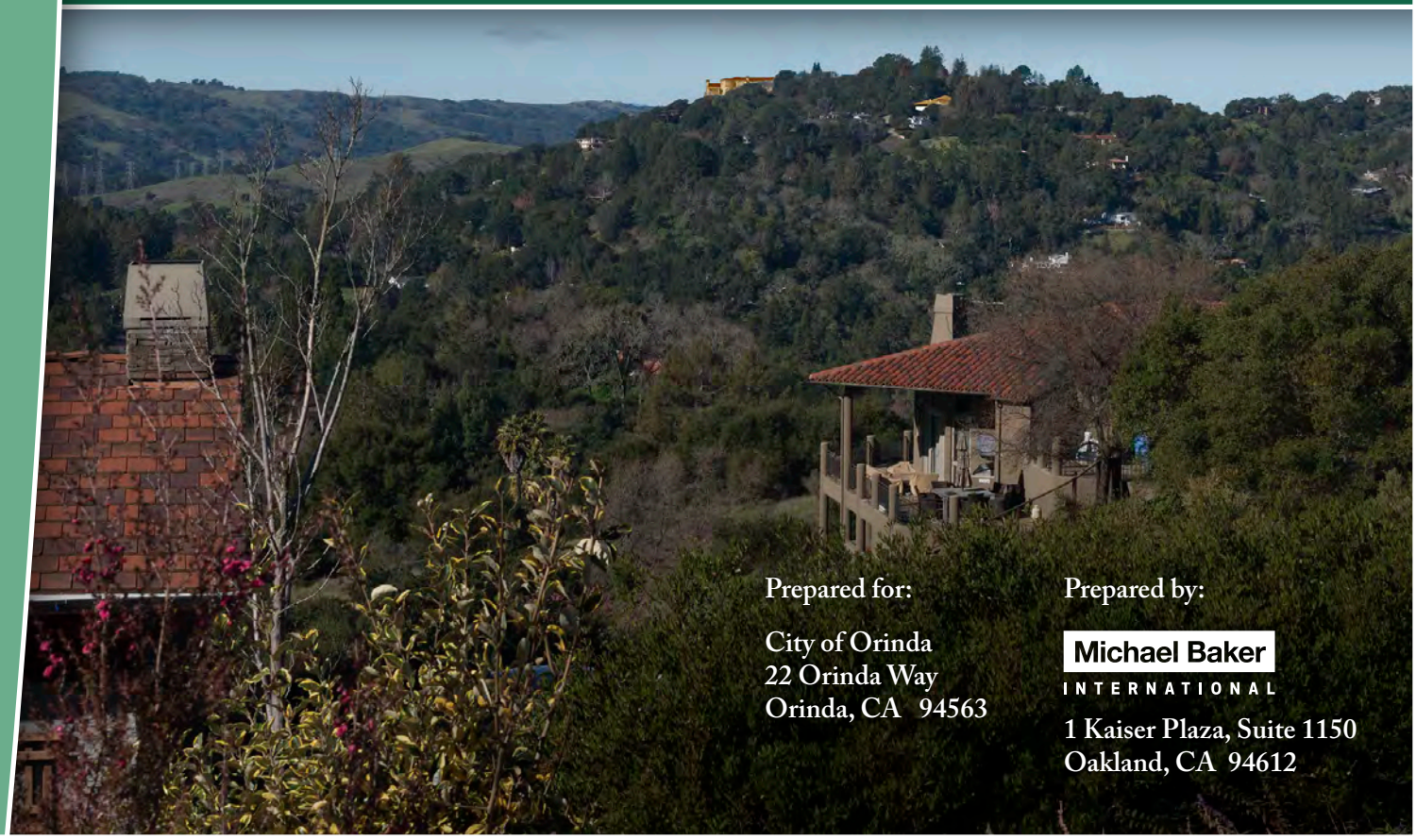
City of Orinda

88 SUNNYSIDE LANE 4-LOT RESIDENTIAL SUBDIVISION

Revised Initial Study/Mitigated Negative Declaration

December 2019



Prepared for:

City of Orinda
22 Orinda Way
Orinda, CA 94563

Prepared by:

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CITY OF ORINDA

88 SUNNYSIDE LANE

RESIDENTIAL 4-LOT SUBDIVISION

REVISED INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Prepared for:

CITY OF ORINDA
22 ORINDA WAY
ORINDA, CA 94563

Michael Baker
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DECEMBER 2019

APPENDICES

TABLES

FIGURES

ACRONYMS AND ABBREVIATIONS

AB	California Assembly Bill
ABAG	Association of Bay Area Governments
BAAQMD	Bay Area Quality Management District
BLM	US Bureau of Land Management
BMP	best management practice
CalEEMod	California Emissions Estimator Model
Cal/OSHA	California Occupational Safety and Health Administration
CARB	California Air Resources Board
CBC	California Building Code
CCCSD	Contra Costa County Sanitary District
CCR	California Code of Regulations
CCWD	Contra Costa Water District
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CH_4	methane
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
dBA	A-weighted decibel
DOC	California Department of Conservation
DOT	US Department of Transportation
DTSC	California Department of Toxic Substances Control
DU	dwelling unit
EBMUD	East Bay Municipal Utility District
EPA	US Environmental Protection Agency
GHG	greenhouse gas
gpd	gallons per day
HVAC	heating, ventilation, and air conditioning
IS/MND	initial study/mitigated negative declaration
ITE	Institute of Transportation Engineers
lb	pound
lbs/day	pounds per day
LOS	level of service
LRA	local responsibility area
NOx	nitrous oxide
NPDES	National Pollutant Discharge Elimination System
N_2O	nitrous oxide
NWIC	Northwest Information Center
O_3	ozone
PM_{10}	coarse particulate matter
ROG	reactive organic gas
RWQCB	Regional Water Quality Control Board
SB	California Senate Bill
SFBAAB	San Francisco Bay Area Air Basin
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
tpd	tons per day

SIP	State Implementation Plan
SR	State Route
USGS	US Geological Survey
VHFHSZ	very high fire hazard severity zone
VMT	vehicle miles traveled

1.0 Introduction

1.1 INTRODUCTION AND REGULATORY GUIDANCE

This document contains an initial study, with supporting environmental studies, which concludes that a mitigated negative declaration is the appropriate California Environmental Quality Act (CEQA) document for the proposed 88 Sunnyside Lane 4-Lot Residential Subdivision project (project). This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared in accordance with Public Resources Code Section 21000 et seq., and the CEQA Guidelines, California Code of Regulations Section 15000 et seq.

An initial study is conducted by a lead agency to determine whether a project may have a significant effect on the environment. In accordance with CEQA Guidelines Section 15063, an environmental impact report (EIR) must be prepared if an initial study indicates that the proposed project under review may have a potentially significant impact on the environment that cannot be initially avoided or mitigated to a level that is less than significant. A negative declaration may be prepared if the lead agency also prepares a written statement describing the reasons why the proposed project would not have a significant effect on the environment and therefore why it does not require the preparation of an EIR (CEQA Guidelines Section 15371). According to CEQA Guidelines Section 15070, a negative declaration is to be prepared for a project subject to CEQA when either:

a) *The initial study shows there is no substantial evidence, in light of the whole record before the agency, that the proposed project may have a significant effect on the environment, or*

b) *The initial study identifies potentially significant effects, but:*

   (1) *Revisions in the project plans or proposals made by or agreed to by the applicant before the proposed negative declaration is released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and*

   (2) *There is no substantial evidence, in light of the whole record before the agency, that the proposed project as revised may have a significant effect on the environment.*

If revisions are adopted in the proposed project in accordance with CEQA Guidelines Section 15070(b), including the adoption of mitigation measures included in this document, a mitigated negative declaration can be prepared.

1.1.1 RECIRCULATION OF MITIGATED NEGATIVE DECLARATION

Purpose of Document

Section 15073.5 of the CEQA Guidelines provides that a negative declaration shall be recirculated for public review and comment prior to adoption when there are new or more severe significant avoidable effects not analyzed in the draft IS/MND which require new mitigation measures or project revisions.

"Recirculation" means that the public is provided an opportunity to comment on the revised IS/MND. Recirculation is not required unless significant new information is being added to the document. Recirculation is not required where the new information merely clarifies or amplifies or

makes insignificant modifications to the IS/MND. This document is the revised IS/MND for the 88 Sunnyside Lane 4-Lot Residential Subdivision.

Reason for Recirculation

The draft IS/MND for the proposed project was circulated for public review from February 24, 2017, to March 26, 2017. The City received comments from the California Department of Fish and Wildlife regarding potential impacts on the Alameda whipsnake and comments from the public regarding slope stability. As a result of those comments, additional analysis was prepared, and the grading plan refined. The analysis found that revised mitigation measures were required and that the project would create additional significant impacts requiring new mitigation measures. These changes have resulted in the need to recirculate the IS/MND pursuant to CEQA Guidelines Section 15073.5. In the revised text, additions are underlined, and deletions are shown in ~~strikeout~~.

Minor revisions to the draft IS/MND are also shown in this revised IS/MND. These revisions are editorial only and do not affect the analysis or conclusions in the document.

Project Changes

Refinements to the grading plan and storm drainage control plan have been made. There are no other changes to the project as described and analyzed in the draft IS/MND.

Regulatory Changes

Since the initial public review period in 2017, the state has adopted updates to the CEQA Guidelines. These updates, which were adopted December 28, 2018, include changes to the thresholds in Appendix G. The revised Guidelines apply to a CEQA document only if the revised Guidelines are in effect when the document is sent out for public review (CEQA Guidelines, § 15007, subd. (c).) Since the IS/MND went out for public review on February 24, 2017, it is not subject to the updated thresholds. However, a matrix is included in the Appendix that shows where in this document information is included that provides analysis consistent with the updated thresholds.

1.2 LEAD AGENCY

The lead agency is the public agency with primary responsibility over a proposed project. Where two or more public agencies will be involved with a project, CEQA Guidelines Section 15051 provides criteria for identifying the lead agency. In accordance with CEQA Guidelines Section 15051(b)(1), "the lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." Based on the criteria above, the City of Orinda (City) is the lead agency for the proposed project.

1.3 PURPOSE AND DOCUMENT ORGANIZATION

The purpose of this IS/MND is to evaluate the potential environmental impacts of the project. This document is divided into the following sections:

1.0 Introduction – This section introduces and describes the purpose and organization of the document.

2.0 Project Information – This section provides general information regarding the project, including the project title, lead agency and address, contact person, brief description of the project

location, General Plan land use designation and zoning, identification of surrounding land uses, and identification of other public agencies whose review, approval, and/or permits may be required. Also listed in this section is a checklist of the environmental factors that are potentially affected by the project.

3.0 Project Description – This section describes the proposed project in detail.

4.0 Environmental Checklist – This section describes the environmental setting and overview for each of the environmental subject areas, and evaluates a range of impacts classified as "no impact," "less than significant impact," "less than significant impact with mitigation incorporated," and "potentially significant impact" in response to the environmental checklist.

5.0 References – This section identifies documents, websites, people, and other sources consulted during the preparation of this IS/MND.

1.4 EVALUATION OF ENVIRONMENTAL IMPACTS

Section 4.0, Environmental Checklist, is the analysis portion of the document. The section evaluates the potential environmental impacts of the project. Section 4.0 includes 18 environmental issue subsections, including CEQA Mandatory Findings of Significance. The environmental issue subsections, numbered 1 through 18, consist of the following:

1. Aesthetics
2. Agriculture and Forestry Resources
3. Air Quality
4. Biological Resources
5. Cultural Resources
6. Geology and Soils
7. Greenhouse Gas Emissions
8. Hazards and Hazardous Materials
9. Hydrology and Water Quality
10. Land Use and Planning
11. Mineral Resources
12. Noise
13. Population and Housing
14. Public Services
15. Recreation
16. Transportation/Traffic
17. Utilities and Service Systems
18. Mandatory Findings of Significance

Each environmental issue subsection is organized in the following manner:

The **Setting** summarizes the existing conditions at the regional, subregional, and local levels, as appropriate, and identifies applicable plans and technical information for the particular issue area.

The **Discussion of Impacts** provides a detailed discussion of each environmental issue checklist question. The level of significance for each topic is determined by considering the predicted magnitude of the impact. Four levels of impact significance are evaluated in this IS/MND:

No Impact: No project-related impact on the environment would occur with project development.

Less Than Significant Impact: The impact would not result in a substantial adverse change in the environment. This impact level does not require mitigation measures.

Less Than Significant Impact With Mitigation Incorporated: An impact that may have a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project" (CEQA Guidelines Section 15382). However, the incorporation of mitigation measures that are specified after analysis would reduce the project-related impact to a less than significant level.

Potentially Significant Impact: An impact that is "potentially significant" but for which mitigation measures cannot be immediately suggested or the effectiveness of potential mitigation measures cannot be determined with certainty, because more in-depth analysis of the issue and potential impact is needed. In such cases, an EIR is required.

2.0 PROJECT INFORMATION

1. **Project title:** 88 Sunnyside Lane 4-Lot Residential Subdivision

2. **Lead agency name and address:** City of Orinda
22 Orinda Way
Orinda, CA 94563

3. **Contact person and phone number:** Mayank Patel, Senior Planner
Planning Department
(925) 253-4212

4. **Project location:** The project site is located at 88 Sunnyside Lane on one parcel totaling 24.02 acres in Orinda. The Assessor's Parcel Number (APN) is 266-270-029. The project site is south of Briones Reservoir and north of State Route 24.

5. **Project sponsor's name and address:** Diamond Construction Inc.
P.O. Box 477
Lafayette, CA 94549
(925) 934-2711
Attn: Keith Stone

6. **General Plan designation:** Residential: Single Family Very Low Density

7. **Zoning:** RVL (Residential Very Low Density), with a minimum lot size of 5 acres

8. **Project description:** The project would subdivide the existing 24.02-acre lot into four parcels and construct three new single-family residences and all associated improvements. Most of the site is undeveloped and vegetated, with one existing residence on the property. One parcel would contain the existing residence, which would not be renovated or demolished as part of this project. Sunnyside Lane would be widened to accommodate fire truck access. Driveways would be constructed to access the three new residences. Utilities would be placed in an existing utility easement, which accesses the site across private property. A total of 8.1 acres of development rights on three of the parcels would be granted to the City.

   The parcels would range from 5.32 to 7.44 acres. The new residences' designs have not been developed, but construction would be limited to development envelopes on each parcel. The project would increase impermeable area on the project site. Stormwater would be treated on-site by routing it through bioretention areas in undeveloped, vegetated areas. ~~Project construction would take place in three phases. Phase 1 would involve utilities, road, and driveway construction and would last approximately 6 months. Phase 2 would involve the~~

~~construction of the first two residences and would last approximately 1 year. Phase 3 would construct the final residence and would take 1 year.~~ Construction activities are anticipated to begin as early as mid-2020 and last approximately 2.5 years.

9. Surrounding land uses and setting: The project site is surrounded by residential development on the north, south, and west. To the east, the adjacent parcel is undeveloped. However, residential development continues on the eastern, downslope side of the ridge. The privately owned Sleepy Hollow Swim and Tennis Club is located to the north of the project site.

10. Environmental factors potentially affected:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "potentially significant impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology and Soils
☐ Greenhouse Gases	☐ Hazards and Hazardous Materials	☐ Hydrology and Water Quality
☐ Land Use and Planning	☐ Mineral Resources	☐ Noise
☐ Population and Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities and Service Systems	☐ Mandatory Findings of Significance

12. Determination: (To be completed by the lead agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature — 12.18.2019 Date

Mayank Patel — City of Orinda
Printed Name — Lead Agency

Senior Planner
Title

3.0 Project Description

3.1 PROJECT LOCATION

The project site is located at 88 Sunnyside Lane in Orinda, California, in the Sleepy Hollow neighborhood. The project site is one contiguous parcel totaling 24.02 acres, with Assessor's Parcel Number (APN) 266-270-029. The project site is south of the Briones Reservoir and north of State Route 24 (**Figure 3.1, Regional Vicinity Map**).

3.2 EXISTING AND SURROUNDING LAND USES

The project site is currently developed with one residence (**Figure 3.2, Project Site**). The rest of the parcel is undeveloped, is located on a ridgetop, has steep slopes, and is covered with native and non-native vegetation. The site is located in the City's Ridgeline and Environmental Preservation Overlay Zone.

The parcel has two ridgelines, one running north to south and the other east to west, with elevations descending from the ridgelines in all directions. The upper portions of the ridgelines are wide and flat and have been rough graded in the past. Steep slopes descend from the upper rough-graded portions. Elevations range from a low of approximately 850 feet to a high of approximately 1,000 feet.

The project site is surrounded by residential development on the north, south, and west. To the east, the immediately adjacent parcel is undeveloped. However, residential development continues on the eastern, downslope side of the ridge. The privately owned Sleepy Hollow Swim and Tennis Club is located to the north of the project site. Site photos are presented in **Figures 3.3a** and **3.3b**.

According to the City of Orinda General Plan, the project site has a land use designation of Residential: Single Family Very Low Density. The site is currently zoned Residential Very Low Density (RVL), with a minimum lot size of 5 acres. Adjacent land uses are also residential and zoned either Residential Low Density—Forty thousand square feet (RL-40) or Planned Development (PD).

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FIGURE 3.1
Regional Vicinity Map

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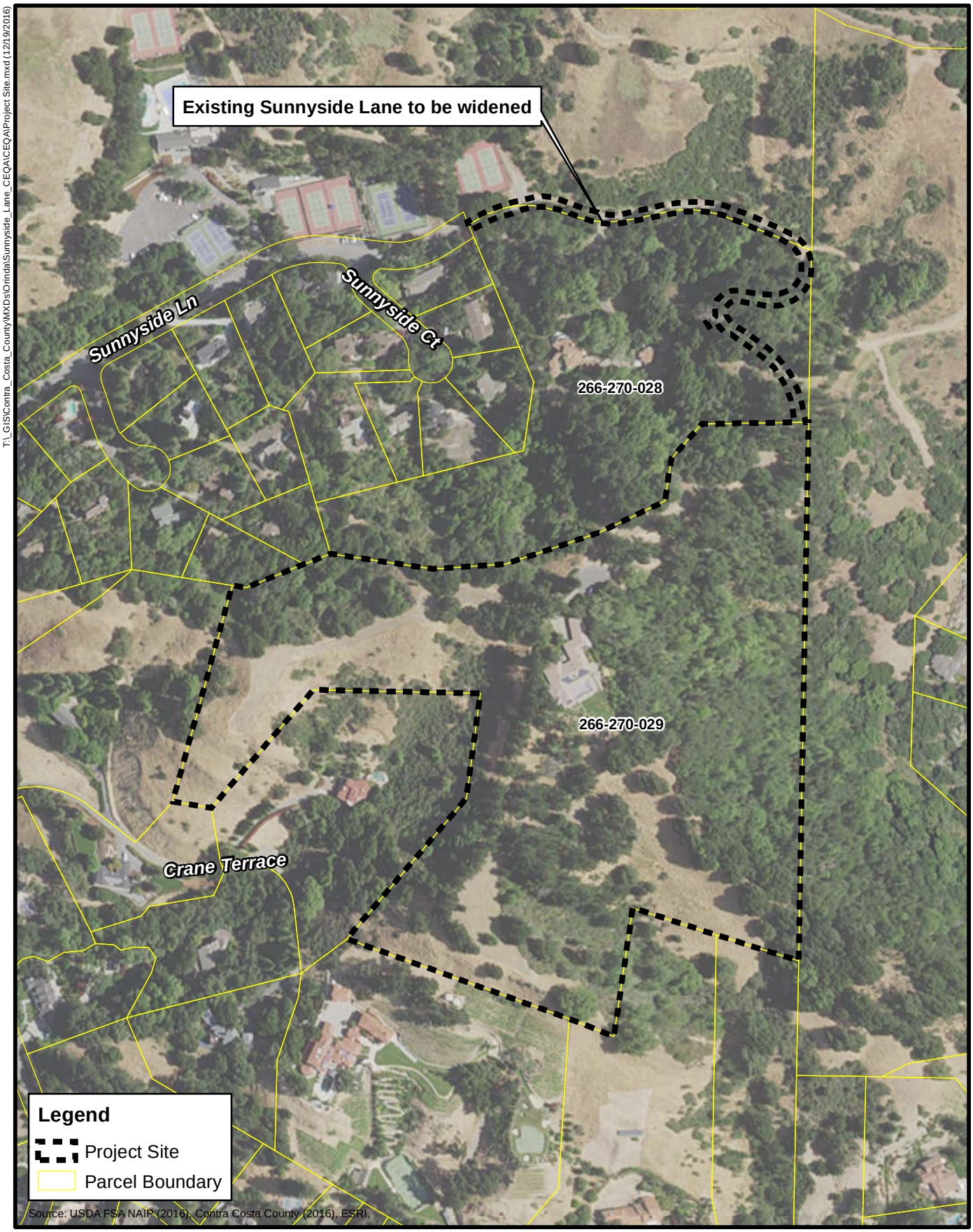

FIGURE 3.2
Project Site

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Existing cul-de-sac on Sunnyside Lane looking south at the existing home

Existing cul-de-sac looking north at Sunnyside Lane and the proposed driveway to Parcel A

Parcel A looking north at the proposed house location

Figure 3.3a
Site Photos

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T:_CSIWork\Orinda, City of\Sunnyside Lane CEQA

Parcel B looking north at the proposed driveway to Parcels C and D. The existing home is on the right.

Parcel C looking east from the proposed pad area

Parcel D looking north at the proposed house location

Figure 3.3b
Site Photos

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INTERNATIONAL

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3.3 PROJECT OVERVIEW

The project would subdivide the 24.02-acre parcel into four parcels and construct three single-family residences and associated improvements, such as utilities and driveways to access the residences, on the new parcels. The fourth parcel contains an existing residence. The parcels are labeled as A, B, C, and D on **Figure 3.4, Proposed Site Plan**. Parcel A would be located on the northern side of the site along Sunnyside Lane, would contain a new residence, and is shown in detail on **Figure 3.5, Parcel A**. Parcel B would contain the existing residence, which would not be demolished or renovated as part of this project. A retaining wall on Parcel B would be moved to accommodate the driveway to Parcels C and D. Changes to the retaining wall would be required to comply with Orinda Municipal Code (OMC) Section 17.4.27, unless otherwise approved through design review. Parcels C and D would be accessed via an extended driveway through Parcel B, and both parcels would contain a new residence; the parcels are shown in detail on **Figure 3.6, Parcels C and D**. Development rights of 8.1 acres across Parcels A, C, and D would be granted to the City of Orinda.

The residences' designs have not yet been developed, but each would be confined to the building development envelopes shown on **Figure 3.4** and conform to Orinda's Hillside and Ridgeline Design Guidelines. The grade profile or building height would be limited to a maximum of 27 feet. The aggregate building height would be limited to a maximum of 35 feet. The development envelopes, and the proposed driveways to access them, have been designed to preserve the existing grade as much as possible, with very little grading necessary and no cut material needing to be off-hauled from the site.

The project would increase the impermeable area on the project site. The existing site is mostly vegetated and permeable, with one residence on approximately 24 acres of land. The project would increase impermeable surfaces, but would leave most of each parcel as permeable and vegetated land. See **Table 3.0-1, Project Acreages,** for the acreage of each lot, size of proposed development envelopes, and area of development rights to be granted to the City.

TABLE 3.0-1
PROJECT ACREAGES

Parcel	Total Size (acres)	Development Envelope Size (acres)	Area of Development Rights Granted to City (acres)
A	5.38	0.385	2.61
B*	7.44	n/a	n/a
C	5.89	0.281	3.62
D	5.32	0.510	1.87
Total**	24.03	1.176	8.10

Notes:
** Parcel B contains an existing residence.*
*** Totals are approximate and may not add up due to rounding.*

RESIDENTIAL DEVELOPMENT STANDARDS

The Orinda Planning and Zoning Code (Municipal Code Title 17) prescribes minimum lot sizes and building setbacks. The new parcels would meet the minimum lot sizes for lots zoned RVL, which are as follows:

- The minimum lot area would be 5 acres.
- The minimum front yard width would be 250 feet.
- The minimum front yard depth would be 200 feet.

Future residences would be built within the proposed development envelopes shown on **Figure 3.4.** They would conform to the setback regulations in the City's Planning and Zoning Code, as follows:

- The minimum front yard setback would be 25 feet.
- The minimum rear yard setback would be 25 feet.
- The minimum side yard setback would be 50 feet.

PROJECT SITE CIRCULATION

The main entry road into the site is the private Sunnyside Lane. Portions of Sunnyside Lane, above its intersection with Sunnyside Court, would be widened to 20 feet within the existing roadway easement to allow for fire and other emergency access. Sunnyside Lane ends in a cul-de-sac at the driveway for the existing residence located on Parcel B. This cul-de-sac meets the Moraga-Orinda Fire District's (MOFD) turnaround requirements.

New driveways would be constructed on existing, rough-graded fire roads and would be a minimum of 16 feet wide. Two turnarounds, meeting MOFD requirements, would be included—one would be located at the edge of the development envelope for Parcel A, and the other would be located where the driveways branch to Parcels C and D. A retaining wall along the western side of the existing residence would be demolished and reconstructed closer to the existing residence on Parcel B to accommodate the driveway width. As stated above, retaining wall construction must comply with Orinda Municipal Code Section 17.4.27.

The driveways and the portion of Sunnyside Lane on-site would be maintained through an agreement between future residents.

GREEN BUILDING STANDARDS

The project residences would be designed to meet the requirements of the most current California Green Building Code, which would be verified when construction drawings are submitted to the City of Orinda and/or its contracted agency (i.e., the Contra Costa County Building Department).

UTILITIES

The project would be connected to the existing water, sewer, electrical, natural gas, and telecommunications networks. Utilities are not presently located in the portion of Sunnyside Lane accessing the property, but are instead located in a utility easement crossing private property from a point lower in the roadway (see **Figure 3.7, Utility Easement**). Additional utility connections for the new residences would also use this easement.

Potable water would be provided to the project by the East Bay Municipal Utility District (EBMUD). Because of the steep slopes in the area, EBMUD would not connect a water main to the proposed residences. Instead, water delivery would be the responsibility of the landowners. Water would be

pumped to the site from five below-grade electric pumps, one for each residence and one for the two fire hydrants on the site. The pumps would be placed in one underground vault in the existing utility easement, which is depicted in **Figure 3.7.** While its exact location and dimensions have not been determined, the vault would be located in the easement adjacent to Sunnyside Lane. The pumps would have no aboveground features. Each residence would have its own water meter, and the electricity to run each pump would be metered at each residence.

Telecommunications, electricity, natural gas, and sanitary sewer service would run through the same utility easement as the water service. These utility services would be installed underground. Sanitary sewer service would be provided via gravity mains from the existing residence and the proposed residence on Parcel A, with force mains necessary from Parcels C and D.[1] The force mains would run back up to the utility easement, where they would then become gravity mains. Pumps to power these mains would be located within the development envelopes on each site.

Service providers for each service are as follows:

- Natural gas and electricity: Pacific Gas and Electric Company (PG&E)
- Telecommunications: AT&T
- Sewer: Central Contra Costa Sanitary District (CCCSD)
- Water: EBMUD

STORMWATER

The project site drains in multiple directions, as the site contains two ridgelines with decreasing elevation on each side. No areas on the project site are prone to pooling or ponding, according to the project's stormwater control plan (**Appendix HYDRO**). The site's existing drainage patterns would not be changed. The project would increase the impervious area on the site by a maximum of approximately ~~1.61~~ 0.65 acres.

Most of the stormwater would discharge to on-site vegetated bioretention areas that meet the requirements for low-impact development in Regional Water Quality Control Board Order R2-2009-0074. The bioretention areas would filter and treat stormwater runoff. All stormwater from the three proposed development areas and their corresponding driveways would be directed to these bioretention areas. Additional runoff created from the widening of Sunnyside Lane would not be directed to bioretention areas, as existing trees and topography make the use of such areas impractical for the roadway runoff. This runoff would be left untreated. See the project's stormwater control plan (**Appendix HYDRO**) for additional details.

[1] Sanitary sewer service is provided by gravity mains (pipes) and force mains. Gravity mains run waste downhill without the use of pumps. Force mains use pumps to move waste uphill.

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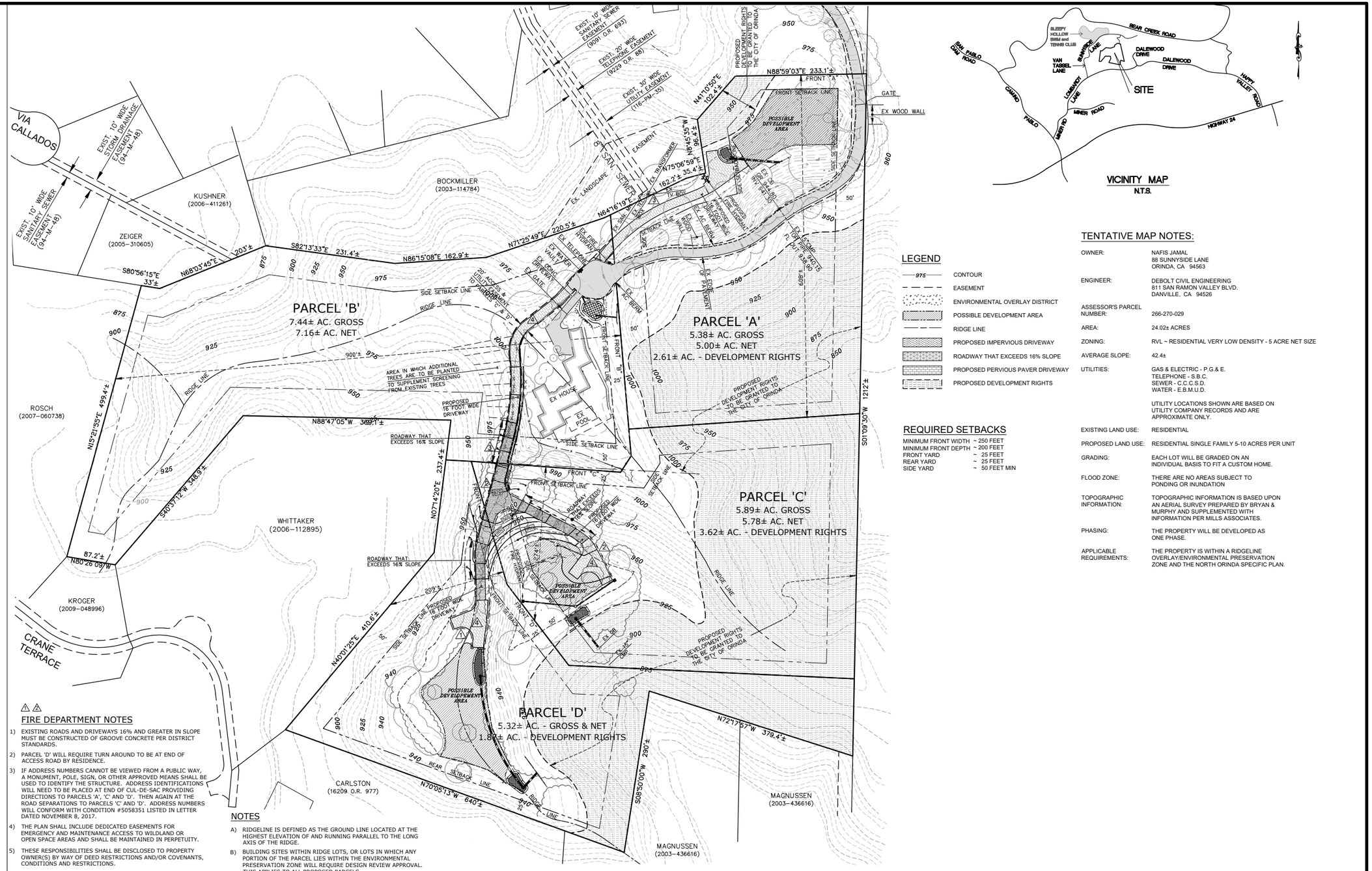
T:_CS\Work\Orinda, City of\Sunnyside Lane CEQA\Figures



VICINITY MAP
N.T.S.

LEGEND

- CONTOUR
- EASEMENT
- ENVIRONMENTAL OVERLAY DISTRICT
- POSSIBLE DEVELOPMENT AREA
- RIDGE LINE
- PROPOSED IMPERVIOUS DRIVEWAY
- ROADWAY THAT EXCEEDS 16% SLOPE
- PROPOSED PERVIOUS PAVER DRIVEWAY
- PROPOSED DEVELOPMENT RIGHTS

REQUIRED SETBACKS

MINIMUM FRONT WIDTH	~ 250 FEET
MINIMUM FRONT DEPTH	~ 200 FEET
FRONT YARD	~ 25 FEET
REAR YARD	~ 25 FEET
SIDE YARD	~ 50 FEET MIN

TENTATIVE MAP NOTES:

OWNER:	NAFIS JAMAL 88 SUNNYSIDE LANE ORINDA, CA 94563
ENGINEER:	DEBOLT CIVIL ENGINEERING 811 SAN RAMON VALLEY BLVD. DANVILLE, CA 94526
ASSESSOR'S PARCEL NUMBER:	266-270-029
AREA:	24.02± ACRES
ZONING:	RVL ~ RESIDENTIAL VERY LOW DENSITY - 5 ACRE NET SIZE
AVERAGE SLOPE:	42.4±
UTILITIES:	GAS & ELECTRIC - P.G.& E. TELEPHONE - S.B.C. SEWER - C.C.C.S.D. WATER - E.B.M.U.D. UTILITY LOCATIONS SHOWN ARE BASED ON UTILITY COMPANY RECORDS AND ARE APPROXIMATE ONLY.
EXISTING LAND USE:	RESIDENTIAL
PROPOSED LAND USE:	RESIDENTIAL SINGLE FAMILY 5-10 ACRES PER UNIT
GRADING:	EACH LOT WILL BE GRADED ON AN INDIVIDUAL BASIS TO FIT A CUSTOM HOME.
FLOOD ZONE:	THERE ARE NO AREAS SUBJECT TO PONDING OR INUNDATION
TOPOGRAPHIC INFORMATION:	TOPOGRAPHIC INFORMATION IS BASED UPON AN AERIAL SURVEY PREPARED BY BRYAN & MURPHY AND SUPPLEMENTED WITH INFORMATION PER MILLS ASSOCIATES.
PHASING:	THE PROPERTY WILL BE DEVELOPED AS ONE PHASE.
APPLICABLE REQUIREMENTS:	THE PROPERTY IS WITHIN A RIDGELINE OVERLAY/ENVIRONMENTAL PRESERVATION ZONE AND THE NORTH ORINDA SPECIFIC PLAN.

⚠ ⚠ FIRE DEPARTMENT NOTES

1) EXISTING ROADS AND DRIVEWAYS 16% AND GREATER IN SLOPE MUST BE CONSTRUCTED OF GROOVE CONCRETE PER DISTRICT STANDARDS.
2) PARCEL 'D' WILL REQUIRE TURN AROUND TO BE AT END OF ACCESS ROAD BY RESIDENCE.
3) IF ADDRESS NUMBERS CANNOT BE VIEWED FROM A PUBLIC WAY, A MONUMENT, POLE, SIGN, OR OTHER APPROVED MEANS SHALL BE USED TO IDENTIFY THE STRUCTURE. ADDRESS IDENTIFICATIONS WILL NEED TO BE PLACED AT END OF CUL-DE-SAC PROVIDING DIRECTIONS TO PARCELS 'A', 'C' AND 'D'. THEN AGAIN AT THE ROAD SEPARATIONS TO PARCELS 'C' AND 'D'. ADDRESS NUMBERS WILL CONFORM WITH CONDITION #5058351 LISTED IN LETTER DATED NOVEMBER 8, 2017.
4) THE PLAN SHALL INCLUDE DEDICATED EASEMENTS FOR EMERGENCY AND MAINTENANCE ACCESS TO WILDLAND OR OPEN SPACE AREAS AND SHALL BE MAINTAINED IN PERPETUITY.
5) THESE RESPONSIBILITIES SHALL BE DISCLOSED TO PROPERTY OWNER(S) BY WAY OF DEED RESTRICTIONS AND/OR COVENANTS, CONDITIONS AND RESTRICTIONS.

NOTES

A) RIDGELINE IS DEFINED AS THE GROUND LINE LOCATED AT THE HIGHEST ELEVATION OF AND RUNNING PARALLEL TO THE LONG AXIS OF THE RIDGE.

B) BUILDING SITES WITHIN RIDGE LOTS, OR LOTS IN WHICH ANY PORTION OF THE PARCEL LIES WITHIN THE ENVIRONMENTAL PRESERVATION ZONE WILL REQUIRE DESIGN REVIEW APPROVAL. THIS APPLIES TO ALL PROPOSED PARCELS.

Source: DeBolt Civil Engineering

Not To Scale

FIGURE 3.4
Proposed Site Plan

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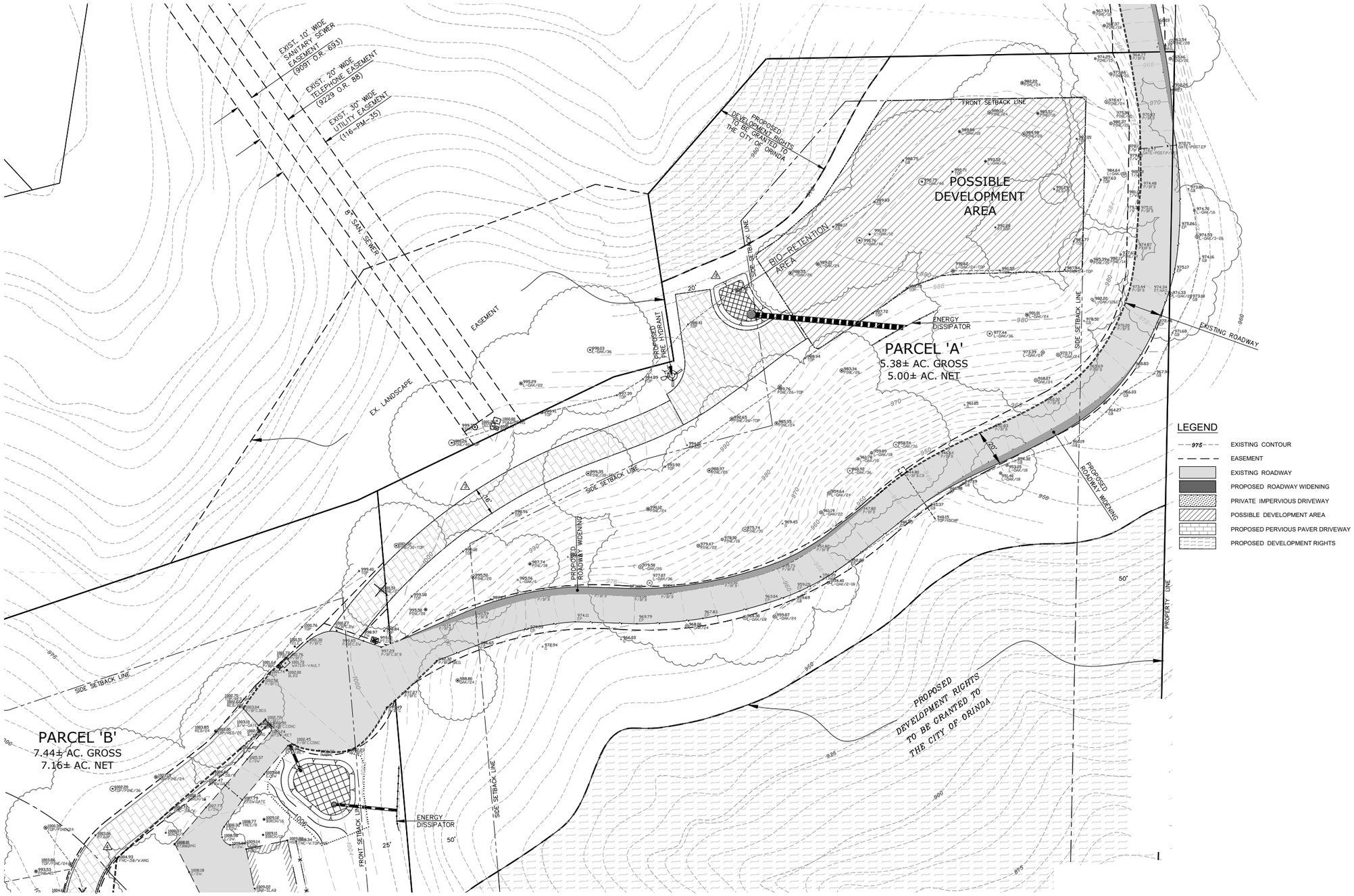
T:_CSIWork\Orinda, City of\Sunnyside Lane CEQA\Figures



Source: DeBolt Civil Engineering

Not To Scale

FIGURE 3.5
Parcel A

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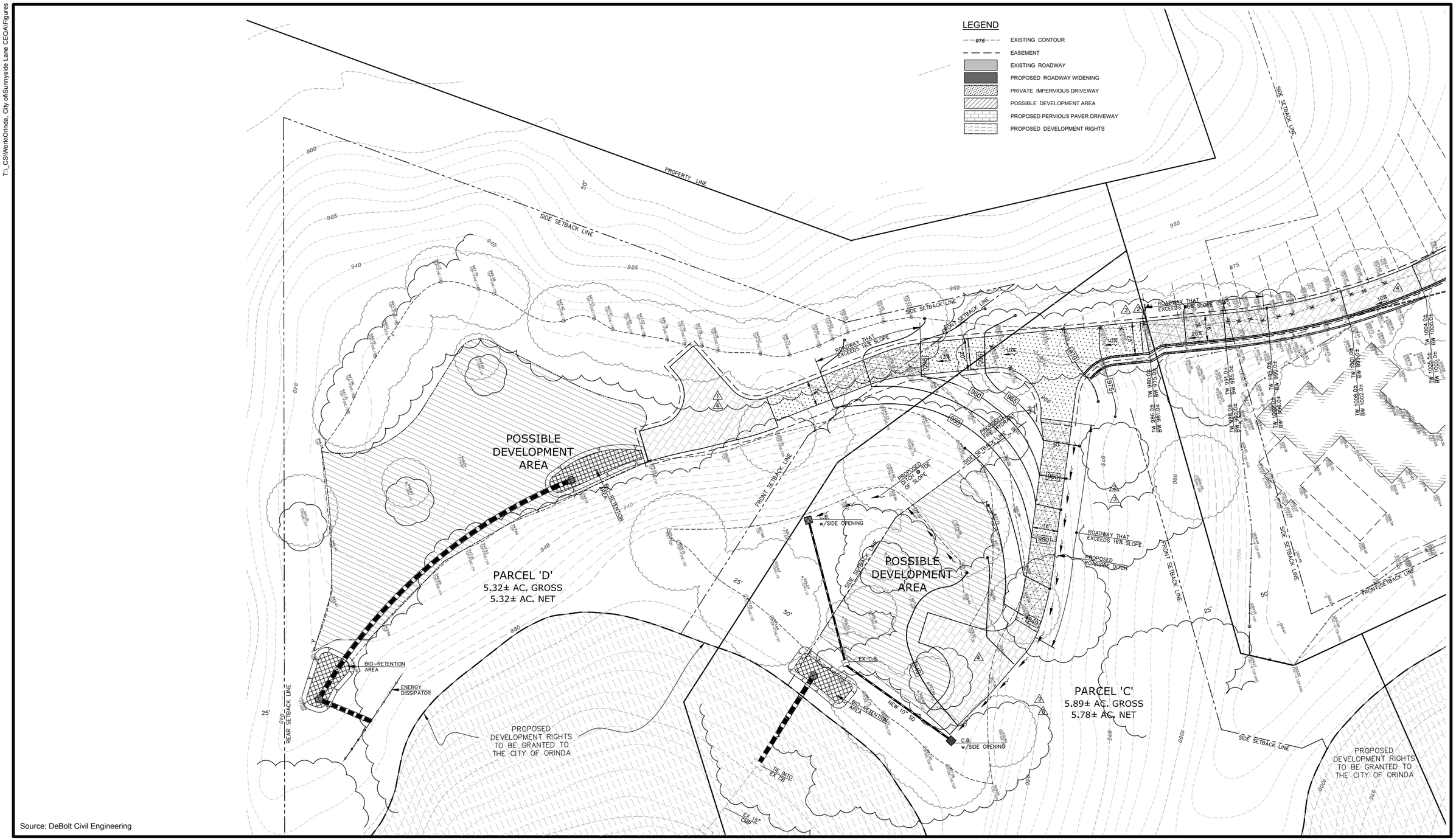

Source: DeBolt Civil Engineering

Not To Scale

FIGURE 3.6
Parcels C and D

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SUNNYSIDE LANE

EX. PAVED DRIVEWAY

EX. BERM

EX. CURB

EX. CONCRETE DRIVEWAY

PROPOSED ROAD WIDENING

EXIST. 30' NON-EXCLUSIVE ROADWAY EASEMENT (2535 OR 390)

EX. FIRE GATE

EX. BRUSH

EX. FIRE GATE

EXIST. 30' WIDE PRIVATE DRIVEWAY EASEMENT (116-PM-35)

EX. RETAINING WALL

EX. CB GR 869.17 INV 862.12

EX. 4'± V-DITCH

EX. CB GR 870.94 SD IN 869.94 INV 867.69

UTILITY EASEMENT

SUNNYSIDE COURT

EXIST. 10' WIDE SANITARY SEWER EASEMENT (3039 O.R. 693)

EXIST. 20' WIDE TELEPHONE EASEMENT (9229 O.R. 86)

EXIST. 30' WIDE UTILITY EASEMENT (116-PM-35)

EXISTING ROADWAY

PROPOSED ROAD WIDENING

20'

N88°59'03"E 233.1'±

N41°10'50"E 102.4'±

PROPOSED DEVELOPMENT RIGHTS TO BE GRANTED TO THE CITY OF ORINDA

GATE

EX WOOD WALL

POSSIBLE DEVELOPMENT AREA

N8°52'53"W 96.7'±

PARCEL 'A'
5.38± AC. GROSS
5.00± AC. NET

N64°16'19"E 162.2'±

N75°06'59"E 35.4'±

EX. BERM

EX EDGE OF PAVEMENT

BOCKMILLER (2003-114784)

825 850 875 900 925 950 960 975 1000

LEGEND

- 975 EXISTING CONTOUR
- UTILITY EASEMENT
- EXISTING ROADWAY
- PROPOSED ROADWAY WIDENING
- PRIVATE DRIVEWAY
- POSSIBLE DEVELOPMENT AREA

Source: DeBolt Civil Engineering

0 60 120
FEET

FIGURE 3.7
Utility Easement

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CONSTRUCTION

Construction activities are anticipated to begin as early as mid-2017~~17~~20 and last approximately 2.5 years. Consistent with the City's Noise Ordinance, construction would occur Monday through Friday between the hours of 8:00 a.m. and 6:00 p.m. Occasional work may occur on Saturdays, and would be limited to the hours between 10:00 a.m. and 5:00 p.m.

Construction activities for site preparation, including removal of vegetation and grading, would last for approximately 6 months. A total of 58 trees are proposed to be removed at this time. These would include 39 Monterey pines, 12 coast live oaks, 4 white birches, and 3 redwoods. This number could change depending on future development designs submitted. Additionally, it is unknown when development applications would be submitted and trees may have grown or died by that time; therefore, the City would require updated tree reports with each application. Per OMC Section 17.21.2, on a lot with an existing structure, only oak species that have a trunk diameter equal to or greater than 12 inches at 4.5 feet above existing grade are defined as "protected." Additionally, with the exception of trees identified on the City's Disallowed Vegetation List, a native "riparian tree[2]" with a trunk diameter of 4.5-inches above its existing grade or a multi-trunk native riparian tree with a cross-sectional area of all trunks equal to a cross-section area of a single stem of 4.5-inches at 4.5 feet above its existing grade, is also considered protected.

The City requires that a tree removal permit be obtained for the removal of any protected tree. The Monterey pines and white birches are not considered "protected trees" because these species are on the City's Disallowed Vegetation List, and therefore, do not need a tree removal permit. Per the August 26, 2015 Tree Preservation Report produced by Traverso Tree Service (**Appendix BIO**), The 11[3] coast live oaks are considered protected trees, and therefore, their removal would require a tree removal permit. Replacement trees for the removal of any protected tree(s) would be subject to requirements specified in OMC Section 17.21.5(F). Impacts on trees and other biological resources are discussed in more detail in subsection 4.4, Biological Resources, of this IS/MND. Grading for the project would include approximately 875 cubic yards of cut and approximately 875 cubic yards of fill. No cut material would need to be exported from the site.

Project construction would take place in three phases, as shown in **Table 3.0-2, Construction Phasing and Duration.**

[2] Per OMC 17.21.2 a riparian tree "is a tree within 30 feet of the edge of a creek bank or a tree beyond 30 feet but in such proximity to a creek bank that it requires or tolerates soil moisture levels in excess of that available in adjacent uplands."

[3] Tree Tags #13, 25, 32, 56, 57, 85, 87, 129, 139, 178, and 179. The December 19, 2016 memorandum from Michael Baker, International notes the following "The original arborist report indicated that the two coast live oak trees numbered 139 and 129 on parcel D would be retained; however, these trees are now slated for removal."

TABLE 3.0-2
CONSTRUCTION PHASING AND DURATION

Phase	Duration	Construction Activities
Phase 1: Utilities, road, and driveway construction	6 months	• Widening of Sunnyside Lane • Installing water pumps at base of utility easement • Moving retaining wall next to the existing residence • Constructing driveways to the new residences' development envelopes
Phase 2: Construction of first two residences (Parcels A and C)	1 year	• Grading of residence sites • Excavation/foundations • Podium slab/rough utilities • Rough framing/roofing/exterior • Interior finish/plumbing/electrical • Fixtures/casework/appliances
Phase 3: Construction of final residence (Parcel D)	1 year	• Same as Phase 2
Total	**2.5 years**	

Construction equipment would include heavy equipment such as bulldozers, ~~scrapers~~ drill/boring rigs, backhoes, excavators, loaders, compactors, rollers, and paving machines. Construction crews would vary in size and would comprise approximately 6 to 10 people.

3.4 PROJECT APPROVALS

As the lead agency, the City of Orinda has the ultimate authority for project approval or denial. The proposed project may require the following discretionary approvals by the City for actions proposed as part of the project:

- Adopt an Initial Study/Mitigated Negative Declaration
- Approve the vesting tentative map for the 4-lot subdivision
- Conduct Design Review
- Issue Tree Removal Permit
- Approve building plans when available

3.5 RELATIONSHIP OF PROJECT TO OTHER PLANS

ORINDA GENERAL PLAN

The project would be located entirely in Orinda. The project has been reviewed for consistency with the Orinda General Plan, which is the fundamental document governing land-use development in the city. The General Plan includes numerous goals and policies pertaining to land use and design, growth management, circulation, community facilities and utilities, open

space and conservation, health, safety, and noise. The proposed project would be required to abide by all applicable goals and policies included in the adopted General Plan.

ORINDA MUNICIPAL CODE

The project would be developed in compliance with all applicable ordinances contained in the City's Municipal Code, including Title 17, Zoning.

~~NORTH ORINDA SPECIFIC PLAN~~

~~The project is located in the North Orinda Specific Plan area. The City will review all project features to ensure substantial compliance with the Specific Plan.~~

ORINDA HILLSIDE AND RIDGELINE DESIGN GUIDELINES

The project would be developed in compliance with the City's Hillside and Ridgeline Design Guidelines. These guidelines were adopted to preserve the community's character and help protect residents' views.

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4.0 ENVIRONMENTAL CHECKLIST

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.1	**AESTHETICS.** Would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

SETTING

Scenic Vistas

Scenic vistas are typically described as areas of natural beauty with features such as topography, watercourses, rock outcrops, and natural vegetation that contribute to the landscape's quality. Orinda's location in a hilly portion of the East Bay provides topographical and visual interest, and views of the surrounding hillsides are one of the city's primary visual characteristics and amenities. Hill and ridgeline views are available from many vantage points within the city limits. To protect scenic vistas, the City (1988) has implemented Hillside and Ridgeline Design Guidelines.

Scenic Resources within Scenic Highways

Scenic resources typically include trees, rock outcroppings, and historic buildings within a state scenic highway. State Route (SR) 24 is designated as a state scenic highway by the California Department of Transportation (Caltrans) State Scenic Highway Program (2011). SR 24 and a number of other roadways are designated scenic corridors in the Orinda General Plan for their quality of views. These routes are Moraga Way from its intersection with Camino Pablo south to the city limits, and Camino Pablo from its intersection with Santa Maria Way north to the city limits (Orinda 1987). General Plan policies protect and enhance public views from and in these corridors.

Visual Character

Visual character is the overall perceptible aesthetic quality of an area created by its unique combination of visual features such as form, bulk, scale, texture, color, and viewing range. Generally, the key factors in determining the potential adverse impact on visual character are (1) substantial changes to the existing physical features of the landscape that are characteristic of the region or locale; (2) the introduction of new features to the physical landscape that are perceptibly uncharacteristic of the region or locale or that become visually dominant from common view points; or (3) blocked or completely obscured scenic resources in the landscape.

The project site and surrounding area are characterized by hilly terrain with both single-family residences and undeveloped hillsides featuring mixed oak and pine woodland and native ground

cover. The project site is located on two ridgelines, with views to other private residences downslope and across to other nearby ridgelines. The visual character of the surrounding area includes hills and ridgelines with existing residences, most of which are located on large lots with vegetation surrounding each residence.

The project site currently has one residence, which is not an established visual feature in the neighborhood. Because the existing residence is located on top of a ridgeline, it can be viewed from off-site, but existing vegetation blocks and reduces existing sight lines. The rest of the site is vegetated with a mix of trees and other shrubs.

DISCUSSION OF IMPACTS

a) **Would the project have a substantial adverse effect on a scenic vista? Less Than Significant Impact.** The City does not designate specific scenic vistas in the General Plan. However, because the geography of Orinda is characterized by hillsides, the natural vegetation and views of the surrounding area meet the definition of a scenic vista in the setting. The project site is located on two ridgelines, with most of the property vegetated except for the existing residence, its driveway, and yard. The project would construct three new residences and their associated improvements, which have not yet been designed. However, the new construction would be subject to the City's design review process. This process is used to preserve and enhance the semi-rural character of Orinda, maintain property values, conserve and enhance the visual character of the community, and protect health and safety. Development would also be subject to the basic design review standards of Orinda Municipal Code (OMC) Section 17.30.5 and the special design review standards for ridgeline lots in OMC Section 17.30.7, which includes compliance with the City's Hillside and Ridgeline Design Guidelines.

The proposed development envelopes would be set back from the ridgelines, with existing mature trees blocking public views of much of the new development. Visual simulations were created to show the project's impact from publicly accessible areas. First, a viewshed map was created to determine which areas could view the project site within a 1-mile radius. This map is included as **Figure 4.1.1, Project Viewshed**. This figure demonstrates the project's potential visibility based on an elevation study, with the assumption that there is a clear line of sight, free of any development, vegetation, or any other natural or constructed features. Existing structures, vegetation, or other visual obstructions would reduce the project's actual visibility. Photographs were then taken from seven public locations. Of these locations, two were used to create visual simulations showing how the development would impact the area's aesthetics. Because the residences have not yet been designed, the simulations were created assuming maximum building massing while adhering to the City's Hillside and Ridgeline Design Guidelines. Before and after pictures are shown in **Figure 4.1.2, Visual Simulation 1** (taken adjacent to 13 Gardiner Court), and **Figure 4.1.3, Visual Simulation 2** (taken adjacent to 83 Tiger Tail Court). As these simulations suggest, the project's impacts on public views would be minimal. Existing foreground vegetation would block views of most of the development from public viewpoints, and proposed landscaping would minimize the structures' impacts. The three new residences would not change the overall visual characteristic of the area, as existing residences with large lots are common in the area.

Given the design review process, required compliance with the Hillside and Ridgeline Design Guidelines, existing trees blocking much of the development, and the area's developed characteristics, impacts on scenic vistas would be less than significant.

b) **Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway? No Impact**. State Route 24 is a designated state scenic highway, and portions of Moraga Way and Camino Pablo are designated scenic corridors. SR 24 is approximately 1.7 miles from the project site. The closest portion of Moraga Way that is designated a scenic corridor is approximately 2.6 miles away. The closest portion of Camino Pablo that is designated a scenic corridor is approximately 1.8 miles from the project site. The site is not visible from any of these locations. In addition, there are no trees, rock outcroppings, historic buildings, or other scenic resources on the project site that would add to the scenic quality of the area. Therefore, the project would have no impact.

c) **Would the project substantially degrade the existing visual character or quality of the site and its surroundings? Less Than Significant Impact**. The project site is located on two ridgelines in the Sleepy Hollow neighborhood of Orinda. The project area is predominantly characterized by single-family residential development on large lots, with vegetation surrounding each residence.

The project site has one existing residence on approximately 24 acres, which would be subdivided to create three new parcels. The project would construct three residences on the new parcels. The project would be constructed on previously rough-graded portions of the parcel, near the existing ridgelines. Each parcel would meet the minimum required lot size for parcels zoned Residential Very Low Density (RVL). The project development envelopes would meet the setback requirements for parcels zoned RVL. The project would require the removal of 58 trees, but much of the existing vegetation would not be impacted because it would be outside of the development envelopes and driveways. A tree preservation report is included in **Appendix BIO** that shows which trees would remain in place, screening the project, and which would be removed. Existing trees would screen much of the new development from public view.

As described in Item 4.1(a), the residences have not yet been designed. Prior to construction, any project involving a new structure on the newly-formed parcels would be required to go through the City's design review process and would be subject to the basic design review standards and the special design review standards in the OMC for ridgeline lots. The design review process includes landscaping to help blend the proposed residences with the natural context of the site and to address any potential viewshed concerns. Therefore, impacts would be less than significant.

d) **Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area? Less Than Significant Impact**. The project would introduce new sources of light and/or glare in the area from windows and exterior lighting on proposed residences, as well as from project-related traffic via vehicle headlights. The surrounding area does not have streetlights, and the project would not add any. Much of the additional light and glare would be blocked by on-site vegetation. Further, the project would be subject to all City codes and policies regarding lighting such as OMC Section 15.12.050, Public Nuisance Lighting, and be subject to the City's design review process. Therefore, the project would have a less than significant impact.

Mitigation Measures

None required.

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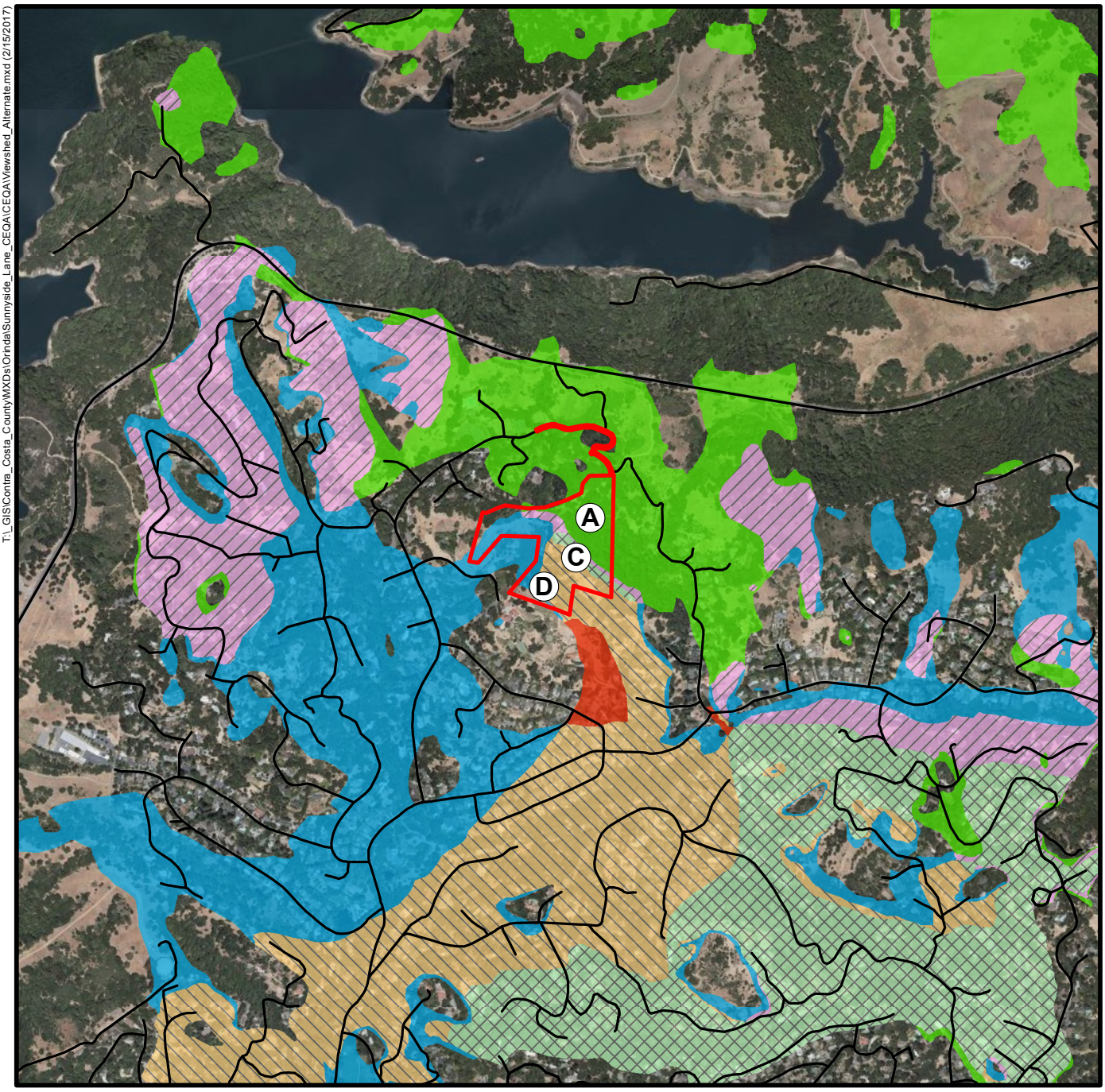

Legend

Project Site — Existing Roads — A C D Parcel Location Indicators

Single Parcel Visible	Multiple Parcels Visible
Areas in which only Parcel A is Visible	Areas in which Parcels A and D are visible
Areas in which only Parcel C is Visible	Areas in which Parcels C and D are visible
Areas in which only Parcel D is Visible	Areas in which Parcels A, C and D are visible

Source: VIZf/x Digital Environments, ESRI, Census

N

0 1,000 2,000
FEET

FIGURE 4.1-1
Project Viewshed

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Before

After

T:_GIS\Contra_Costa_County\MXDs\Orinda\Sunnyside_Lane_CEQA\CEQA\Visual Simulation 1.mxd (2/6/2017)

FIGURE 4.1.2
Visual Simulation 1
(Vantage point is adjacent to 13 Gardiner Court).

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Before

After

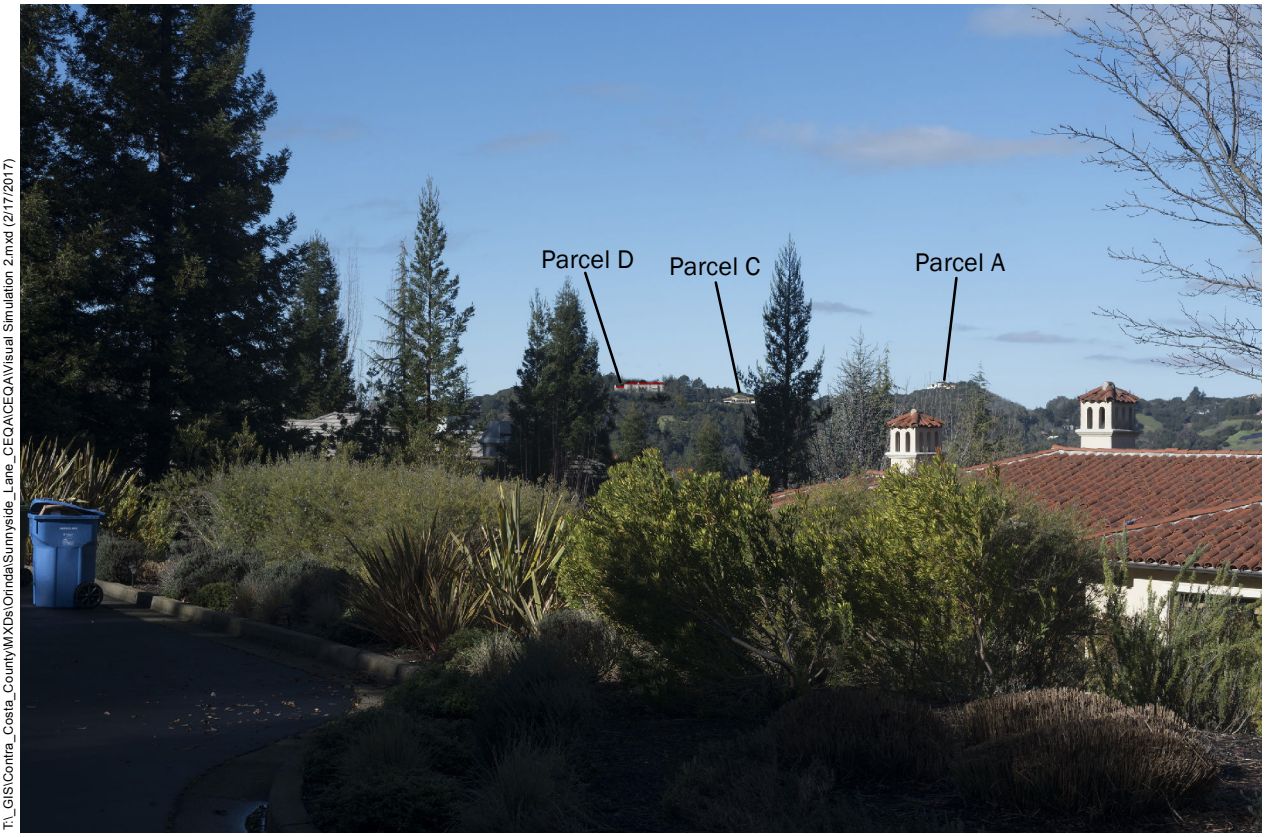

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FIGURE 4.1.3
Visual Simulation 2
(Vantage point is adjacent to 83 Tiger Tail Court).

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	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.2 AGRICULTURE RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997), prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use?	☐	☐	☐	☒
d) Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 12220(g), timberland (as defined in Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined in Public Resources Code Section 51104(g))?	☐	☐	☐	☒
e) Result in the loss of forestland or conversion of forestland to non-forest use?	☐	☐	☐	☒

SETTING

According to the Important Farmland map for Contra Costa County (DOC 2014), the project site and all adjacent properties have been designated as Other Land. This designation is defined as land that is not in any other category. It often includes low-density rural developments, brush, timber, wetland and riparian areas not suitable for livestock grazing, confined livestock, poultry, or aquaculture facilities, strip mines, borrow pits, and water bodies smaller than 40 acres. The project site has one existing residence on approximately 24 acres of land and therefore falls into the low-density rural development category. The site is not currently used for any type of agricultural or forestry use and is not zoned for agricultural or forestry use. The project site is not subject to a Williamson Act contract (DOC 2013).

DISCUSSION OF IMPACTS

a) **Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use? No Impact.** The project would not result in the conversion of any Prime Farmland,

Unique Farmland, or Farmland of Statewide Importance to nonagricultural uses. The project would have no impact.

b) **Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? No Impact**. The project site is currently zoned RVL (Residential Very Low Density), which allows for agricultural operations if the owner applies for a use permit. The owner has not previously applied, and does not plan to apply, for such a use permit. Further, the project site is not subject to a Williamson Act contract. Therefore, the project would have no impact.

c) **Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use? No Impact**. The project site is currently zoned RVL, which does not include forestry or timber production as allowable uses (Orinda 2016). Therefore, the project would not result in any conflicts with zoning for forestland or timberland production and would have no impact.

d) **Would the project conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 12220(g), timberland (as defined in Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined in Public Resources Code Section 51104(g))? No Impact**. As described previously, the project site does not contain any forestland. Therefore, the project would not result in the loss or conversion of any forestland and would have no impact on forestland or timberland.

e) **Would the project result in the loss of forestland or conversion of forestland to non-forest use? No Impact**. As described previously, the project site and adjacent properties are not zoned as forestland and do not meet the definition of forestland. Therefore, the project would not result in the conversion of forestland and would have no impact.

Mitigation Measures

None required.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.3	**AIR QUALITY.** Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	~~☒~~
b)	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☒	~~☒~~	☐
d)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	~~☒~~	☐
e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☒	~~☒~~

SETTING

Both the US Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. The project site is located in the San Francisco Bay Area Air Basin (SFBAAB), which is overseen by the Bay Area Air Quality Management District (BAAQMD) in terms of achieving EPA and CARB air quality standards in the region. The project site is in the Contra Costa County portion of the SFBAAB.

The ambient air quality standards represent levels of contaminants that are considered at safe levels which avoid specific adverse health effects associated with each pollutant. The ambient air quality standards ~~cover what are called~~ apply to "criteria" pollutants because ~~health and other effects of each pollutant are described in criteria documents~~ the EPA regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. These six pollutants are carbon monoxide (CO), lead, nitrogen dioxide (NO_2), ground-level ozone (O_3), particle matter (PM; subdivided into Coarse Particulate Matter [PM_{10}] and Fine Particulate Matter [$PM_{2.5}$]), and sulfur dioxide (SO_2). In addition, air control districts regulate emissions of precursor pollutants which undergo chemical and photochemical reactions in the atmosphere to form criteria pollutants. The primary precursor pollutants are reactive organic gasses (ROGs), also known as volatile organic compounds (VOCs),[1] and nitrogen oxides (NO_X).

[1] CARB defines and uses the term ROGs while the EPA defines and uses the term VOCs. The compounds included in the lists of ROGs and VOCs and the methods of calculation are slightly different. However, for the purposes of estimating criteria pollutant precursor emissions, the two terms are often used interchangeably.

Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas. The SFBAAB is currently designated as nonattainment for the state and federal ambient air quality standards for ~~ground-level~~ ozone (O_3) and fine particulate matter ($PM_{2.5}$) as well as the state standards for coarse particulate matter (PM_{10}).

The BAAQMD operates a network of ambient air monitoring stations throughout the SFBAAB. The air quality monitoring station closest to the City of Orinda is the Concord Treat Boulevard Monitoring Station, approximately 8.7 miles east of the project site. The are no monitoring stations in the SFAAB for SO_2 or Lead. The ambient pollutant concentrations collected at the station during the last 3 available years (2016 through 2018) are shown in **Appendix AIR and GHG, Table AIR-1**. The data indicates: exceedance of the state 1-hour ozone standard on one day in 2016; exceedance of the state/federal 8-hour standards on two days in 2016; exceedance of the state PM_{10} standards on multiple days in 2018; and exceedance of the federal $PM_{2.5}$ standard on multiple days in 2018. Data for NO_2 showed no exceedances from 2016 through 2018.

~~The BAAQMD prepared the Bay Area 2010 Clean Air Plan to address the air basin's nonattainment status with the national 1-hour ozone standard and the California ambient air quality standards. The BAAQMD also prepared ozone attainment plans for the national ozone standard and clean air plans for the California standard, both in coordination with the Metropolitan Transportation Commission and the Association of Bay Area Governments (ABAG). The BAAQMD is currently updating the 2010 Clean Air Plan in partnership with ABAG, the Bay Conservation and Development Commission, and the Metropolitan Transportation Commission. The 2016 Clean Air Plan/Regional Climate Protection Strategy will be a road map for the air district's efforts over the next few years to reduce air pollution and protect public health and the global climate. The California Clean Air Act requires the Clean Air Plan to identify potential rules, control measures, and strategies for the Bay Area to implement in order to meet state standards for ozone.~~

The BAAQMD 2017 Clean Air Plan (Plan), adopted on April 19, 2017 provides a regional strategy to protect public health and protect the climate. The 2017 Plan updates the most recent Bay Area ozone plan, the 2010 Clean Air Plan, pursuant to air quality planning requirements defined in the California Health & Safety Code. To fulfill state ozone planning requirements, the 2017 control strategy includes all feasible measures to reduce emissions of ozone precursors—ROG and NO_X—and reduce transport of ozone and its precursors to neighboring air basins. In addition, the Plan builds upon and enhances the Air District's efforts to reduce emissions of fine particulate matter and toxic air contaminants (BAAQMD 2017a).

On June 2, 2010, the BAAQMD's Board of Directors unanimously adopted thresholds of significance to assist local jurisdictions during the review of projects subject to CEQA. These thresholds of significance were designed to establish the level at which the BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. BAAQMD thresholds were developed based on substantial evidence that such thresholds represent quantitative levels of criteria air pollutant and ozone precursor emissions, compliance with which means that the environmental impact of such emissions will normally not result in significant air quality impacts (BAAQMD ~~2011a~~2017b). The BAAQMD's justification for the adopted thresholds of significance was incorporated into the BAAQMD's updated 2017 CEQA Air Quality Guidelines (~~2011a~~2017b). For a project's construction-related emissions of fugitive dust PM_{10} and $PM_{2.5}$, rather than adopting quantitative mass emissions thresholds, the BAAQMD has adopted a qualitative threshold where a project's fugitive dust emissions would be considered to have a less than significant impact if the project implements the Basic Construction Mitigation Measures (BCMMs; BAAQMD 2017b).

DISCUSSION OF IMPACTS

a) **Would the project conflict with or obstruct implementation of the applicable air quality plan? ~~No~~ Less Than Significant Impact**. As part of its enforcement responsibilities, the EPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under state law, the California Clean Air Act requires an air quality attainment plan to be prepared for areas designated as nonattainment with regard to the federal and state ambient air quality standards. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

The BAAQMD prepared the ~~Bay Area 2010~~ 2017 Clean Air Plan as a multipollutant plan to address the air basin's nonattainment status related to the national 1-hour ozone standard and the California ambient air quality standards, as well as particulate matter, air toxics, and greenhouse gases. The plan establishes a program of ~~rules and regulations~~ control measures directed at reducing air pollutant emissions and achieving state (California) and national air quality standards. The Clean Air Plan's pollutant control strategies are based on the latest scientific and technical information and planning assumptions, updated emission inventory methodologies for various source categories, and the latest population growth projections and vehicle miles traveled (VMT) projections for the region (BAAQMD 2017a).

~~Criteria for determining consistency with the Clean Air Plan are defined by the following indicators:~~ Projects that meet the following criteria would be considered consistent with the Clean Air Plan:

- Consistency Criterion No. 1: The project supports the primary goals of the Clean Air Plan.

- Consistency Criterion No. 2: The project conforms to applicable control measures from the Clean Air Plan and does not disrupt or hinder the implementation of any Clean Air Plan control measures.

The ~~violations~~ primary goals to which Consistency Criterion No. 1 refer are progress towards attainment of the California ambient air quality standards and the national ambient air quality standards. As evaluated in Item 4.3(b) below, the project would generate emissions but ~~the project~~ they would not exceed operational standards and therefore would not violate air quality standards. Thus, the project would be consistent with the first criterion.

Concerning Consistency Criterion No. 2, the Bay Area Clean Air Plan contains air pollutant reduction strategies and demonstrates that the applicable ambient air quality standards can be achieved within the time frames required under federal law. Growth projections from local general plans adopted by cities in the air district are used to develop regional growth forecasts. The regional growth forecasts are used to develop future air quality forecasts for the Bay Area Clean Air Plan. Development in Orinda consistent with the growth projections in the Orinda General Plan is considered to be consistent with the Clean Air Plan. As described in subsection 4.10, Land Use and Planning, the project would be consistent with the land use designation and development density specified in the

General Plan and therefore would not exceed the population projections used to inform the air quality forecasts of the Bay Area ~~2010~~ 2017 Clean Air Plan.

~~Thus, no impact would occur, as the project would be consistent with both criteria.~~ Therefore, the project would not conflict with or obstruct implementation of the BAAQMD 2017 Clean Air Plan. The impact would be less than significant.

b) **Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation? Less Than Significant Impact With Mitigation Incorporated**. The BAAQMD developed project-level thresholds of significance to provide a conservative indication of whether a proposed project could result in potentially significant air quality impacts. The thresholds are listed in **Appendix AIR and GHG, Table AIR-2**. To meet the project-level threshold of significance for construction-related criteria air pollutant and precursor impacts, the proposed project must emit no more than 54 pounds per day (lbs/day) of reactive organic gases (ROG), nitrogen oxides (NOx), and/or exhaust-related $PM_{2.5}$, and no more than 82 lbs/day of exhaust-related PM_{10}. Concerning fugitive dust-related $PM_{2.5}$ and PM_{10} emissions generated during construction, the BAAQMD states that implementation of its Basic Construction Mitigation Measures is necessary to reduce such emissions to a level that is considered less than significant. The same maximum pounds per day are applicable to operational-related criteria air pollutant and precursor impacts for ROG, NOx, $PM_{2.5}$, and PM_{10}.

Criteria pollutant and precursor emissions for the project were calculated using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. The model was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the California air districts. CalEEMod allows for the use of default data (e.g., emission factors, trip generation, trip lengths, meteorology, source inventory) provided by the various California air districts to account for local requirements and conditions, and/or user-defined inputs. The calculation methodology and input data used in CalEEMod can be found in the CalEEMod User's Guide Appendices A, D, and E (CAPCOA 2017). The input data and subsequent emission estimates for the proposed project are discussed below. The CalEEMod output files for the project are included as **Appendix AIR** to this Initial Study.

Construction Emissions

Construction-generated emissions are short term and of temporary duration, lasting only as long as construction activities occur, but have the potential to represent a significant air quality impact. The proposed project would result in the temporary generation of emissions resulting from site grading and excavations, paving, motor vehicle exhaust associated with construction equipment and worker trips, the movement of construction equipment, and architectural coatings. Off-road construction equipment is often diesel-powered and can be a substantial source of NOx emissions, in addition to PM_{10} and $PM_{2.5}$ emissions. Worker commute trips and architectural coatings are dominant sources of ROG emissions. Fugitive dust, the dominant source of PM_{10} and $PM_{2.5}$ emissions, is generated when wheels or blades disturb surface materials. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. As previously described, the BAAQMD states that implementation of its Basic Construction Mitigation Measures is necessary to reduce fugitive dust emissions to less than significant

levels. These measures are included as mitigation measure **MM 4.3.1**. In addition, **MM 4.3.1** requires the use of EPA certified Tier-3 engines or equivalent CARB approved engine retrofits for all diesel-powered off-road construction equipment with more than 50 horsepower (hp). EPA certified Tier-3 engines significantly reduce emissions of PM_{10} and $PM_{2.5}$ in the engine exhaust. The construction equipment assumed in the model was based on CalEEMod defaults with additional equipment for installation of underground utilities and for installation of foundation support piers and slope stabilization walls in accordance with the Geotechnical Investigation (Peters and Ross 2019).

Predicted maximum daily construction-generated emissions for the project are summarized in **Table 4.3-1**, **Construction-Related Criteria Pollutant and Precursor Emissions**. These emissions estimates account for the quantifiable components of the BAAQMD's Basic Construction Mitigation Measures required to reduce fugitive dust impacts to less than significant levels.

TABLE 4.3-1
CONSTRUCTION-RELATED CRITERIA POLLUTANT AND PRECURSOR EMISSIONS
(MAXIMUM POUNDS PER DAY)

Construction Activities	ROG	NO_X	Exhaust PM_{10}	Exhaust $PM_{2.5}$	Fugitive Dust PM_{10}	Fugitive Dust $PM_{2.5}$
Phase 1 Construction *Maximum Daily Emissions*	~~1.95~~ 0.8	~~22.23~~ 18.4	~~1.04~~ 0.7	~~0.96~~ 0.7	~~2.66~~ 2.7	~~1.34~~ 1.3
Phase 2 Construction *Maximum Daily Emissions*	~~12.75~~ 8.8	~~29.67~~ 17.4	~~1.80~~ 0.4	~~1.72~~ 0.4	~~2.65~~ 2.7	~~1.33~~ 1.3
Phase 3 Construction *Maximum Daily Emissions*	~~12.24~~ 8.8	~~26.66~~ 14.6	~~1.53~~ 0.4	~~1.47~~ 0.4	~~2.65~~ 2.7	~~1.33~~ 1.3
BAAQMD Potentially Significant Impact Threshold	54 pounds/ day	54 pounds/ day	82 pounds/ day	54 pounds/ day	Basic Construction Mitigation Measures	Basic Construction Mitigation Measures
Exceed BAAQMD Threshold?	**No**	**No**	**No**	**No**	**No (with BCMMs)**	**No (with BCMMs)**

*Source: CalEEMod version 2016.3.1. See **Appendix AIR and GHG** for emission model outputs.*
*Note: The project applicant is required to implement the BAAQMD's Basic Construction Mitigation Measures per mitigation measure **MM 4.3.1**. Emissions estimates account for the quantifiable components of the BAAQMD's Basic Construction Mitigation Measures, specifically watering unpaved potions of the construction site twice daily, limiting off-road equipment to speeds of 15 mph, and removing dirt track-out on adjacent public roads with a wet power vacuum once daily, and the requirement for Tier-3 engines for all diesel-powered off-road equipment with more than 50 hp. .*

As shown in **Table 4.3-1**, all criteria pollutant and ozone precursor emissions would remain below their respective thresholds. Because BAAQMD considers projects that do not implement the BCMMs to have potentially significant fugitive dust emissions~~, could impact sensitive receptors nearby, this impact would be significant and~~ mitigation measure **MM 4.3.1** would be required. With the implementation of mitigation measure **MM 4.3.1**, which requires implementation of BCMMS, ~~and BAAQMD mitigation measures,~~ construction-generated emissions would be less than significant with mitigation incorporated.

Operational Impacts

~~Increases in project~~ Operational air emissions would generally consist of stationary and mobile sources and would result in regional emissions of PM_{10} and $PM_{2.5}$, as well as ROG,

NOx, and carbon monoxide (CO)~~, thereby increasing potential operational air quality impacts. Michael Baker International estimated criteria pollutant emissions generated during a typical year of project operation. In addition to projected stationary emissions, mobile emissions.~~ The project's operational emissions are quantified and compared to BAAQMD significance thresholds in **Table 4.3-2, Estimated Operational Emissions**. The emissions estimates assume compliance with BAAQMD Regulation 6, Rule 3 – Wood-Burning Devices, which does not permit permanently installed wood-burning devices (e.g., wood burning fireplaces, wood stoves) in new development (BAAQMD 2015).

TABLE 4.3-2
ESTIMATED OPERATIONAL EMISSIONS
(MAXIMUM POUNDS PER DAY)

Total Emissions					
Emission Source	**ROG**	**NO_x**	**Total PM_{10}**	**Total $PM_{2.5}$**	**CO**
Summer					
Operational Emissions	~~3.33~~ 0.2	~~0.32~~ 0.2	~~0.72~~ <0.01	~~0.61~~ <0.01	~~4.91~~ 0.7
Winter					
Operational Emissions	~~3.32~~ 0.2	~~0.34~~ 0.2	~~0.72~~ <0.01	~~0.61~~ <0.01	~~4.91~~ 0.7
BAAQMD Potentially Significant Impact Threshold	54	54	82	54	—
Exceed BAAQMD Threshold?	**No**	**No**	**No**	**No**	**N/A**

*Source: CalEEMod version 2016.3.1. See **Appendix AIR and GHG** for emission model outputs.*

As shown in **Table 4.3-2**, the proposed project would not exceed BAAQMD thresholds for air pollutant emissions. Therefore, long-term operational air quality impacts would be less than significant because the project's long-term operational emissions would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.

c) **Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)? Less Than Significant Impact with Mitigation Incorporated**. Past, present and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. According to the BAAQMD, no single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. In developing thresholds of significance for air pollutants, the BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. According to the BAAQMD, if a project exceeds the district's

identified significance thresholds, the project would be cumulatively considerable.[2] As demonstrated under Item 4.3(b), the proposed project would not exceed BAAQMD thresholds for air pollutant emissions during construction (with incorporation of mitigation measure **MM 4.3.1**) or operations (see **Tables 4.3-1** and **4.3-2**). Therefore, since the project would not exceed BAAQMD significance thresholds, it would not result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment. ~~result in less than significant cumulative impacts.~~ The impact would be less than significant with mitigation incorporated.

d) **Would the project expose sensitive receptors to substantial pollutant concentrations? Less Than Significant Impact with Mitigation Incorporated**. Sensitive receptors are generally defined as uses that house or attract groups of children, the elderly, people with illnesses, and others who are especially sensitive to the effects of air pollutants. Residential areas are examples of sensitive receptors.

Short-Term Construction ~~Toxics~~ Emissions

~~The project site is located adjacent to residential neighborhoods to the north, south, and west.~~ The existing residence on the project site would be considered a sensitive receptor. In addition, there are existing off-site residences (including outdoor living areas) approximately 50 feet south of the portion of Sunnyside Lane that would be widened; approximately 200 feet south of the Parcel D development envelope; approximately 230 feet west of the Parcel C development envelope; and approximately 230 feet northwest the Parcel A development envelope. In addition, there are existing residences approximately 25 feet from both sides of the two utility easements where the installation of underground utilities for the project could occur.

Diesel Particulate Matter

Sources of construction-related air toxics potentially affecting sensitive receptors include off-road, diesel-powered equipment. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The solid emissions in diesel exhaust are known as Diesel Particulate Matter (diesel PM). In 1998, California identified diesel PM as a Toxic Air Contaminant (TAC) based on its potential to cause cancer, premature death, and other health problems (e.g., asthma attacks and other respiratory symptoms). Those most vulnerable are children whose lungs are still developing and the elderly who may have other serious health problems (CARB 2011).

Construction would result in the generation of diesel particulate matter (diesel PM) emissions from the use of off-road diesel equipment required for grading and excavation, paving, and other construction activities. The amount to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to toxic air contaminant emission levels that exceed applicable standards). Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer.

[2] If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is unnecessary (BAAQMD 2017b).

The use of diesel-powered construction equipment would be temporary and episodic. The duration of exposure would be short and exhaust from construction equipment dissipates rapidly. Current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 30, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities. Additionally, project-construction activities would occur in an area of less than 5 acres. Construction projects contained in a site of such size represent less than significant health risk impacts due to (1) limitations on the off-road diesel equipment able to operate and thus a reduced amount of generated diesel PM, (2) the reduced amount of dust-generating ground disturbance possible compared to larger construction sites, and (3) the reduced duration of construction activities compared to the development of larger sites. Additionally, compliance with mitigation measure **MM 4.3.1**, which would require the use of EPA certified Tier-3 engines, or equivalent, for diesel-powered off-road equipment with more than 50 hp, would reduce the amount of construction-generated ~~fugitive dust~~ diesel PM by approximately 38 percent. [3] In addition, construction activities would be subject to and would comply with California regulations limiting the idling of vehicles to no more than 5 minutes, which would further reduce nearby sensitive receptors' exposure to temporary and variable diesel PM emissions.

For these reasons and because diesel ~~fumes~~ PM emissions disperse rapidly over relatively short distances, diesel PM generated by construction activities~~, in and of itself,~~ would not ~~be expected to~~ expose sensitive receptors to substantial ~~amounts of air toxics~~ localized diesel PM concentrations. The impact would be less than significant with mitigation incorporated.

Naturally Occurring Asbestos

Asbestos is a mineral fiber that naturally occurs in some rock and soil. Construction activities in areas where naturally occurring asbestos (NOA) is present in the rock or soil (most typically in ultramafic rocks) could result in emissions of fugitive dust that contains asbestos. According to the California Department of Conservation, in Contra Costa County there are only two small areas of ultramafic rocks which would be more likely to contain NOA. The closest of these areas to the project site is approximately 8 miles to the west (Department of Conservation 2000). Therefore, construction of the project not would not result in emissions of fugitive dust containing asbestos and would not expose sensitive receptors to substantial concentrations of NOA. There would be no impact.

Long-Term Operational Emissions

Localized Carbon Monoxide

Localized CO concentrations near roadway intersections are a function of traffic volume, speed, and delay. Transport of CO is extremely limited because carbon monoxide disperses rapidly with distance from the source.

[3] Overall construction Exhaust PM_{10} (a proxy for diesel PM) reduction of 38 percent with implementation of EPA certified Tier 3 diesel engines per CalEEMod project modeling.

Based on BAAQMD guidance, projects meeting all of the following screening criteria would be considered to have a less than significant impact on localized CO concentrations (BAAQMD 2017b):

1. The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plans, and local congestion management agency plans.

2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.

3. The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

As described in subsection 4.16, Transportation/Traffic, the project would contribute approximately 29 new vehicle trips per day to local roadways and the project's trips would not significantly contribute to severely congested intersections in the City. The project does not conflict with any congestion management plans and would not increase traffic volumes at any intersection to more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited. As such, the proposed project would not exceed the BAAQMD's significance thresholds for carbon monoxide.

Toxic Air Contaminants

There are many different types of toxic air contaminants (TACs), with varying degrees of toxicity. Sources of TACs potentially affecting sensitive receptors include commercial operations, such as gasoline stations and dry cleaners. Mobile sources of air toxics include freeways and major roadways. These roadways are sources of diesel PM, which CARB has listed as a toxic air contaminant.

~~Per BAAQMD guidance, all TAC sources within 1,000 feet of a proposed sensitive receptor need to be identified and analyzed. If emissions of TAC concentrations at a new sensitive receptor generated from all TAC sources in a 1,000-foot radius result in the exceedance of an excess cancer risk level of more than 100 in one million, or a non-cancer hazard index greater than 10, the project would result in a significant impact.[4] The BAAQMD's (2011a) CEQA Air Quality Guidelines also consider exposure from all TAC sources in a 1,000 foot radius to annual $PM_{2.5}$ concentrations that exceed 0.8 micrograms per cubic meter ($\mu g/m^3$) to be significant. According to the BAAQMD's (2012) Stationary Source Screening Analysis Tool, there are no stationary sources of TACs within 1,000 feet of the project site. Additionally, the project site is located over 1,000 feet from any freeway or major roadway and is therefore beyond the BAAQMD-recommended buffer zone separating sensitive receptors and potential mobile sources of TACs. Thus, the project site would not be exposed to substantial concentrations of stationary or mobile sources of TACs. For the~~

~~[4] The hazard index is the ratio of the computed receptor exposure level to the level known to cause acute or chronic adverse health impacts, as identified by the BAAQMD.~~

~~reasons described, impacts associated with substantial concentrations of air toxics would be less than significant.~~

As a residential development, long-term operation of the project would not be a significant source of localized pollutants or TACs. However, the project would site new sensitive receptors. For siting new sensitive receptors, the BAAQMD recommends analyzing existing sources of localized pollutants within a 1,000 feet radius of the project site (BAAQMD 2017b). The BAAQMD's Planning Healthy Places provides planning-level guidance regarding existing sources of TACs and elevated localized pollutants that may be a concern for siting new sensitive receptors. The BAAQMD's Planning Healthy Places website has an interactive map which shows areas that are estimated to have elevated levels of air pollution and/or TACs resulting from permitted stationary sources, high-volume roadways and other transportation sources. The Planning Healthy Places interactive map does not show any sources of TACs or areas of elevated pollutants within 1,000 feet of the project site (BAAQMD 2019). The impact would be less than significant.

e) **Would the project create objectionable odors affecting a substantial number of people? ~~No~~ Less Than Significant Impact**. The BAAQMD does not have a recommended odor threshold for construction activities. For purposes of this analysis, there is recognition that heavy-duty construction equipment would emit odors. However, construction activities would be short term and finite in nature. Furthermore, equipment exhaust odors would dissipate quickly and are common in an urban environment. For these reasons, the project is not anticipated to create objectionable odors affecting a substantial number of people and thus this impact would be less than significant. ~~With respect to operational impacts, the BAAQMD recommends screening criteria based on the distance between the receptor and the types of sources known to generate odor.~~

The land uses identified by the BAAQMD as sources of odors include wastewater treatment plants, wastewater pumping facilities, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing and fiberglass manufacturing facilities, painting/coating operations, rendering plants, coffee roasters, food processing facilities, confined animal facilities, feedlots, dairies, green waste and recycling operations, and metal smelting plants. For purposes of CEQA analysis, if a source of odors is proposed to be located near existing or planned sensitive receptors, it has the potential to cause operational-related odor impacts. The project does not include any of the land uses that have been identified by the BAAQMD as odor sources and is not located in the vicinity of any such land uses. Therefore, the project would no impact.

Mitigation Measures

MM 4.3.1 To adequately control dust, the project applicant shall ensure construction contracts contain requirements for implementing the BAAQMD's Basic Construction Mitigation Measures from Table ~~8-1~~ 8-2 of the BAAQMD's (~~2011a~~2017b) CEQA Air Quality Guidelines.

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered as deemed necessary for controlling dust during varying weather conditions to conserve water while California is in a drought.

2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

4. All vehicle speeds on unpaved roads shall be limited to 15 mph.

5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of the California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.

8. A publicly visible sign shall be posted with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

In addition, to reduce emissions of diesel PM, the project applicant shall ensure construction contracts contain the requirement: All off-road diesel-powered mobile equipment or portable equipment (e.g., generators, welders, air compressors) with more than 50 horsepower shall be EPA certified Tier-3 engines or better; or engines shall be retrofitted with CARB verified Level 3 diesel particulate filters.

~~Additional measures include:~~

~~1. Use late-model heavy-duty diesel-powered equipment during construction to the extent that it is readily available and cost effective in the San Francisco Bay Area.~~

~~2. Use diesel-powered equipment that has been retrofitted with after-treatment products (e.g., engine catalysts) to the extent that it is readily available and cost effective in the San Francisco Bay Area.~~

~~3. Use low-emission diesel fuel for all heavy-duty diesel-powered equipment operating and refueling at construction sites to the extent that it is readily available and cost effective in the San Francisco Bay Area. (This requirement does not apply to diesel-powered trucks traveling to and from the site.)~~

~~4. The developer may use alternative-fuel construction equipment (i.e., compressed natural gas, liquid petroleum gas, and unleaded gasoline) to the extent that the equipment is readily available, is cost effective in the San Francisco Bay Area, and is feasible to utilize.~~

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	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.4 BIOLOGICAL RESOURCES. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.), through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

SETTING

This section describes the natural resources present in and surrounding the project site and includes a discussion of the special-status species and sensitive habitats potentially occurring in the project area. The analysis of biological resources presented in this section is based on two previous studies conducted for the proposed project, as well as a site visit by a Michael Baker International biologist. The previous studies include a biological resources assessment (Leitner 2015) and a tree preservation report (Traverso Tree Service 2015). For the revised IS/MND, a habitat suitability assessment for Alameda whipsnake was performed by Rincon Consultants, Inc., in November 2017. These studies can be found in **Appendix BIO.**

The parcel follows the ridgelines in several directions and ranges in elevation from approximately 850 feet to 1,000 feet above sea level. Because of the two ridgelines on the property, the site

drains in multiple directions. No wetlands or other waters of the United States were identified on the project site. Additionally, there are no aquatic features that would be protected under OMC Section 17.4.6, which defines water channels and includes setback requirements for development.

The site currently has four major vegetation types: developed, coast live oak, coyote brush scrub, and non-native grassland. The developed areas are defined as areas where all of the existing native vegetation has previously been removed. This includes the existing residence on Parcel B and the rough-graded fire roads that would be developed into driveways to the new residences. Coastal live oak is the dominant vegetation type, occupying most of the parcel's east- and north-facing slopes. Coyote brush scrub consists of shrubs up to 10 feet tall, with a mix of shrub and grass species throughout. This vegetation type is located on several slopes throughout the project site. The western portion of Parcel B and the southern portion of Parcel D contain non-native grassland, which is characterized by annual grasses of generally Mediterranean origin such as wild oats (*Avena* spp.), ripgut brome (*Bromus diandrus*), soft chess (*B. hardeaceus*), and annual fescues (*Festuca* spp.).

Special-Status Plant Species with Potential to Occur in the Project Area

No special-status plants were observed on the project site. However, suitable habitat was found for four special-status plant species.

Bent-Flowered Fiddleneck

Bent-flowered fiddleneck (*Amsinckia lunaris*) is listed as California Native Plant Society (CNPS) rank 1B.2, meaning it is rare, threatened, or endangered in California and elsewhere. It is known from grassland and woodland openings along the Central Coast of California at an elevation range of 150 to 1,500 feet. This species typically flowers in April–May. The nearest recorded sightings to the project area are along Bear Creek Road, 1.5 mile east of San Pablo Dam Road, southwest of Russell Peak, and several records in the vicinity of Briones Reservoir. Potentially suitable habitat was observed at the edges of brush and oak woodland and in the grasslands in the project area.

Mt. Diablo Fairy Lantern

Mt. Diablo fairy lantern (*Calochortus pulchellus*) is listed as a CNPS rank 1B.2. It is a perennial member of the lily family (Liliaceae). It is found in chaparral, oak woodland, riparian woodland, and grasslands in Contra Costa and Solano counties at an elevation range of 100 to 3,000 feet. This species typically flowers in April–May. The nearest recorded sightings to the project area are at the north edge of Lafayette above Laurel Drive and in the Briones Hills about 2 miles to the north. Potentially suitable habitat was observed at the edges of oak woodland, coyote brush scrub, and small patches of chamise (*Adenostoma fasciculatum*) scrub in the project area.

Western Leatherwood

Western leatherwood (*Dirca occidentalis*) is listed as a CNPS rank 1B.2. It is a deciduous shrub in the daphne family (Thymeliaceae). The only member of its family in California, western leatherwood is known from the Central Coast of California from Santa Clara County northward to Marin and Sonoma counties. Its elevation range is 80 to 1,400 feet. The species is typically found on moist brushy slopes and in filtered woodland under the partial shade of trees. It is one of the earliest-flowering species, blooming from January to April. The nearest recording sightings for this

species are along Miner Road in Orinda, near the junction of San Pablo Dam Road and Bear Creek Road, and just west of the intersection of Camino Pablo and Camino Sobrante in Orinda. Although this species is potentially detectable in late November, it would be difficult to observe if fully deciduous. Potentially suitable habitat was observed in coyote brush scrub and oak woodland in the project area.

Mt. Diablo Helianthella

Mt. Diablo helianthella (*Helianthella castanea*) is a CNPS rank 1B.2. It is a perennial herb in the daisy family (Asteraceae). It is usually found in partial shade, often on north-facing or sheltered sites, frequently in rocky soils in many brushy or woodland situations. It ranges from San Mateo to Contra Costa and Marin counties, with an elevation range of 80 to 3,500 feet. It flowers from April to June. The California Natural Diversity Database (CNDDB) reports 22 recording sightings of the species in the Briones Valley quadrangle, with several quite near the project area in the Happy Valley neighborhood of Lafayette, the junction of San Pablo Dam Road and Bear Creek Road, and the south side of Bear Creek Road in Orinda. Suitable habitat was present in many parts of the project area in openings in oak woodland or brush.

Special-Status Animals with the Potential to Occur in the Project Area

Pallid Bat

The pallid bat (*Antrozous pallidus*) is a listed California Department of Fish and Wildlife (CDFW) Species of Special Concern. It forages over grassland and roosts in rocky areas. This species ranges throughout California. Pallid bats form nursery colonies which are reportedly very sensitive to loss and modification of foraging habitat, especially from urban development. The CNDDB reports three occurrence recorded sightings of pallid bats from the Briones Valley quadrangle, from Orinda, Lafayette Terrace, and Russell Tree Farm, but all are 50 years old or more. This suggests that while suitable habitat was present historically, the degree of human disturbance and development makes the occurrence of this species less likely than in the past.

Hoary Bat

The hoary bat (*Lasiurus cinereus*) is a CNDDB Special Animal that forages for moths over open habitats or forest edges. It roosts in dense foliage of medium to large trees. This species can be found in suburbs in large, old trees. It migrates in flocks to warmer climates for the winter. Jays are a significant predator of this species. The only recorded sighting for hoary bat from the Briones Valley quadrangle is a group of fairly non-specific records from the Berkeley area, all from at least 50 years ago. However, because this species is solitary and moves over a wide range annually, it could occasionally occur in the project area.

Alameda Whipsnake

The Alameda whipsnake (*Masticophis lateralis euryxanthus*) is listed as threatened at the state and federal levels. It is found in a variety of habitats, typically chaparral and scrub habitat, but also uses adjacent grassland, oak savanna, and woodland habitats. It is most often found on south-facing slopes and ravines with rock outcrops, deep crevices, or rodent burrows where it can sun itself and forage on fence lizards, its preferred food. The project site lies just inside the southern boundary of Recovery Unit 1, where the recovery unit boundary expands beyond the Tilden-Briones population critical habitat boundary ~~The project area is within US Fish and Wildlife Service Critical Habitat Unit 6~~ for the Alameda whipsnake. The CNDDB reports 18 recorded sightings from the Briones Valley quadrangle. Although specific occurrence data is suppressed in the CNDDB

online inventory, CNDDB wildlife biologist Brian Acord confirmed that six occurrences of Alameda whipsnake have been reported within 2.5 miles of the project area, and the nearest location is only 0.75 mile to the west (see reference to B. Acord, CDFW, pers. comm., December 11, 2015, in Leitner's (2015) biological resource assessment included in **Appendix BIO**). Per ~~the~~ Rincon's (2017) habitat suitability assessment, suitable habitat for the Alameda whipsnake is limited to 7.4 acres of the project site (see **Figure 4.4.1, Potential Loss of Habitat**). The project site in total represents poor quality habitat, but given the status of the species and recovery need, all areas that represent potentially suitable habitat or the potential for restoration to suitable habitat are considered as potential habitat for the Alameda whipsnake (see **Appendix BIO**). Since the project area contains suitable but poor-quality habitat and is adjacent to extensive areas of potentially suitable habitat for the Alameda whipsnake, this species is assumed present.

San Francisco Dusky-Footed Woodrat

The San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) is a CDFW species of special concern. It is a medium-sized nocturnal rodent in the family Cricetidae. Dusky-footed woodrats build large, dome-shaped stick nests up to 6 feet in height that can be inhabited by several generations of woodrats over many years. Woodrats are found in many types of woodland, forest, and shrubland, and their distribution ranges throughout the San Francisco Bay Area and nearby coastal regions. Woodrats are generally solitary. They consume a wide variety of nuts, fruits, fungi, foliage, and some forbs. The coyote brush scrub and coast live oak habitats are suitable for the dusky-footed woodrat, and Parcels A, C, and D each contained one stick nest.

Coast Range Newt

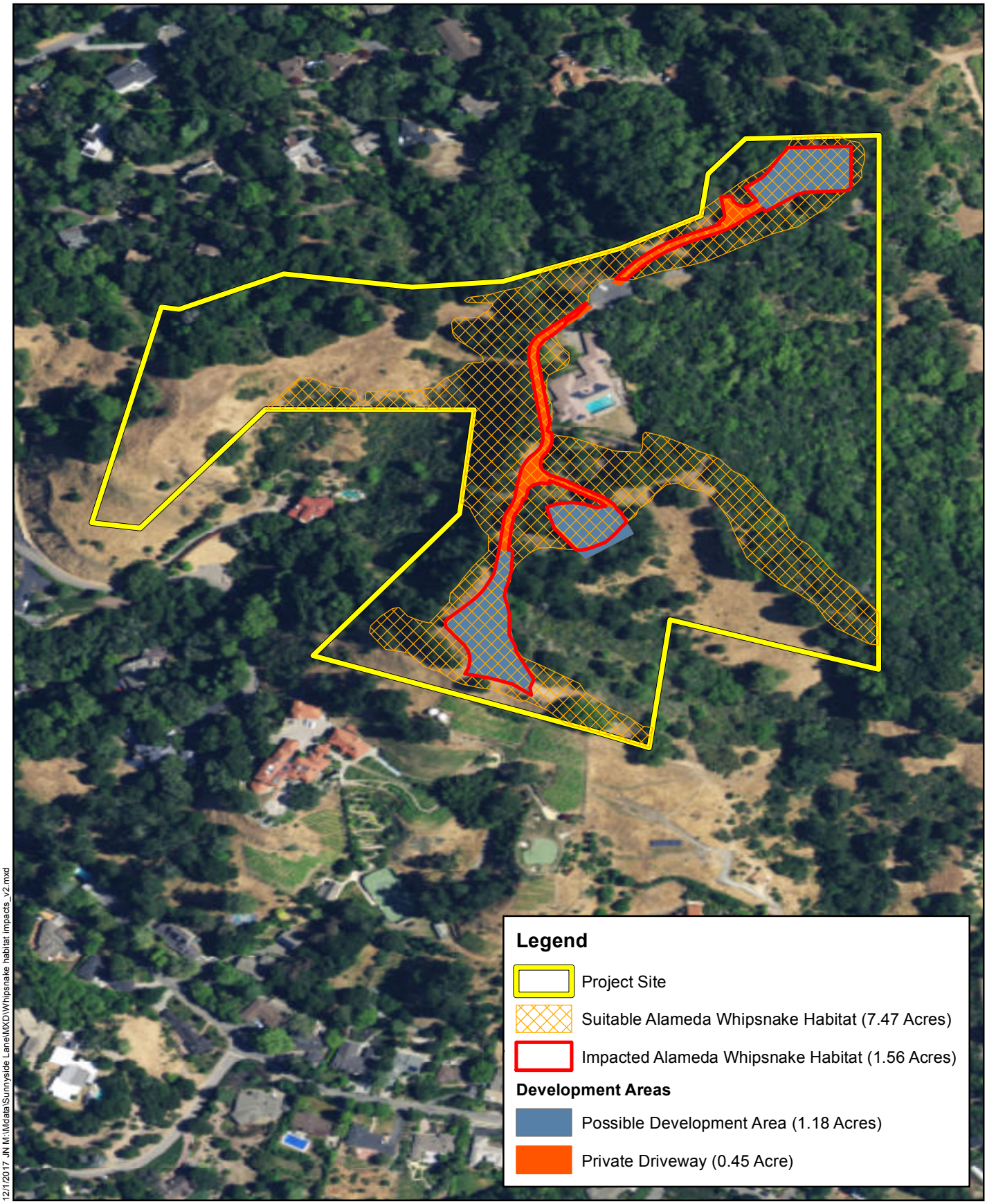
The Coast Range newt (*Taricha torosa*) is a California species of special concern; it has no federal status. The species occurs primarily in valley-foothill hardwood, valley-foothill hardwood conifer, coastal scrub, and mixed chaparral habitats up to 6,000 feet. It is also found in annual grassland and mixed conifer habitats. Adults typically start migrating to aquatic breeding locations after the first rains in fall and remain near these locations for several weeks. Migration distances can be up to 3,300 feet. Adults migrate back to upland refuges in the spring where they aestivate during summer (CDFW 2016). The project site contains suitable upland habitat for Coast Range newt in the coast live oak and non-native grassland habitats. The project site is approximately 2,300 feet south of the Briones Reservoir, which is a suitable breeding location for amphibians and within the newt's migration range. Therefore, this species may occur on the project site.

DISCUSSION OF IMPACTS

a) **Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service? Less Than Significant Impact With Mitigation Incorporated**. Based on the results of database searches, a site survey, and the presence of suitable habitat, several special-status plant and animal species were determined to have the potential to occur on the site (see **Appendix BIO**).

Special-Status Plant Species

Special-status plant species were not observed on the project site, but do have potential to occur on the project site. As such, mitigation measure **MM 4.4.1** would be required. With avoidance of the plant species and implementation of this mitigation measure, project impacts would be less than significant.



12/1/2017 JN M:\Mdata\Sunnyside Lane\MXD\Whipsnake habitat impacts_v2.mxd

Source: Alameda Whipsnake Habitat Assessment. (2017) Rincon Consultants, Inc., Vesting Tentative Map, 88 Sunnyside Lane. (2017) DeBolt Civil Engineering

0 150 300 600 Feet

FIGURE 4.4.1
Potential Loss of Habitat

Michael Baker INTERNATIONAL

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Special-Status Animals

Five special-status species animals have the potential to occur on the project site: the pallid bat, the hoary bat, the Alameda whipsnake, the San Francisco dusky-footed woodrat, and the Coast Range newt. Because of the presence of habitat on the project site, project construction could impact these species. As such, mitigation measures **MM 4.4.2** and **MM 4.4.3** would be required to avoid impacts on special-status species, mitigation measure **MM 4.4.4** would be required to avoid impacts on the two bat species, ~~mitigation measure **MM 4.4.5** would be required for the Alameda whipsnake~~, mitigation measure **4.4.5~~6~~** would be required for the San Francisco dusky-footed woodrat, and mitigation measure **MM 4.4.6~~7~~** would be required for the Coast Range newt**.** With avoidance of the animal species and implementation of these mitigation measures, project impacts would be less than significant. Preferred habitat for the Alameda whipsnake includes chaparral, coastal scrub, and open woodland vegetation communities with small mammal burrows, rock outcrops, and a suitable prey base present. These features of the habitat are collectively known as primary constituent elements (PCEs) of the species' habitat and are generally considered necessary for the species to persist. Based on the presence of PCEs for the Alameda whipsnake, a total of 7.47 acres of poor quality but potentially suitable habitat were determined to be present on the project site (see **Figure 4.4.1**). The remaining 16.5 acres are not considered suitable habitat. The project development footprint would result in the loss of 1.56 acres of poor quality Alameda whipsnake habitat where driveways, residences, and associated landscaping would be built. The project would not extend beyond the 1.56 acres required for development of the three residences, and the remaining 5.91 acres of potential Alameda whipsnake habitat would remain undisturbed. For the loss of the 1.56 acres of poor-quality habitat, mitigation measure **MM 4.4.7** would be required to reduce impacts on Alameda whipsnake to a less than significant level.

Special-Status Birds, and Non-Burrowing Owl Raptors and Migratory Birds

Habitats on and adjacent to the project site, including native oak trees, may provide suitable nesting habitat for migratory birds and raptors protected under the Migratory Bird Treaty Act. The removal of vegetation and/or trees during construction activities would result in noise, dust, human disturbance, and other direct/indirect impacts to nesting birds on or in the vicinity of the project site. Potential nest abandonment and mortality to individuals would be a potentially significant impact. As such, mitigation measures **MM 4.4.8** and **4.4.9** would be required. With implementation of these mitigation measures, project impacts would be less than significant.

b) **Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service? No Impact**. There are no riparian habitats or sensitive natural communities present at the project site. As such, the project would have no impact.

c) **Would the project have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.), through direct removal, filling, hydrological interruption, or other means? No Impact**. No wetlands or other waters of the United States are located on the project site. The project would have no impact.

d) **Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? No Impact**. There are no waters or streams present on the site. Thus, the project would not impact native resident or migratory fish or corridors.

e, f) **Would the project (e) conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, or (f) conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan? No Impact**. A total of 58 trees would be removed. The tree preservation report, included in **Appendix BIO**, originally stated that 56 trees would be removed. However, updated development envelopes (see Figure 3.4) included 2 additional trees, increasing the number to 58. This includes 39 Monterey pines, 11coast live oaks, 3 redwoods, and 4 white birch trees. Coast live oaks are protected trees under OMC Section 17.21.2. The project applicant would be required to comply with the protected tree replacement requirements as stated in OMC Section 17.21.5, which requires that for each 6 inches or fraction thereof of the aggregate diameter of the trees approved for removal, the applicant must plant one native tree with a diameter no less than 0.75 inches. Therefore, the project would meet the requirements of the ordinance, and no additional mitigation measures would be required.

The project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan because one has not been adopted for the area. With the project applicant's compliance with the City's tree preservation ordinance, the project would not conflict with local policies and ordinances and would have no impact.

Mitigation Measures

MM 4.4.1 **Special-Status Plant Surveys.** Prior to construction, a qualified biologist shall perform focused surveys for special-status plants. These surveys will take place in late January, April, and May, when the special-status plants are most visible. These surveys will be required to determine the presence or absence of bent-flowered fiddleneck, Mt. Diablo fairy lantern, western leatherwood, and Mt. Diablo helianthella.

If special-status plant species are found in the project footprint, these plant species shall be avoided to the greatest extent possible. Any special-status plant species that are identified adjacent to the project area, but not proposed to be disturbed by the project, shall be protected by barrier fencing to ensure that construction activities and material stockpiles do not impact them. If any special-status plant species are found within 100 feet of proposed impact areas during the surveys, these plant species shall be avoided to the greatest extent possible and the following shall be implemented:

a) Any rare plant species that are identified adjacent to the disturbance area, but not proposed to be disturbed by the proposed project, shall be demarcated or protected by barrier fencing to provide that construction activities and material stockpiles do not impact any special-status plant species. These avoidance areas shall be identified on proposed project plans.

If rare plant pieces are present within the work area or a 50-foot buffer, the CDFW and USFWS (if appropriate) shall be contacted. The City shall consult with the CDFW and USFWS to determine if additional mitigation measures such as relocating plants, saving seeds to seed banks, or paying into a mitigation fund are required.

~~If impacts on plant species located within the project footprint are unavoidable, the following options for mitigation will be employed:~~

- ~~Salvage portions of the habitat or plant populations that will be lost as a result of project implementation.~~
- ~~Transplant the plants that will be impacted by the project for re-establishment after construction is complete or planting in a qualified suitable habitat in a new area.~~
- ~~Develop and implement a propagation program for the salvage and transfer of rare, threatened, or endangered plant populations from the project area prior to the start of construction. Qualified biologists shall be involved in the propagation and transport of rare, threatened, or endangered plant species. Propagation methods for the salvaged plant population must be developed on a case-by-case basis and must include the involvement of local conservation easements, preserves, and/or open space, where applicable. The propagation and transfer of individual plant species must be performed at the correct time of year and successfully completed before construction activities eliminate or disturb the plants and habitats of concern.~~

MM 4.4.2 **Construction Personnel Training.** A qualified biologist shall conduct environmental awareness training for all construction personnel. The training will include a description of special-status species that could be encountered, their habitats, protective measures, work boundaries, reporting requirements, and the implications of violation of applicable laws. The training will take place on the first day of any construction activities, including site preparation and grading, and every 6 months thereafter until construction is complete. If work stops for more than 3 months, training will be conducted on the first day construction starts again. <u>The construction contractor shall provide the City with a brief memorandum from the biologist certifying that the training was conducted.</u>

MM 4.4.3 **Worksite Fencing.** Under the supervision of a qualified biologist, the contractor shall delineate the outside edges of the construction areas with orange-colored wildlife exclusion fencing to prevent wildlife from entering the project site and the encroachment of construction personnel and equipment beyond the approved limits of work. The fencing will be at least 4 feet tall. The materials of the fencing may include silt or other materials less than 0.25 inches in diameter to prevent species from becoming entangled. Wildlife exclusion fencing shall be buried to prevent animals passing under the fence and shall be high enough to deter reptiles, amphibians, and small mammals from climbing or jumping over the fence. All seams shall be tightly sealed. Overhanging and adjacent vegetation shall be cut back to avoid bridging the barrier. Fencing must isolate the work area from adjacent scrub habitat.

Fencing shall remain in place and be properly maintained for the duration of construction. Fencing and all stakes shall be completely removed upon the completion of construction.

MM 4.4.4 **Preconstruction Bat Surveys.** No more than one week before the removal of trees, a qualified biologist shall survey the trees to be removed for the presence of roosting special-status bats. If no roosting bats or evidence of bats are found, tree removal may proceed. If bats are found or evidence of use by bats is present, the biologist shall map and mark the trees with flagging. The biologist will consult the CDFW for guidance on measures to avoid and minimize disturbance of the bats. Measures may include excluding bats from the trees to be removed, timing tree removal to minimize disturbance to bats, and/or the use of a construction buffer to avoid disturbance of young bats before they are able to fly. This survey shall be submitted to the City for confirmation and retained with the project records.

~~**MM 4.4.5** **Preconstruction Alameda Whipsnake Surveys.** No more than 48 hours prior to starting site clearing or stockpiling equipment and construction materials, a qualified biologist shall survey the work area for wildlife. If the Alameda whipsnake is detected, work may not commence until the species is out of the work area. Whipsnake individuals must be left alone and permitted to move about freely. Worksite fencing may be removed in hopes that an individual snake will exit the site. If an Alameda whipsnake is detected, the project applicant must contact the US Fish and Wildlife Service and the CDFW for consultation. Work may not proceed until the appropriate authorization and mitigation measures have been implemented.~~

MM 4.4.5~~6~~ **Preconstruction San Francisco Dusky-Footed Woodrat Surveys.** No more than 48 hours prior to the beginning of construction, a qualified biologist shall conduct a preconstruction survey of identified construction areas to search for San Francisco dusky-footed woodrat nests. If no nests are detected, no further measures are needed. If a nest is found in the work zone and cannot be avoided, site clearing shall be performed during the non-breeding season (September 1–November 30). During the non-breeding season, the nest shall be disassembled by hand by a qualified biologist and the nest materials removed and scattered well away from the work area. Any adult animals shall be passively relocated to the adjacent woodland habitat. This work shall be supervised by a qualified biologist in coordination with the CDFW. If destruction of a woodrat nest during the breeding season is unavoidable, a qualified biologist will determine whether the nest is occupied. If the nest is not occupied, it may be disassembled and scattered. If live animals are encountered, nest materials shall be replaced on top of the nest and the effort abandoned. Nests shall not be disassembled if young woodrats are present. Removal of the nest may be resumed after the young woodrats have left the nest. This survey shall be submitted to the City for confirmation and retained with the project records.

MM 4.4.6~~7~~ **Preconstruction Coast Range Newt Survey.** Within 48 hours prior to ground-disturbing activities, a qualified biologist shall survey the project site for the presence of Coast Range newt. If evidence of the species is not detected, no further measures are required. If the species is detected, a qualified biologist shall move egg masses and/or individuals outside of the work area and relocate them to nearby suitable sites outside of the limits of construction.

Construction activities may resume once the biologist has determined that the construction work area is clear of Coast Range newt eggs and individuals. This survey shall be submitted to the City for confirmation and retained with the project records.

MM 4.4.7 **Focused Alameda Whipsnake Survey**. A qualified biologist shall conduct focused Alameda whipsnake surveys in the spring prior to construction to determine if the species is present on the site. If present, the applicant shall provide compensatory mitigation in the form of conserved lands at a ratio of 5:1 (mitigation to impact) for roadways, 3:1 for other permanent impacts, 1:1 for temporary impacts or work with USFWS and CDFW to determine an adequate mitigation strategy to compensate for the loss of 1.56 acres of Alameda whipsnake suitable habitat. The approved strategy shall be the basis for acquiring federal and state incidental take permits. Work may not proceed until the appropriate incidental take permits have been acquired and the required conservation measures implemented. If Alameda whipsnake is not found during the focused survey, the species is assumed not to be present and no further mitigation shall be required. This survey shall be submitted to the City for confirmation and retained with the project records.

MM 4.4.8 **Pre-Tree Removal or Pruning Raptor Survey.** Prior to the removal or significant pruning of any trees during any season, a qualified biologist shall inspect the trees for the presence of raptor nests. If a suspected raptor nest is discovered, the biologist shall notify the CDFW. Pursuant to California Fish and Game Code Section 3503.5, raptor nests, whether or not they are occupied, may not be removed until approval is granted by the CDFW. If no raptor nests are detected, no further measures are needed for work to occur outside the nesting bird season (February 1–August 31). For work to occur during the nesting season, additional preconstruction surveys are required as outlined in mitigation measure MM 4.4.9. This survey shall be submitted to the City for confirmation and retained with the project records.

MM 4.4.9 **Nesting Bird Preconstruction Surveys.** If clearing and/or construction activities will occur during the raptor or migratory bird nesting season (February 1–August 31), a qualified biologist shall conduct preconstruction surveys for nesting birds up to 14 days before initiation of construction activities. The qualified biologist shall survey the construction zone and a 250-foot buffer surrounding the construction zone to determine whether construction has the potential to disturb or otherwise harm nesting birds. Raptor nests will be identified within 250 feet and passerine nests within 50 feet of the construction limits. Surveys shall be repeated if project activities are suspended or delayed for more than 15 days during the nesting season.

If active nest(s) are identified during the preconstruction survey, the biologist shall make a determination as to whether construction activities are likely to disrupt reproductive behavior. If it is determined that construction is unlikely to disrupt behavior, construction may proceed. If construction will disrupt breeding, the biologist will establish a no-activity setback for migratory bird nests and a 250-foot setback for raptor nests. The ultimate size of the buffer zone may be adjusted by the biologist based on the species involved, topography, sight lines between the work area and the nest, physical barriers, and the ambient level of human activity, but must be made in consultation

with the CDFW. No ground disturbance shall occur within the no-activity setback until the nest is deemed inactive by the qualified biologist. This survey shall be submitted to the City for confirmation and retained with the project records.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.5 CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

SETTING

Cultural resources staff conducted a records search at the Northwest Information Center (NWIC) and a cultural resources field survey. These tasks were performed to determine the presence of cultural resources (archaeological and built environment resources) within or adjacent to the project site that may be impacted by the project.

Records Search

To determine the presence of previously identified cultural resources, a records search at the NWIC was conducted on December 8, 2016. The records search (File No. 16-1869) was conducted for the project area and a quarter-mile search radius. The NWIC, as part of the California Historical Resources Information System, California State University, Sonoma, an affiliate of the California Office of Historic Preservation, is the official state repository of cultural resources records and reports for Contra Costa County.

Findings

No cultural resources or cultural resources studies have been completed or identified within the project area. One cultural resource was identified within a quarter mile. Its description is as follows:

> P-07-000028 – This resource is a chert projectile point and an obsidian projectile point found in approximately 1953 and 1954 at a residence in Orinda (NWIC 2016). The resource is not a historical resource as defined by CEQA.

One cultural resources study was identified within a quarter mile of the project site. Below is a description of the study:

> Chavez, David
> 1984 *Archaeological Field Reconnaissance for the Orinda Downs Subdivision.* Prepared for Claude T. Lindsay, Inc.

The cultural resources study included the methods and results of the field survey. No cultural resources were identified.

Literature Review

A map search and literature review was conducted to identify potential cultural resources within the project area. The following resources were reviewed:

- Township 1 North, Range 3 West Mount Diablo Meridian (BLM 1884)
- Concord, Calif., 1:62,500 scale topographic quadrangle (USGS 1897)
- Concord, Calif., 1:62,500 scale topographic quadrangle (USGS 1915)
- Briones Valley, Calif., 7.5-minute topographic quadrangle (USGS 1947)
- Briones Valley, Calif., 7.5-minute topographic quadrangle (USGS 1959)
- 1948 Single Frame Aerial Photography (USGS 1948)
- 1958 Single Frame Aerial Photography (USGS 1958)
- 1968 Single Frame Aerial Photography (USGS 1968)
- *Handbook of the North American Indians* (California subsection) (Heizer 1978)

Findings

The 1884 Bureau of Land Management (BLM) plat map depicts the project area within the Rancho La Bocha de la Canada de Pinole. No cultural resource features are identified within the project site.

No features are depicted within the project site on topographic maps or aerial photography between 1897 and 1968 (USGS 1897, 1915, 1947, 1948, 1958, 1959, 1968).

The *Handbook of North American Indians* (Heizer 1978) identifies the project site as bordering Costanoan and Bay Miwok territory.

Costanoan

The project area is in the territory of the Costanoan people, which are within the Ohlone language group. The basic Ohlone social unit was the patrilineal family household. Households grouped together to form villages, and villages combined to form tribelets. There were approximately 40 Ohlone tribelets that traded goods such as obsidian, shell beads, and baskets; participated in ceremonial and religious activities together; intermarried; and maintained extensive reciprocal obligations to one another involving resource collection (Levy 1978, p. 492).

For the Ohlone, acorns served as a dietary staple. Acorns were knocked from trees with poles, leached to remove bitter tannins, and eaten as mush or bread. The Ohlone used a range of other plant resources including buckeye, California laurel, elderberries, strawberries, manzanita berries, gooseberries, toyon berries, wild grapes, wild onion, cattail, amole, wild carrots, clover, and an herb called chuchupate. The Ohlone also hunted black-tailed deer, Roosevelt elk, antelope, and marine mammals; smaller mammals such as dog, skunk, raccoon, rabbit, and squirrel; birds, including geese and ducks; and fish such as salmon, sturgeon, and mollusks (Levy 1978, p. 492).

The Ohlone lived in dome-shaped shelters thatched with ferns, tule, grass, and carrizo. They also built small sweathouses dug into creek banks and roofed with brush, and circular dance areas enclosed by fences woven from brush or laurel branches. Basket-making was generally done by women who crafted cooking and storage containers. Tightly woven baskets, decorated with feathers or shell, were valued exchange items (Levy 1978, p. 492).

Animal bones, teeth, beaks, and claws were used to make awls, pins, knives, and scrapers. Pelts and feathers were used to make clothing and bedding; sinews were used for cordage and bow strings. Feathers, bone, and shells were crafted into ornaments (Levy 1978, p. 492).

By the late eighteenth century, Spanish settlers established the mission system in Northern California. Mission records indicate that the first tribelet arrived at Mission San Francisco in the fall of 1794. Following the secularization of the missions in 1834, many Ohlone worked as manual laborers on ranchos (Levy 1978, p. 486).

The nearest mapped ethnographic villages include Karkin, located approximately 9 miles north near San Pablo Bay, and Xucyun, located approximately 10 miles west near Richmond.

Bay Miwok

The Bay Miwok were affected early in California history when Spanish missions began to exert their influence in the San Francisco Bay Area in the late 1700s. Little is known about the culture of the Bay Miwok because of the very early population reduction by introduced disease, such as measles and tuberculosis, and by their relocation to Spanish missions, where many died or were consolidated with other Native American groups (Levy 1978, pp. 399–401).

The Bay Miwok economy was based on fishing, gathering, and hunting, with the land and waters providing a diversity of resources. They likely lived in conical tule thatch houses, like those of the neighboring Plains Miwok of the Central Valley (Levy 1978, pp. 399–401).

Politically, the Bay Miwok were organized into groups called tribelets. A tribelet constituted a sovereign nation that held a defined territory and exercised control over its resources. A tribelet was also a unit of linguistic and ethnic differentiation. At the time of the arrival of the Spanish, an estimated 1,700 Bay Miwok were living in five tribelets in northeastern Contra Costa County (Levy 1978, p. 398).

The nearest mapped ethnographic village includes Saclan located near Walnut Creek approximately 6 miles east of the project area (Levy 1978, p. 399).

Field Survey

A cultural resources field survey of the project area was conducted on December 13, 2016. The survey area encompassed the maximum extent of ground disturbance for the project and was delineated using the future locations of three building pads, driveways, and roads with a 100-foot buffer. The survey consisted of 5-meter east/west transects. Survey coverage was 100 percent of the survey area. Ground visibility was poor due to grasses, weeds, and pine duff on the ground surface.

Native soils consist of tan to light brown to medium brown silty clays with an occasional sandstone cobble and sandstone outcrops. Fill sediment was observed at the existing building. Sandstone outcrops were checked for evidence of bedrock mortars. None were present.

No archaeological deposits were observed within the survey area, and the project does not have the potential to impact known archaeological deposits. However, no archaeological deposits were observed during the survey, and it is likely that the area was used by Native Americans during both the prehistoric and historic periods.

Summary

The records search and field survey identified no cultural resources (as defined in Public Resources Code Section 15064.5) in the project area.

DISCUSSION OF IMPACTS

a) **Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5? No Impact**. There are no historical resources located on the project site or within a quarter-mile radius of the project site. The project would have no impact on such resources.

b–d) **Would the project (b) cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5, (c) directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or (d) disturb any human remains, including those interred outside of formal cemeteries? Less Than Significant Impact With Mitigation Incorporated.** There are no known archaeological or paleontological resources or human remains located on or within a quarter-mile radius of the project site. However, project construction would involve ground-disturbing activities that could result in unanticipated or accidental discovery of archaeological or paleontological deposits, or human remains. This would be a significant impact, and mitigation measures **MM 4.5.1** and **MM 4.5.2** would be required. With implementation of these mitigation measures, project impacts would be less than significant.

Mitigation Measures

MM 4.5.1 **Treatment of Previously Unidentified Archaeological Deposits**. During project construction, if any archaeological or paleontological resources (i.e., fossils) are found, the project applicant and/or its contractor shall cease all work within 25 feet of the discovery and notify the City of Orinda Planning Department immediately. The project applicant and/or its contractor shall retain a qualified archaeologist or paleontologist to evaluate the finds and recommend appropriate mitigation measures for the inadvertently discovered archaeological or paleontological resources. The City shall approve the applicant's archaeologist or paleontologist. The City and the project applicant shall consider the mitigation recommendations and agree on implementation of the measure(s) that are feasible and appropriate. Such measures may include avoidance, preservation in place, excavation, documentation, curation, or other appropriate measures.

MM 4.5.2 **Treatment of Previously Unidentified Human Remains.** During project construction, if human remains are discovered, the project applicant and/or its contractor shall cease all work within 25 feet of the find and notify the City of Orinda Planning Department and the County Coroner, according to California Health and Safety Code Section 7050.5. If the remains are determined to be Native American, the coroner shall notify the Native American Heritage Commission within 24 hours.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.6 GEOLOGY AND SOILS. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☒	☐	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☒	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☒	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

SETTING

This section is based on the engineering geologic hazards evaluation prepared by Earth Focus Geological Services in September 2015. and Peters & Ross in January 2019. The 2019 Geotechnical Investigation presents the results of preliminary geotechnical and geologic investigation conducted on the project site. The 2019 Geotechnical Investigation supersedes other previous studies for the project site. Geocon Consultants performed a peer review and site survey to confirm the findings of the Geotechnical Investigation. The Geotechnical Investigation and peer review memo and Engineering Geologic Hazards Evaluation ~~reports and map~~ are attached as **Appendix GEO.**

The project site is an approximately 24-acre plot on hilly terrain rising in elevation from approximately 850 to 1,000 feet. The property contains two ridgelines, with slopes varying from 1.6:1 to 2.1:1 (horizontal to vertical).

Bedrock

Based on published geologic maps, the site and surrounding hills are underlain by marine sandstone of Miocene age. Different maps have assigned the sandstone to the Briones Formation, the Monterey Formation, and the Neroly Formation.

Surface Soils

The native site soils have been assigned to the Lodo soil series. This series is generally a clay loam that forms on sandstone. The native soils are characterized by a liquid limit ranging from 30 to 40 and a plastic index ranging from 15 to 20. The Lodo soils series is considered to have a moderate shrink-swell potential. It also has a moderate corrosively to uncoated steel.

Portions of the site also contain artificial fill. These are small and located along the ridgelines and were likely placed to widen the narrow ridges. Two landslide repairs were made in the 1980s using artificial fill consisting of a mixture of silty clay to silty fine sand.

Geology and Seismicity

The project site is located in the San Francisco Bay Area, which is considered one of the most seismically active regions in the United States. The area is dominated by the northwest-striking San Andreas fault and related major faults including the Calaveras, Concord-Green Valley, and others. The site is not located within an Earthquake Fault Zone as designated by the State of California, and no faults have been mapped that pass through the property. The closest Earthquake Fault Zone is the active Concord Fault Zone, approximately 2.3 miles northwest of the project site. The approximate distance from the site to active faults within 15 miles and their upper bound earthquake magnitudes are summarized in **Table 4.6-1, Active Faults within 15 Miles of the Project Site**. Upper bound earthquake magnitudes are the largest magnitude earthquake a particular fault can experience based on the fault's physical properties.

TABLE 4.6-1
ACTIVE FAULTS WITHIN 15 MILES OF THE PROJECT SITE

Fault Name	Project Site Distance to Fault (miles)	Upper Bound Earthquake
Northern Hayward	4.7	6.9
Northern Calaveras	9.0	6.8
Concord–Green Valley	9.2	6.9
Southern Hayward	12.9	6.9
Greenville	13.7	7.0
Rodgers Creek	14.7	7.0

*Source: Earth Focus 2015 (see **Appendix GEO**)*

The US Geological Survey (USGS) (2016a) indicates that there is a 72 percent chance of at least one magnitude 6.7 or greater earthquake striking the San Francisco Bay region before 2043. Therefore, the site would likely be subjected to at least one moderate to severe earthquake that

would cause strong ground shaking. According to the USGS, the site has a 10 percent probability of exceeding a peak ground acceleration of about 0.58g (g-force) in 50 years. The actual ground surface acceleration might vary depending on the local seismic characteristics of the underlying bedrock and the overlying unconsolidated soils (USGS 2003).

Slope Stability

Landslide maps show several landslides along the flanks of the various ridgelines within and adjacent to the project boundaries, all of which fall into the canyons that surround the site. The entire property is classified as being most susceptible to landslide hazards by the California Geological Society. Based on geological reconnaissance, there are four landslide areas within or adjacent to the project site. Landslide 1 has not been identified on any of the published or unpublished geologic maps reviewed for the report. Landslide 1 is a relatively small landslide that was mapped along the lower extent of the large canyon fill south of the existing house along the major southeast-flowing drainage. Landslide 2, located within the prominent southeast-flowing drainage and affecting the proposed building site for Parcel C, is the most extensive landslide mapped within the site and it is only landslide identified that is located entirely within the property. Landslide 3 is located along the south-facing side of the prominent ridgeline that extends to the west of the existing house within Parcel B. Landslide 4 is located at the north end of the property near the proposed building site for Parcel A, mostly offsite along the west property boundary. For a visual reference and the approximate extend of the landslides, please refer to Plate 1 (p.41) of the 2019 Geotechnical Investigation included in Appendix GEO. ~~Two historic landslides have been identified within the property boundary from historic aerial photographs as the result of heavy rains. Several small debris flows were also observed, meaning that the site is likely prone to debris flow hazard. While large rainstorms have been the source of landslides and debris flows on the project site, earthquakes can also trigger such events. The two previously identified landslides occurred on the proposed Parcel C.~~

Liquefaction

Soil liquefaction is a phenomenon primarily associated with saturated, cohesionless soil layers located close to the ground surface. Soils that are most susceptible to liquefaction are clean, loose, uniformly graded, saturated, fine-grained sands close to the ground surface. According to the USGS, liquefaction has not occurred within or adjacent to the project site from historic earthquakes. There is no potential for liquefaction hazard at the site.

DISCUSSION OF IMPACTS

a) **Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving:**

i. **Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Less Than Significant Impact**. No faults are known to occur within the project site. The likelihood of a surface fault rupture occurring on this site is considered nonexistent. However, several faults are located in the general area. The project would be required to comply with the requirements of the 2019 California Building Code (CBC), Chapter 16, Section 1613, Earthquake Loads or most currently adopted CBC. As such, the project would have a less than significant impact on exposing people or structures to potential substantial adverse effects.

ii. **Strong seismic ground shaking? Less Than Significant Impact**. The project site is located in one of the most seismically active regions in the United States and has a strong shaking hazard potential. However, the project would be subject to the CBC seismic design force standards. Compliance with these standards would ensure that the residences and associated improvements are designed and constructed to withstand expected seismic activity and associated potential hazards, including strong seismic ground shaking ~~and seismic-induced ground failure (i.e., liquefaction, lateral spreading, landslide, subsidence, and collapse)~~, thereby minimizing risk to the public and property. Therefore, this impact would be less than significant.

iii. **Seismic-related ground failure, including liquefaction? No Impact**. Liquefaction potential at the project site is considered nonexistent. Therefore, the project would have no impact.

iv. **Landslides? Less Than Significant Impact <u>With Mitigation Incorporated</u>**. <u>The site was evaluated for potential geologic hazards from landslides. According to a site-specific evaluation completed by Peters & Ross (2019), there are four landslide areas within or adjacent to the project site. The Geotechnical Investigation includes general recommendations for site preparation, subgrade preparation, fill materials, compaction, trench backfill, slope inclinations, drainage, building foundations and slabs, and pavement sections. Additionally, the Geotechnical Investigation includes specific parcel-by-parcel recommendations for grading and slope stabilization methods. Mitigation measure **MM 4.6.1** requires that updated geotechnical reports are prepared for proposed structures and roadways at the time of applications for future improvements on each parcel. Mitigation measure **MM 4.6.2** requires that the updated reports include quantitative slope stability analyses that demonstrate that minimum factors of safety are met for the proposed project slopes. With implementation of mitigation measure **MM 4.6.1**, **MM 4.6.2**, and **MM 4.6.3** impacts would be reduced to less than significant.</u>

b) **Would the project result in substantial soil erosion or the loss of topsoil? Less Than Significant Impact**. Project construction would include land clearing, grading, excavating, and other soil-disturbing activities that would expose site soils to wind and water erosion. Slope erosion and stability are discussed in Items 4.6(c) and 4.6(d) below.

All construction activities would be subject to CBC Chapter 70 standards, which would ensure implementation of appropriate measures during grading activities to reduce soil erosion. In accordance with OMC Section 18.02.040, the project applicant has prepared a preliminary stormwater control plan and submitted it to the City. This plan describes the proposed permanent and operational source control measures to be implemented as best management practices (BMPs) (see Item 4.9(c) in subsection 4.9, Hydrology and Water Quality). These BMPs may include hydroseeding, straw mulch, earth dikes and drainage swales, and slope drains, as necessary. The BMPs would further reduce soil erosion from both construction and operation. Prior to project approval, the applicant would submit a final stormwater control plan which would be based on the project's final designs. Project construction would not occur until the City approves the plan.

Because the project would disturb more than 1 acre of land, the project applicant would be required to prepare and comply with a stormwater pollution prevention plan (SWPPP). A SWPPP provides a schedule for the implementation and maintenance of erosion control measures and a description of the erosion control practices, including appropriate design

details and a time schedule. The SWPPP would consider the full range of erosion control BMPs, including any additional site-specific and seasonal conditions.

Compliance with these existing regulatory requirements and implementation of project-specific erosion management would minimize the potential for soil erosion during construction and operation. This impact would be less than significant.

c) **Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse? Less Than Significant Impact With Mitigation Incorporated**. The project is located in an area that has been subject to landslides in the past. Landslide hazards were addressed above in Item 4.6(a)(iv). These hazards would be reduced to less than significant by implementing mitigation measures **MM 4.6.1**, **MM 4.6.2**, and **MM 4.6.3**. According to the geotechnical evaluation conducted by Peters & Ross, the site is not susceptible to hazards related to lateral spreading, subsidence, liquefaction, and collapse and these impacts would be less than significant (Peters & Ross 2019). Nevertheless, the applicant would be required to implement mitigation measures **MM 4.6.1**, **MM 4.6.2**, and **MM 4.6.3**, which require a geotechnical investigation by a California-licensed geotechnical engineer (GE) and certified engineering geologist (CEG), a report outlining measures consistent with City of Orinda and Contra Costa County building codes and grading ordinances, and establishment of a Geologic Hazard Abatement District (GHAD) to monitor and repair potential landslides. By implementing mitigation measures **MM 4.6.1**, **MM 4.6.2**, and **MM 4.6.3**, hazards related to landslides and other potential geologic hazards would be identified and addressed by measures outlined in a report submitted to the City. Implementation of mitigation measures **MM 4.6.1**, **MM 4.6.2**, and **MM 4.6.3** would ensure that geotechnical hazards related to on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse would be reduced to a less than significant level. ~~but has no potential for liquefaction. All development would be required to comply with rules designed to address geologic instability such as the CBC, Orinda grading regulations, and the City's design review standards. Compliance with these laws and standards would ensure that any potential impacts are less than significant.~~

d) **Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? Less Than Significant Impact with Mitigation Incorporated.** The project is located on soils with moderate to high expansion potential. (Peters & Ross 2019). There are a number of methods available for reducing the adverse effects of expansive soils. These include removing the expansive soils, replacing expansive soils with non-expansive engineered fill, deepening foundations to develop support below the zone of significant seasonal moisture change (about 32 to 48 inches), designing foundation/slab systems to resist uplift pressures generated by swelling soils, and/or providing drainage and landscaping to minimize seasonal moisture fluctuations in the near-surface soils. These methods would be designed on a parcel—by-parcel basis as part of the design for each structure and roadway improvement. Hazards would be reduced to less than significant by implementing mitigation measures **MM 4.6.1** and **MM 4.6.2**. Under these measures, the applicant would be required to have a geotechnical investigation prepared by a licensed geotechnical engineer (GE) and certified engineering geologist (CEG) licensed by the State of California and to submit a report outlining measures consistent with City of Orinda and Contra Costa County building codes and grading ordinances. By implementing mitigation measures **MM 4.6.1** and **MM 4.6.2**, any impacts related to expansive soils would be identified and addressed by measures outlined in a report to the City. The City would ensure that geotechnical hazards

related to expansive soils would be reduced to a less than significant level. ~~Overall, the project applicant's geotechnical consultant, Peters & Ross (2015), concluded that development of the new residences would be feasible with a detailed geotechnical design report for each of the newly created lots. The City would require a geotechnical report which would inform the applicant of expansive soil potential on the site and recommend project design features to address any issues. These features would be incorporated into the residences' design and would be approved by the City prior to construction. The project applicant would also need to comply with the CBC, the Orinda grading regulations, and the City's design review standards. Therefore, the project would have a less than significant impact.~~

e) **Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? No Impact**. The project would be served by a public sewer system. Therefore, no septic tanks or alternative wastewater disposal systems would be necessary. The project would have no impact.

Mitigation Measures

~~None required.~~

MM 4.6.1 Prior to future grading or construction of structures at each parcel, an updated geotechnical report shall be prepared to provide conclusions and recommendations for the design and construction of the proposed structures and grading. The report shall consider the design-level grading plans and detailed recommendations for remedial grading and/or other mitigation measures (pin piers, etc.) shall be provided. Consideration may be given to showing remedial grading and keyway areas on the grading plans. In addition, the geotechnical engineer shall review project civil and structural plans prior to finalization to confirm project geotechnical recommendations are properly incorporated.

At the City's discretion, the geotechnical investigation report shall be subject to peer review by qualified (GE and CEG) staff. Contra Costa County conducts site inspections and approves grading plans. Contra Costa County verifies and documents that the measures specified in the geotechnical report are properly implemented during construction. The City shall retain documentation from the County of compliance.

MM 4.6.2 Updated geotechnical reports that accompany the detailed grading plans for each parcel shall include quantitative slope stability analyses that demonstrates minimum factors of safety are met for the proposed project slopes. Where/if planned slopes do not meet applicable factor of safety requirements for static and seismic conditions, recommendations for additional mitigation measures shall be provided. The reports shall provide basis to substantiate the assigned material properties – unit weight and shear strength, in particular. Additional laboratory shear strength testing may be required.

At the City's discretion, the geotechnical investigation report will be subject to peer review by qualified (GE and CEG) staff. Contra Costa County conducts site inspections and approves grading plans. Contra Costa County shall verify and document that the measures specified in the geotechnical report are

properly implemented during construction. The City shall retain documentation from the County of compliance.

MM 4.6.3 The applicant shall apply to the City for the establishment of a Geologic Hazard Abatement District (GHAD). The GHAD shall provide funds for the maintenance and repair of damage to structures and private and public development (e.g. roads) adjacent to the project site in the years after development. The proposed GHAD shall include an on-going inspection program to monitor geologic conditions and shall also include corrective work to repair geologic hazard conditions created by the project. The GHAD shall be responsible for minor maintenance and monitoring including the following:

- annual monitoring of groundwater conditions;
- placement and periodic monitoring of slope inclinometers to detect movement of a landslide;
- cleaning of leaves and other debris from surface drainage systems; and
- repair of minor slope erosion such as that caused by rodents, excess landscape irrigation, or storms.

The GHAD shall include contingencies for repair of major landslides, slope movement, damage by expansive soils, or other substantial hazards.

The GHAD shall include the entire project site.

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	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.7 GREENHOUSE GASES. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☒

SETTING

Greenhouse gases (GHGs) are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. For instance, per the California Emissions Estimator Model (CalEEMod) v. 2016.3.2 emissions modeling software, methane traps over 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e), which weigh each gas by its global warming potential (GWP). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted. The GHGs defined under California's Assembly Bill (AB) 32, include CO_2, CH_4, N_2O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

Regulatory Framework

The primary regulatory framework for greenhouse gas reduction mandates in California, the Bay Area, and the City are described below. For the project, implementation of California's GHG reduction mandates is primarily under the authority of: the California Air Resources Board (CARB) at the state level; the Bay Area Air Quality Management District (BAAQMD), the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) at the regional level; and the City of Orinda (City) at the local level.

Executive Order S-3-05

On June 1, 2005, Executive Order (EO) S-3-05 proclaimed that California is vulnerable to climate change impacts. The EO declared that increased temperatures could reduce snowpack in the Sierra Nevada, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To avoid or reduce climate change impacts, EO S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. Executive Orders are not laws and can only provide the governor's direction to state agencies to act within their authority to reinforce existing laws.

Assembly Bill 32 – Global Warming Solution Act of 2006

The California Global Warming Solutions Act of 2006, widely known as Assembly Bill (AB) 32, requires that CARB develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed by AB 32 to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG emission reductions.

Executive Order B-30-15

On April 29, 2015, EO B-30-15 established a California GHG emission reduction target of 40 percent below 1990 levels by 2030. The EO aligns California's GHG emission reduction targets with those of leading international governments, including the 28 nation European Union. California is on track to meet or exceed the target of reducing GHGs emissions to 1990 levels by 2020, as established in AB 32. California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the goal established by EO S-3-05 of reducing emissions 80 percent under 1990 levels by 2050.

Senate Bill 32

Signed into law by Governor Brown on September 8, 2016, Senate Bill (SB) 32 (Amendments to the California Global Warming Solutions Action of 2006) extends California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EO B-30-15 of 80 percent below 1990 emissions levels by 2050.

California Air Resources Board

On December 11, 2008, the CARB adopted the Climate Change Scoping Plan (Scoping Plan) as directed by AB 32. The Scoping Plan proposes a set of actions designed to reduce overall GHG emissions in California to the levels required by AB 32. Measures applicable to development projects include those related to energy-efficiency building and appliance standards, the use of renewable sources for electricity generation, regional transportation targets, and green building strategy. Relative to transportation, the Scoping Plan includes nine measures or recommended actions related to reducing VMT and vehicle GHGs through fuel and efficiency measures. These measures would be implemented statewide rather than on a project by project basis (CARB 2008).

In response to EO B-30-15 and SB 32, all state agencies with jurisdiction over sources of GHG emissions were directed to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 targets. CARB was directed to update the Scoping Plan to reflect the 2030 target and, therefore, is moving forward with the update process. The mid-term target is critical to help frame the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure needed to continue driving down emissions (CARB 2014). In December 2017, CARB adopted a second update to the Scoping Plan, the 2017 Climate Change Scoping Plan Update, the Strategy for Achieving California's 2030 Greenhouse Gas Target, to reflect the 2030 target set by EO B 30 15 and codified by SB 32 (CARB 2017).

Bay Area Air Quality Management District

The BAAQMD provides direction and recommendations for the analysis of GHG impacts of a project and approach to mitigation measures in its CEQA Guidelines (BAAQMD 2017b). The guidance provided in the handbook was used to prepare this analysis.

The BAAQMD has adopted thresholds for project and plan level emissions which lead agencies can use to determine the significance of a development project's long-term operational GHG emissions. The BAAQMD's 2017 thresholds of significance for a land use development project would be a bright-line threshold of 1,100 metric tons of CO_2e per year. The current BAAQMD GHG thresholds are intended to achieve the requirements of AB 32 to reduce GHG emissions to 1990 levels by the year 2020. SB 32 requires California, by the year 2030, to reduce its statewide GHG emissions to 40 percent below those that occurred in 1990. To account for the SB 32 reduction requirements, the BAAQMD thresholds can be reduced by 4 percent per year for projects that would be developed in the years from 2021 through 2030. The first full year of project operational emissions is anticipated to be 2023. Accordingly, a threshold 12 percent below the 1,100 MT CO_2e bright-line thresholds, or 968 MT CO_2e per, was used in the analysis of the project's GHG emissions. This estimated threshold is a surrogate threshold while the BAAQMD develops thresholds to comply with SB 32.

Association of Bay Area Governments and Metropolitan Transportation Commission

As required by the Sustainable Communities and Climate Protection Act of 2008 (SB 375), ABAG and the Metropolitan Transportation Commission (MTC) have developed a Regional Transportation Plan and Sustainable Communities Strategy (SCS) as a component of Plan Bay Area 2040 (MTC and ABAG 2017). This plan seeks to reduce GHG and other mobile source emissions through coordinated transportation and land use planning to reduce vehicle miles traveled (VMT).

City of Orinda

The City has not adopted a climate action plan or other local GHG reduction plan. The City General Plan was adopted in May 1987 and contains goals for the conservation of energy but does not contain other goals or policies relevant to the local reductions of GHG emissions.

DISCUSSION OF IMPACTS

a) **Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? Less Than Significant Impact**. GHG emissions contribute, on a cumulative basis, to significant adverse environmental impacts. No single project could generate enough GHG emissions to noticeably change the global average temperature. The combination of GHG emissions from past, present, and future projects contributes substantially to the phenomenon of global climate change and its associated environmental impacts and as such is addressed only as a cumulative impact.

The project's GHG emissions would occur during the duration of construction and would consist primarily of emissions from equipment exhaust. There would also be long-term regional emissions associated with project-related new vehicular trips and indirect source emissions, such as electricity usage for lighting. GHG emissions for the project were calculated using the CalEEMod, version 2016.3.2., as described in subsection 4.3, Air Quality, above.

Construction Emissions

Construction GHG emission sources include construction equipment exhaust, on-road delivery trucks exhaust, and worker commuting vehicle exhaust. The BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, the BAAQMD recommends quantification and disclosure of GHG emissions that would occur during construction~~, in addition to making a determination on the significance of these construction-generated GHG emissions impacts in relation to meeting Assembly Bill (AB) 32 GHG reduction goals (statewide reduction of GHG emissions to 1990 levels by 2020).~~ To be conservative in accounting for all of the project's GHG emissions, the project construction GHG emissions were amortized (averaged) over the 30-year estimated life span of the buildings and included in the project's operational GHG emissions inventory.

Project construction would result in a ~~maximum~~ total of ~~264~~294.2 ~~metric tons of construction-generated~~ MT CO_2e, or 9.8 MT CO_2e per year amortized over the 30-year anticipated lifetime of the project's buildings. ~~The project's emissions were modelled using the CalEEMod version 2016.3.1 computer program.~~ Refer to **Appendix GHG** for model data outputs. In addition to quantifying construction-generated GHG emissions, the BAAQMD recommends that all construction projects incorporate best management practices minimizing GHG emissions. The project would be subject to the California Green Building Standards Code (Part 11, Title 24), which was adopted as part of the CBC (Title 24, California Code of Regulations). Current mandatory standards include the diversion of at least 65 percent of construction waste from landfills, thereby implementing one of the BAAQMD's recommended BMPs for reducing construction-generated greenhouse gas emissions. Furthermore, the project would be required to implement mitigation measure **MM 4.3.1,** which further reduces the emissions of heavy-duty diesel-powered equipment during construction. Implementation of this measure would minimize construction-related GHG emissions to the extent feasible, consistent with AB 32 GHG reduction goals, and would therefore result in a less than significant impact.

Operational Emissions

Operational sources of GHG emissions in CalEEMod include area, energy, mobile, water use, and solid waste. Operational project input and design features incorporated into CalEEMod for the project include:

- Area – area sources include GHG emissions from landscaping equipment, the use of consumer products, and gas fireplaces. Emissions associated with area sources were estimated using the CalEEMod default values for the project. Area sources in CalEEMod also include emissions from wood burning stoves and fireplaces. However, in accordance with the BAAQMD Regulation 6, Rule 3 – Wood-Burning Devices, permanently installed wood-burning devices are not permitted in new development and the project would not include wood-burning stoves or wood-burning fireplaces (BAAQMD 2015).

- Energy – The project would use electricity and natural gas for lighting, heating and cooling. Electricity generation typically entails the combustion of fossil fuels, including natural gas and coal, which are then stored and transported to end users. Electricity and natural gas would be supplied by Pacific Gas and Electric (PG&E). Energy source emissions were estimated assuming implementation of energy-reducing project design features to comply with the 2019 Title 24 standards which include a requirement for on-site generation of electricity through photovoltaic (solar) panels. In accordance with

2019 Title 24, an 1,800 square-foot single-family home in Contra Costa County (climate zone 5) would require solar panels producing a minimum of 2.25 kilowatts (kW). The annual electricity generated by a rooftop mounted 2.25 kW solar power system varies by the climate, amount of sunlight available per day, the pitch and orientation of the roof, and the efficiency of the electrical transmission. The estimated range of electrical solar power produced by each of the project's homes is 3,350 to 4,440 kilowatt-hours (kWhr) per year. 3,940 kWhr per year of solar power per home was assumed in the project operational emissions modeling.

- Mobile – Operational GHG emissions from mobile sources are associated with project-related vehicle trip generation and trip length. As detailed in subsection 4.16, Transportation/Traffic, the project would generate an average of 29 trips per day. The CalEEMod default vehicle speeds, trip purposes, and distances were used.

- Solid Waste – Solid waste generated by the project would also contribute to GHG emissions. Treatment and disposal of solid waste produces emissions of methane. Modeling was conducted using CalEEMod default solid waste generation rates and GHG factors for Contra Costa County.

- Water Sources – Water-related GHG emissions are from the energy used and process emissions for the conveyance and treatment of water. The California Energy Commission's 2006 Refining Estimates of Water-Related Energy Use in California defines average energy values for water use. These values are used in CalEEMod to establish default water related emission factors.

~~For operational GHG emissions, the applicable BAAQMD threshold of significance is whether the project would exceed 1,100 metric tons per year of CO_2e.~~ The projected annual GHG emissions from project operation are summarized in **Table 4.7-1**, **Operational GHG Emissions**.

TABLE 4.7-1
OPERATIONAL GHG EMISSIONS (METRIC TONS PER YEAR)

Source	CO_2e
Area	~~1~~ 0.3
Energy	~~16~~ 13.8
Mobile	~~28~~ 25.0
Solid Waste	~~2~~ 1.9
Water	~~1~~ 0.7
~~Total~~ Subtotal	~~48~~ 41.7
Amortized Construction	9.8
Total	**~~48~~ 51.5**
AB 32 BAAQMD Threshold	**1,100**
SB 32 Adjusted BAAQMD Threshold	**968**
Significant?	*No*

*Source: CalEEMod version 2016.3.2. Refer to **Appendix AIR and GHG** for model data outputs.*

As shown in **Table 4.7-1**, the project would be below BAAQMD significance thresholds for operational GHG emissions and would result in less than significant impacts.

b) **Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases? ~~No~~ Less Than Significant Impact**. The project would ~~comply with~~ not exceed the AB 32 threshold, which is designed to reduce statewide GHG emissions to 1990 levels by 2020. As identified above, the project-generated greenhouse gas emissions would not surpass BAAQMD significance thresholds adjusted for the mandates of SB 32, ~~which were prepared to comply with the requirements of and achieve the goals of AB 32.~~ Therefore, the project would not conflict with the state goals ~~listed in~~ mandated by AB 32 and SB 32, as implemented by CARB's Scoping Plan. As described in subsection 4.10, Land Use and Planning, the project would be consistent with the land use designation and development density specified in the City's General Plan, and thereby, the project would not exceed the population projections used to develop the GHG reduction measures outlined in the BAAQMD's 2017 Clean Air Plan or the MTC and ABAG's Plan Bay Area 2040 (BAAQMD 2017b; MTC and ABAG 2017). Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. The impact would be less than significant.

~~Statewide goals for GHG reductions in the years beyond 2020 have been recently codified into state law with the passage of Senate Bill (SB) 32. However, at the time of this writing, no specific policies or emissions reduction mechanisms have been established. For instance, as a result of the AB 32 legislation, the State's 2020 reduction target is backed by the adopted AB 32 Scoping Plan, which provides a specific regulatory framework of requirements for achieving the 2020 reduction target (e.g., the Low Carbon Fuel Standard and the Renewables Portfolio Standard, are largely driven by the AB 32 Scoping Plan). However, SB 32 does not have any such framework and therefore does not yet provide any specific emissions reduction mechanisms. While project design can contribute to reducing potential GHG emissions from the proposed project, achievement of future GHG efficiency standards is also dependent on regulatory controls applied to all sectors of the California economy. Thus, the ability of this project—and all land use development—to achieve GHG reduction goals beyond 2020 is out of the control of the project and its proponents until specific policies or emissions reduction mechanisms have been established. As such, the project would not conflict with any applicable plans, policies, or regulations adopted to reduce GHG emissions.~~

Mitigation Measures

None required.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.8 HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) 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?	☐	☐	☐	☒

SETTING

Much of the information included in this section is based on GeoTracker and EnviroStor database searches (SWRCB 2016; DTSC 2016).

Hazardous Materials Regulation

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency or if it has characteristics defined as hazardous by such an agency.

Most hazardous material regulation and enforcement in Contra Costa County is managed by the Contra Costa County Health Services Department, Hazardous Materials Division, which refers large cases of hazardous materials contamination or violations to the San Francisco Bay Regional Water Quality Control Board (RWQCB) and/or the California Department of Toxic Substances Control (DTSC). The County's Health Services Department implements a variety of programs, including incidence response and underground storage tank programs (Contra Costa Health Services 2017).

Hazardous Materials Sites

Under Government Code Section 65962.5, both the State Water Resources Control Board (SWRCB) and the DTSC are required to maintain databases of sites known to have hazardous substances present in the environment. Both agencies maintain such databases on their websites, known as GeoTracker and EnviroStor, respectively.

The project site is located in a semi-rural ~~suburban~~ area with low-density housing. There are no hazardous materials sites identified on GeoTracker and EnviroStor within 1 mile of the project site.

Airports

There are no public or private airports or airstrips within 2 miles of the project site (Google 2016).

Emergency Response

The City of Orinda receives fire department service from the Moraga-Orinda Fire District, which provides fire and emergency response in Orinda, Moraga, and neighboring unincorporated areas. Police service is provided by the Orinda Police Department, which contracts with Contra Costa County for staffing. According to the California Department of Forestry and Fire Protection's (2007) Fire Hazard Severity Zones in LRA map, the project site is identified as a local responsibility area (LRA) non-VHFHSZ (very high fire hazard severity zone).

DISCUSSION OF IMPACTS

a, b) **Would the project (a) create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or (b) create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? Less Than Significant Impact**. These two significance thresholds focus on the exposure of people to hazards either existing or created by the project; therefore, they are discussed together. The project would construct three new residences on previously undeveloped land.

Construction

Both the EPA and the US Department of Transportation (DOT) regulate the transport of hazardous waste and materials, including transport via highway. The EPA administers permitting, tracking, reporting, and operations requirements established by the Resource Conservation and Recovery Act. The DOT regulates the transportation of hazardous

materials through implementation of the Hazardous Materials Transportation Act. This act administers requirements for container design and labeling, as well as for driver training. The established regulations are intended to track and manage the safe interstate transportation of hazardous materials and waste. Additionally, state and local agencies enforce the application of these acts and coordinate safety and mitigation responses in the case that accidents involving hazardous materials occur.

Project construction would include refueling and minor maintenance of construction equipment on-site, which could lead to minor fuel and oil spills. The use and handling of hazardous materials during construction would occur in accordance with applicable federal, state, and local laws, including California Occupational Health and Safety Administration (Cal/OSHA) requirements. All construction activities would be subject to the National Pollutant Discharge Elimination System (NPDES) permit process that requires the preparation of a stormwater pollution prevention plan, which would be reviewed and approved by the RWQCB. With compliance with existing regulations, the project would have a less than significant impact from construction.

Project Operation

Project operation would involve the routine transport, use, or disposal of hazardous materials in very small quantities as they relate to household use. The Central Contra Costa Solid Waste Authority regulates household hazard disposal, and each residence's occupants would be responsible for proper handling and disposal of household materials. The Solid Waste Authority currently operates a Hazardous Recycling and Waste Disposal program, where city residents can drop off such waste for free at the Central Contra Costa Sanitary District Household Hazardous Waste facility in Martinez.

Because any hazardous materials used for household operations would be in small quantities and a household hazards waste program in available to city residents, long-term impacts associated with handling, storing, and disposing of hazardous materials from project operation would be less than significant.

c) **Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? No Impact.** The project site is not located within 0.25 mile of a public school. As discussed above, all hazardous materials would be handled in compliance with city, county, state, and federal regulations. Therefore, the project would have no impact on schools due to the release of hazardous materials.

d) **Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? No Impact**. The project site is not included on the list of hazardous waste sites (Cortese List) compiled by the DTSC pursuant to Government Code Section 65962.5, and no such sites are located within 1 mile of the project site. As such and with application of federal, state, and local regulations, the project would have no impact.

e) **For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area? No Impact**. The project site is more than 2 miles from any public or private airport. The project would have no impact.

f) **For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? No Impact**. The project site is not located in the vicinity of a private airstrip. The project would have no impact.

g) **Would the project impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan? No Impact**. The project would not require any road closures during construction. The project would widen the existing Sunnyside Lane to meet fire department standards and would build driveways to the appropriate width for emergency access. Three turnarounds, on Parcels A, C, and D, would also be included on the driveways for emergency vehicles. The project would also include two fire hydrants. All project plans would be submitted for approval to the Moraga-Orinda Fire District. Therefore, the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan. The project would have no impact.

h) **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? No Impact**. The project site is not located in an area designated by the California Department of Forestry and Fire Protection (2007) as a very high fire hazard severity zone (VHFHSZ). The project site is in a semi-rural ~~suburban~~ area with large lots and hilly, naturally vegetated open areas. However, the fire safety features described in Item 4.8(g) would reduce the danger from wildland fires. No impact would occur.

Mitigation Measures

None required.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.9 HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

SETTING

Surface Water Resources and Quality

The East Bay Municipal Utility District (EBMUD) supplies Orinda's water. The main source of water is the Mokelumne River watershed, which is located in the Sierra Nevada. Ninety percent of water supplies come from this location, with most of the remaining 10 percent supplied by local runoff.

Groundwater Resources and Quality

Groundwater resources in the EBMUD service area do not supply significant amounts of water to meet or augment untreated water demands. EBMUD is currently undertaking the Bayside Groundwater Project, which is to provide a source of supplemental water supply during dry years. The project will allow the injection of potable water supplies into the South East Bay Plain Groundwater Basin during wet years for extraction during periods of drought (EBMUD 2015).

Drainage and Flooding

The project site drains in multiple directions, as the site contains two ridgelines with decreasing elevation on each side. Per the project's stormwater control plan (DeBolt Civil Engineering 201~~5~~9), no areas on the project site are prone to pooling or ponding (see **Appendix HYDRO**). Stormwater management is regulated through the San Francisco Bay RWQCB National Pollutant Discharge Elimination System (NPDES) permit.

The Orinda Public Works and Engineering Services Department maintains the City's storm drain facilities. Stormwater is conveyed though man-made flood protection systems that discharge to San Pablo Creek and the San Francisco Bay.

DISCUSSION OF IMPACTS

a) **Would the project violate any water quality standards or waste discharge requirements? Less Than Significant Impact.**

Construction

Construction activities would include grading, excavation, and vegetation removal, which would disturb and expose soils to water erosion, potentially increasing the amount of silt and debris entering downstream waterways. In addition, refueling and parking construction equipment and other vehicles on-site could result in oil, grease, and other related pollutant leaks and spills that could enter runoff. The project applicant would be required to prepare and comply with a SWPPP that would include pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills), demonstrate compliance with all applicable local and regional erosion and sediment control standards, identify responsible parties, and include a detailed construction timeline. The SWPPP must also include best management practices (BMPs) to reduce construction effects on receiving water quality by implementing erosion control measures and reducing or eliminating non-stormwater discharges.

Examples of typical construction BMPs include, but are not limited to, using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks cannot enter the storm drain

system or surface water; developing and implementing a spill prevention and cleanup plan; and installing sediment control devices such as gravel bags, inlet filters, fiber rolls, or silt fences to reduce or eliminate sediment and other pollutants from discharging to the drainage system or receiving waters. BMPs are recognized as effective methods to prevent or minimize the potential releases of pollutants into drainages, surface water, or groundwater.

The project applicant would be required to comply with the project's SWPPP. Therefore, the project would have a less than significant impact on water quality standards and discharge requirements during construction.

Operation

The project would connect to the City's existing storm drainage facilities. Project operation could also contribute pollutants, such as oil, grease, and debris, to stormwater drainage flowing over the driveways.

The project would be required to comply with the San Francisco Bay Municipal Regional Stormwater Permit (MRP) (Order R2-2009-0074; NPDES Permit No. CAS612008) administered by the San Francisco Bay RWQCB. The MRP ensures attainment of applicable water quality objectives and protection of the beneficial uses of receiving waters and associated habitat and requires that discharges not cause exceedances of water quality objectives or cause certain conditions to occur that create a condition of nuisance or water quality impairment in receiving waters. MRP Provision C.3 requires new and redevelopment projects that create or replace 10,000 square feet or more of impervious surface to implement certain measures to protect water quality and prevent erosion by minimizing sediment and other pollutants in site runoff and so that post-project runoff will not exceed pre-project rates and durations. The goal of Provision C.3 is to include appropriate source control, site design, and stormwater treatment measures in new development and adaptive reuse projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and adaptive reuse projects. Compliance with Provision C.3 would reduce potential water quality impacts associated with the proposed project.

The design of the project's bioretention system, detailed in the project's stormwater control plan (**Appendix HYDRO**), would be submitted to the City for review to ensure the system meets the requirements of the City's NPDES permit and Provision C.3. A preliminary plan has been reviewed by the City Engineer to confirm the feasibility of the stormwater control plan. The final stormwater control plan would be based on the project's final designs, and project construction would not occur until the City approves the plan. The project includes the construction of new driveways, along with the three residences. ~~The new~~Project development, including rooftops and driveways would constitute a significant ~~portion of the~~ increase in impervious area on the project site. Roadway drainage typically generates quick runoff, which has the potential to carry pollutants into waterways and the stormwater system. The project would direct this runoff down the roadway and discharge it into the bioretention areas. The vegetated bioretention facilities would filter and treat the runoff from the new driveways. As such, stormwater runoff from the three new residences and the new driveways would be fully treated. Although runoff from portions of the minimally widened existing Sunnyside Lane may be untreated, this runoff would be minimal and would not impact water quality or waste discharge requirements.

With implementation of the project's stormwater treatment design measures and compliance with existing regulations, the project would have a less than significant impact on water quality standards and waste discharge requirements during operation.

b) **Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? Less Than Significant Impact**. Potable water service would be provided by EBMUD. Groundwater resources in the EBMUD service area do not supply significant amounts of water to meet or augment water demands. Further, the project would not directly draw on groundwater supplies. The project would increase impervious surface on the site by a maximum of approximately 0.65 acres, but most of the site would remain undeveloped, allowing for groundwater recharge. Therefore, the project would not contribute to the depletion of groundwater supplies and would not substantially interfere with groundwater recharge. A less than significant impact would result.

c) **Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? Less Than Significant Impact**. Runoff from the project site currently drains in all directions and is not conveyed through a formal system. The project would improve drainage on the site, as runoff would be handled per the project's stormwater control plan, as outlined in Section 3.0, Project Description, and in **Appendix HYDRO**. Further, per subsection 4.6, Geology and Soils, the project would implement various measures to control erosion during both construction and operation.

In compliance with existing water quality regulations, the project would be required to implement construction and post-construction BMPs to minimize erosion and sedimentation. Post-construction BMPs are described in the project's stormwater control plan, attached to this IS/MND as **Appendix HYDRO**. Therefore, although the project would alter the site's existing drainage pattern, it would not result in substantial erosion or siltation. This impact would be less than significant.

d) **Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site? Less Than Significant Impact.** See Item 4.9(c). The project would alter the existing drainage patterns on the project site and formalize the drainage system through the implementation of a stormwater control plan. As outlined in **Appendix HYDRO,** runoff would be directed to proposed bioretention basins and other controls, which would detain and treat flows prior to discharge. Therefore, the project would not result in on- or off-site flooding, and this impact would be less than significant.

e) **Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? Less Than Significant Impact**. As discussed in item 4.9(a), the project would not be a substantial source of polluted runoff. The project would increase the impervious areas on the project site from 0.6 acre, comprising the existing residence and driveway on Parcel B, to 1.25 acres, for a total net gain of 0.65 acres. The project's stormwater would flow into the City's existing storm drainage system. The proposed on-site drainage system would consist of bioretention areas to treat runoff. Additionally, although the project would increase the amount of runoff entering the storm drains, the project's

storm drainage system would be designed to comply with the NPDES General Permit for Waste Discharge Requirements for Storm Water Discharges from Contra Costa County (Order No. R2-2006-0050). This permit requires project site design to achieve a 50 percent capture rate. By complying with existing regulations and project design measures, the project would have a less than significant impact on stormwater capacity.

f) **Would the project otherwise substantially degrade water quality? Less Than Significant Impact**. See Item 4.9(a).

g) **Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? No Impact**. The project site is in Zone X, which the Federal Emergency Management Agency (FEMA) (2009) describes as an "area of minimal flood hazard, usually depicted on Federal Insurance Rate Maps as above the 500-year flood level." Because the project site is located in Zone X, its potential to be impacted by flooding is minimal. Therefore, the project would have no impact regarding flood flows.

h) **Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows? No Impact**. See Item 4.9(g). The project would not place any structures within a 100-year flood hazard area.

i) **Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam? No Impact**. There are no levees in the project vicinity, and the project is not located within a dam inundation area. Therefore, the project would have no impact.

j) **Would the project expose people or structures to a significant risk of inundation by seiche, tsunami, or mudflow? Less Than Significant Impact**. The project site is not located in a tsunami inundation area (ABAG 2014). The project site could not be impacted by a seiche due to the site's elevation and distance from the nearest lake. Briones Reservoir is approximately 0.5 mile downhill from the project. As discussed in subsection 4.6, Geology and Soils, the project would be subject to the CBC, Orinda grading regulations, and the City's design review standards, and the project applicant would be required to prepare a geotechnical report, all of which would require hillside stability and erosion control techniques. As such, the site is not subject to mudflow. The project would have less than significant impacts due to tsunami, seiche, or mudflow.

Mitigation Measures

None required.

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	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.10 LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

SETTING

The basis for land use and planning in the city is the Orinda General Plan, adopted in 1987. The General Plan Land Use Element provides the primary guidance on issues related to land use, land use intensity, and design. In concert with the General Plan, OMC Section 17 establishes zoning districts in the city and specifies allowable uses and development standards for each district. The project site is zoned RVL (Residential Very Low Density), which allows for single-family residential uses. Adjacent land uses are also residential.

DISCUSSION OF IMPACTS

a) **Would the project physically divide an established community? No Impact**. The project site currently has one residence and is surrounded by low-density residential neighborhoods. The project would be consistent with the City's General Plan land use designation and zoning and would provide more residential housing in the city. The project would be consistent with surrounding uses because it would match the existing residential community. The project would also not create physical divisions in the community. As such, the project would have no impact on an established community.

b) **Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? No Impact**. The project site is currently designated Residential: Single Family Very Low Density in the Orinda General Plan and is designated Residential Very Low Density (RVL) in the Orinda Zoning Code. The project is also subject to the City's Hillside and Ridgeline Design Guidelines. The project would construct three new single-family residences, which would be consistent with zoning and the land use designation, and would comply with the design guidelines. The project would require City approval and would undergo the City's vesting tentative map approval process. As such, the project would be in compliance with City regulations. Therefore, the project would have no impact on the City's applicable land use plans and policies.

c) **Would the project conflict with any applicable habitat conservation plan or natural community conservation plan? No Impact**. The project would not conflict with the

provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan because none have been adopted for the region. The project would have no impact.

Mitigation Measures

None required.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.11 MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

SETTING

According to the USGS (2016b) mineral resources data, no mineral resources are located within several miles of the project site. Orinda has two areas that may be designated as mineral resource sectors for construction aggregate, both located on the southwestern border of the city. The City has officially protested the possible designation of these sites as significant regional mineral resources, as their designation would require policies allowing recovery of such resources.

DISCUSSION OF IMPACTS

a) **Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? No Impact**. The project does not involve the loss of an available known mineral resource that would be of value to the region. Therefore, the project would have no impact.

b) **Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? No Impact**. There are two areas delineated in the General Plan that may be designated as mineral resource sectors. These areas are located approximately 4 miles from the project site. The project would not impact these areas due to the project site's distance from those areas and the nature of the project. Therefore, the project would have no impact.

Mitigation Measures

None required.

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	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.12 NOISE. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

SETTING

According to the City's (1987) General Plan Noise Element, the primary source of noise in Orinda is motor vehicles on roadways (traffic noise), particularly from SR 24. These motor vehicles include automobiles, buses, trucks, and vehicles associated with construction equipment. Secondary noise sources in the city include aircraft ~~operations~~ overflights and construction activities.

Noise Fundamentals

Noise is generally defined as sound that is loud, disagreeable, or unexpected. The selection of an appropriate noise descriptor for a specific source is dependent on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear (A-weighted decibels, or dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted for understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.

- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10 dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks, and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Mobile transportation sources, such as highways, and hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance from the source. Noise generated by stationary sources typically attenuates at a rate of approximately 6.0 to 7.5 dBA per doubling of distance from the source (EPA 1971).

Criteria for Acceptable Noise Exposure

The General Plan Noise Element addresses the issue of noise by identifying sources of noise in the city and providing policies which ensure that noise from various sources would not create an unacceptable noise environment. The City's General Plan policies ensure that new development is compatible with existing land uses, and alternately, that new developments are sited, designed, and constructed in such a manner that ambient noise levels would not create an unacceptable noise environment for the occupants and patrons of the new development.

The Orinda Municipal Code (OMC) zoning regulations establish specific standards against intrusive noises such as loud gatherings, unauthorized construction-generated noise, and other intrusive noises. The City has established noise limits for all zones in OMC Table 17.15.2, Maximum Noise Standards by Zoning District. The noise limit in residential zoning districts is 60 L_{dn}.

In addition, OMC Chapter 17.39, Noise Control, establishes restrictions on noise-generating activities, including construction. OMC Section 17.39.3, Construction, places restrictions on construction activities. These include limiting construction hours on the days on which construction is allowed (Monday through Saturday). Monday through Friday, construction activities can take place from 8:00 a.m. to 6:00 p.m. On Saturdays, construction activities can take place from 10:00 a.m. to 5:00 p.m. Construction activities are generally prohibited on Sundays, except for minor maintenance activities, and are prohibited on holidays.

OMC Section 17.39.9, Permanent Mechanical Equipment, limits the noise that mechanical equipment such as heating, ventilation, and air conditioning (HVAC) systems can generate off-site. This OMC section includes provisions related to screening or enclosing mechanical equipment with sound-insulated materials and locating mechanical equipment closer to the structure it serves than to adjacent properties. The project would construct three new residences that would be located in the general vicinity of other residences.

The analysis also takes into account the increases in noise levels over the existing noise conditions. A 3 dBA increase is the minimum audible difference perceptible to the average person. With this in mind, an increase of more than 3 dBA would be a significant impact where the existing noise levels already exceeds applicable noise standards.

DISCUSSION OF IMPACTS

a) **Would the project result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies? Less Than Significant Impact**.

Short-Term Noise

Temporary increases in ambient noise levels would predominantly be associated with project construction. ~~The nearest off-site residential areas, which include outdoor living areas such as backyards, are approximately 50 feet from any of the construction areas. These areas are located to the north and south of the project site.~~ The only noise -sensitive land uses in the project vicinity are single-family residences. There is one existing residence within the project site on Parcel B, which would be approximately 25 feet from the portions of Sunnyside Lane proposed for grading and paving. This existing on-site residence would be 125 feet from the nearest residential construction area to its south. There are existing off-site residences (including outdoor living areas) approximately 50 feet south of the portion of Sunnyside Lane that would be widened; approximately 200 feet south of the Parcel D development envelope; approximately 230 feet west of the Parcel C development envelope; and approximately 230 feet northwest the Parcel A development envelope. In addition, there are existing residences approximately 25 feet from both sides of the two utility easements where the installation of underground utilities for the project could occur.

Construction activities would include site preparation, grading, building construction, paving, and architectural coating. Such activities would require the use of construction equipment that could include ~~jackhammers and tractors during demolition;~~ graders, ~~scrapers~~, and tractors/backhoes during site preparation; graders, dozers, and tractors/backhoes during grading; drilling/boring rigs for the installation of piers for slope stabilization and foundation support; cranes, forklifts, generators, and tractors/backhoes, and welders during building construction; cement and mortar mixers, pavers, rollers, paving equipment, and tractors/backhoes during paving; and air compressors during architectural coating. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings. During these activities, exterior noise levels could affect sensitive receptors in the project vicinity. As described above, t~~T~~he project area is ~~located~~ adjacent to several residences, which are considered sensitive receptors, to the north, south, and west. **Table 4.12-1, Typical Construction Equipment Noise Levels,** indicates typical noise levels generated by construction equipment. ~~The average noise levels presented in the table are based on the quantity, type, and acoustical use factor for each type of equipment that is anticipated to be used.~~

TABLE 4.12-1
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Type of Equipment/Activity	Acoustical Use Factor[1] (percent)	Maximum Noise (L_{max})[2] at 50 Feet (dBA)	Maximum 8-Hour Noise (L_{eq})[3] at 50 Feet (dBA)
Blasting	1	94	74.0
Crane	16	81	72.6
Dozer	40	82	77.7
Excavator	40	81	76.7
Generator	50	81	77.6
Grader	40	85	81.0
Other Equipment (greater than 5 horsepower)	50	85	82.0
Paver	50	77	74.2
Roller	20	80	73.0
Tractor	40	84	80.0
Truck	40	75	71.0
Concrete Pump Truck	40	81	74.4
Welder	40	74	70.0

Source: FHWA 2006
Notes:
1. *Acoustical use factor (percent): Estimates the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.*
2. *L_{max} = the maximum instantaneous noise level experienced during a given period of time.*
3. *L_{eq} = the equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.*

Potential temporary construction noise at the closest sensitive receptors was estimated using the Federal Highway Administration's Roadway Construction Noise Model ([RCNM]; USDOT 2008) version 1.1, which utilizes estimates of sound levels from standard construction equipment. The most intensive use of construction equipment near existing sensitive land uses would occur during grading for the Sunnyside Lane widening; during grading for the Parcels A, C, and D building pad and driveways (which would include boring for installation of piers); and during trenching for installation of underground utilities. **Table 4.12-2, Estimated Project Construction Noise**, shows the RCNM noise results with a conservative assumption of multiple pieces of equipment operating concurrently in a small area. The RCNM output is included in **Appendix NOI** to this Initial Study.

TABLE 4.12-2
ESTIMATED PROJECT CONSTRUCTION NOISE

Activity	Equipment	Distance to Receptor (feet)	Noise Level (L_{EQ}, dBA)
Grading for Sunnyside Lane Improvement	Dozer, Grader, Tractor/Backhoe	25	89.2
Trenching for Underground Utilities	Tractor/Backhoe, Trencher[1]	25	82.6

Grading for Parcel A building pad and driveway	Boring Rig, Dozer, Grader, Tractor/Backhoe,	230	70.9
Grading for Parcel C building pad and driveway	Boring Rig, Dozer, Grader, Tractor/Backhoe	230	70.9
Grading for Parcel D building pad and driveway	Boring Rig, Dozer, Grader, Tractor/Backhoe	200	72.2

Source: RCNM version 1.1

Notes:

[1] *Trencher is not included as an equipment type in RCNM, the equipment for trenching was modeled as 2 backhoes.*

~~Based on the construction equipment noise level estimates presented in **Table 4.12-1**, typical construction activities result in noise levels up to 82 dBA L_{eq} at 50 feet over an 8-hour workday. The construction areas would be no less than 50 feet from any of the nearest off-site residential areas, which include outdoor living spaces, during the noisiest phases of construction (generally grading and architectural coating activities). The existing on-site residence (Parcel B) would be within 25 feet of the grading and paving of portions of the private roadway, Sunnyside Lane.~~ As shown in **Table 4.12-2**, the highest anticipated construction noise would occur during the grading for the Sunnyside Lane widening and improvement and would be approximately 89.2 dBA $L_{EQ,}$ measured at the existing residence on Parcel B. Although it is unlikely that construction noise at this highest anticipated level would occur throughout a full construction day, it is likely that ~~Project~~ project construction noise levels would occasionally exceed the 60 dBA L_{DN} standard established in the Municipal Code for residential land uses. However, construction-related noise that occurs during the times specified in the Municipal Code is exempt under OMC Chapter 17.39.2. Project construction would be limited to the hours specified in the OMC. Further, construction-related noise is intermittent in nature and would not generate continuous noise levels above OMC standards. The high-noise-generating activities would also be only a portion of the construction time frame. Due to their short-term nature and the exemption of construction noise in OMC Chapter 17.39.2, the project's short-term construction activity would not result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance. The impacts would be less than significant.

Long-Term Noise

Land Use Noise Compatibility

The General Plan Noise Element addresses the issue of noise by identifying sources of noise in the city and including policies which ensure that noise from various sources would not create an unacceptable noise environment. The policies of the City's General Plan ensure that new development is compatible with existing land uses, and alternately, ensure that new developments are sited, designed, and constructed in such a manner that ambient noise levels would not create an unacceptable noise environment for the occupants and patrons of the new development. The project would be consistent with the General Plan land use designation for the site and would conform to the existing land use type and density of the surrounding properties.

On-Site Operational Noise

The predominant noise source associated with future residences would be traffic. Similarly, traffic noise (discussed below) is the primary source of noise currently affecting the project area. Nonetheless, typical residential neighborhood noise sources such as HVAC systems

and property maintenance (i.e., the operation of lawn mowers, garbage trucks, etc.) would be generated during project operation. Noise generated by such sources would occur on an intermittent basis, primarily during the day and evening hours and less frequently at night. HVAC systems would be the primary stationary noise source associated with residences. Large HVAC systems can result in noise levels that average between 50 and 65 dBA at 50 feet from the equipment. OMC Section 17.39.9 limits the noise that mechanical equipment such as HVAC systems can generate off-site. Section 17.39.9 states that all mechanical equipment must be screened or enclosed with sound-insulated materials so that at the property line, it does not create noise that exceeds 45 dBA. In addition, mechanical equipment must be installed closer to a habitable structure on the property it serves than to a habitable structure on adjacent properties.

While the trash compactors on garbage trucks can reach noise levels of 90.1 dBA, this noise source is much more intermittent and short in duration. OMC Section 17.39.4 exempts sound sources typically associated with residential uses and associated property maintenance (property maintenance involving noise-generating equipment is restricted to the hours between 8:00 a.m. and 6:00 p.m. on weekdays, between 10:00 a.m. and 5:00 p.m. on weekends, and is prohibited on certain holidays).

Off-Site Operational Traffic Noise

Project operation would result in additional traffic on adjacent roadways, thereby increasing vehicular noise in the project vicinity. A traffic assessment was conducted for the proposed project, which projects approximately 29 daily trips, 2 during the AM peak hour and 3 during the PM peak hour. According to the traffic assessment, it is expected that most, if not all, of the trips generated by the proposed project would use Camino Pablo/Moraga Way to access State Route 24. According to the General Plan's Land Use and Circulation Element, Camino Pablo/Moraga Way accommodates an average of 23,000 vehicles daily.

According to the 2013 California Department of Transportation (Caltrans) Technical Noise Supplement to the Traffic Noise Analysis Protocol, doubling of traffic on a roadway would result in an increase of 3 dB (a barely perceptible increase). The project's 29 daily trips would be nominal compared to the vehicle capacity of Camino Pablo/Moraga Way and thus would not result in a perceptible increase traffic noise levels. The project's impact would be less than significant.

b) **Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? Less Than Significant Impact**. Project construction would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. This impact discussion uses Caltrans's (2002) recommended standard of 0.2 inches per second peak particle velocity with respect to the prevention of structural damage for normal buildings. **Table 4.12-2, Typical Construction Equipment Vibration Levels,** lists vibration levels for typical construction equipment.

TABLE 4.12-~~23~~
TYPICAL CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Equipment	Peak Particle Velocity at 25 Feet (inches per second)
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Trucks	0.076
Rock Breaker	0.059
Jackhammer	0.035
Small Bulldozer/Tractors	0.003

Source: FTA 2006; Caltrans 2004

It is acknowledged that construction activities would occur throughout the project site and would not be concentrated at the point closest to the nearest residence. The nearest off-site structures to any of the construction areas include residences that are approximately 50 feet away. The existing on-site residence would be within 25 feet of the grading and paving of portions of Sunnyside Lane. Based on the vibration levels presented in **Table 4.12-2**, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.089 inches per second peak particle velocity at 25 feet. Therefore, the use of virtually any type of construction equipment would most likely not result in a groundborne vibration velocity level above 0.2 inches per second at the existing onsite residence (25 feet away) or the nearest off-site residence (50 feet away). Predicted vibration levels at the nearest off-site residences would not exceed recommended criteria. Additionally, this impact would be temporary and would cease completely when construction ends. Once operational, the project would not be a source of groundborne vibration. Impacts would be less than significant.

c) **Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? Less Than Significant Impact**. See Item 4.12(a).

d) **Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? Less Than Significant Impact**. See Item 4.12(a).

e) **For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels? No Impact**. The project site is not located within an airport land use plan area or within 2 miles of an airport. The project would have no impact.

f) **For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? No Impact**. The project site is not located near a private airstrip. The project would have no impact.

Mitigation Measures

None required.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.13 POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

SETTING

According to the US Census Bureau (2016), Orinda's population was 19,279 in 2016. The Orinda Housing Element, adopted in 2015, projected a population of 20,200 in 2040, with a 0.5 percent increase per year in the 30-year period from 2010 to 2040.

DISCUSSION OF IMPACTS

a) **Would the project induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)? Less Than Significant Impact**. The project would construct three new residences and associated improvements, such as roads and stormwater drainages, on approximately 24 acres. Each created lot would be more than 5 acres in size. The average household in Orinda contains 2.69 people (Bay Area Census 2017), meaning the project would add approximately 9 people.[5] This minimal increase is accommodated in the City's General Plan and Housing Element projections, and the project would not induce substantial population growth. Further, project infrastructure would only serve the proposed lots and would therefore not induce growth in an indirect manner. This impact would be less than significant.

b) **Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? No Impact**. The project site contains one existing residence, which would not be demolished or impacted. Therefore, the project would not displace any housing and would have no impact.

c) **Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? No Impact**. The project site contains one existing residence, which would not be demolished or impacted. No other people live on the

[5] 2.69 people x 3 households = 8.07 people. This figure was rounded up to be conservative in the impact assessment.

project site. Therefore, the project would not displace any people and would have no impact.

Mitigation Measures

None required.

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	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.14 PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☒	☐

SETTING

Fire Protection

Fire protection services are provided to the City of Orinda by the Moraga-Orinda Fire District (MOFD). The nearest fire station is located at 33 Orinda Way (MOFD Station 45), approximately 3 miles south of the project site. Response times currently average ~~6~~7 minutes and ~~33~~ 56 seconds throughout the service area (MOFD 201~~6~~9).

Police Protection

Police protection services are provided by the Orinda Police Department. Police headquarters are located at 22 Orinda Way, approximately 3.6 miles south of the project site.

Schools

Orinda, and thus the project site, is within the service boundaries of two school districts, each of which serves different age groups. The Orinda Union School District serves students from kindergarten through eighth grade. The Acalanes Union High School District serves students in grades 9 through 12. The nearest school to the project area is Sleepy Hollow Elementary, approximately 1 mile away.

Parks

See discussion in subsection 4.15, Recreation.

Other Public Facilities

Orinda has one library, the Orinda Library, which is located at 26 Orinda Way. Orinda City Hall and the Orinda Community Center are located adjacent to the library at 28 Orinda Way and 22 Orinda Way, respectively. All three facilities are approximately 3 miles from the project site.

DISCUSSION OF IMPACTS

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities? Less Than Significant Impact. The proposed project would construct three new residences. The project would increase the city's population by approximately 9 people. The City's (2015b) General Plan Housing Element EIR analyzed potential impacts by housing developments and concluded that the new planned housing in Orinda would have a less than significant impact on police and fire service and school enrollment in the city. The estimated 9 additional people in residence at the project site would not have significant impacts on parks or other public facilities. At the time of building permit issuance for the proposed residences, impact fees for parks and school facilities will be assessed and collected, addressing potential impacts on these facilities resulting from the proposed development. No new or expanded facilities would be required. This impact would be less than significant.

Mitigation Measures

None required.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.15 RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

SETTING

The City has adopted a standard of 5 acres of parkland per 1,000 residents of new development. The Orinda Parks and Recreation Department maintains a mixture of parks, trails, sports fields, and other city facilities throughout the city. These include the Orinda Community Center Park and Tennis Courts, Orinda Oaks Park, and the de Laveaga Trail. The city is also bordered by the San Pablo Dam Recreation Area, which is owned by EBMUD and offers hiking trails and other outdoor activities.

DISCUSSION OF IMPACTS

a, b) **(a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, or (b) does the project include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment? No Impact**. The project would construct three new residences and increase the city's population by approximately 9 people. Such an increase would not lead to substantial deterioration of existing facilities due to the small increase of population and the amount of available parkland and open space in the city and the region. Therefore, the use of existing parks and other recreational facilities would not substantially increase, and no new or expanded facilities would be required. The project would have no impact.

Mitigation Measures

None required.

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	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.16 TRANSPORTATION/TRAFFIC. Would the project:				
a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

SETTING

Access to the project site is currently available from Sunnyside Lane, a private residential street. Portions of this roadway above its intersection with Sunnyside Court would be widened as part of the project. All streets in the project vicinity are residential and do not have official bike lanes or sidewalks. The Contra Costa Transportation Authority provides bus service in Orinda and the surrounding areas. Currently, no public transit routes serve the project area.

DISCUSSION OF IMPACTS

a, b) **Would the project (a) cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections), or (b) exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? Less Than Significant Impact.**

The project would construct three new residences at the terminus of Sunnyside Lane. The new residences would share a private roadway (Sunnyside Lane) with the existing residence on Parcel B (to remain) to access the overall site, and each residence would have its own private driveway.

To calculate the project traffic, trip generation rates from the Institute of Transportation Engineers (ITE) (2012) Trip Generation Manual, 9th Edition, were used in accordance with the Traffic Impact Analysis Guidelines in the Contra Costa Transportation Authority's (2013) Technical Procedures manual. See **Table 4.16-1, ITE Trip Generation Rates,** for trip generation rates. As summarized in **Table 4.16-2**, **Proposed Project Trip Generation**, the project is expected to generate 29 net new daily trips with 2 AM peak-hour trips (1 in/1 out) and 3 PM peak-hour trips (2 in/1 out).

TABLE 4.16-1
ITE TRIP GENERATION RATES

Land Use	ITE Code	Trip Rate	AM Peak-Hour Trips			PM Peak-Hour Trips		
			Rate	In	Out	Rate	In	Out
Single-Family Detached Housing	210	9.52/DU	0.75/DU	25% — 75%		1/DU	63% —	37%

Source: ITE 2012

TABLE 4.16.2
PROPOSED PROJECT TRIP GENERATION

Land Use	Intensity	ADT	AM Peak-Hour Trips			PM Peak-Hour Trips		
			Volume	In Volume	Out Volume	Volume	In Volume	Out Volume
Proposed								
Single-Family Detached Housing	3 DU	29	2	1	1	3	2	1

It is expected that most, if not all, of the project trips would use SR 24 and/or Camino Pablo/Moraga Way. According to the City's General Plan Land Use and Circulation Element, 50 percent of the traffic on Moraga Way and 15 percent of the traffic on Camino Pablo north of SR 24 originates within Orinda; the remaining traffic comes from outside the city limits. To access these primary routes, drivers are expected to use Miner Road via Lombardy Lane. A small percentage of trips may access SR 24 at the St. Stephens Drive/Hidden Valley Road interchange via Honey Hill Road.

According to Land Use and Circulation Element Guiding Policies, the City strives to retain the existing level of service (LOS) C or better and improve the level of service at intersections that operate below LOS C. Based on the element, two intersections in the city are severely congested: Camino Pablo/Brookwood (AM and PM) and Moraga Way/Glorietta (PM only). Project trips during the peak-hour periods would be commuter trips traveling to and from SR 24. While some vehicles during a typical day may travel through the impacted intersections, the number of vehicles added to any intersection would be minima l~~the trips would not likely occur during the peak hour~~. Therefore, the project would have a less than significant impact.

c) **Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? No Impact**. The project would have no effect on air traffic patterns. There are no airports within 2 miles of the project site. There would be no impact.

d) **Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? No**

Impact. Project access would be via the existing Sunnyside Lane. The roadway would be widened as part of the project, but would not change in any other way and would not add a hazardous design feature. The project driveways would be approved by the MOFD to meet the fire district's width and turnaround requirements. Therefore, the project would have no impact.

e) **Would the project result in inadequate emergency access? No Impact**. Sufficient emergency access is determined by factors such as the number of access points, roadway width, and proximity to fire stations. Road and driveway widths would meet the minimum width requirement to accommodate all emergency vehicles. Further, the project would be subject to approval from the Moraga-Orinda Fire District. Therefore, the project would have no impact.

f) **Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)? No Impact**. The project would not conflict with any adopted City policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, nor would it decrease the performance or safety of such facilities. The project would not interfere with any existing bus routes, would not remove or relocate any existing bus stops, and would not conflict with any transit plans or goals of Orinda or the Contra Costa Transportation Authority. Therefore, the project would have no impact.

Mitigation Measures

None required.

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	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.17 UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☒	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

SETTING

Wastewater

The Central Contra Costa Sanitary District (CCCSD) collects and disposes of wastewater generated in Orinda, which is treated at the district's treatment plant in Martinez. This plant treats an average of approximately 45 million gallons of wastewater per day generated in a 146-square-mile area by approximately 450,000 residents and more than 3,000 businesses. The plant has a treatment capacity of 55 million gallons per day (mgd) and 240 mgd of wet weather flow (CCCSD 2017).

Water

EBMUD supplies Orinda's potable water. As mentioned in subsection 4.9, Hydrology and Water Quality, the main source of water is the Mokelumne River watershed, with a small percentage supplied by local runoff. Water supplies for the EBMUD service area have been estimated to be sufficient until 2040 during wet years, including projected population growth in the area. EBMUD released the Water Supply Management Program 2040 to identify and recommend solutions to

meet dry year water needs through 2040. Conservation and water recycling are the main strategies for ensuring future water supply, as well as the identification of supplemental water supplies (EBMUD 2012).

Drainage

As described in the Setting discussion in subsection 4.9, stormwater runoff in Orinda is discharged through a combination of natural and man-made drainage structures.

Solid Waste

Republic Services is contracted to collect solid waste, recyclable materials, and green waste in the city and its environs. The main repository of solid waste for Orinda is the Keller Canyon Landfill. The landfill is currently proposing to modify the existing conditions of approval to increase the current maximum daily tonnage limit for disposal from 3,500 to 4,900 tons per day (tpd). The landfill proposes that the conditions of approval be revised to identify a separate maximum daily tonnage limit on organic material accepted for use as alternative daily cover and inert material accepted for beneficial reuse on-site. The landfill proposes that approximately 1,300 tpd of non-landfilled materials be specifically excluded from the daily disposal tonnage limitation. The following daily tonnage limits for non-landfilled materials are also being proposed as part of this application: 500 tpd of green waste; 300 tpd of wood waste; and 500 tpd of inert material (includes concrete, asphalt base material) (Contra Costa County 2017).

DISCUSSION OF IMPACTS

a) **Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? Less Than Significant Impact**. The project's wastewater would be conveyed to the CCCSD's wastewater treatment plant. The plant currently meets all applicable water quality standards and waste discharge requirements. The project would only minimally increase wastewater flows to the treatment plant and would not exceed the wastewater treatment requirements of the plant. Therefore, the project would have a less than significant impact.

b) **Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? Less Than Significant Impact**.

Water. Currently, EBMUD has initiated a tiered pricing program, with the highest rate charged to those using more than 393 gallons of water per day (EBMUD 2016). Because this is the highest tier, it serves as a conservative estimate for one household's high rate water usage. Using the estimate of 393 gallons per day (gpd), the project would increase water demand by 1,179 gpd.[6] EBMUD has sufficient water supplies to meet water needs during wet years through 2040. The district has implemented a Water Supply Management Program to meet water needs during dry years. The project's expected water use would be within the projected water use from growth in the area. Therefore, the project would have a less than significant impact.

[6] 393 gpd x 3 residences = 1,179 gpd

Wastewater. The project would result in a negligible increase in wastewater. The CCCSD currently serves 450,000 residents, and no new or expanded treatment facilities would be required. Therefore, the project would have a less than significant impact on expanded wastewater facilities.

c) **Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? Less Than Significant Impact**. The project would implement a stormwater control plan (**Appendix HYDRO**). This plan was designed to meet the requirements of RWQCB Orders R2-2009-0074 and R2-2011-0083. The project would direct most of its stormwater to bioretention areas on the project site. These areas would be self-treating. Additional runoff created from the widening of Sunnyside Lane would not be directed to bioretention areas, as existing trees and topography make the use of such areas impractical for the roadway runoff. However, stormwater currently flows down the existing Sunnyside Lane, and the expanded impervious area would be small. No new wastewater treatment facilities would be required. Therefore, the project would have a less than significant impact.

d) **Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? Less Than Significant Impact**. See Item 4.17(b).

e) **Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments? Less Than Significant Impact**. See Item 4.17(b).

f) **Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? Less Than Significant Impact**. During project construction, construction debris would be hauled off-site and would be handled in accordance with state and local regulations.

As illustrated in **Table 4.17-1, Solid Waste Generation**, the project is estimated to generate 36.6 pounds of solid waste per day, which can be accommodated by the Keller Canyon Landfill. Therefore, the project would be served by a landfill with sufficient capacity to accommodate its solid waste disposal needs. The impact would be less than significant.

TABLE 4.17-1
SOLID WASTE GENERATION

Type of Use	Size	Generation Factor	Amount (lbs/day)
Residential	3 DU	12.2 lbs/DU/day	36.6

Source: CalRecycle 2015
Notes: DU = dwelling unit

g) **Would the project comply with federal, state, and local statutes and regulations related to solid waste? No Impact**. During project construction, disposal of construction debris would be accomplished in compliance with City regulations. Further, the Central Contra Costa Solid Waste Authority has a household hazardous materials service in place, and the project area would be serviced by current solid waste disposal purveyors. As such, the

project would comply with all applicable solid waste regulations for both project construction and operation and would have no impact.

Mitigation Measures

None required.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.18 MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? "Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.	☐	☐	☒	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

DISCUSSION OF IMPACTS

a) **Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory? Less Than Significant Impact With Mitigation Incorporated**. As concluded in subsections 4.4, Biological Resources, and 4.5, Cultural Resources, the project has the potential to impact both resources. Therefore, the following mitigation measures would be required: **MM 4.4.1**: Special-Status Plant Surveys, **MM 4.4.2**: Construction Personnel Training, **MM 4.4.3**: Worksite Fencing, **MM 4.4.4**: Preconstruction Bat Surveys, **MM 4.4.5**: ~~Preconstruction Alameda Whipsnake Surveys, **MM 4.4.6**:~~ Preconstruction San Francisco Dusky-Footed Woodrat Surveys, **MM 4.4.6**~~7~~: Preconstruction Coast Range Newt Survey, **MM 4.4.7**: Focused Alameda Whipsnake Survey, **MM 4.4.8**: Pre-Tree Removal or Pruning Raptor Survey, **MM 4.4. 9**: Nesting Bird Preconstruction Surveys, **MM 4.5.1**: Treatment of Previously Unidentified Archaeological Deposits, and **MM 4.5.2**: Treatment of Previously Unidentified Human Remains.

With these mitigation measures incorporated, the project would result in less than significant impacts involving the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or

animal, or eliminate important examples of the major period of California history or prehistory.

b) **Does the project have impacts that are individually limited, but cumulatively considerable? Less Than Significant Impact**. The project would not result in any potentially significant impacts; therefore, the potential for project cumulative effects in combination with other planned or anticipated improvements is low. In general, individual greenhouse gas emissions do not have a large impact on climate change. However, once added with all other GHG emissions in the past and present, they combine to create a perceptible change to climate. Because of the extended length of time that GHGs remain in the atmosphere, any amount of GHG emissions can be reasonably expected to contribute to future climate change impacts. The amount of project CO_2 emissions, although measurable, would be minor. On a global scale, the project would contribute a negligible amount to global cumulative effects to climate change. Therefore, the project's contribution to GHG emissions would not be cumulatively considerable, and this would be a less than significant impact.

c) **Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly? Less Than Significant Impact With Mitigation Incorporated**. Based on the findings of this Initial Study, the project could have potentially significant impacts in regard to construction period air quality on humans near the construction activities. However, mitigation measure **MM 4.3.1** would reduce those impacts to a less than significant level. As concluded in subsection 4.6, Geology and Soils, the project could have potentially significant impacts in regard to landslides and expansive soils, creating a safety hazard to humans on and near the project site. The implementation of mitigation measures **MM 4.6.1, MM 4.6.2** and **MM 4.6.3** would reduce those impacts to less than significant levels.

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5.0 REFERENCES

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