an additional ten feet (10 ft.) around their exterior.

Fuel Break Requirements

To reduce the risk of uncontrolled wildfire, Fuel Breaks are required on all Parcels. The lot owners shall comply with the following fuel break standards:

- **Parcels Greater Than One Acre.** All parcels are greater than one acre in size. A Fuel Break of 100 feet shall be created and maintained around the entire perimeter of each parcel.
- Private lot vegetation management will be the responsibility of the individual lot owners as each acquires their respective lots.
- The removal or modification of fuel within the Fuel Break will occur annually by June 1 of each year.
- Annual grasses will be cut to less than 3" in height.
- Remove all hazardous vegetation.
- Remove non-irrigated brush.
- Remove dead, diseased, or dying trees.
- Maintain trees by removing ladder fuels so that foliage, twigs, or branches are 6 feet or greater above the ground.
- Remove all other combustible material (rubbish, litter, etc.).

- The project Homeowners Association will arrange to have project site fuel breaks inspected by a qualified third party who will provide a written report by June 1 of each year to the Fire Marshal verifying that all lots are in compliance with the Fire Code.

Environmental Concerns. The creation of fuel breaks shall not result in the taking of endangered, rare, or threatened plant or animal species. Alameda whipsnake, a federally and state listed threatened species is present in this area of north Orinda and removal of its brush habitat is take under the Federal ESA. The direct killing of whipsnake, which could occur while removing brush is take under both the Federal and State ESA's. The San Francisco dusky-footed woodrat is a State Species of Special Concern. Numerous woodrat houses are present on the 24.03-acre property. The removal of an occupied woodrat house and its surrounding vegetation would be considered take by the California Department of Fish and Wildlife.

Prior to any fuelbreak work, all potential fuel breaks will be surveyed for Alameda whipsnake habitat and dusky-footed woodrat houses. The locations of whipsnake habitat and woodrat houses will be mapped and presented to the Fire Marshal in the form of a modification request proposing alternative mitigations.

These requirements will be provided to all new homebuyers as part of the Education Brochure they receive at the time of sale.

CITY OF ORINDA CONDITIONS OF APPROVAL

Prior to issuance of any permits, the project applicant/property owner shall demonstrate compliance with MOFD requirements including but not limited to:

- 1-a. Maintenance of the roadside vegetation as specified in Ordinance 23-03. This Ordinance requires that the area 3 feet from the edge (both sides) and to a height of 15 feet above a fire apparatus access road be abated of hazardous vegetation and combustible material. The extension of Sunnyside Lane on the project site and the driveways to the home sites must comply with this requirement.
- 1-b. Preparation of a Fire Management Plan as specified by the approved MOFD Fire Code. **This plan complies with this measure.**
- 1-c. Maintaining accessibility from the proposed 20-foot-wide driveway to future residence on Parcels A, C and D as specified in the approved MOFD Fire Code. This section of the Fire Code requires fire department access roads serving 1 or 2 dwellings units may be a minimum of 18 feet in width if no parking is permitted on the roadway. **Sunnyside Lane and the driveway to Parcels A, C and D will be a minimum of 20 feet in width (not 16 feet) with no parking which complies with this section of the Fire Code.**

MORAGA-ORINDA FIRE DISTRICT SUBDIVISION FIRE PROTECTION MEASURES

- Prior to the issuance of a building permit, the Moraga-Orinda Fire Protection District shall review and approve the final plans. Sufficient access for fire equipment shall be provided and requirements for visible addressing shall be met. The applicant shall submit the design review

fee to the Fire District prior to obtaining approval. **The applicant submitted project plans to MOFD for review and they were approved in September 2022.**

- **Water Supply.** The developer shall provide an adequate and reliable water supply for fire protection. The project shall comply with the 2013 Fire Code Chapter 5, Section 507 (or as subsequently updated) regarding fire flow requirements, including Appendix B MOFD Ordinance 13-01. Fire flow calculations shall be designed by a fire protection engineer or a C-16 licensed contractor.
- **An approved water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible material arrives at the site. The project contractor will be responsible for ensuring an adequate water supply will be available prior to the delivery of combustible materials.**
- **Fire sprinklers shall be installed in single-family dwellings in accordance with MOFD Ordinance 23-01 and NFPA 13 or as revised and amended as of the time of building permit application. Eave protection sprinklers will be installed per Fire Code Section 903.3.1.3.1. Homes design plans have not been developed. When prepared home plans will include current MOFD and State requirements for installing sprinklers.**
- **Fire hydrants shall be installed at the required distances for residential structures. Project plans include two hydrants spaced to conform with MOFD requirements and these plans have been approved by MOFD.**
- **Fire apparatus access shall conform to MOFD Fire Code §503.2.1. Fire apparatus roadways in excess of 150 feet in length shall make provisions for approved fire apparatus turnarounds. The 20-foot roadway width and the fire apparatus turnarounds have been reviewed and approved by MOFD.**
- **The developer shall maintain access roadways with all-weather driving surfaces (asphalt, concrete, or road pavers) of not less than 20 feet of unobstructed width. Adequate access for fire protection shall be maintained during construction. The project access road will be surfaced with an all-weather material. Access for fire protection during construction is a requirement of this condition and is the responsibility of the contractor.**
- **Fire Hydrants.** The developer shall provide fire hydrants as specified by East Bay Municipal Utility District and the Fire District. A final utility map with hydrant locations shall be submitted to the Fire District for final approval. All hydrants shall be wet barrel, standard steamer type (1-4.5" and 1-2.5") outlet. [Modified CDP COA No. 23] **The project Fire Hydrant Location Exhibit was approved by MOFD in September 2022.**
- **Vegetation Management.** The applicant shall maintain all vegetation in accordance with the requirements of the Moraga-Orinda Fire District (MOFD Ordinances 23-03, 23-04 or subsequent ordinances) for the lot areas until the homes have been built. Private lot vegetation management will be the responsibility of individual private lot owners as each acquires their respective lots.

- Fire Protection Plan. A Fire Protection Plan shall be prepared and approved by MOFD. **This FPP was prepared to comply with this condition.** Firefighting equipment access shall be provided to all areas of the project site in accordance with fire access standards of the Fire District. **Project plans incorporate these requirements.**

The Fire Protection Plan shall include the following provisions:

- a. All housing shall be constructed with fire-resistant exterior materials and fire-retardant roofing and include interior and exterior under eave sprinklers and meet CBC 7A requirements. **These requirements will be included in home designs when prepared.**
- b. Landscaping around homes shall be designed to minimize the interface between grassland areas and residences (e.g., fire-resistant vegetation) to include a prohibition on any vegetation in Zone Zero. **This requirement will be provided to lot purchasers for use when they landscape.**

Roadside Vegetation Management

- All vegetation shall be cleared three feet, measured horizontally from the edge of the improved roadway and driveways.

All portions of a tree overhanging the Sunnyside Lane extension on the site and the driveways must have 15 feet, measured vertically, of clearance from the roadway surface to the lowest hanging branches.

ATTACHMENTS

Parcel Map
MOFD Plan Approval Email



From: Drummond Buckley <dbuckley@cityoforinda.org>
Date: Monday, October 17, 2022 at 10:56 AM
To: jbstone <jbstone@diamondconstructioninc.com>, "Morrison, Amara" <amorrison@fennemorelaw.com>
Cc: Nafis Jamal <nafisiamal@gmail.com>
Subject: RE: 88 Sunnyside Approved Plans

Hi Jeff and Amara,

The condition of approval requires a Fire Management Plan, which is what I thought you were working on:

COA Reference #	Description/Required Action
Holds on Project Approval	
1	Prior to issuance of any permits, the project applicant/property owner shall demonstrate compliance with MOFD requirements, including, but not limited to:
1 - a	Maintenance of the roadside vegetation as specified in the Fire Code §325.6.1
1 - b	Preparation of a Fire Management Plan as specified by Fire Code §325.7.
1 - c	Maintaining accessibility from the proposed 18-foot wide driveways to future residences on Parcels "A," "C," and "D" as specified in Fire Code §503.2.1.1

As I mentioned, in my experience these documents can be quite hefty-- Did MOFD tell you that a Fire Management Plan is not necessary?

Drummond

From: jbstone [<mailto:jbstone@diamondconstructioninc.com>]
Sent: Monday, October 17, 2022 10:31 AM
To: Drummond Buckley <dbuckley@cityoforinda.org>; Morrison, Amara <amorrison@fennemorelaw.com>
Cc: Nafis Jamal <nafisiamal@gmail.com>
Subject: FW: 88 Sunnyside Approved Plans

CAUTION: This email is from an external source. Be careful when clicking links or opening attachments!

Drummond,





WE DID it. We are through MOFD, please see the approved plan documents.

I think we are there on 95% of the COA- I know we are ready for all Final Map/Mylar documents.

Can we talk tomorrow about finalizing and processing?

Appreciate it.

Jeff

Jeff Stone Partner	 (925) 934-2711
	 jbstone@diamondconstructioninc.com
	 diamondconstructioninc.com
	 PO Box 477, Lafayette, CA 94549

 **DIAMOND**



From: Mitchell Doyle <mitchell@diamondconstructioninc.com>
Date: Monday, October 17, 2022 at 10:28 AM
To: jbstone <jbstone@diamondconstructioninc.com>
Subject: FW: 88 Sunnyside Approved Plans

Mitchell
(925)-963-4469

 **DIAMOND**

From: Berestka, Mona <mberestka@mofd.org>
Sent: Friday, September 30, 2022 11:16 AM
To: Mitchell Doyle <mitchell@diamondconstructioninc.com>
Subject: 88 Sunnyside Approved Plans

Hello Mitchell,

Thank you for your payment. Please see attached final review comments, stamped plans, approved Alt. Materials application and PAID invoices for 88 Sunnyside Ln.

As stated in the letter, if an inspection is required, please provide a hard copy of the stamped plans (complete set), permit card, specifications (if applicable) and hydraulic calculations (if applicable) at the job site for the Inspector. An inspection cannot be done if the plans are not on site.

If you have any questions regarding the attached comments, please contact Scott McMillan (scottm@wc-3.com) or telephone (925) 275-1700.

Thank you.

