



CITY OF CAMPBELL
Community Development Department

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION
September 23, 2020

Lead Agency: City of Campbell, 70 N. 1st St., Campbell CA, 95008

Contact Person: Daniel Fama, Senior Planner – (408) 866-2193 / danielf@campbellca.gov

Project Title: East Mozart Avenue Planned Development Subdivision

Project Location: 16179 E. Mozart Avenue, Campbell, CA 95008 (APN: 424-06-119)

Note: The project site is not listed on the Hazardous Waste and Substances Sites List as set forth in Government Code Section 65962.5.

Project File No.: PLN-2019-148

Project Description: The proposed project includes the following land use entitlement requests:

Zoning Map Amendment: To amend the Campbell Zoning Map to rezone the project site from R-1-6 (Single-Family Residential) to P-D (Planned Development);

Planned Development Permit: To allow construction of 25 two-story single-family homes, five accessory dwelling units (4 detached and one interior), a new private street, and associated site improvements;

Tentative Subdivision Map: To create 25 private lots and four common lots, and associated public and private easements;

Density Bonus: To allow an 32.5% increase in the allowable density, a reduction in required parking, and provision of two Very Low Income below-market-rate (BMR) units; and

Tree Removal Permit: To allow removal of 17 on-site protected trees.

NOTICE IS HEREBY GIVEN that the City of Campbell has prepared a draft Mitigated Negative Declaration, pursuant to Public Resources Code Section 21092(b)(1), for the above described project. The Initial Study prepared by the City was undertaken for the purpose of determining whether the project may have a significant effect on the environment. On the basis of the Initial Study, the Community Development Director has determined that the project will not have a significant effect on the environment due to the incorporation of certain mitigation measures, and therefore, has prepared a draft Mitigated Negative Declaration for consideration by the Planning Commission and City Council.

PUBLIC REVIEW PERIOD: A 20-day public review period for the draft Mitigated Negative Declaration will commence on **September 23, 2020** through **October 13, 2020** (concluding at 5:00 PM) for interested individuals and public agencies to submit written comments on the document. Any comments on the draft Mitigated Negative Declaration must be submitted to the City in writing at the above address or by email to the project planner at danielf@campbellca.gov before the close of the public review period. Comments may also be received at public hearings on the project. The Initial Study and draft Mitigated Negative Declaration are available for review online at <http://www.cityofcampbell.com/501/Public-Notices> under 'Environmental Notices'.

PUBLIC HEARINGS: The Planning Commission and City Council are tentatively scheduled to consider the proposed project and draft Mitigated Negative Declaration at public hearings to be held on **October 13, 2020** and **November 17, 2020**, respectively. The meetings will be held at 7:30 p.m., or shortly thereafter, via telecommunication in compliance with provisions of the Brown Act and Executive Order N-29-20 issued by Governor Newsom.

PLANNING COMMISSION
CITY OF CAMPBELL
PAUL KERMOYAN, SECRETARY



CITY OF CAMPBELL
Community Development Department

MITIGATED NEGATIVE DECLARATION

The Community Development Director has reviewed the proposed project described below to determine whether it could have a significant effect on the environment as a result of the project completion. "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

Project Title: East Mozart Avenue Planned Development Subdivision

Project Address: 16179 E. Mozart Avenue, Campbell, CA 95008

City File No.: PLN2019-148

Entitlement(s): **Zoning Map Amendment:** To amend the Campbell Zoning Map to rezone the project site from R-1-6 (Single-Family Residential) to P-D (Planned Development);

Planned Development Permit: To allow construction of 25 two-story single-family homes, five accessory dwelling units (4 detached and one interior), a new private street, and associated site improvements;

Tentative Subdivision Map: To create 25 private lots and four common lots, and associated public and private easements;

Density Bonus: To allow an 32.5% increase in the allowable density, a reduction in required parking, and provision of two Very Low Income below-market-rate (BMR) units; and

Tree Removal Permit: To allow removal of 17 on-site protected trees.

Zoning District (E): R-1-6 (Single-Family Residential)

Zoning District (P): P-D (Planned Development)

General Plan: *Low Density Residential (less than 6 units/gr. acre)*

Project Sponsor: Robson Homes, LLC
2185 The Alameda
San Jose, CA 95126

Property Owners: L H Evans Rentals LLC
19731 Almaden Rd
San Jose, CA 95120

Lead Agency: City of Campbell, Community Development Department
70 N. First Street, Campbell, CA 95008

Contact Person: Daniel Fama, Senior Planner
(408) 866-2193 | danielf@campbellca.gov

Date Posted: September 23, 2020

Other public agencies whose approval is required: None

Project Location and Surrounding Land Use: The project site consists of an approximately 3-acre parcel assemblage located along E. Mozart Avenue, west of Bascom Avenue and north of Highway 85. The site is within the R-1-6 (Single-Family Residential) Zoning District and is *not* subject to an area or neighborhood plan. Single-family residences border the site on the north, west, and south (across the street), with a medical office complex located to the east.

Project Description: The proposed project is a residential planned development consisting of 23 detached single-family homes, two attached single-family homes (“duet”), and five accessory dwelling units accessed by a new private roadway. The project includes an application for a Zoning Map Amendment to amend the property’s zoning from R-1-6 (Single-Family Residential) to P-D (Planned Development), a Tentative Subdivision Map to create 25 private lots and four common lots, a Planned Development Permit for general site layout and the architectural design of the proposed residences, a Density Bonus to increase the unit count from 18 to 25 (32.5% bonus), and a Tree Removal Permit to remove 17 protected trees.

Finding: The Community Development Director finds that the project described above will not have a significant effect on the environment in that the attached Initial Study identifies one or more potentially significant effects on the environment for which the project proponent, before public release of this draft Mitigated Negative Declaration, has made or agrees to make project revisions that clearly mitigate the effects to a less than significant level.

Mitigation Measures Included in the Project to Reduce Potentially Significant Environmental Effects to a Less Than Significant Level:

Air Quality - AQ

Mitigation Measure AQ-1: The project applicant shall ensure that construction plans include the BAAQMD Best Management Practices for fugitive dust control. The following will be required for all construction activities within the project area. These measures will reduce fugitive dust emissions primarily during soil movement, grading and demolition activities, but also during vehicle and equipment movement on unpaved project sites:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
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 streets, 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 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 mechanic and determined to be running in proper condition prior to operation.
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. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure AQ-2: The project applicant shall ensure that construction contract specifications include a requirement that all off-road diesel-powered construction equipment used for project improvements be equipped with Tier 4 final engines.

Biological Resources – BIO

Mitigation Measure BIO-1: Vegetation removal and initial ground-disturbing activities should occur outside the nesting season, which generally occurs from February through August, to avoid potential impacts to nesting birds. This would ensure that no active nests would be disturbed and that habitat removal could proceed rapidly. If vegetation removal and initial ground-disturbing activities occur during the nesting season, all suitable habitat should be thoroughly surveyed by a qualified biologist for the presence of nesting birds before commencement of clearing. If any active nests are detected, a buffer of at least 100 feet (300 feet for raptors) should be delineated, flagged, and avoided until the nesting cycle is complete as determined by a qualified biologist.

Mitigation Measure BIO-2: To the extent practicable, site demolition should occur outside peak bat activity timeframes when young or overwintering bats may be present, which generally occurs from March through April and August through October, to ensure protection of potentially occurring bats and their roosts on the project site. Additionally, daily restrictions on the timing of any construction activities should be limited to daylight hours to reduce disturbance to roosting (and foraging) bat species. Additionally, a pre-demolition bat survey should be conducted within 30 days of the removal of any structures/buildings or trees. The survey should include a determination on whether active bat roosts are present on or within 50 feet of the project site. If a non-breeding and non-wintering bat colony is found, the individuals shall be evicted under the direction of a qualified biologist to ensure their protection and avoid unnecessary harm. If a maternity colony or overwintering colony is found in the buildings or trees on the project site, then the qualified biologist shall establish a suitable construction-free buffer around the location. The construction-free buffer shall remain in place until the qualified biologist determines that the nursery is no longer active.

Mitigation Measure BIO-3: Construction drawings submitted for building and grading permits, as well as all demolition, grading, and construction activity, shall conform to the tree protection recommendations specified by the 16179 E. Mozart Tree Assessment, dated September 7, 2020, prepared by Walter Levison. Conformance with the specified recommendations during demolition,

grading, and construction activities shall be the obligation of the applicant's project arborist (PA). The applicant shall sign a mitigation agreement with the City confirming the role of its PA prior to issuance of any permits.

Review of construction drawings for compliance with the specified recommendations shall be performed by the City's consulting arborist at the applicant's sole cost (to be paid for in advance prior to submittal of permit applications). The Community Development Director may also direct the City's consulting arborist to perform independent monitoring of demolition, grading, and construction activity (to be paid for in advance by the applicant).

Cultural Resources – CUL

Mitigation Measure CUL-1: If archaeological or paleontological resources are encountered during excavation or construction, construction personnel shall be instructed to immediately suspend all activity in the immediate vicinity of the suspected resources and the City and a licensed archeologist or paleontologist shall be contacted to evaluate the situation. A licensed archeologist or paleontologist shall be retained to inspect the discovery and make any necessary recommendations to evaluate the find under current CEQA guidelines prior to the submittal of a resource mitigation plan and monitoring program to the City for review and approval prior to the continuation of any on-site construction activity.

Mitigation Measure CUL-2: In the event a human burial or skeletal element is identified during excavation or construction, work in that location shall stop immediately until the find can be properly treated. The City and the Santa Clara County Coroner's office shall be notified. If deemed prehistoric, the Coroner's office would notify the Native American Heritage Commission who would identify a "Most Likely Descendant (MLD)." The archeological consultant and MLD, in conjunction with the project sponsor, shall formulate an appropriate treatment plan for the find, which might include, but not be limited to, respectful scientific recording and removal, being left in place, removal and reburial on site, or elsewhere. Associated grave goods are to be treated in the same manner.

Geology and Soils – GEO

Mitigation Measure GEO-1: The applicant shall comply with the recommendations in the Geotechnical Investigation Residential Development, dated December 10, 2019, prepared by Geo-Logic Associates dba Pacific Geotechnical Engineering. Such recommendations shall be incorporated into the project's final engineering design to prevent ponding of water in or near the building, ensure the conveyance of storm water away from the building, and avoid the saturation of foundation soils. The project shall use standard engineering techniques and conform to the requirements of the International Building Code to reduce the potential for seismic damage and risk to future occupants.

Hazards and Hazardous Materials – HAZ

Mitigation Measure HAZ-1: Prior to issuance of a Grading Permit, the applicant shall furnish written confirmation from the Santa Clara County Department of Environmental Health that it has approved and will oversee implementation of the draft Soil Management Plan, prepared by Ramboll US Corporation, dated June 23, 2020.

Noise - NOI

Mitigation Measure NOI-1: The following measures shall be implemented during construction and demolition activity:

1. **Schedule:** Per section 18.04.052 of the City Municipal Code, construction is limited to between the hours of 8am and 5pm, Monday through Friday, and between 9am and 4pm on Saturdays. Demolition and loud activities should be limited to Monday through Friday.
2. **Site Perimeter Barriers:** If determined necessary by the Community Development Director upon resident complaints of excessive construction noise, the applicant shall provide sound-rated barriers should be constructed around the northwest and northeast property lines, as shown in Figure 1. This would include 8-ft tall barrier constructed with either two layers of ½-inch thick plywood (joints staggered) and K-rail or other support; or a limp mass barrier material weighing two pounds per square foot such as Kinetics KNM-200B or equivalent. The construction team should work closely with the neighboring residences to monitor any noise complaints received, and incorporate additional measures as feasible on a case by case basis.
3. **Stationary Equipment Local Barriers:** If determined necessary by the Community Development Director upon resident complaints of excessive construction noise, the applicant shall install localized barriers around stationary equipment such as air compressors that break line-of-sight to neighboring properties.
4. **Generators:** Locate generators far away from noise-sensitive receivers, as feasible. If necessary, generator noise could be reduced by providing sound-rated enclosures and exhaust mufflers or by providing a local noise barrier.
5. **Construction Equipment:** Where necessary, provide exhaust mufflers on pneumatic tools. All equipment should be properly maintained.
6. **Truck Traffic:** Minimize truck idling and require trucks to load and unload materials in the construction areas, as opposed to idling on local streets. If truck staging is required, locate the staging area along major roadways with higher traffic noise levels or away from the noise-sensitive receivers such as East Mozart Avenue. Trucks should be shut off when waiting to enter the site.
7. **Methods:** Consider means to reduce the use of heavy impact tools and locate these activities away from the property line as feasible. Other methods, including drilling, could be employed if noise levels are found to be excessive.
8. **Notification and Confirmation:** Notify neighbors of extreme noise generating activities including the estimated duration of the activity, construction hours, and contact information.

Mitigation Measure NOI-2: The following measures shall be implemented in the construction drawings submitted for a building permit:

Window and exterior door STC3 ratings needed to meet the interior DNL 45 dB criteria should be as shown in Figures 2 through 4. Our calculations are based on the following assumptions:

- All rooms will have hard-surfaced flooring

- Ceilings will be minimum 8-feet high throughout the residences
- Exterior walls will be equivalent to 3-coat stucco over wood sheathing, wood studs with batt insulation in stud cavities, with at least 1 layer of gypsum board on the interior (approximately STC 45).

STC ratings for selected assemblies should be based on laboratory testing performed in accordance with ASTM E-90 and comprise the entire window or door assembly, including the frame. If non-tested assemblies are to be used, an acoustical consultant must review the glazing and frame submittals, and the STC rating of the glass may need to be increased. For reference purposes, a typical one-inch insulated, dual-pane window achieves an STC rating of approximately 28 to 30. Where STC ratings above STC 34 are required, typically at least one pane will need to be laminated, however, this depends on the specific window manufacturer.

Because windows must be closed to achieve the interior noise criteria, an alternate means of providing outside air (e.g., fresh-air exchange units, HVAC, Z-ducts, etc.) to habitable residential spaces should be considered for building facades exposed to an exterior DNL of 60 dB or greater. Operable windows are still acceptable provided they are not being relied upon to provide fresh air to the units. This applies to all facades.

TRANSPORTATION – TRAN

Mitigation Measure TRAN-1: To substantially lessen VMT impacts caused by the proposed project, the following mitigations can be implemented.

1. Wayfinding Signs – Install wayfinding signs at E. Mozart Avenue/Bascom Avenue, at the west end of the Mozart Avenue cul-de-sac, and at the foot of the pedestrian-bicycle overpass. These signs would familiarize potential users with the existing pedestrian/bicycle network.
2. Bike Route Signs and Sharrows – Designate E. Mozart Avenue as a bike route and install signs and sharrows. These installations will close the gap between the existing bike lanes along Bascom Avenue and the pedestrian-bicycle overpass.
3. Sidewalks – Install sidewalks along the project frontage to close the existing gap on Mozart Avenue. This will promote walking by project residents and others.
4. Bus Shelter – Install a bus shelter at the bus stop along Bascom Avenue across from E. Mozart Avenue. This is subject to VTA approval but is consistent with VTA's Bascom Avenue Complete Streets Study. This will encourage new residents and others to use public transit by providing a bench and shade.
5. VTA Transit Passes – Provide introductory VTA Transit Passes to project residents. This can be administered by the Homeowner's Association (HOA). Providing VTA transit passes is intended to encourage residents to try transit and build a habit.
6. Fair Share Contribution – Contribute fair share funding to recently constructed bicycle and pedestrian improvements including the bike lanes on Bascom Avenue between Camden Avenue and SR 85 and ADA-compliant curb ramp upgrades between Camden Avenue and SR 85.

PUBLIC REVIEW PERIOD

Any person may file a written protest of the draft Mitigated Negative Declaration during the public comment period running from September 23, 2020 to October 13, 2020 (concluding at 5:00 PM). Such protest must be filed at the Community Development Department, City Hall, 70 North First Street, Campbell, California. The written protest should make a "fair argument" that the project will have one or more significant effects on the environment based on substantial evidence.

Daniel Fama
PROJECT PLANNER

Senior Planner
TITLE

City of Campbell
AGENCY



SIGNATURE

September 15, 2020
DATE

The Initial Study is available for review from 8:00 AM to 5:00 PM at the Campbell Community Development Department, City Hall, 70 North First Street, Campbell, CA and online at <http://www.cityofcampbell.com/501/Public-Notices> under 'Environmental Notices'.

INITIAL STUDY

East Mozart Avenue Planned Development Subdivision

*An environmental evaluation
prepared in compliance with the
California Environmental Quality Act*



Prepared by

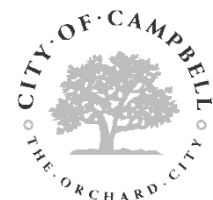
Daniel Fama, Senior Planner

City of Campbell

Community Development Department
Planning Division
70 N. First Street
Campbell, CA 95008

Public Review Period

September 23, 2020 to October 13, 2020



I. PROJECT OVERVIEW

Project Title: East Mozart Avenue Planned Development Subdivision

Project Address: 16179 E. Mozart Avenue, Campbell, CA 95008

City File No.: PLN2019-148

Entitlement(s): **Zoning Map Amendment:** To amend the Campbell Zoning Map to rezone the project site from R-1-6 (Single-Family Residential) to P-D (Planned Development);

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Tree Removal Permit: To allow removal of 17 on-site protected trees.

Zoning District (E): R-1-6 (Single-Family Residential)

Zoning District (P): P-D (Planned Development)

Area Plan: N/A

General Plan: *Low Density Residential (less than 6 units/gr. acre)*

Project Sponsor: Robson Homes, LLC
2185 The Alameda
San Jose, CA 95126

Property Owners: L H Evans Rentals LLC
19731 Almaden Rd
San Jose, CA 95120

Lead Agency: City of Campbell, Community Development Department
70 N. First Street, Campbell, CA 95008

Contact Person: Daniel Fama, Senior Planner
(408) 866-2193 | danielf@campbellca.gov

Date Posted: September 16, 2020

Other public agencies whose approval is required: None

Project Location and Surrounding Land Use: The project site consists of an approximately 3-acre parcel assemblage located along E. Mozart Avenue, west of Bascom Avenue and north of Highway 85. The site is within the R-1-6 (Single-Family Residential) Zoning District and is *not* subject to an area or neighborhood plan. Single-family residences border the site on the north, west, and south (across the street), with a medical office complex located to the east.

Project Description: The proposed project is a residential planned development consisting of 23 detached single-family homes, two attached single-family homes (“duet”), and five accessory dwelling units accessed by a new private roadway. The project includes an application for a Zoning Map Amendment to amend the property’s zoning from R-1-6 (Single-Family Residential) to P-D (Planned Development), a Tentative Subdivision Map to create 25 private lots and four common lots, a Planned Development Permit for general site layout and the architectural design of the proposed residences, a Density Bonus to increase the unit count from 18 to 25 units, and a Tree Removal Permit to remove 17 protected trees.

PROJECT DATA

Net Lot Area: 2.92 acres

Gross Lot Area: 3.15 acres

Zoning (existing): R-1-6 (Single-Family Residential)

Zoning (proposed): P-D (Planned Development)

General Plan (no change): *Low Density Residential (less than 6 units/gr. acre)*

Proposed Dwelling Units: 23 detached single-family homes
 2 attached single-family homes (i.e., duet)
 4 accessory dwelling units (detached)
1 accessory dwelling unit (interior)
 30 dwelling units

Proposed Density: 7.9 units/gr. acre (excludes ADUs)

Allowable (Max) Density: 8.1 units/gr. acre (including Density Bonus)

Unit Sizes:

Detached Units (23): 2,713 sq. ft. to 3,081 sq. ft.

Attached Units (2): 2,443 sq. ft. to 2,527 sq. ft.

Detached ADUs (4): 476 sq. ft.

Interior ADU (1): 427 sq. ft.

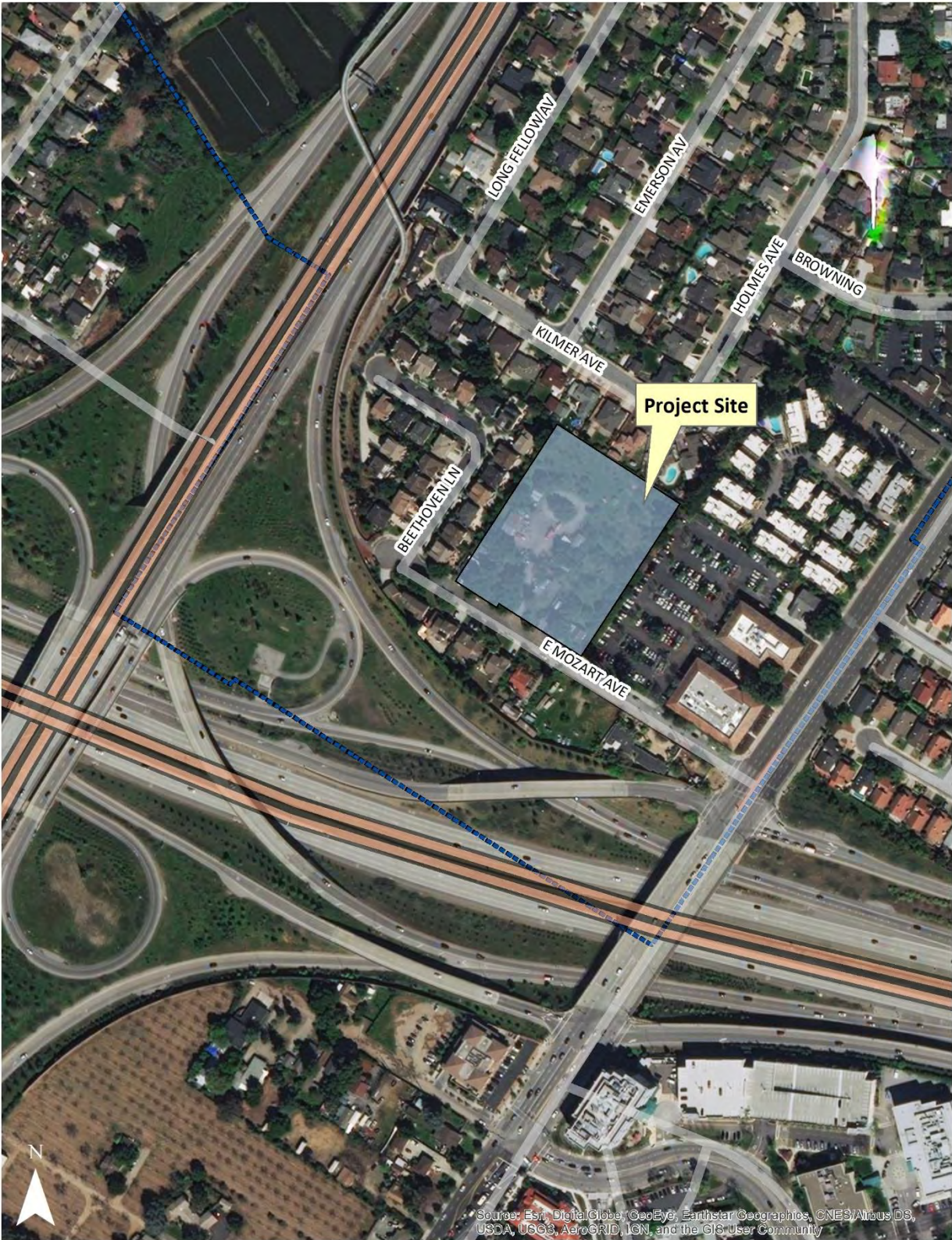
Building Coverage: 27% to 57% (per lot range)

Floor Area Ratio (FAR): 0.52 to 1.14 (per lot range)

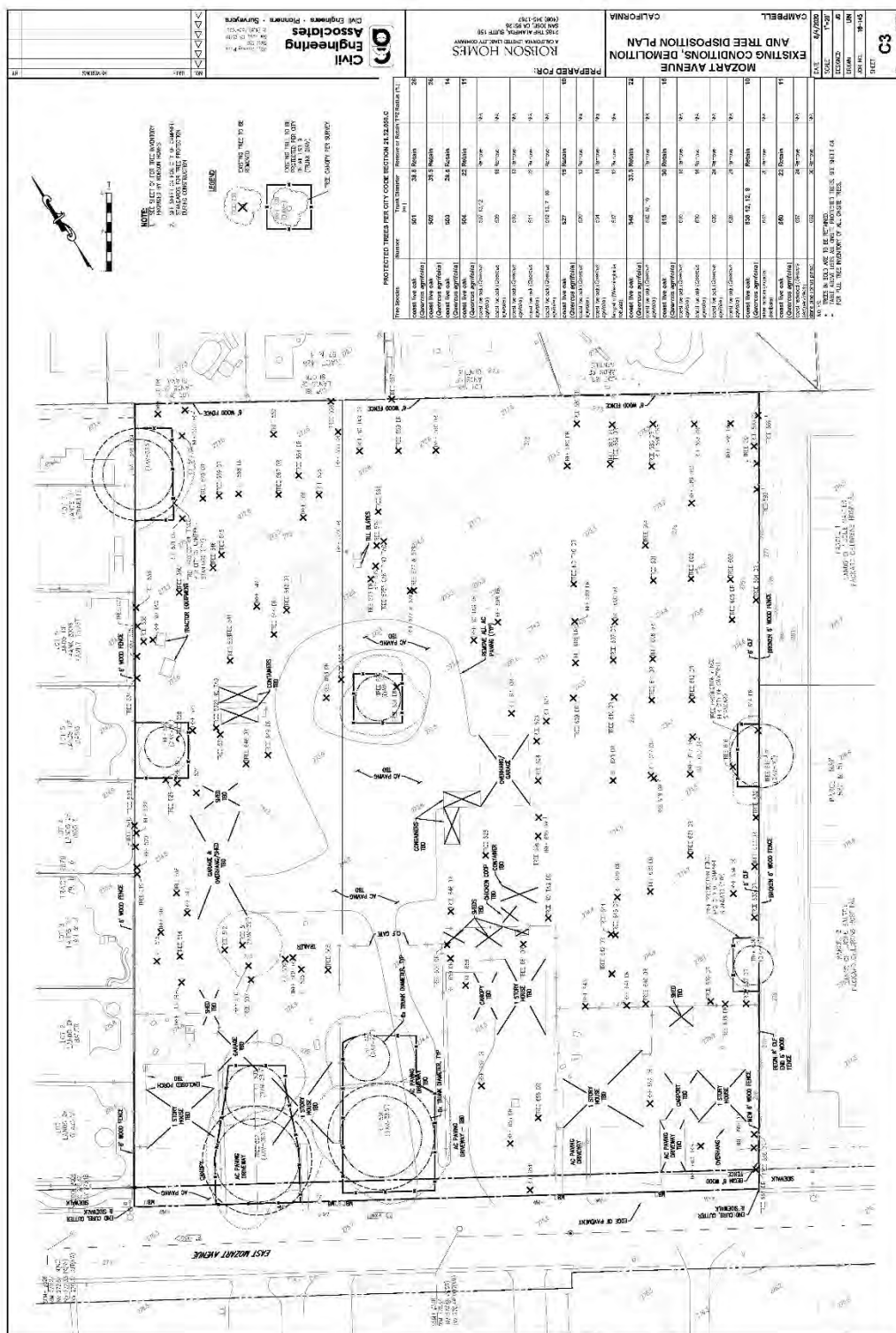
Building Heights: 24’-2” to 31’-9” (per lot range)

Parking:	<u>Provided</u>	<u>Minimum Required</u>
	71 (50 resident/21 guest)	63 (2 ½ stalls x 25 units)

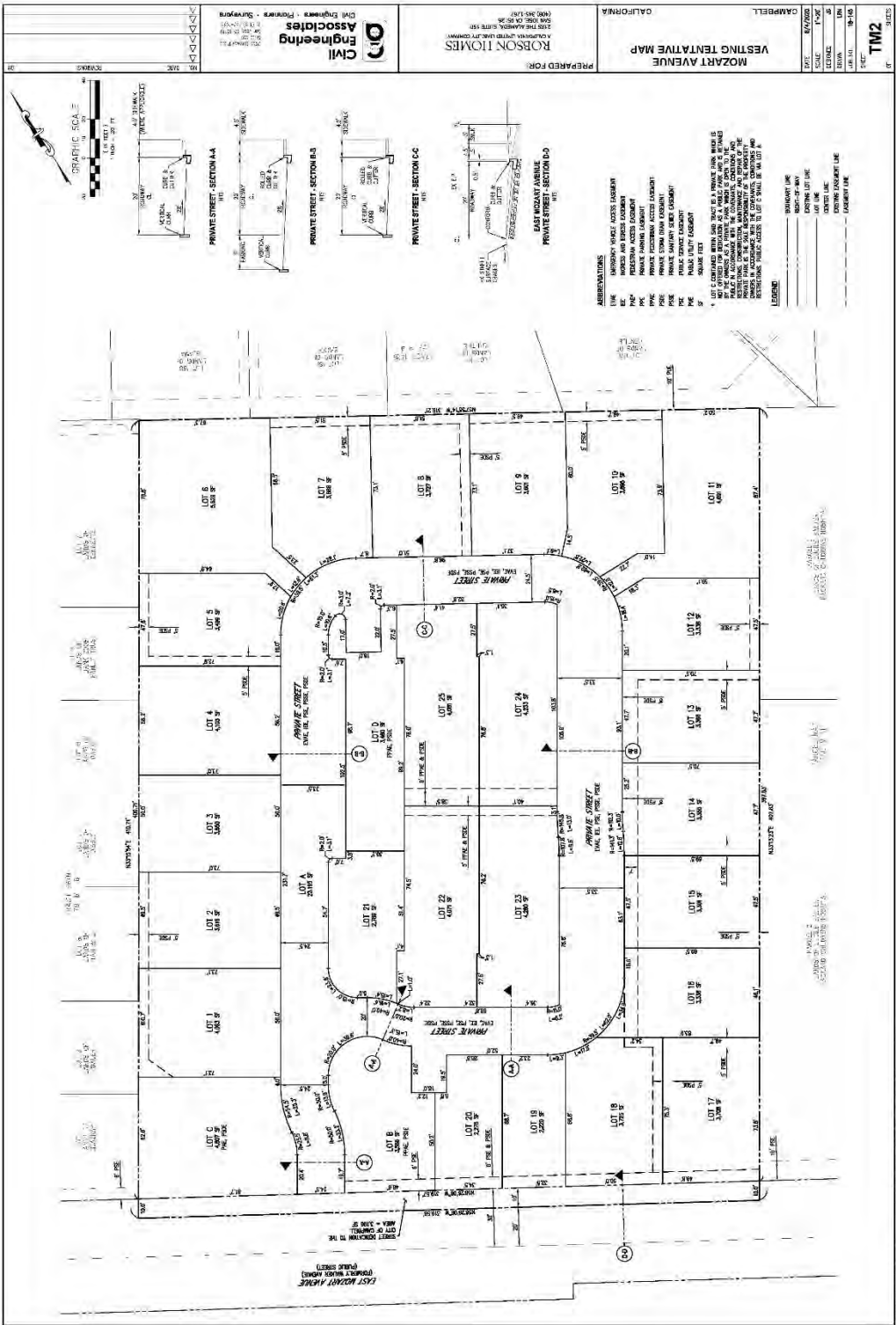
Location Map



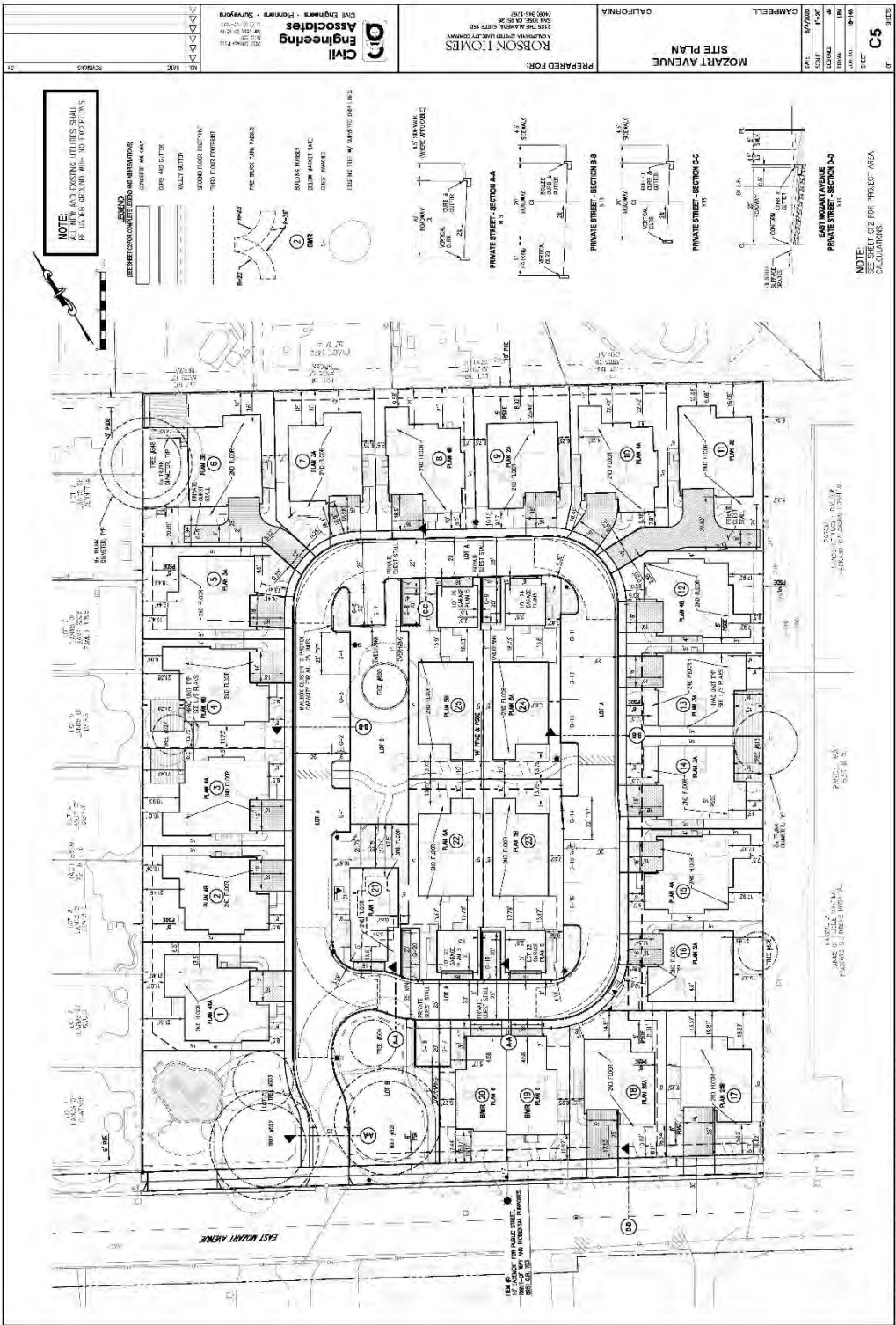
Existing Site Configuration / Demolition Plan



Tentative Subdivision Map

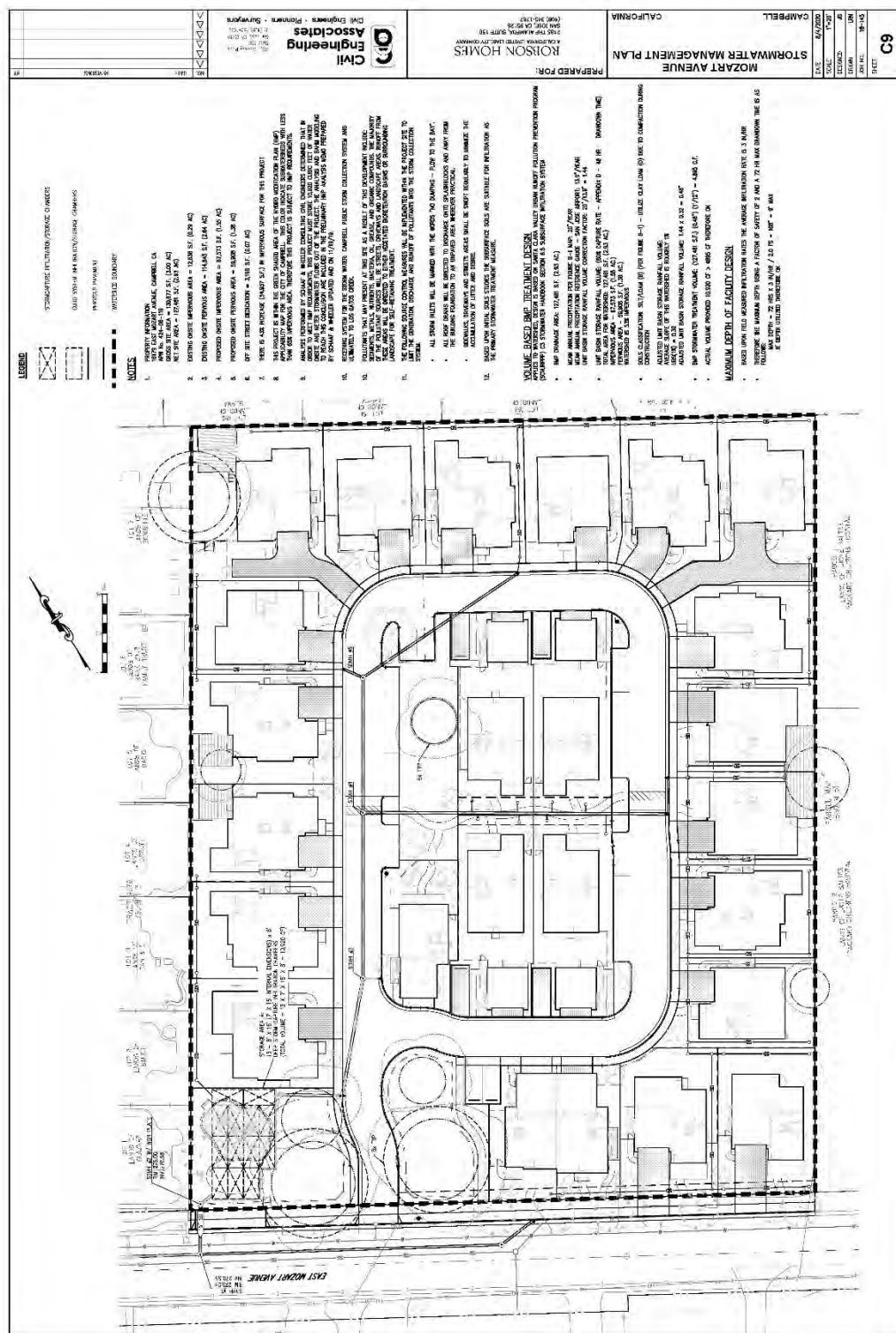


Preliminary Site Plan

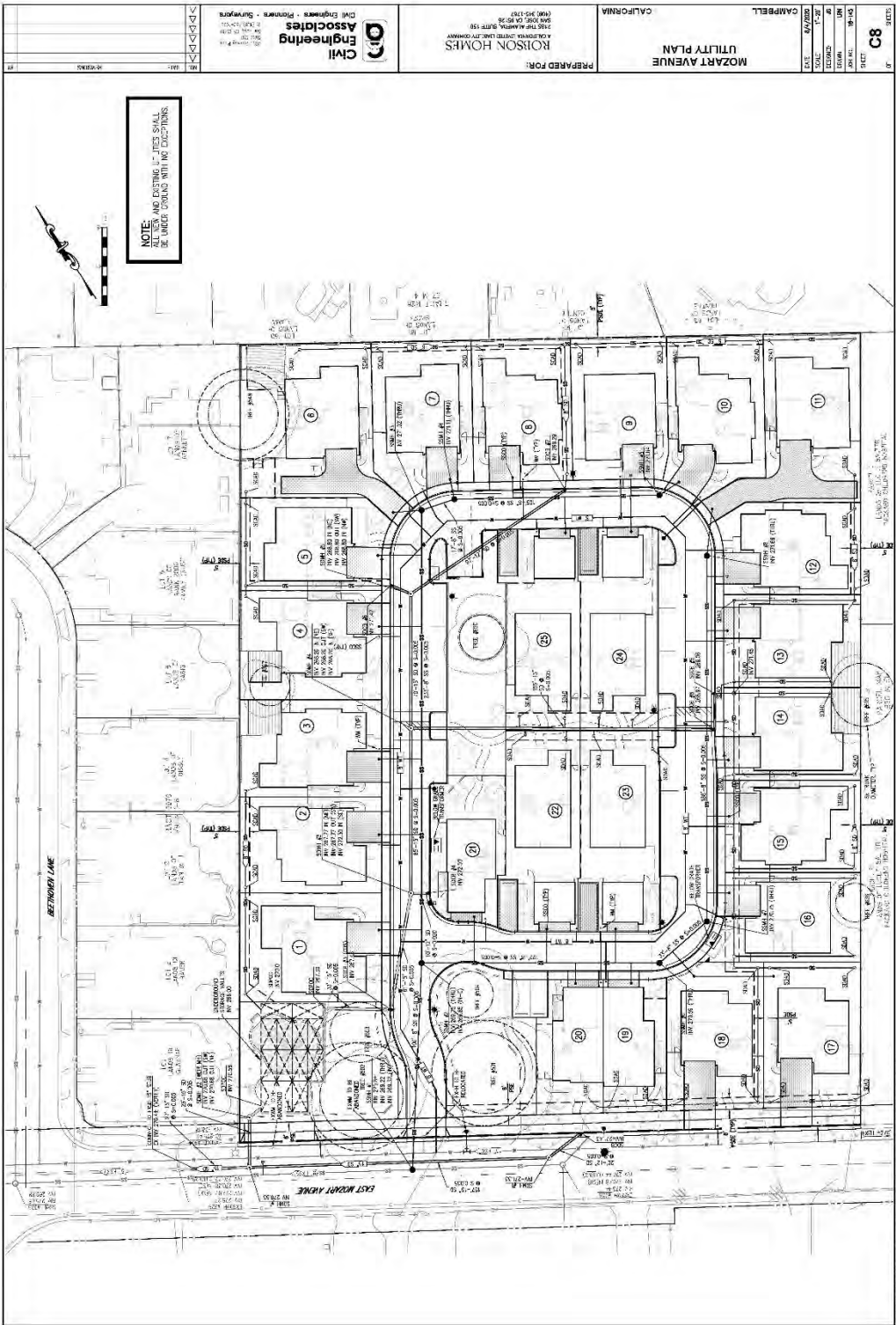


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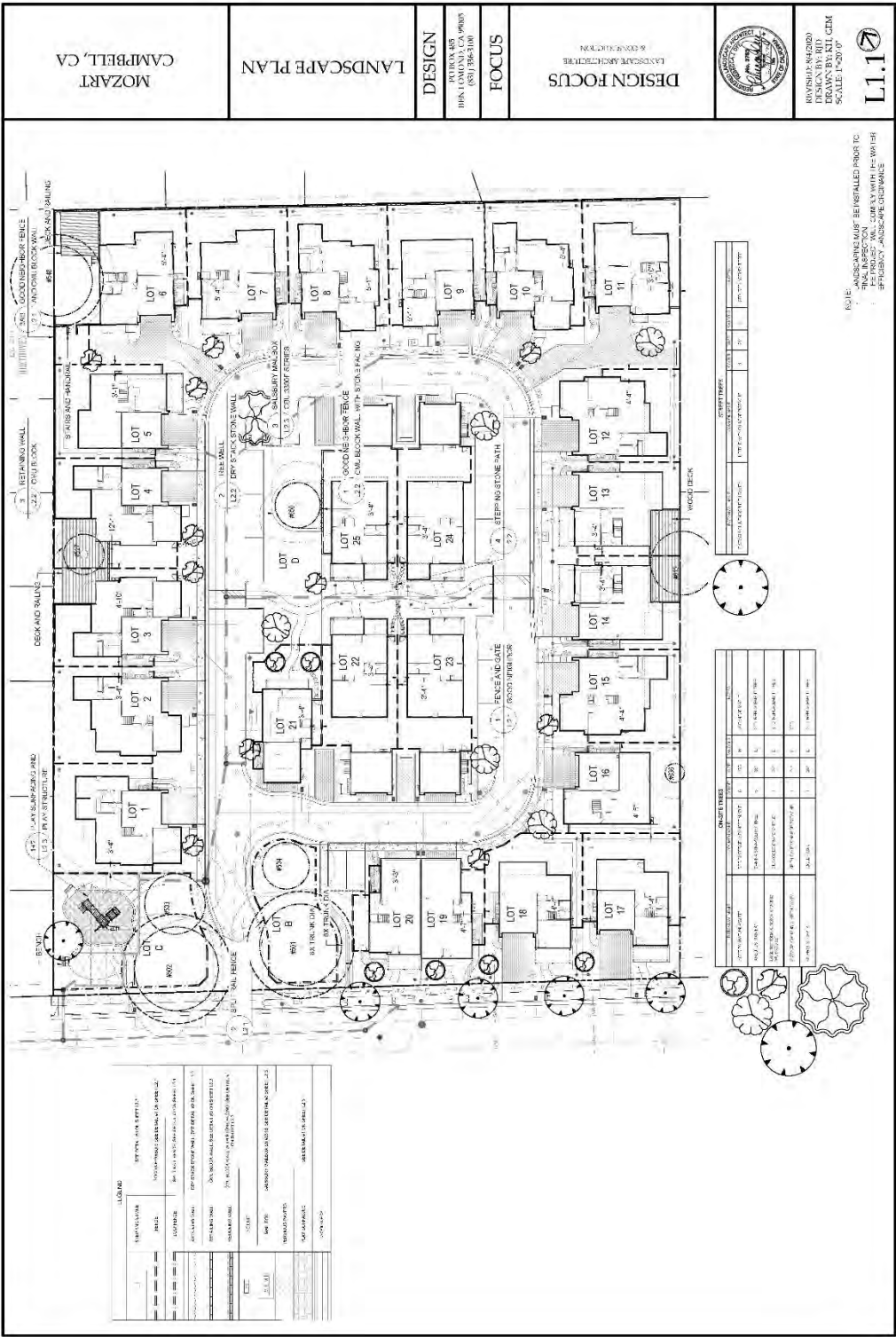
Preliminary Stormwater Treatment Plan



Preliminary Utility Plan



Preliminary Landscaping Plan



II. ENVIRONMENTAL IMPACT EVALUATION:

The following evaluation has been prepared to determine if the proposed project may result in a “significant impact” on the environment. For the purposes of this study, a significant impact means a substantial or potentially substantial change in the physical environment. The following terms used in the evaluation are defined as specified below:

"Potentially Significant Impact" means that there is either substantial evidence that an effect may be significant or, due to lack of existing information, may have potential to be a significant effect.

"Less than Significant With Mitigation Incorporated" means the incorporation of one or more mitigation measures can reduce the effect from potentially significant to a less than significant level.

"Less Than Significant Impact" means that there is sufficient evidence available to determine that the effect is less than significant and no mitigation is necessary to reduce the impact to a lesser level.

"No Impact" means that the effect does not apply to the proposed project, or clearly will not impact nor be impacted by the project.

A description of the proposed mitigation measures and the factual data or evidence used to reach conclusions regarding impact significance follows each section. The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Less Than Significant with Mitigation Incorporation" as indicated by the checklist on the following pages. The recommended mitigation measures are summarized in Section III: Summary of Mitigation Measures.

- | | |
|--|---|
| ☐ 1. Aesthetics | ☐ 12. Mineral Resources |
| ☐ 2. Agricultural and Forest Resources | ☒ 13. Noise |
| ☒ 3. Air Quality | ☐ 14. Population/Housing |
| ☒ 4. Biological Resources | ☐ 15. Public Services |
| ☒ 5. Cultural Resources | ☐ 16. Recreation |
| ☐ 6. Energy | ☒ 17. Transportation |
| ☒ 7. Geology/Soils | ☒ 18. Tribal Cultural Resources |
| ☐ 8. Greenhouse Gas Emissions | ☐ 19. Utilities/Service System |
| ☒ 9. Hazards & Hazardous Materials | ☐ 20. Wildfire |
| ☐ 10. Hydrology/Water Quality | ☐ 21. Mandatory Findings of Significance |
| ☐ 11. Land Use/Planning | |

1. AESTHETICS

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(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)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒
(d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

(a-c) – No Impact: The project will alter the existing visual character of the site and its surroundings through demolition of existing structures and eventual development of the proposed residential community. However, since the project site, nor any area, roadway or view-corridor in vicinity of the project site, is a recognized scenic vista or scenic resource, these activities will not result in an adverse environmental affect. Further, the project is subject to various policies and strategies of the Campbell General Plan and the Zoning Ordinance, intended to facilitate development that improves the visual character of the community through good design and site planning through an iterative design review and approval process which takes into account public input.

(d) – Less than Significant Impact: Currently, the project site has very limited lighting associated with the existing single-family residences. New site lighting is anticipated to include down-lit fixtures for the new residences. As all new lighting is subject to the City's Lighting Design Standards (CMC Sec. 21.18.090)—which requires lighting to be designed and installed so that light rays are not emitted across property lines— such that the project would not result in new sources of substantial light or glare. Compliance with this requirement is reflected in the project's photometric plan (Sheet PE1).

Mitigation Measures(s): None Required.

2. AGRICULTURE and FORESTRY RESOURCES

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(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 non-agricultural use?	☐	☐	☐	☒
(b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
(c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(9)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
(d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
(e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

(a-e) – No Impact: The project site may have historically been used for agricultural production, but is no longer used for, nor zoned for farmland or timberland, or other agricultural or horticultural purpose. Neither the project site nor surrounding properties contain farmland or support agricultural activity that could be impacted by the project.

Mitigation Measure(s): None Required.

3. AIR QUALITY

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☐
(b)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
(c)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
(d)	Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

The following discussion is excerpted in part from Air Quality, Greenhouse Gases, and Health Risk Assessment, dated July 2019, prepared by ESA (reference **Attachment 1**).

(a) – Less than Significant Impact with Mitigation: The most recently adopted air quality plan in the Bay Area is the BAAQMD’s 2017 Clean Air Plan - Spare the Air, Cool the Climate (2017 CAP). The 2017 CAP updates the 2010 Clean Air Plan to fulfill state ozone planning requirements, and includes all feasible measures to reduce emissions of ozone precursors (reactive organic gases [ROG] and nitrogen oxides [NOx]) and reduce transport of ozone and its precursors to neighboring air basins. In addition, the 2017 CAP builds upon and enhances the BAAQMD’s efforts to reduce emissions of fine particulate matter and toxic air contaminants (BAAQMD, 2017c).

BAAQMD recommends that a project’s consistency determination with the applicable air quality plan be made with respect to the following questions. If all the questions are concluded in the affirmative, and those conclusions are supported by substantial evidence, the BAAQMD considers the project to be consistent with air quality plans prepared for the Bay Area (BAAQMD, 2017b).

1. Does the project support the primary goals of the air quality plan?

The primary goals of the 2017 CAP are to attain air quality standards, reduce population exposure to pollutants, protect public health within the SFAAB, and reduce greenhouse gas emissions and protect the climate. Any project that would not support these goals would not be considered consistent with the 2017 CAP. The recommended measure for determining project support of these goals is consistency with BAAQMD-approved CEQA thresholds of significance. Therefore, if a project would not result in significant and unavoidable air quality impacts, after the application of all feasible mitigation measures, the project would be considered consistent with the 2017 CAP.

As indicated in the discussion under checklist question b) below, the Project would not result in significant and unavoidable air quality impacts. Criteria air pollutant emissions would be less than significant prior to mitigation and would be reduced further with implementation of **Mitigation Measures AQ-1 and AQ-2**. Toxic air contaminants (TACs) and fugitive dust emissions from construction activities would be less than significant with implementation of **Mitigation Measures AQ-1 and AQ-2**. Long-term operational emissions would be less than significant without mitigation. Therefore, per BAAQMD guidance, the Project would be considered to support the primary goals of the 2017 CAP.

2. Does the project include applicable control measures from the applicable air quality plan?

Projects that incorporate all feasible air quality plan control measures are considered consistent with the 2017 CAP. The 2017 CAP includes a comprehensive strategy of 85 measures aimed at reducing air pollution in the Bay Area. Along with the traditional stationary, area, mobile source and transportation control measures, the 2017 CAP contains a number of new control measures designed to protect the climate and promote mixed use, compact development to reduce vehicle emissions and exposure to pollutants from stationary and mobile sources. BAAQMD encourages project developers to incorporate all feasible measures in the building, energy, transportation, waste, and water sectors into proposed project designs and plan elements.

The Project is located in an area well served by public transit. Existing public transit services in the Project area are provided by the Santa Clara Valley Transportation Authority (VTA), and include bus and light-rail transit (LRT) services connecting all of Santa Clara County. The Project site is less than 3 miles from the Winchester LRT station and Transit Center, which is served by a number of connecting buses and includes a park and ride lot. Local bus service to the Winchester station and other areas is available from the Bascom & Apsis bus stop located 400 feet from the Project site. The Project's location in an area with access to transit services would serve to reduce vehicle trips. Future residents of the Project could also be expected to take advantage of teleworking opportunities reducing vehicle trips further, but the extent to which teleworking would occur cannot be accurately predicted at this time. The Project features described above ensure consistency of the Project with the transportation sector control measures in the 2017 CAP.

The Project would comply with the California Green Building (CalGreen) Code and Title 24 building energy efficiency requirements, and would include energy saving features such as high-efficiency lighting and water heaters. The City, as part of its implementation of the CalGreen residential code requirements, requires a disclosure and certification of construction materials used in building construction for volatile organic compounds (VOC) compliance, water conservation and efficiency. Project homes would include solar panels and would be pre-wired to accommodate electric car chargers in the garage. Additionally, electricity in Campbell is provided by the Community Choice Energy Agency, Silicon Valley Clean Energy (SVCE), which automatically enrolls customers in the Carbon Free program which includes electricity generated from renewable and carbon-free sources. These features ensure Project consistency with the control measures in the energy and building sectors of the 2017 CAP.

The City requires that a Waste Management Plan (WMP) for demolition and construction be completed and approved to obtain a building permit. Consistent with the City's Municipal Code Section 6.12, the Project would comply with the WMP's requirement to salvage, reuse or recycle a minimum of 50 percent of all construction and demolition debris. The Project residences would be served by the West Valley Collection and Recycling services, which provides an unlimited curbside recycling program. The program would facilitate the proper recycling and disposal of waste from the Project residences in accordance with the City's waste management requirements as well as statewide waste reduction goals. These features ensure Project consistency with the control measures in the waste sector of the 2017 CAP.

The Project would comply with indoor water conservation measures included in the CalGreen Code. The Project would also comply with the City's Water Conservation requirements through a storm water management plan during construction, a reduction of indoor water use by at least 20% using water saving fixtures or flow restrictors, and use of weather-based automatic irrigation systems to reduce outdoor water use. These features ensure Project consistency with the control measures in the water sector of the 2017 CAP.

In summary, existing mechanisms or those included in the Project would be consistent with all of the relevant control measures of the 2017 CAP.

3. Does the project disrupt or hinder implementation of any control measures in the air quality plan?

If approval of a project would not cause the disruption, delay or otherwise hinder the implementation of any air quality plan control measure, the BAAQMD considers the project to be consistent with the 2017 CAP. As discussed above, the Project would comply with all feasible control measures in the 2017 CAP. Construction and operation of the Project would also not hinder implementation of any other control measures included in the 2017 CAP.

(b) – Less than Significant Impact with Mitigation: According to the BAAQMD, no single project can, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. The BAAQMD Guidelines recommend using its quantitative thresholds of significance to determine if an individual project's emissions would considerably contribute to cumulative air quality impacts in the region. If a project's emissions exceed the identified significance thresholds, its contribution to cumulative air quality would be considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Alternatively, if a project does not exceed the identified significance thresholds, then the project would not be considered cumulatively considerable and would result in less-than-significant air quality impacts (BAAQMD, 2017b). The Project's contribution to cumulative air quality of the area has been evaluated below by comparing its construction and operational emissions to the applicable BAAQMD thresholds.

The Project would generate criteria pollutants and TACs during short-term construction activities as well as long-term operational criteria pollutant emissions from sources including on-road vehicles, onsite area and energy sources. As the Project consists of development of only residential land uses, once operational, it would not be a source of substantial TACs.

Construction

Construction of the Project would generate air pollutant emissions from the use of heavy-duty construction equipment, vehicle trips hauling materials, and construction worker vehicles traveling to and from the project site. Mobile source emissions, primarily NO_x, would be generated from the use of construction equipment such as excavators, bulldozers, wheeled loaders, and fork lifts. During the finishing phase, paving operations and the application of asphalt, architectural coatings (i.e., paints and varnishes) and other building materials would release ROG. The assessment of construction air quality impacts considers each of these sources and phases, and recognizes that construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions.

CalEEMod was used to quantify construction emissions associated with off-road equipment, paving, architectural coatings, haul trucks associated with demolition, on-road worker vehicle emissions, and vendor delivery trips (see Appendix A). Construction for the Project was assumed to occur from July 2020 through January 2021 to provide a worst-case analysis using a compressed 6-month construction schedule. Average daily emissions would be reduced if the duration of construction is prolonged. Unmitigated construction-related criteria pollutant exhaust emissions for the Project are presented in **Table 2-3**. The estimated emissions consider the following basic construction phases: demolition; excavation/grading; building construction; asphalt paving; and application of architectural coatings.

As shown in Table 2-3, average daily regional emissions would not exceed the BAAQMD daily significance thresholds during construction.

Project related demolition, grading, excavation and building construction activities at the project site may cause wind-blown dust that could generate particulate matter into the atmosphere. Fugitive dust includes not only PM₁₀ and PM_{2.5} but also larger particles that can cause nuisance impacts. For mitigation of fugitive dust emissions, the BAAQMD Guidelines recommend using specific Best Management Practices (BMPs), which has been a practical and effective approach to control fugitive dust emissions. The Guidelines note that individual measures have been shown to reduce fugitive dust by anywhere from 30 percent to more than 90 percent and conclude that projects that implement construction BMPs would reduce fugitive dust emissions to a less than significant level. To ensure implementation of BMPs they are identified herein as **Mitigation Measure 2-1**. Thus, with the implementation of **Mitigation Measure 2-1**, the Project would have a less than significant impact in relation to construction emissions.

TABLE 2-3
AVERAGE DAILY CONSTRUCTION EMISSIONS

Scenario	Emissions (pounds per day)			
	ROG	NO _x	PM ₁₀ (exhaust)	PM _{2.5} (exhaust)
Construction emissions	7.5	16.2	0.8	0.8
BAAQMD significance threshold	54	54	82	54
Exceed threshold?	No	No	No	No

SOURCE: Appendix A

Operation

Once the Project residences are occupied, air pollutant emissions would be generated from vehicle trips generated by the Project occupants as well as from on-site area and energy sources (e.g., natural gas combustion for space and water heating, landscape maintenance, use of consumer products such as hairsprays, deodorants, cleaning products, etc.) Project operational emissions were also calculated using the CalEEMod and the results are presented in **Table 2-4** below.

TABLE 2-4
PROJECT OPERATIONAL EMISSIONS

Scenario	Pollutant			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Unmitigated daily operational emissions (pounds per day)	2.0	1.6	1.2	0.4
BAAQMD significance threshold	54	54	82	54
Exceed threshold?	No	No	No	No
Unmitigated annual operational emissions (tons per year)	0.4	0.3	0.2	<0.1
BAAQMD significance threshold	10	10	15	10
Exceed threshold?	No	No	No	No

SOURCE: Appendix A

Table 2-4 summarizes the average daily mobile, energy, and area emissions of criteria pollutants that would be generated by Project operation and compares the emissions to BAAQMD thresholds. As shown in Table 2-4, operational emissions of ROG, NO_x, PM₁₀, and PM_{2.5} would be well below the BAAQMD significance thresholds during operations, and thus, the proposed Project would have a less than significant impact in relation to regional operational emissions.

In regards to localized CO concentrations, the BAAQMD has developed screening criteria for local CO impacts. Projects would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met:

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 plan, 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).

The proposed Project would generate minimal new traffic trips and would not exceed these screening criteria. Based on the BAAQMD's criteria, project-related traffic from both projects would not exceed CO standards and therefore, no further analysis was conducted for CO impacts. This impact would be considered less than significant on a project-level and cumulative basis.

(c) – Less than Significant Impact with Mitigation:

The potential for the proposed Project to expose sensitive receptors to substantial pollutant concentrations are examined separately for the construction and operation phases.

Toxic Air Contaminants**Construction**

Construction activities for the proposed Project would produce diesel particulate matter (DPM) and PM_{2.5} emissions due to combustion equipment such as loaders, backhoes, and haul truck trips. These emissions could result in elevated concentrations of DPM and PM_{2.5} at nearby receptors. These elevated concentrations could lead to an increase in the risk of cancer or other health impacts. Consequently, a health risk assessment was performed to determine the extent of increased cancer and non-cancer risks at the maximally exposed receptors. The health risk assessment was based on recommended methodology of the Office of Environmental of Health Hazard Assessment (OEHHA) and adopted by the BAAQMD (BAAQMD, 2012b). The cancer risk to nearby residential receptors assumes exposure would occur 8 hours per day, five days per week, to account for the active construction duration. Additionally, cancer risk estimates also incorporate age sensitivity factors and daily breathing rates recommended by OEHHA. This approach factors in the increased susceptibility of infants and children to carcinogens as compared to adults as required by OEHHA.

Dispersion modeling predicts the air pollutant concentrations due to emissions from a source at defined receptor point locations. The most current version (18081) of the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) was used in the modeling analysis for this Project. The AERMOD model is a USEPA-approved model that was introduced to incorporate air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources and both simple and complex terrain. The AERMOD model requires numerous inputs, such as meteorological data, source parameters, topographical data, and receptor characteristics. The overall AERMOD modeling parameters are shown in **Table 2-5**. Construction sources were modeled as an area source for the main construction activities and as a line area source to represent the potential on road haul truck and vendor trips: the source configurations are presented in **Table 2-6**. Where Project-specific information is not available, ESA used default parameter sets that are designed to produce conservative (i.e., overestimates of) air concentrations (USEPA, 2018). Modeling inputs and results are presented in Appendix B. The maximally exposed receptor would be adjacent residences to the project along Beethoven Lane.

**TABLE 2-5
OVERALL AERMOD MODELING PARAMETERS**

Pathway	Description	Parameter
Control	Rural/Urban	Rural ^a
	Terrain	Elevated
	Model Version	AERMOD v 18081
Receptor	Receptor Height	1.5 m ^b
Meteorology ^c	Surface Station	N.Y. MINETA SN JO INTL APT (23293)
	Upper Air Station	OAKLAND/WSO AP (23230)
	MET Years	2009-2014
	Base Elevation (MSL)	15.5 m

NOTES:

^a From BAAQMD (2012a). Urban R2 defined as: Dense single/multi-family with less than 30% vegetation.

^b From BAAQMD (2012a).

^c From CARB (2015).

ABBREVIATIONS: m = meters

SOURCES:

1. Bay Area Air Quality Management District. 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. Available at <http://www.baaqmd.gov/~media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf>. Accessed February 2019.
2. California Air Resources Board. 2015. Meteorological Data from Air Districts (Met Station: Norman Y. Mineta San Jose International Airport). Available online at <https://www.arb.ca.gov/toxics/harp/metfiles2.htm>. Accessed February 2019

**TABLE 2-6
SOURCE MODELING PARAMETERS FOR CONSTRUCTION EQUIPMENT**

Source	Project Component	Source Type	Source Dimension	Number of Sources	Release Height [m] ^a	Initial Vertical Dimension [m] ^b
Off-Road Construction Equipment	Residential Development	Area	2.95 acre	1	5	1.4
On-Road Construction Equipment	Mozart Avenue to Highway 85	Line Area	445.3 m long x 9 m wide	1	2.55	2.37

NOTES:

^a Release height for off-road construction equipment and on-road operational mobile sources from the CRRP-HRA (BAAQMD, SF DPH & SF Planning, 2012). For on-road construction trucks and operational delivery truck idling at street-level, the release height is equal to 0.5 * top of plume height, which is equal to 1.7 * the vehicle height, which is equal to 3 meters; equation = $0.5 * 1.7 * 3 = 2.55$ (USEPA 2012)

^b Initial vertical dimension for off-road construction equipment and on-road operational mobile sources from the CRRP-HRA (BAAQMD, SF DPH & SF Planning, 2012). Initial vertical dimension for on-road construction trucks and truck idling is equal to the top of the plume height + 2.15 = $1.7 * 3 / 2.15 = 2.37$.

ABBREVIATIONS: m = meters

SOURCES:

1. United States Environmental Protection Agency. 2012. Haul Road Workgroup Final Report Submission to EPA-OAQPS. March. Available at: https://www3.epa.gov/scram001/reports/Haul_Road_Workgroup-Final_Report_Package-20120302.pdf. Accessed May 2019.
2. Bay Area Air Quality Management District, San Francisco Department of Public Health, and San Francisco Planning Department. 2012. *The San Francisco Community Risk Reduction Plan: Technical Support Documentation*. December. Available at http://www.gsweventcenter.com/Appeal_Response_References/2012_1201_BAAQMD.pdf. Accessed May 2019.

Potential health risk at sensitive receptors resulting from construction activities were calculated using the OEHHA Risk Assessment Guidelines and the results of the AERMOD dispersion model (OEHHA, 2015). Unmitigated project construction maximum cancer risk is shown in **Table 2-7** below. The chronic hazard impact and annual PM_{2.5} concentration from unmitigated project construction are shown in **Table 2-8**. Appendix C presents the risk equations, calculations, and results.

TABLE 2-7
UNMITIGATED CONSTRUCTION-RELATED CANCER RISK

Risk Scenario	Maximum Cancer Risk (per million)
Off-Site Resident, 3 rd Trimester	4.27
Off-Site Resident, Age 0<2	16.50
Off-Site Resident, Total	20.77
BAAQMD significance threshold	10
Exceed threshold?	Yes

SOURCE: Appendix C

TABLE 2-8
UNMITIGATED CONSTRUCTION-RELATED HEALTH IMPACTS

Scenario	Chronic Hazard Impact	PM _{2.5} Concentration (µg/m ³)
Unmitigated Construction	0.33	0.50
BAAQMD significance threshold	1	0.3
Exceed threshold?	No	Yes

SOURCE: Appendix C

As shown in Table 2-7, the incremental cancer risk at the maximum exposed residential receptor of 20.77 in one million (assuming exposure starting at 3rd trimester) would exceed the BAAQMD threshold of 10 in a million without mitigation. The maximum annual PM_{2.5} unmitigated concentration is 0.50 µg/m³ which would exceed the BAAQMD threshold of 0.3 µg/m³.

US EPA Certified Tier 4 that greatly reduce DPM emissions through fuel efficiency and emissions controls are now widely available and used throughout California. If Tier 4 engines are utilized during construction DPM emissions, the associated health risks will be greatly reduced. **Mitigation Measure AQ-2** requires construction equipment to be equipped with Tier 4 engines. After mitigation, project construction maximum cancer risk is shown in **Table 2-9** below. The chronic hazard impact and annual PM_{2.5} concentration from mitigated project construction are shown in **Table 2-10**. Appendix C presents the risk equations, calculations, and results.

**TABLE 2-9
MITIGATED CONSTRUCTION-RELATED CANCER RISK**

Risk Scenario	Maximum Cancer Risk (per million)
Off-Site Resident, 3 rd Trimester	0.75
Off-Site Resident, Age 0<2	4.26
Off-Site Resident, Total	5.0
BAAQMD significance threshold	10
Exceed threshold?	No

SOURCE: Appendix C

**TABLE 2-10
MITIGATED CONSTRUCTION-RELATED HEALTH IMPACTS**

Scenario	Chronic Hazard Impact	PM_{2.5} Concentration (µg/m³)
Mitigated Construction	0.03	0.04
BAAQMD significance threshold	1	0.3
Exceed threshold?	No	No

SOURCES: Appendix C

As shown in Table 2-9, the incremental cancer risk at the maximum exposed residential receptor of 5.0 in one million (assuming exposure starting at 3rd trimester) would now be below the BAAQMD threshold of 10 in a million with mitigation. The maximum annual PM_{2.5} mitigated concentration is 0.04 µg/m³ which is below the BAAQMD threshold of 0.3 µg/m³. The chronic hazard impacts for both the unmitigated and mitigated scenarios are under the BAAQMD threshold of one. The Project health risk impacts would thus be less than significant after mitigation.

In terms of other potential construction impacts, unmitigated demolition activities could result in airborne entrainment of asbestos, a TAC, particularly where structures built prior to 1980 would be demolished. However, these materials would be removed in accordance with the procedures specified by Regulation 11, Rule 2 (Asbestos Demolition, Renovation and Manufacturing) of BAAQMD's regulations; therefore, with adherence to regulatory requirements, asbestos would not be emitted to any substantial degree during demolition. Implementation of the **Mitigation Measure AQ-1** would ensure that project-generated fugitive dust during construction would be reduced to a less than significant level.

Operation

Unlike ozone and other regional pollutants, TACs are a localized pollution problem. TACs produced at distant locations do not readily combine to create concentrations at any single location that would cause health risks. The BAAQMD's method for determining health risk requires the review of health risk from permitted sources, railroads, and major streets in the vicinity of a project site (i.e., within 1,000 feet of the proposed new sensitive residential receptors on the project site), then adding the project operational impacts to determine whether the cumulative health risk thresholds are exceeded. BAAQMD has developed a geo-referenced database of permitted and Highway TAC emissions

sources throughout the San Francisco Bay Area for estimating health risks to new sensitive receptors from existing permitted sources.

Highway 17 is approximately 530 feet and Highway 85 is approximately 430 feet from the project site. Emissions from Bascom Avenue were estimated based on the City's General Plan and BAAQMD's Roadway Screening Analysis Calculator (Campbell, 2014) (BAAQMD, 2012d). Details of the emission estimates for Bascom Avenue are given in Appendix D.

Unlike for a project level assessment, for the cumulative assessment, the risks from all sources within 1,000 feet of the Project site are summed and compared to the cumulative significance thresholds. The nearby roadway sources can be seen in Figure 1. There are no permitted stationary sources within 1000 feet of the project site. Additionally, there would be no onsite stationary sources of TACs and TAC emissions from Project-generated traffic would be negligible. A summary of the cumulative health impacts is shown in **Table 2-11**. The cumulative maximally-exposed receptor is assumed to be a proposed residence exposed to maximum risk from all sources, which would be a conservative assessment.

**TABLE 2-11
CUMULATIVE HEALTH IMPACTS**

Source Name	BAAQMD ID	Distance from Project (feet)	Cancer Risk (per million)	Chronic Hazard Impact	PM _{2.5} Concentration (µg/m ³)
Highway 17 ¹	Link 297	530	31.39	0.023	0.194
Highway 85 ²	Link 299	430	9.92	0.009	0.092
Bascom Avenue ³	5564	430	9.46	N/A	0.129
Nearby Permitted Sources			0	0	0
Roadways			50.77	0.032	0.415
Grand Total			50.77	0.032	0.415
BAAQMD Cumulative Significance Threshold			100	10	0.8
Exceeds Threshold?			No	No	No

NOTE:

There are no stationary sources within 1000 feet of the Project

¹ Highway 17 risk estimated from BAAQMD developed geo-referenced database of permitted and Highway TAC emissions for 6-foot height at 500 feet (BAAQMD, 2012c).

² Highway 85 risk estimated from BAAQMD developed geo-referenced database of permitted and Highway TAC emissions for 6-foot height at 400 feet (BAAQMD, 2012c).

³ Bascom Avenue concentrations and risk based on the assumption of 50,000 annual average daily traffic. The screening tool calculator was used to estimate maximum downwind concentrations and potential health risk at sensitive receptors from the source (BAAQMD, 2012d). Additional information is provided in Appendix D.

SOURCES: BAAQMD, 2012c; BAAQMD, 2012d

As demonstrated in Table 2-11, health impacts on the Project sensitive receptors from existing sources (Highway 17, Highway 85, and Bascom Avenue) in the area would have a cumulative impact less than the BAAQMD thresholds for cancer risk, chronic health hazards, and PM_{2.5} concentrations. The cumulative cancer risk from all sources within 1,000 feet of proposed sensitive receptors would be approximately 50.77 in one million, which would be below the BAAQMD cumulative threshold of 100 in one million and would be less than significant. The cumulative hazard index from all such sources would be approximately 0.03, which is well below the significance threshold of 10 and would

be less than significant. The cumulative PM_{2.5} concentration would be approximately 0.42 µg/m³, which would be below the significance threshold of 0.8 µg/m³ and is considered less than significant.

Criteria Air Pollutants

The following analysis of air quality impacts considers the potential impacts related to emissions of nonattainment pollutants and their precursors. Although ozone, as a secondary pollutant, would not be directly emitted by the Project, ozone precursors ROG and NO_x would be emitted and are therefore, along with particulate matter, the focus of the impact assessment. Given that ozone formation occurs through a complex photo-chemical reaction between NO_x and ROG in the atmosphere with the presence of sunlight, the impacts of ozone are typically considered on a basin- wide or regional basis instead of a localized basis. The health-based ambient air quality standards for ozone are established as concentrations of ozone and not as tonnages of their precursor pollutants (i.e., NO_x and ROG). It is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of the resulting secondary pollutants which are ozone and particulate matter in this case.

Because of the complexity of ozone formation and the non-linear relationship of ozone concentration with its precursor gases, and given the state of atmospheric modeling in use at this time, it is infeasible and not scientifically defensible to convert specific emissions levels of NO_x or ROG emitted in a particular area to a particular concentration of ozone in that area. Meteorology, the presence of sunlight, seasonal impacts, and other complex photochemical factors all combine to determine the ultimate concentration and occurrence of ozone. Since the Project would not exceed the numeric indicator for ROG and NO_x emissions during either construction or operation, it is not likely that Project ROG and NO_x emissions could result in an increase in ground-level ozone concentrations in proximity to the Project sites or elsewhere in the air basin and impacts can be considered less than significant.

As expressed in the *amicus curiae* brief submitted for the *Sierra Club v. County of Fresno* case (*Friant Ranch Case*), the CEQA criteria pollutants significance thresholds from the air districts were set at emission levels tied to the region's attainment status. These emission levels are indexed to stationary pollution sources permitted by the air district to compel the operator to offset their emissions and they are not intended to be correlated to localized human health impacts.

Furthermore, available models today are designed to determine regional, population-wide health impacts, and cannot accurately quantify ozone-related health impacts caused by NO_x or ROG emissions at a project level. Therefore, it is not scientifically defensible to connect the project- level ROG or NO_x emissions to ozone-related health impacts at present.

(d) – No Impact: BAAQMD has identified typical sources of odor in the CEQA Air Quality Guidelines, examples of which include manufacturing plants, rendering plants, coffee roasters, wastewater treatment plants, sanitary landfills, and solid waste transfer stations. The proposed Project would not include uses that have been identified by BAAQMD as potential sources of objectionable odors; this is a less than significant impact. Also, there are no sources of odor located in the Project area that future occupants of the Project would be exposed to. Therefore, there would be no impact with respect to exposure of people of odorous emissions.

Mitigation Measure(s): The following mitigation measures shall be incorporated into the project approval:

Mitigation Measure AQ-1: The project applicant shall ensure that construction plans include the BAAQMD Best Management Practices for fugitive dust control. The following will be required for all construction activities within the project area. These measures will reduce fugitive dust emissions primarily during soil movement, grading and demolition activities, but also during vehicle and equipment movement on unpaved project sites:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
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 streets, 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 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 mechanic and determined to be running in proper condition prior to operation.
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. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure AQ-2: The project applicant shall ensure that construction contract specifications include a requirement that all off-road diesel-powered construction equipment used for project improvements be equipped with Tier 4 final engines.

4. BIOLOGICAL RESOURCES

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(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 Game or U.S. 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, regulations or by the California Department of Fish and Game or U.S. 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, 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?	☐	☐	☐	☒

The following discussion is excerpted in part from Biological Resources Assessment, dated March 2020, prepared by Dudek (reference **Attachment 2**) and the 16179 E. Mozart Tree Assessment, dated August 14, 2020, prepared by Walter Levison (reference **Attachment 3**) for this project.

(a) – Less than Significant Impact: The biological resources assessment included the approximate 2.93-acre project site, plus a 100-foot buffer around the project site. The entire project site is characterized by an ornamental, orchard, and other non-native species. Several mature oak trees occur throughout the project site. Due to the disturbed condition of the project site and developed nature of the study area, the potential for special-status species is low.

Plant Species

No plant species listed or proposed for listing as rare, threatened, or endangered by either the CDFW or USFWS were detected within the study area during the reconnaissance survey on February 5, 2020. Dudek performed a review of literature, existing documentation, and GIS data to evaluate the potential for special-status plant species to occur within the study area. Each special-status plant species was given a rating of not expected, low, medium, or high based on relative location to known occurrences, vegetation communities, soils, and elevation. Based on the results of the literature review and database searches, 42 special-status plant species were identified as previously occurring within the region. The complete results of the CNDDDB, CNPS, and IPAC records searches for special-status plants are included as Appendix A of this report. However, none of these species are expected to occur or have a low potential to occur within the study area based on the soils, current disturbance levels, vegetation communities (habitat) present, elevation ranges, and previous known locations documented within the CNDDDB, CNPS, and IPaC records.

Additionally, there is no USFWS-designated Critical Habitat for listed plant species within the study area. Due to the nature of the study area, special-status plant species would unlikely survive with the current amount of disturbance, non-native plant competition, and surrounding development already in place. As a result, direct or indirect impacts to special-status plant species would be less than significant.

Wildlife Species

No wildlife species listed or proposed for listing as rare, threatened, or endangered by either the CDFW or USFWS were detected within the study area during the reconnaissance survey on February 5, 2020. Dudek performed a review of literature, existing documentation, and GIS data to evaluate the potential for special-status wildlife species to occur within the study area. Similar to plants, each special-status wildlife species was given a rating of not expected, low, moderate, or high based on relative location to known occurrences, vegetation communities, and elevation. Based on the results of the literature review and database searches, 41 special-status wildlife species were identified as occurring within the region. The complete results of the CNDDB, CNPS, and IPaC records searches for special-status wildlife are included as Appendix A of this report. However, none of these species are expected or have a low potential to occur within the study area based on the vegetation communities (habitat) present, elevation ranges, and previous known locations documented within the CNDDB and IPaC records. Additionally, there is no USFWS-designated Critical Habitat for listed wildlife species within the study area. As a result, direct or indirect impacts to special-status wildlife species would be less than significant.

(b) – No Impact: The entire project site is characterized by a disturbed and ornamental land cover. No riparian habitat or other natural vegetation communities considered sensitive are present within the impact footprint. As a result, there would be no impact to riparian or sensitive vegetation communities.

(c) – No Impact: No state or federally defined waters of the United States or waters of the state occur within the project site. This includes the absence of federally defined wetlands and other waters (e.g., drainages), and state-defined waters (e.g., streams and riparian extent). Therefore, no direct or indirect impacts to jurisdictional waters or wetlands would occur.

(d) – Less than Significant Impact with Mitigation: The proposed project is located within an urban setting surrounded by residential and commercial developments. Due to the matrix of development surrounding the project site, wildlife movement is extremely limited and the proposed project would not constrain natural wildlife movement in its vicinity. However, the study area supports suitable habitat for nesting bird species, as well as bats. Nesting birds are protected under the Migratory Bird Treaty Act and California Fish and Game Code Section 3500, and compliance with these regulations is required. Project plans include the removal of existing structures and vegetation considered suitable for nests and roosts. Additionally, indirect impacts to nesting birds and roosting bats from short-term construction-related noise could result in decreased reproductive success or abandonment of an area as nesting or roosting habitat if conducted during the nesting season (i.e., February through August) or near a maternity roost. Implementation of **Mitigation Measure BIO-1** and **BIO-2** would ensure potential impacts to nesting birds and roosting bats are less than significant.

(e) – Less than Significant Impact with Mitigation: Walter Levison, Consulting Arborist (WLCA) was initially retained by City of Campbell planning division to assess twenty-six (26) protected-size trees on and near the above-noted commercial site that is currently being utilized by one or more tree care companies as an office, staging site, and equipment storage area. The forested site is a holdout from 19th or 20th century ranching activities, and contains a large number of mature native coast live

oak specimens (*Quercus agrifolia*) as well as numerous smaller diameter fruit orchard trees such as edible plum and edible almond.

The following tables summarizes those trees proposed to be removed and retained:

2.0 Summary

1. RETENTION TREES:

Protected-size trees on and off-site which are expected to be retained under the current proposed plan set from the applicant dated 8/4/2020:

Nine (9) protected-size oaks #501, 502, 503, 504, 527, 548, 615, 636, and #650.

2. REMOVAL TREES:

Per the current proposed plan set, there are seventeen (17) trees to be removed which are protected as specimens measuring 12 inches diameter or greater (for undeveloped lots). See the City tree ordinance¹ below in section 3.0 of this report for details:

Seventeen (17) trees #507, 509, 510, 511, 512, 529, 534, 537, 592, 616, 620, 625, 626, 628, 643, 657, and #662.

The trees proposed to be removed conflict with proposed site improvements and building footprint. However, the project has been designed to save as many quality oak trees as reasonably possible. The City's Consulting Arborist has conducted an extensive review of the trees proposed to be preserved with regard to impacts from the finish grade elevation, tree canopies, foundation exaction and tree wells, pedestrian walkway, storm drain alignment, irrigation piping. With the implementation of provided recommended measures, incorporated as **Mitigation Measure BIO-3**, the project would not conflict with the City's locally adopted Tree Preservation Ordinance.

(f) – No Impact: The proposed project is within the Santa Clara Valley Habitat Conservation Plan boundaries, but not within a designated conservation area. The project site does not support habitat for listed species or habitats covered by the Santa Clara Valley Habitat Conservation Plan. As a result, the proposed project would not conflict with the Santa Clara Valley Habitat Conservation Plan.

Mitigation Measure(s): The following mitigation measures shall be incorporated into the project approval:

Mitigation Measure BIO-1: Vegetation removal and initial ground-disturbing activities should occur outside the nesting season, which generally occurs from February through August, to avoid potential impacts to nesting birds. This would ensure that no active nests would be disturbed and that habitat removal could proceed rapidly. If vegetation removal and initial ground-disturbing activities occur during the nesting season, all suitable habitat should be thoroughly surveyed by a qualified biologist for the presence of nesting birds before commencement of clearing. If any active nests are detected, a buffer of at least 100 feet (300 feet for raptors) should be delineated, flagged, and avoided until the nesting cycle is complete as determined by a qualified biologist.

Mitigation Measure BIO-2: To the extent practicable, site demolition should occur outside peak bat activity timeframes when young or overwintering bats may be present, which generally occurs from March through April and August through October, to ensure protection of potentially occurring bats and their roosts on the project site. Additionally, daily restrictions on the timing of any construction activities should be limited to daylight hours to reduce disturbance to roosting (and foraging) bat species. Additionally, a pre-demolition bat survey should be conducted within 30 days of the removal of any structures/buildings or trees. The survey should include a determination on whether active bat roosts are present on or within 50 feet of the project site. If a non-breeding and non-wintering bat colony is found, the individuals shall be evicted under the

direction of a qualified biologist to ensure their protection and avoid unnecessary harm. If a maternity colony or overwintering colony is found in the buildings or trees on the project site, then the qualified biologist shall establish a suitable construction-free buffer around the location. The construction-free buffer shall remain in place until the qualified biologist determines that the nursery is no longer active.

Mitigation Measure BIO-3: Construction drawings submitted for building and grading permits, as well as all demolition, grading, and construction activity, shall conform to the tree protection recommendations specified by the 16179 E. Mozart Tree Assessment, dated September 7, 2020, prepared by Walter Levison. Conformance with the specified recommendations during demolition, grading, and construction activities shall be the obligation of the applicant's project arborist (PA). The applicant shall sign a mitigation agreement with the City confirming the role of its PA prior to issuance of any permits.

Review of construction drawings for compliance with the specified recommendations shall be performed by the City's consulting arborist at the applicant's sole cost (to be paid for in advanced prior to submittal of permit applications). The Community Development Director may also direct the City's consulting arborist to perform independent monitoring of demolition, grading, and construction activity (to be paid for in advance by the applicant).

5. CULTURAL RESOURCES

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
(b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §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?	☐	☒	☐	☐

(a) – No Impact: The project site does not contain known historical resources as defined in §15064.5 of the CEQA Guidelines.

(b-c) – Less than Significant Impact with Mitigation: The project site does not contain known archaeological, paleontological, or other cultural resources. However, should any cultural resources be discovered during project construction, the implementation of the ***Mitigation Measure CUL-1*** would reduce any potential impacts to a less than significant level.

(d) – Less than Significant Impact with Mitigation: No human remains are known to exist on the project site. However, should human remains be discovered during excavation or construction, the implementation of the ***Mitigation Measure CUL-2*** would reduce any potential impacts to a less than significant level.

Mitigation Measure(s): The following mitigation measures shall be incorporated into the project approval:

Mitigation Measure CUL-1: If archaeological or paleontological resources are encountered during excavation or construction, construction personnel shall be instructed to immediately suspend all activity in the immediate vicinity of the suspected resources and the City and a licensed archeologist or paleontologist shall be contacted to evaluate the situation. A licensed archeologist or paleontologist shall be retained to inspect the discovery and make any necessary recommendations to evaluate the find under current CEQA guidelines prior to the submittal of a resource mitigation plan and monitoring program to the City for review and approval prior to the continuation of any on-site construction activity.

Mitigation Measure CUL-2: In the event a human burial or skeletal element is identified during excavation or construction, work in that location shall stop immediately until the find can be properly treated. The City and the Santa Clara County Coroner's office shall be notified. If deemed prehistoric, the Coroner's office would notify the Native American Heritage Commission who would identify a "Most Likely Descendant (MLD)." The archeological consultant and MLD, in conjunction with the project sponsor, shall formulate an appropriate treatment plan for the find, which might include, but not be limited to, respectful scientific recording and removal, being left in place, removal and reburial on site, or elsewhere. Associated grave goods are to be treated in the same manner.

6. ENERGY

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(a)	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
(b)	Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

(a) – Less than Significant Impact: During construction activities there would be a temporary increase in the consumption of energy resources for the movement of equipment, soils, and materials (as well as for the assembly of materials); however, the duration of such activity would be limited to construction phases and would be relatively brief compared to the life-cycle of the new residences. As the project result in the construction of multiple-single family homes at the same time, the relative energy consumption on a per-unit basis would be less than the energy consumed to construct the same number of homes individually, due to the consolidation of activities (i.e. grading across multiple homes, consolidated soil hauling and material delivery trips).

Further, the extent of grading activities is limited to the extent necessary to resolve drainage activities. Compliance with local, state, and federal regulations (e.g., limit engine idling times, require the recycling of construction debris, etc.) would reduce short-term energy demand during the project's construction to the extent feasible, and project construction would not result in a wasteful or inefficient use of energy.

During operation of the residences, there would be no unusual project characteristics or processes that would require the use of equipment that would be more energy than is used for comparable activities, or the use of equipment that would not conform to current emission standards and related fuel efficiencies. Through compliance with the California Green Building Standards Code and California Green Building Standards (CALGreen), or successor document(s), the homes could be anticipated to use less energy as a result of using more efficient HVAC systems, insulation, water-heating systems, and electrical fixtures than existing/older single-family homes.

Further, as the California Green Building Standards require a manual, compact disc, web-based reference or other media providing directions to the owner or occupant operational and maintenance instructions, operation will of the home should continue to avoid wasteful, inefficient, or unnecessary consumption of energy resources for the life cycle of the building.

(b) – Less than Significant Impact: State and local agencies regulate the use and consumption of energy through various methods and programs, including the California Green Building Code and CAL Green Building Standards. As a result of the passage of Assembly Bill 32 (AB32; the California Global Warming Solutions Act of 2006) which seeks to reduce the effects of Greenhouse Gas (GHG) Emissions, a majority of the state regulations are intended to reduce energy use and GHG emissions. These include, among others, California Code of Regulations Title 24, Part 6 – Energy Efficiency Standards, and the California Code of Regulations Title 24, Part 11 – California Green Building Standards (CALGreen).

At the local level, the City of Campbell's Building Division enforces the applicable requirements of these documents. Accordingly, the proposed project would not conflict with or obstruct State or local plans for renewable energy or energy efficiency.

Mitigation Measure(s): None Required.

7. GEOLOGY and SOILS

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(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 Section 1803.5.3 of the California Building Code (2016), creating substantial risks to life or property?	☐	☒	☐	☐
(e)	Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
(f)	Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☒	☐	☐

(a) – Less than Significant Impact: The project site is located within the seismically active San Francisco Bay Area. According to maps prepared under the Alquist-Priolo Earthquake Fault Zone Act, there are no zoned active faults within the City of Campbell. Therefore, ground rupture is not likely to occur at the site. The nearest major earthquake faults are the Monte Vista Shannon Fault, San Andreas Fault, the Hayward-Rogers Creek Fault and the Calaveras Fault, all of which pose the greatest earthquake threat because of their high quake potential. The project will likely be subjected to at least one moderate to severe earthquake that will cause moderate to severe ground shaking during the useful life of the building. Because construction practices in the State of California—pursuant to the California Building Code—take into account that earthquakes could potentially damage buildings, they are designed to withstand moderate ground-shaking, resulting in a less than significant impact.

In regard to liquefaction, the geotechnical evaluation prepared for this project (reference **Attachment 4**) concluded that the property of liquefaction of the site is low. Lastly, according to the State Seismic Hazard Zones Map, the project site is not located in any hazard zone and therefore does not have the potential for liquefaction or earthquake-induced landslides.

(b) – No Impact: Development of the project will require grading that could result in a temporary increase in erosion. This increase in erosion is expected to be relatively minor due to the small size and flatness of the site. Additionally, the project is subject to the mandatory stormwater protection requirements (“best management practices”) of the City’s NPDES permit.

(c-d) – Less than Significant Impact with Mitigation: According to the Santa Clara County Geologic Hazard Zones Map, the project site is not geologically unstable and would not pose a risk of landslide, lateral spreading, subsidence, liquefaction or collapse. Additionally, the geotechnical evaluation prepared for this project (reference **Attachment 4**) evaluated the geotechnical conditions of the site.

The review included four exploratory drill holes to depths between approximately 11 and 49 feet below ground surface (bgs) and four Cone Penetration Test (CPT) probes to depths between approximately 7.4 and 35 feet bgs. Based on the results of the investigation the subject site was determined to be geotechnically suitable for the proposed development. With incorporation of **Mitigation Measure GEO-1**—requiring compliance with all measures identified by the geotechnical report—the project would not be located soil that is unstable, or that would become unstable as a result of the project.

(e) – No Impact: The project would not involve the use of septic tanks or alternative waste water disposal systems.

(f) – Less than Significant Impact with Mitigation: As discussed in Section 5 (Cultural Resources), no unique paleontological resources or unique geological features are known to exist on the project site. However, should such resources exist, their disturbance would be a potentially significant impact. Incorporation of **Mitigation Measure CUL-1** will ensure that in such event, treatment of paleontological resources or unique geological features, would be conducted in an appropriate manner as to preserve their integrity.

Mitigation Measures(s): The following mitigation measures shall be incorporated into the project approval:

Mitigation Measure GEO-1: The applicant shall comply with the recommendations in the Geotechnical Investigation Residential Development, dated December 10, 2019, prepared by Geo-Logic Associates dba Pacific Geotechnical Engineering. Such recommendations shall be incorporated into the project's final engineering design to prevent ponding of water in or near the building, ensure the conveyance of storm water away from the building, and avoid the saturation of foundation soils. The project shall use standard engineering techniques and conform to the requirements of the International Building Code to reduce the potential for seismic damage and risk to future occupants.

8. GREENHOUSE GAS EMISSIONS

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant effect on the environment?	☐	☐	☒	☐
(b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

The following discussion is excerpted in part from Air Quality, Greenhouse Gases, and Health Risk Assessment, dated July 2019, prepared by ESA (reference **Attachment 1**).

(a) – Less than Significant Impact: BAAQMD requires that both direct and indirect sources of GHG emissions be considered in the analysis. Direct emissions include emissions from construction equipment and vehicles, operational vehicle trips generated by the Project, use of natural gas for onsite water and space heating, and use of fuel in landscaping equipment. Indirect emissions are associated with offsite electricity generation, transport and disposal of solid waste, and water and wastewater transport and treatment.

These GHG sources and emissions are detailed below:

- **Construction Activities.** Construction equipment typically use fossil-based fuels (primarily diesel) to operate. The combustion of fossil-based fuels creates GHGs such as CO₂, CH₄, and N₂O. CH₄ is also emitted during the fueling of heavy equipment.
- **Solid Waste Disposal Emissions.** When solid waste generated by projects is deposited in landfills, anthropogenic CH₄ is generated from the anaerobic breakdown of the organic material in solid waste.
- **Gas, Electricity, and Water Use.** Natural gas use for water and space heating results in the emissions of two GHGs: CH₄ (the major component of natural gas) and CO₂ from the combustion of natural gas. CH₄ is released prior to initiation of combustion of the natural gas (as before a flame on a stove is sparked), and from the small amount of CH₄ that remains not combusted in a natural gas flame. Electricity used on-site can result in GHG production if the electricity is generated by combustion of fossil fuel. GHG emissions from water and wastewater transport result from the generation of energy required to treat and transport water from its source, and the energy required to treat wastewater and transport it to its treated discharge point.
- **Motor Vehicle Use.** Transportation associated with the project would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips. However, not all of these emissions would be “new” to the region or state since drivers would likely have relocated from another area. To be conservative, however, all vehicle trips predicted were assumed to be new trips in this analysis.

GHG emissions over the 6-month construction period were estimated using CalEEMod and amortized assuming a 30-year development life after completion of construction. The amortized emissions were added to the Project's operational emissions for comparison to significance thresholds. Amortized GHG emissions associated with construction of the proposed Project would result in the generation of 6.9 metric tons of CO₂e per year over the assumed life of the Project.

Project operational emissions as estimated using CalEEMod are shown in Table 3-3 below. Operational emissions include GHG emissions from motor vehicle trips, grid electricity usage, solid waste, and other sources (including area sources, natural gas combustion, and water/wastewater conveyance).

**TABLE 3-3
PROJECT GREENHOUSE GAS EMISSIONS**

Source	Emissions, metric tons of CO₂e per year
Project construction emissions (amortized)	6.9
Project operations ¹	296.9
Total project GHG emissions (construction and operation)	303.8
BAAQMD GHG threshold ²	1,100
Exceeds threshold?	No

NOTES:

¹ Project operational emissions do not take into account reduction in electricity usage from the solar panels on Project residences. Actual emissions would be lower.

² BAAQMD threshold for projects other than stationary sources.

SOURCE: APPENDIX A.

Table 3-3 indicates that the total GHG emissions associated with the Project would be below BAAQMD's GHG threshold of 1,100 metric tons of CO₂e per year. This would represent a cumulatively less-than-significant GHG impact.

(b) – Less than Significant Impact: The City of Campbell has not adopted a GHG reduction plan or a climate action plan. However, the City's current General Plan includes goals and policies aimed at reducing GHG emissions. The City is in the process of preparing an update to its current General Plan. As part of the General Plan Update, the City will also prepare a Climate Action Plan which will include a range of strategies, measures, and programs that the City and the community may implement to reduce the generation of GHGs within the city and would be used to evaluate impacts of future projects. However, the analysis presented below evaluates consistency of the Project with applicable policies in the current General Plan and control measures in the BAAQMD's 2010 CAP.

Two policies in the City's current General Plan are applicable to the Project: Policy H-1.2: Green Building and Policy H-1.3: Energy Conservation. Policy H-1.2 encourages the use of sustainable and green building design in new and existing housing. Policy H-1.3 promotes energy efficiency by requiring the City to continue to promote programs and opportunities for improved energy efficiency and weatherization. The City's General Plan recognizes that conventional building construction, use, and demolition, as well as the manufacture of building materials have multiple impacts on the environment and account for 30 percent of GHG emissions in the United States (City of Campbell,

2015). Consistent with State regulations, the City encourages green building techniques and implements and enforces the requirements of the CalGreen program in the City. As part of its implementation of the CalGreen residential code requirements, the City requires a disclosure and certification of construction materials used in building construction for volatile organic compounds (VOC) compliance, water conservation and efficiency. The Project would comply with indoor water conservation measures included in the CalGreen Code and the City's water management requirements through a storm water management plan during construction, a reduction of indoor water use by at least 20% using water saving fixtures or flow restrictors, and use of weather-based automatic irrigation systems to reduce outdoor water use.

In addition, consistent with the City's building code which incorporates the increased energy efficiency requirements of Title 24, the Project would include energy conservation features such as high-efficiency lighting and water heaters. The Project would recycle or reuse at least 50 percent of the construction and demolition debris waste tonnage to comply with the City's Construction and Demolition Debris Ordinance which requires the diversion of 50 percent of construction waste in accordance with the mandate of the California Waste Management Act.

Project homes would include solar panels and would be pre-wired to accommodate electric car charges in the garage. Additionally, electricity in Campbell is provided by SVCE, which includes electricity generated from renewable and carbon-free sources.

Compliance with all applicable codes and ordinances would ensure consistency with policies in the General Plan that promote reduction of GHGs. Further, as discussed in Chapter 2, Air Quality, the Project would be consistent with applicable control measures in the BAAQMD's 2017 CAP, which is the planning document prepared by the BAAQMD to reduce GHG emissions in the Bay Area. Therefore, the Project would not conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions. This would be a less than significant impact.

Mitigation Measure(s): None Required.

9. HAZARDS and HAZARDOUS MATERIALS

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(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 reasonable 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 or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
(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?	☐	☐	☐	☒

The following discussion is excerpted in part from the Draft Soil Management Plan, dated June 23, 2020 (reference **Attachment 5**) and Regulatory Oversight and Proposed Remedial Activities, dated March 4, 2020, prepared by Ramboll US Corporation (reference **Attachment 6**).

(a-b) – Less than Significant Impact with Mitigation:

The site was developed by the 1930s with the residence located at 16179 East Mozart Avenue and an adjacent orchard. Additional residences were constructed between the 1940s and 1960s, after which agricultural/orchard operations appear to have generally ceased.

Between the 1960s and 1990s, the central portion of the site was used as the storage yard for a paving business. From 2014 to 2019, the central portion of the site was used as the storage yard area for West Valley Arborists, a landscaping business.

The surrounding properties were used for agricultural purposes (primarily orchards) from at least 1939 until approximately the 1950s and 1960s, when residential developments began to be constructed in the vicinity of the site. Commercial buildings were constructed to the east of the site in the 1980s to 1990s. The land adjacent to the west of the site was a commercial nursery from approximately the 1970s to the 2000s when the current residences were constructed.

Between October 2018 and January 2019, Ramboll conducted a Phase I Environmental Assessment (ESA) and shallow soil sampling investigation at the site (reference **Attachment 7**). Multiple soil samples and stepout soil samples were collected in areas of prior agricultural development, around the perimeters of the older structures, and in the locations of a historical vehicle fueling area and former oil drum storage area (see Figure 3). Soil samples were collected from depths ranging between 0.5 and 10 feet below ground surface (bgs).

Samples were analyzed for California Assessment Manual (CAM17) metals by United States Environmental Protection Agency (USEPA) Method 6020, organochlorine pesticides by USEPA Method 8081A, polychlorinated biphenyls (PCBs) by USEPA method 8082, total petroleum hydrocarbons as gasoline, total petroleum hydrocarbons as gasoline, diesel, and motor oil (TPH-g,d,mo) by USEPA method 8015B, volatile organic compounds (VOCs) by USEPA method 8260B, and/or naturally occurring asbestos (NOA).

Results of the soil sampling conducted by Ramboll are discussed in Section 1.6 and summarized in Tables 1 through 4 (**Note:** Please reference full Draft Soil Management Plan to view these tables). The only detections exceeding regulatory screening criteria¹²³⁴ for residential land use were select metals (primarily lead and arsenic) and organochlorine pesticides (chlordane and dieldrin). Sample locations with one or more analyte exceeding regulatory screening criteria residential land use are generally located near the perimeter of existing structures at the site, as shown on Figure 4.

As part of due diligence in connection with the purchase and redevelopment of the site, two geophysical investigations were conducted at the site between October 2018 and January 2019 by J R Associates. The geophysical investigations revealed the locations of two anomalies at the site, approximately at the locations of samples A1 and A9, respectively (Figure 3). The anomalies were potholed on December 3, 2018 with Ramboll onsite to observe the potholing activities. The anomaly adjacent to sample A1 was suspected to be the former location of a fuel tank associated with a historical fuel pump at the site. Potholing revealed the anomaly in the vicinity of sample A1 to be an approximately eight-foot long, one-inch diameter, abandoned metal pipe. Additional potholing was performed in the vicinity of sample A1 to a depth of six feet bgs to locate a possible buried fuel tank. No evidence of a buried fuel tank was encountered during the potholing and no stained soil or odorous soil was observed by Ramboll field personnel. Potholing in the vicinity of sample A9 in the northeast portion of the site revealed the anomaly to be a two-inch diameter abandoned metal pipe.

In May 2020, Ramboll conducted a soil gas investigation to characterize potential vapor intrusion concerns at the site. Two soil gas wells (SV01 and SV02) were installed in the locations of a historical vehicle fueling area and former oil drum storage area and SV03 was installed along the northwestern site boundary (see Figure 3). Soil gas wells installations were also attempted along the northeastern and southeastern site boundaries, but drilling was unsuccessful due to the presence of heaving gravels and cobbles. One ambient air sample was collected in the central portion of the site taken to assess potential ambient air intrusion into the soil vapor samples. Soil gas samples were collected from depths ranging from 2.5 feet bgs to 4.0 feet bgs. Soil gas samples were analyzed for VOCs by EPA method TO-15 and the ambient air sample was analyzed for VOCs by EPA method TO-15 SIM. Results of the soil gas sampling conducted by Ramboll are summarized in Table 5. No detections exceeded regulatory screening criteria for residential land use.⁵

¹ California Environmental Protection Agency (Cal/EPA). 2018. Human Health Risk Assessment (HHRA) Note Number 3, Issue: DTSC recommended methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the Human Health Risk Assessment process at hazardous waste sites and permitted facilities. June.

² Duvergé, Dylan Jacques. 2011. Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region.

³ San Francisco Bay Regional Water Quality Control Board (SFRWQCB). 2016. Environmental Screening Levels Direct Exposure Human Health Risk Levels (Table S-1). February (revision 3).

⁴ United States Environmental Protection Agency (USEPA). 2018. Regional Screening Levels for Chemical Contaminants at Superfund Sites. November.

⁵ San Francisco Bay Regional Water Quality Control Board (SFRWQCB). 2019. Summary of Soil Vapor ESLs: Subslab/Soil Gas Vapor Intrusion: Human Health Risk Levels (Table SG-1). July. Rev 2.

Based on the findings shallow soil investigation at the site, Specifically, results from soil sampling between November 2018 and January 2019 identifying concentrations of lead, arsenic, mercury and organochlorine pesticides (chlordane and dieldrin) above regulatory, screening criteria for residential land use, Ramboll has prepared a draft Soil Management Plan (SMP), for review and approval by the Santa Clara County Department of Environmental Health (SCCDEP). The SMP provides the following:

- A description of the site history and use;
- A summary of previous environmental investigations and other information pertinent to subsurface conditions anticipated at the site;
- General procedures and requirements in relation to worker and contractor health and safety (site contractors will be responsible for preparing their own site-specific health and safety plan);
- General recommendations (e.g. dust control, safe work practices) to be implemented during excavation and grading activities;
- Guidance on the identification of suspected contamination or other unanticipated features (i.e., underground tanks or piping), and recommended procedures and notification instructions in the event suspected contamination is encountered (whether in soil or groundwater), or spills occur during excavation and grading; and
- Guidance regarding off-site soil disposal and/or evaluation of fill material, proposed for import to the site (if necessary).

In addition to summarizing the results and findings of Ramboll's previous investigations at the site, the SMP also details additional sampling to be performed prior to excavation of the impacted soil. The additional sampling will be performed after the existing structures at the site have been demolished. The sampling will horizontally and vertically delineate the impacted soil and designate the boundaries for the soil excavations.

With implementation of **Mitigation Measure HAZ-1**, which requires the applicant to secure SCCDEP approval of the SMP and to implement all of its recommendations under the oversight of the SCCDEP, the project would not create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials or through a reasonable foreseeable upset and/or accident conditions involving the release of hazardous materials.

(c) – No Impact: The project site is not within a quarter-mile of an existing and proposed school.

(d) – No Impact: The project site is not listed on the Hazardous Waste and Substances Sites List (available at <https://calepa.ca.gov/sitecleanup/corteselist/>) compiled pursuant to Government Code Section 65962.5, therefore it would not create a significant hazard to the public or the environment. Further, the site is not listed as a past or present case (or informational item) on the State Water Resources Control Board GeoTracker website (<https://geotracker.waterboards.ca.gov/>).

Mitigation Measure(s): The following mitigation measures shall be incorporated into the project approval:

Mitigation Measure HAZ-1: Prior to issuance of a Grading Permit, the applicant shall furnish written confirmation from the Santa Clara County Department of Environmental Health that it has approved and will oversee implementation of the draft Soil Management Plan, prepared by Ramboll US Corporation, dated June 23, 2020.

10. HYDROLOGY AND WATER QUALITY

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(a)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? ⁶⁷	☐	☐	☐	☒
(b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
(c)	Substantially alter the existing drainage pattern of the site or area ⁸ , including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i. Result in substantial erosion or siltation on- or off-site; ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff⁹; or iv. Impede or redirect flood flows?	☐	☐	☐	☒
(d)	In a flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
(e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

(a) – No Impact: The project will not violate any water quality standards or substantially degrade surface or ground water quality. The project does not have any of the State Water Board Section 303.(d) list of impaired waterbodies downstream. The project also incorporates water quality control measures detailed in the SCVURPPP Hydromodification Management Plan such as bio-retention areas which will improve water quality by treating it before discharging it into the city storm drain system.

(b) – No Impact: The project will be adequately served by existing water supplies, and will be served by the local area water utility as confirmed in written correspondence (“will serve” letter) by the San Jose Water Company (reference **Attachment 8**). The project would not directly deplete groundwater supplies (no wells) or interfere substantially with groundwater recharge (the project is evaluated for the

⁶ The evaluation of a project’s compliance with water quality standards should consider the project’s potential effect on water bodies on the Section 303(d) list (http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml), as well as the potential for conflict with applicable surface or groundwater receiving water quality objectives or degradation of beneficial uses.

⁷ The evaluation of a project’s potential to degrade water quality should consider whether a project has the potential to result in a significant impact to surface water quality, marine, fresh, or wetland waters, or to groundwater quality. As with every category of environmental impact, effects must be considered both during and after construction. The evaluation of water quality impacts should include a description of how the project will comply with the requirements of SCVURPPP’s Municipal Regional Stormwater NPDES Permit and the State’s Construction General Permit. The description should also include a statement that the project should avoid creation of mosquito larval sources that would subsequently require chemical treatment to protect human and animal health.

⁸ The evaluation of a project’s effect on drainage patterns should refer to the SCVURPPP Hydromodification Management Plan (2005), where applicable, to assess the significance of altering existing drainage patterns and to develop any mitigation measures. The evaluation of hydromodification effects should also consider any potential for streambed or bank erosion downstream from the project.

⁹ The evaluation of a project’s potential to create or contribute runoff should consider whether the project meets or exceeds the size thresholds for regulation under Provision C.3 (i.e., projects that create and/or replace 10,000 square feet of impervious surface, or 5,000 square feet for certain land uses²). The response to this question will indicate how Provision C.3 requirements will be met. Applicants must address Provision C.3 requirements in environmental documents for projects that meet or exceed the impervious surface thresholds.

amount of proposed pervious and impervious area to maintain or improve upon existing conditions) such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Additionally, the proposed private street, driveways, and lots are designed and graded to direct runoff towards stormwater management facilities that allow treated runoff to infiltrate and recharge the groundwater table.

(c) Less than Significant Impact: No significant increase in impervious surface area of the lot would result from the project. However, all additional runoff would be conveyed into the public storm drain system. These changes to the Project site would not substantially alter the existing drainage pattern of the area due to the small size of the site. Storm water would be conveyed into the public storm drain system. The course of streams or rivers would not be affected by the proposed Project. The runoff from construction of the proposed Project would not exceed the capacity of existing or planned stormwater drainage systems, provide substantial additional sources of polluted runoff, or substantially degrade water quality.

- i. The project will not result in substantial erosion or siltation on- or -offsite. Surface runoff will be directed to stormwater management facilities. Specifically, the project includes Hydromodification Management Plan (HMP). A series below grade vaults with an area of 1,365 square feet and interior depth of 8 feet will be located at the western corner of the property (Storage area A). Vault configuration results in an effective volume of approximately 10,920 cubic feet and a depth of 8 feet (including 1.1 ft of freeboard above the riser top). The vault will allow infiltration into the native soil through the open bottom. In this manner the proposed HMP will treat and contain stormwater on-site and therefore not exceed the capacity of existing or planned storm water drainage systems, provide substantial additional sources of polluted stormwater runoff, otherwise substantially degrade water quality or violate any water quality standards or waste discharge requirements.

Offsite and downstream, there will be no substantial erosion. The downstream Smith Creek and San Tomas Aquinas Creek are engineered as hardened channels with compacted earthen materials that the SCVURPPP Hydromodification Management Plan (HMP) states have low potential for erosion due to increased upstream hydromodification. Additionally, the HMP exempts projects that drain to underground storm drains that discharge directly the bay from HMP hydromodification impacted erosion requirements.

Landscaped pervious areas will be either covered with grass and plants or mulch to prevent erosion. Runoff on these areas will infiltrate naturally, or in major storms or be directed to grates connecting to the individual lot bio-retention areas.

- ii. Based on the impervious areas added, the project accounts for the bio-retention areas for water quality purposes and the proposed underground storm pipes are sized to handle 10-year storm events. Based on this design there is little to no risk of flooding on-site. Additionally, through proper grading there will be no flood-prone impervious areas. All low points created through grading will have drainage leading to bio-retention areas. The bio-retention areas which will collect the treated water to an area where it will be pumped into the city owned storm drain system which flows to the San Francisco Bay.

Offsite, there will be no risk of flooding as the public stormwater system is adequately sized to contain 10-year flows. If the site experiences back to back storm events or a higher magnitude storm event (50-year), the site will not flood as the private street is graded positively towards the fronting public street. All in-fill sites are designed to carry runoff from 10-year storm events in pipes & streets are supposed to carry excess runoff over 10-year storm event & especially 100-year storm event.

- iii. The project will not contribute runoff which would exceed the capacity of existing stormwater drainage system nor would it create substantial additional sources of polluted runoff. The runoff from the project site will be pumped into the city owned storm drain system. The city's storm drain system is designed to accommodate future development.

Since this is a residential development, there are no additional sources of pollutants. Any pollutants related to motor vehicles being parked outside will be treated with the first flush in the bio-retention planters proposed along the low side of the private street. These bio-retention planters will trap & treat the pollutants from the site.

- iv. Not applicable. The site is in a FEMA designated area of minimal flood hazard (Zone X, FIRM 060338). Additionally, the site is positively draining to front and is matching grades along the east, north & west. There are no flood flows to impede from any of these directions.

Lastly, a hydrology and water quality analysis prepared by Dudek for this project (reference **Attachment 9**) found that impacts associated with Project construction and operation on hydrology and water quality would be less than significant because existing permitting requirements and conditions of approval are sufficient to avoid water quality degradation, meet water quality standards and Basin Plan objectives, and prevent adverse effects on beneficial uses.

(d) Less than Significant Impact: The project site is located downstream of Lexington Reservoir, in an area defined by the Association of Bay Area Governments as a dam failure inundation area. However, the project would not expose any additional people or structures to a new significant risk of loss, injury, or death involving flooding in consideration that the site is in a FEMA designated area of minimal flood hazard (Zone X, FIRM 06085C0239H). Furthermore, as the project is not modifying flood protection measures or creating a condition where adjacent properties are exposed to a new significant risk of loss, injury or death involving flooding, no additional exposure to water-related hazards is expected as a result of the project construction or operation. Additionally, the PHASE I Environmental Site Assessment Report states that historically, the site was an orchard with low risk of pollutant exposure.

(e) No Impact: The project would be fully compliant with the water quality standards of the SCVURPPP and its Hydromodification Management Plan as well as Provision C.3 of the National Discharge Elimination System (NPDES). The project incorporates source control measures and best practices listed in the plan such as bio-retention facilities and minimizing impervious surfaces to maintain or improve upon existing drainage patterns. The bio-retention facilities will treat runoff and their unlined bottoms will allow the treated runoff to infiltrate to the groundwater table. This method of stormwater control is commonly used in the San Francisco Bay Area as retains, treats, and discharges stormwater in a controlled manner to ensure water quality and prevent erosion and flooding.

Mitigation Measure(s): None Required.

11. LAND USE and PLANNING

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(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?	☐	☐	☐	☒

(a) – No Impact: Projects that have the potential to physically divide an established community typically include construction that would eliminate formal or informal travel ways through a property. No such pathways or other forms of informal access through the project site currently exist. Therefore, the project would not physically divide an established community.

(b) – No Impact: The Campbell General Plan Land Use Element Diagram and Campbell Zoning Map designate the project site as *Low Density Residential (less than 6 units/gr. acre)* and R-1-6 (Single-Family Residential), respectively. The project would exceed the allowable density through use of State Density Bonus Law, achieving a density of 7.9 units/gr. acre. As such, the proposed subdivision would be consistent with the City of Campbell General Plan and Zoning Ordinance.

(c) – No Impact: No habitat conservation plan or natural community conservation plans are applicable to the project site.

Mitigation Measure(s): None Required.

12. MINERAL RESOURCES

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(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?	☐	☐	☐	☒

(a-b) – No Impact: No known mineral resources are present at the project site.

Mitigation Measure(s): None Required.

13. NOISE

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or 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 or, where such a plan has not been adopted, within two miles of a public airport or 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?	☐	☐	☐	☒

The following discussion is excerpted in part from Environmental Noise Study, prepared by Charles M. Salter Associates, dated August 4, 2020 for this project (reference **Attachment 10**).

(a-d) – Less than Significant Impact with Mitigation: The City's Noise Ordinance (CMC Sec. 21.16.070.E) provides the following noise exposure standards for new residential development:

- Noise from stationary sources. New residential development shall conform to a stationary source noise exposure standard of 65 dBA for exterior noise levels and 45 dBA for interior noise levels.
- Traffic-related noise. New residential development shall conform to a traffic-related noise exposure standard of 60 dBA CNEL for outdoor noise in noise-sensitive outdoor activity areas and 45 dBA CNEL for indoor noise.

As required by CMC Sec. 21.16.070, a Community Noise Assessment was prepared by Charles M. Salter Associates for this project. To quantify the existing noise environment, Salter Associates conducted noise measurements at the site between 25 and 27 June 2019. The noise monitors used for these measurements were RION model NL-52 Type 1 integrating sound level meters. They placed noise monitors at two long-term continuous locations (L1 and L2), as well as three 15-minute spot locations (S1 through S3). Measurement Locations L1 and L2 were chosen to determine the noise levels generated by traffic on East Mozart Avenue vs. traffic on Highways 17 and 85, respectively. Short term measurement locations were chosen to determine how the noise level changed at the various property lines bordering the site. A summary of the long-term and short-term acoustical measurement locations are listed below in Table 1, and shown in the attached Figure 1.

The dominant noise source at the site is traffic from Highways 17 and 85. During our measurements, there was activity on site from West Valley Arborists' trucks currently occupying the space, as well as Geotech performing environmental measurements. These activities have been removed from our measurements.

Table 1: Existing Ambient Noise Measurements				
Monitor	Location	Height above grade	Date / Time	Measured Noise Levels
L1	Approximately 20 feet from the center of East Mozart Avenue	12-feet	25 to 27 June 2019	63 dB DNL
L2	Approximately 350 feet from the center of East Mozart Avenue, 710 feet from the centerline of Highway 17, and 870 feet from the centerline of Highway 85			60 dB DNL
S1L*	East Property Line: Approximately 920 feet from the centerline of Highway 17, and 755 feet from the centerline of Highway 85	5-feet	27 June 2019	58 dB DNL
S1H*		16-feet	3:45 – 4:00 pm	59 dB DNL
S2L*	North Property Line: Approximately 800 feet from the centerline of Highway 17, and 915 feet from the centerline of Highway 85	5-feet	27 June 2019	53 dB DNL
S2H*		16-feet	4:11-4:24 pm	60 dB DNL
S3L*	West Property Line: Approximately 600 feet from the centerline of Highway 17, and 830 feet from the centerline of Highway 85	5-feet	27 June 2019	52 dB DNL
S3H*		16-feet	4:35-4:50 pm	56 dB DNL

*Calculated using 15-minute offsets from the long-term monitors

The air conditioners in each lot will generate sound power levels of approximately 72 dB₅ each, and are shielded by 6-foot tall wooden fencing around each lot's perimeter. Including a sound power to sound pressure conversion factor of 15 dB₆ at 7 feet, the estimated noise level due to these heat pumps is 57 dB at the nearest property planes, 7 feet to the south (commercial), and 7 feet to the north (residential). This is not expected to result in a substantial permanent increase in ambient noise levels and complies with the City of Campbell exterior Noise Ordinance of not exceeding 65 dBA.

PROJECT GENERATED NOISE

Mechanical Noise

The air conditioners in each lot will generate sound power levels of approximately 72 dB₅ each, and are shielded by 6-foot tall wooden fencing around each lot's perimeter. Including a sound power to sound pressure conversion factor of 15 dB₆ at 7 feet, the estimated noise level due to these heat pumps is 57 dB at the nearest property planes, 7 feet to the south (commercial), and 7 feet to the north (residential). This is not expected to result in a substantial permanent increase in ambient noise levels and complies with the City of Campbell exterior Noise Ordinance of not exceeding 65 dBA.

Construction Noise

The construction phasing of the job will include demolition, site preparation, excavating and grading, building construction, paving, and architectural coating. Construction equipment could include tractors, loaders, and backhoes during demolition and site preparation, excavators during demolition, excavation, and grading, a rubber tired dozer and scraper during excavation and grading, large equipment such as lifts, saws, and pumps during building construction, and surfacing and paving equipment during paving.

Due to the close proximity of adjacent properties, construction noise may be audible and create temporary increase in noise levels. The construction noise requirements provided in **Mitigation Measure NOI-1** should be implemented to reduce this noise at nearby sensitive receivers.

Project-Generated Traffic Noise

The project traffic study indicates that up to 27 new PM peak hour trips will be generated by the project. This corresponds to a DNL of approximately 51 dBA at a distance of 20-feet from the roadway centerline⁷. Existing measured noise levels along E Mozart Avenue at a similar setback are 63 dBA, which is significantly higher. Therefore, project generated traffic noise would not result in a significant increase as compared to existing conditions.

PROJECT NOISE EXPOSURE

Interior Noise

Based on the Progress Plans dated 8 July 2019, which show floor plans and the proposed building elevations, and the Site Plan dated 25 June 2019, interior noise levels may exceed the State Building Code and City of Campbell General Plan requirements. To reduce interior noise levels to meet these requirements, **Mitigation Measure NOI-2** should be implemented.

Exterior Noise

The City of Campbell General Plan policies state that exterior noise levels are to be reduced to CNEL 60 dB at primary outdoor-use areas. Where the outdoor-use areas are completely shielded acoustically from the roadways by the building structures, we estimate that noise levels will be at or below CNEL 60 dB.

The project includes an outdoor activity area and tot lot in the middle of the project, which would be considered a “noise sensitive outdoor activity area” per the City’s General Plan. Noise levels at this area are expected to DNL 60 dB or below and no further mitigation is needed.

(e-f) – No Impact: The project is not located within the vicinity of an airport land use plan or within two miles of an airport. The project is not located within the vicinity of a private airstrip.

Mitigation Measure(s): The following mitigation measures shall be incorporated into the project approval:

Mitigation Measure NOI-1: The following measures shall be implemented during construction and demolition activity:

1. **Schedule:** Per section 18.04.052 of the City Municipal Code, construction is limited to between the hours of 8am and 5pm, Monday through Friday, and between 9am and 4pm on Saturdays. Demolition and loud activities should be limited to Monday through Friday.
2. **Site Perimeter Barriers:** If determined necessary by the Community Development Director upon resident complaints of excessive construction noise, the applicant shall provide sound-rated barriers should be constructed around the northwest and northeast property lines, as shown in Figure 1. This would include 8-ft tall barrier constructed with either two layers of ½-

inch thick plywood (joints staggered) and K-rail or other support; or a limp mass barrier material weighing two pounds per square foot such as Kinetics KNM-200B or equivalent. The construction team should work closely with the neighboring residences to monitor any noise complaints received, and incorporate additional measures as feasible on a case by case basis.

3. **Stationary Equipment Local Barriers:** If determined necessary by the Community Development Director upon resident complaints of excessive construction noise, the applicant shall install localized barriers around stationary equipment such as air compressors that break line-of-sight to neighboring properties.
4. **Generators:** Locate generators far away from noise-sensitive receivers, as feasible. If necessary, generator noise could be reduced by providing sound-rated enclosures and exhaust mufflers or by providing a local noise barrier.
5. **Construction Equipment:** Where necessary, provide exhaust mufflers on pneumatic tools. All equipment should be properly maintained.
6. **Truck Traffic:** Minimize truck idling and require trucks to load and unload materials in the construction areas, as opposed to idling on local streets. If truck staging is required, locate the staging area along major roadways with higher traffic noise levels or away from the noise-sensitive receivers such as East Mozart Avenue. Trucks should be shut off when waiting to enter the site.
1. **Methods:** Consider means to reduce the use of heavy impact tools and locate these activities away from the property line as feasible. Other methods, including drilling, could be employed if noise levels are found to be excessive.
2. **Notification and Confirmation:** Notify neighbors of extreme noise generating activities including the estimated duration of the activity, construction hours, and contact information.

Mitigation Measure NOI-2: The following measures shall be implemented in the construction drawings submitted for a building permit:

Window and exterior door STC3 ratings needed to meet the interior DNL 45 dB criteria should be as shown in Figures 2 through 4. Our calculations are based on the following assumptions:

- All rooms will have hard-surfaced flooring
- Ceilings will be minimum 8-feet high throughout the residences
- Exterior walls will be equivalent to 3-coat stucco over wood sheathing, wood studs with batt insulation in stud cavities, with at least 1 layer of gypsum board on the interior (approximately STC 45).

STC ratings for selected assemblies should be based on laboratory testing performed in accordance with ASTM E-90 and comprise the entire window or door assembly, including the frame. If non-tested assemblies are to be used, an acoustical consultant must review the glazing and frame

submittals, and the STC rating of the glass may need to be increased. For reference purposes, a typical one-inch insulated, dual-pane window achieves an STC rating of approximately 28 to 30. Where STC ratings above STC 34 are required, typically at least one pane will need to be laminated, however, this depends on the specific window manufacturer.

Because windows must be closed to achieve the interior noise criteria, an alternate means of providing outside air (e.g., fresh-air exchange units, HVAC, Z-ducts, etc.) to habitable residential spaces should be considered for building facades exposed to an exterior DNL of 60 dB or greater. Operable windows are still acceptable provided they are not being relied upon to provide fresh air to the units. This applies to all facades.

14. POPULATION AND HOUSING

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(a)	Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, 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?	☐	☐	☐	☒

(a) – No Impact: The project will result in the construction of 25 single-family residential units and five accessory dwelling units on a property identified by the Campbell General Plan Housing Element as being suitable and appropriate for housing. The introduction of 25 single-family residences and five accessory dwelling units in a predominantly developed residential neighborhood represents only a nominal increase of population growth. There is no foreseeable indirect population growth associated with the project. The infrastructure provided to service the project site is designed to serve only the proposed residential units.

(b-c) – No Impact: The project will require the demolition of the existing residences that have been mostly vacated, and therefore will not result in the displacement of a substantial number of people or housing units, which would necessitate the construction of replacement housing elsewhere.

Mitigation Measure(s): None Required.

15. PUBLIC SERVICES

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(a)	Would the project result in substantial adverse physical impacts associated with the provision of or 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 public services:				
	i) Fire Protection?	☐	☐	☒	☐
	ii) Police Protection?	☐	☐	☒	☐
	iii) Schools?	☐	☐	☒	☐
	iv) Parks?	☐	☐	☒	☐
	v) Other public facilities?	☐	☐	☒	☐

(a) – Less than Significant Impact: The project will require public services such as fire, police services, schools, open space, and street maintenance, commensurate with the scale of the project. The County Fire District, Campbell Police Department, City stakeholder agencies, and area school districts reviewed the project and determined services could be provided at an acceptable level. Existing parkland is sufficient to serve the residents of the project, as discussed in Section 15 (Recreation) and the developer will be required to pay park fees for the creation of new residential units less a credit for the removal existing units.

Mitigation Measure(s): None Required.

16. RECREATION

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(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?	☐	☐	☐	☒

(a) – Less than Significant Impact: The project would provide private yards for all but one of the proposed new residences. Additionally, 11,500 square-feet of shared open space would be provided within the community. As such, the new residents would be unlikely to use existing regional or neighborhood recreational areas to such an extent that substantial physical deterioration of those facilities would occur.

(b) – No Impact: As noted, the project includes on-site recreational facilities. However, these facilities have been fully incorporated into the review of the project and present no possibility to create an adverse physical effect on the environment.

Mitigation Measure(s): None Required.

17. TRANSPORTATION

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(a)	Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
(b)	Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☒	☐	☒
(c)	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
(d)	Result in inadequate emergency access?	☐	☐	☐	☒

The following discussion is excerpted in part from Traffic Impact Analysis (TIA) Report prepared by the TJKM, dated August 20, 2020 for this project (reference **Attachment 11**).

(a) – No Impact: The project site is not in vicinity of any light-rail or comparable bus rapid transit (BRT) line and as a result is not subject to City policies encouraging alternative transporting solutions (e.g., provision of transit-passes, incorporation of bicycle parking, etc.). Additionally, the City’s adopted requirements for alternative transportation solutions per CMC Sec. 21.28.070 require provision bicycle and clean-air vehicle parking only for non-residential development subject to the Green Building Standards Code (CALGreen). The project, therefore, will not conflict with adopted policies, plans, or programs supporting alternative transportation.

(b) – Less than Significant Impact with Mitigation: Compliance with Senate Bill (SB) 743 will include replacement of LOS with Vehicle Miles Traveled (VMT) for purposes of assessing traffic impacts under CEQA beginning in July 2020. Compliance with Senate Bill (SB) 743 will include replacement of LOS with VMT for purposes of assessing traffic impacts under CEQA described in new Section 15064.3 of the CEQA Guidelines that will be apply statewide beginning on July 1, 2020. Lead agencies will have discretion to choose the most appropriate methodology to evaluate a project’s vehicles miles traveled, including whether to express the change in absolute terms, per capita, per household or any other measure. VMT refers to the amount and distance of automobile travel “attributable to a project”.

The City of Campbell has a draft VMT Policy to comply with SB 743. For residential land use projects, “a proposed project exceeding a level of 15 percent below the existing Campbell citywide average VMT per Capita shall be presumed to cause a significant transportation impact.” TJKM utilized the draft Campbell VMT Policy and determined that the project would require mitigation measures to lessen the significance of these impacts.

In the opinion of TJKM, implementation of the measures contained in **Mitigation Measure TRAN-1** would substantially lessen the significant VMT impacts associated with this project.

(c) – No Impact: The proposed private roadway is designed consistent with public roadway standards for residential streets as determined by the County Fire District and would not result in hazards due to a design features or incompatible uses. Further, a signal warrant analysis was conducted to determine if the project would require installation of a new traffic signal at the Mozart/Bascom intersection. The results of the peak hour signal warrant under Existing Plus Project Conditions are summarized in Table

5, below. The results show that the intersection of E. Mozart Avenue/Bascom Avenue does not meet the peak hour warrant in the AM or PM peak hour.

Table 5: Existing Plus Project Conditions Signal Warrant Analysis

Intersection	Control	Existing Conditions		Existing Plus Project Conditions	
		Meets AM Peak Hour?	Meets PM Peak Hour?	Meets AM Peak Hour?	Meets PM Peak Hour?
E. Mozart Avenue/Bascom Avenue	One-Way Stop	No	No	No	No

(d) – No Impact: The project has been designed to comply with emergency access requirements of the Santa Clara Fire Department. The project plans include an emergency vehicle access plan that illustrates compliance with said standards. The County Fire Department has reviewed the project during the City’s department review committee process and will again review the access routes during review of construction drawings.

Mitigation Measure(s): The following mitigation measure shall be incorporated into the project approval:

Mitigation Measure TRAN-1: To substantially lessen VMT impacts caused by the proposed project, the following mitigations can be implemented.

1. Wayfinding Signs – Install wayfinding signs at E. Mozart Avenue/Bascom Avenue, at the west end of the Mozart Avenue cul-de-sac, and at the foot of the pedestrian-bicycle overpass. These signs would familiarize potential users with the existing pedestrian/bicycle network.
2. Bike Route Signs and Sharrows – Designate E. Mozart Avenue as a bike route and install signs and sharrows. These installations will close the gap between the existing bike lanes along Bascom Avenue and the pedestrian-bicycle overpass.
3. Sidewalks – Install sidewalks along the project frontage to close the existing gap on Mozart Avenue. This will promote walking by project residents and others.
4. Bus Shelter – Install a bus shelter at the bus stop along Bascom Avenue across from E. Mozart Avenue. This is subject to VTA approval but is consistent with VTA’s Bascom Avenue Complete Streets Study. This will encourage new residents and others to use public transit by providing a bench and shade.
5. VTA Transit Passes – Provide introductory VTA Transit Passes to project residents. This can be administered by the Homeowner’s Association (HOA). Providing VTA transit passes is intended to encourage residents to try transit and build a habit.
6. Fair Share Contribution – Contribute fair share funding to recently constructed bicycle and pedestrian improvements including the bike lanes on Bascom Avenue between Camden Avenue and SR 85 and ADA-compliant curb ramp upgrades between Camden Avenue and SR 85.

18. TRIBAL CULTURAL RESOURCES

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(a)	Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
	i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k) , or	☐	☒	☐	☐
	ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.				

(a) – Less than Significant Impact with Mitigation: As discussed in the Phase I Environmental Site Assessment (reference **Attachment 7**) the subject property consists of five single-family residences, and that based on historic aerial photography the subject property was historically used for agricultural purposes (orchard).

The project is not listed or eligible for listing in the California Register of Historical Resources, or in a local register of historic resources, in that: 1) the property is not known to be associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of the California; 2) is not known to be associated with the lives of persons important to local, California, or national history; 3) does not embody distinctive characteristics of type, period, region or method of construction or is known to be representative of the work of a master or possesses high artistic value; and 4) is not known to have yielded, or have the potential to yield important prehistory or history of the local area, California or the nation. In the event any archaeological, paleontological resources, or human burial or skeletal element are encountered during excavation or construction **Mitigation Measures CUL-1 and CUL-2** will reduce any potential impact to a prehistory or historical resource to the area (or California Native American Tribe) to a less than significant level.

19. UTILITIES and SERVICE SYSTEMS

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>					
(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 or collection facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
(c)	Require or result in the construction of new storm water 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 which 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 insufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
(g)	Comply with federal, state, and local statutes and regulations related to solid wastes.	☐	☐	☒	☐

(a-b) – Less than Significant Impact: The project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board; require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities. The West Valley Sanitation District has provided written correspondence (“will serve” letter) which indicates that the sewer facilities are adequate to support the site.

(c) – Less than Significant Impact: The stormwater runoff generated by the project site would be collected and treated on-site in compliance with Provision C.3 of the National Pollution Discharge Elimination System (NPDES) requirements as discussed in Section 10 (Hydrology and Water Quality) and will not require expansion or construction of new stormwater treatment facilities.

(d) – Less than Significant Impact: The project will be adequately served by the existing water supplies, as confirmed in written correspondence (“will serve” letter) by San Jose Water Company, the local area water utility (reference **Attachment 8**).

(e) – Less than Significant Impact: The project would connect to the existing waste water treatment system, which currently has sufficient capacity to receive the additional waste water generated from the proposed project. Therefore, the project would not impact the ability of the waste water treatment provider (West Valley Sanitation District) to meet its current commitments for service.

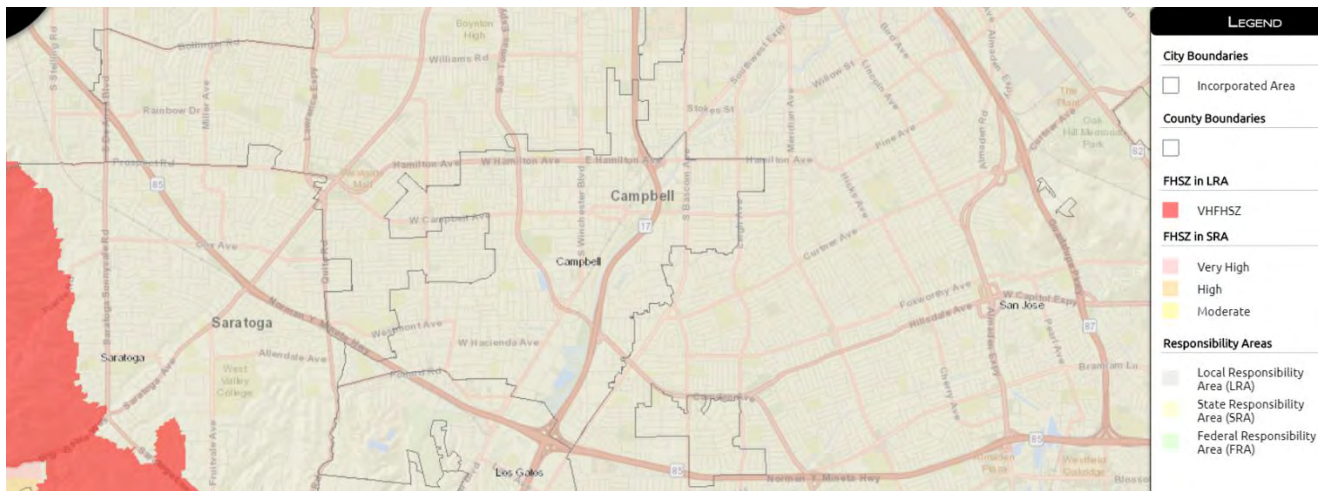
(f-g) – Less than Significant Impact: Existing capacity at local landfills can accommodate the amount of waste generated as a result of project operation. The project would comply with Federal, State and local statutes and regulations related to solid waste.

Mitigation Measure(s): None Required.

20. WILDFIRE

Issues <i>If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:</i>		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
(b)	Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
(c)	Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
(d)	Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

(a-d) – No Impact: Not applicable. The entire City of Campbell, including the project site, is not located or near state responsibility areas or lands classified as a very high fire hazard severity zone as identified on the California Department of Forestry and Fire Protection's Fire and Resource Assessment Program (FRAP) map. Further, the City of Campbell has not adopted a local ordinance establishing a very high fire hazard severity zone.



Mitigation Measure(s): None Required.

21. MANDATORY FINDINGS OF SIGNIFICANCE

Issues		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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 a rare or endangered plant or animal 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 which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

(a) – Less than Significant Impact: Based on the findings of the Initial Study, construction and operation of the project, with mitigation, would not substantially degrade the quality the environment; reduce the habitat, population, or range of species; nor eliminate important examples of California history or prehistory.

(b) – Less than Significant Impact: Based on the findings of this Initial Study, the project would not have individual or cumulative environmental impacts that cannot be mitigated to a less than significant level.

(c) – Less than Significant Impact: Based on the findings of the Initial Study, there is no evidence to demonstrate that the project would cause a substantial adverse effect on human beings, either directly or indirectly.

Mitigation Measure(s): None Required.

III. SUMMARY OF MITIGATION MEASURES

1. **Aesthetics:** None Required.
2. **Agricultural Resources:** None Required.
3. **Air Quality:** Two mitigation measures are required:

Mitigation Measure AQ-1: The project applicant shall ensure that construction plans include the BAAQMD Best Management Practices for fugitive dust control. The following will be required for all construction activities within the project area. These measures will reduce fugitive dust emissions primarily during soil movement, grading and demolition activities, but also during vehicle and equipment movement on unpaved project sites:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
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 streets, 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 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 mechanic and determined to be running in proper condition prior to operation.
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. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure AQ-2: The project applicant shall ensure that construction contract specifications include a requirement that all off-road diesel-powered construction equipment used for project improvements be equipped with Tier 4 final engines.

4. **Biological Resources:** Three mitigation measures are required:

Mitigation Measure BIO-1: Vegetation removal and initial ground-disturbing activities should occur outside the nesting season, which generally occurs from February through August, to avoid potential impacts to nesting birds. This would ensure that no active nests would be disturbed and that habitat removal could proceed rapidly. If vegetation removal and initial ground-disturbing activities occur during the nesting season, all suitable habitat should be thoroughly surveyed by a qualified biologist for the presence of nesting birds before commencement of clearing. If any active nests are detected, a buffer of at least 100 feet (300 feet for raptors) should be delineated, flagged, and avoided until the nesting cycle is complete as determined by a qualified biologist.

Mitigation Measure BIO-2: To the extent practicable, site demolition should occur outside peak bat activity timeframes when young or overwintering bats may be present, which generally occurs from March through April and August through October, to ensure protection of potentially occurring bats and their roosts on the project site. Additionally, daily restrictions on the timing of any construction activities should be limited to daylight hours to reduce disturbance to roosting (and foraging) bat species. Additionally, a pre-demolition bat survey should be conducted within 30 days of the removal of any structures/buildings or trees. The survey should include a determination on whether active bat roosts are present on or within 50 feet of the project site. If a non-breeding and non-wintering bat colony is found, the individuals shall be evicted under the direction of a qualified biologist to ensure their protection and avoid unnecessary harm. If a maternity colony or overwintering colony is found in the buildings or trees on the project site, then the qualified biologist shall establish a suitable construction-free buffer around the location. The construction-free buffer shall remain in place until the qualified biologist determines that the nursery is no longer active.

Mitigation Measure BIO-3: Construction drawings submitted for building and grading permits, as well as all demolition, grading, and construction activity, shall conform to the tree protection recommendations specified by the 16179 E. Mozart Tree Assessment, dated September 7, 2020, prepared by Walter Levison. Conformance with the specified recommendations during demolition, grading, and construction activities shall be the obligation of the applicant's project arborist (PA). The applicant shall sign a mitigation agreement with the City confirming the role of its PA prior to issuance of any permits.

Review of construction drawings for compliance with the specified recommendations shall be performed by the City's consulting arborist at the applicant's sole cost (to be paid for in advance prior to submittal of permit applications). The Community Development Director may also direct the City's consulting arborist to perform independent monitoring of demolition, grading, and construction activity (to be paid for in advance by the applicant).

5. **Cultural Resources:** Two mitigation measures are required:

Mitigation Measure CUL-1: If archaeological or paleontological resources are encountered during excavation or construction, construction personnel shall be instructed to immediately suspend all activity in the immediate vicinity of the suspected resources and the City and a licensed archeologist or paleontologist shall be contacted to evaluate the situation. A licensed archeologist or paleontologist shall be retained to inspect the discovery and make any necessary recommendations to evaluate the find under current CEQA guidelines prior to the

submittal of a resource mitigation plan and monitoring program to the City for review and approval prior to the continuation of any on-site construction activity.

Mitigation Measure CUL-2: In the event a human burial or skeletal element is identified during excavation or construction, work in that location shall stop immediately until the find can be properly treated. The City and the Santa Clara County Coroner's office shall be notified. If deemed prehistoric, the Coroner's office would notify the Native American Heritage Commission who would identify a "Most Likely Descendant (MLD)." The archeological consultant and MLD, in conjunction with the project sponsor, shall formulate an appropriate treatment plan for the find, which might include, but not be limited to, respectful scientific recording and removal, being left in place, removal and reburial on site, or elsewhere. Associated grave goods are to be treated in the same manner.

6. Energy: None Required.

7. Geology and Soils: One mitigation measure is required:

Mitigation Measure GEO-1: The applicant shall comply with the recommendations in the Geotechnical Investigation Residential Development, dated December 10, 2019, prepared by Geo-Logic Associates dba Pacific Geotechnical Engineering. Such recommendations shall be incorporated into the project's final engineering design to prevent ponding of water in or near the building, ensure the conveyance of storm water away from the building, and avoid the saturation of foundation soils. The project shall use standard engineering techniques and conform to the requirements of the International Building Code to reduce the potential for seismic damage and risk to future occupants.

8. Greenhouse Gas Emissions: None Required.

9. Hazards and Hazardous Materials: One mitigation measure is required:

Mitigation Measure HAZ-1: Prior to issuance of a Grading Permit, the applicant shall furnish written confirmation from the Santa Clara County Department of Environmental Health that it has approved and will oversee implementation of the draft Soil Management Plan, prepared by Ramboll US Corporation, dated June 23, 2020.

10. Hydrology and Water Quality: None Required.

11. Land Use and Planning: None Required.

12. Mineral Resources: None Required.

13. Noise: Two mitigation measures are required:

Mitigation Measure NOI-1: The following measures shall be implemented during construction and demolition activity:

1. **Schedule:** Per section 18.04.052 of the City Municipal Code, construction is limited to between the hours of 8am and 5pm, Monday through Friday, and between 9am and 4pm on Saturdays. Demolition and loud activities should be limited to Monday through Friday.

2. **Site Perimeter Barriers:** If determined necessary by the Community Development Director upon resident complaints of excessive construction noise, the applicant shall provide sound-rated barriers should be constructed around the northwest and northeast property lines, as shown in Figure 1. This would include 8-ft tall barrier constructed with either two layers of ½-inch thick plywood (joints staggered) and K-rail or other support; or a limp mass barrier material weighing two pounds per square foot such as Kinetics KNM-200B or equivalent. The construction team should work closely with the neighboring residences to monitor any noise complaints received, and incorporate additional measures as feasible on a case by case basis.
3. **Stationary Equipment Local Barriers:** If determined necessary by the Community Development Director upon resident complaints of excessive construction noise, the applicant shall install localized barriers around stationary equipment such as air compressors that break line-of-sight to neighboring properties.
4. **Generators:** Locate generators far away from noise-sensitive receivers, as feasible. If necessary, generator noise could be reduced by providing sound-rated enclosures and exhaust mufflers or by providing a local noise barrier.
5. **Construction Equipment:** Where necessary, provide exhaust mufflers on pneumatic tools. All equipment should be properly maintained.
6. **Truck Traffic:** Minimize truck idling and require trucks to load and unload materials in the construction areas, as opposed to idling on local streets. If truck staging is required, locate the staging area along major roadways with higher traffic noise levels or away from the noise-sensitive receivers such as East Mozart Avenue. Trucks should be shut off when waiting to enter the site.
7. **Methods:** Consider means to reduce the use of heavy impact tools and locate these activities away from the property line as feasible. Other methods, including drilling, could be employed if noise levels are found to be excessive.
8. **Notification and Confirmation:** Notify neighbors of extreme noise generating activities including the estimated duration of the activity, construction hours, and contact information.

Mitigation Measure NOI-2: The following measures shall be implemented in the construction drawings submitted for a building permit:

Window and exterior door STC3 ratings needed to meet the interior DNL 45 dB criteria should be as shown in Figures 2 through 4. Our calculations are based on the following assumptions:

- All rooms will have hard-surfaced flooring
- Ceilings will be minimum 8-feet high throughout the residences

- Exterior walls will be equivalent to 3-coat stucco over wood sheathing, wood studs with batt insulation in stud cavities, with at least 1 layer of gypsum board on the interior (approximately STC 45).

STC ratings for selected assemblies should be based on laboratory testing performed in accordance with ASTM E-90 and comprise the entire window or door assembly, including the frame. If non-tested assemblies are to be used, an acoustical consultant must review the glazing and frame submittals, and the STC rating of the glass may need to be increased. For reference purposes, a typical one-inch insulated, dual-pane window achieves an STC rating of approximately 28 to 30. Where STC ratings above STC 34 are required, typically at least one pane will need to be laminated, however, this depends on the specific window manufacturer.

Because windows must be closed to achieve the interior noise criteria, an alternate means of providing outside air (e.g., fresh-air exchange units, HVAC, Z-ducts, etc.) to habitable residential spaces should be considered for building facades exposed to an exterior DNL of 60 dB or greater. Operable windows are still acceptable provided they are not being relied upon to provide fresh air to the units. This applies to all facades.

14. Population and Housing: None Required.

15. Public Services: None Required.

16. Recreation: None Required.

17. Transportation: One mitigation measure is required:

Mitigation Measure TRAN-1: To substantially lessen VMT impacts caused by the proposed project, the following mitigations can be implemented.

1. Wayfinding Signs – Install wayfinding signs at E. Mozart Avenue/Bascom Avenue, at the west end of the Mozart Avenue cul-de-sac, and at the foot of the pedestrian-bicycle overpass. These signs would familiarize potential users with the existing pedestrian/bicycle network.
2. Bike Route Signs and Sharrows – Designate E. Mozart Avenue as a bike route and install signs and sharrows. These installations will close the gap between the existing bike lanes along Bascom Avenue and the pedestrian-bicycle overpass.
3. Sidewalks – Install sidewalks along the project frontage to close the existing gap on Mozart Avenue. This will promote walking by project residents and others.
4. Bus Shelter – Install a bus shelter at the bus stop along Bascom Avenue across from E. Mozart Avenue. This is subject to VTA approval but is consistent with VTA's Bascom Avenue Complete Streets Study. This will encourage new residents and others to use public transit by providing a bench and shade.
5. VTA Transit Passes – Provide introductory VTA Transit Passes to project residents. This can be administered by the Homeowner's Association (HOA). Providing VTA transit passes is intended to encourage residents to try transit and build a habit.

6. Fair Share Contribution – Contribute fair share funding to recently constructed bicycle and pedestrian improvements including the bike lanes on Bascom Avenue between Camden Avenue and SR 85 and ADA-compliant curb ramp upgrades between Camden Avenue and SR 85.

18. Tribal Cultural Resources: Reference *Mitigation Measure CUL-1* and *CUL-2*.

19. Utility and Service Systems: None Required.

20. Wildfire: None Required.

21. Mandatory Findings of Significance: None Required.

Determination: On the basis of this initial evaluation, and incorporation of the recommended mitigation measures into the project design:

1.	I find that the project could not have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	☐
2.	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.	☒
3.	I find the proposed project may have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	☐
4.	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.	☐
5.	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.	☐

Daniel Fama
PROJECT PLANNER

Senior Planner
TITLE

City of Campbell
AGENCY



SIGNATURE

September 14, 2020
DATE

Encl: Mitigation Monitoring and Reporting Program



CITY OF CAMPBELL
Community Development Department

MITIGATION MONITORING AND REPORTING PROGRAM
East Mozart Avenue Planned Development Subdivision

Mitigation Measure	Monitoring Phase	Enforcement Agency	Monitoring Agency	Action Indicating Compliance	Verification of Compliance		
					Initials	Date	Remarks
Air Quality - AIR							
Mitigation Measure AQ-1: Include measures to control dust and exhaust during construction: During any construction period ground disturbance, the applicant shall ensure that the project contractor implement measures to control dust and exhaust. Implementation of the measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less-than-significant level. Additional measures are identified to reduce construction equipment exhaust emissions. The contractor shall implement the following best management practices that are required of all projects: 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. 2. All haul trucks transporting soil, sand, or other loose	Site Preparation and Construction	City of Campbell	Public Works Department and Building Division	Periodic Compliance Report			

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 miles per hour (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 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 mechanic and determined to be running in proper condition prior to operation. 8. Post a publicly visible sign 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 Air District's phone number shall also be visible to ensure compliance with applicable regulations.							
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Mitigation Measure AQ-2: Selection of equipment during construction to minimize emissions. Such equipment selection would include the following: The project shall develop a plan demonstrating that the off-road equipment used on-site to construct the project would achieve a fleet-wide average 85-percent reduction in DPM exhaust emissions or greater. Specifically, all diesel-powered off-road equipment, larger than 25 horsepower, operating on the site for more than two days continuously shall, at a minimum, meet U.S. EPA NO_x and particulate matter emissions standards for Tier 3 engines and this equipment shall include CARB-certified Level 3 Diesel Particulate Filters⁹ or equivalent. Equipment that meets U.S. EPA Tier 4 interim standards or use of equipment that is electrically powered or uses non-diesel fuels would meet this requirement.							
Biological Resources – BIO							
Mitigation Measure BIO-1: Vegetation removal and initial ground-disturbing activities should occur outside the nesting season, which generally occurs from February through August, to avoid potential impacts to nesting birds. This would ensure that no active nests would be disturbed and that habitat removal could proceed rapidly. If vegetation removal and initial ground-disturbing activities occur during the nesting season, all suitable habitat should be thoroughly surveyed by a qualified biologist for the presence of nesting birds before commencement of clearing. If any active nests are detected, a buffer of at least 100 feet (300 feet for raptors) should be delineated, flagged, and avoided until the nesting cycle is complete as determined by a qualified biologist. activity timeframes when young or overwintering bats may be present, which generally occurs from March through April	Site Preparation and Construction	City of Campbell	Planning Division	Periodic Compliance Report			

and August through October, to ensure protection of potentially occurring bats and their roosts on the project site. Additionally, daily restrictions on the timing of any construction activities should be limited to daylight hours to reduce disturbance to roosting (and foraging) bat species. Additionally, a pre-demolition bat survey should be conducted within 30 days of the removal of any structures/buildings or trees. The survey should include a determination on whether active bat roosts are present on or within 50 feet of the project site. If a non-breeding and non-wintering bat colony is found, the individuals shall be evicted under the direction of a qualified biologist to ensure their protection and avoid unnecessary harm. If a maternity colony or overwintering colony is found in the buildings or trees on the project site, then the qualified biologist shall establish a suitable construction-free buffer around the location. The construction-free buffer shall remain in place until the qualified biologist determines that the nursery is no longer active.

Mitigation Measure BIO-3: Construction drawings submitted for building and grading permits, as well as all demolition, grading, and construction activity, shall conform to the tree protection recommendations specified by the 16179 E. Mozart Tree Assessment, dated September 7, 2020, prepared by Walter Levison. Conformance with the specified recommendations during demolition, grading, and construction activities shall be the obligation of the applicant's project arborist (PA). The applicant shall sign a mitigation agreement with the City confirming the role of its PA prior to issuance of any permits.

Review of construction drawings for compliance with the specified recommendations shall be performed by the City's consulting arborist at the applicant's sole cost (to be paid for in advanced prior to submittal of permit applications). The

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Community Development Director may also direct the City's consulting arborist to perform independent monitoring of demolition, grading, and construction activity (to be paid for in advance by the applicant).							
Cultural Resources – CUL							
Mitigation Measure CUL-1: If archaeological or paleontological resources are encountered during excavation or construction, construction personnel shall be instructed to immediately suspend all activity in the immediate vicinity of the suspected resources and the City and a licensed archeologist or paleontologist shall be contacted to evaluate the situation. A licensed archeologist or paleontologist shall be retained to inspect the discovery and make any necessary recommendations to evaluate the find under current CEQA guidelines prior to the submittal of a resource mitigation plan and monitoring program to the City for review and approval prior to the continuation of any on-site construction activity. Mitigation Measure CUL-2: In the event a human burial or skeletal element is identified during excavation or construction, work in that location shall stop immediately until the find can be properly treated. The City and the Santa Clara County Coroner's office shall be notified. If deemed prehistoric, the Coroner's office would notify the Native American Heritage Commission who would identify a "Most Likely Descendant (MLD)." The archeological consultant and MLD, in conjunction with the project sponsor, shall formulate an appropriate treatment plan for the find, which might include, but not be limited to, respectful scientific recording and removal, being left in place, removal and reburial on site, or elsewhere. Associated grave goods are to be treated in the same manner.	Site Preparation and Construction	City of Campbell	Planning Division	Periodic Compliance Report			

Geology and Soils – GEO

Mitigation Measure GEO-1: The applicant shall comply with the recommendations in the Geotechnical Investigation Residential Development, dated December 10, 2019, prepared by Geo-Logic Associates dba Pacific Geotechnical Engineering. Such recommendations shall be incorporated into the project's final engineering design to prevent ponding of water in or near the building, ensure the conveyance of storm water away from the building, and avoid the saturation of foundation soils. The project shall use standard engineering techniques and conform to the requirements of the International Building Code to reduce the potential for seismic damage and risk to future occupants.

Site
Preparation
and
Construction

City of
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Building
Division

Periodic
Compliance
Report

Hazards and Hazardous Materials - HAZ

Mitigation Measure HAZ-1: Prior to issuance of a Grading Permit, the applicant shall furnish written confirmation from the Santa Clara County Department of Environmental Health that it has approved and will oversee implementation of the draft Soil Management Plan, prepared by Ramboll US Corporation, dated June 23, 2020.

Prior to
Issuance of
Demolition
Permit

City of
Campbell

Planning
Division

Written
confirmation
from SCC
Environmental
Health

Noise - NOI

Mitigation Measure NOI-1: The following measures shall be implemented during construction and demolition activity:

- Schedule:** Per section 18.04.052 of the City Municipal Code, construction is limited to between the hours of 8am and 5pm, Monday through Friday, and between 9am and 4pm on Saturdays. Demolition and loud activities should be limited to Monday through Friday.

Prior to
Issuance of
Building
Permit and
during
construction

City of
Campbell

Building
and
Planning
Divisions

Assessment
Report by
Structural
Engineer or
Compliance
Statement by
Acoustical
Consultant

2. Site Perimeter Barriers: If determined necessary by the Community Development Director upon resident complaints of excessive construction noise, the applicant shall provide sound-rated barriers should be constructed around the northwest and northeast property lines, as shown in Figure 1. This would include 8-ft tall barrier constructed with either two layers of ½-inch thick plywood (joints staggered) and K-rail or other support; or a limp mass barrier material weighing two pounds per square foot such as Kinetics KNM-200B or equivalent. The construction team should work closely with the neighboring residences to monitor any noise complaints received, and incorporate additional measures as feasible on a case by case basis. 3. Stationary Equipment Local Barriers: If determined necessary by the Community Development Director upon resident complaints of excessive construction noise, the applicant shall install localized barriers around stationary equipment such as air compressors that break line-of-sight to neighboring properties. 4. Generators: Locate generators far away from noise-sensitive receivers, as feasible. If necessary, generator noise could be reduced by providing sound-rated enclosures and exhaust mufflers or by providing a local noise barrier. 5. Construction Equipment: Where necessary, provide exhaust mufflers on pneumatic tools. All equipment should be properly maintained. 6. Truck Traffic: Minimize truck idling and require trucks to load and unload materials in the construction areas, as opposed to idling on local streets. If truck staging is							
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required, locate the staging area along major roadways with higher traffic noise levels or away from the noise-sensitive receivers such as East Mozart Avenue. Trucks should be shut off when waiting to enter the site. 7. Methods: Consider means to reduce the use of heavy impact tools and locate these activities away from the property line as feasible. Other methods, including drilling, could be employed if noise levels are found to be excessive. 8. Notification and Confirmation: Notify neighbors of extreme noise generating activities including the estimated duration of the activity, construction hours, and contact information. Mitigation Measure NOI-2: The following measures shall be implemented in the construction drawings submitted for a building permit: Window and exterior door STC3 ratings needed to meet the interior DNL 45 dB criteria should be as shown in Figures 2 through 4. Our calculations are based on the following assumptions: • All rooms will have hard-surfaced flooring • Ceilings will be minimum 8-feet high throughout the residences • Exterior walls will be equivalent to 3-coat stucco over wood sheathing, wood studs with batt insulation in stud cavities, with at least 1 layer of gypsum board on the interior (approximately STC 45).							
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STC ratings for selected assemblies should be based on laboratory testing performed in accordance with ASTM E-90 and comprise the entire window or door assembly, including the frame. If non-tested assemblies are to be used, an acoustical consultant must review the glazing and frame submittals, and the STC rating of the glass may need to be increased. For reference purposes, a typical one-inch insulated, dual-pane window achieves an STC rating of approximately 28 to 30. Where STC ratings above STC 34 are required, typically at least one pane will need to be laminated, however, this depends on the specific window manufacturer. Because windows must be closed to achieve the interior noise criteria, an alternate means of providing outside air (e.g., fresh-air exchange units, HVAC, Z-ducts, etc.) to habitable residential spaces should be considered for building facades exposed to an exterior DNL of 60 dB or greater. Operable windows are still acceptable provided they are not being relied upon to provide fresh air to the units. This applies to all facades.							
Transportation – TRAN							
Mitigation Measure TRAN-1: To substantially lessen VMT impacts caused by the proposed project, the following mitigations can be implemented. 1. Wayfinding Signs – Install wayfinding signs at E. Mozart Avenue/Bascom Avenue, at the west end of the Mozart Avenue cul-de-sac, and at the foot of the pedestrian-bicycle overpass. These signs would familiarize potential users with the existing pedestrian/bicycle network. 2. Bike Route Signs and Sharrows – Designate E.	Prior to permit issuance	Public Works Department and Planning Division	Public Works Department and Planning Division	Completion of a Street Improvement Plan			

Mozart Avenue as a bike route and install signs and sharrows. These installations will close the gap between the existing bike lanes along Bascom Avenue and the pedestrian-bicycle overpass. 3. Sidewalks – Install sidewalks along the project frontage to close the existing gap on Mozart Avenue. This will promote walking by project residents and others. 4. Bus Shelter – Install a bus shelter at the bus stop along Bascom Avenue across from E. Mozart Avenue. This is subject to VTA approval but is consistent with VTA’s Bascom Avenue Complete Streets Study. This will encourage new residents and others to use public transit by providing a bench and shade. 5. VTA Transit Passes – Provide introductory VTA Transit Passes to project residents. This can be administered by the Homeowner’s Association (HOA). Providing VTA transit passes is intended to encourage residents to try transit and build a habit. 6. Fair Share Contribution – Contribute fair share funding to recently constructed bicycle and pedestrian improvements including the bike lanes on Bascom Avenue between Camden Avenue and SR 85 and ADA-compliant curb ramp upgrades between Camden Avenue and SR 85.							
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IV. REFERENCE MATERIALS

Attachments (May be viewed at <http://www.ci.campbell.ca.us/Archive.aspx?AMID=48>):

1. Air Quality, Greenhouse Gases, and Health Risk Assessment, ESA, dated July 2019
2. Biological Resources Assessment, Dudek, dated March 2020
3. 16179 E. Mozart Tree Assessment, Walter Levison Consulting Arborist, dated September 7, 2020
4. Geotechnical Investigation, Geo-Logic Associates, dated December 10, 2019
5. Draft Soil Management Plan, Ramboll US Corporation, dated June 23, 2020
6. Regulatory Oversight and Proposed Remedial Activities, Ramboll US Corporation, dated March 4, 2020
7. Phase I Environmental Site Assessment and Shallow Soil Investigation, Ramboll US Corporation, January 2019
8. "Will Serve" Letters
9. Hydrology and Water Quality Analysis, Dudek, dated March 2020
10. Environmental Noise Study, Charles M. Salter Associates, dated September 9, 2020
11. Traffic Impact Analysis, TJKM, dated August 20, 2020

Reference Documents:

1. Bay Area Air Quality Management District (BAAQMD). (Adopted) April 19, 2017. Final 2017 Clean Air Plan (CAP).
2. Bay Area Air Quality Management District (BAAQMD). May 2017. California Environmental Quality Act Air Quality Guidelines. Table 2-1. Air Quality CEQA Thresholds of Significance. (Including Risk and Hazards for new sources and receptors).
3. Bay Area Air Quality Management District (BAAQMD). Accessed online in November 2017. Tools and Methodologies, BAAQMD CEQA Air Quality Risks and Hazards Analysis Tools. (various online risks and hazards screening analysis tools) (Primary Webpage [with links to various online screening tools]. <http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools> (accessed online).
4. Hazardous Waste & Substances Sites List. http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm (accessed online)
5. State Water Resources Control Board Geotracker data management system. <https://geotracker.waterboards.ca.gov/> (accessed online)
6. State Water Resource Control Board: <https://geotracker.waterboards.ca.gov/> (accessed online)
7. State of California, Seismic Hazard Zones Map, San Jose West Quadrangle, February 7, 2002. <http://www.conservation.ca.gov/cgs/shzp> (accessed online)

8. California Natural Diversity Database, 2000.
9. CEQA Guidelines, 2019 version. http://califaep.org/docs/CEQA_Handbook_2019.pdf
(accessed online)
10. City of Campbell General Plan.
11. City of Campbell Zoning Code.

ATTACHMENT 1

AIR QUALITY ASSESSMENT , GREENHOUSE GASES, AND HEALTH RISK ASSESSMENT

18145 MOZART AVENUE DEVELOPMENT CAMPBELL, SANTA CLARA COUNTY

Air Quality, Greenhouse Gases, and Health Risk Assessment

Prepared for
Robson Homes
2185 The Alameda
San Jose, CA 95126

July 2019



18145 MOZART AVENUE DEVELOPMENT CAMPBELL, SANTA CLARA COUNTY

Air Quality, Greenhouse Gases, and Health Risk Assessment

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2185 The Alameda
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180 Grand Avenue
Suite 1050
Oakland, CA 94612
510.839.5066
www.esassoc.com



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OUR COMMITMENT TO SUSTAINABILITY | ESA helps a variety of public and private sector clients plan and prepare for climate change and emerging regulations that limit GHG emissions. ESA is a registered assessor with the California Climate Action Registry, a Climate Leader, and founding reporter for the Climate Registry. ESA is also a corporate member of the U.S. Green Building Council and the Business Council on Climate Change (BC3). Internally, ESA has adopted a Sustainability Vision and Policy Statement and a plan to reduce waste and energy within our operations.

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CHAPTER 1

Introduction

Robson Homes (Applicant) is proposing to build up to twenty-five single family homes at 18145 Mozart Avenue (Project) in the City of Campbell (City), California. Environmental Science Associates (ESA) has been contracted by the Applicant to prepare this air quality, health risk, and greenhouse gas (GHG) assessment.

This report analyzes the air quality, health risk, and GHG impacts that would result from the construction and operation of the Project and provides mitigation measures to reduce any significant impacts. Supporting information is included in the appendices.

Project Location and Description

The Project is located at 18145 East Mozart Avenue, Campbell, California, 95032 (see **Figure 1**). The Project proposes to construct up to twenty-five single family homes on a 2.95-acre site. Project construction is expected to begin in July 2020. For a conservative analysis, a compressed 6-month construction schedule is assumed for analysis with a completion date of January 2021. Most of the Project site is currently vacant with the exception of five single family homes (and free-standing garages to the rear of the homes) along Mozart Avenue. In addition, there are a few scattered containers and trailers belonging to the existing residents, but are not permanent fixtures on the site. All existing structures would be demolished to make way for the Project.

At its closest point, the Project's southern boundary would be approximately 180 feet from the off-ramp and 300 feet from the on-ramp to Highway 85. The Project site's western boundary is located approximately 500 feet from Highway-17 while South Bascom Avenue runs approximately 400 feet from the eastern boundary of the Project site.

Land uses surrounding the Project site are mainly residential and commercial. Existing uses in the Project vicinity include single family homes along E Mozart Avenue, Beethoven Lane, and Kilmer Avenue that surround the Project site to the south, west and north, respectively. Two buildings that house healthcare services are located to the east along South Bascom Avenue and are separated from the Project site by the parking lot for these buildings.



SOURCE: Santa Clara County GIS, ESA, 2019.

18145 Mozart Avenue Development

Figure 1
Project Location



CHAPTER 2

Air Quality Analysis

The Project site is located in the San Francisco Bay Area Air Basin (SFBAAB) under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). BAAQMD's jurisdiction includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, and the southern portions of Solano and Sonoma counties.

Under amendments to the federal Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has classified air basins or portions thereof as either "attainment" or "non-attainment" for each criteria air pollutant, based on whether or not the National Ambient Air Quality Standards (NAAQS) have been achieved. The California CAA, which is patterned after the federal CAA, also requires areas to be designated as "attainment" or "non-attainment" for the California Ambient Air Quality Standards (CAAQS). Thus, areas in California have two sets of attainment designations: one set with respect to the NAAQS and one set with respect to the CAAQS. The SFAAB is currently designated as a nonattainment area for state and national ozone standards, state particulate matter (PM₁₀ and PM_{2.5}) standards, and the federal PM_{2.5} (24-hour) standard (BAAQMD, 2017a). The BAAQMD is the primary agency responsible for assuring both sets of ambient air quality standards are attained and maintained in the Bay Area.

Approach to Analysis

The analysis presented below follows the guidelines and recommendations of the BAAQMD in its *CEQA Air Quality Guidelines* (BAAQMD Guidelines) (BAAQMD, 2017b). Potential air quality impacts are assessed by modeling the estimated daily emissions generated by Project construction and operations using the California Emissions Estimator Model (CalEEMod), version 2016.3.2 and comparing them to the BAAQMD's project-level thresholds of significance. BAAQMD's project-level significance thresholds are shown in **Table 2-1** below.

Sensitive Receptors

From an air quality analysis standpoint, sensitive receptors are defined as facilities and land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals, and daycare centers. Residential areas are also considered sensitive to poor air quality because people typically stay home for extended periods of time, which results in greater exposure to ambient air quality.

TABLE 2-1
BAAQMD PROJECT-LEVEL AIR QUALITY THRESHOLDS OF SIGNIFICANCE

Pollutant	Construction-Related	Operational-Related	
	Average Daily Emissions, lb/day	Average Daily Emissions, lb/day	Maximum Annual Emissions, tons/year
ROG	54	54	10
NO _x	54	54	10
PM ₁₀ (exhaust)	82	82	15
PM _{2.5} (exhaust)	54	54	10
PM ₁₀ /PM _{2.5} (fugitive dust)	BMPs	None	
Local CO	None	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
Risks and Hazards (individual project)	Same as operational thresholds	Compliance with Qualified Community Risk Reduction Plan; or increased cancer risk of greater than 10.0 in a million; or increased non-cancer risk of greater than 1.0 hazard index (chronic or acute); or ambient PM _{2.5} increase of greater than 0.3 µg/m ³ annual average	
Risks and Hazards (cumulative threshold)	Same as operational thresholds	Compliance with Qualified Community Risk Reduction Plan; or increased cancer risk of greater than 100 in a million from all local sources; or increased non-cancer risk of greater than 10.0 hazard index (chronic or acute) from all local sources; or ambient PM _{2.5} increase of greater than 0.8 µg/m ³ annual average from all local sources	

NOTES:

BMPs = Best Management Practices

SOURCE: BAAQMD, 2017b.

The Project site is surrounded by sensitive receptors in the form of single family homes to the south, west and north and the healthcare services to the east.

Impact Assessment

This impact assessment below follows the air quality impacts described within the CEQA Guidelines, Appendix G, Initial Study Checklist. **Table 2-2** presents a summary of the air quality issues and impacts.

TABLE 2-2
CEQA GUIDELINES AIR QUALITY ISSUES SUMMARY

Issue	Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☒	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒
SOURCE: CEQA Guidelines, Appendix G				

a) Would the project conflict with or obstruct implementation of the applicable air quality plan? (Less than Significant with Mitigation Incorporated)

The most recently adopted air quality plan in the Bay Area is the BAAQMD's 2017 Clean Air Plan - Spare the Air, Cool the Climate (2017 CAP). The 2017 CAP updates the 2010 Clean Air Plan to fulfill state ozone planning requirements, and includes all feasible measures to reduce emissions of ozone precursors (reactive organic gases [ROG] and nitrogen oxides [NO_x]) and reduce transport of ozone and its precursors to neighboring air basins. In addition, the 2017 CAP builds upon and enhances the BAAQMD's efforts to reduce emissions of fine particulate matter and toxic air contaminants (BAAQMD, 2017c).

BAAQMD recommends that a project's consistency determination with the applicable air quality plan be made with respect to the following questions. If all the questions are concluded in the affirmative, and those conclusions are supported by substantial evidence, the BAAQMD considers the project to be consistent with air quality plans prepared for the Bay Area (BAAQMD, 2017b).

1. Does the project support the primary goals of the air quality plan?

The primary goals of the 2017 CAP are to attain air quality standards, reduce population exposure to pollutants, protect public health within the SFAAB, and reduce greenhouse gas emissions and protect the climate. Any project that would not support these goals would not be considered consistent with the 2017 CAP. The recommended measure for determining project support of these goals is consistency with BAAQMD-approved CEQA thresholds of significance. Therefore, if a project would not result in significant and unavoidable air quality impacts, after the

application of all feasible mitigation measures, the project would be considered consistent with the 2017 CAP.

As indicated in the discussion under checklist question b) below, the proposed Project would not result in significant and unavoidable air quality impacts. Criteria air pollutant emissions would be less than significant prior to mitigation and would be reduced further with implementation of **Mitigation Measures 2-1 and 2-2**. Toxic air contaminants (TACs) and fugitive dust emissions from construction activities would be less than significant with implementation of Mitigation Measures 2-1 and 2-2. Long-term operational emissions would be less than significant without mitigation. Therefore, per BAAQMD guidance, the Project would be considered to support the primary goals of the 2017 CAP.

2. Does the project include applicable control measures from the applicable air quality plan?

Projects that incorporate all feasible air quality plan control measures are considered consistent with the 2017 CAP. The 2017 CAP includes a comprehensive strategy of 85 measures aimed at reducing air pollution in the Bay Area. Along with the traditional stationary, area, mobile source and transportation control measures, the 2017 CAP contains a number of new control measures designed to protect the climate and promote mixed use, compact development to reduce vehicle emissions and exposure to pollutants from stationary and mobile sources. BAAQMD encourages project developers to incorporate all feasible measures in the building, energy, transportation, waste, and water sectors into proposed project designs and plan elements.

The Project is located in an area well served by public transit. Existing public transit services in the Project area are provided by the Santa Clara Valley Transportation Authority (VTA), and include bus and light-rail transit (LRT) services connecting all of Santa Clara County. The Project site is less than 3 miles from the Winchester LRT station and Transit Center, which is served by a number of connecting buses and includes a park and ride lot. Local bus service to the Winchester station and other areas is available from the Bascom & Apsis bus stop located 400 feet from the Project site. The Project's location in an area with access to transit services would serve to reduce vehicle trips. Future residents of the Project could also be expected to take advantage of teleworking opportunities reducing vehicle trips further, but the extent to which teleworking would occur cannot be accurately predicted at this time. The Project features described above ensure consistency of the Project with the transportation sector control measures in the 2017 CAP.

The Project would comply with the California Green Building (CalGreen) Code and Title 24 building energy efficiency requirements, and would include energy saving features such as high-efficiency lighting and water heaters. The City, as part of its implementation of the CalGreen residential code requirements, requires a disclosure and certification of construction materials used in building construction for volatile organic compounds (VOC) compliance, water conservation and efficiency. Project homes would include solar panels and would be pre-wired to accommodate electric car chargers in the garage. Additionally, electricity in Campbell is provided by the Community Choice Energy Agency, Silicon Valley Clean Energy (SVCE), which

automatically enrolls customers in the Carbon Free program which includes electricity generated from renewable and carbon-free sources. These features ensure Project consistency with the control measures in the energy and building sectors of the 2017 CAP.

The City requires that a Waste Management Plan (WMP) for demolition and construction be completed and approved to obtain a building permit. Consistent with the City's Municipal Code Section 6.12, the Project would comply with the WMP's requirement to salvage, reuse or recycle a minimum of 50 percent of all construction and demolition debris. The Project residences would be served by the West Valley Collection and Recycling services, which provides an unlimited curbside recycling program. The program would facilitate the proper recycling and disposal of waste from the Project residences in accordance with the City's waste management requirements as well as statewide waste reduction goals. These features ensure Project consistency with the control measures in the waste sector of the 2017 CAP.

The Project would comply with indoor water conservation measures included in the CalGreen Code. The Project would also comply with the City's Water Conservation requirements through a storm water management plan during construction, a reduction of indoor water use by at least 20% using water saving fixtures or flow restrictors, and use of weather-based automatic irrigation systems to reduce outdoor water use. These features ensure Project consistency with the control measures in the water sector of the 2017 CAP.

In summary, existing mechanisms or those included in the Project would be consistent with all of the relevant control measures of the 2017 CAP.

3. Does the project disrupt or hinder implementation of any control measures in the air quality plan?

If approval of a project would not cause the disruption, delay or otherwise hinder the implementation of any air quality plan control measure, the BAAQMD considers the project to be consistent with the 2017 CAP. As discussed above, the Project would comply with all feasible control measures in the 2017 CAP. Construction and operation of the Project would also not hinder implementation of any other control measures included in the 2017 CAP.

With all three questions above concluded in the affirmative, the Project would be considered to be consistent with the 2017 CAP. This would be a less than significant impact with mitigation.

Mitigation: Mitigation Measures 2-1 and 2-2, described under b) and c) below.

Significance After Mitigation: Less Than Significant.

b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? (Less than Significant with Mitigation Incorporated)

According to the BAAQMD, no single project can, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively

significant adverse air quality impacts. The BAAQMD Guidelines recommend using its quantitative thresholds of significance to determine if an individual project's emissions would considerably contribute to cumulative air quality impacts in the region. If a project's emissions exceed the identified significance thresholds, its contribution to cumulative air quality would be considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Alternatively, if a project does not exceed the identified significance thresholds, then the project would not be considered cumulatively considerable and would result in less-than-significant air quality impacts (BAAQMD, 2017b). The Project's contribution to cumulative air quality of the area has been evaluated below by comparing its construction and operational emissions to the applicable BAAQMD thresholds.

The Project would generate criteria pollutants and TACs during short-term construction activities as well as long-term operational criteria pollutant emissions from sources including on-road vehicles, onsite area and energy sources. As the Project consists of development of only residential land uses, once operational, it would not be a source of substantial TACs.

Construction

Construction of the Project would generate air pollutant emissions from the use of heavy-duty construction equipment, vehicle trips hauling materials, and construction worker vehicles traveling to and from the project site. Mobile source emissions, primarily NO_x, would be generated from the use of construction equipment such as excavators, bulldozers, wheeled loaders, and fork lifts. During the finishing phase, paving operations and the application of asphalt, architectural coatings (i.e., paints and varnishes) and other building materials would release ROG. The assessment of construction air quality impacts considers each of these sources and phases, and recognizes that construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions.

CalEEMod was used to quantify construction emissions associated with off-road equipment, paving, architectural coatings, haul trucks associated with demolition, on-road worker vehicle emissions, and vendor delivery trips (see Appendix A). Construction for the Project was assumed to occur from July 2020 through January 2021 to provide a worst-case analysis using a compressed 6-month construction schedule. Average daily emissions would be reduced if the duration of construction is prolonged. Unmitigated construction-related criteria pollutant exhaust emissions for the Project are presented in **Table 2-3**. The estimated emissions consider the following basic construction phases: demolition; excavation/grading; building construction; asphalt paving; and application of architectural coatings.

As shown in Table 2-3, average daily regional emissions would not exceed the BAAQMD daily significance thresholds during construction.

Project related demolition, grading, excavation and building construction activities at the project site may cause wind-blown dust that could generate particulate matter into the atmosphere. Fugitive dust includes not only PM₁₀ and PM_{2.5} but also larger particles that can cause nuisance impacts. For mitigation of fugitive dust emissions, the BAAQMD Guidelines recommend using

specific Best Management Practices (BMPs), which has been a practical and effective approach to control fugitive dust emissions. The Guidelines note that individual measures have been shown to reduce fugitive dust by anywhere from 30 percent to more than 90 percent and conclude that projects that implement construction BMPs would reduce fugitive dust emissions to a less than significant level. To ensure implementation of BMPs they are identified herein as Mitigation Measure 2-1. Thus, with the implementation of Mitigation Measure 2-1, the Project would have a less than significant impact in relation to construction emissions.

**TABLE 2-3
AVERAGE DAILY CONSTRUCTION EMISSIONS**

Scenario	Emissions (pounds per day)			
	ROG	NO _x	PM ₁₀ (exhaust)	PM _{2.5} (exhaust)
Construction emissions	7.5	16.2	0.8	0.8
BAAQMD significance threshold	54	54	82	54
Exceed threshold?	No	No	No	No

SOURCE: Appendix A

Operation

Once the Project residences are occupied, air pollutant emissions would be generated from vehicle trips generated by the Project occupants as well as from on-site area and energy sources (e.g., natural gas combustion for space and water heating, landscape maintenance, use of consumer products such as hairsprays, deodorants, cleaning products, etc.) Project operational emissions were also calculated using the CalEEMod and the results are presented in **Table 2-4** below.

**TABLE 2-4
PROJECT OPERATIONAL EMISSIONS**

Scenario	Pollutant			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Unmitigated daily operational emissions (pounds per day)	2.0	1.6	1.2	0.4
BAAQMD significance threshold	54	54	82	54
Exceed threshold?	No	No	No	No
Unmitigated annual operational emissions (tons per year)	0.4	0.3	0.2	<0.1
BAAQMD significance threshold	10	10	15	10
Exceed threshold?	No	No	No	No

SOURCE: Appendix A

Table 2-4 summarizes the average daily mobile, energy, and area emissions of criteria pollutants that would be generated by Project operation and compares the emissions to BAAQMD

thresholds. As shown in Table 2-4, operational emissions of ROG, NO_x, PM₁₀, and PM_{2.5} would be well below the BAAQMD significance thresholds during operations, and thus, the proposed Project would have a less than significant impact in relation to regional operational emissions.

In regards to localized CO concentrations, the BAAQMD has developed screening criteria for local CO impacts. Projects would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met:

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 plan, 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).

The proposed Project would generate minimal new traffic trips and would not exceed these screening criteria. Based on the BAAQMD's criteria, project-related traffic from both projects would not exceed CO standards and therefore, no further analysis was conducted for CO impacts. This impact would be considered less than significant on a project-level and cumulative basis.

Mitigation Measures

Mitigation Measure 2-1: The project applicant shall ensure that construction plans include the BAAQMD Best Management Practices for fugitive dust control. The following will be required for all construction activities within the project area. These measures will reduce fugitive dust emissions primarily during soil movement, grading and demolition activities, but also during vehicle and equipment movement on unpaved project sites:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
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 streets, 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 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 mechanic and determined to be running in proper condition prior to operation.
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. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

c) Would the project expose sensitive receptors to substantial pollutant concentrations? (Less than Significant with Mitigation)

The potential for the proposed Project to expose sensitive receptors to substantial pollutant concentrations are examined separately for the construction and operation phases.

Toxic Air Contaminants

Construction

Construction activities for the proposed Project would produce diesel particulate matter (DPM) and PM_{2.5} emissions due to combustion equipment such as loaders, backhoes, and haul truck trips. These emissions could result in elevated concentrations of DPM and PM_{2.5} at nearby receptors. These elevated concentrations could lead to an increase in the risk of cancer or other health impacts. Consequently, a health risk assessment was performed to determine the extent of increased cancer and non-cancer risks at the maximally exposed receptors. The health risk assessment was based on recommended methodology of the Office of Environmental of Health Hazard Assessment (OEHHA) and adopted by the BAAQMD (BAAQMD, 2012b). The cancer risk to nearby residential receptors assumes exposure would occur 8 hours per day, five days per week, to account for the active construction duration. Additionally, cancer risk estimates also incorporate age sensitivity factors and daily breathing rates recommended by OEHHA. This approach factors in the increased susceptibility of infants and children to carcinogens as compared to adults as required by OEHHA.

Dispersion modeling predicts the air pollutant concentrations due to emissions from a source at defined receptor point locations. The most current version (18081) of the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) was used in the modeling analysis for this Project. The AERMOD model is a USEPA-approved model that was introduced to incorporate air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources and both simple and complex terrain. The AERMOD model requires numerous inputs, such as meteorological data, source parameters, topographical data, and receptor characteristics. The overall AERMOD modeling parameters are shown in **Table 2-5**. Construction sources were modeled as an area source for the main construction activities and as a line area source to represent the potential on road haul truck and vendor trips: the source configurations are presented in **Table 2-6**. Where Project-specific information is not available, ESA used default parameter sets that are designed to produce conservative (i.e., overestimates of) air concentrations (USEPA, 2018). Modeling inputs and results are presented in Appendix B. The maximally exposed receptor would be adjacent residences to the project along Beethoven Lane.

**TABLE 2-5
OVERALL AERMOD MODELING PARAMETERS**

Pathway	Description	Parameter
Control	Rural/Urban	Rural ^a
	Terrain	Elevated
	Model Version	AERMOD v 18081
Receptor	Receptor Height	1.5 m ^b
Meteorology ^c	Surface Station	N.Y. MINETA SN JO INTL APT (23293)
	Upper Air Station	OAKLAND/WSO AP (23230)
	MET Years	2009-2014
	Base Elevation (MSL)	15.5 m

NOTES:

^a From BAAQMD (2012a). Urban R2 defined as: Dense single/multi-family with less than 30% vegetation.

^b From BAAQMD (2012a).

^c From CARB (2015).

ABBREVIATIONS: m = meters

SOURCES:

1. Bay Area Air Quality Management District. 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. Available at <http://www.baaqmd.gov/~media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf>. Accessed February 2019.
2. California Air Resources Board. 2015. Meteorological Data from Air Districts (Met Station: Norman Y. Mineta San Jose International Airport). Available online at <https://www.arb.ca.gov/toxics/harp/metfiles2.htm>. Accessed February 2019

**TABLE 2-6
SOURCE MODELING PARAMETERS FOR CONSTRUCTION EQUIPMENT**

Source	Project Component	Source Type	Source Dimension	Number of Sources	Release Height [m] ^a	Initial Vertical Dimension [m] ^b
Off-Road Construction Equipment	Residential Development	Area	2.95 acre	1	5	1.4
On-Road Construction Equipment	Mozart Avenue to Highway 85	Line Area	445.3 m long x 9 m wide	1	2.55	2.37

NOTES:

^a Release height for off-road construction equipment and on-road operational mobile sources from the CRRP-HRA (BAAQMD, SF DPH & SF Planning, 2012). For on-road construction trucks and operational delivery truck idling at street-level, the release height is equal to 0.5 * top of plume height, which is equal to 1.7 * the vehicle height, which is equal to 3 meters; equation = $0.5 * 1.7 * 3 = 2.55$ (USEPA 2012)

^b Initial vertical dimension for off-road construction equipment and on-road operational mobile sources from the CRRP-HRA (BAAQMD, SF DPH & SF Planning, 2012). Initial vertical dimension for on-road construction trucks and truck idling is equal to the top of the plume height + 2.15 = $1.7 * 3 / 2.15 = 2.37$.

ABBREVIATIONS: m = meters

SOURCES:

1. United States Environmental Protection Agency. 2012. Haul Road Workgroup Final Report Submission to EPA-OAQPS. March. Available at: https://www3.epa.gov/scram001/reports/Haul_Road_Workgroup-Final_Report_Package-20120302.pdf. Accessed May 2019.
2. Bay Area Air Quality Management District, San Francisco Department of Public Health, and San Francisco Planning Department. 2012. *The San Francisco Community Risk Reduction Plan: Technical Support Documentation*. December. Available at http://www.gsweventcenter.com/Appeal_Response_References/2012_1201_BAAQMD.pdf. Accessed May 2019.

Potential health risk at sensitive receptors resulting from construction activities were calculated using the OEHHA Risk Assessment Guidelines and the results of the AERMOD dispersion model (OEHHA, 2015). Unmitigated project construction maximum cancer risk is shown in **Table 2-7** below. The chronic hazard impact and annual PM_{2.5} concentration from unmitigated project construction are shown in **Table 2-8**. Appendix C presents the risk equations, calculations, and results.

TABLE 2-7
UNMITIGATED CONSTRUCTION-RELATED CANCER RISK

Risk Scenario	Maximum Cancer Risk (per million)
Off-Site Resident, 3 rd Trimester	4.27
Off-Site Resident, Age 0<2	16.50
Off-Site Resident, Total	20.77
BAAQMD significance threshold	10
Exceed threshold?	Yes
SOURCE: Appendix C	

TABLE 2-8
UNMITIGATED CONSTRUCTION-RELATED HEALTH IMPACTS

Scenario	Chronic Hazard Impact	PM_{2.5} Concentration (µg/m³)
Unmitigated Construction	0.33	0.50
BAAQMD significance threshold	1	0.3
Exceed threshold?	No	Yes
SOURCE: Appendix C		

As shown in Table 2-7, the incremental cancer risk at the maximum exposed residential receptor of 20.77 in one million (assuming exposure starting at 3rd trimester) would exceed the BAAQMD threshold of 10 in a million without mitigation. The maximum annual PM_{2.5} unmitigated concentration is 0.50 µg/m³ which would exceed the BAAQMD threshold of 0.3 µg/m³.

US EPA Certified Tier 4 that greatly reduce DPM emissions through fuel efficiency and emissions controls are now widely available and used throughout California. If Tier 4 engines are utilized during construction DPM emissions, the associated health risks will be greatly reduced.

Mitigation Measure 2-2 requires construction equipment to be equipped with Tier 4 engines. After mitigation, project construction maximum cancer risk is shown in **Table 2-9** below. The chronic hazard impact and annual PM_{2.5} concentration from mitigated project construction are shown in **Table 2-10**. Appendix C presents the risk equations, calculations, and results.

**TABLE 2-9
MITIGATED CONSTRUCTION-RELATED CANCER RISK**

Risk Scenario	Maximum Cancer Risk (per million)
Off-Site Resident, 3 rd Trimester	0.75
Off-Site Resident, Age 0<2	4.26
Off-Site Resident, Total	5.0
BAAQMD significance threshold	10
Exceed threshold?	No
SOURCE: Appendix C	

**TABLE 2-10
MITIGATED CONSTRUCTION-RELATED HEALTH IMPACTS**

Scenario	Chronic Hazard Impact	PM_{2.5} Concentration (µg/m³)
Mitigated Construction	0.03	0.04
BAAQMD significance threshold	1	0.3
Exceed threshold?	No	No
SOURCES: Appendix C		

As shown in Table 2-9, the incremental cancer risk at the maximum exposed residential receptor of 5.0 in one million (assuming exposure starting at 3rd trimester) would now be below the BAAQMD threshold of 10 in a million with mitigation. The maximum annual PM_{2.5} mitigated concentration is 0.04 µg/m³ which is below the BAAQMD threshold of 0.3 µg/m³. The chronic hazard impacts for both the unmitigated and mitigated scenarios are under the BAAQMD threshold of one. The Project health risk impacts would thus be less than significant after mitigation.

In terms of other potential construction impacts, unmitigated demolition activities could result in airborne entrainment of asbestos, a TAC, particularly where structures built prior to 1980 would be demolished. However, these materials would be removed in accordance with the procedures specified by Regulation 11, Rule 2 (Asbestos Demolition, Renovation and Manufacturing) of BAAQMD's regulations; therefore, with adherence to regulatory requirements, asbestos would not be emitted to any substantial degree during demolition. Implementation of the **Mitigation Measures 2-1** would ensure that project-generated fugitive dust during construction would be reduced to a less than significant level.

Operation

Unlike ozone and other regional pollutants, TACs are a localized pollution problem. TACs produced at distant locations do not readily combine to create concentrations at any single location that would cause health risks. The BAAQMD's method for determining health risk requires the review of health risk from permitted sources, railroads, and major streets in the

vicinity of a project site (i.e., within 1,000 feet of the proposed new sensitive residential receptors on the project site), then adding the project operational impacts to determine whether the cumulative health risk thresholds are exceeded. BAAQMD has developed a geo-referenced database of permitted and Highway TAC emissions sources throughout the San Francisco Bay Area for estimating health risks to new sensitive receptors from existing permitted sources. Highway 17 is approximately 530 feet and Highway 85 is approximately 430 feet from the project site. Emissions from Bascom Avenue were estimated based on the City's General Plan and BAAQMD's Roadway Screening Analysis Calculator (Campbell, 2014) (BAAQMD, 2012d). Details of the emission estimates for Bascom Avenue are given in Appendix D.

Unlike for a project level assessment, for the cumulative assessment, the risks from all sources within 1,000 feet of the Project site are summed and compared to the cumulative significance thresholds. The nearby roadway sources can be seen in Figure 1. There are no permitted stationary sources within 1000 feet of the project site. Additionally, there would be no onsite stationary sources of TACs and TAC emissions from Project-generated traffic would be negligible. A summary of the cumulative health impacts is shown in **Table 2-11**. The cumulative maximally-exposed receptor is assumed to be a proposed residence exposed to maximum risk from all sources, which would be a conservative assessment.

TABLE 2-11
CUMULATIVE HEALTH IMPACTS

Source Name	BAAQMD ID	Distance from Project (feet)	Cancer Risk (per million)	Chronic Hazard Impact	PM _{2.5} Concentration (µg/m ³)
Highway 17 ¹	Link 297	530	31.39	0.023	0.194
Highway 85 ²	Link 299	430	9.92	0.009	0.092
Bascom Avenue ³	5564	430	9.46	N/A	0.129
Nearby Permitted Sources			0	0	0
Roadways			50.77	0.032	0.415
Grand Total			50.77	0.032	0.415
BAAQMD Cumulative Significance Threshold			100	10	0.8
Exceeds Threshold?			No	No	No

NOTE:

There are no stationary sources within 1000 feet of the Project

¹ Highway 17 risk estimated from BAAQMD developed geo-referenced database of permitted and Highway TAC emissions for 6-foot height at 500 feet (BAAQMD, 2012c).

² Highway 85 risk estimated from BAAQMD developed geo-referenced database of permitted and Highway TAC emissions for 6-foot height at 400 feet (BAAQMD, 2012c).

³ Bascom Avenue concentrations and risk based on the assumption of 50,000 annual average daily traffic. The screening tool calculator was used to estimate maximum downwind concentrations and potential health risk at sensitive receptors from the source (BAAQMD, 2012d). Additional information is provided in Appendix D.

SOURCES: BAAQMD, 2012c; BAAQMD, 2012d

As demonstrated in Table 2-11, health impacts on the Project sensitive receptors from existing sources (Highway 17, Highway 85, and Bascom Avenue) in the area would have a cumulative impact less than the BAAQMD thresholds for cancer risk, chronic health hazards, and PM_{2.5} concentrations. The cumulative cancer risk from all sources within 1,000 feet of proposed

sensitive receptors would be approximately 50.77 in one million, which would be below the BAAQMD cumulative threshold of 100 in one million and would be less than significant. The cumulative hazard index from all such sources would be approximately 0.03, which is well below the significance threshold of 10 and would be less than significant. The cumulative PM_{2.5} concentration would be approximately 0.42 µg/m³, which would be below the significance threshold of 0.8 µg/m³ and is considered less than significant.

Criteria Air Pollutants

The following analysis of air quality impacts considers the potential impacts related to emissions of nonattainment pollutants and their precursors. Although ozone, as a secondary pollutant, would not be directly emitted by the Project, ozone precursors ROG and NO_x would be emitted and are therefore, along with particulate matter, the focus of the impact assessment. Given that ozone formation occurs through a complex photo-chemical reaction between NO_x and ROG in the atmosphere with the presence of sunlight, the impacts of ozone are typically considered on a basin-wide or regional basis instead of a localized basis. The health-based ambient air quality standards for ozone are established as concentrations of ozone and not as tonnages of their precursor pollutants (i.e., NO_x and ROG). It is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of the resulting secondary pollutants which are ozone and particulate matter in this case. Because of the complexity of ozone formation and the non-linear relationship of ozone concentration with its precursor gases, and given the state of atmospheric modeling in use at this time, it is infeasible and not scientifically defensible to convert specific emissions levels of NO_x or ROG emitted in a particular area to a particular concentration of ozone in that area. Meteorology, the presence of sunlight, seasonal impacts, and other complex photochemical factors all combine to determine the ultimate concentration and occurrence of ozone. Since the Project would not exceed the numeric indicator for ROG and NO_x emissions during either construction or operation, it is not likely that Project ROG and NO_x emissions could result in an increase in ground-level ozone concentrations in proximity to the Project sites or elsewhere in the air basin and impacts can be considered less than significant.

As expressed in the *amicus curiae* brief submitted for the *Sierra Club v. County of Fresno* case (*Friant Ranch Case*), the CEQA criteria pollutants significance thresholds from the air districts were set at emission levels tied to the region's attainment status. These emission levels are indexed to stationary pollution sources permitted by the air district to compel the operator to offset their emissions and they are not intended to be correlated to localized human health impacts.

Furthermore, available models today are designed to determine regional, population-wide health impacts, and cannot accurately quantify ozone-related health impacts caused by NO_x or ROG emissions at a project level. Therefore, it is not scientifically defensible to connect the project-level ROG or NO_x emissions to ozone-related health impacts at present.

Mitigation Measure 2-2: The project applicant shall ensure that construction contract specifications include a requirement that all off-road diesel-powered construction equipment used for project improvements be equipped with Tier 4 final engines.

d) Would the project create objectionable odors affecting a substantial number of people? (No Impact)

BAAQMD has identified typical sources of odor in the CEQA Air Quality Guidelines, examples of which include manufacturing plants, rendering plants, coffee roasters, wastewater treatment plants, sanitary landfills, and solid waste transfer stations. The proposed Project would not include uses that have been identified by BAAQMD as potential sources of objectionable odors; this is a less than significant impact. Also, there are no sources of odor located in the Project area that future occupants of the Project would be exposed to. Therefore, there would be no impact with respect to exposure of people of odorous emissions.

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CHAPTER 3

Greenhouse Gas Analysis

“Global warming” and “global climate change” are the terms used to describe the increase in the average temperature of the earth’s near-surface air and oceans since the mid-20th century and its projected continuation. Increases in greenhouse gas (GHG) concentrations in the earth’s atmosphere are known to be the main cause of human-induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that has hit the earth and is reflected back into space. Some GHGs occur naturally and are necessary for keeping the earth’s surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature. Carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆) are the principal GHGs. When concentrations of these gases exceed natural concentrations in the atmosphere, the greenhouse effect may be enhanced. CO₂, CH₄, and N₂O occur naturally, and are also generated through human activity. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas the majority of CH₄ results from off-gassing associated with agricultural practices and landfills. Other human-generated GHGs include fluorinated gases such as SFCs, PFCs, and SF₆, which have much higher heat-absorption potential than CO₂, and are byproducts of certain industrial processes.

CO₂ is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO₂. CH₄ and N₂O are substantially more potent GHGs than CO₂, with 100-year GWPs of 25 and 298 times that of CO₂, respectively.

In emissions inventories, GHG emissions are typically reported in terms of pounds or metric tons of CO₂ equivalent (CO₂e). CO₂e is calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH₄ and N₂O have much higher GWPs than CO₂, CO₂ is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO₂e, both from residential developments and human activity in general.

Approach to Analysis

With regard to impacts from GHGs, both BAAQMD and the California Air Pollution Control Officers Association (CAPCOA) consider GHG impacts to be exclusively cumulative impacts (BAAQMD, 2017b; CAPCOA, 2008); therefore, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere. This analysis uses both a quantitative and a qualitative approach. Because the quantifiable thresholds included in the BAAQMD CEQA Guidelines are based on the its 2009 *Justification Report* which formulated these thresholds based on AB 32 and California Climate Change Scoping Plan reduction targets and strategies developed to reduce GHG emissions statewide, a project cannot exceed a numeric BAAQMD threshold without also conflicting with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (BAAQMD, 2009). Therefore, if a project exceeds a numeric threshold and results in a significant cumulative impact, it would also result in a significant cumulative impact with respect to plan, policy, or regulation consistency, even though the project may incorporate measures and have features that would reduce its contribution to cumulative GHG emissions.

Separate thresholds of significance are established for operational emissions from stationary sources (such as generators, furnaces, and boilers) and non-stationary sources (such as vehicle traffic from land use development). As no threshold has been established for construction-related emissions, GHG emissions over the entire Project construction are amortized over a project life of 30 years and considered with the operational emissions for comparison to thresholds. For non-stationary sources, three separate thresholds have been established, as presented in **Table 3-1**.

TABLE 3-1
BAAQMD PROJECT-LEVEL GREENHOUSE GAS THRESHOLDS OF SIGNIFICANCE

Pollutant	Construction-Related	Operational-Related	
	Average Daily Emissions, lb/day	Average Daily Emissions, lb/day	Maximum Annual Emissions, tons/year
GHGs*	None	Compliance with Qualified GHG Reduction Strategy; or 1,100 metric tons of CO ₂ e per year; or 4.6 metric tons of CO ₂ e per service population per year	

NOTES: The service population is the sum of residents plus employees expected for a development project.

* For projects other than stationary sources.

SOURCE: BAAQMD, 2017b.

The quantitative threshold of 1,100 metric tons per year of CO₂e is applied to this analysis. If the Project's operational emissions in combination with the amortized construction emissions would exceed this threshold, it would be considered to lead to a significant impact.

GHG emissions resulting from the proposed Project were also estimated using CalEEMod, using assumptions included in **Appendix A**. CalEEMod defaults were used when Project-specific data was not available. Construction emissions were estimated for equipment and truck exhaust and construction worker vehicles. In regards to operations, vehicle trips assumed default trip rates and

lengths for urban single family residential uses, which are embedded in CalEEMod. The model makes adjustments for implementation of Pavley vehicle standards and Low Carbon Fuel Standards.

Impact Assessment

This impact assessment follows the GHG issues described within the CEQA Guidelines, Appendix G, Initial Study Checklist. **Table 3-2** presents a summary of the greenhouse gas issues and impacts.

TABLE 3-2
CEQA GUIDELINES GREENHOUSE GAS ISSUES SUMMARY

Issue	Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 adopted plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐
SOURCE: CEQA Guidelines, Appendix G				

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? (Less than Significant)

BAAQMD requires that both direct and indirect sources of GHG emissions be considered in the analysis. Direct emissions include emissions from construction equipment and vehicles, operational vehicle trips generated by the Project, use of natural gas for onsite water and space heating, and use of fuel in landscaping equipment. Indirect emissions are associated with offsite electricity generation, transport and disposal of solid waste, and water and wastewater transport and treatment.

These GHG sources and emissions are detailed below:

- **Construction Activities.** Construction equipment typically use fossil-based fuels (primarily diesel) to operate. The combustion of fossil-based fuels creates GHGs such as CO₂, CH₄, and N₂O. CH₄ is also emitted during the fueling of heavy equipment.
- **Solid Waste Disposal Emissions.** When solid waste generated by projects is deposited in landfills, anthropogenic CH₄ is generated from the anaerobic breakdown of the organic material in solid waste.

- Gas, Electricity, and Water Use.** Natural gas use for water and space heating results in the emissions of two GHGs: CH₄ (the major component of natural gas) and CO₂ from the combustion of natural gas. CH₄ is released prior to initiation of combustion of the natural gas (as before a flame on a stove is sparked), and from the small amount of CH₄ that remains not combusted in a natural gas flame. Electricity used on-site can result in GHG production if the electricity is generated by combustion of fossil fuel. GHG emissions from water and wastewater transport result from the generation of energy required to treat and transport water from its source, and the energy required to treat wastewater and transport it to its treated discharge point.
- Motor Vehicle Use.** Transportation associated with the project would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips. However, not all of these emissions would be “new” to the region or state since drivers would likely have relocated from another area. To be conservative, however, all vehicle trips predicted were assumed to be new trips in this analysis.

GHG emissions over the 6-month construction period were estimated using CalEEMod and amortized assuming a 30-year development life after completion of construction. The amortized emissions were added to the Project’s operational emissions for comparison to significance thresholds. Amortized GHG emissions associated with construction of the proposed Project would result in the generation of 6.9 metric tons of CO₂e per year over the assumed life of the Project.

Project operational emissions as estimated using CalEEMod are shown in **Table 3-3** below. Operational emissions include GHG emissions from motor vehicle trips, grid electricity usage, solid waste, and other sources (including area sources, natural gas combustion, and water/wastewater conveyance).

TABLE 3-3
PROJECT GREENHOUSE GAS EMISSIONS

Source	Emissions, metric tons of CO ₂ e per year
Project construction emissions (amortized)	6.9
Project operations ¹	296.9
Total project GHG emissions (construction and operation)	303.8
BAAQMD GHG threshold ²	1,100
Exceeds threshold?	No

NOTES:

¹ Project operational emissions do not take into account reduction in electricity usage from the solar panels on Project residences. Actual emissions would be lower.

² BAAQMD threshold for projects other than stationary sources.

SOURCE: APPENDIX A.

Table 3-3 indicates that the total GHG emissions associated with the Project would be below BAAQMD’s GHG threshold of 1,100 metric tons of CO₂e per year. This would represent a cumulatively less-than-significant GHG impact.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? (Less than Significant)

The City of Campbell has not adopted a GHG reduction plan or a climate action plan. However, the City's current General Plan includes goals and policies aimed at reducing GHG emissions. The City is in the process of preparing an update to its current General Plan. As part of the General Plan Update, the City will also prepare a Climate Action Plan which will include a range of strategies, measures, and programs that the City and the community may implement to reduce the generation of GHGs within the city and would be used to evaluate impacts of future projects. However, the analysis presented below evaluates consistency of the Project with applicable policies in the current General Plan and control measures in the BAAQMD's 2010 CAP.

Two policies in the City's current General Plan are applicable to the Project: Policy H-1.2: *Green Building* and Policy H-1.3: *Energy Conservation*. Policy H-1.2 encourages the use of sustainable and green building design in new and existing housing. Policy H-1.3 promotes energy efficiency by requiring the City to continue to promote programs and opportunities for improved energy efficiency and weatherization. The City's General Plan recognizes that conventional building construction, use, and demolition, as well as the manufacture of building materials have multiple impacts on the environment and account for 30 percent of GHG emissions in the United States (City of Campbell, 2015). Consistent with State regulations, the City encourages green building techniques and implements and enforces the requirements of the CalGreen program in the City. As part of its implementation of the CalGreen residential code requirements, the City requires a disclosure and certification of construction materials used in building construction for volatile organic compounds (VOC) compliance, water conservation and efficiency. The Project would comply with indoor water conservation measures included in the CalGreen Code and the City's water management requirements through a storm water management plan during construction, a reduction of indoor water use by at least 20% using water saving fixtures or flow restrictors, and use of weather-based automatic irrigation systems to reduce outdoor water use.

In addition, consistent with the City's building code which incorporates the increased energy efficiency requirements of Title 24, the Project would include energy conservation features such as high-efficiency lighting and water heaters. The Project would recycle or reuse at least 50 percent of the construction and demolition debris waste tonnage to comply with the City's Construction and Demolition Debris Ordinance which requires the diversion of 50 percent of construction waste in accordance with the mandate of the California Waste Management Act.

Project homes would include solar panels and would be pre-wired to accommodate electric car charges in the garage. Additionally, electricity in Campbell is provided by SVCE, which includes electricity generated from renewable and carbon-free sources.

Compliance with all applicable codes and ordinances would ensure consistency with policies in the General Plan that promote reduction of GHGs. Further, as discussed in Chapter 2, Air Quality, the Project would be consistent with applicable control measures in the BAAQMD's 2017 CAP, which is the planning document prepared by the BAAQMD to reduce GHG emissions in the Bay Area. Therefore, the Project would not conflict with any applicable plans, policies, or

regulations adopted for the purpose of reducing GHG emissions. This would be a less than significant impact.

CHAPTER 4

References

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Appendix A

CalEEMod Model Inputs and Results

E Mozart Development - Santa Clara County, Annual

E Mozart Development

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	25.00	Dwelling Unit	2.95	62,275.00	72

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	294	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

E Mozart Development - Santa Clara County, Annual

Project Characteristics - Based on GHG emission factors for 2016 at <https://www.pgecurrents.com/2018/03/26/independent-registry-confirms-record-low-carbon-emissions-for-pge/>

Land Use - Project info

Construction Phase - Compressed schedule using as much data provided by the applicant

Off-road Equipment - Data from applicant

Off-road Equipment - Data from applicant

Off-road Equipment - Data from applicant

Off-road Equipment - Data from applicant

Off-road Equipment - Data from applicant

Grading - Project area

Demolition -

Woodstoves - Default number of fireplaces, but all assumed to be gas fired

Energy Use -

Construction Off-road Equipment Mitigation - Tier 4 Final used for mitigation

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

E Mozart Development - Santa Clara County, Annual

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	220.00	110.00
tblConstructionPhase	NumDays	6.00	10.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	PhaseEndDate	7/12/2021	1/29/2021
tblConstructionPhase	PhaseEndDate	6/14/2021	1/15/2021
tblConstructionPhase	PhaseEndDate	8/10/2020	8/14/2020
tblConstructionPhase	PhaseEndDate	6/28/2021	1/23/2021
tblConstructionPhase	PhaseStartDate	6/29/2021	1/24/2021

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tblConstructionPhase	PhaseStartDate	8/11/2020	8/15/2020
tblConstructionPhase	PhaseStartDate	6/15/2021	1/16/2021
tblFireplaces	NumberGas	6.25	17.00
tblFireplaces	NumberWood	10.75	0.00
tblGrading	AcresOfGrading	10.00	2.95
tblGrading	AcresOfGrading	0.00	2.95
tblLandUse	LandUseSquareFeet	45,000.00	62,275.00
tblLandUse	LotAcreage	8.12	2.95
tblOffRoadEquipment	LoadFactor	0.30	0.30
tblOffRoadEquipment	LoadFactor	0.31	0.31
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.48	0.48
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Surfacing Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Pressure Washers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Excavators

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[illegible]

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tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	294

2.0 Emissions Summary

E Mozart Development - Santa Clara County, Annual

2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1213	1.1366	1.0886	2.1400e-003	0.0425	0.0585	0.1010	0.0190	0.0556	0.0746	0.0000	185.9026	185.9026	0.0419	0.0000	186.9500
2021	0.4500	0.1054	0.1135	2.4000e-004	6.4000e-004	5.2300e-003	5.8700e-003	1.7000e-004	5.0000e-003	5.1800e-003	0.0000	20.3846	20.3846	4.4100e-003	0.0000	20.4949
Maximum	0.4500	1.1366	1.0886	2.1400e-003	0.0425	0.0585	0.1010	0.0190	0.0556	0.0746	0.0000	185.9026	185.9026	0.0419	0.0000	186.9500

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0456	0.3867	1.2224	2.1400e-003	0.0425	0.0130	0.0555	0.0190	0.0130	0.0320	0.0000	185.9024	185.9024	0.0419	0.0000	186.9498
2021	0.4431	0.0404	0.1322	2.4000e-004	6.4000e-004	1.2700e-003	1.9100e-003	1.7000e-004	1.2700e-003	1.4400e-003	0.0000	20.3846	20.3846	4.4100e-003	0.0000	20.4948
Maximum	0.4431	0.3867	1.2224	2.1400e-003	0.0425	0.0130	0.0555	0.0190	0.0130	0.0320	0.0000	185.9024	185.9024	0.0419	0.0000	186.9498

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	14.44	65.61	-12.68	0.00	0.00	77.65	46.29	0.00	76.49	58.11	0.00	0.00	0.00	0.00	0.00	0.00

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-1-2020	9-30-2020	0.5918	0.1637
2	10-1-2020	12-31-2020	0.6659	0.2695
3	1-1-2021	3-31-2021	0.4913	0.4200
		Highest	0.6659	0.4200

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2994	4.9400e-003	0.2455	2.1000e-004		0.0107	0.0107		0.0107	0.0107	1.2812	2.4255	3.7067	6.3200e-003	4.0000e-005	3.8763
Energy	3.9200e-003	0.0335	0.0143	2.1000e-004		2.7100e-003	2.7100e-003		2.7100e-003	2.7100e-003	0.0000	65.7488	65.7488	3.4000e-003	1.2600e-003	66.2098
Mobile	0.0590	0.2467	0.6891	2.2700e-003	0.2028	1.9600e-003	0.2048	0.0543	1.8400e-003	0.0561	0.0000	207.4914	207.4914	7.2500e-003	0.0000	207.6726
Waste						0.0000	0.0000		0.0000	0.0000	6.1385	0.0000	6.1385	0.3628	0.0000	15.2077
Water						0.0000	0.0000		0.0000	0.0000	0.5168	1.6547	2.1714	0.0532	1.2900e-003	3.8859
Total	0.3623	0.2851	0.9488	2.6900e-003	0.2028	0.0154	0.2183	0.0543	0.0153	0.0696	7.9364	277.3204	285.2567	0.4330	2.5900e-003	296.8524

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2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2994	4.9400e-003	0.2455	2.1000e-004		0.0107	0.0107		0.0107	0.0107	1.2812	2.4255	3.7067	6.3200e-003	4.0000e-005	3.8763
Energy	3.9200e-003	0.0335	0.0143	2.1000e-004		2.7100e-003	2.7100e-003		2.7100e-003	2.7100e-003	0.0000	65.7488	65.7488	3.4000e-003	1.2600e-003	66.2098
Mobile	0.0590	0.2467	0.6891	2.2700e-003	0.2028	1.9600e-003	0.2048	0.0543	1.8400e-003	0.0561	0.0000	207.4914	207.4914	7.2500e-003	0.0000	207.6726
Waste						0.0000	0.0000		0.0000	0.0000	6.1385	0.0000	6.1385	0.3628	0.0000	15.2077
Water						0.0000	0.0000		0.0000	0.0000	0.5168	1.6547	2.1714	0.0532	1.2900e-003	3.8859
Total	0.3623	0.2851	0.9488	2.6900e-003	0.2028	0.0154	0.2183	0.0543	0.0153	0.0696	7.9364	277.3204	285.2567	0.4330	2.5900e-003	296.8524

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

E Mozart Development - Santa Clara County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2020	7/28/2020	5	20	
2	Site Preparation	Site Preparation	7/29/2020	7/31/2020	5	3	
3	Grading	Grading	8/1/2020	8/14/2020	5	10	
4	Building Construction	Building Construction	8/15/2020	1/15/2021	5	110	
5	Paving	Paving	1/16/2021	1/23/2021	5	5	
6	Architectural Coating	Architectural Coating	1/24/2021	1/29/2021	5	5	

Acres of Grading (Site Preparation Phase): 2.95

Acres of Grading (Grading Phase): 2.95

Acres of Paving: 0

Residential Indoor: 126,107; Residential Outdoor: 42,036; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Building Construction	Generator Sets	0	0.00	84	0.74
Building Construction	Cranes	0	0.00	231	0.29
Building Construction	Forklifts	1	7.00	89	0.20
Site Preparation	Graders	0	0.00	187	0.41
Paving	Pavers	0	0.00	130	0.42
Paving	Rollers	0	0.00	80	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40

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Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Paving	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	0	0.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Scrapers	0	0.00	367	0.48
Building Construction	Welders	0	0.00	46	0.45
Paving	Surfacing Equipment	1	8.00	263	0.30
Building Construction	Aerial Lifts	1	8.00	63	0.31
Building Construction	Bore/Drill Rigs	1	8.00	221	0.50
Building Construction	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Dumpers/Tenders	1	8.00	16	0.38
Building Construction	Excavators	1	8.00	158	0.38
Building Construction	Plate Compactors	1	8.00	8	0.43
Building Construction	Pressure Washers	1	8.00	13	0.30
Building Construction	Pumps	1	8.00	84	0.74
Building Construction	Sweepers/Scrubbers	1	8.00	64	0.46
Grading	Excavators	1	8.00	158	0.38
Grading	Scrapers	1	8.00	367	0.48
Demolition	Excavators	2	8.00	158	0.38

Trips and VMT

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	10	9.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	4	10.00	0.00	30.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.2900e-003	0.0000	3.2900e-003	5.0000e-004	0.0000	5.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.1100e-003	0.0906	0.1113	1.7000e-004		5.0100e-003	5.0100e-003		4.6100e-003	4.6100e-003	0.0000	14.5764	14.5764	4.7100e-003	0.0000	14.6943
Total	9.1100e-003	0.0906	0.1113	1.7000e-004	3.2900e-003	5.0100e-003	8.3000e-003	5.0000e-004	4.6100e-003	5.1100e-003	0.0000	14.5764	14.5764	4.7100e-003	0.0000	14.6943

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3.2 Demolition - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2000e-004	4.3500e-003	8.9000e-004	1.0000e-005	2.5000e-004	1.0000e-005	2.7000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.1441	1.1441	5.0000e-005	0.0000	1.1454
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.4000e-004	2.5000e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	0.0000	2.2000e-004	0.0000	0.6802	0.6802	2.0000e-005	0.0000	0.6806
Total	4.5000e-004	4.5900e-003	3.3900e-003	2.0000e-005	1.0400e-003	2.0000e-005	1.0700e-003	2.8000e-004	1.0000e-005	3.0000e-004	0.0000	1.8242	1.8242	7.0000e-005	0.0000	1.8259

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.2900e-003	0.0000	3.2900e-003	5.0000e-004	0.0000	5.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0400e-003	8.8300e-003	0.1256	1.7000e-004		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	14.5764	14.5764	4.7100e-003	0.0000	14.6943
Total	2.0400e-003	8.8300e-003	0.1256	1.7000e-004	3.2900e-003	2.7000e-004	3.5600e-003	5.0000e-004	2.7000e-004	7.7000e-004	0.0000	14.5764	14.5764	4.7100e-003	0.0000	14.6943

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3.2 Demolition - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2000e-004	4.3500e-003	8.9000e-004	1.0000e-005	2.5000e-004	1.0000e-005	2.7000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.1441	1.1441	5.0000e-005	0.0000	1.1454
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.4000e-004	2.5000e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	0.0000	2.2000e-004	0.0000	0.6802	0.6802	2.0000e-005	0.0000	0.6806
Total	4.5000e-004	4.5900e-003	3.3900e-003	2.0000e-005	1.0400e-003	2.0000e-005	1.0700e-003	2.8000e-004	1.0000e-005	3.0000e-004	0.0000	1.8242	1.8242	7.0000e-005	0.0000	1.8259

3.3 Site Preparation - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.5600e-003	0.0000	1.5600e-003	1.7000e-004	0.0000	1.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.4000e-004	9.4700e-003	0.0103	1.0000e-005		6.0000e-004	6.0000e-004		5.5000e-004	5.5000e-004	0.0000	1.2278	1.2278	4.0000e-004	0.0000	1.2378
Total	9.4000e-004	9.4700e-003	0.0103	1.0000e-005	1.5600e-003	6.0000e-004	2.1600e-003	1.7000e-004	5.5000e-004	7.2000e-004	0.0000	1.2278	1.2278	4.0000e-004	0.0000	1.2378

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3.3 Site Preparation - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.0000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0817
Total	4.0000e-005	3.0000e-005	3.0000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0817

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.5600e-003	0.0000	1.5600e-003	1.7000e-004	0.0000	1.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7000e-004	7.4000e-004	0.0105	1.0000e-005		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	1.2278	1.2278	4.0000e-004	0.0000	1.2378
Total	1.7000e-004	7.4000e-004	0.0105	1.0000e-005	1.5600e-003	2.0000e-005	1.5800e-003	1.7000e-004	2.0000e-005	1.9000e-004	0.0000	1.2278	1.2278	4.0000e-004	0.0000	1.2378

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3.3 Site Preparation - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.0000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0817
Total	4.0000e-005	3.0000e-005	3.0000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0817

3.4 Grading - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0317	0.0000	0.0317	0.0167	0.0000	0.0167	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0116	0.1278	0.0746	1.4000e-004		5.6700e-003	5.6700e-003		5.2100e-003	5.2100e-003	0.0000	12.7201	12.7201	4.1100e-003	0.0000	12.8230
Total	0.0116	0.1278	0.0746	1.4000e-004	0.0317	5.6700e-003	0.0373	0.0167	5.2100e-003	0.0219	0.0000	12.7201	12.7201	4.1100e-003	0.0000	12.8230

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3.4 Grading - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	1.0000e-004	1.0000e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2721	0.2721	1.0000e-005	0.0000	0.2722
Total	1.3000e-004	1.0000e-004	1.0000e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2721	0.2721	1.0000e-005	0.0000	0.2722

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0317	0.0000	0.0317	0.0167	0.0000	0.0167	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7800e-003	7.7100e-003	0.0732	1.4000e-004		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	12.7201	12.7201	4.1100e-003	0.0000	12.8230
Total	1.7800e-003	7.7100e-003	0.0732	1.4000e-004	0.0317	2.4000e-004	0.0319	0.0167	2.4000e-004	0.0170	0.0000	12.7201	12.7201	4.1100e-003	0.0000	12.8230

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3.4 Grading - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	1.0000e-004	1.0000e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2721	0.2721	1.0000e-005	0.0000	0.2722
Total	1.3000e-004	1.0000e-004	1.0000e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2721	0.2721	1.0000e-005	0.0000	0.2722

3.5 Building Construction - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0969	0.8860	0.8721	1.7200e-003		0.0471	0.0471		0.0451	0.0451	0.0000	148.2878	148.2878	0.0323	0.0000	149.0964
Total	0.0969	0.8860	0.8721	1.7200e-003		0.0471	0.0471		0.0451	0.0451	0.0000	148.2878	148.2878	0.0323	0.0000	149.0964

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3.5 Building Construction - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.9000e-004	0.0169	4.5000e-003	4.0000e-005	9.8000e-004	8.0000e-005	1.0600e-003	2.8000e-004	8.0000e-005	3.6000e-004	0.0000	3.8824	3.8824	1.8000e-004	0.0000	3.8869
Worker	1.4800e-003	1.0600e-003	0.0112	3.0000e-005	3.5300e-003	2.0000e-005	3.5600e-003	9.4000e-004	2.0000e-005	9.6000e-004	0.0000	3.0301	3.0301	7.0000e-005	0.0000	3.0319
Total	2.0700e-003	0.0180	0.0157	7.0000e-005	4.5100e-003	1.0000e-004	4.6200e-003	1.2200e-003	1.0000e-004	1.3200e-003	0.0000	6.9125	6.9125	2.5000e-004	0.0000	6.9188

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0389	0.3467	0.9927	1.7200e-003		0.0123	0.0123		0.0123	0.0123	0.0000	148.2876	148.2876	0.0323	0.0000	149.0962
Total	0.0389	0.3467	0.9927	1.7200e-003		0.0123	0.0123		0.0123	0.0123	0.0000	148.2876	148.2876	0.0323	0.0000	149.0962

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3.5 Building Construction - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.9000e-004	0.0169	4.5000e-003	4.0000e-005	9.8000e-004	8.0000e-005	1.0600e-003	2.8000e-004	8.0000e-005	3.6000e-004	0.0000	3.8824	3.8824	1.8000e-004	0.0000	3.8869
Worker	1.4800e-003	1.0600e-003	0.0112	3.0000e-005	3.5300e-003	2.0000e-005	3.5600e-003	9.4000e-004	2.0000e-005	9.6000e-004	0.0000	3.0301	3.0301	7.0000e-005	0.0000	3.0319
Total	2.0700e-003	0.0180	0.0157	7.0000e-005	4.5100e-003	1.0000e-004	4.6200e-003	1.2200e-003	1.0000e-004	1.3200e-003	0.0000	6.9125	6.9125	2.5000e-004	0.0000	6.9188

3.5 Building Construction - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8400e-003	0.0888	0.0964	1.9000e-004		4.5300e-003	4.5300e-003		4.3400e-003	4.3400e-003	0.0000	16.4881	16.4881	3.5700e-003	0.0000	16.5772
Total	9.8400e-003	0.0888	0.0964	1.9000e-004		4.5300e-003	4.5300e-003		4.3400e-003	4.3400e-003	0.0000	16.4881	16.4881	3.5700e-003	0.0000	16.5772

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3.5 Building Construction - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0000e-005	1.7000e-003	4.5000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.4274	0.4274	2.0000e-005	0.0000	0.4279
Worker	1.5000e-004	1.1000e-004	1.1300e-003	0.0000	3.9000e-004	0.0000	4.0000e-004	1.0000e-004	0.0000	1.1000e-004	0.0000	0.3250	0.3250	1.0000e-005	0.0000	0.3252
Total	2.0000e-004	1.8100e-003	1.5800e-003	0.0000	5.0000e-004	0.0000	5.1000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.7524	0.7524	3.0000e-005	0.0000	0.7530

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.0900e-003	0.0368	0.1102	1.9000e-004		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003	0.0000	16.4881	16.4881	3.5700e-003	0.0000	16.5772
Total	4.0900e-003	0.0368	0.1102	1.9000e-004		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003	0.0000	16.4881	16.4881	3.5700e-003	0.0000	16.5772

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3.5 Building Construction - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0000e-005	1.7000e-003	4.5000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.4274	0.4274	2.0000e-005	0.0000	0.4279
Worker	1.5000e-004	1.1000e-004	1.1300e-003	0.0000	3.9000e-004	0.0000	4.0000e-004	1.0000e-004	0.0000	1.1000e-004	0.0000	0.3250	0.3250	1.0000e-005	0.0000	0.3252
Total	2.0000e-004	1.8100e-003	1.5800e-003	0.0000	5.0000e-004	0.0000	5.1000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.7524	0.7524	3.0000e-005	0.0000	0.7530

3.6 Paving - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.7000e-004	0.0110	0.0106	3.0000e-005		4.6000e-004	4.6000e-004		4.2000e-004	4.2000e-004	0.0000	2.3909	2.3909	7.7000e-004	0.0000	2.4102
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.7000e-004	0.0110	0.0106	3.0000e-005		4.6000e-004	4.6000e-004		4.2000e-004	4.2000e-004	0.0000	2.3909	2.3909	7.7000e-004	0.0000	2.4102

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3.6 Paving - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	2.9000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0821	0.0821	0.0000	0.0000	0.0821
Total	4.0000e-005	3.0000e-005	2.9000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0821	0.0821	0.0000	0.0000	0.0821

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.4000e-004	1.4500e-003	0.0154	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.3909	2.3909	7.7000e-004	0.0000	2.4102
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.4000e-004	1.4500e-003	0.0154	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.3909	2.3909	7.7000e-004	0.0000	2.4102

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3.6 Paving - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	2.9000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0821	0.0821	0.0000	0.0000	0.0821
Total	4.0000e-005	3.0000e-005	2.9000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0821	0.0821	0.0000	0.0000	0.0821

3.7 Architectural Coating - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4384					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5000e-004	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	0.4389	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394

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3.7 Architectural Coating - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.1000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0328	0.0328	0.0000	0.0000	0.0329
Total	2.0000e-005	1.0000e-005	1.1000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0328	0.0328	0.0000	0.0000	0.0329

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4384					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.0000e-005	3.2000e-004	4.5800e-003	1.0000e-005		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	0.4385	3.2000e-004	4.5800e-003	1.0000e-005		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394

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3.7 Architectural Coating - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.1000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0328	0.0328	0.0000	0.0000	0.0329
Total	2.0000e-005	1.0000e-005	1.1000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0328	0.0328	0.0000	0.0000	0.0329

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0590	0.2467	0.6891	2.2700e-003	0.2028	1.9600e-003	0.2048	0.0543	1.8400e-003	0.0561	0.0000	207.4914	207.4914	7.2500e-003	0.0000	207.6726
Unmitigated	0.0590	0.2467	0.6891	2.2700e-003	0.2028	1.9600e-003	0.2048	0.0543	1.8400e-003	0.0561	0.0000	207.4914	207.4914	7.2500e-003	0.0000	207.6726

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	238.00	247.75	215.50	545,480	545,480
Total	238.00	247.75	215.50	545,480	545,480

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.607897	0.037434	0.184004	0.107261	0.014919	0.004991	0.012447	0.020659	0.002115	0.001554	0.005334	0.000623	0.000761

5.0 Energy Detail

Historical Energy Use: N

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5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	26.9732	26.9732	2.6600e-003	5.5000e-004	27.2037
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	26.9732	26.9732	2.6600e-003	5.5000e-004	27.2037
NaturalGas Mitigated	3.9200e-003	0.0335	0.0143	2.1000e-004		2.7100e-003	2.7100e-003		2.7100e-003	2.7100e-003	0.0000	38.7756	38.7756	7.4000e-004	7.1000e-004	39.0060
NaturalGas Unmitigated	3.9200e-003	0.0335	0.0143	2.1000e-004		2.7100e-003	2.7100e-003		2.7100e-003	2.7100e-003	0.0000	38.7756	38.7756	7.4000e-004	7.1000e-004	39.0060

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	726627	3.9200e-003	0.0335	0.0143	2.1000e-004		2.7100e-003	2.7100e-003		2.7100e-003	2.7100e-003	0.0000	38.7756	38.7756	7.4000e-004	7.1000e-004	39.0060
Total		3.9200e-003	0.0335	0.0143	2.1000e-004		2.7100e-003	2.7100e-003		2.7100e-003	2.7100e-003	0.0000	38.7756	38.7756	7.4000e-004	7.1000e-004	39.0060

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5.2 Energy by Land Use - NaturalGas**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	726627	3.9200e-003	0.0335	0.0143	2.1000e-004		2.7100e-003	2.7100e-003		2.7100e-003	2.7100e-003	0.0000	38.7756	38.7756	7.4000e-004	7.1000e-004	39.0060
Total		3.9200e-003	0.0335	0.0143	2.1000e-004		2.7100e-003	2.7100e-003		2.7100e-003	2.7100e-003	0.0000	38.7756	38.7756	7.4000e-004	7.1000e-004	39.0060

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	202264	26.9732	2.6600e-003	5.5000e-004	27.2037
Total		26.9732	2.6600e-003	5.5000e-004	27.2037

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5.3 Energy by Land Use - Electricity**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	202264	26.9732	2.6600e-003	5.5000e-004	27.2037
Total		26.9732	2.6600e-003	5.5000e-004	27.2037

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2994	4.9400e-003	0.2455	2.1000e-004		0.0107	0.0107		0.0107	0.0107	1.2812	2.4255	3.7067	6.3200e-003	4.0000e-005	3.8763
Unmitigated	0.2994	4.9400e-003	0.2455	2.1000e-004		0.0107	0.0107		0.0107	0.0107	1.2812	2.4255	3.7067	6.3200e-003	4.0000e-005	3.8763

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6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0438					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2432					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	6.6700e-003	2.7900e-003	0.0594	2.0000e-004		9.7200e-003	9.7200e-003		9.7200e-003	9.7200e-003	1.2812	2.1223	3.4034	6.0300e-003	4.0000e-005	3.5658
Landscaping	5.6400e-003	2.1500e-003	0.1860	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3106
Total	0.2994	4.9400e-003	0.2455	2.1000e-004		0.0108	0.0108		0.0108	0.0108	1.2812	2.4255	3.7067	6.3200e-003	4.0000e-005	3.8763

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6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0438					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2432					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	6.6700e-003	2.7900e-003	0.0594	2.0000e-004		9.7200e-003	9.7200e-003		9.7200e-003	9.7200e-003	1.2812	2.1223	3.4034	6.0300e-003	4.0000e-005	3.5658
Landscaping	5.6400e-003	2.1500e-003	0.1860	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3106
Total	0.2994	4.9400e-003	0.2455	2.1000e-004		0.0108	0.0108		0.0108	0.0108	1.2812	2.4255	3.7067	6.3200e-003	4.0000e-005	3.8763

7.0 Water Detail**7.1 Mitigation Measures Water**

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.1714	0.0532	1.2900e-003	3.8859
Unmitigated	2.1714	0.0532	1.2900e-003	3.8859

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.62885 / 1.02688	2.1714	0.0532	1.2900e-003	3.8859
Total		2.1714	0.0532	1.2900e-003	3.8859

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.62885 / 1.02688	2.1714	0.0532	1.2900e-003	3.8859
Total		2.1714	0.0532	1.2900e-003	3.8859

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.1385	0.3628	0.0000	15.2077
Unmitigated	6.1385	0.3628	0.0000	15.2077

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8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	30.24	6.1385	0.3628	0.0000	15.2077
Total		6.1385	0.3628	0.0000	15.2077

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	30.24	6.1385	0.3628	0.0000	15.2077
Total		6.1385	0.3628	0.0000	15.2077

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Appendix B

AERMOD Model Inputs and Results

MozartHRA_AERMOD

**

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** AERMOD Input Produced by:

** AERMOD View Ver. 9.6.5

** Lakes Environmental Software Inc.

** Date: 7/18/2019

** File: C:\Model\Mozart HRA\MozartHRA_AERMOD\MozartHRA_AERMOD.ADI

**

**

**

** AERMOD Control Pathway

**

**

CO STARTING

TITLEONE C:\Model\Mozart HRA\MozartHRA_AERMOD\MozartHRA_AERMOD.isc

TITLETWO Mozart HRA

MODELOPT DFAULT CONC

AVERTIME PERIOD

POLLUTID PM_10

FLAGPOLE 1.50

RUNORNOT RUN

ERRORFIL MozartHRA_AERMOD.err

CO FINISHED

**

** AERMOD Source Pathway

**

**

SO STARTING

** Source Location **

** Source ID - Type - X Coord. - Y Coord. **

LOCATION CONSTR	AREA	592931.622	4123793.783	84.960
-----------------	------	------------	-------------	--------

** DESCRSRC maint construction area

** -----

** Line Source Represented by Area Sources

** LINE AREA Source ID = HAUL

** DESCRSRC Haul/Vend

** PREFIX

** Length of Side = 9.00

** Ratio = 10

** Vertical Dimension = 2.37

** Emission Rate = 0.0002495237

** Nodes = 3

MozarthRA_AERMOD

** 592844.381, 4123840.925, 84.82, 2.55

** 593056.596, 4123714.046, 87.27, 2.55

** 592950.283, 4123546.960, 89.25, 2.55

** -----

LOCATION	AREA	592842.072	4123837.063	84.92
A0000001	AREA	592912.810	4123794.770	85.06
A0000002	AREA	592983.548	4123752.477	86.66
A0000003	AREA	593052.799	4123716.461	87.14
A0000004	AREA	593017.361	4123660.766	77.63
A0000005	AREA	592981.924	4123605.071	78.94

** End of LINE AREA Source ID = HAUL

** Source Parameters **

SRCPARAM	CONSTR	0.0000820043	5.000	125.200	97.400	-57.500
1.400						

** LINE AREA Source ID = HAUL

SRCPARAM	A0000001	0.0002495237	2.550	82.417	9.000	30.874
2.370						

SRCPARAM	A0000002	0.0002495237	2.550	82.417	9.000	30.874
2.370						

SRCPARAM	A0000003	0.0002495237	2.550	82.417	9.000	30.874
2.370						

SRCPARAM	A0000004	0.0002495237	2.550	66.014	9.000	122.468
2.370						

SRCPARAM	A0000005	0.0002495237	2.550	66.014	9.000	122.468
2.370						

SRCPARAM	A0000006	0.0002495237	2.550	66.014	9.000	122.468
2.370						

** -----

SRCGROUP	CONSTR	CONSTR
A0000001	A0000002	A0000003
A0000004	A0000005	A0000006
ALL		

SO FINISHED

**

** AERMOD Receptor Pathway

**

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RE STARTING

INCLUDED MozarthRA_AERMOD.rou

RE FINISHED

**

** AERMOD Meteorology Pathway

**

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ME STARTING

MozarthRA_AERMOD

SURFFILE 724945.SFC
PROFFILE 724945.PFL
SURFDATA 23293 2009
UAIRDATA 23230 2009 OAKLAND/WSO_AP
PROFBASE 15.5 METERS

ME FINISHED

**

** AERMOD Output Pathway

**

**

OU STARTING

** Auto-Generated Plotfiles

PLOTFILE PERIOD ALL MozarthRA_AERMOD.AD\PE00GALL.PLT 31
PLOTFILE PERIOD CONSTR MozarthRA_AERMOD.AD\PE00G001.PLT 32
PLOTFILE PERIOD HAUL MozarthRA_AERMOD.AD\PE00G002.PLT 33
SUMMFILE MozarthRA_AERMOD.sum

OU FINISHED

**

** Project Parameters

** PROJCTN CoordinateSystemUTM
** DESCPTN UTM: Universal Transverse Mercator
** DATUM World Geodetic System 1984
** DTMRGN Global Definition
** UNITS m
** ZONE 10
** ZONEINX 0

**

MozartHRA_AERMOD
^ *** AERMOD - VERSION 18081 *** *** C:\Model\Mozart
HRA\MozartHRA_AERMOD\MozartHRA_AERMOD.isc *** 07/18/19
*** AERMET - VERSION 14134 *** *** Mozart HRA
*** 11:59:37

PAGE 1
*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** MODEL SETUP OPTIONS SUMMARY

-- --
**Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION. DRYDPLT = F
**Model Uses NO WET DEPLETION. WETDPLT = F

**Model Uses RURAL Dispersion Only.

**Model Uses Regulatory DEFAULT Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.

**Other Options Specified:

CCVR_Sub - Meteorological data includes CCVR substitutions
TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: PM₁₀

**Model Calculates PERIOD Averages Only

**This Run Includes: 7 Source(s); 3 Source Group(s); and 434
Receptor(s)

with: 0 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 0 VOLUME source(s)
and: 7 AREA type source(s)
and: 0 LINE source(s)

MozarthRA_AERMOD
and: 0 OPENPIT source(s)
and: 0 BUOYANT LINE source(s) with 0 line(s)

**Model Set To Continue RUNning After the Setup Testing.

**The AERMET Input Meteorological Data Version Date: 14134

**Output Options Selected:
Model Outputs Tables of PERIOD Averages by Receptor
Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and
Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 15.50 ; Decay
Coef. = 0.000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SEC ;
Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 3.6 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: MozarthRA_AERMOD.err

**File for Summary of Results: MozarthRA_AERMOD.sum

▲ *** AERMOD - VERSION 18081 *** *** C:\Model\Mozart
HRA\MozarthRA_AERMOD\MozarthRA_AERMOD.isc *** 07/18/19
*** AERMET - VERSION 14134 *** *** Mozart HRA
*** 11:59:37

PAGE 2
*** MODELOPTs: RegDFault CONC ELEV FLGPOL RURAL

*** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
(1=YES; 0=NO)

[illegible]

CATEGORIES ***

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED

(METERS/SEC)

```

^ *** AERMOD - VERSION 18081 ***      *** C:\Model\Mozart
HRA\MozartHRA_AERMOD\MozartHRA_AERMOD.isc      ***      07/18/19
*** AERMET - VERSION 14134 ***      *** Mozart HRA
***      11:59:37

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*** MODELOPTs: RegDFault CONC ELEV FLGPOL RURAL

Surface file: 724945.SFC
Met Version: 14134
Profile file: 724945.PFL

Surface station no.: 23293 Upper air station no.: 23230

MozartHRA_AERMOD

Name: UNKNOWN

Name:

OAKLAND/WSO_AP

Year: 2009

Year: 2009

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN
ALBEDO	REF	WS	WD	HT	REF	TA	HT							
09	01	01	1	01	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.25	1.10	
1.00	0.00	0.	10.0	282.5	2.0									
09	01	01	1	02	-13.4	0.236	-9.000	-9.000	-999.	275.	89.0	0.32	1.10	
1.00	2.36	18.	10.0	282.5	2.0									
09	01	01	1	03	-7.9	0.139	-9.000	-9.000	-999.	128.	30.9	0.32	1.10	
1.00	1.76	4.	10.0	282.0	2.0									
09	01	01	1	04	-12.4	0.217	-9.000	-9.000	-999.	242.	74.8	0.25	1.10	
1.00	2.36	73.	10.0	281.4	2.0									
09	01	01	1	05	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.25	1.10	
1.00	0.00	0.	10.0	282.0	2.0									
09	01	01	1	06	-9.7	0.170	-9.000	-9.000	-999.	168.	46.1	0.47	1.10	
1.00	1.76	342.	10.0	281.4	2.0									
09	01	01	1	07	-13.5	0.236	-9.000	-9.000	-999.	275.	88.6	0.32	1.10	
1.00	2.36	5.	10.0	281.4	2.0									
09	01	01	1	08	-19.7	0.345	-9.000	-9.000	-999.	486.	189.6	0.47	1.10	
0.74	2.86	333.	10.0	280.9	2.0									
09	01	01	1	09	-8.3	0.363	-9.000	-9.000	-999.	526.	525.4	0.47	1.10	
0.39	2.86	327.	10.0	280.9	2.0									
09	01	01	1	10	8.1	0.382	0.288	0.014	106.	566.	-625.1	0.47	1.10	
0.27	2.86	351.	10.0	280.9	2.0									
09	01	01	1	11	17.6	-9.000	-9.000	-9.000	189.	-999.	-99999.0	0.25	1.10	
0.23	0.00	0.	10.0	280.9	2.0									
09	01	01	1	12	23.0	-9.000	-9.000	-9.000	259.	-999.	-99999.0	0.25	1.10	
0.21	0.00	0.	10.0	281.4	2.0									
09	01	01	1	13	23.9	-9.000	-9.000	-9.000	315.	-999.	-99999.0	0.25	1.10	
0.21	0.00	0.	10.0	281.4	2.0									
09	01	01	1	14	48.5	-9.000	-9.000	-9.000	407.	-999.	-99999.0	0.25	1.10	
0.22	0.00	0.	10.0	283.1	2.0									
09	01	01	1	15	69.5	0.319	0.953	0.016	453.	433.	-42.6	0.32	1.10	
0.25	2.36	32.	10.0	283.1	2.0									
09	01	01	1	16	24.5	-9.000	-9.000	-9.000	460.	-999.	-99999.0	0.25	1.10	
0.33	0.00	0.	10.0	283.1	2.0									
09	01	01	1	17	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.25	1.10	
0.57	0.00	0.	10.0	283.1	2.0									
09	01	01	1	18	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.25	1.10	
1.00	0.00	0.	10.0	282.5	2.0									
09	01	01	1	19	-24.2	0.212	-9.000	-9.000	-999.	235.	35.9	0.47	1.10	
1.00	2.36	324.	10.0	281.4	2.0									
09	01	01	1	20	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.25	1.10	

```

MozarthRA_AERMOD
1.00    0.00    0.    10.0  281.4    2.0
09 01 01    1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0 0.25  1.10
1.00    0.00    0.    10.0  280.9    2.0
09 01 01    1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0 0.25  1.10
1.00    0.00    0.    10.0  280.9    2.0
09 01 01    1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0 0.25  1.10
1.00    0.00    0.    10.0  280.4    2.0
09 01 01    1 24  -9.7  0.170 -9.000 -9.000 -999.  168.    45.7  0.47  1.10
1.00    1.76  310.    10.0  280.4    2.0

```

First hour of profile data

```

YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
09 01 01 01   10.0 1 -999.  -99.00  282.6   99.0  -99.00  -99.00

```

F indicates top of profile (=1) or below (=0)

```

^ *** AERMOD - VERSION 18081 ***    *** C:\Model\Mozart
HRA\MozarthRA_AERMOD\MozarthRA_AERMOD.isc    ***    07/18/19
*** AERMET - VERSION 14134 ***    *** Mozart HRA
***    11:59:37

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** THE SUMMARY OF MAXIMUM PERIOD (43872

HRS) RESULTS ***

** CONC OF PM₁₀ IN MICROGRAMS/M**3

**

```

                                NETWORK
GROUP ID                AVERAGE CONC                RECEPTOR (XR, YR, ZELEV,
ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - -
CONSTR  1ST HIGHEST VALUE IS    114.93969 AT ( 592879.91,  4123921.21,   84.25,
84.25,    1.50) DC
        2ND HIGHEST VALUE IS    109.55091 AT ( 592899.91,  4123941.21,   84.33,
84.33,    1.50) DC
        3RD HIGHEST VALUE IS    104.21922 AT ( 592859.91,  4123901.21,   84.18,
84.18,    1.50) DC
        4TH HIGHEST VALUE IS    103.57433 AT ( 592879.91,  4123941.21,   84.06,
84.06,    1.50) DC
        5TH HIGHEST VALUE IS    102.06758 AT ( 592859.91,  4123881.21,   84.81,
84.81,    1.50) DC

```

		MozartHRA_AERMOD		
	6TH HIGHEST VALUE IS	99.42697 AT (	592859.91,	4123921.21,
84.13,	1.50) DC			84.13,
	7TH HIGHEST VALUE IS	89.98436 AT (	592859.91,	4123941.21,
84.05,	1.50) DC			84.05,
	8TH HIGHEST VALUE IS	85.05772 AT (	592899.91,	4123961.21,
84.02,	1.50) DC			84.02,
	9TH HIGHEST VALUE IS	84.40080 AT (	592879.91,	4123961.21,
84.12,	1.50) DC			84.12,
	10TH HIGHEST VALUE IS	83.50155 AT (	592839.91,	4123901.21,
84.43,	1.50) DC			84.43,
HAUL	1ST HIGHEST VALUE IS	311.60267 AT (	592999.91,	4123741.21,
86.86,	1.50) DC			86.86,
	2ND HIGHEST VALUE IS	227.93238 AT (	592959.91,	4123761.21,
85.78,	1.50) DC			85.78,
	3RD HIGHEST VALUE IS	197.04273 AT (	593019.91,	4123721.21,
87.13,	1.50) DC			87.13,
	4TH HIGHEST VALUE IS	174.90572 AT (	592919.91,	4123781.21,
85.28,	1.50) DC			85.28,
	5TH HIGHEST VALUE IS	165.67555 AT (	592859.91,	4123821.21,
84.92,	1.50) DC			84.92,
	6TH HIGHEST VALUE IS	152.79585 AT (	592979.91,	4123741.21,
86.97,	1.50) DC			86.97,
	7TH HIGHEST VALUE IS	128.05932 AT (	592939.91,	4123761.21,
85.40,	1.50) DC			85.40,
	8TH HIGHEST VALUE IS	126.60652 AT (	592999.91,	4123721.21,
87.23,	1.50) DC			87.23,
	9TH HIGHEST VALUE IS	125.24690 AT (	592879.91,	4123801.21,
85.46,	1.50) DC			85.46,
	10TH HIGHEST VALUE IS	101.45476 AT (	592959.91,	4123741.21,
86.59,	1.50) DC			86.59,
ALL	1ST HIGHEST VALUE IS	354.18738 AT (	592999.91,	4123741.21,
86.86,	1.50) DC			86.86,
	2ND HIGHEST VALUE IS	284.63647 AT (	592959.91,	4123761.21,
85.78,	1.50) DC			85.78,
	3RD HIGHEST VALUE IS	230.41624 AT (	592919.91,	4123781.21,
85.28,	1.50) DC			85.28,
	4TH HIGHEST VALUE IS	229.45268 AT (	593019.91,	4123721.21,
87.13,	1.50) DC			87.13,
	5TH HIGHEST VALUE IS	197.02460 AT (	592859.91,	4123821.21,
84.92,	1.50) DC			84.92,
	6TH HIGHEST VALUE IS	194.22002 AT (	592979.91,	4123741.21,
86.97,	1.50) DC			86.97,
	7TH HIGHEST VALUE IS	176.67322 AT (	592939.91,	4123761.21,
85.40,	1.50) DC			85.40,
	8TH HIGHEST VALUE IS	158.66568 AT (	592999.91,	4123721.21,
87.23,	1.50) DC			87.23,

MozartHRA_AERMOD
 9TH HIGHEST VALUE IS 157.58863 AT (592879.91, 4123801.21, 85.46,
 85.46, 1.50) DC
 10TH HIGHEST VALUE IS 153.44595 AT (592839.91, 4123861.21, 84.85,
 84.85, 1.50) DC

*** RECEPTOR TYPES: GC = GRIDCART
 GP = GRIDPOLR
 DC = DISCCART
 DP = DISCPOLR

▲ *** AERMOD - VERSION 18081 *** *** C:\Model\Mozart
 HRA\MozartHRA_AERMOD\MozartHRA_AERMOD.isc *** 07/18/19
 *** AERMET - VERSION 14134 *** *** Mozart HRA
 *** 11:59:37

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 *** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** Message Summary : AERMOD Model Execution ***

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)
 A Total of 0 Warning Message(s)
 A Total of 13130 Informational Message(s)
 A Total of 43872 Hours Were Processed
 A Total of 11611 Calm Hours Identified
 A Total of 1519 Missing Hours Identified (3.46 Percent)

***** FATAL ERROR MESSAGES *****
 *** NONE ***

***** WARNING MESSAGES *****
 *** NONE ***

Appendix C

Health Risk Assessment Calculations

HRA Calculations

Haul Route Information

CalEEMod Distance		
Haul Route	20	miles
Vendor Route	7.3	miles
AERMOD Distance		
Modeled Route	0.3	miles
Emission Fraction		
Haul Route	1.4%	
Vendor Route	3.8%	

Onsite DPM Emissions per phase

Phase	Start Date	End Date	Calendar Days	Work Days	Onsite Unmitigated (tpy)	Onsite Mitigated (tpy)	Haul Routes (tpy)	Onsite Unmitigated (g/s)	Onsite Mitigated (g/s)	Haul Routes (g/s)
Demo	7/1/2020	7/28/2020	27	20	0.00501	0.00027	0.00001	1.95E-03	1.05E-04	3.89E-06
Site Prep	7/29/2020	7/31/2020	2	3	0.00060	0.00002	0.00000	3.15E-03	1.05E-04	0.00E+00
Grading	8/1/2020	8/14/2020	13	10	0.00567	0.00024	0.00000	4.58E-03	1.94E-04	0.00E+00
Building	8/15/2020	1/15/2021	153	110	0.05163	0.01351	0.00008	3.54E-03	9.27E-04	5.49E-06
Paving	1/16/2021	1/23/2021	7	5	0.00046	0.00004	0.00000	6.90E-04	6.00E-05	0.00E+00
Arch Coat	1/24/2021	1/29/2021	5	5	0.00024	0.00001	0.00000	5.04E-04	2.10E-05	0.00E+00

Onsite PM2.5 (exhaust) Emissions per Year

Year	Start Date	End Date	Calendar Days	Work Days	Onsite Unmitigated (tpy)	Onsite Mitigated (tpy)	Haul Routes (tpy)	Onsite Unmitigated (g/s)	Onsite Mitigated (g/s)	Haul Routes (g/s)
2020	7/1/2020	12/31/2020	183	132	0.05547	0.01283	0.00009	1.60E-03	3.69E-04	2.59E-06
2021	1/1/2021	1/29/2021	28	21	0.00500	0.00126	0.00000	1.44E-04	3.62E-05	0.00E+00

AERMOD Out (emission rate = 1 g/s)

ERMERD Out (emission rate = 1 g/s)				Unmitigated								PM2.5 ug/m ³	
UTM Easting (m)	UTM Northing (m)	Output - [ug/m ³]/[g/s]		Demo	Site Prep	Grading	Building	Paving	Arch Coat	Total	2020	2021	
		Main Construction	Haul/Vendor Routes										
592779.91	4123561.21	1.22918	2.79237	2.39E-03	3.87E-03	5.63E-03	4.36E-03	8.48E-04	6.19E-04	1.77E-02	1.96E-03	4.46E-03	
592799.91	4123561.21	1.40549	3.13456	2.74E-03	4.43E-03	6.44E-03	4.98E-03	9.70E-04	7.08E-04	2.03E-02	2.24E-03	5.00E-03	
592819.91	4123561.21	1.61814	3.46283	3.15E-03	5.10E-03	7.41E-03	5.73E-03	1.12E-03	8.16E-04	2.33E-02	2.58E-03	5.53E-03	
592779.91	4123581.21	1.31639	3.57185	2.56E-03	4.15E-03	6.03E-03	4.66E-03	9.08E-04	6.63E-04	1.90E-02	2.10E-03	5.70E-03	
592799.91	4123581.21	1.51436	4.14645	2.95E-03	4.77E-03	6.94E-03	5.37E-03	1.04E-03	7.63E-04	2.18E-02	2.42E-03	6.62E-03	
593199.91	4123661.21	15.70632	37.7282	3.06E-02	4.95E-02	7.19E-02	5.57E-02	1.08E-02	7.92E-03	2.26E-01	2.51E-02	6.02E-02	
593219.91	4123661.21	15.55911	32.76083	3.03E-02	4.90E-02	7.13E-02	5.51E-02	1.07E-02	7.84E-03	2.24E-01	2.48E-02	5.23E-02	
593179.91	4123681.21	18.70362	42.74651	3.64E-02	5.89E-02	8.57E-02	6.63E-02	1.29E-02	9.43E-03	2.70E-01	2.98E-02	6.82E-02	
593199.91	4123681.21	18.39213	35.74419	3.58E-02	5.79E-02	8.42E-02	6.52E-02	1.27E-02	9.27E-03	2.65E-01	2.94E-02	5.70E-02	
593219.91	4123681.21	18.05769	30.34166	3.52E-02	5.69E-02	8.27E-02	6.40E-02	1.25E-02	9.10E-03	2.60E-01	2.88E-02	4.84E-02	
593239.91	4123681.21	17.66785	25.96198	3.44E-02	5.57E-02	8.09E-02	6.26E-02	1.22E-02	8.90E-03	2.55E-01	2.82E-02	4.14E-02	
593139.91	4123701.21	23.07258	58.1862	4.50E-02	7.27E-02	1.06E-01	8.18E-02	1.59E-02	1.16E-02	3.33E-01	3.68E-02	9.28E-02	
593159.91	4123701.21	22.52415	46.12996	4.39E-02	7.09E-02	1.03E-01	7.98E-02	1.55E-02	1.14E-02	3.25E-01	3.59E-02	7.36E-02	
593179.91	4123701.21	21.95313	37.65384	4.28E-02	6.92E-02	1.01E-01	7.78E-02	1.51E-02	1.11E-02	3.16E-01	3.50E-02	6.01E-02	
593199.91	4123701.21	21.34565	31.41299	4.16E-02	6.72E-02	9.78E-02	7.56E-02	1.47E-02	1.08E-02	3.08E-01	3.41E-02	5.01E-02	
593219.91	4123701.21	20.63437	26.38109	4.02E-02	6.50E-02	9.45E-02	7.31E-02	1.42E-02	1.04E-02	2.97E-01	3.29E-02	4.21E-02	
593239.91	4123701.21	19.86667	22.4563	3.87E-02	6.26E-02	9.10E-02	7.04E-02	1.37E-02	1.00E-02	2.86E-01	3.17E-02	3.58E-02	
593099.91	4123721.21	29.55529	81.53082	5.76E-02	9.31E-02	1.35E-01	1.05E-01	2.04E-02	1.49E-02	4.26E-01	4.72E-02	1.30E-01	
593119.91	4123721.21	28.56066	60.48387	5.56E-02	9.00E-02	1.31E-01	1.01E-01	1.97E-02	1.44E-02	4.12E-01	4.56E-02	9.65E-02	
593139.91	4123721.21	27.48145	46.79532	5.35E-02	8.66E-02	1.26E-01	9.74E-02	1.90E-02	1.39E-02	3.96E-01	4.39E-02	7.47E-02	
593159.91	4123721.21	26.45511	37.91177	5.15E-02	8.33E-02	1.21E-01	9.37E-02	1.83E-02	1.33E-02	3.81E-01	4.22E-02	6.05E-02	
593179.91	4123721.21	25.37907	31.34385	4.94E-02	7.99E-02	1.16E-01	8.99E-02	1.75E-02	1.28E-02	3.66E-01	4.05E-02	5.00E-02	
593199.91	4123721.21	24.21109	26.1688	4.72E-02	7.63E-02	1.11E-01	8.58E-02	1.67E-02	1.22E-02	3.49E-01	3.86E-02	4.18E-02	
593219.91	4123721.21	22.96028	22.00011	4.47E-02	7.23E-02	1.05E-01	8.14E-02	1.58E-02	1.16E-02	3.31E-01	3.66E-02	3.51E-02	
593239.91	4123721.21	21.76991	18.97344	4.24E-02	6.86E-02	9.97E-02	7.71E-02	1.50E-02	1.10E-02	3.14E-01	3.47E-02	3.03E-02	
593259.91	4123721.21	20.61227	16.66907	4.02E-02	6.49E-02	9.44E-02	7.30E-02	1.42E-02	1.04E-02	2.97E-01	3.29E-02	2.66E-02	
592919.91	4123741.21	23.87992	55.56702	4.65E-02	7.52E-02	1.09E-01	8.46E-02	1.65E-02	1.20E-02	3.44E-01	3.81E-02	8.87E-02	
592939.91	4123741.21	32.15226	73.87949	6.26E-02	1.01E-01	1.47E-01	1.14E-01	2.22E-02	1.62E-02	4.63E-01	5.13E-02	1.18E-01	
592959.91	4123741.21	38.27182	101.45476	7.46E-02	1.21E-01	1.75E-01	1.36E-01	2.64E-02	1.93E-02	5.52E-01	6.11E-02	1.62E-01	
592979.91	4123741.21	41.42417	152.79585	8.07E-02	1.30E-01	1.90E-01	1.47E-01	2.86E-02	2.09E-02	5.97E-01	6.61E-02	2.44E-01	
592999.91	4123741.21	42.58471	311.60267	8.30E-02	1.34E-01	1.95E-01	1.51E-01	2.94E-02	2.15E-02	6.14E-01	6.80E-02	4.97E-01	
593099.91	4123741.21	35.91409	56.23333	7.00E-02	1.13E-01	1.64E-01	1.27E-01	2.48E-02	1.81E-02	5.18E-01	5.73E-02	8.97E-02	
593119.91	4123741.21	33.94753	44.50378	6.61E-02	1.07E-01	1.55E-01	1.20E-01	2.34E-02	1.71E-02	4.89E-01	5.42E-02	7.10E-02	
593139.91	4123741.21	32.09	36.2794	6.25E-02	1.01E-01	1.47E-01	1.14E-01	2.21E-02	1.62E-02	4.63E-01	5.12E-02	5.79E-02	
593159.91	4123741.21	30.19026	29.7976	5.88E-02	9.51E-02	1.38E-01	1.07E-01	2.08E-02	1.52E-02	4.35E-01	4.82E-02	4.75E-02	
593179.91	4123741.21	28.33844	24.88031	5.52E-02	8.93E-02	1.30E-01	1.00E-01	1.96E-02	1.43E-02	4.09E-01	4.52E-02	3.97E-02	
593199.91	4123741.21	26.72634	21.58074	5.21E-02	8.42E-02	1.22E-01	9.47E-02	1.84E-02	1.35E-02	3.85E-01	4.26E-02	3.44E-02	
593219.91	4123741.21	24.92676	18.54718	4.86E-02	7.85E-02	1.14E-01	8.83E-02	1.72E-02	1.26E-02	3.59E-01	3.98E-02	2.96E-02	
593239.91	4123741.21	23.24244	16.21639	4.53E-02	7.32E-02	1.06E-01	8.24E-02	1.60E-02	1.17E-02	3.35E-01	3.71E-02	2.59E-02	
593259.91	4123741.21	21.59673	14.30607	4.21E-02	6.80E-02	9.89E-02	7.65E-02	1.49E-02	1.09E-02	3.11E-01	3.45E-02	2.28E-02	
592899.91	4123761.21	22.45861	59.18506	4.38E-02	7.07E-02	1.03E-01	7.96E-02	1.55E-02	1.13E-02	3.24E-01	3.58E-02	9.44E-02	
592919.91	4123761.21	34.78323	84.45817	6.78E-02	1.10E-01	1.59E-01	1.23E-01	2.40E-02	1.75E-02	5.01E-01	5.55E-02	1.35E-01	
592939.91	4123761.21	48.61389	128.05932	9.47E-02	1.53E-01	2.23E-01	1.72E-01	3.35E-02	2.45E-02	7.01E-01	7.76E-02	2.04E-01	
592959.91	4123761.21	56.70409	227.93238	1.10E-01	1.79E-01	2.60E-01	2.01E-01	3.91E-02	2.86E-02	8.17E-01	9.05E-02	3.64E-01	
593119.91	4123761.21	39.04578	32.74153	7.61E-02	1.23E-01	1.79E-01	1.38E-01	2.69E-02	1.97E-02	5.63E-01	6.23E-02	5.22E-02	
593139.91	4123761.21	36.03579	27.53117	7.02E-02	1.14E-01	1.65E-01	1.28E-01	2.49E-02	1.82E-02	5.19E-01	5.75E-02	4.39E-02	
593159.91	4123761.21	33.26666	23.43017	6.48E-02	1.05E-01	1.52E-01	1.18E-01	2.30E-02	1.68E-02	4.80E-01	5.31E-02	3.74E-02	
593179.91	4123761.21	30.74781	20.30931	5.99E-02	9.69E-02	1.41E-01	1.09E-01	2.12E-02	1.55E-02	4.43E-01	4.91E-02	3.24E-02	
593199.91	4123761.21	28.37627	17.80583	5.53E-02	8.94E-02	1.30E-01	1.01E-01	1.96E-02	1.43E-02	4.09E-01	4.53E-02	2.84E-02	
593219.91	4123761.21	26.10561	15.67132	5.09E-02	8.22E-02	1.20E-01	9.25E-02	1.80E-02	1.32E-02	3.76E-01	4.17E-02	2.50E-02	
593239.91	4123761.21	23.9031	13.86185	4.66E-02	7.53E-02	1.09E-01	8.47E-02	1.65E-02	1.20E-02	3.45E-01	3.81E-02	2.21E-02	
593259.91	4123761.21	21.84938	12.35986	4.26E-02	6.88E-02	1.00E-01	7.74E-02	1.51E-02	1.10E-02	3.15E-01	3.49E-02	1.97E-02	
593279.91	4123761.21	19.91899	11.07221	3.88E-02	6.27E-02	9.12E-02	7.06E-02	1.37E-02	1.00E-02	2.87E-01	3.18E-02	1.77E-02	
592879.91	4123781.21	19.72324	63.66262	3.84E-02	6.21E-02	9.03E-02	6.99E-02	1.36E-02	9.94E-03	2.84E-01	3.15E-02	1.02E-01	
592899.91	4123781.21	33.74144	100.68637	6.57E-02	1.06E-01	1.55E-01	1.20E-01	2.33E-02	1.70E-02	4.86E-01	5.39E-02	1.61E-01	
592919.91	4123781.21	55.51052	174.90572	1.08E-01	1.75E-01	2.54E-01	1.97E-01	3.83E-02	2.80E-02	8.00E-01	8.86E-02	2.79E-01	
593119.91	4123781.21	43.29399	24.9169	8.44E-02	1.36E-01	1.98E-01	1.53E-01	2.99E-02	2.18E-02	6.24E-01	6.91E-02	3.98E-02	
593139.91	4123781.21	39.08987	21.53647	7.62E-02	1.23E-01	1.79E-01	1.39E-01	2.70E-02	1.97E-02	5.63E-01	6.24E-02	3.44E-02	
593159.91	4123781.21	35.46761	19.08902	6.91E-02	1.12E-01	1.62E-01	1.26E-01	2.45E-02	1.79E-02	5.11E-01	5.66E-02	3.05E-02	
593179.91	4123781.21	32.06439	16.85226	6.52E-02	1.01E-01	1.47E-01	1.14E-01	2.21E-02	1.62E-02	4.62E-01	5.12E-02	2.69E-02	
593199.91	4123781.21	29.02683	14.99904	5.65E-02	9.14E-02	1.33E-01	1.03E-01	2.00E-02	1.46E-02	4.18E-01	4.63E-02	2.39E-02	
593219.91	4123781.21	26.20369	13.36277	5.11E-02	8.25E-02	1.20E-01	9.29E-02	1.81E-02	1.32E-02	3.78E-01	4.18E-02	2.13E-02	
593239.91	4123781.21	23.59364	11.96596	4.60E-02	7.43E-02	1.08E-01	8.36E-02	1.63E-02	1.19E-02	3.40E-01	3.76E-02	1.91E-02	
593259.91	4123781.21	21.19297	10.72663	4.13E-02	6.68E-02	9.71E-02	7.51E-02	1.46E-02	1.07E-02	3.05E-01	3.38E-02	1.71E-02	
593279.91	4123781.21	19.05982	9.68952	3.72E-02	6.02E-02	8.74E-02	6.77E-02	1.32E-02	9.62E-03	2.75E-01	3.05E-02	1.55E-02	
592859.91	4123801.21	17.84279	66.57523	3.48E-02	5.62E-02	8.17E-02	6.32E-02	1.23E-02	8.99E-03	2.57E-01	2.85E-02	1.06E-01	
592879.91	4123801.21	32.34173	125.2469	6.30E-02	1.02E-01	1.48E-01	1.15E-01	2.23E-02	1.63E-02	4.66E-01	5.16E-02	2.00E-01	
593139.91	4123801.21	40.59754	17.32551	7.91E-02	1.28E-01	1.86E-01	1.44E-01	2.80E-02	2.05E-02	5.85E-01	6.48E-02	2.76E-02	
593159.91	4123801.21	36.30545	15.61644	7.02E-02	1.14E-01	1.65E-01	1.28E-01	2.49E-02	1.82E-02	5.19E-01	5.75E-02	2.49E-02	
593179.91	41238												

592859.91	4123821.21	31.34904	165.67555	6.11E-02	9.87E-02	1.44E-01	1.11E-01	2.16E-02	1.58E-02	4.52E-01	5.00E-02	2.64E-01
593159.91	4123821.21	34.65775	12.9976	6.75E-02	1.09E-01	1.59E-01	1.23E-01	2.39E-02	1.75E-02	5.00E-01	5.53E-02	2.07E-02
593179.91	4123821.21	30.05086	11.83717	5.85E-02	9.47E-02	1.38E-01	1.06E-01	2.07E-02	1.51E-02	4.33E-01	4.80E-02	1.89E-02
593199.91	4123821.21	26.2034	10.8593	5.11E-02	8.25E-02	1.20E-01	9.28E-02	1.81E-02	1.32E-02	3.78E-01	4.18E-02	1.73E-02
593219.91	4123821.21	23.01864	10.00811	4.48E-02	7.25E-02	1.05E-01	8.16E-02	1.59E-02	1.16E-02	3.32E-01	3.67E-02	1.60E-02
593239.91	4123821.21	20.40156	9.24453	3.97E-02	6.43E-02	9.34E-02	7.23E-02	1.41E-02	1.03E-02	2.94E-01	3.26E-02	1.48E-02
593259.91	4123821.21	18.13356	8.51454	3.53E-02	5.71E-02	8.30E-02	6.43E-02	1.25E-02	9.14E-03	2.61E-01	2.89E-02	1.36E-02
593279.91	4123821.21	16.16862	7.84822	3.15E-02	5.09E-02	7.40E-02	5.73E-02	1.12E-02	8.15E-03	2.33E-01	2.58E-02	1.25E-02
593299.91	4123821.21	14.51203	7.26118	2.83E-02	4.57E-02	6.65E-02	5.14E-02	1.00E-02	7.31E-03	2.09E-01	2.32E-02	1.16E-02
592819.91	4123841.21	26.4361	64.22347	5.15E-02	8.33E-02	1.21E-01	9.37E-02	1.82E-02	1.33E-02	3.81E-01	4.22E-02	1.02E-01
593099.91	4123841.21	51.46951	15.59101	1.00E-01	1.62E-01	2.36E-01	1.82E-01	3.55E-02	2.59E-02	7.42E-01	8.21E-02	2.49E-02
593159.91	4123841.21	31.32287	11.03888	6.10E-02	9.87E-02	1.43E-01	1.11E-01	2.16E-02	1.58E-02	4.52E-01	5.00E-02	1.76E-02
593179.91	4123841.21	26.87337	10.12454	5.24E-02	8.46E-02	1.23E-01	9.52E-02	1.85E-02	1.35E-02	3.87E-01	4.29E-02	1.62E-02
593199.91	4123841.21	23.38537	9.44019	4.56E-02	7.37E-02	1.07E-01	8.29E-02	1.61E-02	1.18E-02	3.37E-01	3.73E-02	1.51E-02
593219.91	4123841.21	20.43997	8.80206	3.98E-02	6.44E-02	9.36E-02	7.24E-02	1.41E-02	1.03E-02	2.95E-01	3.26E-02	1.40E-02
593239.91	4123841.21	18.05934	8.2158	3.52E-02	5.69E-02	8.27E-02	6.40E-02	1.25E-02	9.10E-03	2.60E-01	2.88E-02	1.31E-02
593259.91	4123841.21	16.07164	7.65495	3.13E-02	5.06E-02	7.36E-02	5.69E-02	1.11E-02	8.10E-03	2.32E-01	2.56E-02	1.22E-02
593279.91	4123841.21	14.35815	7.12493	2.80E-02	4.52E-02	6.58E-02	5.09E-02	9.91E-03	7.24E-03	2.07E-01	2.29E-02	1.14E-02
593299.91	4123841.21	12.83964	6.60717	2.50E-02	4.04E-02	5.88E-02	4.55E-02	8.86E-03	6.47E-03	1.85E-01	2.05E-02	1.05E-02
592799.91	4123861.21	30.61977	48.9735	5.97E-02	9.65E-02	1.40E-01	1.09E-01	2.11E-02	1.54E-02	4.41E-01	4.89E-02	1.78E-02
592839.91	4123861.21	64.86616	88.57979	1.26E-01	2.04E-01	2.97E-01	2.30E-01	4.48E-02	3.27E-02	9.35E-01	1.04E-01	1.41E-01
593079.91	4123861.21	56.33997	15.67293	1.10E-01	1.77E-01	2.58E-01	2.00E-01	3.89E-02	2.84E-02	8.12E-01	8.99E-02	2.50E-02
593099.91	4123861.21	45.96768	13.60957	8.96E-02	1.45E-01	2.11E-01	1.63E-01	3.17E-02	2.32E-02	6.63E-01	7.34E-02	2.17E-02
593119.91	4123861.21	37.69521	11.79169	7.34E-02	1.19E-01	1.73E-01	1.34E-01	2.60E-02	1.90E-02	5.43E-01	6.02E-02	1.88E-02
593179.91	4123861.21	23.10921	8.88182	4.50E-02	7.28E-02	1.06E-01	8.19E-02	1.59E-02	1.16E-02	3.33E-01	3.69E-02	1.42E-02
593199.91	4123861.21	20.11169	8.27276	3.92E-02	6.34E-02	9.21E-02	7.13E-02	1.39E-02	1.01E-02	2.90E-01	3.21E-02	1.32E-02
593219.91	4123861.21	17.71498	7.75928	3.45E-02	5.58E-02	8.11E-02	6.28E-02	1.22E-02	8.93E-03	2.55E-01	2.83E-02	1.24E-02
593239.91	4123861.21	15.67126	7.31544	3.05E-02	4.94E-02	7.18E-02	5.55E-02	1.08E-02	7.90E-03	2.26E-01	2.50E-02	1.17E-02
593259.91	4123861.21	13.91913	6.88759	2.71E-02	4.38E-02	6.37E-02	4.93E-02	9.60E-03	7.02E-03	2.01E-01	2.22E-02	1.10E-02
593279.91	4123861.21	12.52886	6.47884	2.44E-02	3.95E-02	5.74E-02	4.44E-02	8.64E-03	6.31E-03	1.81E-01	2.00E-02	1.03E-02
593299.91	4123861.21	11.33769	6.08394	2.21E-02	3.57E-02	5.19E-02	4.02E-02	7.82E-03	5.71E-03	1.63E-01	1.81E-02	9.71E-03
592799.91	4123881.21	41.13516	44.75637	8.01E-02	1.30E-01	1.88E-01	1.46E-01	2.84E-02	2.07E-02	5.93E-01	6.56E-02	7.14E-02
592819.91	4123881.21	57.22754	52.81602	1.11E-01	1.80E-01	2.62E-01	2.03E-01	3.95E-02	2.88E-02	8.25E-01	9.13E-02	8.43E-02
592839.91	4123881.21	79.71522	55.22824	1.55E-01	2.51E-01	3.65E-01	2.82E-01	5.50E-02	4.02E-02	1.15E+00	1.27E-01	8.81E-02
592859.91	4123881.21	102.06758	51.22628	1.99E-01	3.22E-01	4.67E-01	3.62E-01	7.04E-02	5.14E-02	1.47E+00	1.63E-01	8.17E-02
593039.91	4123881.21	77.25769	17.18405	1.51E-01	2.43E-01	3.54E-01	2.74E-01	5.33E-02	3.89E-02	1.11E+00	1.23E-01	2.74E-02
593059.91	4123881.21	58.65898	15.52403	1.14E-01	1.85E-01	2.69E-01	2.08E-01	4.05E-02	2.96E-02	8.46E-01	9.36E-02	2.48E-02
593079.91	4123881.21	45.99079	13.6211	8.96E-02	1.45E-01	2.11E-01	1.63E-01	3.17E-02	2.32E-02	6.63E-01	7.34E-02	2.17E-02
593099.91	4123881.21	36.88496	11.72007	7.19E-02	1.16E-01	1.69E-01	1.31E-01	2.55E-02	1.86E-02	5.32E-01	5.89E-02	1.87E-02
593119.91	4123881.21	30.85729	10.50953	6.01E-02	9.72E-02	1.41E-01	1.09E-01	2.13E-02	1.56E-02	4.45E-01	4.92E-02	1.68E-02
593139.91	4123881.21	25.83082	9.31359	5.03E-02	8.14E-02	1.18E-01	9.15E-02	1.78E-02	1.30E-02	3.72E-01	4.12E-02	1.49E-02
593199.91	4123881.21	16.94038	7.3605	3.30E-02	5.34E-02	7.76E-02	6.00E-02	1.17E-02	8.54E-03	2.44E-01	2.70E-02	1.17E-02
593219.91	4123881.21	14.99242	6.91504	2.92E-02	4.72E-02	6.87E-02	5.31E-02	1.03E-02	7.56E-03	2.16E-01	2.39E-02	1.10E-02
593239.91	4123881.21	13.35006	6.53736	2.60E-02	4.21E-02	6.11E-02	4.73E-02	9.21E-03	6.73E-03	1.92E-01	2.13E-02	1.04E-02
593259.91	4123881.21	12.00548	6.20929	2.34E-02	3.78E-02	5.50E-02	4.25E-02	8.28E-03	6.05E-03	1.73E-01	1.92E-02	9.91E-03
593279.91	4123881.21	10.90622	5.90282	2.12E-02	3.44E-02	4.99E-02	3.86E-02	7.53E-03	5.50E-03	1.57E-01	1.74E-02	9.42E-03
593299.91	4123881.21	9.93271	5.58975	1.94E-02	3.13E-02	4.55E-02	3.52E-02	6.85E-03	5.01E-03	1.43E-01	1.58E-02	8.92E-03
592799.91	4123901.21	48.45184	36.91463	9.44E-02	1.53E-01	2.22E-01	1.72E-01	3.34E-02	2.44E-02	6.98E-01	7.73E-02	5.89E-02
592819.91	4123901.21	63.87995	39.38764	1.24E-01	2.01E-01	2.93E-01	2.26E-01	4.41E-02	3.22E-02	9.21E-01	1.02E-01	6.28E-02
592839.91	4123901.21	83.50155	39.35511	1.63E-01	2.63E-01	3.82E-01	2.96E-01	5.76E-02	4.21E-02	1.20E+00	1.33E-01	6.28E-02
592859.91	4123901.21	104.21922	37.41824	2.03E-01	3.28E-01	4.77E-01	3.69E-01	7.19E-02	5.25E-02	1.55E+00	1.66E-01	5.97E-02
593019.91	4123901.21	71.45181	16.12357	1.39E-01	2.25E-01	3.27E-01	2.53E-01	4.93E-02	3.60E-02	1.03E+00	1.14E-01	2.57E-02
593039.91	4123901.21	54.12539	14.81005	1.05E-01	1.70E-01	2.48E-01	1.92E-01	3.73E-02	2.73E-02	7.80E-01	8.64E-02	2.36E-02
593059.91	4123901.21	42.45075	13.46752	8.27E-02	1.34E-01	1.94E-01	1.50E-01	2.93E-02	2.14E-02	6.12E-01	6.77E-02	2.15E-02
593079.91	4123901.21	34.2161	11.91602	6.67E-02	1.08E-01	1.57E-01	1.21E-01	2.36E-02	1.72E-02	4.93E-01	5.46E-02	1.90E-02
593099.91	4123901.21	28.57517	10.59394	5.57E-02	9.00E-02	1.31E-01	1.01E-01	1.97E-02	1.44E-02	4.12E-01	4.56E-02	1.69E-02
593119.91	4123901.21	24.11622	9.39578	4.70E-02	7.60E-02	1.10E-01	8.54E-02	1.66E-02	1.22E-02	3.48E-01	3.85E-02	1.50E-02
593139.91	4123901.21	20.81901	8.44713	4.06E-02	6.56E-02	9.53E-02	7.38E-02	1.44E-02	1.05E-02	3.00E-01	3.32E-02	1.35E-02
593199.91	4123901.21	14.20135	6.63443	2.77E-02	4.47E-02	6.50E-02	5.03E-02	9.80E-03	7.16E-03	2.05E-01	2.27E-02	1.06E-02
593219.91	4123901.21	12.6635	6.23451	2.47E-02	3.99E-02	5.80E-02	4.49E-02	8.74E-03	6.38E-03	1.83E-01	2.02E-02	9.95E-03
593239.91	4123901.21	11.48693	5.90813	2.24E-02	3.62E-02	5.26E-02	4.07E-02	7.93E-03	5.79E-03	1.66E-01	1.83E-02	9.43E-03
593259.91	4123901.21	10.42196	5.62731	2.03E-02	3.28E-02	4.77E-02	3.69E-02	7.19E-03	5.25E-03	1.50E-01	1.66E-02	8.98E-03
593279.91	4123901.21	9.51692	5.37949	1.85E-02	3.00E-02	4.36E-02	3.37E-02	6.57E-03	4.80E-03	1.37E-01	1.52E-02	8.58E-03
593299.91	4123901.21	8.68397	5.12672	1.69E-02	2.74E-02	3.98E-02	3.08E-02	5.99E-03	4.38E-03	1.25E-01	1.39E-02	8.18E-03
592799.91	4123921.21	51.76614	29.82141	1.01E-01	1.63E-01	2.37E-01	1.83E-01	3.57E-02	2.61E-02	7.46E-01	8.26E-02	4.76E-02
592819.91	4123921.21	65.25637	30.54442	1.27E-01	2.06E-01	2.99E-01	2.31E-01	4.50E-02	3.29E-02	9.41E-01	1.04E-01	4.87E-02
592839.91	4123921.21	81.50545	29.97269	1.59E-01	2.57E-01	3.73E-01	2.89E-01	5.62E-02	4.11E-02	1.17E+00	1.30E-01	4.78E-02
592859.91	4123921.21	99.42697	28.80001	1.94E-01	3.13E-01	4.55E-01	3.52E-01	6.86E-02	5.01E-02	1.43E+00	1.59E-01	4.60E-02
592879.91	4123921.21	114.93969	26.84818	2.24E-01	3.62E-01	5.26E-01	4.07E-01	7.93E-02	5.79E-02	1.66E+00	1.83E-01	4.28E-02
592979.91	4123921.21	71.34133	16.71472	1.39E-01	2.25E-01	3.27E-01	2.53E-01	4.92E-02	3.60E-02	1.03E+00	1.14E-01	2.67E-02
59												

592999.91	4123961.21	21.68232	11.29452	4.22E-02	6.83E-02	9.93E-02	7.68E-02	1.50E-02	1.09E-02	3.13E-01	3.46E-02	1.80E-02
593019.91	4123961.21	19.93031	10.63432	3.88E-02	6.28E-02	9.13E-02	7.06E-02	1.38E-02	1.00E-02	2.87E-01	3.18E-02	1.70E-02
593039.91	4123961.21	18.4463	10.01937	3.59E-02	5.81E-02	8.45E-02	6.54E-02	1.27E-02	9.30E-03	2.66E-01	2.94E-02	1.60E-02
593059.91	4123961.21	17.2058	9.36467	3.35E-02	5.42E-02	7.88E-02	6.10E-02	1.19E-02	8.67E-03	2.48E-01	2.75E-02	1.49E-02
593079.91	4123961.21	15.99917	8.59909	3.12E-02	5.04E-02	7.33E-02	5.67E-02	1.10E-02	8.06E-03	2.31E-01	2.55E-02	1.37E-02
593099.91	4123961.21	14.64917	7.80801	2.85E-02	4.61E-02	6.71E-02	5.19E-02	1.01E-02	7.38E-03	2.11E-01	2.34E-02	1.25E-02
593239.91	4123961.21	7.8255	4.59474	1.52E-02	2.46E-02	3.58E-02	2.77E-02	5.40E-03	3.94E-03	1.13E-01	1.25E-02	7.33E-03
593259.91	4123961.21	7.22182	4.38034	1.41E-02	2.27E-02	3.31E-02	2.56E-02	4.98E-03	3.64E-03	1.04E-01	1.15E-02	6.99E-03
593279.91	4123961.21	6.71851	4.18822	1.31E-02	2.12E-02	3.08E-02	2.38E-02	4.64E-03	3.39E-03	9.68E-02	1.07E-02	6.68E-03
592799.91	4123981.21	45.75911	17.21166	8.92E-02	1.44E-01	2.10E-01	1.62E-01	3.16E-02	2.31E-02	6.60E-01	7.30E-02	2.75E-02
592819.91	4123981.21	51.71437	16.94646	1.01E-01	1.63E-01	2.37E-01	1.83E-01	3.57E-02	2.61E-02	7.45E-01	8.25E-02	2.70E-02
592839.91	4123981.21	57.32752	16.42041	1.12E-01	1.81E-01	2.63E-01	2.03E-01	3.96E-02	2.89E-02	8.26E-01	9.15E-02	2.62E-02
592859.91	4123981.21	61.77299	15.92887	1.20E-01	1.95E-01	2.83E-01	2.19E-01	4.26E-02	3.11E-02	8.90E-01	9.86E-02	2.54E-02
592879.91	4123981.21	63.33381	15.34279	1.23E-01	1.99E-01	2.90E-01	2.24E-01	4.37E-02	3.19E-02	9.13E-01	1.01E-01	2.45E-02
592899.91	4123981.21	59.13246	14.50998	1.15E-01	1.86E-01	2.71E-01	2.10E-01	4.08E-02	2.98E-02	8.52E-01	9.44E-02	2.32E-02
592919.91	4123981.21	48.48576	13.53388	9.45E-02	1.53E-01	2.22E-01	1.72E-01	3.35E-02	2.44E-02	6.99E-01	7.74E-02	2.16E-02
592939.91	4123981.21	36.6994	12.52018	7.15E-02	1.16E-01	1.68E-01	1.30E-01	2.53E-02	1.85E-02	5.29E-01	5.86E-02	2.00E-02
592959.91	4123981.21	27.43827	11.53726	5.35E-02	8.64E-02	1.26E-01	9.72E-02	1.89E-02	1.38E-02	3.96E-01	4.38E-02	1.84E-02
592979.91	4123981.21	21.76043	10.69759	4.24E-02	6.85E-02	9.97E-02	7.71E-02	1.50E-02	1.10E-02	3.14E-01	3.47E-02	1.71E-02
592999.91	4123981.21	18.0108	9.98616	3.51E-02	5.67E-02	8.25E-02	6.38E-02	1.24E-02	9.08E-03	2.60E-01	2.87E-02	1.59E-02
593019.91	4123981.21	15.73386	9.40992	3.07E-02	4.96E-02	7.21E-02	5.57E-02	1.09E-02	7.93E-03	2.27E-01	2.51E-02	1.50E-02
593039.91	4123981.21	14.89999	8.95436	2.90E-02	4.69E-02	6.82E-02	5.28E-02	1.03E-02	7.51E-03	2.15E-01	2.38E-02	1.43E-02
593059.91	4123981.21	14.08399	8.42823	2.74E-02	4.44E-02	6.45E-02	4.99E-02	9.72E-03	7.10E-03	2.03E-01	2.25E-02	1.34E-02
593079.91	4123981.21	13.3414	7.79347	2.60E-02	4.20E-02	6.11E-02	4.73E-02	9.21E-03	6.72E-03	1.92E-01	2.13E-02	1.24E-02
593099.91	4123981.21	12.50148	7.11636	2.44E-02	3.94E-02	5.73E-02	4.43E-02	8.63E-03	6.30E-03	1.80E-01	1.99E-02	1.14E-02
592599.91	4124001.21	10.99809	9.65865	2.14E-02	3.46E-02	5.04E-02	3.90E-02	7.59E-03	5.54E-03	1.59E-01	1.76E-02	1.54E-02
592799.91	4124001.21	40.57165	14.73502	7.90E-02	1.28E-01	1.86E-01	1.44E-01	2.80E-02	2.04E-02	5.85E-01	6.47E-02	2.35E-02
592819.91	4124001.21	44.19975	14.43883	8.61E-02	1.39E-01	2.02E-01	1.57E-01	3.05E-02	2.23E-02	6.37E-01	7.05E-02	2.30E-02
592839.91	4124001.21	46.99892	14.01674	9.16E-02	1.48E-01	2.15E-01	1.67E-01	3.24E-02	2.37E-02	6.77E-01	7.50E-02	2.24E-02
592859.91	4124001.21	48.24282	13.62958	9.40E-02	1.52E-01	2.21E-01	1.71E-01	3.33E-02	2.43E-02	6.95E-01	7.70E-02	2.17E-02
592879.91	4124001.21	47.07553	13.18231	9.17E-02	1.48E-01	2.16E-01	1.67E-01	3.25E-02	2.37E-02	6.79E-01	7.51E-02	2.10E-02
592899.91	4124001.21	42.88142	12.55776	8.35E-02	1.35E-01	1.96E-01	1.52E-01	2.96E-02	2.16E-02	6.18E-01	6.84E-02	2.00E-02
592919.91	4124001.21	36.30543	11.79938	7.07E-02	1.14E-01	1.66E-01	1.29E-01	2.51E-02	1.83E-02	5.23E-01	5.79E-02	1.88E-02
592939.91	4124001.21	29.08211	10.98399	5.67E-02	9.16E-02	1.33E-01	1.03E-01	2.01E-02	1.47E-02	4.19E-01	4.64E-02	1.75E-02
592959.91	4124001.21	23.0802	10.20171	4.50E-02	7.27E-02	1.06E-01	8.18E-02	1.59E-02	1.16E-02	3.33E-01	3.68E-02	1.63E-02
592979.91	4124001.21	18.28072	9.48109	3.56E-02	5.76E-02	8.37E-02	6.48E-02	1.26E-02	9.21E-03	2.64E-01	2.92E-02	1.51E-02
592999.91	4124001.21	15.24087	8.90063	2.97E-02	4.80E-02	6.98E-02	5.40E-02	1.05E-02	7.68E-03	2.20E-01	2.43E-02	1.42E-02
593019.91	4124001.21	12.93243	8.40138	2.52E-02	4.07E-02	5.92E-02	4.58E-02	8.92E-03	6.52E-03	1.86E-01	2.06E-02	1.34E-02
593039.91	4124001.21	12.49953	8.06462	2.44E-02	3.94E-02	5.72E-02	4.43E-02	8.62E-03	6.30E-03	1.80E-01	1.99E-02	1.29E-02
593059.91	4124001.21	11.82723	7.62229	2.30E-02	3.73E-02	5.42E-02	4.19E-02	8.16E-03	5.96E-03	1.70E-01	1.89E-02	1.22E-02
593079.91	4124001.21	11.31352	7.08692	2.20E-02	3.56E-02	5.18E-02	4.01E-02	7.81E-03	5.70E-03	1.63E-01	1.81E-02	1.13E-02
593099.91	4124001.21	10.80069	6.50937	2.10E-02	3.40E-02	4.95E-02	3.83E-02	7.45E-03	5.44E-03	1.56E-01	1.72E-02	1.04E-02
593119.91	4124001.21	10.23151	5.97118	1.99E-02	3.22E-02	4.69E-02	3.63E-02	7.06E-03	5.16E-03	1.47E-01	1.63E-02	9.53E-03
592599.91	4124021.21	11.48426	9.31975	2.24E-02	3.62E-02	5.26E-02	4.07E-02	7.92E-03	5.79E-03	1.66E-01	1.83E-02	1.49E-02
592819.91	4124021.21	37.06144	12.50312	7.22E-02	1.17E-01	1.70E-01	1.31E-01	2.56E-02	1.87E-02	5.34E-01	5.91E-02	2.00E-02
592839.91	4124021.21	38.04166	12.13899	7.41E-02	1.20E-01	1.74E-01	1.35E-01	2.62E-02	1.92E-02	5.48E-01	6.07E-02	1.94E-02
592859.91	4124021.21	37.73947	11.82111	7.35E-02	1.19E-01	1.73E-01	1.34E-01	2.60E-02	1.90E-02	5.44E-01	6.02E-02	1.89E-02
592879.91	4124021.21	35.91968	11.4694	7.00E-02	1.13E-01	1.64E-01	1.27E-01	2.48E-02	1.81E-02	5.18E-01	5.73E-02	1.83E-02
592899.91	4124021.21	32.67797	10.98239	6.37E-02	1.03E-01	1.50E-01	1.16E-01	2.25E-02	1.65E-02	4.71E-01	5.21E-02	1.75E-02
592919.91	4124021.21	28.44097	10.38132	5.54E-02	8.96E-02	1.30E-01	1.01E-01	1.96E-02	1.43E-02	4.10E-01	4.54E-02	1.66E-02
592939.91	4124021.21	23.34536	9.68717	4.55E-02	7.35E-02	1.07E-01	8.27E-02	1.61E-02	1.18E-02	3.37E-01	3.73E-02	1.55E-02
592959.91	4124021.21	19.60521	9.08298	3.82E-02	6.18E-02	8.98E-02	6.95E-02	1.35E-02	9.88E-03	2.83E-01	3.13E-02	1.45E-02
592979.91	4124021.21	16.09308	8.50562	3.14E-02	5.07E-02	7.37E-02	5.70E-02	1.11E-02	8.11E-03	2.32E-01	2.57E-02	1.36E-02
592999.91	4124021.21	13.2279	8.01057	2.58E-02	4.17E-02	6.06E-02	4.69E-02	9.13E-03	6.67E-03	1.91E-01	2.11E-02	1.28E-02
593019.91	4124021.21	11.31147	7.61478	2.20E-02	3.56E-02	5.18E-02	4.01E-02	7.80E-03	5.70E-03	1.63E-01	1.81E-02	1.22E-02
593039.91	4124021.21	10.07428	7.24496	1.96E-02	3.17E-02	4.61E-02	3.57E-02	6.95E-03	5.08E-03	1.45E-01	1.61E-02	1.16E-02
593059.91	4124021.21	10.10939	6.94218	1.97E-02	3.18E-02	4.63E-02	3.58E-02	6.98E-03	5.10E-03	1.46E-01	1.61E-02	1.11E-02
593079.91	4124021.21	9.69368	6.47892	1.89E-02	3.05E-02	4.44E-02	3.43E-02	6.69E-03	4.89E-03	1.40E-01	1.55E-02	1.03E-02
593099.91	4124021.21	9.34932	5.97728	1.82E-02	2.94E-02	4.28E-02	3.31E-02	6.45E-03	4.71E-03	1.35E-01	1.49E-02	9.54E-03
593119.91	4124021.21	8.99092	5.5035	1.75E-02	2.83E-02	4.12E-02	3.19E-02	6.20E-03	4.53E-03	1.30E-01	1.43E-02	8.78E-03
592599.91	4124041.21	11.67025	8.87882	2.27E-02	3.68E-02	5.34E-02	4.14E-02	8.05E-03	5.88E-03	1.68E-01	1.86E-02	1.42E-02
592619.91	4124041.21	12.90584	9.32745	2.51E-02	4.07E-02	5.91E-02	4.57E-02	8.90E-03	6.50E-03	1.86E-01	2.06E-02	1.49E-02
592819.91	4124041.21	30.8408	10.94668	6.01E-02	9.71E-02	1.41E-01	1.09E-01	2.13E-02	1.55E-02	4.45E-01	4.92E-02	1.75E-02
592839.91	4124041.21	30.65625	10.62486	5.97E-02	9.66E-02	1.40E-01	1.09E-01	2.12E-02	1.55E-02	4.42E-01	4.89E-02	1.70E-02
592859.91	4124041.21	29.84302	10.35722	5.81E-02	9.40E-02	1.37E-01	1.06E-01	2.06E-02	1.50E-02	4.30E-01	4.76E-02	1.65E-02
592879.91	4124041.21	28.22728	10.07978	5.50E-02	8.89E-02	1.29E-01	1.00E-01	1.95E-02	1.42E-02	4.07E-01	4.50E-02	1.61E-02
592899.91	4124041.21	25.8819	9.69469	5.04E-02	8.15E-02	1.19E-01	9.17E-02	1.79E-02	1.30E-02	3.73E-01	4.13E-02	1.55E-02
592919.91	4124041.21	23.03613	9.20976	4.49E-02	7.26E-02	1.05E-01	8.16E-02	1.59E-02	1.16E-02	3.32E-01	3.68E-02	1.47E-02
592939.91	4124041.21	19.41073	8.62409	3.78E-02	6.11E-02	8.89E-02	6.88E-02	1.34E-02	9.78E-03	2.80E-01	3.10E-02	1.38E-02
592959.91	4124041.21	16.73342	8.12977	3.26E-02	5.27E-02	7.66E-02	5.93E-02	1.15E-02	8.43E-03	2.41E-01	2.67E-02	1.30E-02
592979.91	412											

592999.91	4124081.21	9.9	6.12373	1.93E-02	3.12E-02	4.53E-02	3.51E-02	6.83E-03	4.99E-03	1.43E-01	1.58E-02	9.77E-03
593019.91	4124081.21	8.39561	5.89564	1.64E-02	2.64E-02	3.84E-02	2.97E-02	5.79E-03	4.23E-03	1.21E-01	1.34E-02	9.41E-03
593039.91	4124081.21	7.3592	5.67855	1.43E-02	2.32E-02	3.37E-02	2.61E-02	5.08E-03	3.71E-03	1.06E-01	1.17E-02	9.06E-03
593059.91	4124081.21	6.57402	5.42448	1.28E-02	2.07E-02	3.01E-02	2.33E-02	4.54E-03	3.31E-03	9.48E-02	1.05E-02	8.66E-03
593079.91	4124081.21	6.05783	5.07369	1.18E-02	1.91E-02	2.77E-02	2.15E-02	4.18E-03	3.05E-03	8.73E-02	9.67E-03	8.10E-03
593099.91	4124081.21	6.06273	4.74027	1.18E-02	1.91E-02	2.78E-02	2.15E-02	4.18E-03	3.06E-03	8.74E-02	9.67E-03	7.56E-03
593119.91	4124081.21	5.88305	4.3872	1.15E-02	1.85E-02	2.69E-02	2.08E-02	4.06E-03	2.96E-03	8.48E-02	9.39E-03	7.00E-03
593139.91	4124081.21	5.80415	4.0834	1.13E-02	1.83E-02	2.66E-02	2.06E-02	4.00E-03	2.93E-03	8.37E-02	9.26E-03	6.52E-03
593159.91	4124081.21	5.72248	3.82664	1.11E-02	1.80E-02	2.62E-02	2.03E-02	3.95E-03	2.88E-03	8.25E-02	9.13E-03	6.11E-03
593179.91	4124081.21	5.57833	3.60389	1.09E-02	1.76E-02	2.55E-02	1.98E-02	3.85E-03	2.81E-03	8.04E-02	8.90E-03	5.75E-03
593199.91	4124081.21	5.36963	3.39854	1.05E-02	1.69E-02	2.46E-02	1.90E-02	3.70E-03	2.71E-03	7.74E-02	8.57E-03	5.42E-03
592839.91	4124101.21	17.68971	7.53151	3.45E-02	5.57E-02	8.10E-02	6.27E-02	1.22E-02	8.92E-03	2.55E-01	2.82E-02	1.20E-02
592859.91	4124101.21	16.76261	7.34782	3.27E-02	5.28E-02	7.68E-02	5.94E-02	1.16E-02	8.45E-03	2.42E-01	2.67E-02	1.17E-02
592879.91	4124101.21	15.57673	7.14719	3.03E-02	4.91E-02	7.13E-02	5.52E-02	1.07E-02	7.85E-03	2.25E-01	2.49E-02	1.14E-02
592899.91	4124101.21	14.72019	6.9483	2.87E-02	4.64E-02	6.74E-02	5.22E-02	1.02E-02	7.42E-03	2.12E-01	2.35E-02	1.11E-02
592919.91	4124101.21	13.78479	6.67835	2.69E-02	4.34E-02	6.31E-02	4.88E-02	9.51E-03	6.95E-03	1.99E-01	2.20E-02	1.07E-02
592939.91	4124101.21	12.87762	6.39033	2.51E-02	4.06E-02	5.90E-02	4.56E-02	8.89E-03	6.49E-03	1.86E-01	2.05E-02	1.02E-02
592959.91	4124101.21	11.57618	6.08807	2.26E-02	3.65E-02	5.30E-02	4.10E-02	7.99E-03	5.83E-03	1.67E-01	1.85E-02	9.71E-03
592979.91	4124101.21	10.06583	5.83003	1.96E-02	3.17E-02	4.61E-02	3.57E-02	6.95E-03	5.07E-03	1.45E-01	1.61E-02	9.30E-03
592999.91	4124101.21	8.98521	5.66176	1.75E-02	2.83E-02	4.11E-02	3.18E-02	6.20E-03	4.53E-03	1.30E-01	1.43E-02	9.03E-03
593019.91	4124101.21	7.78555	5.49082	1.52E-02	2.45E-02	3.57E-02	2.76E-02	5.37E-03	3.92E-03	1.12E-01	1.24E-02	8.76E-03
593039.91	4124101.21	6.77006	5.30007	1.32E-02	2.13E-02	3.10E-02	2.40E-02	4.67E-03	3.41E-03	9.76E-02	1.08E-02	8.46E-03
593059.91	4124101.21	6.09112	5.0712	1.19E-02	1.92E-02	2.79E-02	2.16E-02	4.20E-03	3.07E-03	8.78E-02	9.72E-03	8.09E-03
593079.91	4124101.21	5.45778	4.73346	1.06E-02	1.72E-02	2.50E-02	1.93E-02	3.77E-03	2.75E-03	7.87E-02	8.71E-03	7.55E-03
593099.91	4124101.21	5.35927	4.4291	1.04E-02	1.69E-02	2.45E-02	1.90E-02	3.70E-03	2.70E-03	7.73E-02	8.55E-03	7.07E-03
593119.91	4124101.21	5.24149	4.11841	1.02E-02	1.65E-02	2.40E-02	1.86E-02	3.62E-03	2.64E-03	7.56E-02	8.36E-03	6.57E-03
593139.91	4124101.21	5.13861	3.83079	1.00E-02	1.62E-02	2.35E-02	1.82E-02	3.55E-03	2.59E-03	7.41E-02	8.20E-03	6.11E-03
593159.91	4124101.21	5.02581	3.58003	9.79E-03	1.58E-02	2.30E-02	1.78E-02	3.47E-03	2.53E-03	7.24E-02	8.02E-03	5.71E-03
593179.91	4124101.21	4.95756	3.37602	9.66E-03	1.56E-02	2.27E-02	1.76E-02	3.42E-03	2.50E-03	7.15E-02	7.91E-03	5.39E-03
593199.91	4124101.21	4.82405	3.20049	9.40E-03	1.52E-02	2.21E-02	1.71E-02	3.33E-03	2.43E-03	6.95E-02	7.70E-03	5.11E-03
593219.91	4124101.21	4.70106	3.03159	9.16E-03	1.48E-02	2.15E-02	1.67E-02	3.24E-03	2.37E-03	6.78E-02	7.50E-03	4.84E-03
593239.91	4124101.21	4.608	2.87115	8.98E-03	1.45E-02	2.11E-02	1.63E-02	3.18E-03	2.32E-03	6.64E-02	7.35E-03	4.58E-03
592839.91	4124121.21	14.92939	6.78977	2.91E-02	4.70E-02	6.84E-02	5.29E-02	1.03E-02	7.52E-03	2.15E-01	2.38E-02	1.08E-02
592859.91	4124121.21	14.30403	6.64555	2.79E-02	4.51E-02	6.55E-02	5.07E-02	9.87E-03	7.21E-03	2.06E-01	2.28E-02	1.06E-02
592879.91	4124121.21	13.33248	6.46924	2.60E-02	4.20E-02	6.11E-02	4.72E-02	9.20E-03	6.72E-03	1.92E-01	2.13E-02	1.03E-02
592899.91	4124121.21	12.50614	6.28969	2.44E-02	3.94E-02	5.73E-02	4.43E-02	8.63E-03	6.30E-03	1.80E-01	2.00E-02	1.00E-02
592919.91	4124121.21	11.90856	6.05816	2.32E-02	3.75E-02	5.45E-02	4.22E-02	8.22E-03	6.00E-03	1.72E-01	1.90E-02	9.67E-03
592939.91	4124121.21	11.21282	5.81302	2.18E-02	3.53E-02	5.13E-02	3.97E-02	7.74E-03	5.65E-03	1.62E-01	1.79E-02	9.28E-03
592959.91	4124121.21	10.40996	5.58555	2.03E-02	3.28E-02	4.77E-02	3.69E-02	7.18E-03	5.25E-03	1.50E-01	1.66E-02	8.91E-03
592979.91	4124121.21	9.26323	5.38842	1.80E-02	2.92E-02	4.24E-02	3.28E-02	6.39E-03	4.67E-03	1.34E-01	1.48E-02	8.60E-03
592999.91	4124121.21	8.12513	5.21688	1.58E-02	2.56E-02	3.72E-02	2.88E-02	5.61E-03	4.09E-03	1.17E-01	1.30E-02	8.32E-03
593019.91	4124121.21	7.28445	5.11488	1.42E-02	2.29E-02	3.34E-02	2.58E-02	5.03E-03	3.67E-03	1.05E-01	1.16E-02	8.16E-03
593039.91	4124121.21	6.36214	4.95493	1.24E-02	2.00E-02	2.91E-02	2.25E-02	4.39E-03	3.21E-03	9.17E-02	1.02E-02	7.91E-03
593059.91	4124121.21	5.67017	4.74784	1.10E-02	1.79E-02	2.60E-02	2.01E-02	3.91E-03	2.86E-03	8.17E-02	9.05E-03	7.58E-03
593079.91	4124121.21	5.11841	4.46745	9.97E-03	1.61E-02	2.34E-02	1.81E-02	3.53E-03	2.58E-03	7.38E-02	8.17E-03	7.13E-03
593099.91	4124121.21	4.72173	4.14878	9.20E-03	1.49E-02	2.16E-02	1.67E-02	3.26E-03	2.38E-03	6.81E-02	7.53E-03	6.62E-03
593119.91	4124121.21	4.6848	3.87416	9.13E-03	1.48E-02	2.15E-02	1.66E-02	3.23E-03	2.36E-03	6.75E-02	7.48E-03	6.18E-03
593139.91	4124121.21	4.54845	3.62048	8.86E-03	1.43E-02	2.08E-02	1.61E-02	3.14E-03	2.29E-03	6.56E-02	7.26E-03	5.78E-03
593159.91	4124121.21	4.46632	3.38493	8.70E-03	1.40E-02	2.05E-02	1.58E-02	3.08E-03	2.25E-03	6.44E-02	7.13E-03	5.40E-03
593179.91	4124121.21	4.40888	3.18736	8.59E-03	1.39E-02	2.02E-02	1.56E-02	3.04E-03	2.22E-03	6.36E-02	7.04E-03	5.09E-03
593199.91	4124121.21	4.32254	3.01116	8.42E-03	1.36E-02	1.98E-02	1.53E-02	2.98E-03	2.18E-03	6.23E-02	6.90E-03	4.84E-03
593219.91	4124121.21	4.2459	2.85636	8.27E-03	1.34E-02	1.94E-02	1.50E-02	2.93E-03	2.14E-03	6.12E-02	6.78E-03	4.56E-03
592859.91	4124141.21	12.26999	6.03114	2.39E-02	3.86E-02	5.62E-02	4.35E-02	8.47E-03	6.18E-03	1.77E-01	1.96E-02	9.62E-03
592879.91	4124141.21	11.66686	5.90299	2.27E-02	3.67E-02	5.34E-02	4.13E-02	8.05E-03	5.88E-03	1.68E-01	1.86E-02	9.42E-03
592899.91	4124141.21	10.85353	5.71828	2.11E-02	3.42E-02	4.97E-02	3.85E-02	7.49E-03	5.47E-03	1.56E-01	1.73E-02	9.12E-03
592919.91	4124141.21	10.42844	5.54574	2.03E-02	3.28E-02	4.78E-02	3.70E-02	7.20E-03	5.26E-03	1.50E-01	1.66E-02	8.85E-03
592939.91	4124141.21	9.92567	5.34275	1.93E-02	3.13E-02	4.55E-02	3.52E-02	6.85E-03	5.00E-03	1.43E-01	1.58E-02	8.53E-03
592959.91	4124141.21	9.35939	5.16058	1.82E-02	2.95E-02	4.29E-02	3.32E-02	6.46E-03	4.72E-03	1.35E-01	1.49E-02	8.23E-03
592979.91	4124141.21	8.53576	4.9958	1.66E-02	2.69E-02	3.91E-02	3.02E-02	5.89E-03	4.30E-03	1.23E-01	1.36E-02	7.97E-03
592999.91	4124141.21	7.46462	4.83818	1.45E-02	2.35E-02	3.42E-02	2.64E-02	5.15E-03	3.76E-03	1.08E-01	1.19E-02	7.72E-03
593019.91	4124141.21	6.69223	4.75225	1.30E-02	2.11E-02	3.06E-02	2.37E-02	4.62E-03	3.37E-03	9.65E-02	1.07E-02	7.58E-03
593039.91	4124141.21	5.93878	4.6317	1.16E-02	1.87E-02	2.72E-02	2.10E-02	4.10E-03	2.99E-03	8.56E-02	9.48E-03	7.39E-03
593059.91	4124141.21	5.28033	4.44793	1.03E-02	1.66E-02	2.42E-02	1.87E-02	3.64E-03	2.66E-03	7.61E-02	8.43E-03	7.10E-03
593079.91	4124141.21	4.79419	4.21171	9.34E-03	1.51E-02	2.20E-02	1.70E-02	3.31E-03	2.42E-03	6.91E-02	7.65E-03	6.72E-03
593099.91	4124141.21	4.35069	3.91258	8.48E-03	1.37E-02	1.99E-02	1.54E-02	3.00E-03	2.19E-03	6.27E-02	6.94E-03	6.24E-03
593119.91	4124141.21	4.19727	3.66194	8.18E-03	1.32E-02	1.92E-02	1.49E-02	2.90E-03	2.12E-03	6.05E-02	6.70E-03	5.84E-03
593139.91	4124141.21	4.0783	3.41573	7.95E-03	1.28E-02	1.87E-02	1.45E-02	2.81E-03	2.06E-03	5.88E-02	6.51E-03	5.45E-03
593159.91	4124141.21	3.97926	3.19144	7.75E-03	1.25E-02	1.82E-02	1.41E-02	2.75E-03	2.01E-03	5.74E-02	6.35E-03	5.09E-03
593179.91	4124141.21	3.94097	3.00789	7.68E-03	1.24E-02	1.80E-02	1.40E-02	2.72E-03	1.99E-03	5.68E-02	6.29E-03	4.80E-03
593199.91	4124141.21	3.86262	2.83891	7.53E-03	1.22E-02	1.77E-02	1.37E-02	2.67E-03	1.95E-03	5.57E-02	6.16E-03	4.53E-03
592859.91	4124161.21	10.38653	5.45107	2.02E-02	3.27E-02	4.76E-02	3.68E-					

592899.91	4124221.21	6.9257	4.1104	1.35E-02	2.18E-02	3.17E-02	2.45E-02	4.78E-03	3.49E-03	9.98E-02	1.11E-02	6.56E-03
592919.91	4124221.21	6.79554	4.01083	1.32E-02	2.14E-02	3.11E-02	2.41E-02	4.69E-03	3.42E-03	9.80E-02	1.08E-02	6.40E-03
592939.91	4124221.21	6.59655	3.89661	1.29E-02	2.08E-02	3.02E-02	2.34E-02	4.55E-03	3.32E-03	9.51E-02	1.05E-02	6.22E-03
592959.91	4124221.21	6.42652	3.82161	1.25E-02	2.02E-02	2.94E-02	2.28E-02	4.43E-03	3.24E-03	9.26E-02	1.03E-02	6.10E-03
592979.91	4124221.21	6.13143	3.77044	1.19E-02	1.93E-02	2.81E-02	2.17E-02	4.23E-03	3.09E-03	8.84E-02	9.78E-03	6.02E-03
592999.91	4124221.21	5.66338	3.7274	1.10E-02	1.78E-02	2.59E-02	2.01E-02	3.91E-03	2.85E-03	8.16E-02	9.04E-03	5.95E-03
593019.91	4124221.21	5.17209	3.69328	1.01E-02	1.63E-02	2.37E-02	1.83E-02	3.57E-03	2.61E-03	7.46E-02	8.25E-03	5.89E-03
593039.91	4124221.21	4.59404	3.62158	8.95E-03	1.45E-02	2.10E-02	1.63E-02	3.17E-03	2.32E-03	6.62E-02	7.33E-03	5.78E-03
593059.91	4124221.21	4.14721	3.51739	8.08E-03	1.31E-02	1.90E-02	1.47E-02	2.86E-03	2.09E-03	5.98E-02	6.62E-03	5.61E-03
592899.91	4124241.21	5.93708	3.70695	1.16E-02	1.87E-02	2.72E-02	2.10E-02	4.10E-03	2.99E-03	8.56E-02	9.47E-03	5.92E-03
592919.91	4124241.21	6.20966	3.73174	1.21E-02	1.96E-02	2.84E-02	2.20E-02	4.28E-03	3.13E-03	8.95E-02	9.91E-03	5.95E-03
592939.91	4124241.21	6.12909	3.65092	1.19E-02	1.93E-02	2.81E-02	2.17E-02	4.23E-03	3.09E-03	8.84E-02	9.78E-03	5.83E-03
592959.91	4124241.21	5.87867	3.58468	1.15E-02	1.85E-02	2.69E-02	2.08E-02	4.06E-03	2.96E-03	8.47E-02	9.38E-03	5.72E-03
592979.91	4124241.21	5.72916	3.54658	1.12E-02	1.80E-02	2.62E-02	2.03E-02	3.95E-03	2.89E-03	8.26E-02	9.14E-03	5.66E-03
592999.91	4124241.21	5.33443	3.51773	1.04E-02	1.68E-02	2.44E-02	1.89E-02	3.68E-03	2.69E-03	7.69E-02	8.51E-03	5.61E-03
593019.91	4124241.21	4.83849	3.492	9.43E-03	1.52E-02	2.22E-02	1.71E-02	3.34E-03	2.44E-03	6.97E-02	7.72E-03	5.57E-03
592979.91	4123721.21	30.62146	89.8548	5.97E-02	9.65E-02	1.40E-01	1.09E-01	2.11E-02	1.54E-02	4.41E-01	4.89E-02	1.43E-01
592999.91	4123721.21	32.05916	126.60652	6.25E-02	1.01E-01	1.47E-01	1.14E-01	2.21E-02	1.62E-02	4.62E-01	5.12E-02	2.02E-01
593019.91	4123721.21	32.40994	197.04273	6.32E-02	1.02E-01	1.48E-01	1.15E-01	2.24E-02	1.63E-02	4.67E-01	5.17E-02	3.14E-01

MEISR				DPM (ug/m ³)		PM _{2.5} (ug/m ³)	
	Phase	UTM X	UTM Y	Unmitigated	Mitigated	Unmitigated	Mitigated
Resident	Total	592879.91	4123921.21	1.66E+00	1.62E-01	--	--
	Demo	592879.91	4123921.21	2.24E-01	1.21E-02	--	--
	Site Prep	592879.91	4123921.21	3.62E-01	1.21E-02	--	--
	Grading	592879.91	4123921.21	5.26E-01	2.23E-02	--	--
	Building	592879.91	4123921.21	4.07E-01	1.07E-01	--	--
	Paving	592879.91	4123921.21	7.93E-02	6.90E-03	--	--
	Arch Coat	592879.91	4123921.21	5.79E-02	2.41E-03	--	--
	2020	592879.91	4123921.21	--	--	1.83E-01	4.24E-02
	2021	592999.91	4123741.21	--	--	4.97E-01	1.54E-03

Cancer Risk = Dose inhalation × Inhalation CPF × ASF × ED/AT × FAH (Equation 8.2.4 A)

Where:

Cancer Risk = residential inhalation cancer risk

Dose inhalation (mg/kg-day) = C_{air} × DBR × A × EF × 10⁻⁶ (Equation 5.4.1.1)

Inhalation CPF = inhalation cancer potency factor [(mg/kg/day)⁻¹]

ASF = age sensitivity factor for a specified age group (unitless)

ED = exposure duration for a specified age group (years)

A = averaging time period over which exposure is averaged in days (years)

FAH = fraction of time at home (unitless)

Where:

C_{air} = concentration of compound in air in micrograms per cubic meter (ug/m³)

DBR = daily breathing rate in liter per kilogram of body weight per day (L/kg-body weight/day)

A = inhalation absorption factor (1 for DPM, unitless)

EF = exposure frequency in days per year (unitless, days/365 days)

10⁻⁶ = micrograms to milligrams conversion, liters to cubic meters conversion

Hazard Quotient = C_{air} / REL (Section 8.3.1)

Where:

Hazard Quotient = chronic non-cancer hazard

C_{air} = concentration of compound in air in micrograms per cubic meter (ug/m³)

REL = Chronic non-cancer Reference Exposure Level for substance (ug/m³)

Dose Inhalation Inputs				Unmitigated	Mitigated			
Receptor Type	Exposure Scenario	Receptor Group Age	Phase	C _{air} (ug/m ³)		DBR (L/kg-day)	A (unitless)	EF (days/year)
Off-Site Child Resident	Construction	3rd Trimester	Demo	2.24E-01	1.21E-02	361	1	0.96
			Site Prep	3.62E-01	1.21E-02	361	1	0.96
			Grading	5.26E-01	2.23E-02	361	1	0.96
			Building	4.07E-01	1.07E-01	361	1	0.96
		Age 0<2	Building	4.07E-01	1.07E-01	1090	1	0.96
			Paving	7.93E-02	6.90E-03	1090	1	0.96
			Arch Coat	5.79E-02	2.41E-03	1090	1	0.96

Dose Inhalation Outputs				Unmitigated	Mitigated
Receptor Type	Exposure Scenario	Receptor Group Age	Phase	Dose inhalation (mg/kg-day)	
Off-Site Child Resident	Construction	3rd Trimester	Demo	7.75E-05	4.18E-06
			Site Prep	1.25E-04	4.18E-06
			Grading	1.82E-04	7.71E-06
			Building	1.41E-04	3.69E-05
		Age 0<2	Building	4.26E-04	1.12E-04
			Paving	8.30E-05	7.22E-06
			Arch Coat	6.05E-05	2.52E-06

Risk Inputs									
Receptor Type	Exposure Scenario	Receptor Group Age	Phase	CPF (mg/kg-day ⁻¹)	ASF (unitless)	ED (years)	AT (years)	FAH (unitless)	MAF (unitless)
Off-Site Child Resident	Construction	3rd Trimester	Demo	1.1	10	0.07	70.00	0.85	1
			Site Prep	1.1	10	0.01	70.00	0.85	1
			Grading	1.1	10	0.04	70.00	0.85	1
			Building	1.1	10	0.13	70.00	0.85	1
		Age 0<2	Building	1.1	10	0.28	70.00	0.85	1
			Paving	1.1	10	0.02	70.00	0.85	1
			Arch Coat	1.1	10	0.01	70.00	0.85	1

Risk Outputs				Unmitigated	Mitigated
Receptor Type	Exposure Scenario	Receptor Group Age	Phase	Cancer Risk	
Off-Site Child Resident	Construction	3rd Trimester	Demo	7.66E-07	4.13E-08
			Site Prep	9.17E-08	3.06E-09
			Grading	8.67E-07	3.67E-08
			Building	2.54E-06	6.65E-07
		Age 0<2	Building	1.62E-05	4.23E-06
			Paving	2.13E-07	1.85E-08
			Arch Coat	1.11E-07	4.62E-09
			Total Cancer Risk (per million)		

Receptor Type	Risk Type	Unmitigated	Mitigated
Off-Site Child Resident	Chronic HI	0.33	0.03
	Annual PM2.5	0.50	0.04

unitless

ug/m³

SOURCE: Office of Environmental Health Hazard Assessment, 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments*. February.

Daily breathing rate for school receptor is based on the OEHA 95th percentile 8-hour moderate intensity breathing rates (Table 5.8).

Fraction of time at home is set to 0.85 for residential since the nearest school has an unmitigated cancer risk of <1 per million, per OEHA Table 8.4.

Inhalation cancer potency factor from Table 7.1

Appendix D

BAAQMD's Roadway Screening Analysis Calculator

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

- **County:** Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.
- **Roadway Direction:** Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.
- **Side of the Roadway:** Identify on which side of the roadway the project is located.
- **Distance from Roadway:** Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.
- **Annual Average Daily Traffic (ADT):** Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: <http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx>.

Notes and References listed below the Search Boxes

Search Parameters

County	Santa Clara
Roadway Direction	East-West
Side of the Roadway	North
Distance from Roadway	430 feet
Annual Average Daily Traffic (ADT)	50,000

Results

Santa Clara County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

0.129 ($\mu\text{g}/\text{m}^3$)

Cancer Risk

6.88 (per million)

Data for Santa Clara County based on meteorological data collected from San Jose Airport in 1997

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using CALINE4 air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHa toxicity values adopted in 2013.

ATTACHMENT 2

BIOLOGICAL RESOURCE ASSESSMENT

**Biological Resources Assessment
16179 E. Mozart Avenue**

Prepared for:

City of Campbell Community Development Department

70 North First Street

Campbell, CA 95008

Contact: Daniel Fama, Senior Planner

Prepared by:

DUDEK

1630 San Pablo Ave, Suite 300

Oakland, California 94612

MARCH 2020

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1 Executive Summary

1.1 Proposed Project

The 16179 E. Mozart Avenue project in Campbell, CA involves the redevelopment of an approximately 2.93-acre parcel (project site) into 25 single-family homes (Project). The Project would involve the demolition of existing structures on-site, consisting of four single-story homes fronting E. Mozart Avenue and several outbuildings located behind the existing homes (e.g., storage sheds, trailer, containers, carports/garages, etc.). All 25 homes would be 2- to 3-story, 4-bedroom units, ranging in size from 2,443 to 3,783 square feet. The homes would be accessed from a new 20-foot wide driveway teeing off the east side of E. Mozart Avenue, forming an interior loop within the site. The proposed amenities would include a tot lot in one of the open space lots and a stepping stone path between the interior units. Following demolition, grading, and utility installations, construction of the homes is anticipated to occur in two phases.

Redevelopment of the project site would require the removal of existing oak (*Quercus agrifolia* and *Quercus ilex*), almond (*Prunus dulcis*), apricot (*Prunus dulcis*), and other ornamental/fruit trees not identified for preservation under the city's Tree Protection Regulations (City Code Section 21.32.050.C). The Project would retain 10 existing coast live oaks within 3 open space lots totaling 11,787 square feet, as well as the backyards of several of the outer private lots. The landscape plan includes a landscape strip along E. Mozart Avenue consisting of 5 street trees, and interior landscaping along the footpath, home frontage, and open space lots. The Project proposes 28 onsite trees consisting of a combination of Japanese maple (*Acer palmatum*), Marina strawberry trees (*Arbutus unedo*), Muskogee crepe myrtle (*Lagerstroemia*), Chinese pistache (*Pistacia chinensis*), and valley oak (*Quercus lobate*).

1.2 Analysis Scope and Purpose

This report documents the biological resources assessment conducted by Dudek for the proposed development project located at 16179 Mozart Avenue within the City of Campbell, California (Figure 1). The purpose of this assessment is to document existing biological resources (Figure 2) and assess the potential impacts of the Project on these resources.

1.3 Summary of Findings

The biological resources assessment determined this Project will have less-than-significant impact with mitigation to the biological resources present on site. A more detailed explanation of potential impacts and mitigation measures are detailed later in this report.

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2 Biological Resource Analysis

2.1 Methods

The following analysis relies on a biological resources assessment conducted by Dudek on February 5, 2020. The assessment included a review of available relevant literature and data on special-status habitats and species distribution to determine those resources that have the potential for occurrence on the approximate 2.93-acre project site and within approximately 100 feet of the project site (i.e., the study area). This report describes the existing biological resources on the project site and immediately surrounding area in terms of vegetation, plants, wildlife, and wildlife habitats; discuss potential impacts to biological resources that would result from development of the project; and provide mitigation measures to minimize potential impacts to special-status biological resources, if necessary. This report includes a description of the methods used for the assessment and description of the existing conditions followed by the results, which have been provided following the California Environmental Quality Act Environmental Checklist Form for Biological Resources, as requested.

2.1.1 Database Review

Appropriate and available biological documentation, surveys, published research and maps were compiled, reviewed, and analyzed. The most recent versions of the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Data Base (CNDDB, CDFW 2020), U.S. Fish and Wildlife Service's (USFWS) Environmental Conservation Online System (Information for Planning and Conservation Report (IPac, USFWS 2020), and the California Native Plant Society's (CNPS 2020) Inventory of Rare and Endangered Plants were reviewed to identify special-status biological resources present or potentially present for the U.S. Geological Survey (USGS 2020) 7.5-minute quadrangle map on which the project site is located (i.e., San Jose West) and the eight surrounding quadrangles (i.e., Cupertino, Castle Rock Ridge, Los Gatos, Santa Teresa Hills, San Jose East, Calaveras Reservoir, Milpitas, and Mountain View). These databases provided information regarding special-status plants, wildlife, and habitats recorded for the study area and vicinity.

2.1.2 Special-Status Species

For purposes of this report, special-status species include those plant and wildlife species that are (1) listed as threatened or endangered by either the California or federal Endangered Species Acts, (2) plants that are candidates for listing, and species designated with a California Rare Plant Rank of 1 or 2 by CNPS, (3) wildlife that are candidates for listing and species with a designation from the CDFW of Fully Protected or Species of Concern. Other special-status biological resources include vegetation communities that are considered to support unique stands, are of particular value to special-status plant or wildlife species, or have a rank of S1–S3 on the CDFW's List of Terrestrial Communities.

2.1.3 Survey Methods

Following the literature and data review, Dudek Biologists Ryan Henry and Michelle Leis conducted a reconnaissance-level site visit on February 5, 2020 to confirm current conditions within the study area and included an evaluation of vegetation communities and land covers, habitat assessments for special-status plants and wildlife, nesting resources, and potential jurisdictional aquatic resources (i.e., waters of the U.S./state). The survey was conducted from 0912 to 1015, and weather conditions were favorable, with 30-40% cloud cover, a

temperature that ranged from 43°F to 50°F, and wind speeds from 0 to 5 miles per hour. Vegetation community and land cover mapping was conducted according to the CDFW's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG 2009) and List of Vegetation Alliances and Associations, also referred to as the Natural Communities List (CDFG 2010). During the field survey, a general inventory of plant and wildlife species detected by sight, calls, tracks, scat, or other signs was compiled.

2.2 Results

2.2.1 Vegetation Communities

Results from the general biological survey determined the project site land cover to be “Parks and Ornamental Plantings” based on the presence of orchard, ruderal and non-native vegetation communities on the project site. Multiple orchard species present on site included almond (*Prunus dulcis*), peach (*Prunus persica*), apricot (*Prunus dulcis*), avocado (*Persea Americana*), olive (*Olea europaea*), lemon (*Citrus limon*) and cherry (*Prunus avium*). Other tree species located on the project site include coast redwood (*Sequoia sempervirens*), coast live oak (*Quercus agrifolia*), holly oak (*Quercus ilex*), southern magnolia (*Magnolia grandiflora*), fan palm (*Washingtonia filifera*), privet (*Ligustrum lucidum*), Peruvian pepper tree (*Schinus molle*), silver acacia (*Acacia dealbata*), stone pine (*Pinus pinea*), Chinese pistache (*Pistacia chinensis*), black elderberry (*Sambucus nigra*) and gooseberry (*Phyllanthaceae acidus*). Other plant species present on site include sweet alyssum (*Lobularia maritima*), henbit deadnettle (*Lamium amplexicaule*), Miner's lettuce (*Claytonia perfoliata*), cheeseweed mallow (*Malva parviflora*), toyon (*Heteromeles arbutifolia*), curly dock (*Rumex crispus*), wild radish (*Raphanus raphanistrum*), tree mallow (*Lavatera assurgentiflora*) and a few other herbaceous species commonly found in heavily disturbed areas. Other non-natural land covers surrounding the project site included urban/developed (residential buildings, streets, pavements, and parking lots). No jurisdictional aquatic resources were identified within the study area.

2.2.2 Wildlife

Wildlife species detected within the study area was limited to the following: American crow (*Corvus brachyrhynchos*), black phoebe (*Sayornis nigricans*), domestic dog (*Canis lupus familiaris*), house finch (*Haemorhous mexicanus*), dark-eyed junco (*Junco hyemalis*), domestic cat (*Felis catus*), mourning dove (*Zenaida macroura*), Eurasian collard dove (*Streptopelia decaocto*), yellow-rumped warbler (*Setophaga coronate*), California towhee (*Melospiza crissalis*), California scrub jay (*Aphelocoma californica*), Bewick's wren (*Thryomanes bewickii*), Anna's hummingbird (*Calypte anna*), ruby crowned kinglet (*Regulus calendula*), and oak titmouse (*Baeolophus inornatus*). No active bird nests or bat roosts were observed during the site visit, but the various trees and shrubs within the study area, as well as the abandoned wooden structures (barns and sheds) could support nesting birds and roosting bats. No amphibian, reptile, or fish species were detected within the study area.

3 Impact Analysis

3.1 Method of Analysis

Impacts to special-status vegetation communities, plant and wildlife species, and jurisdictional waters, including wetlands, must be quantified and analyzed to determine whether such impacts are significant under the California Environmental Quality Act (CEQA). CEQA Guidelines Section 15064(b) states that an ironclad definition of “significant” effect is not possible, because the significance of an activity may vary with the setting. Appendix G of the CEQA Guidelines, however, does provide “examples of consequences which may be deemed to be a significant effect on the environment” (14 CCR 15064(e)). These effects include substantial effects on rare or endangered species of animal or plant or the habitat of the species. CEQA Guidelines Section 15065(a) is also helpful in defining whether a project may have a significant effect on the environment.

The evaluation of whether or not an impact to a particular biological resource is significant must consider both the resource itself and the role of that resource in a regional context. Substantial impacts are those that contribute to, or result in, permanent loss of an important resource, such as a population of a rare plant or animal. Impacts may be important locally because they result in an adverse alteration of existing site conditions but considered not significant because they do not contribute substantially to the permanent loss of that resource regionally. The severity of an impact is the primary determinant of whether or not that impact can be mitigated to a less-than-significant level.

3.2 Thresholds of Significance

The City of Campbell uses the questions in Appendix G of the CEQA Guidelines as the thresholds of significance for projects requiring environmental review under CEQA (14 CCR 15000 et seq.). Therefore, according to Appendix G, a significant impact would occur if development of the Project:

- Impact BIO-1. Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS
- Impact BIO-2. Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFG or USFWS
- Impact BIO-3. Has 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, etc.) through direct removal, filling, hydrological interruption, or other means
- Impact BIO-4. Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites
- Impact BIO-5. Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Impact BIO-6. Conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

3.3 Impact Analysis

Impact BIO-1: 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 Game or U.S. Fish and Wildlife Service?

Less-Than-Significant Impact. The biological resources assessment included the approximate 2.93-acre project site, plus a 100-foot buffer around the project site. The entire project site is characterized by an ornamental, orchard, and other non-native species. Several mature oak trees occur throughout the project site. Due to the disturbed condition of the project site and developed nature of the study area, the potential for special-status species is low.

Plant Species

No plant species listed or proposed for listing as rare, threatened, or endangered by either the CDFW or USFWS were detected within the study area during the reconnaissance survey on February 5, 2020. Dudek performed a review of literature, existing documentation, and GIS data to evaluate the potential for special-status plant species to occur within the study area. Each special-status plant species was given a rating of not expected, low, medium, or high based on relative location to known occurrences, vegetation communities, soils, and elevation. Based on the results of the literature review and database searches, 42 special-status plant species were identified as previously occurring within the region. The complete results of the CNDDDB, CNPS, and IPAC records searches for special-status plants are included as Appendix A of this report. However, none of these species are expected to occur or have a low potential to occur within the study area based on the soils, current disturbance levels, vegetation communities (habitat) present, elevation ranges, and previous known locations documented within the CNDDDB, CNPS, and IPaC records. Additionally, there is no USFWS-designated Critical Habitat for listed plant species within the study area. Due to the nature of the study area, special-status plant species would unlikely survive with the current amount of disturbance, non-native plant competition, and surrounding development already in place. As a result, direct or indirect impacts to special-status plant species would be less than significant.

Wildlife Species

No wildlife species listed or proposed for listing as rare, threatened, or endangered by either the CDFW or USFWS were detected within the study area during the reconnaissance survey on February 5, 2020. Dudek performed a review of literature, existing documentation, and GIS data to evaluate the potential for special-status wildlife species to occur within the study area. Similar to plants, each special-status wildlife species was given a rating of not expected, low, moderate, or high based on relative location to know occurrences, vegetation communities, and elevation. Based on the results of the literature review and database searches, 41 special-status wildlife species were identified as occurring within the region. The complete results of the CNDDDB, CNPS, and IPaC records searches for special-status wildlife are included as Appendix A of this report. However, none of these species are expected or have a low potential to occur within the study area based on the vegetation communities (habitat) present, elevation ranges, and previous known locations documented within the CNDDDB and IPaC records. Additionally, there is no USFWS-designated Critical Habitat for listed wildlife species within the study area. As a result, direct or indirect impacts to special-status wildlife species would be less than significant.

Mitigation Measures

None required.

Impact BIO-2: Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No Impact. The entire project site is characterized by a disturbed and ornamental land cover. No riparian habitat or other natural vegetation communities considered sensitive are present within the impact footprint. As a result, there would be no impact to riparian or sensitive vegetation communities.

Mitigation Measures

None required.

Impact BIO-3: Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. No state or federally defined waters of the United States or waters of the state occur within the project site. This includes the absence of federally defined wetlands and other waters (e.g., drainages), and state-defined waters (e.g., streams and riparian extent). Therefore, no direct or indirect impacts to jurisdictional waters or wetlands would occur.

Mitigation Measures

None required.

Impact BIO-4: 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?

Less-Than-Significant Impact with Mitigation. The proposed project is located within an urban setting surrounded by residential and commercial developments. Due to the matrix of development surrounding the project site, wildlife movement is extremely limited and the proposed project would not constrain natural wildlife movement in its vicinity. However, the study area supports suitable habitat for nesting bird species, as well as bats. Nesting birds are protected under the Migratory Bird Treaty Act and California Fish and Game Code Section 3500, and compliance with these regulations is required. Project plans include the removal of existing structures and vegetation considered suitable for nests and roosts. Additionally, indirect impacts to nesting birds and roosting bats from short-term construction-related noise could result in decreased reproductive success or abandonment of an area as nesting or roosting habitat if conducted during the nesting season (i.e., February through August) or near a maternity roost. Implementation of MM-BIO-1 and MM-BIO-2 would ensure potential impacts to nesting birds and roosting bats are less than significant.

Mitigation Measures

MM-BIO-1 Vegetation removal and initial ground-disturbing activities should occur outside the nesting season, which generally occurs from February through August, to avoid potential impacts to nesting birds. This would ensure that no active nests would be disturbed and that habitat removal could proceed rapidly. If vegetation removal and initial ground-disturbing activities occur during the nesting season, all suitable habitat should be thoroughly surveyed by a qualified biologist for the presence of nesting birds before commencement of clearing. If any active nests are detected, a buffer of at least 100 feet (300 feet for raptors) should be delineated, flagged, and avoided until the nesting cycle is complete as determined by a qualified biologist.

MM-BIO-2 To the extent practicable, site demolition should occur outside peak bat activity timeframes when young or overwintering bats may be present, which generally occurs from March through April and August through October, to ensure protection of potentially occurring bats and their roosts on the project site. Additionally, daily restrictions on the timing of any construction activities should be limited to daylight hours to reduce disturbance to roosting (and foraging) bat species. Additionally, a pre-demolition bat survey should be conducted within 30 days of the removal of any structures/buildings or trees. The survey should include a determination on whether active bat roosts are present on or within 50 feet of the project site. If a non-breeding and non-wintering bat colony is found, the individuals shall be evicted under the direction of a qualified biologist to ensure their protection and avoid unnecessary harm. If a maternity colony or overwintering colony is found in the buildings or trees on the project site, then the qualified biologist shall establish a suitable construction-free buffer around the location. The construction-free buffer shall remain in place until the qualified biologist determines that the nursery is no longer active.

Impact Bio-5: **Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

Less than Significant Impact. The City of Campbell's Municipal Code (CMC), Chapter 21.32 protects certain trees on private property and establishes procedures for their protection and management. Section 21.32.050 states:

“For trees on all commercial, industrial, multi-family residential, mixed-use, and undeveloped single-family residential properties in all zoning districts, any tree or multi-trunk tree with at least one trunk measuring twelve inches (12) or greater in diameter (thirty-eight [38] inches or greater in circumference), measured four (4) feet above the adjacent grade.”

Additionally, protected tree removal on private property is subject to replacement in accordance with CMC Section 21.32.100, and summarized in Table 1.

“The minimum number and size of replacement tree(s) shall be based on the number, size, and species of tree(s) requested to be removed. The species of replacement tree(s) shall continue the diversity of trees found in the community. The minimum guidelines for tree replacement are as follows.”

Table 1. Summary of Protected Tree Removal Replacement Standards

Trunk Size of Removed Tree (measured at 4 feet above grade)		Replacement Ratio Required (per tree removed)	
<i>Diameter (in inches)</i>	<i>Circumference (in inches)</i>	<i>Number of replacement trees</i>	<i>Minimum Size</i>
12 to 24	38 to 75	1	24 inch box
greater than 24	greater than 75	1	36 inch box
Heritage Trees		1	48 inch box

Acquisition of a tree removal permit is required for trees that meet these conditions in compliance with CMC Section 21.32.070. Trees smaller than the minimum threshold presented in CMC Section 21.32.050, as well as fruit (common to food production) and eucalyptus trees are not subject to the CMC.

Redevelopment of the project site would require the removal of several almond, apricot, and other ornamental/fruit trees. Based on the currently proposed landscape plans, a total of 142 ornamental species are proposed for removal on the project site. These ornamental species would not require preservation under the City's Tree Protection Ordinance (CMC, Section 21.32.050). A total of 25 trees that require protection in compliance with the CMC also occur on the project site, including 24 coast live oaks and 1 coast redwood. The proposed project would retain a total of 10 coast live oak trees and the design has incorporated protective measures to prevent loss of these individuals. However, a total of 14 coast live oak trees (24-inch diameter and less) and 1 coast redwood (24-inch diameter) are proposed for removal on the project site. The proposed landscape plans includes a total of five 36-inch diameter and eighteen 24-inch diameter replacement trees. As a Condition of Approval, the applicant shall be required to submit a final landscaping plan with Building Permit construction documents, which shall specify the exact number, type, size, and location of replacement trees to be planted, in conformance with the City's Tree Protection Ordinance. Additionally, prior to the issuance of a Grading Permit, the applicant shall implement the tree protection measures specified by the arborist report prepared for by the project by the City's consultant.

Therefore, the project will incur a less than significant impact and ensure that the proposed project would not conflict with the City's Tree Protection Ordinance or other local policy or ordinance protecting biological resources.

Mitigation Measures

None required.

Impact BIO-6: Would the project 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. The proposed project is within the Santa Clara Valley Habitat Conservation Plan boundaries, but not within a designated conservation area. The project site does not support habitat for listed species or habitats covered by the Santa Clara Valley Habitat Conservation Plan. As a result, the proposed project would not conflict with the Santa Clara Valley Habitat Conservation Plan

Mitigation Measures

None required.

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4 Mitigation, Monitoring and Reporting Program

Because the Project would result in potentially significant impacts to biological resources, Table 2 summarizes the following recommended elements to the Mitigation, Monitoring and Reporting Program.

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Table 2. Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring				Verification of Compliance		
	Monitoring Phase	Enforcement Agency	Monitoring Agency	Action Indicating Compliance	Initial	Date	Comments
Biological Resources							
MM-BIO-1: Pre-construction Avian Survey. Vegetation removal and initial ground-disturbing activities should occur outside the nesting season, which generally occurs from February through August, to avoid potential impacts to nesting birds. This would ensure that no active nests would be disturbed and that habitat removal could proceed rapidly. If vegetation removal and initial ground-disturbing activities occur during the nesting season, all suitable habitat should be thoroughly surveyed by a qualified biologist for the presence of nesting birds before commencement of clearing. If any active nests are detected, a buffer of at least 100 feet (300 feet for raptors) should be delineated, flagged, and avoided until the nesting cycle is complete as determined by a qualified biologist. MM-BIO-2: Pre-construction Bat Survey. To the extent practicable, site demolition should occur outside peak bat activity timeframes when young or overwintering bats may be present, which generally occurs from March through April and August through October, to ensure protection of potentially occurring bats and their roosts on the project site. Additionally, daily restrictions on the timing of any construction activities should be limited to daylight hours to reduce disturbance to roosting (and foraging) bat species. Additionally, a pre-demolition bat survey should be conducted within 30 days of the removal of any	Site Preparation and Construction	City of Campbell	Building Division	Periodic Compliance Report			

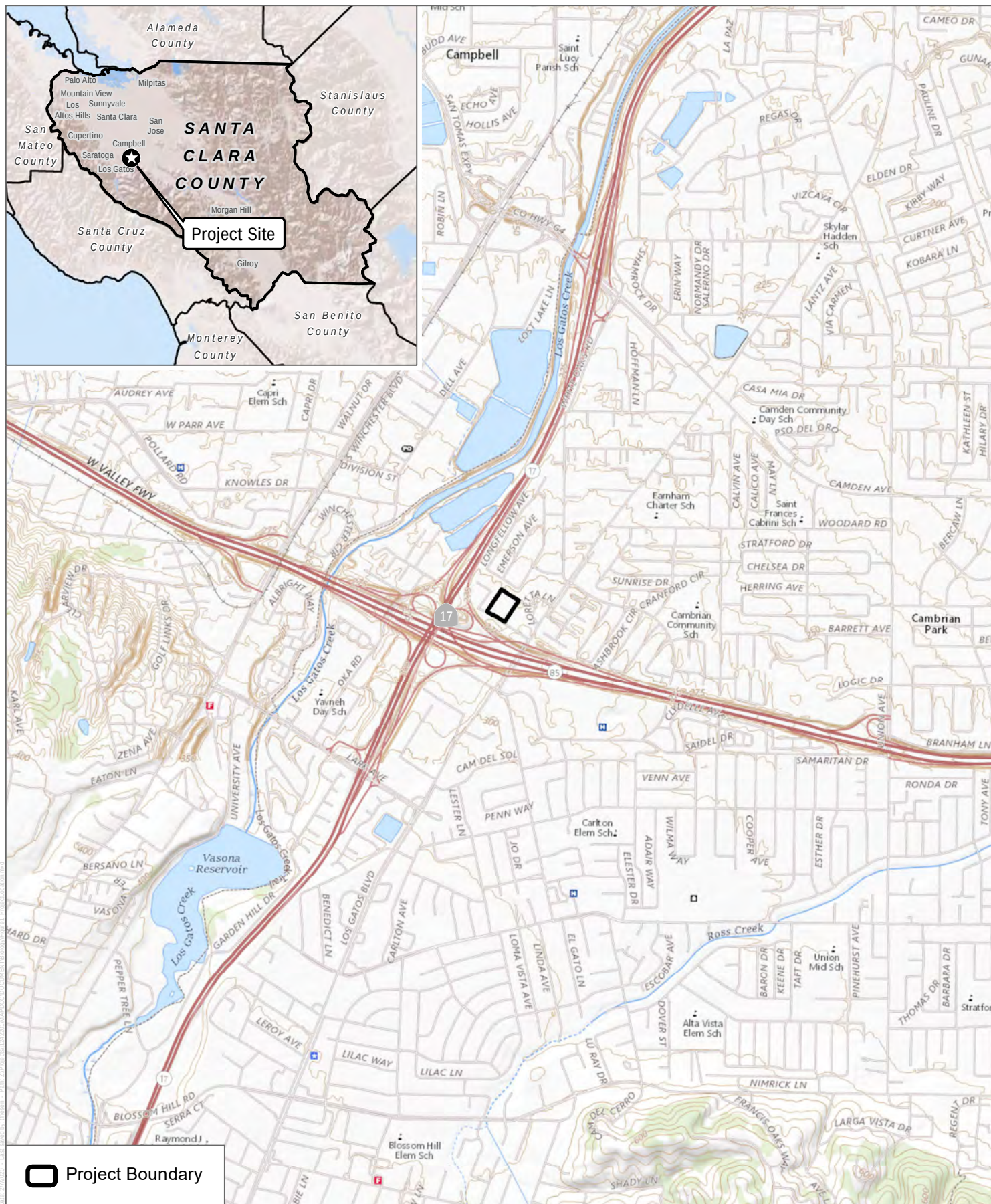
Table 2. Mitigation Monitoring and Reporting Program

Mitigation Measure	Mitigation Monitoring				Verification of Compliance		
	<i>Monitoring Phase</i>	<i>Enforcement Agency</i>	<i>Monitoring Agency</i>	<i>Action Indicating Compliance</i>	<i>Initial</i>	<i>Date</i>	<i>Comments</i>
structures/buildings or trees. The survey should include a determination on whether active bat roosts are present on or within 50 feet of the project site. If a non-breeding and non-wintering bat colony is found, the individuals shall be evicted under the direction of a qualified biologist to ensure their protection and avoid unnecessary harm. If a maternity colony or overwintering colony is found in the buildings or trees on the project site, then the qualified biologist shall establish a suitable construction-free buffer around the location. The construction-free buffer shall remain in place until the qualified biologist determines that the nursery is no longer active.							

5 References

- CDFG (California Department of Fish and Game). 2009. Protocols for Surveying and Evaluating Impacts to Special-Status Native Populations and Natural Communities. November 24.
http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html.
- CDFG (California Department of Fish and Game). 2010. List of Vegetation Alliances and Associations. Natural Communities List, Vegetation Classification and Mapping Program. Sacramento, California: CDFG. September 2010. http://www.dfg.ca.gov/biogeodata/vegcamp/natural_communities.asp.
- California Department of Fish and Wildlife (CDFW). 2020. RareFind 5, Version 5.2.14. Biogeographic Data Branch. Sacramento, California: California Natural Diversity Database. Website
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<http://www.rareplants.cnps.org/>[accessed February 2020].
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- USGS (U.S. Geological Survey). 2020. The National Map Viewer. Web Map Service. Accessed February, 2020.
<http://viewer.nationalmap.gov/viewer>.

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SOURCE: USGS Topographic Map

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SOURCE: Bing 2020, County of Santa Clara 2018, CEA 2019

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Attachment A

CNDDDB, CNPS, and IPaC Database Search Results



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad< IS (San Jose West (3712138) OR San Jose East (3712137) OR Cupertino (3712231) OR Castle Rock Ridge (3712221) OR Los Gatos (3712128) OR Santa Teresa Hills (3712127) OR Calaveras Reservoir (3712147) OR Milpitas (3712148) OR Mountain View (3712241))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Accipiter cooperii</i> Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
<i>Adela oplerella</i> Opler's longhorn moth	IILEE0G040	None	None	G2	S2	
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
<i>Ambystoma californiense</i> California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
<i>Amsinckia lunaris</i> bent-flowered fiddleneck	PDBOR01070	None	None	G3	S3	1B.2
<i>Aneides niger</i> Santa Cruz black salamander	AAAAD01070	None	None	G3	S3	SSC
<i>Anniella pulchra</i> northern California legless lizard	ARACC01020	None	None	G3	S3	SSC
<i>Anodonta californiensis</i> California floater	IMBIV04020	None	None	G3Q	S2?	
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G5	S3	SSC
<i>Aquila chrysaetos</i> golden eagle	ABNKC22010	None	None	G5	S3	FP
<i>Arctostaphylos silvicola</i> Bonny Doon manzanita	PDERI041F0	None	None	G1	S1	1B.2
<i>Ardea alba</i> great egret	ABNGA04040	None	None	G5	S4	
<i>Ardea herodias</i> great blue heron	ABNGA04010	None	None	G5	S4	
<i>Astragalus tener var. tener</i> alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	None	G4	S3	SSC
<i>Atriplex depressa</i> brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
<i>Atriplex minuscula</i> lesser saltscale	PDCHE042M0	None	None	G2	S2	1B.1
<i>Balsamorhiza macrolepis</i> big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Bombus caliginosus</i> obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
<i>Bombus crotchii</i> Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24250	None	Candidate Endangered	G2G3	S1	
<i>Buteo swainsoni</i> Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
<i>Calasellus californicus</i> An isopod	ICMAL34010	None	None	G2	S2	
<i>Calyptridium parryi</i> var. <i>hesseae</i> Santa Cruz Mountains pussypaws	PDPOR09052	None	None	G3G4T2	S2	1B.1
<i>Campanula exigua</i> chaparral harebell	PDCAM020A0	None	None	G2	S2	1B.2
<i>Centromadia parryi</i> ssp. <i>congdonii</i> Congdon's tarplant	PDAST4R0P1	None	None	G3T1T2	S1S2	1B.1
<i>Charadrius alexandrinus nivosus</i> western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
<i>Chlorogalum pomeridianum</i> var. <i>minus</i> dwarf soaproot	PMLIL0G042	None	None	G5T3	S3	1B.2
<i>Chloropyron maritimum</i> ssp. <i>palustre</i> Point Reyes salty bird's-beak	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
<i>Chorizanthe pungens</i> var. <i>hartwegiana</i> Ben Lomond spineflower	PDPGN040M1	Endangered	None	G2T1	S1	1B.1
<i>Chorizanthe robusta</i> var. <i>robusta</i> robust spineflower	PDPGN040Q2	Endangered	None	G2T1	S1	1B.1
<i>Circus hudsonius</i> northern harrier	ABNKC11011	None	None	G5	S3	SSC
<i>Cirsium fontinale</i> var. <i>campylon</i> Mt. Hamilton thistle	PDAST2E163	None	None	G2T2	S2	1B.2
<i>Clarkia concinna</i> ssp. <i>automixa</i> Santa Clara red ribbons	PDONA050A1	None	None	G5?T3	S3	4.3
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
<i>Collinsia multicolor</i> San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2	1B.2
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<i>Coturnicops noveboracensis</i> yellow rail	ABNME01010	None	None	G4	S1S2	SSC
<i>Cypseloides niger</i> black swift	ABNUA01010	None	None	G4	S2	SSC



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Dicamptodon ensatus</i> California giant salamander	AAAAH01020	None	None	G3	S2S3	SSC
<i>Dipodomys heermanni berkeleyensis</i> Berkeley kangaroo rat	AMAFD03061	None	None	G3G4T1	S1	
<i>Dipodomys venustus venustus</i> Santa Cruz kangaroo rat	AMAFD03042	None	None	G4T1	S1	
<i>Dirca occidentalis</i> western leatherwood	PDTHY03010	None	None	G2	S2	1B.2
<i>Dudleya abramsii ssp. setchellii</i> Santa Clara Valley dudleya	PDCRA040Z0	Endangered	None	G4T2	S2	1B.1
<i>Egretta thula</i> snowy egret	ABNGA06030	None	None	G5	S4	
<i>Elanus leucurus</i> white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
<i>Emys marmorata</i> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<i>Erethizon dorsatum</i> North American porcupine	AMAFJ01010	None	None	G5	S3	
<i>Eryngium aristulatum var. hooveri</i> Hoover's button-celery	PDAP10Z043	None	None	G5T1	S1	1B.1
<i>Euphydryas editha bayensis</i> Bay checkerspot butterfly	IILEPK4055	Threatened	None	G5T1	S1	
<i>Extriplex joaquinana</i> San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
<i>Falco peregrinus anatum</i> American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
<i>Fritillaria liliacea</i> fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
<i>Geothlypis trichas sinuosa</i> saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T3	S3	SSC
<i>Hoita strobilina</i> Loma Prieta hoita	PDFAB5Z030	None	None	G2?	S2?	1B.1
<i>Lasiurus cinereus</i> hoary bat	AMACC05030	None	None	G5	S4	
<i>Lasthenia conjugens</i> Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
<i>Laterallus jamaicensis coturniculus</i> California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
<i>Lessingia micradenia var. glabrata</i> smooth lessingia	PDAST5S062	None	None	G2T2	S2	1B.2



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Malacothamnus arcuatus</i> arcuate bush-mallow	PDMAL0Q0E0	None	None	G2Q	S2	1B.2
<i>Malacothamnus hallii</i> Hall's bush-mallow	PDMAL0Q0F0	None	None	G2	S2	1B.2
<i>Masticophis lateralis euryxanthus</i> Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
<i>Melospiza melodia pusillula</i> Alameda song sparrow	ABPBXA301S	None	None	G5T2?	S2S3	SSC
<i>Microcina homi</i> Hom's micro-blind harvestman	ILARA47020	None	None	G1	S1	
<i>Monolopia gracilens</i> woodland woollythreads	PDAST6G010	None	None	G3	S3	1B.2
<i>Myotis evotis</i> long-eared myotis	AMACC01070	None	None	G5	S3	
<i>Myotis yumanensis</i> Yuma myotis	AMACC01020	None	None	G5	S4	
<i>Navarretia prostrata</i> prostrate vernal pool navarretia	PDPLM0C0Q0	None	None	G2	S2	1B.2
<i>Neotoma fuscipes annectens</i> San Francisco dusky-footed woodrat	AMAFF08082	None	None	G5T2T3	S2S3	SSC
North Central Coast Drainage Sacramento Sucker/Roach River North Central Coast Drainage Sacramento Sucker/Roach River	CARA2623CA	None	None	GNR	SNR	
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
<i>Nycticorax nycticorax</i> black-crowned night heron	ABNGA11010	None	None	G5	S4	
<i>Oncorhynchus kisutch pop. 4</i> coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G4	S2?	
<i>Oncorhynchus mykiss irideus pop. 8</i> steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
<i>Pandion haliaetus</i> osprey	ABNKC01010	None	None	G5	S4	WL
<i>Pedicularis dudleyi</i> Dudley's lousewort	PDSCR1K0D0	None	Rare	G2	S2	1B.2
<i>Penstemon rattanii var. kleei</i> Santa Cruz Mountains beardtongue	PDSCR1L5B1	None	None	G4T2	S2	1B.2
<i>Pentachaeta bellidiflora</i> white-rayed pentachaeta	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
<i>Phrynosoma blainvillii</i> coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
<i>Piperia candida</i> white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Plagiobothrys glaber</i> hairless popcornflower	PDBOR0V0B0	None	None	GH	SH	1A
<i>Progne subis</i> purple martin	ABPAU01010	None	None	G5	S3	SSC
<i>Puccinellia simplex</i> California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
<i>Rallus obsoletus obsoletus</i> California Ridgway's rail	ABNME05011	Endangered	Endangered	G5T1	S1	FP
<i>Rana boylei</i> foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
<i>Rana draytonii</i> California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
<i>Reithrodontomys raviventris</i> salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP
<i>Rynchops niger</i> black skimmer	ABNNM14010	None	None	G5	S2	SSC
<i>Sanicula saxatilis</i> rock sanicle	PDAP11Z0H0	None	Rare	G2	S2	1B.2
<i>Senecio aphanactis</i> chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
<i>Serpentine Bunchgrass</i> Serpentine Bunchgrass	CTT42130CA	None	None	G2	S2.2	
<i>Sidalcea malachroides</i> maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
<i>Sorex vagrans halicoetes</i> salt-marsh wandering shrew	AMABA01071	None	None	G5T1	S1	SSC
<i>Spirinchus thaleichthys</i> longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
<i>Sternula antillarum browni</i> California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP
<i>Streptanthus albidus ssp. albidus</i> Metcalf Canyon jewelflower	PDBRA2G011	Endangered	None	G2T1	S1	1B.1
<i>Streptanthus albidus ssp. peramoenus</i> most beautiful jewelflower	PDBRA2G012	None	None	G2T2	S2	1B.2
<i>Suaeda californica</i> California seablite	PDCHE0P020	Endangered	None	G1	S1	1B.1
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S3	SSC
<i>Trifolium buckwestiorum</i> Santa Cruz clover	PDFAB402W0	None	None	G2	S2	1B.1
<i>Trifolium hydrophilum</i> saline clover	PDFAB400R5	None	None	G2	S2	1B.2



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Trimerotropis infantilis</i> Zayante band-winged grasshopper	IIORT36030	Endangered	None	G1	S1	
<i>Tryonia imitator</i> mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	

Record Count: 104

*The database used to provide updates to the Online Inventory is under construction. [View updates and changes made since May 2019 here.](#)

Plant List

58 matches found. [Click on scientific name for details](#)

Search Criteria

Found in Quads 3712241, 3712148, 3712147, 3712231, 3712138, 3712137, 3712221 3712128 and 3712127;

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank	State Listing Status	Federal Listing Status	Habitats	Lowest Elevation	Highest Elevation	CA Endemic
Acanthomintha lanceolata	Santa Clara thorn-mint	Lamiaceae	annual herb	Mar-Jun	4.2	S4	G4			• Chaparral (often serpentine) • Cismontane woodland • Coastal scrub • Coastal bluff scrub	80 m	1200 m	yes
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	Mar-Jun	1B.2	S3	G3			• Cismontane woodland • Valley and foothill grassland • Chaparral • Cismontane woodland • Coastal scrub • Meadows and seeps • Pinyon and juniper woodland • Valley and foothill grassland	3 m	500 m	yes
Androsace elongata ssp. acuta	California androsace	Primulaceae	annual herb	Mar-Jun	4.2	S3S4	G5? T3T4			• Chaparral • Cismontane woodland • Coastal scrub • Meadows and seeps • Pinyon and juniper woodland • Valley and foothill grassland	150 m	1305 m	
Arabis blepharophylla	coast rockcress	Brassicaceae	perennial herb	Feb-May	4.3	S4	G4			• Broadleaved upland forest • Coastal bluff scrub • Coastal prairie • Coastal scrub • Closed-cone coniferous forest • Chaparral • Lower montane coniferous forest	3 m	1100 m	yes
Arctostaphylos silvicola	Bonny Doon manzanita	Ericaceae	perennial evergreen shrub	Jan-Mar	1B.2	S1	G1			• Chaparral • Lower montane coniferous forest	120 m	600 m	yes
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S1	G2T1			• Playas • Valley and foothill grassland (adobe clay)	1 m	60 m	yes

									• Vernal pools			
									• Chenopod scrub			
									• Meadows and seeps			
<u>Atriplex depressa</u>	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2		• Playas	1 m	320 m	yes
									• Valley and foothill grassland			
									• Vernal pools			
									• Chenopod scrub			
<u>Atriplex minuscula</u>	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	1B.1	S2	G2		• Playas	15 m	200 m	yes
									• Valley and foothill grassland			
									• Chaparral			
									• Cismontane woodland			
<u>Balsamorhiza macrolepis</u>	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2		• Valley and foothill grassland	45 m	1555 m	yes
									• Chaparral			
									• Coastal scrub	10 m	1220 m	
									• Chaparral			
<u>Calandrinia breweri</u>	Brewer's calandrinia	Montiaceae	annual herb	(Jan)Mar-Jun	4.2	S4	G4		• Cismontane woodland			
									• Valley and foothill grassland	425 m	1490 m	yes
									• Chaparral			
<u>Calystegia collina ssp. venusta</u>	South Coast Range morning-glory	Convolvulaceae	perennial rhizomatous herb	Apr-Jun	4.3	S4	G4T4		(rocky, usually serpentinite)	275 m	1250 m	yes
									• Valley and foothill grassland (alkaline)	0 m	230 m	yes
									• Marshes and swamps (coastal salt)	0 m	10 m	
<u>Campanula exigua</u>	chaparral harebell	Campanulaceae	annual herb	May-Jun	1B.2	S2	G2		• Lower montane coniferous forest (maritime ponderosa pine sandhills)	90 m	610 m	yes
									• Chaparral (maritime)			
<u>Centromadia parryi ssp. congdonii</u>	Congdon's tarplant	Asteraceae	annual herb	May-Oct(Nov)	1B.1	S1S2	G3T1T2		• Cismontane woodland (openings)	3 m	300 m	yes
									• Coastal dunes			
<u>Chloropyron maritimum ssp. palustre</u>	Point Reyes bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	1B.2	S2	G4?T2		• Coastal scrub			
									• Chaparral			
<u>Chorizanthe pungens var. hartwegiana</u>	Ben Lomond spineflower	Polygonaceae	annual herb	Apr-Jul	1B.1	S1	G2T1	FE	• Cismontane woodland			
									• Coastal scrub			
									• Chaparral			
<u>Chorizanthe robusta var. robusta</u>	robust spineflower	Polygonaceae	annual herb	Apr-Sep	1B.1	S1	G2T1	FE	• Cismontane woodland	100 m	890 m	yes
									• Valley and foothill grassland			
									• Chaparral			
<u>Cirsium fontinale var. campylon</u>	Mt. Hamilton fountain thistle	Asteraceae	perennial herb	(Feb)Apr-Oct	1B.2	S2	G2T2		• Cismontane woodland	215 m	1115 m	yes
									• Coastal scrub			
									• Chaparral			
<u>Clarkia breweri</u>	Brewer's clarkia	Onagraceae	annual herb	Apr-Jun	4.2	S4	G4		• Cismontane woodland	90 m	1500 m	yes
	Santa Clara	Onagraceae	annual herb	(Apr)May-	4.3	S3	G5?T3					

CNPS Inventory Results

www.rareplants.cnps.org/result.html?adv=t&quad=3712241:3712148:3712147:3712231:3712138:3712137:3712221:3712128:3712127#cdisp=1,2,3,4,... 3/7

<u>Galium andrewsii ssp. gatense</u>	phlox-leaf serpentine bedstraw	Rubiaceae	perennial herb	Apr-Jul	4.2	S3	G5T3	foothill grassland • Chaparral • Cismontane woodland • Lower montane coniferous forest • Chaparral • Cismontane woodland • Riparian woodland • Coastal prairie • Lower montane coniferous forest • Meadows and seeps • Cismontane woodland • Playas (alkaline) • Valley and foothill grassland • Vernal pools • Chaparral • Cismontane woodland • Coastal prairie • Valley and foothill grassland • Cismontane woodland • Coastal scrub • Valley and foothill grassland • Coastal bluff scrub • Closed- cone coniferous forest • Cismontane woodland • Coastal dunes • Coastal prairie • Coastal scrub • Valley and foothill grassland • Broadleafed upland forest • Coastal scrub • Lower montane coniferous forest • Valley and foothill grassland	150 m	1450 m	yes
<u>Hoita strobilina</u>	Loma Prieta hoita	Fabaceae	perennial herb	May-Jul(Aug- Oct)	1B.1	S2?	G2?		30 m	860 m	yes
<u>Iris longipetala</u>	coast iris	Iridaceae	perennial rhizomatous herb	Mar-May	4.2	S3	G3		0 m	600 m	yes
<u>Lasthenia conjugens</u>	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	1B.1	S1	G1	FE	0 m	470 m	yes
<u>Leptosiphon acicularis</u>	bristly leptosiphon	Polemoniaceae	annual herb	Apr-Jul	4.2	S4?	G4?		55 m	1500 m	yes
<u>Leptosiphon ambiguus</u>	serpentine leptosiphon	Polemoniaceae	annual herb	Mar-Jun	4.2	S4	G4		120 m	1130 m	yes
<u>Leptosiphon grandiflorus</u>	large-flowered leptosiphon	Polemoniaceae	annual herb	Apr-Aug	4.2	S3S4	G3G4		5 m	1220 m	yes
<u>Lessingia hololeuca</u>	woolly- headed lessingia	Asteraceae	annual herb	Jun-Oct	3	S2S3	G3?		15 m	305 m	yes

2/6/2020

CNPS Inventory Results

<u>Lessingia micradenia</u> <u>var. glabrata</u>	smooth lessingia	Asteraceae	annual herb	(Apr-Jun)Jul-Nov	1B.2	S2	G2T2		• Chaparral • Cismontane woodland • Valley and foothill grassland	120 m	420 m	yes
<u>Malacothamnus arcuatus</u>	arcuate bush-mallow	Malvaceae	perennial evergreen shrub	Apr-Sep	1B.2	S2	G2Q		• Chaparral • Cismontane woodland	15 m	355 m	yes
<u>Malacothamnus hallii</u>	Hall's bush-mallow	Malvaceae	perennial evergreen shrub	(Apr)May-Sep(Oct)	1B.2	S2	G2		• Chaparral • Coastal scrub	10 m	760 m	yes
<u>Micropus amphibolus</u>	Mt. Diablo cottonweed	Asteraceae	annual herb	Mar-May	3.2	S3S4	G3G4		• Broadleafed upland forest • Chaparral • Cismontane woodland • Valley and foothill grassland	45 m	825 m	yes
<u>Mielichhoferia elongata</u>	elongate copper moss	Mielichhoferiaceae	moss		4.3	S4	G5		• Broadleafed upland forest • Chaparral • Cismontane woodland • Coastal scrub • Lower montane coniferous forest • Meadows and seeps • Subalpine coniferous forest	0 m	1960 m	
<u>Monolopia gracilens</u>	woodland woolythreads	Asteraceae	annual herb	(Feb)Mar-Jul	1B.2	S3	G3		• Broadleafed upland forest (openings) • Chaparral (openings) • Cismontane woodland • North Coast coniferous forest (openings) • Valley and foothill grassland	100 m	1200 m	yes
<u>Navarretia prostrata</u>	prostrate vernal pool navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G2		• Coastal scrub • Meadows and seeps • Valley and foothill grassland (alkaline) • Vernal pools	3 m	1210 m	yes
<u>Pentachaeta bellidiflora</u>	white-rayed pentachaeta	Asteraceae	annual herb	Mar-May	1B.1	S1	G1	CE FE	• Cismontane woodland • Valley and foothill grassland (often serpentine)	35 m	620 m	yes
<u>Piperia candida</u>	white-flowered rein orchid	Orchidaceae	perennial herb	(Mar)May-Sep	1B.2	S3	G3		• Broadleafed upland forest • Lower montane	30 m	1310 m	

									coniferous forest • North Coast coniferous forest				
<u>Plagiobothrys chorisianus var. hickmanii</u>	Hickman's popcornflower	Boraginaceae	annual herb	Apr-Jun	4.2	S3	G3T3Q		• Closed-cone coniferous forest • Chaparral • Coastal scrub • Marshes and swamps • Vernal pools	15 m	185 m	yes	
<u>Plagiobothrys glaber</u>	hairless popcornflower	Boraginaceae	annual herb	Mar-May	1A	SH	GH		• Meadows and seeps (alkaline) • Marshes and swamps (coastal salt)	15 m	180 m	yes	
<u>Puccinellia simplex</u>	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3		• Chenopod scrub • Meadows and seeps • Valley and foothill grassland • Vernal pools	2 m	930 m		
<u>Sanicula saxatilis</u>	rock sanicle	Apiaceae	perennial herb	Apr-May	1B.2	S2	G2	CR	• Broadleafed upland forest • Chaparral • Valley and foothill grassland	620 m	1175 m	yes	
<u>Senecio aphanactis</u>	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	2B.2	S2	G3		• Chaparral • Cismontane woodland • Coastal scrub	15 m	800 m		
<u>Sidalcea malachroides</u>	maple-leaved checkerbloom	Malvaceae	perennial herb	(Mar)Apr-Aug	4.2	S3	G3		• Broadleafed upland forest • Coastal prairie • Coastal scrub • North Coast coniferous forest • Riparian woodland	0 m	730 m		
<u>Streptanthus albidus ssp. albidus</u>	Metcalf Canyon jewelflower	Brassicaceae	annual herb	Apr-Jul	1B.1	S1	G2T1	FE	• Valley and foothill grassland (serpentine) • Chaparral	45 m	800 m	yes	
<u>Streptanthus albidus ssp. peramoenus</u>	most beautiful jewelflower	Brassicaceae	annual herb	(Mar)Apr-Sep(Oct)	1B.2	S2	G2T2		• Cismontane woodland • Valley and foothill grassland	95 m	1000 m	yes	
<u>Stuckenia filiformis ssp. alpina</u>	slender-leaved pondweed	Potamogetonaceae	perennial rhizomatous herb (aquatic)	May-Jul	2B.2	S2S3	G5T5		• Marshes and swamps (assorted shallow freshwater)	300 m	2150 m		
<u>Suaeda californica</u>	California seablite	Chenopodiaceae	perennial evergreen shrub	Jul-Oct	1B.1	S1	G1	FE	• Marshes and swamps (coastal salt)	0 m	15 m	yes	
<u>Trifolium buckwestiorum</u>	Santa Cruz clover	Fabaceae	annual herb	Apr-Oct	1B.1	S2	G2		• Broadleafed upland forest	105 m	610 m	yes	

									• Cismontane woodland • Coastal prairie • Marshes and swamps • Valley and foothill grassland (mesic, alkaline) • Vernal pools • Valley and foothill grassland (alkaline hills)			
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2		0 m	300 m	yes	
Tropidocarpum capparideum	caper-fruited tropidocarpum	Brassicaceae	annual herb	Mar-Apr	1B.1	S1	G1		1 m	455 m	yes	

Suggested Citation

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IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Santa Clara County, California



Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📠 (916) 414-6713

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
------	--------

California Clapper Rail <i>Rallus longirostris obsoletus</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern <i>Sterna antillarum browni</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Marbled Murrelet <i>Brachyramphus marmoratus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened
Tidewater Goby <i>Eucyclogobius newberryi</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Bay Checkerspot Butterfly <i>Euphydryas editha bayensis</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2320	Threatened

San Bruno Elfin Butterfly *Callophrys mossii bayensis*

Endangered

There is **proposed** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/3394>

Flowering Plants

NAME	STATUS
Metcalf Canyon Jewelflower <i>Streptanthus albidus</i> ssp. <i>albidus</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4186	Endangered
Robust Spineflower <i>Chorizanthe robusta</i> var. <i>robusta</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/9287	Endangered
Santa Clara Valley Dudleya <i>Dudleya setchellii</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3207	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>

- Measures for avoiding and minimizing impacts to birds
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds
<http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Allen's Hummingbird *Selasphorus sasin*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9637>

Breeds Feb 1 to Jul 15

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Jan 1 to Aug 31

Clark's Grebe <i>Aechmophorus clarkii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31
Common Yellowthroat <i>Geothlypis trichas sinuosa</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Costa's Hummingbird <i>Calypte costae</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9470	Breeds Jan 15 to Jun 10
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lawrence's Goldfinch <i>Carduelis lawrencei</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Nuttall's Woodpecker <i>Picoides nuttallii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse <i>Baeolophus inornatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Rufous Hummingbird <i>Selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Song Sparrow <i>Melospiza melodia</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5

Spotted Towhee *Pipilo maculatus clementae*

Breeds Apr 15 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
<https://ecos.fws.gov/ecp/species/4243>

Wrentit *Chamaea fasciata*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (l)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

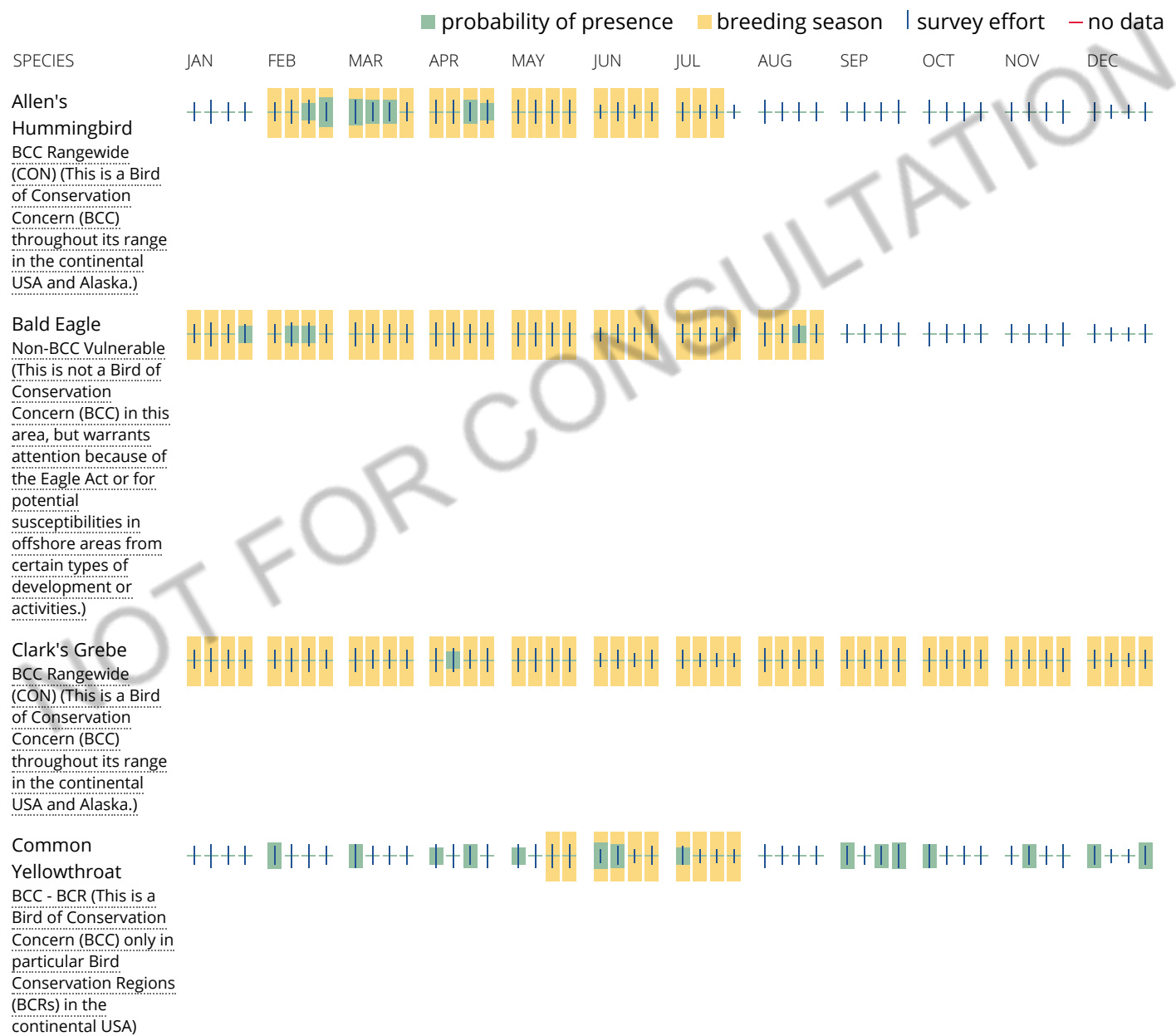
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

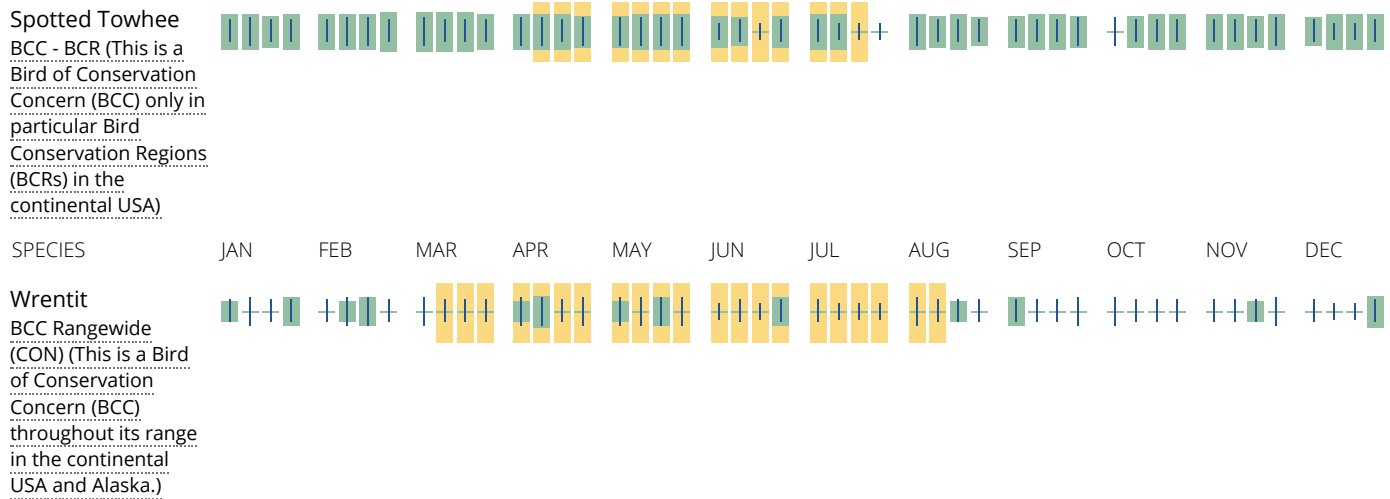
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.







Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to

look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1Fx](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PSSC](#)

[PFOC](#)

FRESHWATER POND

[PUBHh](#)

[PUBKx](#)

LAKE

[L1UBHh](#)[L1UBKx](#)

RIVERINE

[R5UBFx](#)[R4SBC](#)[R5UBF](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

ATTACHMENT 3

MOZART TREE ASSESSMENT

**Assessment of twenty-six (26) protected-size trees
at and adjacent to proposed (conceptual) site development
at
16179 E. Mozart Avenue
Campbell, California**

Prepared for:

Attn: Mr. Daniel Fama, Senior Planner
City of Campbell | Community Development Department
70 N. First Street | Campbell, CA 95008

Field Visits:

Walter Levison, Consulting Arborist (WLCA)
May, 2019 & September, 2020

Report by:

WLCA
Original: June 20, 2019
Iteration: September 7, 2020

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1.0 Assignment & Background

Walter Levison, Consulting Arborist (WLCA) was initially retained by City of Campbell planning division to assess twenty-six (26) protected-size trees on and near the above-noted commercial site that is currently being utilized by one or more tree care companies as an office, staging site, and equipment storage area. The forested site is a holdout from 19th or 20th century ranching activities, and contains a large number of mature native coast live oak specimens (*Quercus agrifolia*) as well as numerous smaller diameter fruit orchard trees such as edible plum and edible almond.

The site is currently proposed to be redeveloped as a planned residential site with single family residences surrounding a U-shaped roadway (see WLCA's tree map markup attached to this report). The development team retained Richard Gessner of Monarch Consulting Arborists LLC (monarcharborist.com, or "MCA") as their project arborist or "PA". Mr. Gessner tagged all site trees with aluminum numbered tags, and prepared an arborist report in December, 2019.

The applicant team held a Zoom meeting with Mr. Daniel Fama, Senior Planner, City of Campbell, and Walter Levison, consulting arborist and representative of the City, on June 30, 2020. During this meeting, certain items were agreed upon which allowed the proposed set of plans to be updated to better preserve the root systems of trees being retained in the landscape.

Tree data for the 26 study trees are assembled in an Excel table also attached to the end of this report. This table includes standard arboriculture data, plus notes on proposed work impacts on the trees, and detailed discussion of impacts to each tree, in addition to a suggested root protection zone (RPZ) chain link fencing offset distance from the trunk edge of each tree.

Diameters were determined using a forestry D-tape which converts actual mainstem circumference to an "average diameter" in inches and tenths of inches, which is the standard method of diameter determination. In some cases, the author visually estimated trunk diameter, such as for trees located off-site that were not accessible.

Canopy spreads were estimated visually.

Tree heights were vector-determined with a Nikon forestry pro 550 digital hypsometer/rangefinder.

Recommendations for tree protection and maintenance are detailed in section 4.0.

Tree images archived by WLCA are located in section 8.0, and are provided as additional reference of existing pre-project site conditions.

For the 8/14/2020 version of the WLCA arborist report, the author was requested by City of Campbell Staff to:

- *Review oaks #501, 502, 503, and #504 in the field to re-assess potential impacts related to required vertical and horizontal airspace clearance pruning.*
- *Review the Robson civil set of plans dated 8/4/2020, which were based on a Zoom meeting between Campbell Staff, Walter Levison, Richard Gessner, and members of the Robson team.*
- *Revise the entire WLCA arborist report package to account for updates to the applicant's civil plan set. Note that certain elements to the plan that were discussed and agreed upon during the Zoom meeting 6/30/2020 between applicant team and WLCA will not be updated until the applicant's finalized construction set of documents are prepared.*

For the 9/7/2020 version of the WLCA arborist report:

- The author met the Robson team on site on 9/4/2020 along with Mr. Daniel Fama, Senior Planner, City of Campbell, and physically measured tree clearance heights along the edges of the proposed roadway to be constructed between trees #501, 502, 503, and #504.

2.0 Summary

1. RETENTION TREES:

Protected-size trees on and off-site which are expected to be retained under the current proposed plan set from the applicant dated 8/4/2020:

Nine (9) protected-size oaks #501, 502, 503, 504, 527, 548, 615, 636, and #650.

2. REMOVAL TREES:

Per the current proposed plan set, there are seventeen (17) trees to be removed which are protected as specimens measuring 12 inches diameter or greater (for undeveloped lots). See the City tree ordinance¹ below in section 3.0 of this report for details:

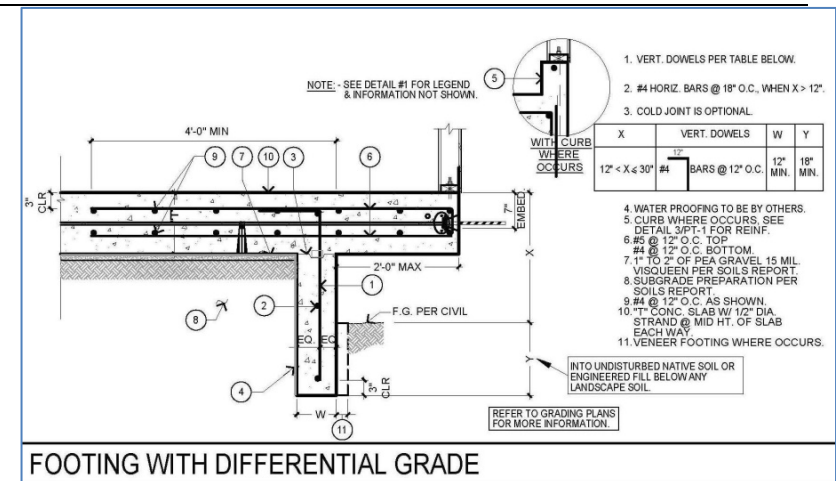
Seventeen (17) trees #507, 509, 510, 511, 512, 529, 534, 537, 592, 616, 620, 625, 626, 628, 643, 657, and #662.

3. IMPACTS:

Below is an assessment of expected impacts to the nine (9) protected-size retention trees from proposed site development work, including both below-ground root loss-related impacts, and above-ground pruning-related impacts from vertical airspace and horizontal airspace clearance requirements, in relation to the most current proposed set of plans 3/3/2020. Impacts are expected to be "minor" to "moderate".

Impacts and issues to consider include, but are not limited to the following:

3a. Finish Grade Elevation: The proposed graded fill soil imported to the site will raise the "grade" elevations around each residence footprint. However, certain elements of the proposed site work may still cut below original soil root zone grade within or near to the Critical Root Zones of the oaks. The Robson team has committed to using a post-tensioned slab and cantilever design which allows for some foundation work to extend as a no-dig section of slab, allowing for better root preservation in Lot 4, which is the lot that impacts tree #527 (see detail above right, provided by the Robson team).



¹ WLCA communicated with Daniel Fama, Senior Planner, in May, 2020 regarding this matter, during which time Mr. Fama concurred that the four (4) of the trees noted on page 1 Summary of the applicant's arborist report as trees that "do not qualify" as protected-size trees, are in fact protected-size trees as originally stated in the 2019 WLCA arborist report prepared for City of Campbell Staff. Staff will count these four trees as protected-size tree removals to be mitigated by the applicant.

3b. Tree Canopies: The nine (9) trees proposed by the applicant to be retained exhibit sprawling, wide canopy live wood and foliage that may be severely damaged during airspace pruning required to achieve horizontal and vertical airspace around roadways, two-story residence exterior sidings, and roof peaks, plus the 5 foot width construction corridors needed to allow construction to proceed as currently proposed.

The 8/4/2020 civil set of plans does show that the applicant team has redesigned lot 3 such that it is located further southward than originally proposed, allowing for better preservation of tree #527, and pushed the driveway further northward in the area north of tree #504, allowing for better preservation of that tree's root system and canopy.

WLCA revisited the site on 8/10/2020 and on 9/4/2020 to re-assess the canopies of oaks #501, 502, 503, and #504. The Robson team brought a PVC pole with flagging at 14 feet elevation to use as a measuring tool for airspace clearance assessment (see image at right, showing 14 feet vertical clearance above roadway to be built west of oak #501).

Airspace clearance pruning was found to have been recently performed (within roughly the last 10 months), as seen in the digital images archived by WLCA during this site revisits. The following are WLCA's notes regarding clearance pruning required for these four trees to be preserved and protected in place:



TREE CANOPY ANALYSIS / OAKS #501 THROUGH #504 / UPDATED 9/7/2020

Tree Tag #	North Quadrant	South Quadrant	East Quadrant	West Quadrant	Overall Impression	Severity of Remaining Required Pruning to Achieve Minimum Legal Airspace Clearance Objectives
501	Limbs and branches 3 inches to 7 inches diameter each were removed to clear airspace to 15 or 20 feet elevation above grade.	Limbs and branches 2 inches to 3 inches diameter each were removed, clearing airspace to +/- 18 feet elevation above grade.	Vertical airspace is now clear to approximately 15 feet above grade through removal of limbs as large as 6 inches diameter each.	Remaining limbs measuring 7 inches to 10 inches diameter each still extend over the proposed new roadway, at 14 feet elevation above grade, per Robson's measuring of the distance using a PVC pole with flagging at that height, during our 9/7/2020 site meeting.	No further pruning required to achieve legal minimum airspace clearance for roadway. Minor pruning may be required on east side of tree for general walkability.	n/a Note that branch endweight and limb endweight reduction pruning will be required to reduce weight loading in the outermost portion of the south side of canopy (i.e. the direction in which the canopy is lopsided).

Tree Tag #	North Quadrant	South Quadrant	East Quadrant	West Quadrant	Overall Impression	Severity of Remaining Required Pruning to Achieve Minimum Legal Airspace Clearance Objectives
502	Vertical clearance is currently greater than 14 feet above grade, due to recent pruning that removed branches and limbs measuring 2 inches to 6 inches diameter each.	Vertical clearance is currently greater than 14 feet above grade, due to recent pruning that removed branches and limbs measuring 2 inches to 6 inches diameter each.	Vertical clearance is currently greater than 14 feet above grade, due to recent pruning that removed branches and limbs measuring 2 inches to 6 inches diameter each.	Vertical clearance is currently greater than 14 feet above grade, due to recent pruning that removed branches and limbs measuring 2 inches to 6 inches diameter each.	No further pruning required to achieve legal minimum airspace clearance.	n/a
503	Vertical clearance is currently greater than 14 feet above grade, due to recent pruning that removed branches and limbs measuring up to 9 inches diameter each.	Vertical clearance is currently greater than 14 feet above grade, due to recent pruning that removed branches and limbs measuring up to 9 inches diameter each.	Vertical clearance is currently greater than 14 feet above grade, due to recent pruning that removed branches and limbs measuring up to 9 inches diameter each.	Vertical clearance is currently greater than 14 feet above grade, due to recent pruning that removed branches and limbs measuring up to 9 inches diameter each.	No further pruning required to achieve legal minimum airspace clearance.	n/a

Tree Tag #	North Quadrant	South Quadrant	East Quadrant	West Quadrant	Overall Impression	Severity of Remaining Required Pruning to Achieve Minimum Legal Airspace Clearance Objectives
504	Branches and limbs measuring between 3 inches and 9 inches diameter each were removed relatively recently. Proposed roadway will be beneath the north side of the canopy and will require a full 14 feet of vertical clearance. However, the existing horizontally-extended limbs in this quadrant of the tree canopy are roughly 14 feet above grade and 11 feet above grade each, with live branches and foliage that hang down to 9 feet above grade elevation. Branches measuring 1 inch diameter each will be removed.	(This area of the tree will be within the Root Protection Zone area with no clearance pruning required).	This area of the canopy is the proposed walkway, which requires 8 feet minimum vertical airspace clearance. The existing horizontally extended limb on the east side of canopy is 10 feet above existing grade, which means this area likely has enough airspace clearance with no additional pruning required.	West side of canopy will be impacted by a new road, which requires 14 feet of vertical airspace clearance. Recent pruning cleared airspace to 14 feet vertical, out to the location of where the Root Protection Zone fence line will be erected (fencing shown on the plans as a black dashed line). However, the section of the west canopy directly over the proposed new roadway west of the RPZ fence exhibits 3 or 4 branches measuring 1 inch diameter each that hang below this elevation and will need to be removed.	Only two quadrants of the canopy will require clearance pruning: the outermost portion of the west quadrant, and the north quadrant. This pruning will have a negative impact on the tree, but it is not considered life-threatening in terms of tree survival.	Minor. Removal of branches measuring roughly 1 inch diameter each will be required in the west and north canopy quadrants, and will have a minor to moderate negative impact on overall tree health and structure.

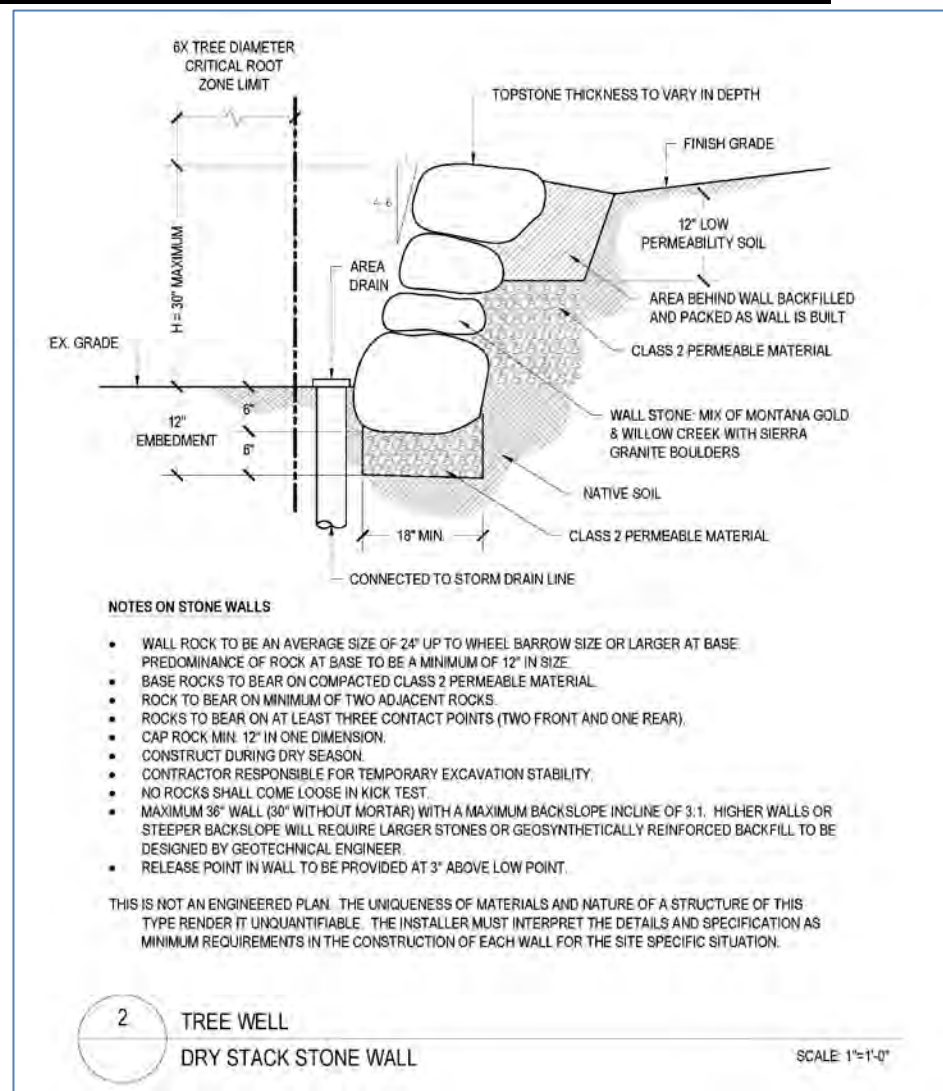
3c. Foundation Excavation & Tree Wells:

The nine trees proposed by the applicant to be retained will be impacted to varying degrees in terms of root damage and/or root loss related to grading fill soil, compaction of fill soil, excavation of proposed perimeter beam footings under each residence, etc. As noted above, the applicant team is committed to use of post-tensioned slabs to reduce root loss damages as much as possible around trees #527 and #548, and has now also revised the tree well detail for the area around tree #650 to better preserve the root system and provide for a drainage mechanism.

The original design for the tree well around tree #650 showed a significant depth of cut at close proximity to the trunk for the proposed stone wall (tree well) within the Critical Root Zone area, and did not account for drainage to remove water buildup within the circumferential tree well wall.

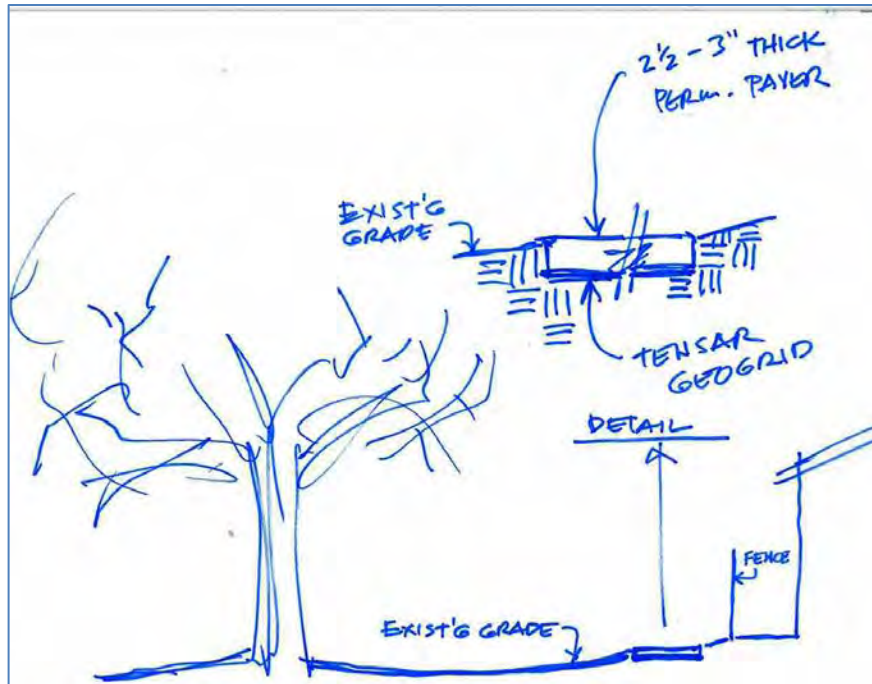
The Robson team has now revised the tree well design to include an area drain with solid drain pipe for better flood drainage for the tree #650 root zone. The stone wall has also been modified such that the beginning of the dry stack stone starts at the approximate location of the "Critical Root Zone" distance from trunk edge, to further protect the root system of the tree. The Critical Root Zone of oak #650 is calculated at 6 X diameter which is then used as a radial offset for limiting new construction = 6 X 25" = an offset radius of 12.5 feet from trunk edge. Scaling off the applicant's map sheets, the tree well stone wall does appear to be offset from the trunk such that the closest edge of stone wall material is approximately 11 to 12 feet from trunk edge, which is approximately the CRZ as calculated above by WLCA.

See the image at right from landscape plan sheet L2.2 in process of revision by the Robson team as of the date of writing. This snippet was received by WLCA from the Robson team on 8/12/2020, and shows an area drain with storm drain pipe connection, and an offset of the proposed dry stack stone wall itself, to be installed just beyond the Critical Root Zone (CRZ) offset distance from oak #650 trunk edge.



3d. Pedestrian Walkway:

The original design for the proposed walkway that is to run in a generally north-south orientation was to involve a standard baserock base section cut below grade elevation, potentially severing lateral woody roots extended from trees #501 and #504 (see WLCA's tree map markup embedded in this report). The applicant team has now committed to revising this design to allow for a no-dig type over-grade installation for the walkway, the design of which has not yet been formalized. WLCA expects the final design to involve use of a biaxial or triaxial geogrid such as Tensar TriAx, etc. laid down over soil surface grade, over which the baserock of the walkway can then be placed without any loss of tree root mass (see below blue-line mockup received by WLCA from the Robson team in August, 2020). The image at right shows a Tensar TriAx TX160 triaxial geogrid being laid down over existing soil grade as an underlayment on a WLCA project in Menlo Park, 2020, just prior to laying down baserock base section and paverstone driveway surface materials. Use of geogrids allows for work to occur directly over root systems of trees, without any loss of those woody root systems.

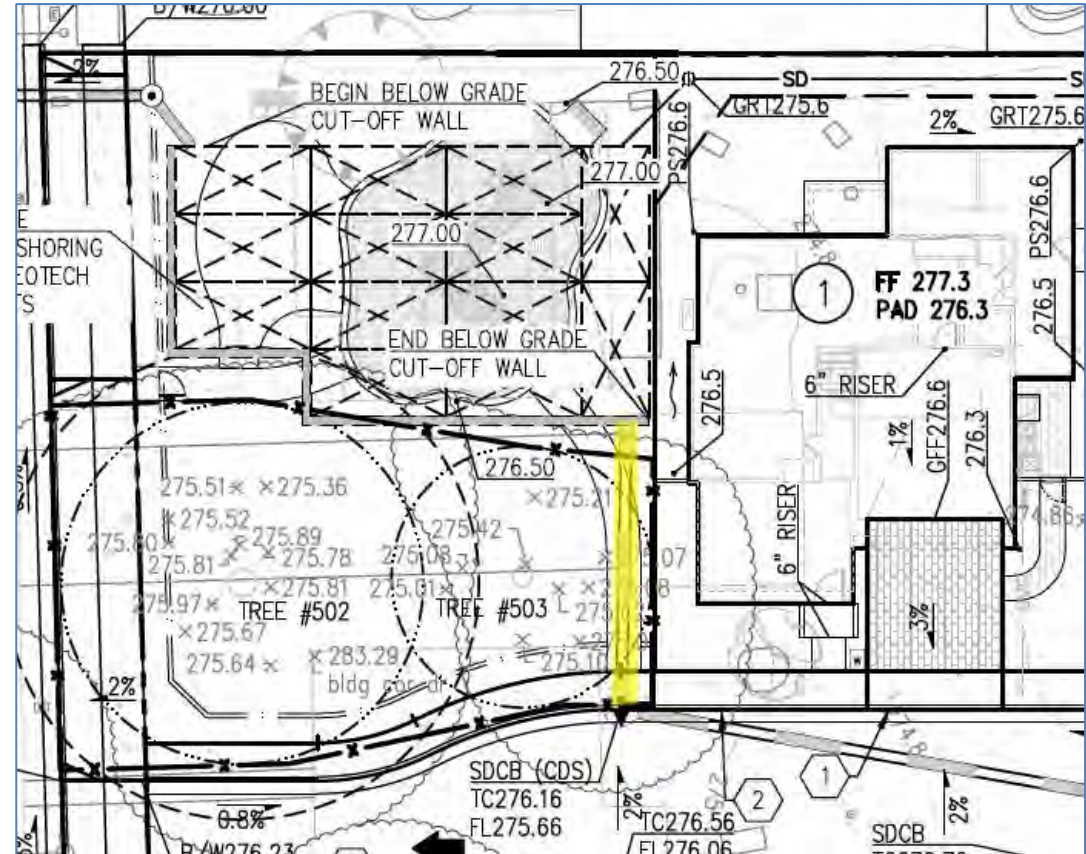


3e. Storm Drain Pipe Routing / Special Installation Specs:

The only storm drain routing that appears to be in conflict with an oak being retained is the east-west section of pipe that has been placed south of the chain link Root Protection Zone fence line as delineated by the Robson team and yellow highlighted by WLCA in the snippet at right, snipped from the 8/4/2020 version of the grading and drainage plan sheet C7.

This storm drain trench alignment will have a significant impact on the tree #503 root zone if constructed as currently shown.

Per WLCA's discussion with Richard Yee of the Robson team via email on 8/12/2020, Robson is willing to both:



a. Relocate the storm drain alignment to along the property line at the south end of Lot 1, which will place it outside the root protection zone fence line of oak #503, such that the edge of the trench will encroach to no closer than approximately 13 linear feet offset from the oak trunk edge, and

b. Perform this section of trenching using alternative trenching method(s) such as water or air excavation. Use of Hydrovac water excavation and/or Airspade air excavation will better preserve lateral woody tree roots in the trench, and the storm drain pipe can then theoretically be slipped in between those lateral woody roots without having to cut those roots out (see photo at left, showing what is termed in the pipe installation industry as "pipe slipping" around oak tree roots preserved at a recent WLCA gas pipe installation project in Redwood City, 2020).

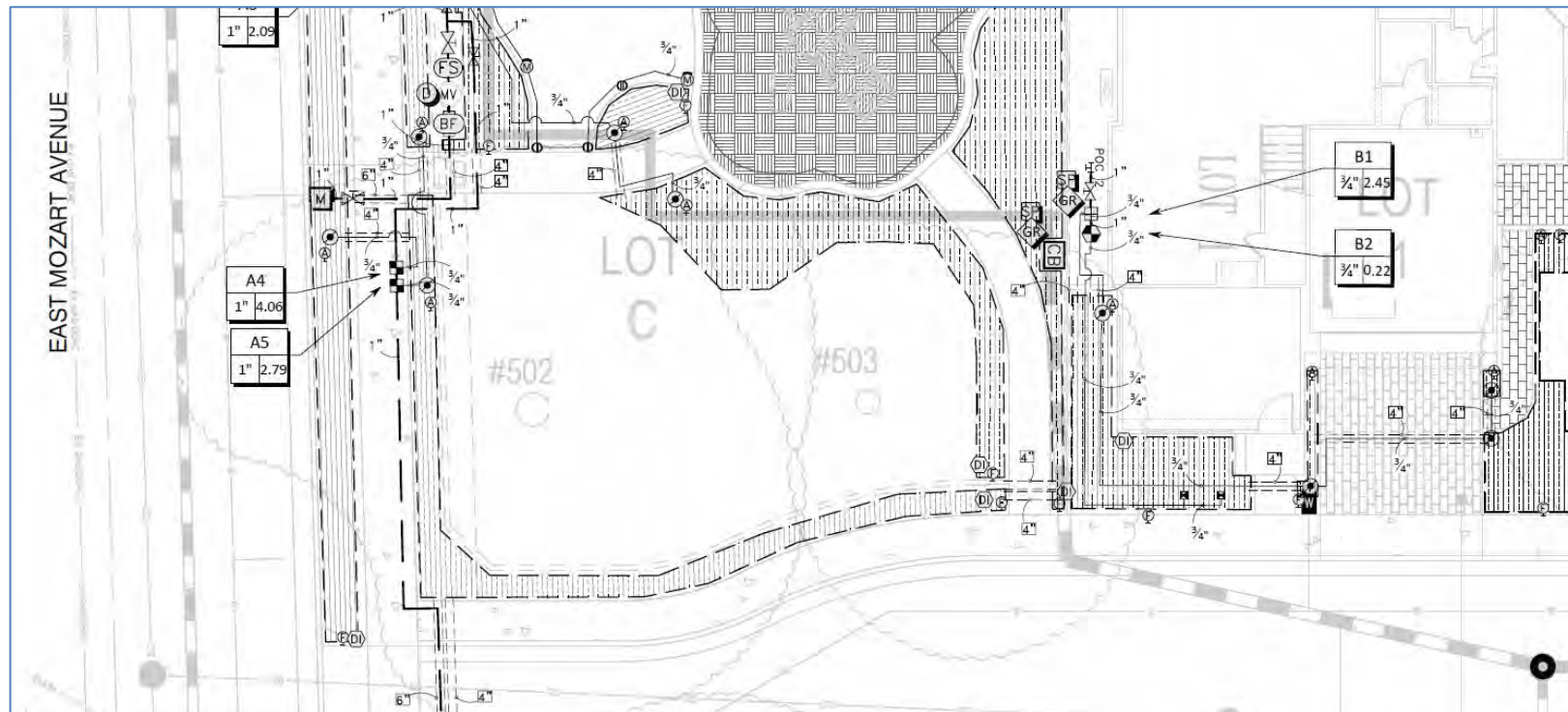


3f. Irrigation Piping:

WLCA suggests considering eliminating the proposed narrow planting strip that is shown on sheet IR-1.0 at between roughly 11 and 14 feet north of the oak #503 trunk edge, so that all associated rigid irrigation pipe trenching, valve installation, and other controller related equipment is simply deleted from the plan sheet. This would increase the radius of unadulterated root zone north of oak #503 to 13 linear feet: the distance of the proposed new storm drain pipe trench along the Lot 1 property line. As noted above in impact subsection 3e (storm drain pipe routing), the Robson team has agreed to both push the pipe such that the edge of new trench will be approximately 13 feet north of oak #503 trunk edge, and has also agreed to perform this trenching using alternative techniques, such as Hydrovac water excavation and/or Airspade air excavation. If the current proposed irrigation-related equipment were to be installed at 11 feet north of trunk, it would have a significant negative impact on the root zone of oak #503, and nullify some of the benefits achieved by use of the alternative storm drain pipe trenching methods. Therefore, irrigation and plantings in that area should be eliminated from the plans in order to best achieve a reduction of construction-related root zone impacts on the root system of oak #503. Alternatively, the locations of the irrigation equipment northeast of oak #503, and the depth of cut for walkway installation, should all be modified in the final construction set of documents (CD phase).

Right:

Proposed landscape plan sheet L3.1 version 8/4/2020 is the most current sheet showing the proposed walkway, plantings, and irrigation in the root protection zone area north of oak #503. Note that if the proposed new walkway, landscaping, and irrigation pipe trenching and related irrigation valves/controls are not adjusted or eliminated from the area roughly 6 feet to 13 feet north of the trunk edge of oak #503 as currently shown on this landscape plan, then the oak tree root preservation benefits already achieved by



adjusting the storm drain trench farther northward away from the trunk of that tree (per WLCA's email discussion with Richard Yee, Robson team 8/12/2020) will be lost. Note that per my communications with the Robson team in August, 2020, the storm drain pipe alignment will be pushed slightly northward to the Lot C / Lot 1 property line: an alignment that will be shifted slightly right of (north of) where the (dashed heavy line) pipe alignment is currently shown on the 8/4/2020 landscape plan sheet L3.1 seen on this report page.

3.0 City of Campbell – What Trees are Protected on Private Lots?

Ordinance Section 21.32.050

The following trees are considered “protected trees” in City of Campbell, and require approval of a tree removal permit, on “commercial, industrial, multi-family, mixed use, and undeveloped single-family residential” lots:

- a. Specimens of all tree species with at least one (1) mainstem measuring 12 inches diameter or more when measured at 4.0 feet above grade.
- b. Street trees (all).

Ordinance Section 21.32.060

Exceptions to the protected status of all trees measuring 12 inches diameter or greater:

- a. Fruit trees (assumed to refer only to human-edible fruit-bearing trees such as agricultural trees and home orchard trees) on private lots.
- b. Eucalyptus (all species) on private lots.

Per these definitions, the 26 trees assessed at and adjacent to the subject property are all considered to be “protected trees”.

Seventeen (17) protected-size trees are proposed to be removed as a result of the current proposed site plan project layout.

4.0 Discussion

4.1 Replacement Trees:

Per the City of Campbell tree replacement requirements, all trees measuring 12 to 24 inches diameter (single mainstem) being removed are required to be replaced with site plantings of at least 24" box size on a 1:1 basis.

Removals measuring 24.1 inches and greater in diameter (single mainstem) are required to be replaced with site plantings of at least 36" box size on a 1:1 basis.

Per these definitions, the removal of an expected seventeen (17) trees will require the installation of at least:

- Fourteen (14) 24" box sizes trees on site.
- Three (3) 36" box size trees on site.

Landscape plan sheet L1.1 proposes the following (per the new 8/4/2020 set of applicant plan sheets):

- *Acer palmatum* 'Wolff' (Emperor maple), which is not considered a true canopy replacement species. I would suggest omitting this tree from the proposed plans, and instead install additional specimens of Chinese pistache, and/or one of the other tree species suggested by WLCA below in this section.
Applicant proposes six (6) 15-gallon size plantings.
- *Arbutus* 'Marina' (Marina strawberry tree), which is a known "problem tree" that is declining or dying in landscapes throughout the San Francisco Bay Area due to various factors such as fungal pathogen(s), as yet unidentified pathogens, poor drainage, girdling roots, etc. I would omit this tree from the proposed plans, and instead install additional specimens of Chinese pistache, and/or one of the other tree species suggested by WLCA below in this section.
Applicant proposes five (5) 36" box size plantings.
- *Lagerstroemia* 'Muskogee' (Muskogee crape myrtle), which is fine, though not considered a true "canopy replacement" type tree. This is a small size tree at maturity: not anything comparable to a full size oak tree in canopy size.
Applicant proposes eleven (11) 24" box size trees.
- *Pistacia chinensis* 'Keith Davey' (Keith Davey Chinese pistache), which is fine. This tree is a proven performer in the Bay Area.
Applicant proposes five (5) 24" box plantings.
- *Quercus lobata* (valley oak), is an oak resistant to sudden oak death (SOD). This species is considered a sometimes upright, sometimes droopy tree species, depending on the individual genetics of the specimens chosen to be installed. The acorns utilized by nurseries to grow this tree have wide genetic variation due to open pollination of oak trees in the landscape. This results in an extremely varied form for the species that literally ranges from pendulous trees to perfect upright specimens.
Applicant proposes one (1) 24" box size planting.

PLANTING ADEQUACY: MEETING CITY STANDARDS VS. ACTUAL CANOPY REPLACEMENT

The total of 28 specimens being installed by Robson Homes is considered adequate replacement in terms of the ratio and sizes required per City standards. However, the total is not adequate in terms of actual canopy spread achieved when these trees mature to their ultimate size. This is because, as noted above in this report section 4.1, some of the species proposed such as Emperor maple are simply not large canopy type plants, and will max out at roughly 15 feet height and 15 feet canopy diameter at the very most. When compared to the coast live oaks being removed, a single specimen of which can achieve mature canopy dimensions of up to 60 feet height and 80 or 90 feet of canopy spread diameter (in my professional experience), we see a large disparity between existing site tree canopy cover and proposed replacement canopy cover.

4.2 Large Canopy Trees for Mozart Site

If the site planting areas have wide airspace available, the following relatively large stature trees have been proven to perform well in Bay Area landscapes, and would be appropriate plantings to replace the coast live oaks lost during demolition of the Mozart site (partial list):

- *Quercus virginiana* (southern live oak) (for more heavily-irrigated sites such as turf lawn areas). Available in the trade.
- *Quercus rugosa* (netleaf oak), available at Devil Mountain Nursery, East Bay, CA. Call their new 2020 chief horticulturalist Mr. David Teuschler for information and consultation.
- *Quercus engelmannii* (Engelmann oak), available at Devil Mountain Nursery, East Bay, CA and/or Brightview nursery.
- *Platanus* 'Roberts' ('Roberts' sycamore). Beautiful upright form of California sycamore selected for its superior form. Claimed better fungal resistance to anthracnose and powdery mildew than the straight species (not verified). This tree is growing at the main entrance to Apple Campus 2 in Cupertino (aka "Apple Park"), across the street from the visitor's center.
- *Platanus* 'Columbia' ('Columbia' plane tree). The only plane tree cultivar that maintains resistance to anthracnose and powdery mildew. Also the only plane tree cultivar that seems to push a nice vertical central leader stem, and maintain upright scaffold limbs.
- *Olea* 'Swan Hill' ('Swan Hill' fruitless olive). Best fruitless olive known in the trade, but can be somewhat spreading or droopy, depending on the particular form purchased (multi-stem, single stem, etc.). There are other fruitless upright olive named cultivars available in the trade.
- *Tilia tomentosa* (silver linden). Proven performer in Palo Alto, California.

For narrow situations where a columnar (fastigate) form tree is required, then try:

- *Cedrus atlantica* 'Glauca Fastigiata' (columnar blue Atlas cedar). I have been trying to source this tree in the local wholesale nursery trade, but it appears that the only nurseries currently growing the columnar form are in Oregon. Therefore, the tree would have to be special-ordered and shipped via truck to California. It is the best narrow tree I have seen in years, and is pest resistant, disease resistant, beautiful, narrower than the standard blue atlas cedar, and eventually drought tolerant once established. These cedars do seem to perform better, however, with some amount of regular irrigation.

4.3 Cavity Analysis for Oak #502

Tag Number	Species	WLCA Cavity Analysis 2019
502	Coast live oak (<i>Quercus agrifolia</i>)	A cavity opening is present at roughly 15 feet above grade, on the side of the mainstem opposite the lean direction (see images below in this report). The cavity is roughly 10 inches across its face, which is 8% of the total circumference at that height. Using a ladder to assess the cavity closely with a tile probe, the cavity was found to extend roughly 20 total inches through the cross section of the mainstem, with a total mainstem diameter of 38 inches at 15 feet above grade. After subtracting for bark thickness, the actual structural wood radius is 17.5 inches. Assuming that the shell wood wall is intact (not verified), the ratio of shell wall radius to mainstem radius is 7.5"/17.5", or 43%, which is the "holding wood" ratio. I noted during my assessment of the cavity that the tree is developing very thick woundwood around the cavity area, which indicates that the tree is vigorous with enough reserve energy stores that it can allocate that energy to production of thick wood rolls around the cavity, thereby strengthening the mainstem in that crucial stress area. From the standpoint of biomechanical tree growth and structural stability analysis, this is good physical evidence that the tree's ability to grow new wood at this stress point may be keeping up with or outstripping the development of fungal-related decay internally inside the cavity hollow. The tree will probably have to be monitored over the very long term to determine if the live wood shell wall thicknesses at 15 feet elevation are increasing or decreasing over time. WLCA suggests that Robson's project arborist perform follow-up testing using a Resistograph or "RESI" microdrill tracing device (or a non-invasive sonic tomography tool) to verify that the actual shell wood wall contains an average of 7.5 inches thickness of sound live wood tissue at +/-15 feet elevation above grade.

5.0 Recommendations

1. Project Arborist / Construction Phase Monitoring & Long Term Oak Management Plan Report:

The PA should be an independently-contracted consulting arborist working directly for the applicant's project team. There can also be a secondary project arborist working independently for Campbell planning division if the City deems this beneficial as a method of independently verifying that tree protection is being maintained properly per the arborist recommendations in this report section 5.0 (e.g. WLCA).

It is suggested that a project arborist or "PA" be retained to perform a minimum of 1x/monthly inspections on site to verify that tree protection and tree maintenance recommendations are being adhered to per the pre-construction phase arborist report submitted to City of Campbell planning division. The inspection typically involves an arborist visiting the site, documenting existing conditions with a digital camera, checking soil moisture with a Lincoln soil moisture meter or a soil recovery probe (both of which are used by WLCA), and noting tree condition, tree damages, root zone fencing protection, etc.

A written inspection letter is then generated by the PA, to include a site tree location map, digital images of trees and tree protection, notes on existing conditions, and a punchlist of to-do action items (if any).

Suggested minimum required classification for the PA:

- ISA Certified Arborist and
- ASCA Registered Consulting Arborist or ISA Board Certified Master Arborist

1a. Pre-Demo Meeting:

The PA shall meet with the general contractor on site prior to start of demolition, to go over tree protection and maintenance requirements outlined in this recommendations section of the arborist report.

1b. Pre-Demo Signoff Inspection:

The PA shall revisit the site prior to demolition start, to verify that tree protection measures are all in place on site as per the recommendations section of this arborist report.

1c. The PA shall continue site visits on a minimum of a 1x/monthly basis, after an initial pre-demolition site meeting and pre-demolition fencing and trunk buffer protection signoff inspection.

1d. Post-Project / Oak Tree Management Plan Report

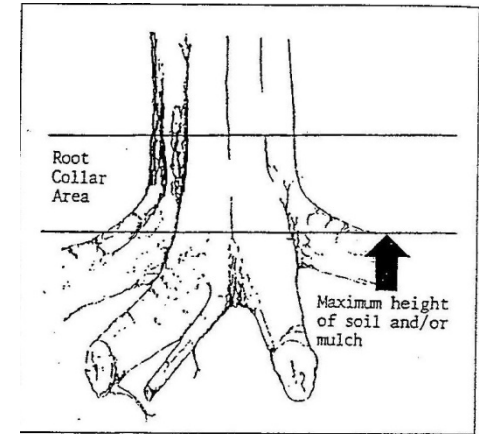
WLCA suggests that the project arborist assigned to this project also provide a coast live oak long term management plan report with recommendations for specific pruning and other maintenance for the **nine (9) protected-size oaks #501, 502, 503, 504, 527, 548, 615, 636, and #650 being retained.**

2. Tree Maintenance:

All pruning shall be performed by or under full time direct supervision of an ISA Certified Arborist, and shall comply as best possible to all of the most current guidelines outlined in American National Standard ANSI-A300 (Part 1, 2017, Pruning), and the **new Best Management Practices (BMP) accompanying companion booklet (Standard Practices / Pruning) Third Edition (2019)**.

Pruning objectives shall be:

- Provide legally-required 14 foot vertical elevation airspace clearance over all proposed roadways, to be achieved by 2/3 reduction of limb lengths or removal of entire limbs at the attachment points at the trunk. Do not prune additionally beyond this minimum required airspace.
- Provide legally-required 8 foot vertical elevation airspace clearance over all proposed walking paths, to be achieved by 2/3 reduction of limb lengths or removal of entire limbs at the attachment points at the trunk. Do not prune additionally beyond this minimum required airspace.
- Reduce branch and limb endweight by removal of the outermost portions of end-heavy lopsided canopies, such as is present on oak #501 at the southmost end of the south quadrant of the canopy.



Root Crown Excavation (RCX):

For **oak #503** hand-dig out excess soil using dull, rounded handtools until the natural buttress root flares are visible (see spec image above right, from Bartlett Tree Research Labs, USA).

Through Bolt Bracing:

Install one or more through bolt brace rod(s) at roughly 10 feet elevation above grade in **oak #527**, following the guidelines in ANSI A300 standard for tree support systems: cabling, bracing, and guying, and the accompanying companion publication entitled "*Best Management Practices Tree Support Systems: Cabling, Bracing, and Guying (2001)*".

Wood Chip Piles:

The Robson team and WLCA noted the presence of various large dimension wood chip piles, near to oak specimens to be retained, during our 9/4/2020 site visit.

The piles will need to be moved away from the bases of various trees such as oak #501 ASAP, such that they are offset at least 15 feet offset from the trunk edges of the trees, in order to avoid causing anaerobic soil root zone conditions.

3. Minimal Impact Walkways:

For finalized construction document versions of the landscape paths (walkways) running beneath the canopies of **trees #501, 502, 503, 504**, the applicant shall prepare a zero-cut “no dig” or minimal cut type system detail for installation of walkways under the canopies, which will include pinning down a Tensar TriAx triaxial geogrid over existing grade soil, and simply laying baserock/etc. over this geogrid. Use of TriAx as a load-bearing membrane resolves the age-old problem of subbase prep, since walkways built with an underlayment of TriAx are not required to have any subbase excavation or subbase compaction. Maximum allowable total cut below existing soil grade shall be specified as 4 inches depth of cut. Note that this includes the cut for any edging or paver restraint, which means that the walkway edging treatments will need to be set at a maximum of 4 inches total depth below grade as well, and pinned in place using steel pins. See sample image at right showing a walkway being built over a Tensar TriAx geogrid at Stanford in 2019 under WLCA direction.

The two walkways in particular that will require this specification are:

- a. The walkway which extends in a north-south position under the east sides of the canopies of oaks **#501 and #504**.
- b. The walkway which will extend in an east-west position under the north side of the canopy of oak **#503**.

4. Advanced Risk Assessment / Oak #502:

Retain a consulting arborist to perform microdrilling with a device such as a Resistograph or RESI, or using a non-invasive sonic tomography device to verify the live sound wood wall thicknesses surrounding the open cavity at roughly 15 feet above grade. Analyze the shell wall thickness findings in accordance with international tree risk assessment standards to determine if the tree is an elevated risk or is within acceptable levels of background moderate risk of failure and impact with ground targets.

5. Post-Tensioned Slab Specifications / Lot 4:

Applicant shall include a side cut detail specification in the finalized construction set of documents showing the finalized no-dig type cantilever foundation design that involves use of a post-tensioned slab to minimize excavation in tree root zone of oak #527. The applicant shared a version of the slab detail with WLCA in August, 2020 which indicated a 2 foot cantilever overhang. If feasible, the cantilever should be increased from current-proposed 2 feet of overhang to suggested 4 or 5 feet of overhang, to further reduce the impacts of deep foundation excavation on oak tree root systems by adjusting the footing excavation limits to farther offset distances from oak tree trunk edges.



6. Construction Corridor Soil Buffer:

Prior to demolition start, install a soil protection buffer over the construction corridor (e.g .5 foot width zone to allow work to proceed between the proposed residence edge of foundation, and the RPZ tree root protection zone fence), to prevent compaction of the tree root system. The buffer shall consist of engineer's filter fabric (professional grade woven landscape fabric) placed directly over existing soil grade, and overlaid with a 6 inch layer of coarse chipper truck type natural wood chips from tree care operations. Place full sheets of exterior-grade plywood over the wood chip layer, and strap them together using steel screw plates or nailed earthquake strapping (see sample image above right).

The construction corridor soil buffer shall be installed between the RPZ fence and the residence foundation footing in Lots 3, 4, 6, 13, 14, and 16.



7. Tree Well and Drainage System for oak #650:

The finalized construction document set of plans shall contain the version of the side cut detail for tree well and drainage system for around oak #650 shared by the Robson team with WLCA via email on 8/12/2020 (see snippet at right). This version shows a limit of stone material placed at or farther offset than the "Critical Root Zone", and also shows installation of an area drain that will be connected to the storm drain pipe system to drain out the tree well during natural rainfall events.

8. Parking area and curbwork west of oak #650:

Applicant shall consider use of a zero cut depth or minimal cut depth type curb footing for the parking area proposed just west of this tree, in order to avoid unnecessary loss of root system. Applicant shall also consider use of a less than standard depth of cut for the parking stall area west of the tree (e.g. elimination of subbase preparation such as over-excavation and recompaction to 90% Proctor, etc.). See image below, reprinted with permission from International Society of Arboriculture publications. Use of a triaxial or biaxial geogrid as noted above by WLCA in recommendation #3 allows for elimination of all subbase over-excavation or subbase recompaction.

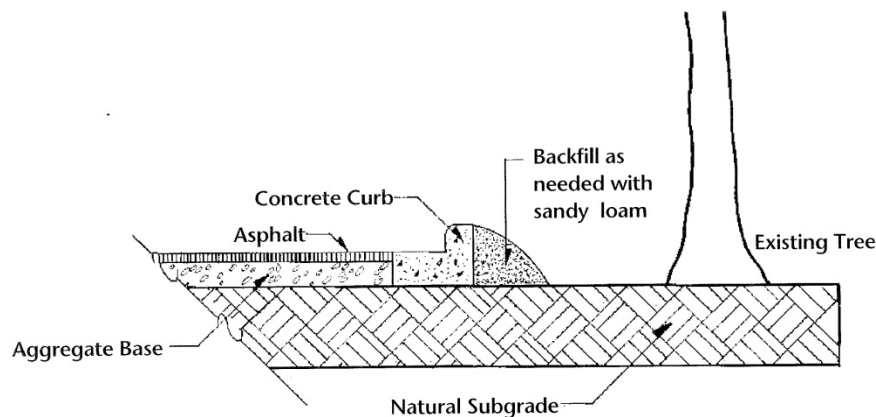
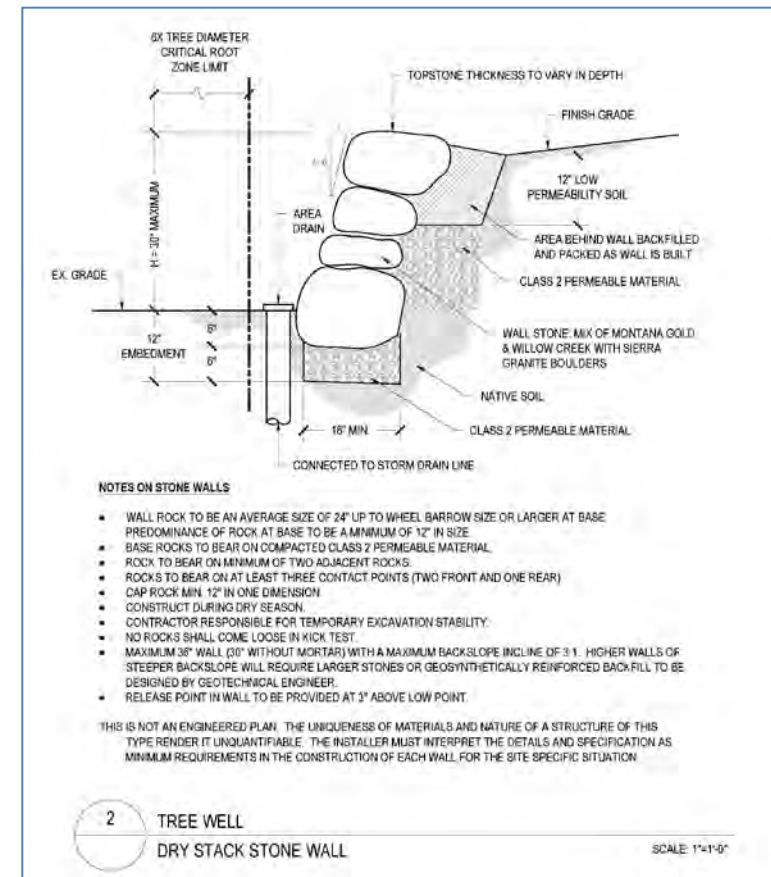


FIGURE 8.3 A "no-dig" type of pavement places the pavement section atop natural grade, thereby minimizing root disturbance and soil compaction. Extra reinforcement in the pavement and use of a geotextile under the base material may be needed to increase the stability of the pavement. (Adapted from a detail provided by Mary Ann Beale, City of Charlotte, North Carolina.)



9. Trenching for Utilities, Drainage Piping, Irrigation Pipes, Etc.:

The applicant's final construction set of documents shall contain the following adjustments to the current proposed plan sheets:

a. Storm Drain Pipe Realignment / **Oak #503:**

Storm drain pipe alignment running east-west in orientation beneath the canopy dripline of oak #503 shall be pushed to the Lot C / Lot 1 joint property line to maximize root retention.

b. Storm Drain Pipe Alternative Trenching Methods / **Oak #503:**

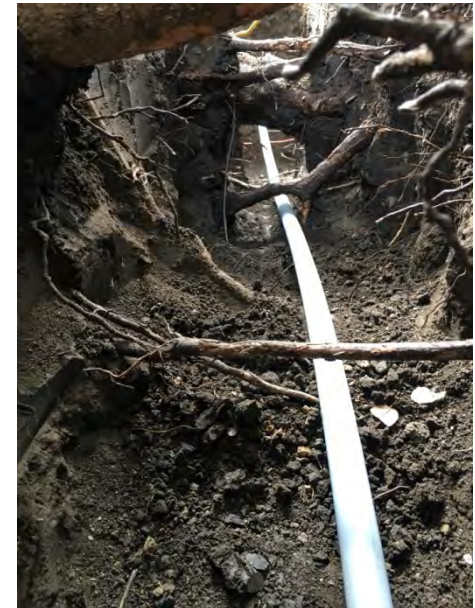
The final specification for installation shall note that the excavation for this section of pipe shall be performed using either Airspade air excavation or Hydrovac water excavation to allow roots to remain in the trench, and the pipe then "slipped in between roots", which is termed in the pipe installation industry as "pipe slipping". See sample image below.

c. For any situation where a trench of any depth below grade is required to be made within 15 feet of the trunk edge of any tree, either redesign the trench such that the offset is increased, or use Hydrovac and/or Airspade air excavation as tree root-friendly methods of excavation such that roots can be retained in the trench, and the pipe(s) installed as planned.

See below item #9(d) for specific modification requested by WLCA for the oak #503 area.

Right Upper: Image of a high voltage electrical conduit being pulled under root zone of a mature redwood specimen in Santa Clara on a WLCA job in 2014, using a directional bore machine. This type of work is termed "trenchless technology", "directional bore", "jack n' bore", or "pit to pit bore".

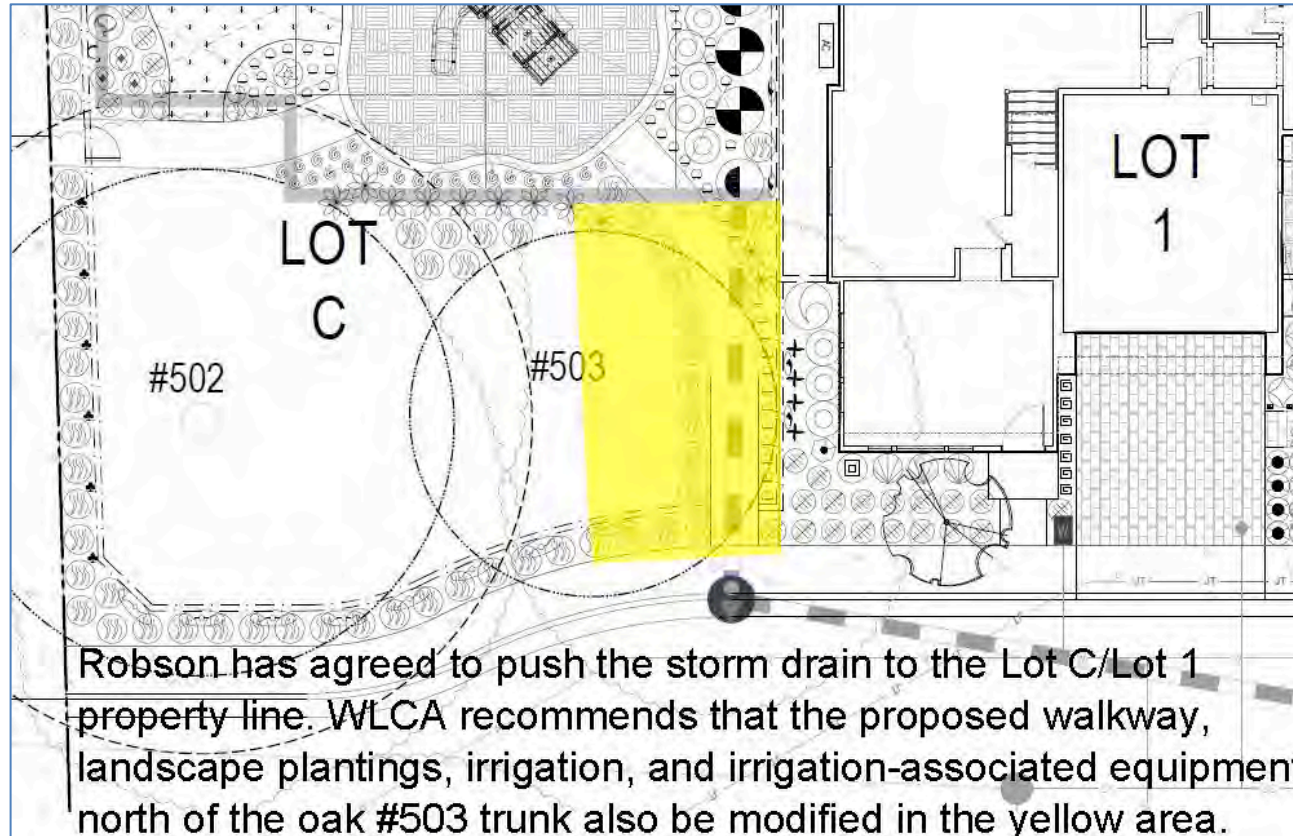
Right Lower: "Pipe slipping" through roots retained through a hand-dug trench on a WLCA site in 2020.



9d. Irrigation Pipes / Valves / Controls / North of **Oak #503**:

The final specifications for installation of irrigation piping, controls, valves, etc. that are shown in the area roughly 6 to 11 feet northeast of the trunk edge of oak #503 shall be modified to increase the radius of oak root zone retained north of trunk. WLCA suggests that all irrigation-related excavation in this area shown on sheet L3.1 be either eliminated or somehow modified such that the limit of new excavation is approximately 13 feet north of trunk edge, which will be the new adjusted storm drain pipe trench alignment. Note that the storm drain pipe alignment is to be air-excavated or water-excavated as noted above in item #9(b), which means that the proposed new walkway and irrigation related equipment will cause additional damage to the oak #503 root zone at closer distance from trunk than the storm drain, unless eliminated, modified, or pushed to the north side of the proposed new walkway. See markup below for reference.

New Information: The Robson team requests that drip irrigation piping be allowed to be placed over grade for certain wood fence areas to be built near oaks #501 through #504, to allow for landscape screening along the fences. This irrigation is considered "OK", as long as it is kept to a minimum in terms of output volume over the long term during summer and fall periods.



10. Trunk Buffer Wrap Protection:

Prior to project commencement, install a trunk buffer around either the lowermost six (6) feet of the trunks, or the area between grade and the lowest scaffold branches, of **all trees being retained** (see spec image at right).

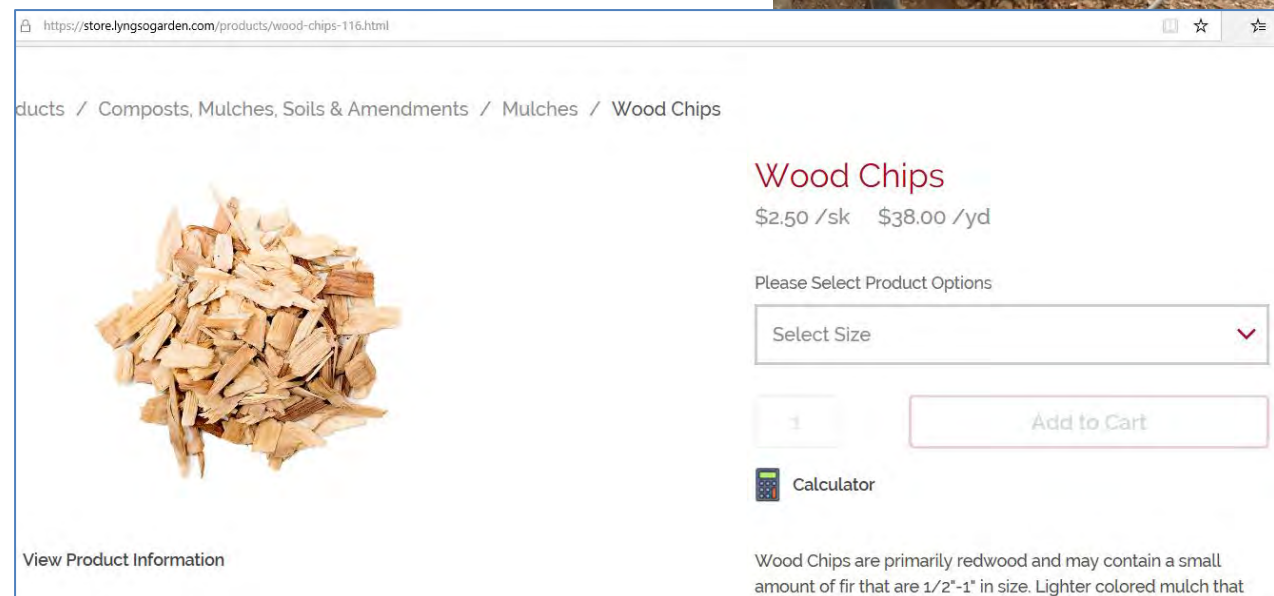
- Wrap an entire roll of orange plastic snow fencing around the lowermost 6 to 8 feet of each single tree.
- Stand 2x4 wood boards upright, side by side, around the entire circumference of the trunk.
- Affix using duct tape (do not use wires or ropes).
- See spec image at right showing the wooden boards correctly mounted against the plastic, such that the wood does not actually touch the trunk at all.



11. Chipper Truck Type Wood Chips:

Install a 4-inch thick layer of natural chipper truck type wood chips (not bark chips, not leaves) over the open soil areas from 1 foot out from trunk edge to the canopy driplines of all trees being retained (or the TPZ fence line).

This material can be purchased from local landscape supply houses such as Lyngso Garden Supply in San Carlos, CA (see image at right).



12. Temporary Irrigation During Construction:

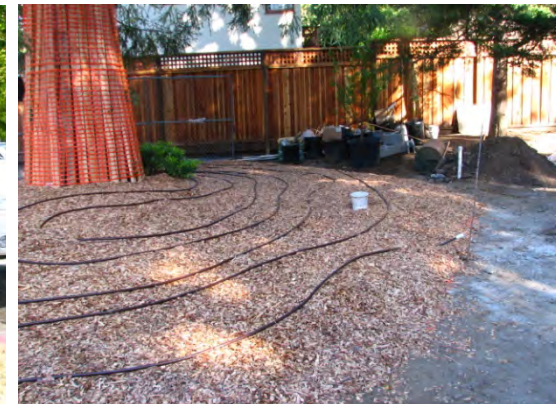
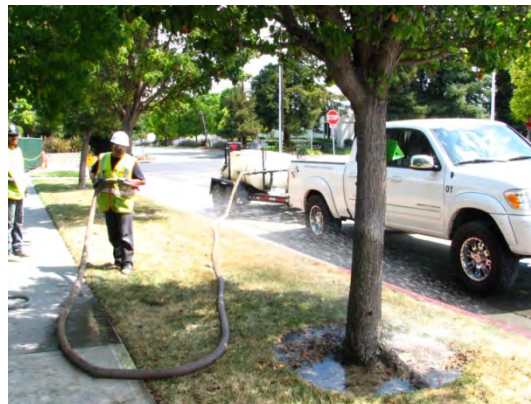
If and when directed to do so by the project arborist, supply all trees being retained with **once-monthly supplemental irrigation** starting on the date that the existing system is shut down or otherwise inactive.

Water volume: To be determined. The general recommendation is 10 gallons per inch of trunk diameter per month for small diameter trees (e.g. 5 inch tree would receive 50 gallons spread out over the month), or roughly 200+ gallons of water per month for larger trees measuring 10 to 30 inches diameter each.

Native Oak Note: Given that the trees being retained are native coast live oaks accustomed to a dry summer type irrigation regime, the irrigation recommendation may end up being an infrequent (e.g. once-monthly) heavy soaking, in order to reduce the likelihood of irrigation water causing fungal decay pathogen progression toward the root crowns of the trees.

Water application can be made using one or more of the following methods (see sample images below).

- Soaker hoses.
- Emitter lines.
- Flexible piping with high-flow type flood bubblers (e.g. 2 gallon per minute emission rate).
- Garden hoses.
- Fire truck hoses.
- Water trucks.
- Tow-behind spray tank apparatus.
- On-site water tank with gravity feed.
- Over-grade PVC piping with spray heads wired to rebar or other steel stakes.



Images at Right:

Various methods of providing trees with supplemental irrigation during construction. Water needs to be applied throughout the tree's entire root system, which can extend 50 or 100 feet out from the trunk in many cases. In other words, do not water only the area directly around the trunk. Instead, thoroughly saturate the soil between the trunk and at least 20 to 30 feet out from trunk, assuming that there is an open soil planting area extending that distance.

Contingencies: If on-site water is not yet available, then splice onto an existing irrigation water pipe system on a neighboring lot, and attach a meter to the line to allow for accurate cost reimbursement to the neighbor(s).

13. Chain Link Root Protection Zone Fencing:

Fencing protection shall be established prior to arrival of any site plan construction or demolition equipment on site.

The protective fencing shall be termed “Root Protection Zone” fencing or “RPZ”, and marked with appropriate signage indicating that the fencing shall not be moved or removed without written authorization from the PA (project arborist).

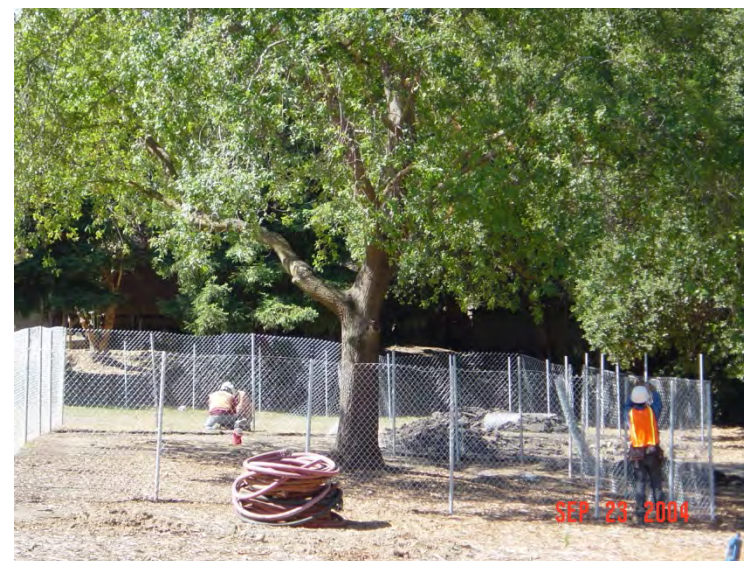
Fencing material shall be chain link steel, minimum 5 feet in height, hung on two-inch diameter iron tube posts pounded 24-inches into the ground at a spacing of no greater than 8 feet on-center.

Alternative Method / Chain Link Panels:

Wire chain link panels together using steel bailing wire, or use moveable concrete fence panel footings, to set the panels in place as full perimeters. Affix the panels in place such that they cannot be moved, by pounding rebar into the soil at the corners of each fence panel and wiring those bars to the fence corners.
(see image at right).

Sheet C3 in the applicant’s 8/4/2020 plan set shows a dark black line with “X” notations indicating the proposed exact locations of full perimeter chain link RPZ fencing to remain erected during construction.

Images at right show both the pounded iron tube post method, and also the alternative “chain link panel method”.



14. Mitigation Plantings:

The removal of seventeen (17) protected-size trees will require the installation of at least:

- Fourteen (14) 24" box size trees on site.
- Three (3) 36" box size trees on site.

Applicant's Species Canopy Size

It is suggested that the following landscape plan trees shown on the applicant's L-series of plan sheets be eliminated due to pest/disease susceptibility, or due to non-adequate canopy replacement size:

- Japanese maple
- 'Marina' strawberry tree
- 'Muskogee' crape myrtle

Alternatively, the project team could proceed with the landscape plan as-is, and provide additional mitigation in the form of in-lieu fee payment to City of Campbell specifically designated for funding only "City Park Tree Planting Operations" or similar. This would provide adequate canopy replacement value and adequacy for removal of the 17 protected-size trees from the site, without having to redesign the entire planting plan. **An in-lieu fee in the amount of \$10,000 to \$15,000 would be a reasonable mitigation payment to the City tree planting fund.**

The following are medium to larger canopy size trees known by the author to perform well in the Bay Area that can be used at this site as alternatives to or in addition to the species and cultivars noted in the applicant's landscape planting plan:

(Sources: Various Wholesale Nurseries)

- *Quercus virginiana* (southern live oak) (for more heavily-irrigated sites such as turf lawn areas). Available in the trade.
- *Platanus* 'Roberts' ('Roberts' sycamore). Beautiful upright form of California sycamore selected for its superior form. Claimed better fungal resistance to anthracnose and powdery mildew than the straight species (not verified). This tree is growing at the main entrance to Apple Campus 2 in Cupertino (aka "Apple Park"), across the street from the visitor's center.
- *Platanus* 'Columbia' ('Columbia' plane tree). The only plane tree cultivar that maintains resistance to anthracnose and powdery mildew. Also the only plane tree cultivar that seems to push a nice vertical central leader stem, and maintain upright scaffold limbs.
- *Olea* 'Swan Hill' ('Swan Hill' fruitless olive). Best fruitless olive known in the trade.
- *Tilia tomentosa* (silver linden). Proven performer in Palo Alto, California.

- *Cedrus atlantica* 'Glauca Fastigiata' (columnar blue atlas cedar). I have been trying to source this tree in the local wholesale nursery trade, but it appears that the only nurseries currently growing the columnar form are in Oregon. Therefore, the tree would have to be special-ordered and shipped via truck to California. It is the best narrow tree I have seen in years, and is pest resistant, disease resistant, beautiful, narrower than the standard blue atlas cedar, and eventually drought tolerant once established. These cedars do seem to perform better, however, with some amount of regular irrigation.

Above Right: Engelmann oaks (*Quercus engelmannii*) installed along the North Tantau median by Dave Muffly, Arborist. Engelmann oak may or may not be available in certain specific nurseries as of the date of writing. As of 2020, the only nurseries carrying Engelmann oak are Brightview southern California yard, and Devil Mountain Nursery. Contact Mr. David Teuschler of Devil Mountain Nursery, Brightview Nursery, or Mr. Dave Muffly at www.Oaktopia.org for more information. (Image snipped from Google Street View of Apple Park, Cupertino, CA, USA).



6.0 Author's Qualifications

- Continued education through The American Society of Consulting Arborists, The International Society of Arboriculture (Western Chapter), and various governmental and non-governmental entities.
- Contract City Arborist, City of Belmont, California
Community Development Department / Planning Division
6/99-6/20 (21 years)
- Contract Town Arborist, Town of Los Gatos, California
Community Development Department / Planning Division
2015-present
- Tree Risk Assessment Qualified (ISA TRAQ Course Graduate, Palo Alto, California)
- Millbrae Community Preservation Commission (Tree Board)
2001-2006
- ASCA Registered Consulting Arborist #401
- ASCA Arboriculture Consulting Academy graduate, class of 2000
- Associate Consulting Arborist
Barrie D. Coate and Associates
4/99-8/99
- ISA Certified Arborist #WE-3172A
- Peace Corps Soil and Water Conservation Extension Agent
Chiangmai Province, Thailand 1991-1993
- B.A. Environmental Studies/Soil and Water Resources
UC Santa Cruz, Santa Cruz, California 1990

UCSC Chancellor's Award, 1990

(My full curriculum vitae is available upon request)

7.0 Assumptions and Limiting Conditions

Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownership to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised and evaluated as through free and clean, under responsible ownership and competent management.

It is assumed that any property is not in violation of any applicable codes, ordinance, statutes, or other government regulations.

Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.

The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.

Unless required by law otherwise, the possession of this report or a copy thereof does not imply right of publication or use for any other purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant/appraiser.

Unless required by law otherwise, neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales, or other media, without the prior expressed conclusions, identity of the consultant/appraiser, or any reference to any professional society or institute or to any initiated designation conferred upon the consultant/appraiser as stated in his qualifications.

This report and any values expressed herein represent the opinion of the consultant/appraiser, and the consultant's/appraiser's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

Sketches, drawings, and photographs in this report, being intended for visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys unless expressed otherwise. The reproduction of any information generated by engineers, architects, or other consultants on any sketches, drawings, or photographs is for the express purpose of coordination and ease of reference only. Inclusion of said information on any drawings or other documents does not constitute a representation by Walter Levison to the sufficiency or accuracy of said information.

Unless expressed otherwise:

- a. information contained in this report covers only those items that were examined and reflects the conditions of those items at the time of inspection; and
- b. the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.

Loss or alteration of any part of this report invalidates the entire report.

Arborist Disclosure Statement:

Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of the arborist, or to seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborist cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed.

Treatment, pruning, and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, and other issues. Arborists cannot take such considerations into account unless complete and accurate information is disclosed to the arborist. An arborist should then be expected to reasonably rely upon the completeness and accuracy of the information provided.

Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate the trees.

8.0 Certification

I hereby certify that all the statements of fact in this report are true, complete, and correct to the best of my knowledge and belief, and are made in good faith.

Signature of Consultant


Walter Levison, Consulting Arborist



9.0 Digital Images (in clockwise order starting at #501)

WLCA archived digital images of the 26 protected-size study trees in May, 2019, as reference of pre-project conditions. The images are arranged in clockwise order, as if one were walking through the site starting at Mozart Avenue.

Additional digital images from WLCA's follow-up August, 2020 site visit are included at the end of the image sequence, as a reference of current August, 2020 post-pruning status of oaks #501, 502, 503, and #504 on which airspace clearance pruning was recently performed (circa 2020).



501 looking northward, with 504 in the center background



501 lower elevations



502 lower elevations, looking northeastward



502 profile, looking northward



Climbing up into 502 to assess the cavity.



Close-up of the cavity at +/-15 feet elevation in tree 502.



503



503



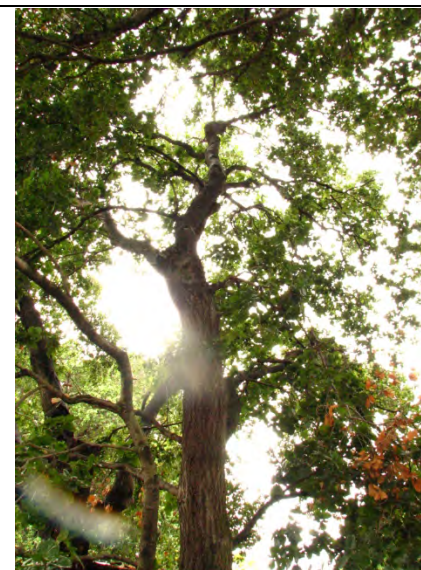
504



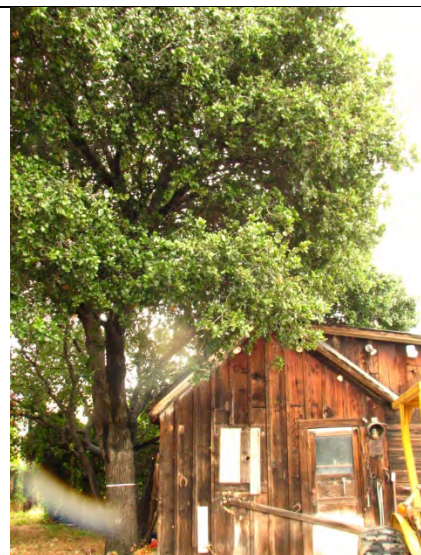
507



509



510



511



512



527, looking north



529



534



534 profile, looking north

Mexican fan palm #537 (no image)



548, looking north



650



650



**592 at the west corner of the site
(east property line fence).**



592 profile



628



628



Close-up of the splitout mainstem in 628



626 profile



625 profile



620 profile



620 close-up of split mainstem fork



615 lower elevations, as viewed from 16179.



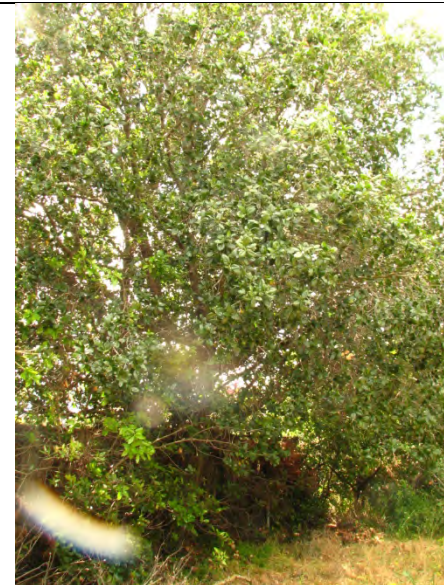
615 Canopy, as viewed from 16179 Mozart.



**615 and 616 canopies
viewed looking west from 16179 Mozart.**



636



636



Waste soil that was dumped on 16179 Mozart to the west edge of the canopy dripline of oak #636 being retained.



643



643, lower elevations. The presence of the residence foundation may or may not have contributed to the asymmetrical root system development and resultant leaning trunk. Italian stone pine regularly develops this type of trunk lean on a regular basis.



643 profile



657 Uppermost elevations showing advanced twig decline due to years of droughty soil moisture conditions.



657 lower elevations

Post-Pruning Images of Oaks #501, 502, 503, 504. Archived August, 2020 by WLCA



Oak #501 as of August, 2020. The Robson team had this tree pruned to remove lower elevation limbs. Endweight reduction pruning of the outermost material from the lopsided south side of canopy will be required. Note that the wood chip pile in this image is too close to trunk edge, and should be moved to farther from the tree as soon as possible to avoid causing an anaerobic root zone condition.



**Oak #502 as of August, 2020 (post-pruning).
The tree requires no additional clearance
pruning to clear the proposed roadway or
other site work elements.**



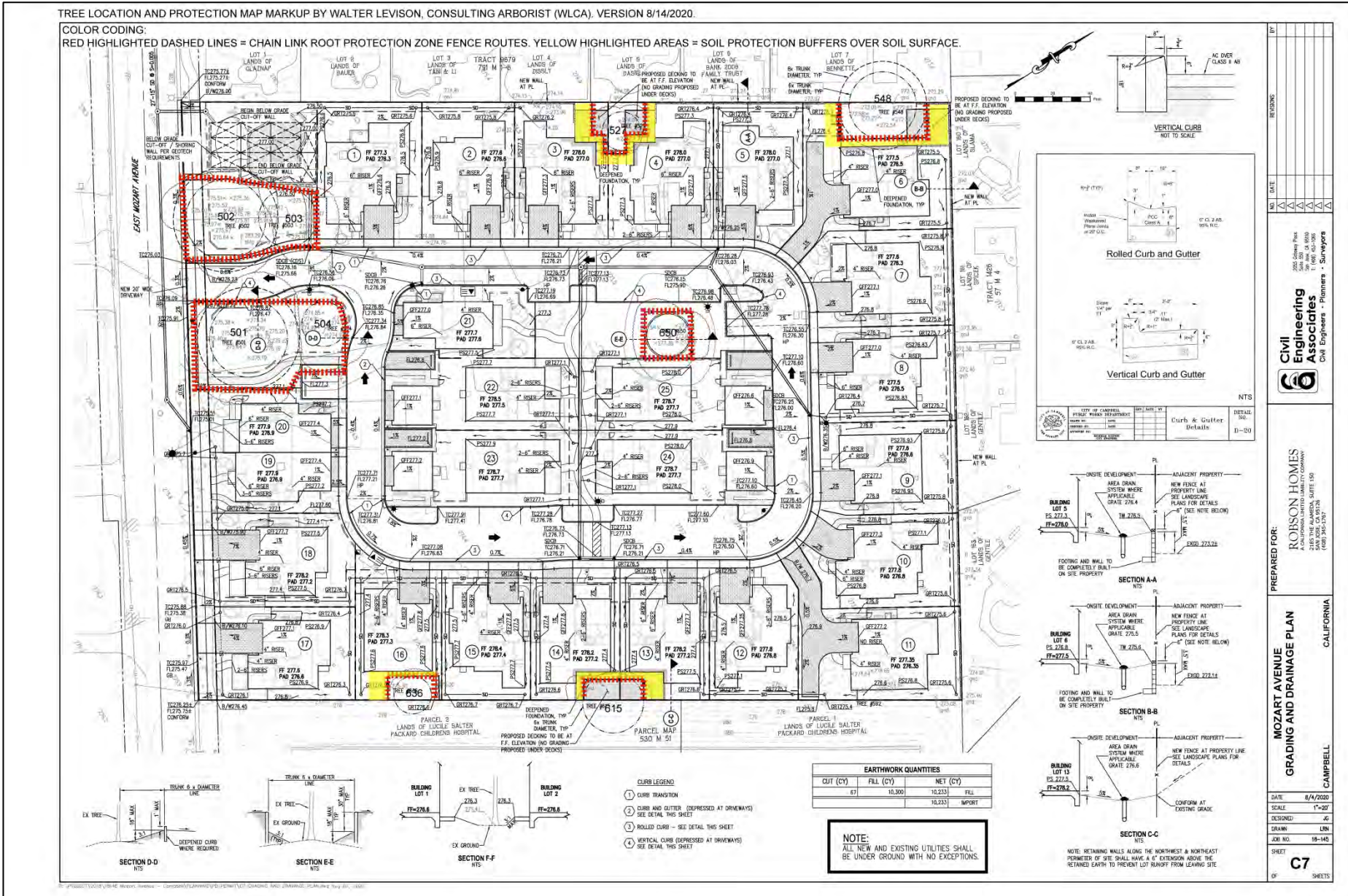
**Oak #503 as of August, 2020 (post-pruning).
The tree requires no additional clearance
pruning to clear the proposed roadway or
other site work elements.**



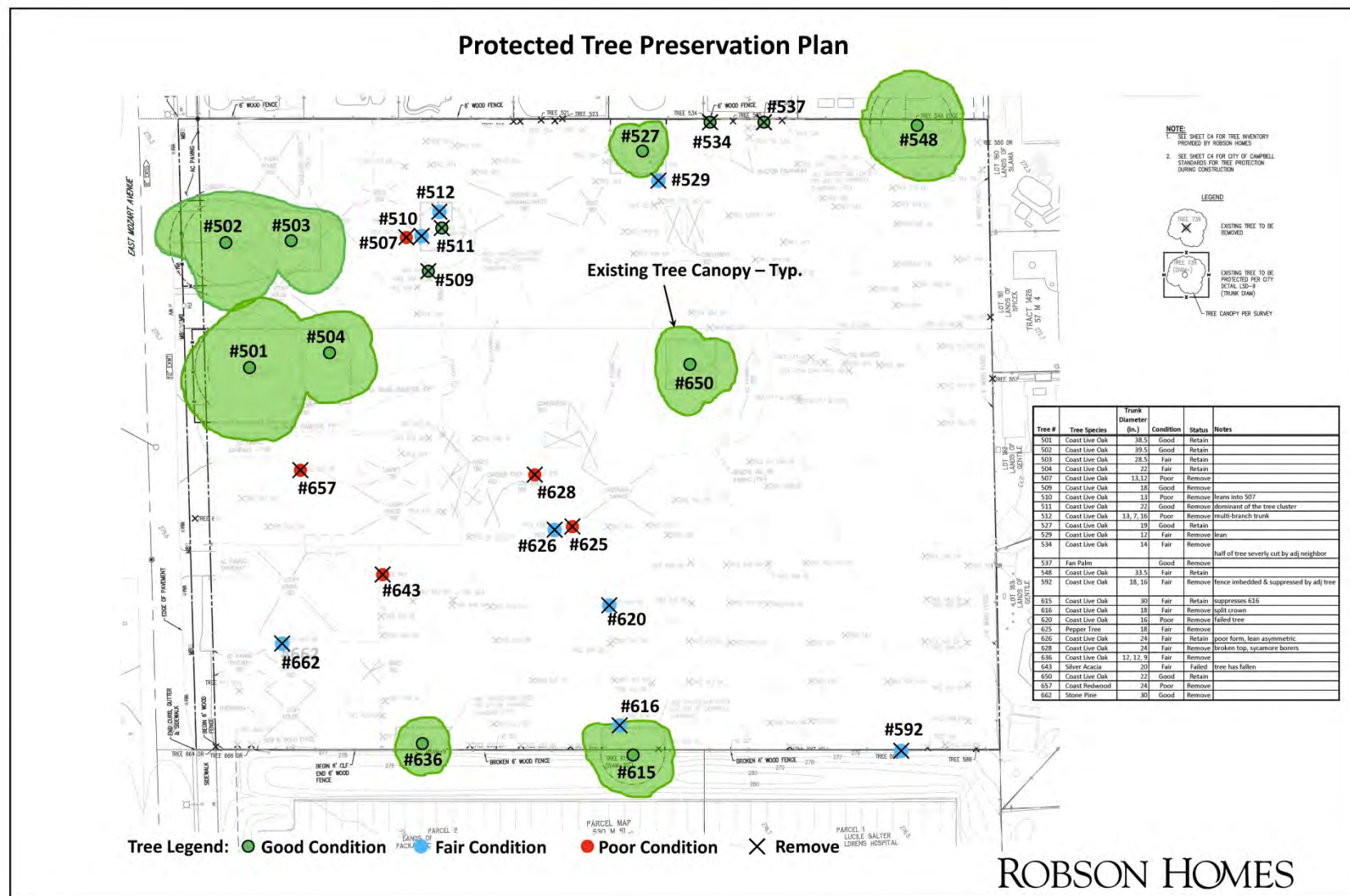
Oak #504. Post-pruning as of August, 2020, looking northward.

Note the lower elevation limbs that extend northeastward and northward, which will need to be pruned to remove smaller 1 inch diameter live braches to provide the legal 14 foot vertical airspace required for the new road that will pass beneath the north and west quadrants of the existing canopy. The impacts related to this required pruning are expected to be “minor”, though additional impacts from proposed new storm drain trenching (and possibly rigid irrigation pipe trenching to be determined), could potentially increase the level of impact to “moderate” overall.

10.0 Tree Location and Protection Map Markup Updated 9/7/2020 (WLCA)



11.0 Protected Tree Preservation Plan, August, 2020 (Robson Homes)



12.0 Attached: Excel Tree Data Table Updated 9/7/2020 (WLCA)

Tree Tag #	To be Removed Per Current Site Plan	Author Recommends Removal Due to Very Poor Condition or Elevated Risk of Failure	Trunk 1 (in.)	Trunk 2 (in.)	Trunk 3 (in.)	Adjusted Trunk Diameter Inches @ 48" A.G. (+/-2+3)	"Protected Trees" in Campbell, CA (Street trees, and all specimens with at least one (1) mainstem measuring 12.0 inches diameter at 4.0 feet above grade, except edible fruit trees)	Common Name	Scientific Name (Genus, species)	Height and Canopy Spread (ft.)	Health & Structural Ratings (0-100% each)	Overall Condition Rating (0-100%)	Live Twig Density (Very Poor, Poor, Mod, Good, Exc.)	Lopsided Canopy (Direction Noted)	Trunk Lean (Direction Noted)	Historical Stem Splitout Evidence (Note Elevation)	Severely Pruned or Root Pruned in Past (topping, litorailing, shearing, etc.)	Buried Root Crown (BRC) or Girdling Roots (GR)	Twig, Branch, Limb, Mainstem Decay (Note Elevation)	Codominant Mainstems with Severe Bark Inclusion(s) (Note Height)	Root Extension Restricted in Planter	Soil Moisture Deficit (aka "drought stress")	Notes	Critical Root Zone (CRZ) Radius (6 X diameter) as a radial offset distance from trunk edge	Maintenance, Protection, and Plan Limits.
501			39.3			39.3	YES	coast live oak	<i>Quercus agrifolia</i>	45/70	85/75	80% Good	Good		See notes								Mainstems fork at 6 feet elevation, and extend off vertical in multiple directions, hanging down to roughly 15 to 20 feet elevation above grade in the eastern portion of canopy. Tree needs branch length reduction pruning carefully performed per ANSI A300 standards. Robson has agreed to build the proposed new walking path east of this tree using an over-grade no-dig type regime which typically involves laying down an underlayment of Tensar TriAx or other similar robust triaxial or biaxial geogrid, and building up baserock over this geogrid, prior to constructing the path.	20 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
502			38.7			38.7	YES	coast live oak	<i>Quercus agrifolia</i>	45/60	75/45	60% Good	Mod to Good		North				Cavity noted on mainstem at 15 feet elevation on southeast side of stem. May or may not affect stability (TBD).				Existing asphalt driveway located west of mainstem, all the way up to mainstem bark, but likely does not contain baserock, which means roots likely extend from the tree outward to a great distance (e.g. 50 feet radius or more). Existing residence is 12 feet east of mainstem, and likely impedes root growth at the footing. Existing neighboring residence is roughly 22 feet northwest of mainstem edge.	19 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
503			28.0			28.0	YES	coast live oak	<i>Quercus agrifolia</i>	38/45	75/60	67% Good	Mod					BRC. Needs excavation					Existing asphalt drive extends up to mainstem bark. Roots likely extend all the way to the existing neighbor residence some 20 feet northwest of the mainstem edge. Roots impeded at the residence footing 6 feet east of the mainstem edge. Tree will need a root crown excavation by an arborist to expose the naturally flaring buttress roots at base of trunk.	14 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
504			22.1			22.1	YES	coast live oak	<i>Quercus agrifolia</i>	35/45	70/60	68% Good	Mod				Severely pruned (lion-tailed)						Tree has been severely pruned in the past to remove inner live wood and foliage. This is called "lion-tailing". Current revised roadway alignment increased the offset distance of proposed work to +/- 15 feet minimum. Limbs extend with limb wood elevations of 10 to 18 feet above grade. Robson has agreed to build the proposed new walking path east of this tree using an over-grade no-dig type regime which typically involves laying down an underlayment of Tensar TriAx or other similar robust triaxial or biaxial geogrid, and building up baserock over this geogrid, prior to constructing the path.	11 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
507	X		12.8	12.5		25.3	YES	coast live oak	<i>Quercus agrifolia</i>	30/25	40/40	40% Poor	Poor	West	West				(See notes)				Lower elevations of one of the two codominant mainstems exhibits severe feeding damage from sycamore bark moth larvae.	7 to 10 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.

Tree Tag #	To be Removed Per Current Site Plan	Author Recommends Removal Due to Very Poor Condition or Elevated Risk of Failure	Trunk 1 (in.)	Trunk 2 (in.)	Trunk 3 (in.)	Adjusted Trunk Diameter Inches @ 48" A.G. ((1+2+3)/3)	"Protected Trees" in Campbell, CA (Street trees, and all specimens with at least one (1) mainstem measuring 12.0 inches diameter at 4.0 feet above grade, except edible fruit trees)	Common Name	Scientific Name (Genus, species)	Height and Canopy Spread (ft.)	Health & Structural Ratings (0-100% each)	Overall Condition Rating (0-100%)	Live Twig Density (Very Poor, Poor, Mod, Good, Exc.)	Lopsided Canopy (Direction Noted)	Trunk Lean (Direction Noted)	Historical Stem Splitout Evidence (Note Elevation)	Severely Pruned or Root Pruned in Past (topping, lantailing, shearing, etc.)	Buried Root Crown (BRC) or Girdling Roots (GR)	Twig, Branch, Limb, Mainstem Decay (Note Elevation)	Codominant Mainstems with Severe Bark Inclusion(s) (Note Height)	Root Extension Restricted in Planter	Soil Moisture Deficit (aka "drought stress")	Notes	Critical Root Zone (CRZ) Radius (6 X diameter) as a radial offset distance from trunk edge	Maintenance, Protection, and Plan Limits.	
509	X		17.0			17.0	YES	coast live oak	<i>Quercus agrifolia</i>	37/20	85/65	78% Good	Good					BRC. Needs excavation					Narrow canopy of upward oriented limbs. Root crown not visible under forest leaf litter.	8.5 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.	
510	X		13.2			13.2	YES	coast live oak	<i>Quercus agrifolia</i>	30/25	65/45	53% Fair	Mod	West	West				(See notes)					Extensive sycamore bark moth larvae feeding damage noted.	6.5 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
511	X		22.0			22.0	YES	coast live oak	<i>Quercus agrifolia</i>	40/40	85/75	82% Excellent	Good	East	East									Two codominant mainstems fork at 9 feet elevation. The west mainstem is actually a scaffold limb that swept up into a vertical position to compete with the real mainstem.	11 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
512	X		15.7	12.9	7.0	35.6	YES	coast live oak	<i>Quercus agrifolia</i>	40/40	50/60	55% Fair	Mod	West	West					(See notes)				Three codominant mainstems arise from grade, and may be sprouts arising from a historical cut mother stump. This means that the mainstems may have stability issues related to older decay in the lignotuber area below grade (not verified).	8 to 10 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
527			18.9			18.9	YES	coast live oak	<i>Quercus agrifolia</i>	40/45	90/80	84% Excellent	Good	South									Limbs extended to south hang down to as low as 10 feet elevation above grade. The bark inclusion fork at 10 feet would need a through-bolt type brace rod to be installed, if the tree were to be retained. Foundation at Lot 4 to be cantilevered system to reduce impact to tree root system. Lot three has been adjusted southward on the July 2020 version of the site plan, in order to further reduce root zone impacts to the tree.	10 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.	

Tree Tag #	To be Removed Per Current Site Plan	Author Recommends Removal Due to Very Poor Condition or Elevated Risk of Failure	Trunk 1 (in.)	Trunk 2 (in.)	Trunk 3 (in.)	Adjusted Trunk Diameter Inches @ 48" A.G. (+/-2+3)	"Protected Trees" in Campbell, CA (Street trees, and all specimens with at least one (1) mainstem measuring 12.0 inches diameter at 4.0 feet above grade, except edible fruit trees)	Common Name	Scientific Name (Genus, species)	Height and Canopy Spread (ft.)	Health & Structural Ratings (0-100% each)	Overall Condition Rating (0-100%)	Live Twig Density (Very Poor, Poor, Mod, Good, Exc.)	Lopsided Canopy (Direction Noted)	Trunk Lean (Direction Noted)	Historical Stem Splitout Evidence (Note Elevation)	Severely Pruned or Root Pruned in Past (topping, litorailing, shearing, etc.)	Buried Root Crown (BRC) or Girdling Roots (GR)	Twig, Branch, Limb, Mainstem Decay (Note Elevation)	Codominant Mainstems with Severe Bark Inclusion(s) (Note Height)	Root Extension Restricted in Planter	Soil Moisture Deficit (aka "drought stress")	Notes	Critical Root Zone (CRZ) Radius (6 X diameter) as a radial offset distance from trunk edge	Maintenance, Protection, and Plan Limits.
529	X		13.2			13.2	YES	coast live oak	<i>Quercus agrifolia</i>	30/30	65/55	60% Fair	Mod	North east	North east									7 feet.	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
534	X		14.5			14.5	YES	coast live oak	<i>Quercus agrifolia</i>	32/30	75/65	70% Good	Mod	South	South									7 to 8 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
537	X		15.0			15.0	YES	Mexican fan palm	<i>Washingtonia robusta</i>	25/10	80/80	80% Excellent	Good										Easily retainable, given the current offset of proposed residential development, as long as irrigation pipe trenching and/or other trenching is kept at least 15 feet offset from the trunk edge of this tree.	7.5 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
548			35.7			35.7	YES	coast live oak	<i>Quercus agrifolia</i>	50/60	80/60	70% Good	Good	South		Yes. Tree was severely pruned, resulting in formation of canopy holes in upper elevations.							Current proposed residence footprint is roughly 25 feet offset from the trunk edge of this very large native oak specimen in good overall condition. Soil protection buffer will be placed over the ground to protect soil between the temporary RPZ construction chain link root zone protection fence line and the new residence.	18 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
592	X		19.0	15.0		34.0	YES	coast live oak	<i>Quercus agrifolia</i>	35/30	85/60	79% Good	Mod to Good	West and North-West									Chain link fence is embedded into the 15 inch diameter stem. The 15" diameter stem is actually a scaffold limb that extends vertically and is now competing for dominance with the actual 19" diameter mainstem. Note that the proposed residence is roughly 9 feet offset from the trunk edge of this tree, which will encroach far into the canopy dripline, and is within the Critical Root Zone (CRZ) of 9.5 feet offset radius. This offset distance is not adequate for root zone preservation, and the tree may decline or die as a result. Therefore, it is not clear if this tree should be considered a removal or a retention tree.	9.5 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.

Tree Tag #	To be Removed Per Current Site Plan	Author Recommends Removal Due to Very Poor Condition or Elevated Risk of Failure	Trunk 1 (in.)	Trunk 2 (in.)	Trunk 3 (in.)	Adjusted Trunk Diameter Inches @ 48" A.G. (+/-2+3)	"Protected Trees" in Campbell, CA (Street trees, and all specimens with at least one (1) mainstem measuring 12.0 inches diameter at 4.0 feet above grade, except edible fruit trees)	Common Name	Scientific Name (Genus, species)	Height and Canopy Spread (ft.)	Health & Structural Ratings (0-100% each)	Overall Condition Rating (0-100%)	Live Twig Density (Very Poor, Mod, Good, Exc.)	Lopsided Canopy (Direction Noted)	Trunk Lean (Direction Noted)	Historical Stem Splitout Evidence (Note Elevation)	Severely Pruned or Root Pruned in Past (topping, lantailing, shearing, etc.)	Buried Root Crown (BRC) or Girdling Roots (GR)	Twig, Branch, Limb, Mainstem Decay (Note Elevation)	Codominant Mainstems with Severe Bark Inclusion(s) (Note Height)	Root Extension Restricted in Planter	Soil Moisture Deficit (aka "drought stress")	Notes	Critical Root Zone (CRZ) Radius (6 X diameter) as a radial offset distance from trunk edge	Maintenance, Protection, and Plan Limits.
615			30.0			30.0	YES	coast live oak	<i>Quercus agrifolia</i>	30/45	75/65	70% Good	Mod to Good	South						(Likely at least one to two bark inclusion type forks present, though this was not verified)			Tree is a neighbor-owned specimen just east of the existing property line fence. WLCA was not able to access the trunk of this tree to verify mainstem diameter or assess the root crown and mainstem unions.	15 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
616	X		17.7			17.7	YES	coast live oak	<i>Quercus agrifolia</i>	35/45	85/65	77% Good	Good	West	West								Tree exhibits phototropic lean (following the sun track) to the west. Tree is to be removed per the applicant's plans.	9 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
620	X		15.1			15.1	YES	coast live oak	<i>Quercus agrifolia</i>	28/28	77/40	49% Fair	Mod to Good	East		Yes. See notes.							Two codominant mainstems split apart at the lower elevation fork, with the westmost stem failing, leaving 50% of the lower trunk circumference as an open split face (see images by WLCA in the arborist report). This damage downgrades the structural rating and the overall condition rating. The tree conflicts with the current proposed site plan layout.	7.5 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
625	X	X	17.5			17.5	YES	California pepper tree (non-native)	<i>Schinus molle</i>	35/25	15/20	18% Very Poor	Very Poor						Yes. Decay throughout				The canopy of this tree consists mainly of dead and dying twigs (see images in the arborist report). The tree is proposed to be removed due to conflicts with proposed new site plan work. WLCA suggests removal of this tree due to its overall condition rating of "very poor".	9 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
626	X		22.5			22.5	YES	coast live oak	<i>Quercus agrifolia</i>	30/30	90/65	80% Excellent	Good	South	South				See notes				Extensive bark decay due to feeding by sycamore bark moth larvae in lower 6 feet of trunk bark. Root zone likely extends a significant radius in all directions, including under the antique barn.	11 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.

Tree Tag #	To be Removed Per Current Site Plan	Author Recommends Removal Due to Very Poor Condition or Elevated Risk of Failure	Trunk 1 (in.)	Trunk 2 (in.)	Trunk 3 (in.)	Adjusted Trunk Diameter Inches @ 48" A.G. (+/-2+3)	"Protected Trees" in Campbell, CA (Street trees, and all specimens with at least one (1) mainstem measuring 12.0 inches diameter at 4.0 feet above grade, except edible fruit trees)	Common Name	Scientific Name (Genus, species)	Height and Canopy Spread (ft.)	Health & Structural Ratings (0-100% each)	Overall Condition Rating (0-100%)	Live Twig Density (Very Poor, Mod, Good, Exc.)	Lopsided Canopy (Direction Noted)	Trunk Lean (Direction Noted)	Historical Stem Splitout Evidence (Note Elevation)	Severely Pruned or Root Pruned in Past (topping, lantailing, shearing, etc.)	Buried Root Crown (BRC) or Girdling Roots (GR)	Twig, Branch, Limb, Mainstem Decay (Note Elevation)	Codominant Mainstems with Severe Bark Inclusion(s) (Note Height)	Root Extension Restricted in Planter	Soil Moisture Deficit (aka "drought stress")	Notes	Critical Root Zone (CRZ) Radius (6 X diameter) as a radial offset distance from trunk edge	Maintenance, Protection, and Plan Limits.
628	X	X	23.8			23.8	YES	coast live oak	<i>Quercus agrifolia</i>	45/50	70/30	30% Poor	Mod	North	North	Yes. See notes.			See notes				Extensive feeding damage by sycamore bark moth larvae in lower trunk bark. A fork at the union of two codominant mainstems broke out at 25 to 30 feet elevation above grade, resulting in the removal of a large broken section which comprised at least 30% to 40% of the original canopy. This damage has downgraded the tree significantly, and it is no longer worth retaining as a landscape specimen.	12 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
636			12.4	11.8	9.0	33.3	YES	coast live oak	<i>Quercus agrifolia</i>	28/35	85/63	75% Good	Mod to Good							Bark inclusion at zero to 1 foot above grade where three (3) mainstems fork.			Waste soil has been dumped to within 11 feet west of the trunk edge, which is within the 13 foot radius canopy dripline on this side of tree (see photos). Branches extend 13 feet west of trunk edge, and foliage hangs down to 4 feet above grade on this side of tree.	Est. 10 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
643	X	X	17.5			17.5	YES	green wattle	<i>Acacia decurrens</i> (not 100% verified)	35/30	25/15	18% Very Poor	Very Poor	South	North		Previous top pruning at 15 to 20 feet elevation.	GR	Extensive decay noted in bark and xylem tissues on south side of mainstem (all elevations)				WLCA recommends removal of tree.	9 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
650			25.2			25.2	YES	coast live oak	<i>Quercus agrifolia</i>	25/45	80/80	80% Excellent	Good										Limbs extend horizontally with foliage hanging down almost to grade elevation, with wood elevation at 9 to 12 feet elevation. Straps affixed to a large diameter limb need to be removed to avoid strangling the tree. Per the Staff/Applicant Zoom meeting June 30, 2020, Robson has agreed to reduce the depth of cut of the dry slack stone wall element (i.e. the "tree well"), in order to reduce root loss impacts related to the stone installation, and also agreed to install a drainage element to deal with water buildup inside the circular tree well, such as a dry well.	12.5 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.
657	X	X	24.1			24.1	YES	coast redwood	<i>Sequoia sempervirens</i>	55/35	25/25	25% Poor	Very Poor to Poor									X	This tree is experiencing soil moisture deficit, which has resulted in a reduction in the live twig density and live twig extension. Sometimes, coast redwoods can rebound if provided with very heavy, regular irrigation, but more often than not, these redwoods continue to decline and die prematurely when reduced in vigor such that they have an overall condition rating of "very poor".	12 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.

Tree Tag #	To be Removed Per Current Site Plan	Author Recommends Removal Due to Very Poor Condition or Elevated Risk of Failure	Trunk 1 (in.)	Trunk 2 (in.)	Trunk 3 (in.)	Adjusted Trunk Diameter Inches @ 48" A.G. (+2+2+3)	"Protected Trees" in Campbell, CA (Street trees, and all specimens with at least one (1) mainstem measuring 12.0 inches diameter at 4.0 feet above grade, except edible fruit trees)	Common Name	Scientific Name (Genus, species)	Height and Canopy Spread (ft.)	Health & Structural Ratings (0-100% each)	Overall Condition Rating (0-100%)	Live Twig Density (Very Poor, Poor, Mod, Good, Exc.)	Lopsided Canopy (Direction Noted)	Trunk Lean (Direction Noted)	Historical Stem Splitout Evidence (Note Elevation)	Severely Pruned or Root Pruned in Past (topping, lantailing, shearing, etc.)	Buried Root Crown (BRC) or Girdling Roots (GR)	Twig, Branch, Limb, Mainstem Decay (Note Elevation)	Codominant Mainstems with Severe Bark Inclusion(s) (Note Height)	Root Extension Restricted in Planter	Soil Moisture Deficit (aka "drought stress")	Notes	Critical Root Zone (CRZ) Radius (6 X diameter) as a radial offset distance from trunk edge	Maintenance, Protection, and Plan Limits.
662	X		29.2			29.2	YES	Italian stone pine	<i>Pinus pinea</i>	40/55	90/60	70% Good	Good	South east	South east								The existing residence foundation at 16157 E. Mozart Avenue is only 2 to 3 horizontal feet west of the trunk edge of this tree, and is assumed to be impeding root extension growth in that direction. It is possible that this foundation presence is the cause of the tree's lean to the southeast. However, trunk lean on this tree species is completely normal, irrespective of root growth impediments.	15 feet	See WLCA arborist report iteration 9/7/2020 "Recommendations" section for details.

NOTES:

1. Only on-site and adjacent neighbor-owned trees with at least one (1) mainstem measuring 12.0 inches diameter or greater when measured at 4.0 feet above grade were included in this study.
2. Tree diameters were determined using a forester's D-tape which converts actual mainstem circumference to an averaged diameter by dividing the circumference by 3.14. Tree heights were shot using a Nikon Forestry Pro 550 hypsometer. Tree canopy dripline spreads were estimated visually. Tree plot locations were surveyor-indicated on the project applicant's surveys.

TREE MAINTENANCE AND PROTECTION CODES USED IN THE ABOVE TREE DATA TABLE RECOMMENDATIONS BOX AT RIGHT HAND COLUMN:

- RPZ: Root protection zone fence, chain link, with 2" diameter iron posts driven 24" into the ground, 6 to 8 feet on center max. spacing. Alternative material: chain link fence panels set over concrete block-type footings, with the fence panels wired to steel pins pounded 24 inches into the ground at both ends of each panel.
- RB: Root buffer consisting of wood chip mulch lain over existing soil as a 12 inch thick layer, overlain with 1 inch or greater plywood strapped together with metal plates. This root buffer or soil buffer should be placed over the entire width of the construction corridor between tree trunks and construction.
- RP: Root pruning. Prune woody roots measuring greater than or equal to 1 inch diameter by carefully back-digging into the soil around each root using small hand tools until an area is reached where the root is undamaged. Cleanly cut through the root at right angle to the root growth direction, using professional grade pruning equipment and/or a Sawzall with wood pruning blade. Backfill around the cut root immediately (same day), and thoroughly irrigate the area to saturate the uppermost 24 inches of the soil profile.
- BDRP: Back-dig root pruning: Hand-dig around the broken root, digging horizontally into the open soil root zone until a clean, unbroken, unshattered section of the root is visible. Proceed as per 'root pruning'.
- RCX: Root crown excavation. Retain an experienced ISA-Certified arborist to perform careful hand-digging using small trowels or other dull digging tools to uncover currently-buried buttress root flares. Digging shall occur between trunk edge and at least two (2) feet horizontal from trunk edge. The final soil elevation will be at a level such that the tree's buttress roots visibly flare out from the vertical trunk.
- TB: Trunk buffer consists of 20-40 wraps of orange plastic snow fencing to create a 2 inch thick buffer over the lowest 8 feet of tree trunk (usually takes at least an entire roll of orange fencing per each tree). Lay 2X4 wood boards vertically, side by side, around the entire circumference of the trunk. Secure buffer using duct tape (not wires).
- F: Fertilization with slow-release Greenbelt 22-14-14 tree formula, as a soil injection application using a fertilizer injection gun. This brand and formulation is commonly used by reputable tree care companies in the Bay Area. Apply at label rate and injection hole spacing.
- M: 4-inch thick layer of chipper truck type natural wood chips (example source: Lyngso Garden Supply, self pick-up). Do not use bark chips or shredded redwood bark.
- W: Irrigate using various methods to be determined through discussion with General Contractor. Irrigation frequency and duration to be determined through discussion and/or per directions in this report. Native oak species typically require 1x/month irrigation, while other tree species tend to prefer 2x/month or 4x/month moderate to heavy irrigation during construction.
- P: Pruning per specifications noted elsewhere. All pruning must be performed only under direct site supervision of an ISA Certified Arborist, or performed directly by an ISA Certified Arborist, and shall conform to all current ANSI A300 standards.
- MON: A Project Arborist must be present to monitor specific work as noted for each tree.