CITY OF CAMPBELL
Community Development Department

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION
November 21, 2018

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

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

Project Title: Hacienda Avenue Planned Development Subdivision

Project Location: 1631 Hacienda Avenue, Campbell, CA 95008 (APN: 403-13-004/005)

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

Zoning Map Amendment (PLN2018-155): To amend the Campbell Zoning Map to rezone the project site from R-1-9 (Single-Family Residential) to P-D (Planned Development);

Planned Development Permit (PLN2018-156): To allow construction of six two-story single-family homes, an accessory dwelling unit, a new private street, and associated site and landscaping improvements;

Tentative Subdivision Map (PLN2018-157): To create six private lots and one common lot, and associated public and private easements;

Variance (PLN2018-325): To allow retention of existing overhead utility lines and installation of a new utility pole on private property to serve the proposed development; and

Tree Removal Permit (PLN2018-158): To allow removal of 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 November 21, 2018 through December 11, 2018 (closing 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@cityofcampbell.com 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 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'.

PUBLIC HEARINGS: The Planning Commission and City Council are scheduled to consider the proposed project and draft Mitigated Negative Declaration at public hearings to be held on **December 11, 2018** and **January 15, 2019**, respectively. The meetings will be held at 7:30 p.m., or shortly thereafter, in the City Hall City Council Chambers, 70 North First Street, Campbell, CA.

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: Hacienda Avenue Planned Development Subdivision

Project Address: 1631 Hacienda Avenue, Campbell, CA 95008

Entitlement(s): **Zoning Map Amendment** (PLN2018-155): To amend the Campbell Zoning Map to rezone the project site from R-1-9 (Single-Family Residential) to P-D (Planned Development);

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Tree Removal Permit (PLN2018-158): To allow removal of on-site protected trees.

Zoning District (E): R-1-9 (Single-Family Residential)

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

Area Plan: San Tomas Area Neighborhood Plan (STANP)

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

Project Sponsor: Hacienda Street Holdings LLC
c/o Sachneel Patel
225 Demeter Street
East Palo Alto, CA 94303

Property Owners: Hacienda Street Holdings LLC
225 Demeter Street
East Palo Alto, CA 94303

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@cityofcampbell.com

Date Posted: November 21, 2018

Other public agencies whose approval is required: None

Project Location and Surrounding Land Use: The approximately two-acre project site is comprised of two parcels, located on Hacienda Avenue east of Harriet Avenue. The majority of the site is fallow land with a single-family home located towards the street. The site is within the R-1-9 (Single-Family Residential) Zoning District, subject to the San Tomas Area Neighborhood Plan (STANP). The site is currently developed with a single-family home and several accessory structures.

Project Description: The proposed project is a residential planned development consisting of six single-family homes and one accessory dwelling unit, accessed by a new private roadway. The project includes an application for a Zoning Map Amendment to amend the zoning designation from R-1-9 (Single-Family Residential) to P-D (Planned Development), a Tentative Subdivision Map to create six single-family lots and one commonly owned lot, a Planned Development Permit for the general site layout and architectural design of the proposed residences, a Variance to allow retention of existing overhead utility lines and installation of a new utility pole on private property to serve the proposed development, and a Tree Removal Permit.

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:

Mitigation Measure AQ-1: Provisions for trackout control of soil/mud from project construction will be implemented as best practices BP6 and BP7 described in Table A-5 of the Air Quality Assessment, prepared by Marc Papineau, Environmental Service, restated as follows:

- **BP6** - Wash off all haul trucks and equipment, including their tires, before leaving the site.
- **BP7** - Treat entries to a distance of 100 feet from a paved road with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.

Mitigation Measure AQ-2: To minimize PM emissions from fugitive sources and from unnecessary equipment idling, the contractor will be required to implement the Basic Practices described in Table A-5 of the Air Quality Assessment, prepared by Marc Papineau, Environmental Service, restated as follows:

- **A1** - Watered at least two times per day exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads).
- **A2** - Cover haul trucks transporting soil, sand, or other loose material to or from the site.
- **A3** - Remove visible mud or dirt track-out onto adjacent public roads using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited**.**
- **A4 -** Limited vehicle speeds 15 mph on unpaved roads.
- **A5** - Pave roadways, driveways, and sidewalks as soon as possible.
- **A6** - Minimize idling times 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.
- **A7** - Maintain and properly tune all motorized construction equipment 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. This includes proper functioning of Level 3 VDECS for reduction of diesel particulate emissions.
- **A-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.

Mitigation Measure AQ-3*:* The following measures shall be adhered during constructions:

- To reduce downwind concentrations of DPM to 15 percent of the uncontrolled concentrations, use Tier 4 non-road construction equipment and/or Tier 2 or Tier 3 non-road equipment retrofitted with a Level 3 Verified Diesel Emission Control Strategy (VDECs).
- Prohibit portable diesel engines where access to alternative sources of power are available.
- Restrict idling to two minutes during idle episodes.
- Properly maintain and tune equipment in accordance with manufacturer specifications.

  Note: If additional buffer, windbreak or privacy fence measures are attempted, these would have to be constructed before demolition or before grading. In this case, landscaped buffers, street or driveway buffers, and privacy fencing are secondary or supplemental and cannot be substituted for the recommended Basic Practices or Construction Best Practice

Mitigation Measure BIO-1: **Pre-Construction Avian Survey** – If project construction-related activities would take place during the nesting season (February through August), preconstruction surveys for nesting passerine birds and raptors (birds of prey) within the Property and the large trees within the adjacent riparian area should be conducted by a competent biologist 14 days prior to the commencement of the tree removal or site grading activities. If any bird listed under the Migratory Bird Treaty Act is found to be nesting within the project site or within the area of influence, an adequate protective buffer zone should be established by a qualified biologist to protect the nesting site. This buffer shall be a minimum of 75 feet from the project activities for passerine birds, and a minimum of 200 feet for raptors. The distance shall be determined by a competent biologist based on the site conditions (topography, if the nest is in a line of sight of the construction and the sensitivity of the birds nesting). The nest site(s) shall be monitored by a competent biologist periodically to see if the birds are stressed by the construction activities and if the protective buffer needs to be increased. Once the young have fledged and are flying

well enough to avoid project construction zones (typically by August), the project can proceed without further regard to the nest site(s).

Mitigation Measure BIO-2: **Pre-construction Bat Survey –** To avoid "take" of special–status bats, the following mitigation measures shall be implemented prior to the removal of any existing trees or structures on the project site:

- A bat habitat assessment shall be conducted by a qualified bat biologist during seasonal periods of bat activity (mid–February through mid–October. Feb. 15 – Apr. 15, and Aug. 15 – October 30), to determine suitability of each existing structure as bat roost habitat.
- Structures found to have no suitable openings can be considered clear for project activities as long as they are maintained so that new openings do not occur.
- Structures found to provide suitable roosting habitat, but without evidence of use by bats, may be sealed until project activities occur, as recommended by the bat biologist. Structures with openings and exhibiting evidence of use by bats shall be scheduled for humane bat exclusion and eviction, conducted during appropriate seasons, and under supervision of a qualified bat biologist.
- Bat exclusion and eviction shall only occur between February 15 and April 15, and from August 15 through October 30, in order to avoid take of non–volant (non–flying or inactive, either young, or seasonally torpid) individuals.

OR

A qualified wildlife biologist experienced in surveying for and identifying bat species should survey the portion of the mixed oak woodland and mixed riparian habitats if tree removal is proposed to determine if any special–status bats reside in the trees. Any special–status bats identified should be removed without harm. Bat houses sufficient to shelter the number of bats removed should be erected in open space areas that would not be disturbed by project development.

Mitigation Measure BIO-3: The following tree protection measures will be implemented to minimize harmful effects to the remaining trees located on or immediately adjacent to the site:

- Work within the vicinity of the trees to be retained will be scheduled for fall or winter when trees are dormant or semi-dormant.
- Prior to any site preparation or construction work, all trees should have a protective buffer (six feet tall chain link fence) extending beyond the dripline of the canopy (tree protection zone)(TPZ), or the greatest feasible distance from the trunk as possible. Grading, deposition of fill, equipment storage, removal of soil, irrigation, or any other activities that may be detrimental to the health of the trees are strictly forbidden within the tree protection zone for the duration of site work. It is the ultimately applicants' responsibility to ensure that the fencing remains intact and that the tree is not damaged during construction. Tree protection locations should be marked before any fence contractor arrives.
- 8.5 x 11" signs will be placed on the construction fencing (not on the trunks of the trees) stating that all areas within the fencing are Tree Protection Zones (TPZ) and that disturbance is prohibited.
- Pruning of limbs to provide clearance for structures, vehicular traffic, and construction equipment shall be performed during the fall or winter semi-dormant period and will conform to American National Standards Institute (ANSI) tree pruning standards. All tree pruning or

removals shall be performed by a qualified arborist with a C-61/D-49 California Contractors License. Avoid aesthetic pruning immediately before, during or after construction impact. Perform only that pruning of dead limbs or those which conflict with the proposed development.

- Tree maintenance and care shall be specified in writing according to American National Standard for Tree Care Operations: Tree, Shrub and Other Woody Plant Management: Standard Practices parts 1 through 10 and adhere to ANSI Z133.1 safety standards and local regulations.
- Engineer site improvements so that water runoff will not slope toward the trunks. In areas where the proposed elevation of nearby development lies above the elevation of the oak tree, swales have been incorporated into the design to direct water away from the oak trees.
- Soak the ground beneath the canopy of each tree prior to, during, and right after construction. This deep watering method consists of a slow, all-day soaking within the root zone.
- If possible, construct the project with minimal filling, excavating, or trenching within the root zone. Minimize compaction within the root zone to the greatest extent practicable. Keep the elevation of the soil surface at the existing level within the protected area around the trunk. Do not stockpile any construction material within the root zone, even temporarily.
- Should any roots need to be severed during construction, cover any exposed or cut roots with burlap, soil or mulch as soon as possible until the native soil can be backfilled. If possible, use sharp tools (chainsaw or axe) for pruning roots. Using hand tools will help to heal the wounded roots more quickly than pruning with bulldozers, and will better avoid tearing of the roots behind the cuts. If excavation is for installation of underground utilities, roots should be left intact and lines will be treaded underneath the roots.

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.

Mitigation Measure GEO-1: The applicant shall comply with the recommendations in the Updated Geotechnical Engineering Study, dated April 12, 2018 prepared by Earth Systems Pacific. 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.

Mitigation Measure HAZ-1: Prior to issuance of a demolition permit, a qualified contractor shall assess the property for presence of Lead-based paint (LBP) and Asbestos containing building materials (ACBM), and if present, prepare a plan, to the satisfaction of the Building Official, to properly manage and dispose of such materials.

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

- Notify the City and neighbors in advance of the schedule for each major phase of construction and expected loud activities or impulsive noise activities (e.g., nail guns during framing).
- When feasible, select "quiet" construction methods and equipment. Examples include: 1) using electrical service rather than portable power generators and 2) using rollers rather than vibratory compactors.
- Locate noisy stationary equipment (e.g., compressors) and material unloading and staging areas away from the nearest adjacent uses, such as the Luika Place residences to the southwest and west of the project site.

Mitigation Measure NOI-2: The following measures shall be implemented during construction:

- Require posted signs at the construction site, which provide the permitted construction days and hours, a day and evening contact number for the job site and a day and evening contact number for the City in the event of problems.
- Notify the City and neighbors in advance of the schedule for each major phase of construction and expected loud activities or impulsive noise activities (e.g., nail guns during framing).
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- Require that all construction equipment (e.g., excavators, backhoes) be in good working order and that mufflers are installed and functioning properly. Avoid unnecessary idling of diesel engines.
- Designate a Construction Noise Coordinator. The designated Construction Noise Coordinator would be responsible for posting the required signs, explaining the construction timeline, responding to potential complaints from neighbors, and managing noise through appropriate work practices or other measures.

PUBLIC REVIEW PERIOD

Any person may file a written protest of the Mitigated Negative Declaration during the public comment period running from November 21, 2018 through December 11, 2018 (closing 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

November 20, 2018
DATE

Encl: Initial Study
Mitigation Monitoring and Reporting Program

INITIAL STUDY

Hacienda 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
November 21, 2018 – December 11, 2018

I. PROJECT OVERVIEW

Project Title: Hacienda Avenue Planned Development Subdivision

Project Address: 1631 Hacienda Avenue, Campbell, CA 95008

Entitlement(s): **Zoning Map Amendment** (PLN2018-155): To amend the Campbell Zoning Map to rezone the project site from R-1-9 (Single-Family Residential) to P-D (Planned Development);

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Project Location and Surrounding Land Use: The approximately two-acre project site is comprised of two parcels, located on Hacienda Avenue east of Harriet Avenue. The majority of the site is fallow land with a single-family home located towards the street. The site is within the R-1-9 (Single-Family Residential) Zoning District, subject to the San Tomas Area Neighborhood Plan (STANP). The site is currently developed with a single-family home and several accessory structures.

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Project Data:

Net Lot Size: 2.02 Acres

Gross Lot Size: 2.13 Acres

Density: 2.8 Units/Gr. Acre

Parking Proposed: 25 parking spaces (12 covered; 1 uncovered; 12 uncovered/guest)
Parking Required: 24 spaces (6 covered; 6 uncovered, 12 uncovered/guest)

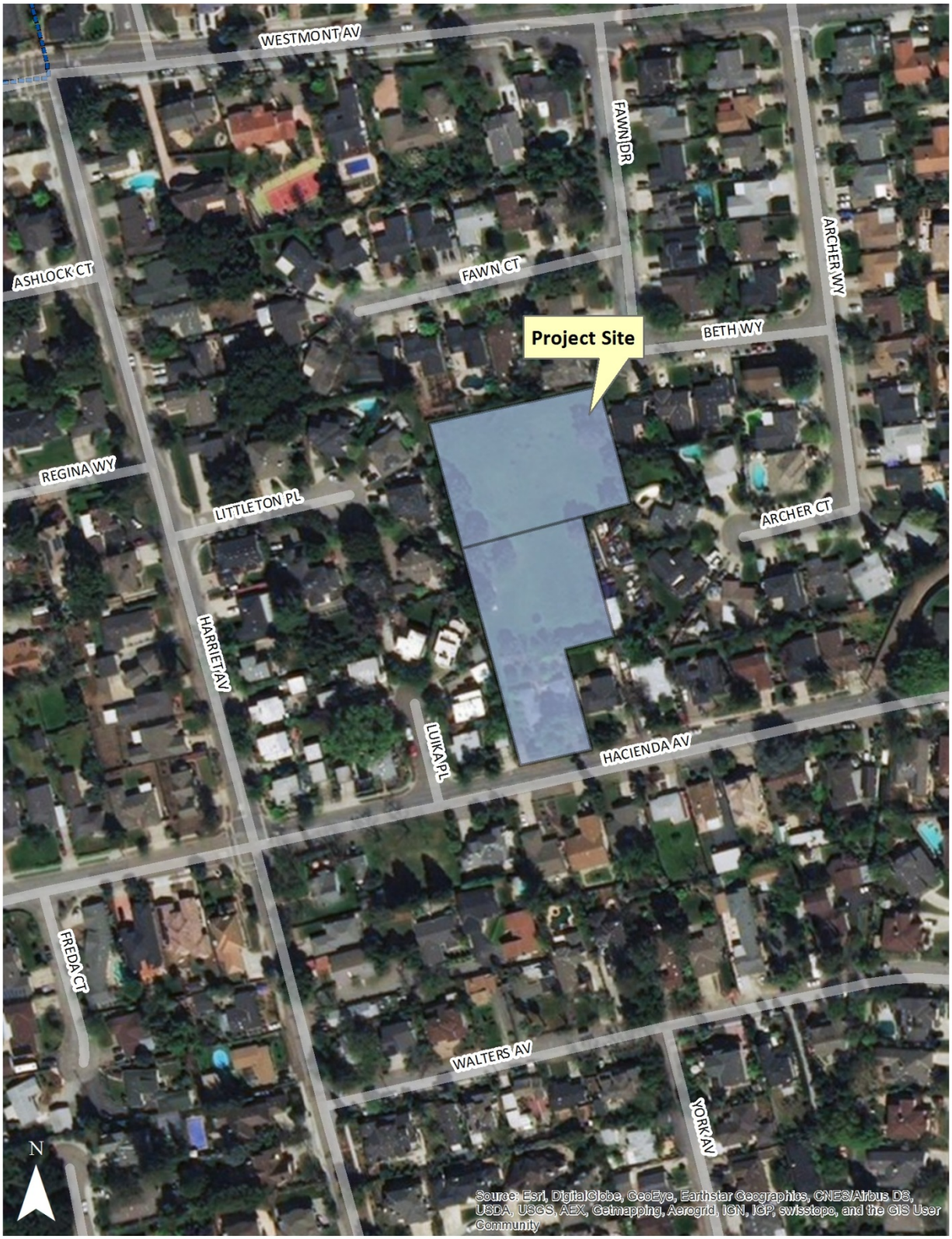
Surrounding Uses

North:	Single-Family Residential (R-1-6 zoning)
South:	Westmont Ave.; Single-Family Res. (R-1-9 zoning) across
East:	Single-Family Residential (R-1-6 zoning)
West:	Single-Family Residential (R-1-9 zoning)

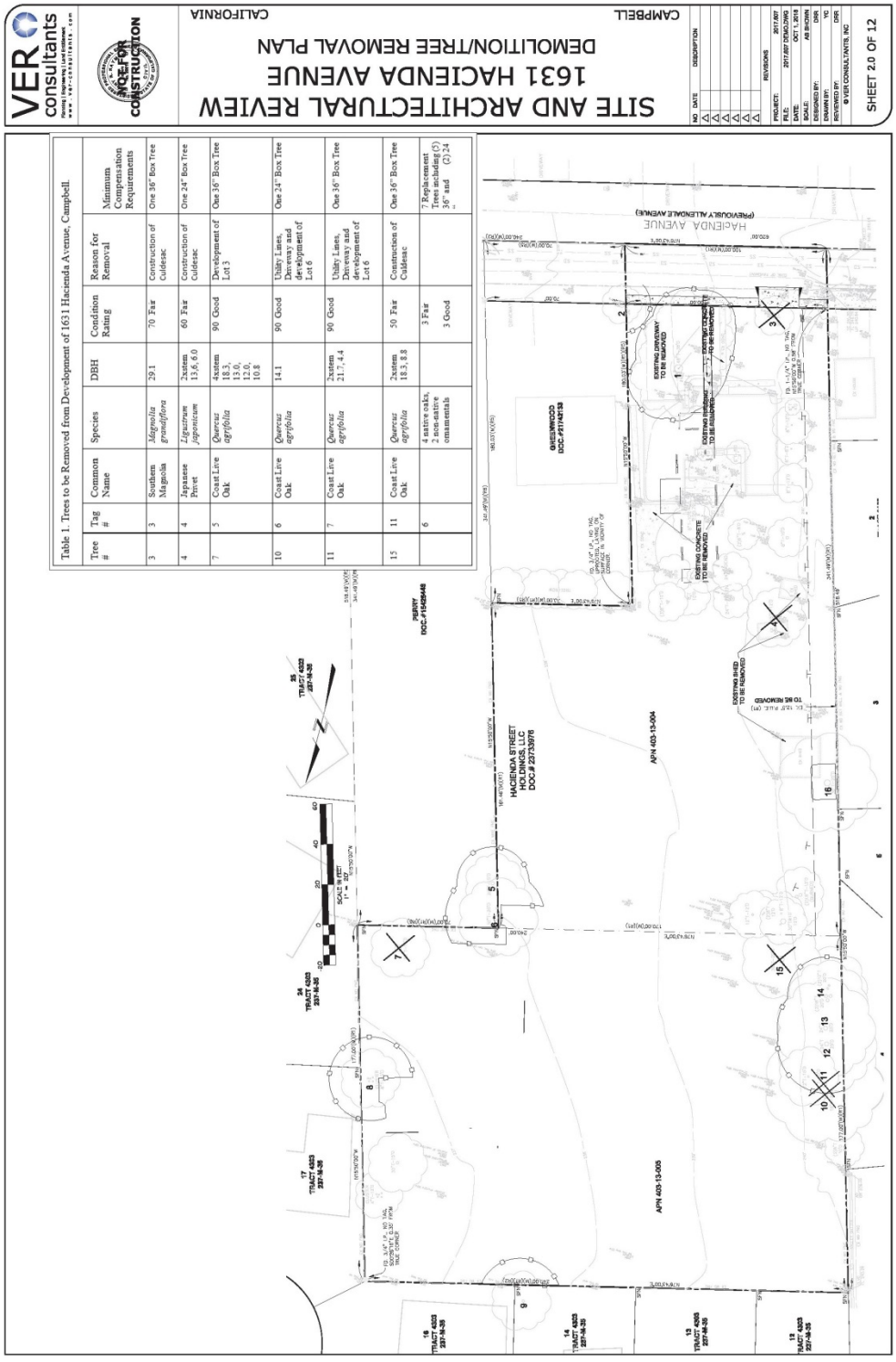
Project Data								
Lot	Lot Size (Sq. ft.)	Building Height (28-ft max)	Living Area		Garage Area	Total Building Area	FAR (.45 max)	Lot Coverage (35% max)
			1st Story	2nd Story				
1*	18,436	28-ft	2,064	2,019	479	4,562	.31	25%
2	10,162	27 ½-ft	1,964	1,842	490	4,295	.42	29%
3	9,480	25 ⅓-ft	2,015	1,647	424	4,086	.43	30%
4	10,035	26 ½ -ft	1,946	1,945	497	4,388	.44	29%
5	9,372	27 ½ -ft	1,914	1,681	461	4,056	.43	30%
6	10,845	25-ft	2,743	1,490	477	4,710	.43	34%

*Lot 1 includes a 1,200 square-foot ADU that is not reflected in the 'Living Area' column, but that is included FAR and Lot Coverage values.

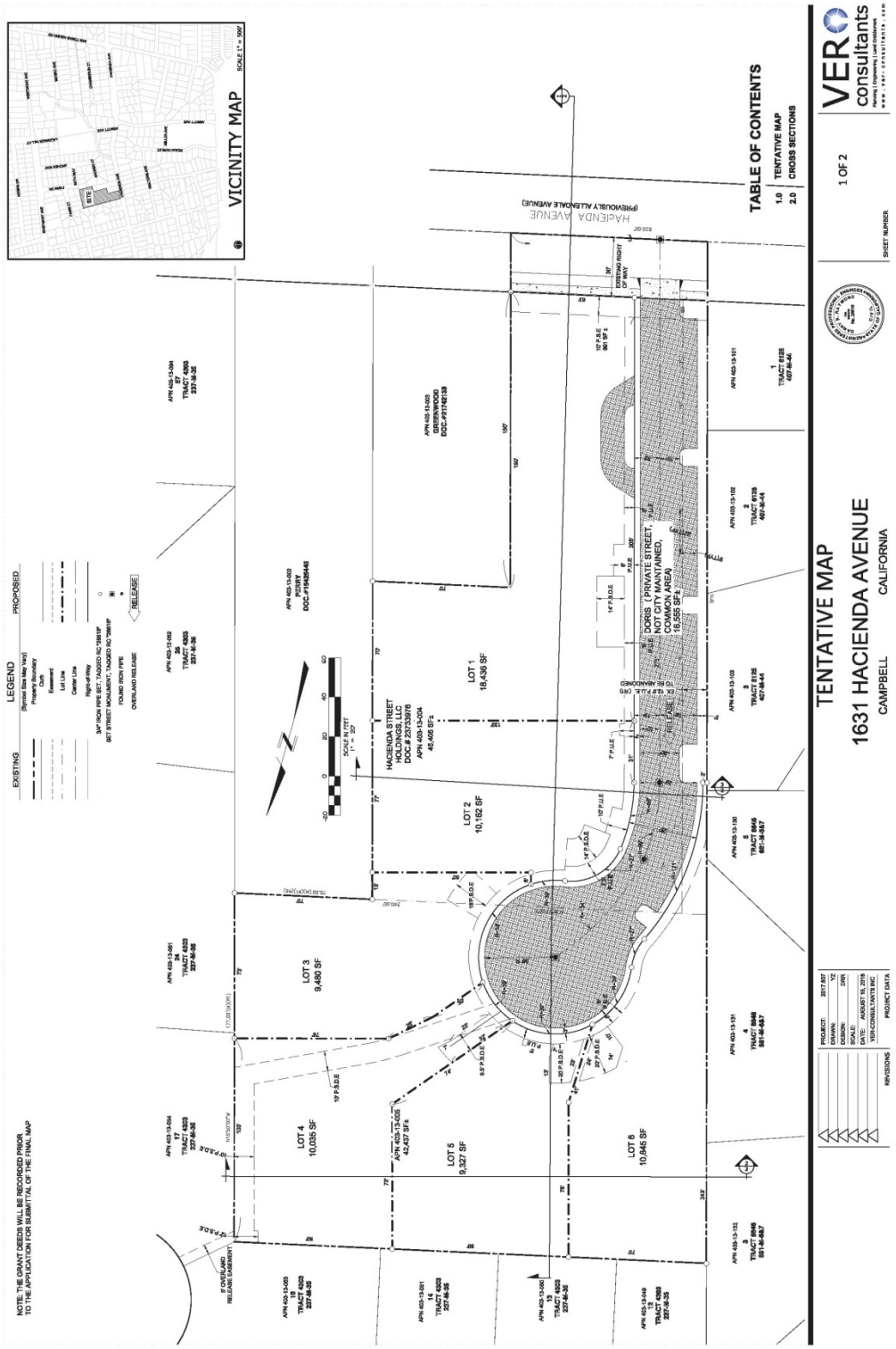
Location Map



Existing Site Configuration / Demolition Plan

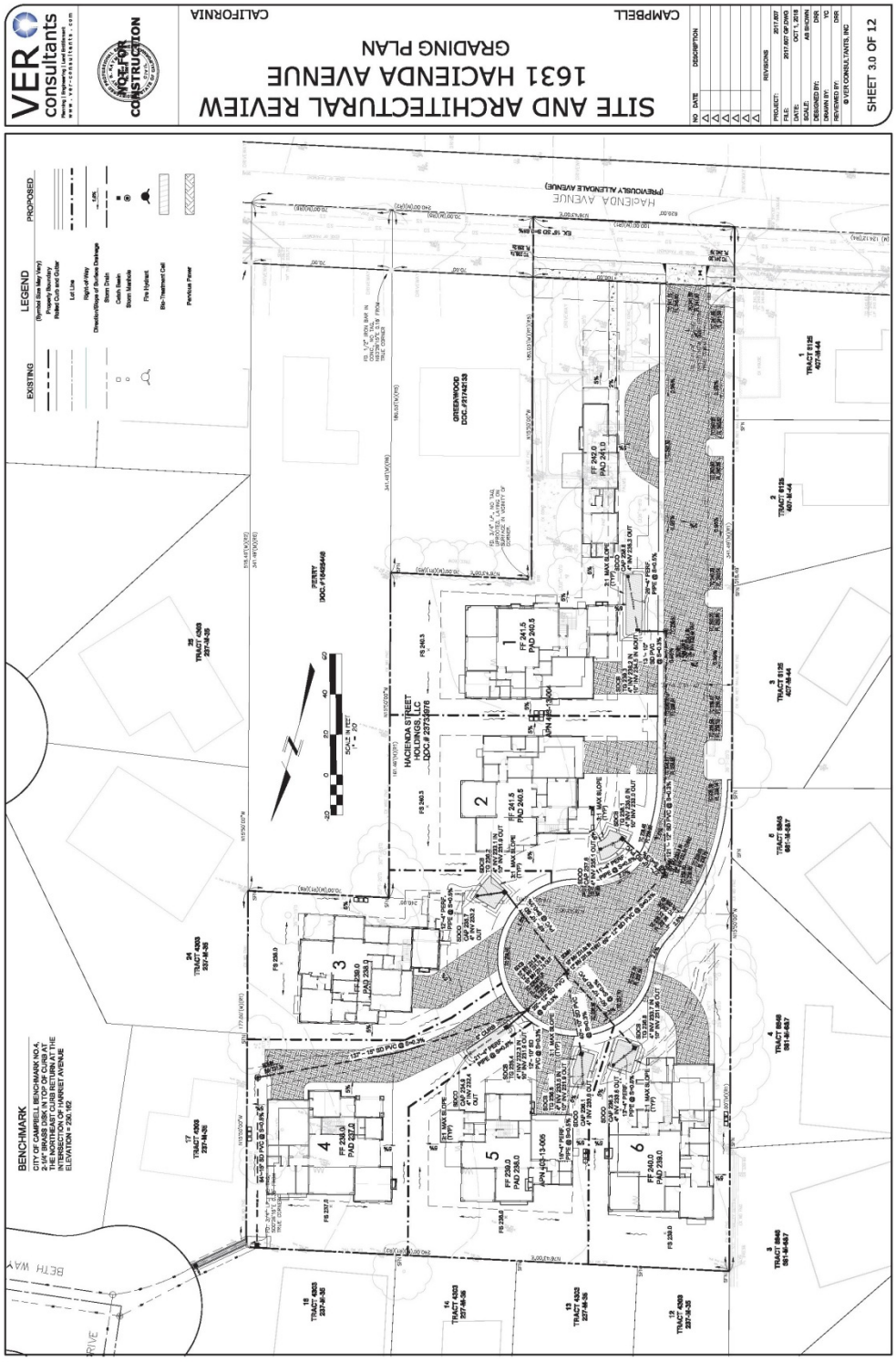


Tentative Subdivision Map

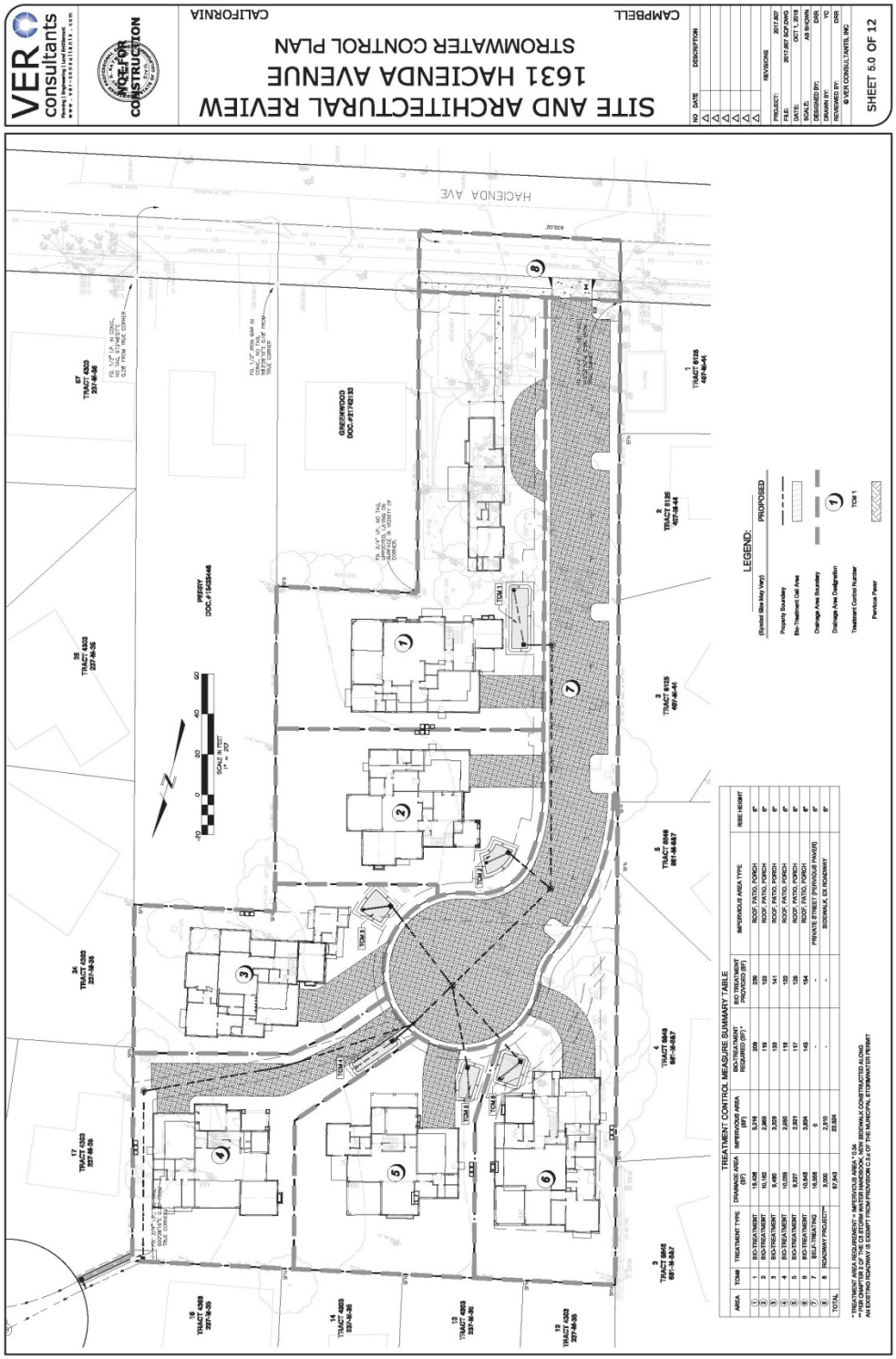


Preliminary Site Plan

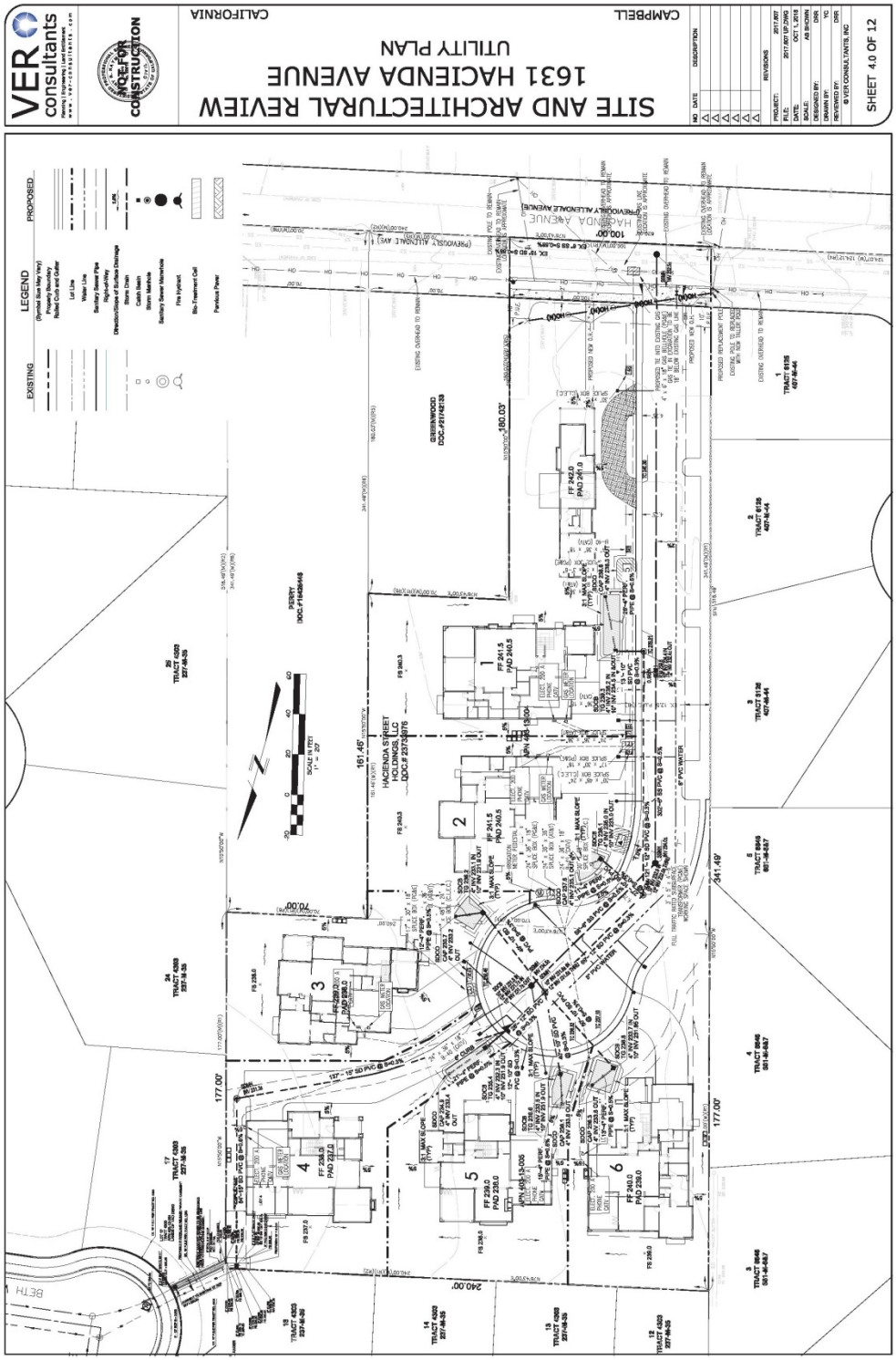
Preliminary Grading and Drainage Plan



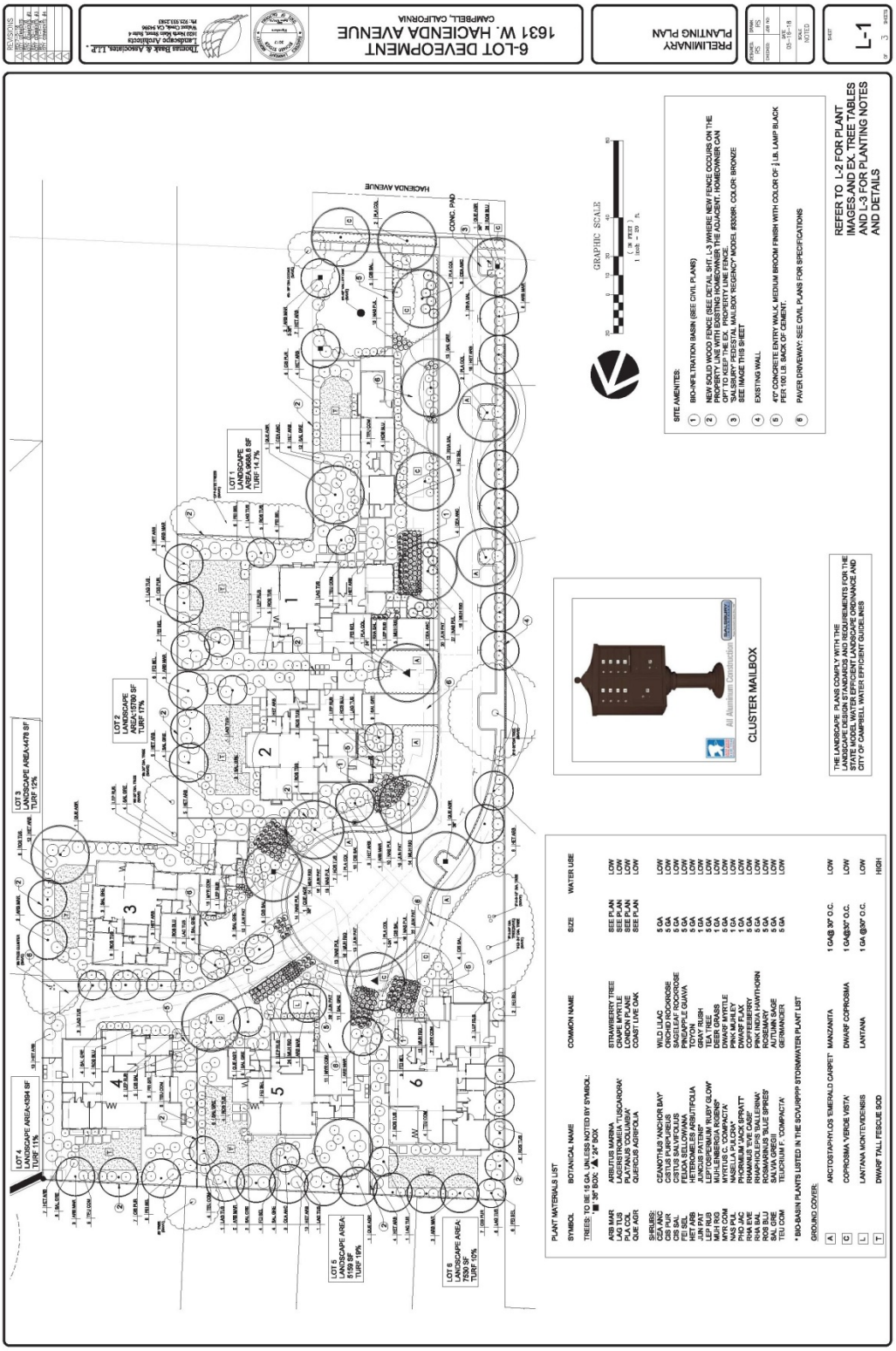
Preliminary Stormwater Treatment Plan



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.

☐ Aesthetics	☐ Agricultural Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology/Soils
☐ Greenhouse Gas Emissions	☒ Hazards/Hazardous Materials	☒ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral/Energy Resources	☒ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/ Circulation	☐ Utilities/Service Systems	☐ Mandatory Findings of Significance

1. AESTHETICS

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
(b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
(c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
(d)	Create a new source of substantial light or glare 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 a six lot planned residential development. 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) – No Impact: Currently, the project site has very limited lighting associated with the existing single-family residence. 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—the project would not result in new sources of substantial light or glare.

Mitigation Measures(s): None Required.

2. AGRICULTURAL RESOURCES

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

(a-c) – No Impact: The project site may have historically been used for agricultural production, but is no longer used for, nor zoned for farmland 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 *Would the project:*		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☐
(b)	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
(c)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
(d)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
(e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

The following discussion is excerpted in part from Air Quality Assessment, prepared by Marc Papineau, Environmental Service, for this project (reference **Attachment 1**).

(a) – Less than Significant Impact with Mitigation: The proposed project would not conflict with the adopted 2017 Bay Area Air Quality Management District Clean Air Plan (CAP) or measures to reduce emissions of multiple pollutants (NOx, ROG, PM2.5, DPM, and CO2) and safeguard public health by reducing exposures to TACs. The 2017 CAP includes in Table 5-1 a list of stationary source control measures to minimize trackout of soil/mud from construction sites and bulk material storage sites. The 2017 CAP includes a control strategy for early deployment of Tier 3 and Tier 4 off-road engines (Tier 3 and Tier 4 are cleaner diesel engines which emit pollutants at substantially lower rates than older Tier 1 and Tier 2 engines).

These control measures are potentially applicable to the project construction as follows: Proposed Regulation 6, Rule 6 (anti-trackout) may be finalized by the time of project construction. Incentives or requirements for construction equipment upgrades (TR22) may enter into proposed TR16 (Indirect Source Review) by the time of project construction.

The proposed project would not conflict with or obstruct implementation of the adopted 2017 CAP. If a proposed ISR regulation becomes effective before permits are obtained, the project would comply with requirements of the ISR regulation as specified by ***Mitigation Measure AQ-1*.**

(b) – Less than Significant Impact with Mitigation: The proposed project is not expected to cause a substantial increase in emissions or substantial increases in any of the criteria air pollutants including ground-level ozone, NO2, SO2, CO, lead, PM10, and PM2.5. Expected emissions were estimated using a standard calculation tool called CalEEMod 2016.3.2, for ROG, NOx, SO2, and CO, PM2.5 and PM10 and also for GHGs. Calculated emissions from project construction are expected to be less than the thresholds of significant effect for annual and average daily emissions of criteria air pollutants or precursors (see Table 3). The emission thresholds of significant effect are 10 tons/year (54 pounds/day) for ROG, NOx, and PM2.5 exhaust) and 15 tons/year (82 pounds/day) for PM10 exhaust. Therefore, the proposed project is not in a class of project that is considered by the BAAQMD to have potential for causing or contributing to a violation of an ambient air quality standard.

Construction of the proposed project would generate approximately 2 tons of CO, approximately 0.14 ton of PM2.5 exhaust and 0.14 ton of PM10 exhaust, less than 0.5 ton of ROG, and less than 3 tons of NOx, total for the construction. Construction-phase emissions were calculated for the unmitigated case using CalEEMod 2016.3.2. To minimize PM emissions from fugitive sources and from unnecessary equipment idling, the contractor will be required to implement Basic Practices listed in ***Mitigation Measure AQ-2.***

(c) – Less than Significant Impact: The SFBA is a non-attainment area for ozone. Ozone precursors, which form ozone in a reaction with sunlight, include ROG and NOx. SFBA will continue to be designated as "non-attainment" for the national 24-hour PM2.5 standard until the BAAQMD submits a re-designation request and a maintenance plan to U.S. EPA and U.S. EPA approves the proposed re-designation.

The proposed project's construction-phase and operations emissions of ROG and NOx, as calculated using CalEEMod 2016.3.2, were found to be lower than the thresholds of significant effect. Therefore, the proposed project's impact on attainment status will be less-than-significant.

(d) – Less than Significant Impact with Mitigation: Sensitive receptors are defined as facilities where children, the elderly, the acutely ill and the chronically ill) are likely to be present. Examples of land uses that can be expected to shelter sensitive receptors include housing, retirement homes, and convalescent homes; schools, child care centers; and, hospitals. Around the project site, sensitive receptors include residences are located at 1147 Drive, 1620 Beth Way, 1575 Archer Court, and 1609 W. Hacienda Avenue. Houses at 1147 Fawn Drive and 1620 Beth Way are located only 5–8 feet from the property line shared with the project site. Additional residences are located at 1673, 1676 and 1688 Littleton Place, and 1649, 1657 and 1665 Luika Place. The separation distance between the project site and these receptors is 20–44 feet.

Prevailing daytime winds during summer are expected to carry air pollution from the construction site toward the southwest, west-southwest, and south-southwest. During June–September, this expectation that air pollution from the construction site would travel toward the west-southwest southwest, and south-southwest is 2x to 3x more likely than advection of air pollution toward the northeast, east, and southeast.

Sensitive receptors around the project site and the project site itself are not located in one of the BAAQMD-designated Community Air Risk Evaluation (CARE) priority communities. The nearest CARE priority community is located a substantial distance east of the project site in San Jose. Sensitive receptors around the project site and the project site itself also are not located within 1,000 feet of any stationary source of Toxic Air Contaminants (TACs). If the project site were located within 1,000 feet of any stationary source of TACs, additional mitigation measures could be appropriate to reduce diesel PM emitted during project construction.

The proposed project is not expected to generate significant recurring emissions of criteria air pollutants or TACs. Construction-phase emissions of ROG, NOx, PM2.5 exhaust and PM10 exhaust were found not to exceed thresholds of significant effect. Therefore, the proposed project is not in a class of project that is considered to have potential for causing or contributing to a violation of criteria air pollutant standards during construction. Potential nuisance conditions such as high dust levels can be avoided by implementing Construction Basic Practices as identified by ***Mitigation Measure AQ-2***.

For specific avoidance of potential adverse health effects of diesel particulate matter (DPM), it is impractical to rely on safe separation distance since the first-tier residential receptors are located only 5–44 feet from the project site boundary. To minimize dust and DPM in equipment exhaust the measures identified in ***Mitigation Measure AQ-2*** as well as those provided in ***Mitigation Measure AQ-3*** will be implemented.

(e) – Less than Significant Impact: Potential malodors from construction exhaust can be avoided by Basic Practice. Separation distance from the nearest houses is insufficient to minimize the potential for odor nuisance conditions during paving. Potential for paving-related odor can be reduced by avoiding delivery and use of asphalt that is too hot.

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

Mitigation Measure AQ-1*:* Provisions for trackout control of soil/mud from project construction will be implemented as best practices BP6 and BP7 described in Table A-5 of the Air Quality Assessment, prepared by Marc Papineau, Environmental Service, restated as follows:

- **BP6** - Wash off all haul trucks and equipment, including their tires, before leaving the site.
- **BP7** - Treat entries to a distance of 100 feet from a paved road with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.

Mitigation Measure AQ-2*:* To minimize PM emissions from fugitive sources and from unnecessary equipment idling, the contractor will be required to implement the Basic Practices described in Table A-5 of the Air Quality Assessment, prepared by Marc Papineau, Environmental Service, restated as follows:

- **A1** - Watered at least two times per day exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads).
- **A2** - Cover haul trucks transporting soil, sand, or other loose material to or from the site.
- **A3** - Remove visible mud or dirt track-out onto adjacent public roads using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- **A4** - Limited vehicle speeds 15 mph on unpaved roads.
- **A5** - Pave roadways, driveways, and sidewalks as soon as possible.
- **A6** - Minimize idling times 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.
- **A7** - Maintain and properly tune all motorized construction equipment 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. This includes proper functioning of Level 3 VDECS for reduction of diesel particulate emissions.
- **A-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.

Mitigation Measure AQ-3*:* The following measures shall be adhered during constructions:

- To reduce downwind concentrations of DPM to 15 percent of the uncontrolled concentrations, use Tier 4 non-road construction equipment and/or Tier 2 or Tier 3 non-road equipment retrofitted with a Level 3 Verified Diesel Emission Control Strategy (VDECs).
- Prohibit portable diesel engines where access to alternative sources of power are available.
- Restrict idling to two minutes during idle episodes.
- Properly maintain and tune equipment in accordance with manufacturer specifications.

Note: If additional buffer, windbreak or privacy fence measures are attempted, these would have to be constructed before demolition or before grading. In this case, landscaped buffers, street or driveway buffers, and privacy fencing are secondary or supplemental and cannot be substituted for the recommended Basic Practices or Construction Best Practices

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4. BIOLOGICAL RESOURCES

Issues *Would the project:*		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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 Report, prepared by Live Olberding Environmental (reference **Attachment 2**) and Revised Arborist Evaluation and Tree Protection Plan, prepared by Live Oak Associates (reference **Attachment 3**), for this project

(a-d) – Less than Significant Impact with Mitigation: On January 10, 2018, Olberding Environmental, Inc. conducted a field reconnaissance survey of the Hacienda Avenue Property (Property) for the purpose of identifying sensitive plant and wildlife species, sensitive habitats, and biological constraints potentially occurring on the Property.

Results of this initial reconnaissance survey indicate that the Property does not appear to contain wetlands/waters that are considered potentially jurisdictional by the U.S. Army Corps of Engineers (Corps) because the site lacks evidence of all three parameters (wetland soils, hydrology, and vegetation) that are used to indicate wetlands.

A query of the California Natural Diversity Database (CNDDB) showed that eight special-status plant species have been observed within five-miles of the Property. However, none were identified as having a potential to occur based on the absence of suitable habitat on the Property for these species.

A total of seven bird species were identified as having the potential to occur on or adjacent to the Property. The following four bird species have a moderate potential to occur in a foraging capacity only: red-shouldered hawk (*Buteo lineatus*), white-tailed kite (*Elanus leucurus*), American kestrel (*Falco sparverius),* and sharp-shinned hawk (*Accipiter striatus*). The red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk (*Accipiter cooperii*), and loggerhead shrike (*Lanius ludovicianus*) have a moderate potential to occur in a foraging and nesting capacity. Due to lack of suitable habitat (ground squirrel burrows and cattails) the burrowing owl (*Athene cunicularia*) and tri-colored

blackbird (*Agelaius tricolor*) are presumed absent. If project construction-related activities such as tree and vegetation removal or grading take place during the nesting season (February through August), preconstruction surveys for nesting passerine birds and raptors are recommended. These measures are identified as ***Mitigation Measure BIO-1***.

No evidence of bat use was observed on the Property during the January 2018 survey; however, based on habitat suitability, it was determined that bats have a low to moderate potential to utilize the site in a foraging or roosting capacity. These bat species include: pallid bat (*Antrozous pallidus*), western red bat (*Lasiurus blossevillii*), and hoary bat (*Lasiurus cinereus).* This holds especially true for the empty structure on the western edge of the Property. If project construction-related activities such as tree removal or building demolition take place it is recommended that a bat habitat assessment should be conducted by a qualified bat biologist during seasonal periods of bat activity, from May through October, to determine suitability of the on-site habitat. If special-status bat species are discovered, construction activities may be timed to minimize impacts and additional mitigation may be required. These measures are identified as ***Mitigation Measure BIO-2***.

The CNDDB has listed occurrences of the California red-legged frog (*Rana draytonii*) (CRLF), and California tiger salamander (*Ambystoma californiense*) (CTS) within a 5-mile radius of the Property. However, due to the historic nature of the occurences, the lack of suitable habitat for each and the surrounding residential development, it is unlikely that these species could use the Property for dispersal and both of these species are presumed absent from the Property.

(e) – Less than Significant Impact with Mitigation:

The City of Campbell's Municipal Code, Chapter 21.32 protects certain trees located on private property. It establishes "policies, regulations and standards to protect and manage trees on private property, recognizing the substantial aesthetic, environmental, and economic importance of trees."

Section 21.32.050 (Protected Trees) provides guidance regarding which trees are protected and, therefore, require approval in the form of a tree removal permit:

> 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.

Trees smaller than the minimum threshold presented in Section 21.32.050, as well as fruit (common to food production) and eucalyptus trees are not subject to the City's tree protection ordinance. Several trees on the site would be considered protected trees under the ordinance, and, although their removal would be considered a less-than-significant biological impact, a Tree Removal Permit is required for their removal. However, various trees to be retained could be impacted by construction activity. The Revised Arborist Evaluation and Tree Protection Plan, prepared by Live Oak Associates (reference **Attachment 3**), provides various tree protection recommendations that have been incorporated as ***Mitigation Measure BIO-3***.

(f) – No Impact: No adopted Habitat Conservation Plan, Natural Community Conservation Plan or approved local, regional or state habitat conservation plans apply to the project or the project site.

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

Mitigation Measure BIO-1: **Pre-Construction Avian Survey** – If project construction-related activities would take place during the nesting season (February through August), preconstruction surveys for nesting passerine birds and raptors (birds of prey) within the Property and the large trees within the adjacent riparian area should be conducted by a competent biologist 14 days prior to the commencement of the tree removal or site grading activities. If any bird listed under the Migratory Bird Treaty Act is found to be nesting within the project site or within the area of influence, an adequate protective buffer zone should be established by a qualified biologist to protect the nesting site. This buffer shall be a minimum of 75 feet from the project activities for passerine birds, and a minimum of 200 feet for raptors. The distance shall be determined by a competent biologist based on the site conditions (topography, if the nest is in a line of sight of the construction and the sensitivity of the birds nesting). The nest site(s) shall be monitored by a competent biologist periodically to see if the birds are stressed by the construction activities and if the protective buffer needs to be increased. Once the young have fledged and are flying well enough to avoid project construction zones (typically by August), the project can proceed without further regard to the nest site(s).

Mitigation Measure BIO-2: **Pre-construction Bat Survey –** To avoid "take" of special–status bats, the following mitigation measures shall be implemented prior to the removal of any existing trees or structures on the project site:

- A bat habitat assessment shall be conducted by a qualified bat biologist during seasonal periods of bat activity (mid–February through mid–October. Feb. 15 – Apr. 15, and Aug. 15 – October 30), to determine suitability of each existing structure as bat roost habitat.
- Structures found to have no suitable openings can be considered clear for project activities as long as they are maintained so that new openings do not occur.
- Structures found to provide suitable roosting habitat, but without evidence of use by bats, may be sealed until project activities occur, as recommended by the bat biologist. Structures with openings and exhibiting evidence of use by bats shall be scheduled for humane bat exclusion and eviction, conducted during appropriate seasons, and under supervision of a qualified bat biologist.
- Bat exclusion and eviction shall only occur between February 15 and April 15, and from August 15 through October 30, in order to avoid take of non–volant (non–flying or inactive, either young, or seasonally torpid) individuals.

OR

A qualified wildlife biologist experienced in surveying for and identifying bat species should survey the portion of the mixed oak woodland and mixed riparian habitats if tree removal is proposed to determine if any special–status bats reside in the trees. Any special–status bats identified should be removed without harm. Bat houses sufficient to shelter the number of bats removed should be erected in open space areas that would not be disturbed by project development.

Mitigation Measure BIO-3: The following tree protection measures will be implemented to minimize harmful effects to the remaining trees located on or immediately adjacent to the site:

- Work within the vicinity of the trees to be retained will be scheduled for fall or winter when trees are dormant or semi-dormant.
- Prior to any site preparation or construction work, all trees should have a protective buffer (six feet tall chain link fence) extending beyond the dripline of the canopy (tree protection zone)(TPZ), or the greatest feasible distance from the trunk as possible. Grading, deposition of fill, equipment storage, removal of soil, irrigation, or any other activities that may be detrimental to the health of the trees are strictly forbidden within the tree protection zone for the duration of site work. It is the ultimately applicants' responsibility to ensure that the fencing remains intact and that the tree is not damaged during construction. Tree protection locations should be marked before any fence contractor arrives.
- 8.5 x 11" signs will be placed on the construction fencing (not on the trunks of the trees) stating that all areas within the fencing are Tree Protection Zones (TPZ) and that disturbance is prohibited.
- Pruning of limbs to provide clearance for structures, vehicular traffic, and construction equipment shall be performed during the fall or winter semi-dormant period and will conform to American National Standards Institute (ANSI) tree pruning standards. All tree pruning or removals shall be performed by a qualified arborist with a C-61/D-49 California Contractors License. Avoid aesthetic pruning immediately before, during or after construction impact. Perform only that pruning of dead limbs or those which conflict with the proposed development.
- Tree maintenance and care shall be specified in writing according to American National Standard for Tree Care Operations: Tree, Shrub and Other Woody Plant Management: Standard Practices parts 1 through 10 and adhere to ANSI Z133.1 safety standards and local regulations.
- Engineer site improvements so that water runoff will not slope toward the trunks. In areas where the proposed elevation of nearby development lies above the elevation of the oak tree, swales have been incorporated into the design to direct water away from the oak trees.
- Soak the ground beneath the canopy of each tree prior to, during, and right after construction. This deep watering method consists of a slow, all-day soaking within the root zone.
- If possible, construct the project with minimal filling, excavating, or trenching within the root zone. Minimize compaction within the root zone to the greatest extent practicable. Keep the elevation of the soil surface at the existing level within the protected area around the trunk. Do not stockpile any construction material within the root zone, even temporarily.
- Should any roots need to be severed during construction, cover any exposed or cut roots with burlap, soil or mulch as soon as possible until the native soil can be backfilled. If possible, use sharp tools (chainsaw or axe) for pruning roots. Using hand tools will help to heal the wounded roots more quickly than pruning with bulldozers, and will better avoid tearing of the roots behind the cuts. If excavation is for installation of underground utilities, roots should be left intact and lines will be treaded underneath the roots.

5. CULTURAL RESOURCES

Issues *Would the project:*		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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. GEOLOGY AND SOILS

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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 concluded that the property of liquefaction of the site is low due to the medium to dense sandy gravel. 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: The project's preliminary grading, draining, and utility plan, indicates the project would include non-substantial grading, which would not result in substantial soil erosion or the loss of topsoil.

(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, a Geotechnical Engineering Study prepared for this project (reference **Attachment 4**) evaluated the geotechnical conditions of the site. The review included seven exploratory drill borings drilled to a maximum depth of 15 feet below

ground surface (to obtain samples for laboratory tests). 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 Updated Geotechnical Engineering Study, dated April 12, 2018 prepared by Earth Systems Pacific. 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.

7. GREENHOUSE GAS EMISSIONS

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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 Assessment, prepared by Marc Papineau, Environmental Service, for this project (reference **Attachment 1**).

(a) – Less than Significant Impact: During the construction period, the proposed project could generate up to 291 metric tons of CO2 equivalent (291 MT CO2e) over the period of construction. Construction of the proposed project could generate 152 MT CO2e in 2018 and 139 MT CO2e in 2019. During operations, the proposed project could generate 99 MT CO2e/year based on year 2019 mobile emission rates. Emissions of GHGs here represent the unmitigated case or "business as usual."

The BAAQMD published CEQA Air Quality Guidelines in 2017 which no longer recommend a specific threshold of significant effect for construction-phase GHG emission. However, operations-related emissions have thresholds of 1,100 MT CO2e/year or 4.6 MT CO2e per project service population per year (4.6 MT CO2e/SP/year). Few jurisdictions have formally adopted a threshold. The City and many other local jurisdictions consider GHG emission less than 1,100 MT CO2e/year as being less-than-significant.

Annualized construction and operations emissions of GHGs here are compared to 4.6 MT CO2e/SP/year. For housing, 25-30 years is a fair period for annualization, as houses less than 30 years old would not usually be replaced or have substantial repairs other than roof replacement, for example. Annualized construction-related emission of GHGs (291 MT CO2e), therefore, is equivalent to approximately 10 MT CO2e/year. Added to operations emission of GHGs (99 MT CO2e/year based on year 2019 mobile emission rates) this yields conservatively a total of 109 MT CO2e/year. For the service population (SP) of 24 persons, annualized GHG emissions are equivalent to 4.5 MT CO2e/SP/year, which is less than the published threshold (4.6 MT CO2e/SP/year).

(b) – No Impact: The proposed project would not conflict with or preclude implementation of relevant policies in the 2017 CAP or any other relevant Climate Action Plan, Green Building Ordinance, or other conservation measures as required in the Building Standards Code and CalGREEN. The project site has not been identified as a regional priority development area or locally for residential and commercial mix-use development or transit-oriented development.

Mitigation Measure(s): None Required.

8. HAZARDS AND HAZARDOUS MATERIALS

Issues *Would the project:*		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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 complied 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?	☐	☐	☐	☒

(a-b) – Less than Significant Impact with Mitigation: No routine transport, use or disposal of hazardous materials would be associated with the project. A slight hazardous potential would exist during the demolition of the existing structures (i.e., presence of lead and/or asbestos) and project construction when materials and construction equipment are at the site; however, long-term hazard risk is very low. With incorporation of ***Mitigation Measure HAZ-1***, which requires qualified contractors assess the presence of the lead and asbestos in order to property manage and dispose of such materials, the project would not 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.

Hazard risks during construction would be regulated by the City's standard conditions of approval and will be required to be performed in accordance with state and federal hazardous materials regulations and current Best Management Practices (BMP's) for construction activities. The use of toxic chemicals for landscaping (pesticides, herbicides, etc.) will not be above what is generally required for landscape maintenance and is not considered significant.

(c) – Less than Significant Impact with Mitigation: The operation of the project will not include hazardous emission or handling of hazardous or acutely hazardous materials, substances. Further, as discussed in Section 3 (Air Quality), construction and demolition related air pollutants that may constitute a hazard are regulated through Best Management Practices as required by City Ordinances and reiterated through ***Mitigation Measure AIR-2***. This will limit hazardous emissions in proximity to the nearby Westmont High School to a less than significant degree.

(d) – No Impact: The project site is not listed on the Hazardous Waste and Substances Sites List (available at http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm) 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/). Lastly, Additionally, a Phase I Environmental Site Assessment (reference **Attachment 5**) did not identify any '"recognized environmental conditions"—meeting the standard set forth by American Society for Testing and Materials (ASTM)—that could be considered "significant effect" under CEQA (Guideline § 21068).

(e-f) – No Impact: The project site is not located within the Santa Clara County Airport Land Use Commission jurisdiction, within two miles of a public airport or within the vicinity of a private airstrip.

(g) – No Impact: The project would not interfere with emergency response or evacuation plans. Sufficient emergency access and emergency services staff would be provided for the project site in compliance with the State of California Building Code Standards and requirements of the Santa Clara County Fire and Health Departments.

(h) – No Impact: The project site is not located near any wildland areas and would not cause an increase in wildland fire hazard.

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

> ***Mitigation Measure HAZ-1***: Prior to issuance of a demolition permit, a qualified contractor shall assess the property for presence of Lead-based paint (LBP) and Asbestos containing building materials (ACBM), and if present, prepare a plan, to the satisfaction of the Building Official, to properly manage and dispose of such materials.

9. HYDROLOGY AND WATER QUALITY

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
(b)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in a substantial erosion or siltation on- or off-site.	☐	☐	☐	☒
(c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒
(d)	Create the potential for significant changes in the flow velocity or volume of stormwater runoff to cause environmental harm?	☐	☐	☐	☒
(e)	Create significant increases in erosion of the project site or surrounding areas?	☐	☐	☐	☒
(f)	Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
(g)	Otherwise substantially degrade water quality?	☐	☐	☒	☐
(h)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
(i)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
(j)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
(k)	Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒
(l)	Potentially impact stormwater runoff from construction activities?	☐	☒	☐	☐
(m)	Potentially impact stormwater runoff from post-construction activities?	☐	☐	☒	☐
(n)	Result in a potential for discharge of stormwater pollutants from areas of material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas, loading docks or other outdoor work areas?	☐	☐	☒	☐
(o)	Result in the potential for discharge of stormwater to affect the beneficial uses of the receiving waters?	☐	☐	☒	☐
(p)	Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐

(a) – 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 6**). No violations of any water quality standards are expected from the project. The project would not directly deplete groundwater supplies (no wells) or interfere substantially with groundwater recharge (the project is evaluated for the 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.

(b-e) – No Impact: The project would entirely alter the existing drainage pattern of the project site through re-grading to accommodate residential development. As discussed below, the project includes

advanced stormwater treatment and retention that will prevent erosion, siltation, runoff related flooding, or increases in flow velocity or volume of stormwater runoff. The changes to the project site as a result of on-site improvements will not substantially alter the existing drainage pattern of the surrounding area, alter the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site.

(**f-g, m-p**) **– Less than Significant Impact**: In compliance with Provision C.3 of the National Pollution Discharge Elimination System (NPDES), the project incorporates stormwater management measures. The project's stormwater treatment plan indicates use of private bio-retention areas (vegetated swales) that allow water to percolate into the ground through a passive (natural) infiltration medium before flowing to a central storm drain within the street. The proposed treatment system 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.

(h to i) – No Impact: According to the Federal Emergency Management Agency Flood Insurance Rate Maps (https://msc.fema.gov), the project site is located in Zone X, an area determined to be outside the 100-year annual chance floodplain.

(j and k) – No 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 is only would not expose any additional people or structures to a new significant risk of loss, injury, or death involving flooding. 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.

(l) – Less than Significant Impact with Mitigation: As discussed in Section 3 (Air Quality), construction and demolition activities are regulated through Best Management Practices as required by City ordinances and reiterated by ***Mitigation Measure AQ-2***, which is designed to limit air and water contamination related to construction activity. With the implementation of this measure, as well as ***Mitigation Measure HAZ-1*** which requires qualified contractors assess the presence of the lead and asbestos in order to property manage and dispose of such materials, the project would not 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.

Mitigation Measure(s): None Required.

10. LAND USE and PLANNING

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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 4.5 units/gr. acre)* and R-1-9 (Single-Family Residential), respectively. The project would result in the creation of six residential parcels and a common lot at a density of 2.8 units per gross acre and rezone the property to P-D (Planned Development) which allows for residential development within this density range. 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.

11. MINERAL RESOURCES

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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.

12. NOISE

Issues *Would the project:*		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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 Community Noise Assessment, prepared by Marc Papineau, Environmental Service, for this project (reference **Attachment 7**).

(a) – No Impact: 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 for this project (reference **Attachment 7**), which determined that the proposed project would be located in an area having a quiet community noise environment of CNEL 60 dBA or below and that project–related traffic would not add substantially to existing or forecast noise levels.

(b) – Less than Significant Impact with Mitigation

The project is not in a class of projects having normal potential for generating vibration or groundborne noise. Vibration generated during construction earthwork (e.g., vibratory compaction) would be temporary and could be controlled by construction mitigation measures provide in ***Mitigation Measure NOI-1*** if vibration-generating construction activity would be very close to an adjoining house.

(c) – No Impact: The proposed project would generate some traffic on local surface streets. The amount of added traffic could be expected to be less than 24–28 vehicles in any hour of the day. The projected noise increase would be well less than +0.5 dBA on W. Hacienda Avenue and Westmont Avenue. Residential noise on private property or "across the fence" would be subject to the City's Municipal Code.

(d) – Less than Significant Impact with Mitigation: The construction-phase of the proposed project could be expected to generate substantial temporary or periodic noise during certain procedures such as sawing for framing and interior finish work, nailing, and grading. These noises would not be permanent and, for any given receptor, would vary over time depending on the location of work on the project site and separation distance.

Framing involves the use of pneumatic tools such as nailing guns and other hand tools such as hammers and saws. The final phase is interior work, which tends to be less intrusive since much of the work and noise occurs indoors.

Construction of the project might result in temporary elevated noise levels at existing adjacent land uses, which includes residences. Construction activities are expected to include demolition, grading, minor excavation and trenching, concrete foundation, structural framing, exterior finishes, interior framing and finishing. The highest noise levels are expected when heavy machinery is in use. Typical noise levels from these activities range from 80 to 90 dBA at 50 feet.

The City's Municipal Code stipulates that work is to be controlled to avoid a public noise nuisance. In compliance with Section 18.04.052 of the Municipal Code, private construction (*e.g.*, construction, alteration or repair activities) between the hours of 8 a.m. and 5 p.m. Monday through Friday, and between the hours of 9 a.m. and 4 p.m. Saturday. Work shall be prohibited on Sundays and Holidays. The community development director may impose further limitations on the hours and day of construction or other measures to mitigate significant noise impacts on sensitive uses.

To minimize potential for noise nuisance and the chance of neighbor complaints, the following requirements provided in ***Mitigation Measure NOI-2*** will be implemented.

(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):

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

- Notify the City and neighbors in advance of the schedule for each major phase of construction and expected loud activities or impulsive noise activities (*e.g.*, nail guns during framing).
- When feasible, select "quiet" construction methods and equipment. Examples include: 1) using electrical service rather than portable power generators and 2) using rollers rather than vibratory compactors.
- Locate noisy stationary equipment (*e.g.*, compressors) and material unloading and staging areas away from the nearest adjacent uses, such as the Luika Place residences to the southwest and west of the project site.

Mitigation Measure NOI-2: The following measures shall be implemented during construction:

- Require posted signs at the construction site, which provide the permitted construction days and hours, a day and evening contact number for the job site and a day and evening contact number for the City in the event of problems.

- Notify the City and neighbors in advance of the schedule for each major phase of construction and expected loud activities or impulsive noise activities (e.g., nail guns during framing).
- When feasible, select "quiet" construction methods and equipment. Examples include: 1) using electrical service rather than portable power generators and 2) using rollers rather than vibratory compactors.
- Locate noisy stationary equipment (e.g., compressors) and material unloading and staging areas away from the nearest adjacent uses, such as the Luika Place residences to the southwest and west of the project site.
- Require that all construction equipment (e.g., excavators, backhoes) be in good working order and that mufflers are installed and functioning properly. Avoid unnecessary idling of diesel engines.
- Designate a Construction Noise Coordinator. The designated Construction Noise Coordinator would be responsible for posting the required signs, explaining the construction timeline, responding to potential complaints from neighbors, and managing noise through appropriate work practices or other measures.

13. POPULATION AND HOUSING

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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 six single-family residential units and one accessory dwelling unit on a property identified by the Campbell General Plan Housing Element as being suitable and appropriate for housing. The introduction of six single-family residences and one accessory dwelling unit 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 occupied by the property owner and construction of six new residential units and one accessory dwelling unit. Therefore the project will not result in the displacement of any people or housing units, which would necessitate the construction of replacement housing elsewhere.

Mitigation Measure(s): None Required.

14. PUBLIC SERVICES

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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.

15. RECREATION

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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: Residents of the project are likely to access nearby recreational facilities. However, due to the limited scope and scale of the project, only a nominal increase in the use of City and regional parks and other recreational facilities can be expected as a result of the project. Moreover, the applicant will be required to pay park fees for the creation of new residential units less a credit for the removal existing units.

(b) – No Impact: The project does not any include recreational facilities.

Mitigation Measure(s): None Required.

16. TRANSPORTATION and TRAFFIC

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
(b)	Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
(c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
(d)	Substantially increase hazards due to a design feature (e. g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
(e)	Result in inadequate emergency access?	☐	☐	☐	☒
(f)	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.	☐	☐	☐	☒

(a) – No Impact: The proposed project would maintain a residential land use consistent with the anticipated density of the General Plan Roadway Classification Diagram (Figure LUT-3).

(b) – No Impact: The project will not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

(**c) – No Impact**: The proposed private roadway is designed consistent with public roadway standards for residential streets as determined by the City Engineer and would not result in hazards due to a design features or incompatible uses.

(e) – 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.

(f) – 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.

Mitigation Measure(s): None Required.

17. UTILITIES and SERVICE SYSTEMS

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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 9 (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 6**).

(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.

18. 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**: Three mitigation measures are required:

   Mitigation Measure AQ-1*:* Provisions for trackout control of soil/mud from project construction will be implemented as best practices BP6 and BP7 described in Table A-5 of the Air Quality Assessment, prepared by Marc Papineau, Environmental Service, restated as follows:

   - **BP6** - Wash off all haul trucks and equipment, including their tires, before leaving the site.
   - **BP7** - Treat entries to a distance of 100 feet from a paved road with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.

   Mitigation Measure AQ-2*:* To minimize PM emissions from fugitive sources and from unnecessary equipment idling, the contractor will be required to implement the Basic Practices described in Table A-5 of the Air Quality Assessment, prepared by Marc Papineau, Environmental Service, restated as follows:

   - **A1** - Watered at least two times per day exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads).
   - **A2** - Cover haul trucks transporting soil, sand, or other loose material to or from the site.
   - **A3** - Remove visible mud or dirt track-out onto adjacent public roads using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited**.**
   - **A4 -** Limited vehicle speeds 15 mph on unpaved roads.
   - **A5** - Pave roadways, driveways, and sidewalks as soon as possible.
   - **A6** - Minimize idling times 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.
   - **A7** - Maintain and properly tune all motorized construction equipment 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. This includes proper functioning of Level 3 VDECS for reduction of diesel particulate emissions.
   - **A-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.

Mitigation Measure AQ-3*:* The following measures shall be adhered during constructions:

- To reduce downwind concentrations of DPM to 15 percent of the uncontrolled concentrations, use Tier 4 non-road construction equipment and/or Tier 2 or Tier 3 non-road equipment retrofitted with a Level 3 Verified Diesel Emission Control Strategy (VDECs).
- Prohibit portable diesel engines where access to alternative sources of power are available.
- Restrict idling to two minutes during idle episodes.
- Properly maintain and tune equipment in accordance with manufacturer specifications.

  Note: If additional buffer, windbreak or privacy fence measures are attempted, these would have to be constructed before demolition or before grading. In this case, landscaped buffers, street or driveway buffers, and privacy fencing are secondary or supplemental and cannot be substituted for the recommended Basic Practices or Construction Best Practice.

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

Mitigation Measure BIO-1: **Pre-Construction Avian Survey** – If project construction-related activities would take place during the nesting season (February through August), preconstruction surveys for nesting passerine birds and raptors (birds of prey) within the Property and the large trees within the adjacent riparian area should be conducted by a competent biologist 14 days prior to the commencement of the tree removal or site grading activities. If any bird listed under the Migratory Bird Treaty Act is found to be nesting within the project site or within the area of influence, an adequate protective buffer zone should be established by a qualified biologist to protect the nesting site. This buffer shall be a minimum of 75 feet from the project activities for passerine birds, and a minimum of 200 feet for raptors. The distance shall be determined by a competent biologist based on the site conditions (topography, if the nest is in a line of sight of the construction and the sensitivity of the birds nesting). The nest site(s) shall be monitored by a competent biologist periodically to see if the birds are stressed by the construction activities and if the protective buffer needs to be increased. Once the young have fledged and are flying well enough to avoid project construction zones (typically by August), the project can proceed without further regard to the nest site(s).

Mitigation Measure BIO-2: **Pre-construction Bat Survey –** To avoid "take" of special–status bats, the following mitigation measures shall be implemented prior to the removal of any existing trees or structures on the project site:

- A bat habitat assessment shall be conducted by a qualified bat biologist during seasonal periods of bat activity (mid–February through mid–October. Feb. 15 – Apr. 15, and Aug. 15 – October 30), to determine suitability of each existing structure as bat roost habitat.
- Structures found to have no suitable openings can be considered clear for project activities as long as they are maintained so that new openings do not occur.

- Structures found to provide suitable roosting habitat, but without evidence of use by bats, may be sealed until project activities occur, as recommended by the bat biologist. Structures with openings and exhibiting evidence of use by bats shall be scheduled for humane bat exclusion and eviction, conducted during appropriate seasons, and under supervision of a qualified bat biologist.
- Bat exclusion and eviction shall only occur between February 15 and April 15, and from August 15 through October 30, in order to avoid take of non–volant (non–flying or inactive, either young, or seasonally torpid) individuals.

OR

A qualified wildlife biologist experienced in surveying for and identifying bat species should survey the portion of the mixed oak woodland and mixed riparian habitats if tree removal is proposed to determine if any special–status bats reside in the trees. Any special–status bats identified should be removed without harm. Bat houses sufficient to shelter the number of bats removed should be erected in open space areas that would not be disturbed by project development.

Mitigation Measure BIO-3: The following tree protection measures will be implemented to minimize harmful effects to the remaining trees located on or immediately adjacent to the site:

- Work within the vicinity of the trees to be retained will be scheduled for fall or winter when trees are dormant or semi-dormant.
- Prior to any site preparation or construction work, all trees should have a protective buffer (six feet tall chain link fence) extending beyond the dripline of the canopy (tree protection zone)(TPZ), or the greatest feasible distance from the trunk as possible. Grading, deposition of fill, equipment storage, removal of soil, irrigation, or any other activities that may be detrimental to the health of the trees are strictly forbidden within the tree protection zone for the duration of site work. It is the ultimately applicants' responsibility to ensure that the fencing remains intact and that the tree is not damaged during construction. Tree protection locations should be marked before any fence contractor arrives.
- 8.5 x 11" signs will be placed on the construction fencing (not on the trunks of the trees) stating that all areas within the fencing are Tree Protection Zones (TPZ) and that disturbance is prohibited.
- Pruning of limbs to provide clearance for structures, vehicular traffic, and construction equipment shall be performed during the fall or winter semi-dormant period and will conform to American National Standards Institute (ANSI) tree pruning standards. All tree pruning or removals shall be performed by a qualified arborist with a C-61/D-49 California Contractors License. Avoid aesthetic pruning immediately before, during or after construction impact. Perform only that pruning of dead limbs or those which conflict with the proposed development.
- Tree maintenance and care shall be specified in writing according to American National Standard for Tree Care Operations: Tree, Shrub and Other Woody Plant Management:

Standard Practices parts 1 through 10 and adhere to ANSI Z133.1 safety standards and local regulations.

- Engineer site improvements so that water runoff will not slope toward the trunks. In areas where the proposed elevation of nearby development lies above the elevation of the oak tree, swales have been incorporated into the design to direct water away from the oak trees.
- Soak the ground beneath the canopy of each tree prior to, during, and right after construction. This deep watering method consists of a slow, all-day soaking within the root zone.
- If possible, construct the project with minimal filling, excavating, or trenching within the root zone. Minimize compaction within the root zone to the greatest extent practicable. Keep the elevation of the soil surface at the existing level within the protected area around the trunk. Do not stockpile any construction material within the root zone, even temporarily.
- Should any roots need to be severed during construction, cover any exposed or cut roots with burlap, soil or mulch as soon as possible until the native soil can be backfilled. If possible, use sharp tools (chainsaw or axe) for pruning roots. Using hand tools will help to heal the wounded roots more quickly than pruning with bulldozers, and will better avoid tearing of the roots behind the cuts. If excavation is for installation of underground utilities, roots should be left intact and lines will be treaded underneath the roots.

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

Mitigation Measure GEO-1: The applicant shall comply with the recommendations in the Updated Geotechnical Engineering Study, dated April 12, 2018 prepared by Earth Systems

Pacific. 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.

7. **Greenhouse Gas Emissions:** None Required

8. **Hazards and Hazardous Materials**: One mitigation measure is required:

   Mitigation Measure HAZ-1: Prior to issuance of a demolition permit, a qualified contractor shall assess the property for presence of Lead-based paint (LBP) and Asbestos containing building materials (ACBM), and if present, prepare a plan, to the satisfaction of the Building Official, to properly manage and dispose of such materials.

9. **Hydrology and Water Quality**: Refer to ***Mitigation Measure AQ-2*** and ***Mitigation Measure HAZ-1*.**

10. **Land Use and Planning**: None Required

11. **Mineral Resources**: None Required

12. **Noise**: Two mitigation measures are required:

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

    - Notify the City and neighbors in advance of the schedule for each major phase of construction and expected loud activities or impulsive noise activities (*e.g.*, nail guns during framing).
    - When feasible, select "quiet" construction methods and equipment. Examples include: 1) using electrical service rather than portable power generators and 2) using rollers rather than vibratory compactors.
    - Locate noisy stationary equipment (*e.g.*, compressors) and material unloading and staging areas away from the nearest adjacent uses, such as the Luika Place residences to the southwest and west of the project site.

    Mitigation Measure NOI-2: The following measures shall be implemented during construction:

    - Require posted signs at the construction site, which provide the permitted construction days and hours, a day and evening contact number for the job site and a day and evening contact number for the City in the event of problems.
    - Notify the City and neighbors in advance of the schedule for each major phase of construction and expected loud activities or impulsive noise activities (e.g., nail guns during framing).

- When feasible, select "quiet" construction methods and equipment. Examples include: 1) using electrical service rather than portable power generators and 2) using rollers rather than vibratory compactors.
- Locate noisy stationary equipment (e.g., compressors) and material unloading and staging areas away from the nearest adjacent uses, such as the Luika Place residences to the southwest and west of the project site.
- Require that all construction equipment (e.g., excavators, backhoes) be in good working order and that mufflers are installed and functioning properly. Avoid unnecessary idling of diesel engines.
- Designate a Construction Noise Coordinator. The designated Construction Noise Coordinator would be responsible for posting the required signs, explaining the construction timeline, responding to potential complaints from neighbors, and managing noise through appropriate work practices or other measures.

13. Population and Housing: None Required

14. Public Services: None Required

15. Recreation: None Required

16. Transportation and Traffic: None Required

17. Utilities and Service Systems: None Required

18. 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

November 20, 2018
DATE

IV. REFERENCE MATERIALS

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

1. Air Quality Assessment by Marc Papineau, Environmental Service, dated April 5, 2018
2. Biological Resources Assessment by Olberding Environmental, Inc., dated January 2018
3. Revised Arborist Evaluation and Tree Protection Plan, dated October 2, 2018
4. Updated Geotechnical Engineering Study by Earth Systems Pacific, dated April 12, 2018
5. Phase I Environmental Site Assessment by Roux Associates, Inc., dated October 23, 2018
6. Will Serve Letters (WVSD, PG&E, AT&T, & San Jose Water)
7. Community Noise Assessment by Marc Papineau, Environmental Service, April 5, 2018

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, 2017 version. http://www.califaep.org/images/ceqa/statute-guidelines/2017/CEQA_Handbook_2017_with_covers.pdf (accessed online)
10. City of Campbell General Plan.
11. City of Campbell Zoning Code.

ATTACHMENT 1

AIR QUALITY ASSESSMENT

Air Quality Assessment
1631 West Hacienda Avenue
APN 403-13-004 and APN 403-13-005 in Santa Clara County
Campbell, California

April 5, 2018

Prepared for:

Mr. Sachneel Patel
Hacienda Street Holdings, LLC
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Prepared by:

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ES Project Number: 2018-006

EXECUTIVE SUMMARY

The proposed project consists of a subdivision APN 403-13-004 and APN 403-13-005 in Santa Clara County, City of Campbell, California, for six (6) single-family houses and one (1) additional dwelling unit (ADU) on Lot 1. The overall site area is 1.92 acres. Proposed houses are expected to be 900 to 1,500 square feet in floor area on ¼-acre lots.

The project site is bounded on the south by West Hacienda Avenue, on the west by Luika Place and Littleton Place residences, on the north by Fawn Court and Fawn Drive residences, and on the east by W. Hacienda Avenue, Archer Court, and Beth Way residences. Three adjoining houses on W. Hacienda Avenue, Archer Drive and Beth Way are 1593 West Hacienda Avenue, 1575 Archer Court, and 1620 Beth Way. Adjoining houses along Fawn Court and Fawn Drive are 1646, 1654, and 1662 Fawn Court and 1147 Fawn Drive. Three adjoining houses on Luika Place include 1649, 1657, and 1665 Luika Place. Three adjoining houses on Littleton Place include 1608, 1675 and 1676 Littleton Place.

The proposed project construction would include demolition, site preparation, grading and trenching for utilities, paving for access, building construction and painting. Import of aggregate base, export of displaced soil, and asphalt for a drivable surface are included in this assessment. Construction emissions of air pollutants and GHGs were estimated using a widely applied model called CalEEMod (version 2016.3.2). Quantities of air pollutants were all found to be well below thresholds of significant effect commonly considered in evaluating emissions of local San Francisco Bay Area projects.

Nuisance dust and diesel exhaust health effects generally depend on emissions in combination with other factors such as prevailing wind direction and separation distance between adjoining land uses and the construction site. For this evaluation, the nearest residential land uses around the project site were considered to be sensitive receptors. The nearest eighteen (18) parcels, which adjoin the project site, are located around the perimeter of the project site. In total, approximately 83 dwelling units are located within 328 feet (100 meters) of the project site's boundary (see Figure 2).

Climatological review of surface winds was performed to evaluate the probable effect of prevailing wind on advection of construction-phase air pollutants. Based upon this review, for summer daytime conditions, winds can be expected which generally blow toward the southwest, west-southwest or south-southwest with substantial calm periods in early morning. See Appendix B.

Given the short duration of construction and expected low quantity of emissions, nuisance dust and diesel exhaust health effects would be less-than-significant with implementation of Construction Best Practices (CBPs). Tables C-1 and C-2, in Appendix C, address both fugitive dust from earthwork and exhaust emissions from on-site construction equipment. Site design with public dedicated street with on-street parking along the site's west side adds effective buffering for the construction phase. By paving and landscaping this first, there could be additional reduction of potential effects on the downwind receptors, which are located at 1673, 1676 and 1688 Littleton Place and 1649, 1657 and 1665 Luika Place during typical summer daytime. However, such a buffer is secondary and the key will be Construction Best Practices to reduce emissions of both fugitive dust from earthwork and exhaust emissions from on-site construction equipment.

AIR QUALITY EFECTS

Thresholds of significant effect appropriate for the San Francisco Bay Area (SFBA) have been applied in making the following determinations.

CHECKLIST ITEM	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☑	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☑	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☑	☐	☐
d) Result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☑	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☑	☐
f) Generate greenhouse gas emission, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☑	☐
g) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases?	☐	☐	☐	☑

B A C K G R O U N D

ATTAINMENT PLANNING AND STATUS

The San Francisco Bay Area (SFBA) currently has attainment designations listed in Table 1. Listed designations are for ambient air quality standards known as the National Ambient Air Quality Standards (see Table 2). SFBA attainment/non-attainment designations are summarized below:

- a marginal, non-attainment area for both 1997 and 2008 8-hour ozone NAAQS;
- a maintenance area for the carbon monoxide (CO) 8-hour NAAQS; and,
- an attainment area for the 24-hour 2006 $PM_{2.5}$ NAAQS;

In 2012, U.S. EPA determined that the SFBA has attained the 2006 federal $PM_{2.5}$ NAAQS based on ambient air quality data for 2009 -2011. The attainment determination became effective on February 8, 2013. Technically, SFBA will continue to be designated as "non-attainment" for the national 24-hour $PM_{2.5}$ standard until the BAAQMD submits a re-designation request and a maintenance plan to U.S. EPA and U.S. EPA approves the proposed re-designation.

TABLE 1
San Francisco Bay Area Attainment Status
March 2018

Criteria Pollutant	Federal Attainment Status
Ozone (O_3), 8-hour (1997)	Non-attainment (marginal)[1,2]
Ozone (O_3), 8-hour (2008)	Non-attainment (marginal)[3]
Ozone (O_3), 8-hour (2015)	Undetermined[4]
Nitrogen Dioxide (NO_2)	Attainment—Unclassified
Carbon Monoxide (CO), 8-hour	Attainment—Maintenance
Particulate Matter (PM_{10})	Attainment—Unclassified
Particulate Matter (2006 24-hour $PM_{2.5}$)	Attainment[5]

NOTES:
NAAQS National Ambient Air Quality Standard promulgated under the federal Clean Air Act.

1 Previous 1-hour ozone NAAQS non-attainment areas are no longer subject to the revoked 1-hour NAAQS as of June 15, 2005.

2 Effective June 2004 the San Francisco Bay Area (SFBA) was designated as a marginal non-attainment area for the 1997 8-hour ozone NAAQS.

3 In 2008, U.S. EPA revised the 8-hour ozone standard to 0.075 parts per million (ppm) from 0.080 ppm. Effective April 2012, U.S. EPA designated most of the SFBA as a marginal non-attainment of the 2008 ozone standard (8-hour).

4 Next, on October 1, 2015, U.S. EPA lowered the national 8-hour ozone standard to 0.070 ppm from 0.075. The current air quality value in Santa Clara County is 0.070 ppm (2014-2016).

5 In final rule-making signed on December 18, 2012, U.S. EPA determined that the SFBA has attained the 2006 federal PM2.5 NAAQS based on ambient air quality data for 2009-2011. The attainment determination became effective on February 8, 2013.

TABLE 2

Partial List of Applicable & Relevant Ambient Air Quality Standards in the San Francisco Bay Area

Air Pollutant	California		Federal		Comments
	Standard	Status	Standard	Status	
Ozone (O3)	0.09 ppm (1-hour) 0.070 ppm (8-hour)	N N	revoked (1-hour) 0.070 ppm[1] (8-hour)	A (2004) N (2015)[2]	Federal attainment or non-attainment refers to the designation of an area that has met or not met the NAAQS. Air quality plans are intended to meet first the NAAQS.
Carbon Monoxide	9.0 ppm (8-hour) 20 ppm (1-hour)	A A	9 ppm (8-hour) 35 ppm (1-hour)	A (1998) A	8-hour refers to the concentration measured continuously during eight consecutive hours.
Particulate Matter (PM_{10})	50 μg/m^3 (24-hour) 20 μg/m^3 (annual)[3]	N N	150 μg/m^3 (24-hour) revoked (annual)	U ---	PM_{10} refers to particle sizes less than 10 microns in diameter. Ten microns equals 1 hundredth of one millimeter.
Fine Particulate Matter ($PM_{2.5}$)	None (24-hour) 12 μg/m^3 (annual)[3]	-- N	35 μg/m^3 (24-hour) 12 μg/m^3 (annual)	A (2013)[4] U/A (2015)[5]	$PM_{2.5}$ is the newest standard promulgated by the U.S. EPA. $PM_{2.5}$ refers to smaller particle sizes, less than 2.5 microns in diameter. One micron equals 2.5 thousandths of one millimeter.
Sulfur Dioxide	0.25 ppm (1-hour) ---	A ---	0.075 ppm (1-hour) 0.030 ppm (annual)	A A	U.S. EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum levels.

NOTES:

NAAQS National Ambient Air Quality Standard A attainment area N non-attainment area
( ) year of U.S. EPA rule-making or effective date U/A unclassifiable/attainment

1. On October 1, 2015, the national 8-hour ozone standard was lowered to 0.070 ppm from 0.075. The current air quality value in Santa Clara County is 0.070 ppm (2012-2014).
2. The SFBA is designated a non-attainment area for 2008 8-hour ozone NAAQS, effective July 20, 2012.
3. California ARB established new annual standards for $PM_{2.5}$ and PM_{10} in June 2002.
4. U.S EPA lowered the 24-hour $PM_{2.5}$ standard from 65 μg/m^3 to 35 μg/m^3 effective December 2006. U.S.EPA initially designated the SFBA as non-attainment for the 24-hour 2006 $PM_{2.5}$ standard effective December 14, 2009. But in final rule-making signed on December 18, 2012, U.S. EPA determined that the SFBA has attained the 2006 federal $PM_{2.5}$ NAAQS based on ambient air quality data for 2009 -2011. The attainment determination became effective on February 8, 2013. Technically, SFBA will continue to be designated as "non-attainment" for the national 24-hour PM2.5 standard until the BAAQMD submits a re-designation request and a maintenance plan to U.S. EPA and U.S. EPA approves the proposed re-designation.
5. Effective March 18, 2013, the new federal $PM_{2.5}$ standard is 12 μg/m^3 averaged during a year. Attainment status here refers to attainment of the previous 15 μg/m^3 standard. The final attainment area designations for the federal standard are effective April 15, 2015, which is 90 days after their publication in the federal register.

SOURCES: BAAQMD, March 2018
http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status

The Air District recently published and adopted the 2017 Clean Air Plan (CAP) on April 19, 2017, six years after adopting the previous 2010 CAP on September 15, 2010. The 2017 CAP seeks to identify and implement actions including regulations and rules necessary to meet or maintain the applicable air quality standards. Control measures in the 2017 CAP are intended to improve air quality in impacted communities and reduce GHG emissions. Control Measure SS36 (Regulation 6, Rule 6) is an example of a draft rule to eliminate PM trackout at bulk material sites and construction sites. By the time of project implementation, if the project is approved, it is expected that Regulation 6, Rule 6 will be finalized.

AIR POLLUTANTS: SOURCES AND CONTROLS

Nitrogen Oxides (NOx) and Reactive Organic Gases (ROG)—The 2017 CAP, and its predecessors, consider NO_x and ROG as ozone precursors. Regional emission budgets aim to reduce NO_x and ROG in order to attain the ozone standards. Other mobile sources including construction mobile sources contribute to the SFBA's NO_x and ROG daily emission burden—49 of 259 tons ROG per day and 122 of 298 tons NO_x per day, in 2015. On-road motor vehicles in 2015 contributed relatively more—60 of 259 tons ROG per day and 128 of 298 tons NO_x per day. The gap between on-road mobile sources and off-road sources of ROG and NO_x has narrowed as more stringent on-road and non-road vehicle and equipment exhaust emission controls have been enacted and continue to take effect (BAAQMD, 2017).

Particulate Matter Less Than 2.5 Micrometers in Diameter ($PM_{2.5}$)—Of the 47 tons direct daily $PM_{2.5}$ emission in the SFBA in 2014, construction emissions accounted for approximately 3 percent. However, construction equipment contributes a relatively higher proportion (approximately 12 percent) of measured $PM_{2.5}$ concentrations and 30 percent of cancer-weighted Toxic Air Contaminant (TAC) emission. Diesel exhaust (DPM) has a substantial fraction of particles less than 1.0 micrometer, which tend to stay airborne for days while larger particles settle to the ground or adhere/deposit on surfaces.

Ambient airborne $PM_{2.5}$ derives from direct emissions and also from secondary compounds created in the atmosphere. Ammonia is a key precursor to secondary PM. Ammonia combines with SO_x to form ammonium sulfate. As shown in Figure 1, on-road and non-road vehicles and equipment combined contribute 20 percent of ambient $PM_{2.5}$ measured at ground level.

Sulfur Dioxide (SO_2)— On June 2, 2010, the U.S. EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. U.S. EPA also revoked the previous 24-hour SO_2 standard of 0.14 ppm and the annual primary SO_2 standard of 0.030 ppm, effective August 23, 2010. As a result of the standard making, U.S. EPA has recommended ambient air monitoring in areas having sources and potential ground-level SO_2 concentrations of concern.

In the SFBA, the SO_2 monitoring network is focused around the refineries, in Richmond, Martinez, Vallejo and Concord, plus Oakland and San Jose (see Figure 2). Even though SO_2 is present in diesel exhaust, diesel exhaust makes a minor contribution to SO_2 emissions compared to the contribution from stationary sources.

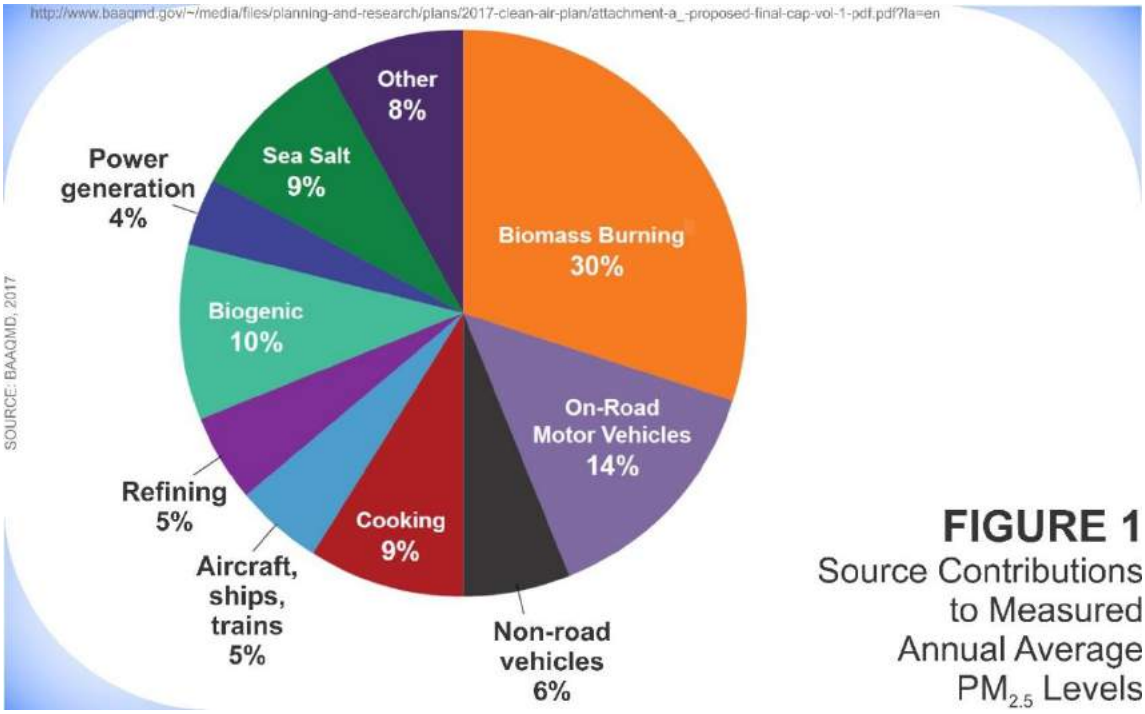

FIGURE 1
Source Contributions to Measured Annual Average $PM_{2.5}$ Levels

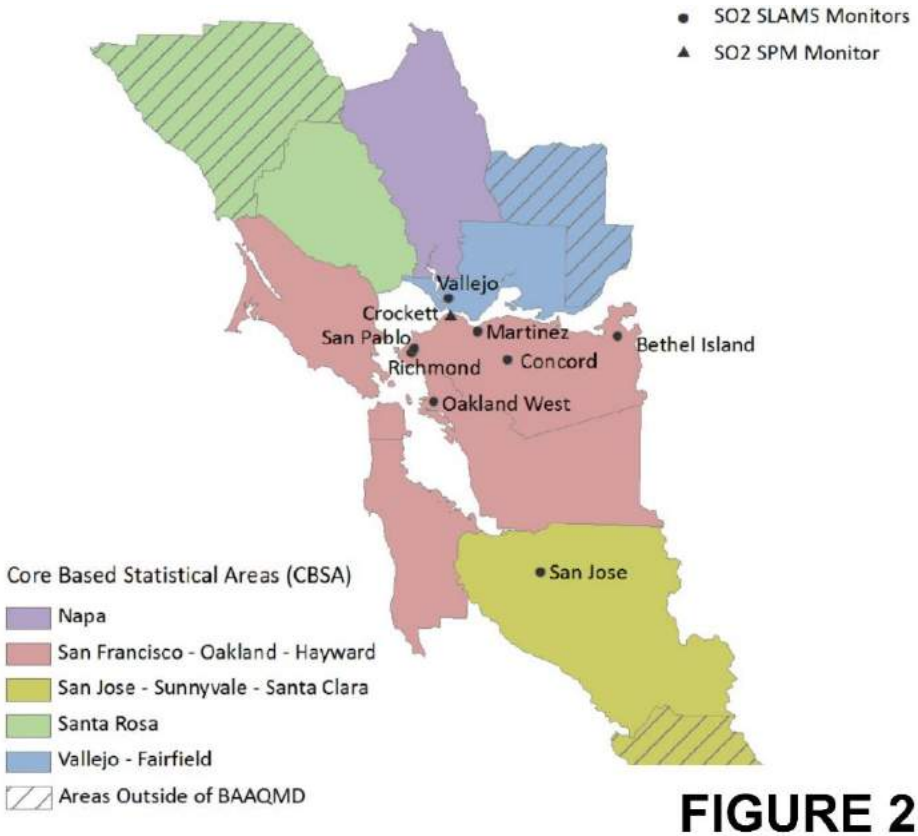

FIGURE 2
Existing Sulfur Dioxide Monitoring

Diesel Particulate Matter (DPM)—In the SFBA, as part of the regional Community Air Risk Evaluation (CARE), seven priority communities[1] have been identified based emissions of air toxics, on exposure of youth and seniors, and low income. The project site is located outside of the seven CARE areas (see Figure 3).

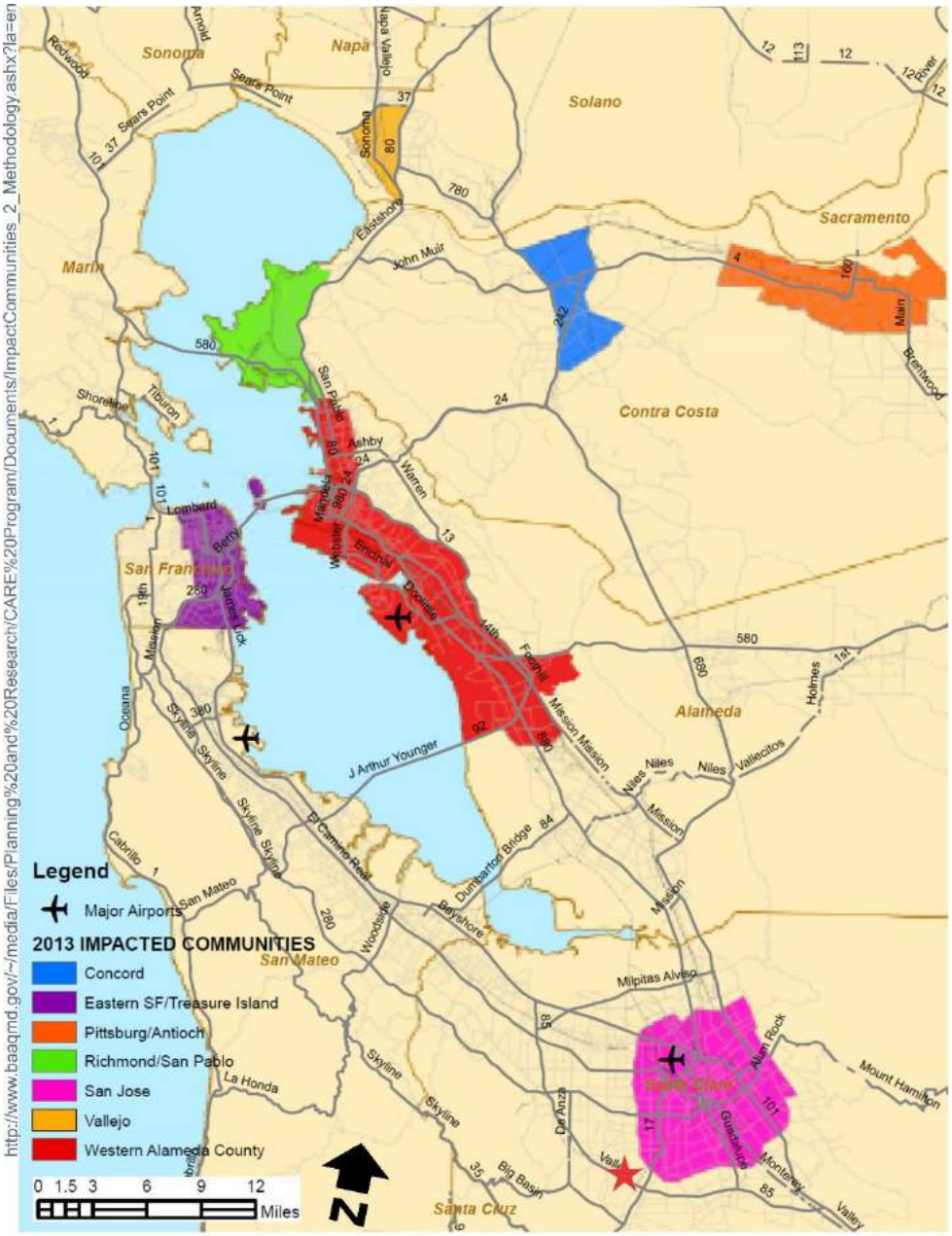

FIGURE 3
Location of Project Site in relation to CARE Areas

[1] In the CARE program, a priority community is an area, designated by the BAAQMD, where levels of toxic air contaminants are higher than in other areas and where people may be particularly vulnerable and may bear disproportionately higher adverse health effects.

DPM is a potential health concern for persons living close to heavy-duty diesel truck traffic or other diesel PM emissions sources. DPM emitted by diesel engines is believed to be the leading toxic air contaminant (TAC) in the SFBA; however, $PM_{2.5}$ emitted directly from non-diesel sources (*e.g.*, wood smoke, cooking, combustion of non-diesel fossil fuels), and $PM_{2.5}$ formed indirectly by precursors (*e.g.*, NO_x, SO_2, and ammonia) appear to be responsible for most airborne $PM_{2.5}$. Current evidence suggests that 10–20 percent of PM-related illness and mortality in the SFBA Area is linked to diesel exhaust (BAAQMD, 2017a; BAAQMD, 2012a). [2]

Adopted 2017 CAP Emission Control Strategies—Despite progress in attaining the federal and California state ozone standards, the SFBA remains non-attainment for the 8-hour ozone standard and non-attainment by U.S. EPA rule-making for the federal 24-hour $PM_{2.5}$ (see Background, Tables 1 and 2). California's more stringent ozone standards for 1-hour concentration (0.090 ppm) and 8-hour concentration (0.070 ppm) have not been attained.[3] Air basins downwind of the SFBA import ozone and ozone precursors emitted in the SFBA. The adopted 2017 CAP serves to update the SFBA's ozone plan.

The 2017 CAP, which was adopted on April 19, 2017, updates emission control strategies in the previous 2010 CAP. Control strategies are intended to: 1) reduce emissions of multiple pollutants including NO_x, ROG, $PM_{2.5}$, and DPM, as well as carbon dioxide (CO_2) and black carbon; 2) safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities already affected by air pollution; and 3) reduce GHG emissions to protect the climate. ROG reductions will be derived from stationary source measures (SSMs), on-road vehicle exhaust controls, and required changes in consumer products.

SSMs are summarized in Tables 4-1 and 5-1 of the adopted 2017 CAP (BAAQMD, 2017a). Of 18 stationary source control strategies proposed in the 2010 CAP, eight have been adopted in regulations/rules, and ten others have been carried forward in the 2017 CAP. Table 5-1 lists 40 additional stationary source control measures included in the 2017 CAP.

NO_x and DPM reductions also will derive from federal and California ARB regulation of on-road and off-road or "non-road" heavy-duty diesel engines. As older non-road diesel construction equipment is retired, newer model year equipment meeting Tier 3 and Tier 4 exhaust emission standards will reduce exhaust emissions at construction sites (see Appendix A, Table A-4). State and federal regulation of non-road diesel construction equipment will be important for reducing DPM and ozone precursor emissions in the SFBA.

Tier 2 and Tier 3 standards were phased in during 2001-2008. Tier 4 off-road diesel exhaust emission standards were phased-in during 2008-2015. The Tier 4 standards provide for substantial reductions of NO_x and PM, as well as a more stringent ROG/HC limit. In combination, U.S. EPA's tiered emissions standards for non-road diesel engines and California ARB's in-use fleet and diesel fuel regulations are expected to assist in providing reductions for ROG, NOx, and DPM emissions during 2015-2030.[4]

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2 Figure 2-15 of the 2017 CAP illustrates the relative contributions made by DPM, other anthropogenic non-diesel $PM_{2.5}$, non-DPM TACs, and ozone, to mortality, chronic bronchitis, asthma, heart attacks and hospital admissions.

3 Figures 2-11 and 2-12 of the 2017 CAP illustrate progress made toward achieving the current ozone standards over three decades (1986-2015).

4 Figure 2-4 in the 2017 CAP illustrates the expected ROG emission trend. Figure 2-5 in the 2017 CAP illustrates the expected NO_x emission trend.

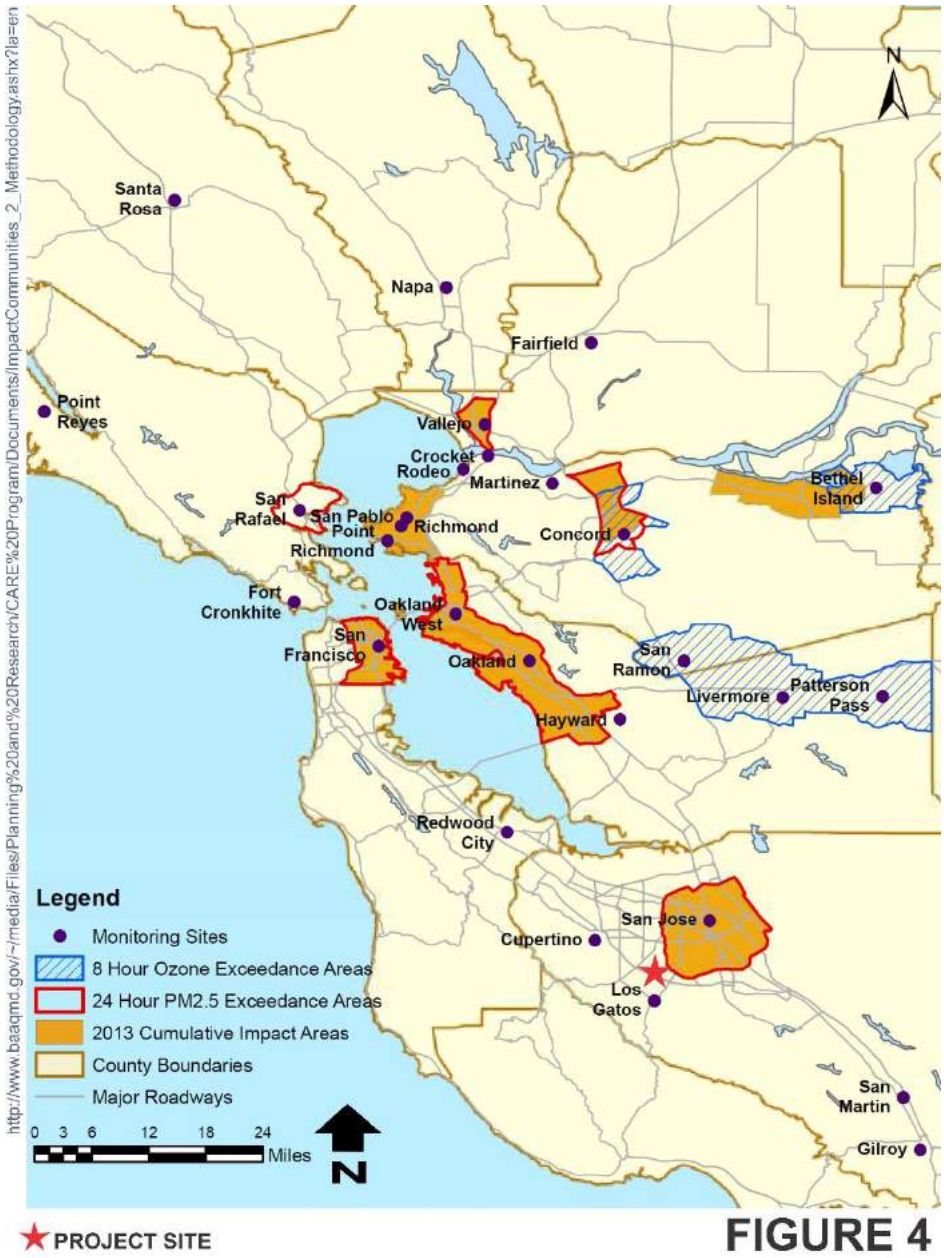

FIGURE 4
Location of Project Site in Relation to Episodic Impaired Air Quality Areas

Local Regulation of Toxic Air Contaminants—In 2005, BAAQMD Regulation 2, Rule 5 replaced the former Risk Management Guidelines for Toxic Air Contaminants (TACs). New Source Review for Toxic Air Contaminants requires pre-construction review of potential health effects caused by new or modified sources of TACs. However, for the purpose of Rule 5, "sources" (2-5-215) or "projects" (2-5-216) do not include construction. The proposed project is not regulated under Rule 5, therefore, it is not subject to New Source Review for Toxic Air Contaminants.

TAC emissions from regulated facilities are estimated for all sources within a proposed facility or modification of an existing facility. If TAC emissions exceed the trigger levels in Table 2-5-1 of BAAQMD Regulation 2, Rule 5, a Health Risk Screening Analysis (HRSA) is required to determine project risk and risk from each source.

For any regulated new or modified source of TACs which is regulated under Rule 5, where the source presents an excess lifetime cancer risk greater than 1.0 in one million (1.0E-6) and/or a chronic hazard index greater than 0.20, the applicant must apply Best Available Control Technology for Toxics Air Contaminants (TBACT). Under some circumstances, the Air Pollution Control Officer (APCO) shall deny an Authority to Construct or Permit to Operate. For any regulated new or modified source of TACs, if the project risk exceeds any of the following project risk limits, the permit must be denied:

- A cancer risk of 10.0 in one million (1.0E-5).
- A chronic hazard index of 1.0.
- An acute hazard index of 1.0

GREENHOUSE GASES (GHGs)

GHGs present risks to SFBA's bay wetlands, wetland dependent species, its shoreline, its water supply and its comfortable weather. Several of these risks are identified in the 2017 CAP Chapter 3.[5] In response to the risks presented by continued business-as-usual emission of carbon dioxide, and also black carbon[6], fluorinated gases and other super GHGs (*e.g.*, methane), new rules are currently being developed to control CO_2, super GHG and black carbon emissions from a variety of sources in the SFBA.

Locally, the City of Campbell has adopted ordinances to promote green buildings and energy conservation. In 2010, the City of Campbell expanded the scope of 2010 CalGREEN to cover all new residential construction in the City. Pursuant to local Ordinance No. 2139 and Resolution No. 11231, the City filed notice of the modification with the California Building Standards Commission on December 13, 2015. Conformance with applicable green building measures is required in the City and has been required since the 2010 triennial cycle. In adopting Resolution No. 11231, City Council made findings that green building measures for new residential construction would conserve energy, reduce air pollution and solid waste, positively benefit the health and productivity of residents, and reduce greenhouse gas emissions.[7]

In 2008, the City adopted a Construction and Demolition Debris Ordinance No. 2103, which is intended to maintain a waste diversion level of at least 50 percent in accordance with the

5 http://www.baaqmd.gov/plans-and-climate/climate-protection

6 Black carbon in the SFBA originates mainly from diesel exhaust, wildfires and wood-burning.

7 California Building Standards Commission, 2010. Letter with attachments, December 15, 2010, (47 pp.). https://www.documents.dgs.ca.gov/bsc/ordinances/2010/Campbell.pdf

mandate of the California Waste Management Act. Ordinance No. 2103 is codified in Municipal Code Title 6: Health and Sanitation, Chapter 6.12: Recycling and Salvaging of Construction and Demolition Debris. Section 6.12.030 - Diversion Requirements - mandates that at least 50 percent of the construction and demolition debris tonnage from all covered projects shall be diverted from landfills by using recycling, re-use, salvage and other diversion programs. The proposed project is a covered project under Section 6.12.030. Waste diversion saves energy used for disposal and daily cover at landfills and, therefore, reduces GHG emissions.

In 2004, the City of Campbell adopted Ordinance No. 2043. Municipal Code Title 21: Zoning, Chapter 21.26: Landscaping Requirements codifies the City's Landscaping Ordinance No. 2043. Section 21.26.030F calls for efficient or reduced water use for irrigation consistent with Campbell's water-efficient landscape guidelines. Water-efficient landscaping saves energy used for water production pumping, treatment, conveyance and distribution and, therefore, reduces GHG emissions.

The City of Campbell is preparing a baseline GHG emission inventory as part of the Envision Campbell General Plan update; however, the city does not currently have a baseline GHG emission inventory. This item appears in the Envision Campbell General Plan Update: Existing Conditions Report and previously appeared in a City Council Meeting Agenda for the regular meeting on April 19, 2016.[8] In lieu of a city-endorsed GHG emission inventory, the BAAQMD's estimate for the City of Campbell is approximately 0.8 million metric tons CO_2e per year (0.8 MMT CO_2e/year).[9] On a per household basis, this is approximately 45.65 MT CO_2e/household/year. The alternative inventory is comprehensive and includes indirect GHG emission from consumer purchases and life-cycle energy and GHGs inherent in goods and services.

8 City of Campbell, Council Meeting Agenda, New Business, Item 14, April 19, 2016, http://www.ci.campbell.ca.us/AgendaCenter/ViewFile/Agenda/04192016-1315

9 BAAQMD, 2016d. Interactive GHG Footprint Map. 45.65 MT CO_2e per household x 17,000 households (rounded). https://baaqmd.maps.arcgis.com/apps/Viewer/index.html?appid=6f88573ae51641a08ecd5b45fce8ffb8

EVALUATION OF PROJECT EFFECTS

a – Project Consistency with 2017 CAP

☑ **Less-than-significant with mitigation**

The proposed project would not conflict with the adopted 2017 CAP or measures to reduce emissions of multiple pollutants (NOx, ROG, $PM_{2.5}$, DPM, and CO_2) and safeguard public health by reducing exposures to TACs. The 2017 CAP includes in Table 5-1 a list of stationary source control measures which include SS36 to minimize trackout of soil/mud from construction sites and bulk material storage sites. Table 5-13 of the 2017 CAP includes control strategy TR22 for early deployment of Tier 3 and Tier 4 off-road engines. Tier 3 and Tier 4 are cleaner diesel engines which emit pollutants at substantially lower rates than older Tier 1 and Tier 2 engines (see Appendix A, Table A-4). Table F-1 notes Mobile Source Measure MSM-C1 from the 2010 CAP will carry forward as control strategy TR22 in Table 5-13 of the 2017 CAP.

These control measures are potentially applicable to the project construction as follows: Proposed Regulation 6, Rule 6 (anti-trackout) may be finalized by the time of project construction. Incentives or requirements for construction equipment upgrades (TR22) may enter into proposed TR16 (Indirect Source Review) by the time of project construction.

The proposed project would not conflict with or obstruct implementation of the adopted 2017 CAP If a proposed ISR regulation becomes effective before permits are obtained, the project would comply with requirements of the ISR regulation.

> **AQ Mitigation Measure-1**: Provisions for trackout control of soil/mud from project construction will be implemented as best practices BP6 and BP7 described in Table A-5.

b – Project-Related Violation of Ambient Air Quality Standards

☑ **Less-than-significant with mitigation**

The proposed project is not expected to cause a substantial increase in emissions or substantial increases in any of the criteria air pollutants including ground-level ozone, NO_2, SO_2, CO, lead, PM_{10}, and $PM_{2.5}$. Expected emissions were estimated using a standard calculation tool called CalEEMod 2016.3.2, for ROG, NO_x, SO_2, and CO, $PM_{2.5}$ and PM_{10}. and also for GHGs. Calculated emissions from project construction are expected to be less than the thresholds of significant effect for annual and average daily emissions of criteria air pollutants or precursors (see Table 3). The emission thresholds of significant effect are 10 tons/year (54 pounds/day) for ROG, NO_x, and $PM_{2.5}$ exhaust) and 15 tons/year (82 pounds/day) for PM_{10} exhaust. Therefore, the proposed project is not in a class of project that is considered by the BAAQMD to have potential for causing or contributing to a violation of an ambient air quality standard.

Construction of the proposed project would generate approximately 2 tons of CO, approximately 0.14 ton of $PM_{2.5}$ exhaust and 0.14 ton of PM_{10} exhaust, less than 0.5 ton of ROG, and less than 3 tons of NO_x, total for the construction. Construction-phase emissions were calculated for the unmitigated case using CalEEMod 2016.3.2.

> **AQ Mitigation Measure-2**: To minimize PM emissions from fugitive sources and from unnecessary equipment idling, the contractor will be required to implement Basic Practices listed in Table 4.

TABLE 3

Operations and Construction Emissions for the Proposed Subdivision at 1631 W. Hacienda Avenue

SCENARIO	Air Pollutant Emissions					
	ROG	NOx	CO	SO_2	PM_{10} exhaust	$PM_{2.5}$ exhaust
EMISSIONS (TONS)						
Total Construction Emissions	0.42	2.5	2	0.003	0.14	0.14
Year 2019 Operations	0.07	0.10	0.31	<0.001	0.002	0.002
Thresholds of Significant Effect*	**10**	**10**	**NA**	**NA**	**15**	**10**
Would the proposed project exceed threshold?	no	no	NA	NA	no	no
AVERAGE DAILY EMISSIONS (LBS PER DAY)						
Construction**	2.3	14	11	0.018	0.79	0.76
Year-2019 Operations	0.4	0.5	1.7	0.004	0.01	0.01
Thresholds of Significant Effect*	**54**	**54**	**NA**	**NA**	**82**	**54**
Would the proposed project exceed threshold?	no	no	NA	NA	no	no

NOTES:
* Threshold based on Tables 2-1 and 2-4 of *CEQA Air Quality Guidelines*, expressed in tons/year or lbs/day (BAAQMD, 2017).
**Construction emissions were annualized over 365 days to estimate average daily emissions.
"NA" means there is not an applicable emission threshold.

SOURCE: CalEEMod 2016.3.2; BAAQMD, 2017; Environmental Service, 2018.

TABLE 4
Basic Practices and Construction Best Practices for Mitigation of Dust and Equipment Exhaust

ID	Basic Practices Recommended for All Construction
A1	Watered *at least* two times per day exposed surfaces (*e.g.*, parking areas, staging areas, soil piles, graded areas, and unpaved access roads).
A2	Cover haul trucks transporting soil, sand, or other loose material to or from the site.
A3	Remove visible mud or dirt track-out onto adjacent public roads using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
A4	Limited vehicle speeds 15 mph on unpaved roads.
A5	Pave roadways, driveways, and sidewalks as soon as possible.
A6 See BP9	Minimize idling times 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.
A7	Maintain and properly tune all motorized construction equipment 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. This includes proper functioning of Level 3 VDECS for reduction of diesel particulate emissions.
A8	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.
ID	**Construction Best Practices for Projects with Emissions over Threshold**
BP3	Install wind breaks (*e.g.*, trees, fences) on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
BP5	Stagger grading activities to reduce the amount of earth disturbance and equipment exhaust occurring next to a sensitive receptor at any one time.
BP6	Wash off all haul trucks and equipment, including their tires, before leaving the site.
BP7	Treat entries to a distance of 100 feet from a paved road with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.
BP9	Minimize the idling time of diesel powered construction equipment to two minutes.
BP10	Develop and implement a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction would achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent PM reduction compared to the most recent ARB fleet average. Acceptable options include: use late model Tier 3 or Tier 4 engines, alternative fuels, engine retrofit technology, low-emission after-treatment diesel products, add-on devices such as diesel particulate filters (DPFs), and/or other options as such become available.
BP11	Use low VOC (*i.e.*, ROG) coatings beyond the local requirements (*i.e.*, Regulation 8, Rule 3: Architectural Coatings).
BP12	Require that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO_x and PM.
BP13	Require all sub-contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.

SOURCE: BAAQMD, 2017. *CEQA Air Quality Guidelines*, May 2017, Tables 8-2 and 8-3 (pp. 8-4 & 5).

c – Expose Sensitive Receptors to Substantial Air Pollution Concentrations

☑ **Less-than-significant effect with mitigation**

Sensitive receptors are defined as facilities where children, the elderly, the acutely ill and the chronically ill) are likely to be present.[10] Examples of land uses that can be expected to shelter sensitive receptors include housing, retirement homes, and convalescent homes; schools, child care centers; and, hospitals.[11] Around the project site, sensitive receptors include residences are located at 1147 Drive, 1620 Beth Way, 1575 Archer Court, and 1609 W. Hacienda Avenue. Houses at 1147 Fawn Drive and 1620 Beth Way are located only 5–8 feet from the property line shared with the project site. Additional residences are located at 1673, 1676 and 1688 Littleton Place, and 1649, 1657 and 1665 Luika Place. The separation distance between the project site and these receptors is 20–44 feet (6–13 meters) as shown in Appendix A, Figure A-2.

Prevailing daytime winds during summer are expected to carry air pollution from the construction site toward the southwest, west-southwest, and south-southwest. During June–September, this expectation that air pollution from the construction site would travel toward the west-southwest southwest, and south-southwest is 2x to 3x more likely than advection of air pollution toward the northeast, east, and southeast. See Appendix B.

Sensitive receptors around the project site and the project site itself are not located in one of the BAAQMD-designated Community Air Risk Evaluation (CARE) priority communities. The nearest CARE priority community is located a substantial distance east of the project site in San Jose (see Background, Figure 3). Sensitive receptors around the project site and the project site itself also are not located within 1,000 feet of any stationary source of Toxic Air Contaminants (TACs). Figure A-1 in Appendix A shows the locations of the nearest stationary sources of TACs. If the project site were located within 1,000 feet of any stationary source of TACs, additional mitigation measures could be appropriate to reduce diesel PM emitted during project construction.

The proposed project is not expected to generate significant recurring emissions of criteria air pollutants or TACs. Construction-phase emissions of ROG, NOx, $PM_{2.5}$ exhaust and PM_{10} exhaust were found not to exceed thresholds of significant effect. Therefore, the proposed project is not in a class of project that is considered to have potential for causing or contributing to a violation of criteria air pollutant standards during construction. Potential nuisance conditions such as high dust levels can be avoided by implementing Construction Basic Practices (see Table 4, Basic Practices A1-A8, or Appendix C, Table C-1).

For specific avoidance of potential adverse health effects of diesel particulate matter (DPM), it is impractical to rely on safe separation distance since the first-tier residential receptors are located only 5–44 feet from the project site boundary. To minimize dust and DPM in equipment exhaust the following measures are recommended:

> **AQ Mitigation Measure-3**: To minimize fugitive dust and DPM emission and downwind DPM concentrations from on-site construction and equipment, implement Basic Practices aimed at reducing dust and controlling exhaust emissions (see Table 4, Basic Practices A6-A8, or Appendix C, Table C-1).

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10 Worker receptors mean any receptor location that is an occupational setting or place where an individual may work and that is located outside of the boundary of the facility being evaluated.

11 Sports clubs, other athletic or training facilities, laser tag, and restaurants are examples of facilities not classified as sensitive receptors as uses of those kinds of facilities are considered to be periodic or excursions.

AQ Mitigation Measure-4: To reduce downwind concentrations of DPM to 15 percent of the uncontrolled concentrations, use Tier 4 non-road construction equipment and/or Tier 2 or Tier 3 non-road equipment retrofitted with a Level 3 Verified Diesel Emission Control Strategy (VDECs).

AQ Mitigation Measure-5: Prohibit portable diesel engines where access to alternative sources of power are available.

AQ Mitigation Measure-6: Restrict idling to two minutes during idle episodes.

AQ Mitigation Measure-7: Properly maintain and tune equipment in accordance with manufacturer specifications.

If additional buffer, windbreak or privacy fence measures are attempted, these would have to be constructed before demolition or before grading. In this case, landscaped buffers, street or driveway buffers, and privacy fencing are secondary or supplemental and cannot be substituted for the recommended Basic Practices or Construction Best Practices.

d – Cumulatively Considerable Net Increase of a Criteria Air Pollutant for which the Region has a Non-Attainment Designation

☑ **Less-than-significant effect**

The SFBA is a non-attainment area for ozone. Ozone precursors, which form ozone in a reaction with sunlight, include ROG and NO_x. SFBA will continue to be designated as "non-attainment" for the national 24-hour $PM_{2.5}$ standard until the BAAQMD submits a re-designation request and a maintenance plan to U.S. EPA and U.S. EPA approves the proposed re-designation.

The proposed project's construction-phase and operations emissions of ROG and NO_x, as calculated using CalEEMod 2016.3.2, were found to be lower than the thresholds of significant effect. Therefore, the proposed project's impact on attainment status will be less-than-significant.

e – Odors Nuisance

☑ **Less-than-significant effect**

Potential malodors from construction exhaust can be avoided by Basic Practice. Separation distance from the nearest houses is insufficient to minimize the potential for odor nuisance conditions during paving. Potential for paving-related odor can be reduced by avoiding delivery and use of asphalt that is too hot.

f – Greenhouse Gas Emissions

☑ **Less-than-significant effect**

During the construction period, the proposed project could generate up to 291 metric tons of CO_2 equivalent (291 MT CO_2e) over the period of construction. Construction of the proposed project could generate 152 MT CO_2e in 2018 and 139 MT CO_2e in 2019. During operations, the proposed project could generate 99 MT CO_2e/year based on year 2019 mobile emission rates. Emissions of GHGs here represent the unmitigated case or "business as usual."

The BAAQMD published *CEQA Air Quality Guidelines* in 2017 which no longer recommend a specific threshold of significant effect for construction-phase GHG emission. However, operations-related emissions have thresholds of 1,100 MT CO_2e/year or 4.6 MT CO_2e per project service

population per year (4.6 MT CO_2e/SP/year). Few jurisdictions have formally adopted a threshold. The City and many other local jurisdictions consider GHG emission less than 1,100 MT CO_2e/year as being less-than-significant.

Annualized construction and operations emissions of GHGs here are compared to 4.6 MT CO_2e/SP/year. For housing, 25-30 years is a fair period for annualization, as houses less than 30 years old would not usually be replaced or have substantial repairs other than roof replacement, for example. Annualized construction-related emission of GHGs (291 MT CO_2e), therefore, is equivalent to approximately 10 MT CO_2e/year. Added to operations emission of GHGs (99 MT CO_2e/year based on year 2019 mobile emission rates) this yields conservatively a total of 109 MT CO_2e/year. For the service population (SP) of 24 persons, annualized GHG emissions are equivalent to 4.5 MT CO_2e/SP/year, which is less than the published threshold (4.6 MT CO_2e/SP/year).

g – Conservation Ordinances and Climate Action Plan

☑ **No impact**

The proposed project would not conflict with or preclude implementation of relevant policies in the 2017 CAP or any other relevant Climate Action Plan, Green Building Ordinance, or other conservation measures as required in the Building Standards Code and CalGREEN. The project site has not been identified as a regional priority development area or locally for residential and commercial mix-use development or transit-oriented development.

Potentially applicable strategies or policies from the Conservation and Natural Resource Element of the City's General Plan are listed below.

Strategy CNR-11.2c Clean-Burning Fireplaces and Wood Stoves: Consider an ordinance that requires installation of clean-burning fireplaces and wood stoves. *NOTE: BAAQMD Regulation 6, Rule 3, effective November 1, 2016, prohibits installation of a wood-burning device in new building construction*:

6-3-306 Requirements for New Building Construction: Effective November 1, 2016, no person or builder shall install a wood-burning device in a new building construction.

Strategy CNR-9.1i Construction and Demolition Debris Recycling: Develop and implement a Construction and Demolition Debris Recycling Ordinance.

Strategy CNR-11.2d Construction Dust Control: Require dust control measures, including those included in the Santa Clara Valley Non-point Pollution Control Program, during construction.

Policy CNR-12.2 Advanced Energy Technology and Building Materials: Facilitate the use of advanced energy technology and building materials to create energy-efficient residences and buildings.

Policy CNR-12.3 Landscaping Requirements: Continue to enforce landscaping requirements that facilitate energy efficiency or conservation.

Strategy CNR-12.3b Energy Efficient Landscaping: Encourage energy efficient landscaping and preservation of existing shade trees on development sites.

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APPENDIX A
SINGLE-FAMILY SUBDIVISION IMPROVEMENTS
1631 W. HACIENDA AVENUE IN CAMPBELL, CALIFORNIA

BACKGROUND

Project Description—The 1.92-acre site currently is improved with a house at 1631 W. Hacienda Avenue, in Campbell, California. The site is designated as parcel APN 403-13-004 and APN 403-13-005 by Santa Clara County and is zoned R-1-9 by the City of Campbell. The project site's location west of Winchester Boulevard and north of Highway 85, in the City's San Tomas Area, is shown in Figure A-1.

The proposed project work zones cover the entire site. These work zones will include either a private driveway or dedicated public street for access to six proposed lots. By assumption, in advance of a Grading Plan, new impervious asphalt surface will cover approximately 0.4 acre, estimated as 500 lineal feet with a 34-foot wide paved width. Also by assumption, in advance of a tentative subdivision map, the average lot size is approximately ¼-acre. The applicant has estimated that the proposed housing will feature 900 to 1,500 square feet of floor area, excluding garages.

Meteorology—Air pollution disperses in the atmosphere and is transported by advection in the direction of the wind**.** Wind frequency tables and wind rose diagrams, obtained from the Western Regional Climate Center, California Air Resources Board, and Meteoblue were reviewed and findings are summarized here. Prevailing daytime winds during the dry season months May to October are from the northeast to the southwest. These winds would tend to carry air pollutants from the project construction site toward the southwest, west-southwest, and south-southwest during much of the summer. During July–September, it is approximately 2x to 3x more likely that daytime winds would carry air pollution locally toward the southwest than toward east, northeast, and southeast. In transitional months like April, May, October and November, the frequency of wind directions is more evenly distributed, so that advection of air contaminants toward the southwest, west-southwest, and south-southwest and toward the east, northeast, and southeast is equally likely. See Appendix B.

Sensitive Receptors—The San Francisco Bay Area Air Quality Management District (BAAQMD) defines "sensitive receptors" as facilities where children, the elderly, the acutely ill and the chronically ill) are likely to be present. Examples of land uses that can be expected to shelter sensitive receptors include housing, retirement homes, and convalescent homes; schools, playgrounds, and child care centers; and, hospitals and medical clinics. Sports clubs, other athletic or training facilities, laser tag, and restaurants are examples of facilities not classified as sensitive receptors, as uses of those kinds of facilities are considered to be periodic or excursions.

The project site is bounded on all sides by residential land uses. The closest sensitive receptors are the 83 single-family houses shown in Figure 2. These houses are located within 100 meters (328 feet) of the project site's boundary. The nearest eighteen (18) parcels adjoin the project site and are located along Archer Court, Beth Way Fawn Court, Fawn Drive, West Hacienda Avenue, Littleton Place, and Luika Place (see Figure A-2).

Based on the evaluation of wind rose climatology (Appendix B), the houses along the east end of Littleton Place or east side of Luika Place are located in the path of expected prevailing daytime summertime winds.[12] This includes the houses at 1673, 1676 and 1688 Littleton Place and 1649, 1657 and 1665 Luika Place.

Sources of Toxic Air Contaminants—The area was reviewed for potential sources of toxic air contaminants (TACs). The Bay Area Air Quality Management District (BAAQMD) database of stationary and mobile sources of TACs was viewed on GoogleEarth. Source addresses were checked and were re-plotted, where necessary, to show true locations (see Figure A-1).

Based on this review, it was determined that the project site is located outside the potential zone of influence of substantial stationary and mobile sources of TACs. This zone is defined as the area within 1,000 feet from the boundary of the project site (see Figure A-1). The project site is located 5,400 feet west-northwest of Winchester Boulevard; 1,300 feet northeast of Highway 85; 1,300 feet north of Pollard Road; and 1,800 feet west-northwest of San Tomas Aquino Road. Of the plotted stationary sources of TACs, stationary source #19874 is located 1,600 feet west-northwest of the project site and source #4620 is located 2,100 feet southwest of the project site (see Figure A-1). The nearest stationary source (#19874) is a Verizon cell tower (4805 Westmont Avenue) at Westmont High School, which has an emergency backup generator (BUG). The second nearest stationary source (#4620) is Rinconda Cleaners & Laundry (1488 Pollard Road, Los Gatos) which is a dry cleaners. In view of the substantial distances, the project site is located outside the zone of influence of stationary and mobile sources of TACs.

PROJECT CONSTRUCTION

Duration—For emission estimation using CalEEMod 2016.3.2, project construction was assumed to take approximately 255 calendar days elapsed), with some phase overlap during building construction and painting. Phase overlap refers to the situation in which two or more kinds of work (*e.g.*, building construction and painting) occur concurrently.

Construction Phases—Project construction would proceed in phases: demolition, site preparation, grading, trenching, paving, building construction, and painting. Construction phasing and special processes have the potential to influence construction-phase emissions.

Special Processes and Phase Overlap—The proposed project does not include any special processes such as cold-planing or crushing existing asphalt pavement to reduce the need for importing fill. Asphalt grinding by a cold planer is not assumed. An-onsite crusher is not assumed. Phase overlap where assumed is limited, and applies only to building construction and painting.

[12] This is a statement of expectation or likelihood. This does not mean that the wind will never blow from other directions.

APPLICATION OF CalEEMod 2016.3.2

To estimate emissions from construction of the proposed project, CalEEMod 2016.3.2 was applied in conjunction with necessary construction schedule and phasing assumptions. Specific assumptions were applied based on the Project Description. For the "Applied Assumptions" case, emissions were calculated using the equipment list and phase schedule presented in Assumptions & Model Output, Charts A and B.

DISCUSSION OF RESULTS

Table A-1 presents the calculation results in terms of the daily rate and annual emissions. On an annual basis and on an average daily basis, construction-generated emission of individual air pollutants did not exceed the thresholds of significant effect.

ROGs (Reactive Organic Gases): Diesel engines emit organic gases including acrolein, acetaldehyde, benzene, and formaldehyde, among others. Most other ROGs during the construction would be emitted during painting. Maximum daily and average daily emission of ROG would be less than 54 pounds per day, which is the daily threshold limit of significant effect.

NOx (Nitrogen Oxides): NOx is emitted from non-road equipment and truck exhaust. Approximately 95 percent of maximum daily NOx emission would occur on the project site, with the remainder emitted on surface streets and highways used for material hauling and worker commuting. Maximum daily and average daily emission of NOx would be less than 54 pounds per day, which is the daily threshold limit of significant effect.

PM (Particulate Matter) in Engine Exhaust: PM exhaust refers only to particulate matter emitted in engine exhaust and does not include PM from fugitive dust sources such as uncovered material stockpiles or equipment travel over bare dry ground. On-site construction equipment would account for nearly all $PM_{2.5}$ emission, with the remainder emitted on surface streets and highways used for material hauling and worker commuting. Maximum daily and average daily emission of $PM_{2.5}$ (exhaust) would be less than 54 pounds per day, which is the threshold limit of significant effect.

DPM (Diesel Particulate Matter): DPM is not a part of ROGs but is contained in $PM_{2.5}$ (exhaust). For diesel equipment and diesel trucks, $PM_{2.5}$ is conservatively assumed to be the same as Diesel Particulate Matter (DPM). Increased or decreased emission of $PM_{2.5}$ (exhaust), therefore, means the same as increased or decreased emission of DPM.

TABLE A-1
Construction-Phase Emissions from the Proposed Subdivision Improvements

SCENARIO	Air Pollutant Emissions					
	ROG	NOx	CO	SO_2	PM_{10} exhaust	$PM_{2.5}$ exhaust
CONSTRUCTION PHASE - APPLIED ASSUMPTIONS[1]						
Max. Daily Emission (**max lbs/workday**)[2]	7	38	21	0.055	1.44	1.35
Average daily emissions[3] (**lbs/day**)	2.51	14.8	11.5	0.020	0.84	0.81
Annualized average daily emission[4] (**lbs/day**)	2.25	13.9	10.8	0.018	0.79	0.75
Total for entire construction period (**tons**)	0.43	2.5	2.0	0.003	0.014	0.014
City-Adopted Thresholds[4] of Significant Effect	**10**	**10**	**NA**	**NA**	**15**	**10**
Would proposed project exceed threshold?	**no**	**no**	**NA**	**NA**	**no**	**no**

NOTES:
1. The caption "Applied Assumptions" is intended to disclose that CalEEMod default assumptions were adjusted to reflect project-specific information.
2. Maximum daily emission means the maximum emission occurring on a work day, allowing for overlapping construction processes if phase overlap is assumed. In this case, phase overlap is not proposed.
3. Average daily emissions means the average for the 355-day construction calendar period.
4. Annualized average daily emission means the annualized rate found by dividing total emissions by 365 days and converting to pounds.
5. Threshold is expressed in tons in a single year. "NA" means there is not an applicable threshold.

SOURCE: CalEEMod 2016.3.2; Environmental Service, 2018.

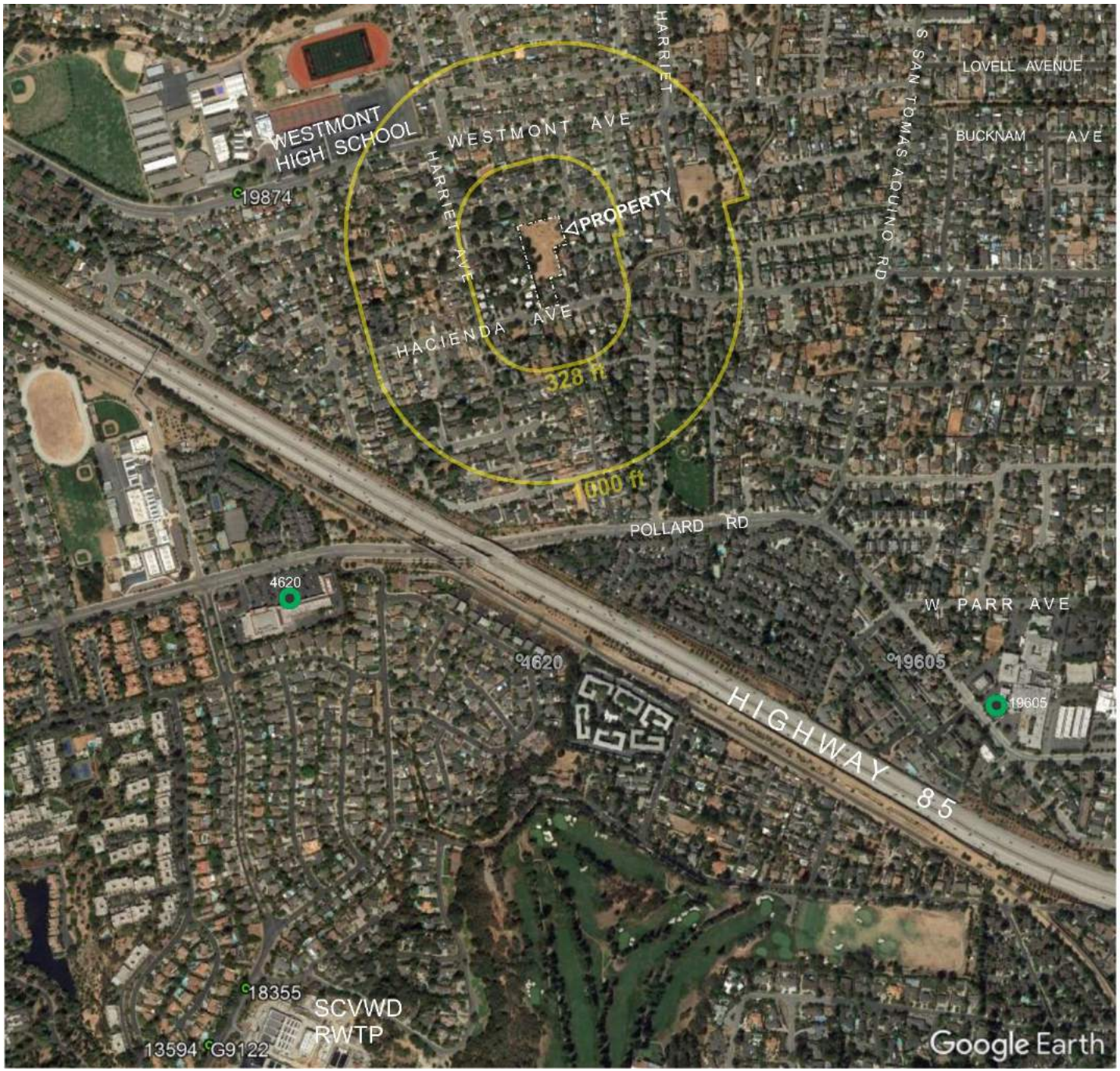

Figure A-1
Area Map

1631 W. Hacienda Ave.
Campbell, California

19605 BAAQMD TAC stationary source & Plant ID number

N

0 500 1000
FEET

20 Years
1995-2015

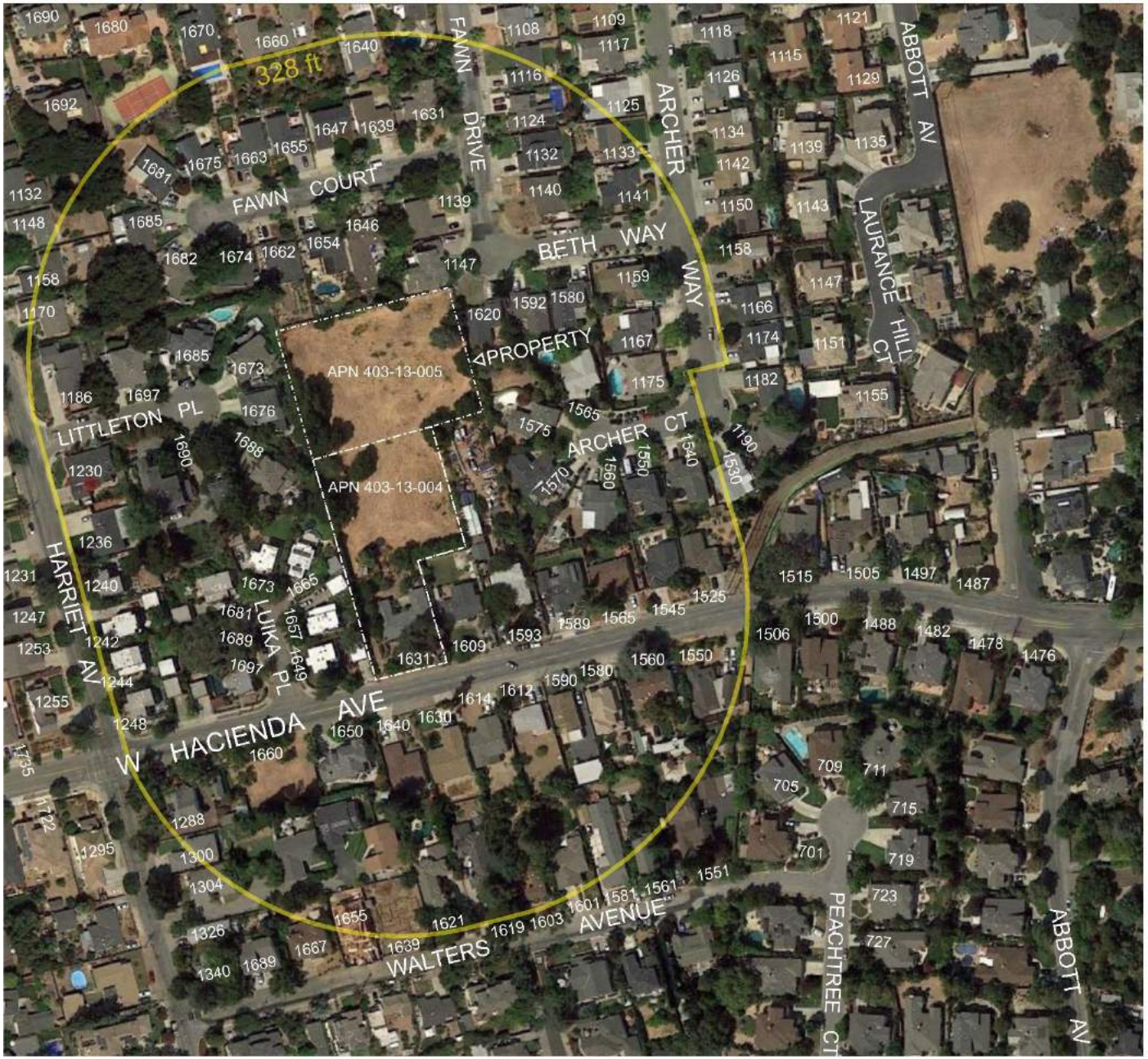

Figure A-2
Neighborhood Map

1631 W. Hacienda Ave.
Campbell, California

SAFE SCREENING DISTANCES

A safe screening distance refers the distance, measured from the fence line of a construction site, beyond which health effects can be safely expected to be less-than-significant. The term "screening" is added here to convey the idea that the distances were derived by BAAQMD staff who applied default assumptions for the estimate of construction emissions and air dispersal modeling with conservative assumptions to represent a worst case exposure. See Table A-2.

In developing safe screening distances from construction sites, the BAAQMD staff made assumptions to facilitate uniform analysis. It was not feasible to address every possible project-specific condition such as overlapped construction phases, cut and fill, and demolition. Obviously, the number of possible combinations would not be manageable within the context of a simple screening procedure. To simplify and present a concise tabulation of safe distances, the BAAQMD staff limited the number of assumptions and created the safe screening distance chart, use of which is appropriate with the default assumptions as follow:

1. Sequential step-by step construction without phase overlap;
2. Minor cut and fill less than 10,000 cubic yards; and,
3. No major demolition or on-site crushing of concrete and asphalt.

To apply the BAAQMD construction screening (see Table A-2), therefore, the above conditions must be met or else the distances must be adjusted based on the applied assumptions used in the evaluation.

For a residential project having six (6) houses and one (1) ADU on a site of 1.52 net acres, the BAAQMD's safe screening distance from project perimeter to the nearest sensitive receptor is approximately 328 feet (or, in metric units 100 meters). Table A-2, for the rows labeled residential, 5-10 units, 1.7-3.3 acres, and for the columns labeled "DPM Cancer Risk" or "Offset Required for Combined Risk," the safe screening distance is 328 feet (100 meters). This safe screening distance applies to the proposed project conservatively under the applied assumptions.

EVALUATION OF POTENTIAL TAC EFFECTS WITH MITIGATION MEASURES

Diesel Particulate Matter (DPM)—In view of the proximity of proposed construction to the nearest sensitive receptors, DPM could pose a health risk to residents within 328 feet (see yellow line in Figure A-2). The applied assumptions do not include Construction Best Practices, such as diesel particulate filters or U.S. EPA Tier 3 and Tier 4 diesel engines which can reduce DPM by 85–90 percent.

Sensitive receptors are located closer than 328 feet downwind from the project site's boundaries. Downwind receptors on Littleton Place and Luika Place are located only 20–44 feet from the leeward western boundary. Basic practices for control of dust and exhaust from diesel engines (Table 4, Basic Practices A1–A8) would be partially effective for reducing DPM, which would be the critical kind of TAC emitted during the construction of the proposed project. Additionally, with implementation of Best Practice BP10 (see Table 4), or equivalent, the proposed project would have an insignificant health effect caused by DPM emitted during the construction.

Acrolein and Other Volatile Organic Gases—Under the applied assumptions, acrolein and other volatile organic constituents of ROG would not pose significant health risks outside a buffer zone of 300 feet. With implementation of Best Practice BP10, or equivalent, the proposed project would have insignificant health effects caused by acrolein and other toxic organic gases emitted during the construction.

TABLE A-2
Safe Screening Distances from Construction Fence Line

SOURCE: BAAQMD, 2010h.

Project Scenario			Minimum offset distance (meters) from the project fence line to ensure that a sensitive receptor would have a less than significant impact[1]					
			DPM		PM2.5	Acrolein[2]		Offset Required for Combined Risk
Type	# of Units or Square Feet	Project Site Acres	Cancer Risk w/ ASF[3]	Chronic Hazard Index	Annual Average Concentration ($\mu g/m^3$)	Acute Hazard Index	Chronic Hazard Index	w/ ASF[3]
Residential	5	1.7	95	7	75	55	1	95
	10	3.3	100	7	75	55	1	100
	25	8.3	125	16	100	85	6	125
	50	16.7	150	18	125	90	8	150
	100	33.3	175	20	150	90	11	175
	250	83.3	300	25	250	150	12	300
	500	166.7	400	35	300	150	20	400
	1,000	333.3	500	40	600	175	25	600
	2,000	666.7	700	45	900	225	25	900
	5,000	1,666.7	1,000	40	800	225	25	1,000
Commercial	5,000	0.2	100	8	75	55	1	100
	10,000	0.5	100	8	75	55	1	100
	30,000	1.4	100	8	80	55	1	100
	60,000	2.8	100	9	85	55	1	100
	100,000	4.6	150	19	125	85	8	150
	300,000	13.8	200	25	150	85	13	200
	500,000	23.0	225	19	175	85	8	225
	1,000,000	45.9	300	25	200	90	14	300
	3,000,000	137.7	500	35	400	150	20	500
	7,000,000	321.4	600	35	400	175	20	600
Industrial	5,000	0.2	100	10	85	55	2	100
	10,000	0.5	100	10	85	55	2	100
	30,000	1.4	100	10	90	55	2	100
	60,000	2.8	100	11	95	55	2	100
	100,000	4.6	175	20	125	85	10	175
	300,000	13.8	200	25	175	85	15	200
	500,000	23.0	250	20	175	85	9	250
	1,000,000	45.9	300	25	200	90	15	300
	3,000,000	137.7	500	35	400	150	20	500
	6,000,000	275.5	600	35	400	150	19	600

Notes:

[1] The District thresholds are an increased cancer risk of 10 in a million, a hazard index of 1, and a PM2.5 annual average concentration of 0.3 $\mu g/m^3$.

[2] The OEHHA proposes weighting cancer risk by a factor of 10 for exposures that occur from the third trimester of pregnancy to 2 years of age, and by a factor of 3 for exposures that occur from 2 years through 15 years of age. These factors are called Age Sensitivity Factors (ASF). The methodology for applying ASF to cancer risk is discussed in the documentation sections above.

[3] Acrolein was chosen because it has greatest non-cancer health risks for toxic air contaminants contained in diesel exhaust.

CONSTRUCTION SCREENING PROCEDURE FOR TACs

The applicable BAAQMD's procedures are described in *Methods for Screening and Modeling Local Risks and Hazards* and *Screening Tables for Air Toxics Evaluation during Construction* (BAAQMD, 2010f, 2010g). Applicability of screening procedures was considered separately for each phase of work. "$PM_{2.5}$ exh" means "exhaust $PM_{2.5}$ only" because exhaust $PM_{2.5}$ is the relevant portion of $PM_{2.5}$ as defined by BAAQMD in the guidance documents.

BAAQMD classifies construction projects that disturb 1 acre or less and are no longer than 6 months duration as minor sources. For the proposed project construction could take 11–12 months elapsed time. The proposed project could disturb 1.92 acres. The proposed project, therefore, does not qualify technically as a minor source under BAAQMD's written guidance even though the construction period might be short (255 calendar days).

The BAAQMD's Construction Health Risk Screening Table (Table A-2) presents safe screening distances separating a construction site from the nearest sensitive receptor. Beyond the safe screening distance, potential health effects can be expected to be less-than-significant. The entire list of safe screening distances is presented in Table A-2.

Inspection of Table A-2 shows that the safe screening distances do not vary simply with a project's acreage or floor area. For residential land developments, the safe screening distance for the smallest development is at least 312 feet (95 m). As acreage increases, the development site itself provides some buffering distance because active construction seldom will be located on a boundary adjacent to a specific receptor.

For the 1631 W. Hacienda Avenue site, the separation distance between the project site and nearest receptors located at 1673, 1676 and 1688 Littleton Place and 1649, 1657 and 1665 Luika Place is 20–44 feet as shown in Figure 2.

TABLE A-3
Construction Scenarios and Safe Screening Distances

Residential Subdiv. Size (# of dwelling units)[1]	Site Size (acres)	Typical Emissions[2,3]			Safe Screening Distance in Meters (Feet)
		ROG	NOx	$PM_{2.5}$ exh	
Residential, 5 units	1.62	2.8	13.5	0.82	95 (312)
Residential, 10 units	3.25	3.5	18.6	1.1	100 (328)
Residential, 25 units	8.12	5.3	19.1	1.1	125 (410)
Residential, 100 units	32.5	8.2	19.9	1.1	175 (574)
PROPOSED PROJECT	2.23	3.3	14.6	0.85	95–100 (312-328)
Range	**1.7-33**	**2.8-8.2**	**13-20**	**0.8-1.1**	As site acreage and number of houses increase, construction schedule grows longer and daily construction emissions increase but not proportionately. Risk posed by $PM_{2.5}$ (exh) or DPM increases owing mainly to longer exposure durations for larger subdivisions.

NOTES:
1. Construction scenarios for residential land use are those in BAAQMD's construction screening table (see Table A-2).
2. Daily emissions (in lbs/day) for each scenario were estimated by applying CalEEMod 2016.3.2 (start year 2018).
3. Typical daily emissions (in lbs/day) are based on default assumptions which exclude all of the following: large-scale demolition; earthmoving over 10,000 cubic yards; on-site processing with equipment such as crushers; and, phase overlap.

SOURCE: BAAQMD, 2010h; Environmental Service, 2018.

EVALUATION OF POTENTIAL COMPLIANCE ACTIONS

Indirect Source Review—The BAAQMD has been developing an Indirect Source Review Regulation; however, the regulation is not in effect as this time. According to the 2017 CAP, Indirect Source Review (ISR) regulation TR16 is on the BAAQMD's rule development schedule for 2018. This is a carry forward of Land Use Measure LUM2 in the previous 2010 CAP.

Since the timing of rule development is uncertain, it is unknown whether ISR would apply to the proposed project. ISR generally acknowledges that not all air pollution originates from a smokestack, and often requires that contractors reduce construction-phase emissions by using retrofitted equipment or newer, cleaner construction equipment. ISR potentially could be relevant if ISR rule-making is completed by BAAQMD before the project receives discretionary approval.

Additional PM Control Measures—In addition to basic construction dust control measures, the BAAQMD has developed a list of advanced construction dust and equipment exhaust control measures. Table A-4 lists the additional control measures that can be considered for large construction projects, projects involving extensive earthwork, soil export and material import, and projects whose construction will take longer than 12 months.

TABLE A-4
Construction Best Practices for Reducing Exhaust DPM

ID	Description of Best Practice for Construction
CBP9	Minimizing the idling time of diesel powered construction equipment to two minutes.
CBP10	To reduce exhaust emissions from non-road diesel-powered equipment, the project applicant shall develop and implement a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction would achieve a project wide fleet-average 20 percent NO_X reduction and 45 percent PM reduction compared to the most recent ARB fleet average. Acceptable options include: (1) late model engines, (2) alternative fuels, (3) engine retrofit technology, (4) after-treatment low-emission diesel products, (5) add-on devices such as diesel particulate filters, and/or (6) other options as such become available.
CBP11	Use low VOC (*i.e.*, ROG) coatings beyond the local requirements (Regulation 8, Rule 3).
CBP12	Require non-road construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM.
CBP13	Require contractors use equipment that meets California ARB's most recent certification standard for off-road heavy duty diesel engines.
SOURCE: BAAQMD, *CEQA Air Quality Guidelines*, 2017, Table 8-3 (partial omitting best practices 1 – 8).	

TABLE A-5
Differences among Tier 1-4 Diesel Engines
NOx Emission Factors by Horsepower and Model Year (g/bhp-hr)

Engine Model Year	Horsepower Group							
	25-49	50-74	75-99	100-174	175-299	300-599	600-750	Over 750
1900 – 1969	7.2	14.8	14.8	15.9	15.9	15.2	15.2	15.2
1970 – 1971	7.2	14.8	14.8	14.8	14.8	14.1	14.1	14.1
1972 – 1979	7.2	14.8	14.8	13.6	13.6	13.0	13.0	13.0
1980 – 1987	7.2	14.8	14.8	12.5	12.5	11.9	11.9	11.9
1988	7.1	9.9	9.9	9.3	9.3	8.9	8.9	8.9
1989 – 1995	7.1	9.9	9.9	9.3	9.3	8.9	8.9	8.9
1996	7.1	9.9	9.9	9.3	6.9	6.9	6.9	8.9
1997	7.1	9.9	9.9	6.9	6.9	6.9	6.9	8.9
1998	7.1	6.9	6.9	6.9	6.9	6.9	6.9	8.9
1999	6.2	6.9	6.9	6.9	6.9	6.9	6.9	8.9
2000	6.2	6.9	6.9	6.9	6.9	6.9	6.9	6.9
2001	6.2	6.9	6.9	6.9	6.9	4.2	6.9	6.9
2002	6.2	6.9	6.9	6.9	6.9	4.2	4.2	6.9
2003	6.2	6.9	6.9	4.3	4.3	4.2	4.2	6.9
2004	4.9	4.9	4.9	4.3	4.3	4.2	4.2	6.9
2005	4.9	4.9	4.9	4.3	4.3	4.2	4.2	6.9
2006	4.9	4.9	4.9	4.3	2.6	2.6	2.6	4.2
2007	4.9	4.9	4.9	2.6	2.6	2.6	2.6	4.2
2008	4.9	3.0	3.0	2.6	2.6	2.6	2.6	4.2
2009	4.9	3.0	3.0	2.6	2.6	2.6	2.6	4.2
2010	4.9	3.0	3.0	2.6	2.6	2.6	2.6	4.2
2011	4.9	3.0	3.0	2.6	1.5	1.5	1.5	2.6
2012	4.9	3.0	2.5	2.5	1.5	1.5	1.5	2.6
2013	3.0	3.0	2.5	2.5	1.5	1.5	1.5	2.6
2014	3.0	3.0	2.5	2.5	0.3	0.3	0.3	2.6
2015 and later	3.0	3.0	0.3	0.3	0.3	0.3	0.3	2.6

SOURCE: California Air Resources Board, revised May 2011. *Frequently Asked Questions about In-Use, Off-Road Diesel Vehicle Regulation.* https://www.arb.ca.gov/msprog/ordiesel/faq/emissionfactorsfaq.pdf

Tier 0 Engine
Tier 1 Engine
Tier 2 Engine
Tier 3 Engine
Interim Tier 4 Engine
Tier 4 Engine

TABLE A-5
Additional Construction Dust and Equipment Exhaust Mitigation Practices

ID	Description of Additional Best Practice for Construction
CBP1	Water exposed soil surfaces frequently to maintain minimum soil moisture of 12 percent.
CBP2	Suspend excavation, grading or demolition when wind speed exceed 20 mph.
CBP3	Plant tree windbreaks or install fence windbreaks on the windward side of disturbed soil areas.
CBP4	Plant vegetative ground cover (*e.g.*, fast-germinating native grass seed) as soon as possible on disturbed areas.
CBP5	Limit concurrent excavation, grading, and other earth movement occurring within a given area at any one time. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
CBP6	Wash off all haul trucks and equipment, including their tires, before leaving the site.
CBP7	Treat entries to a distance of 100 feet from a paved road with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.
CBP8	For construction sites having a slope greater than one percent, install sandbags, silt fences or other erosion control measures to prevent silt runoff to public roadways.
CBP9	Minimizing the idling time of diesel powered construction equipment to two minutes.
CBP10	Best practice for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as diesel particulate filters, and/or other options as such become available.
CBP11	Use low VOC (*i.e.*, ROG) coatings for parking striping.
CBP12	Requiring or giving bid preference for non-road construction equipment, diesel trucks, and generators equipped with Best Available Control Technology for emission reductions of NOx and PM.
CBP13	Requiring or giving bid preference for contractors who use equipment that meets California ARB's most recent certification standard for off-road heavy duty diesel engines.
SOURCE: BAAQMD, *CEQA Air Quality Guidelines*, 2017, Table 8-3 (page 8-5).	

GREENHOUSE GASES

TABLE A-6
GREENHOUSE GASES
1631 W. Hacienda Avenue

Year	GHG Emission
Construction (MT CO_2e)	
2018	152
2019	139
Total	291
Recurring Operations (MT CO_2e/year)	
2019	99

NOTES:
GHG equivalent emission of 291 MT CO_2e/year would occur over two calendar years beginning in July 2018 with construction completion in June 2019.

SOURCES: CalEEMod (version 2016.3.2).

CalEEMod (version 2016.3.2) also calculates construction-phase greenhouse gas (GHG) emissions from equipment exhaust, hauling vehicle exhaust, and worker commute travel.

BAAQMD's current CEQA Air Quality Guidelines no longer include a recommendation for the threshold of significant GHG emission. In previous guidance, the threshold had been 1,100 metric tons (MT CO_2e/year).

Construction
Project construction would generate 291 MT CO_2e (total), with 152 MT CO_2e in 2018 and 139 MT CO_2e in 2019. Annual construction emission of GHGs, therefore, is less than 1,100 metric tons equivalent CO_2 on the both bases of total emission and annual emission.

Operations
The proposed project is expected to generate 99 MT CO_2e /year on a recurring basis. The plan-level threshold of significant effect commonly applied by the City of Campbell and other jurisdictions is 4.6 MT CO_2e /SP/year, where "SP" is the project's "Service Population." For the assumed resident population of 24 persons living in the proposed housing, the plan-level threshold of significant effect for the proposed project is 110 MT CO_2e /year (rounded). The proposed project's recurring GHG emission (99 MT CO_2e /year) is below the plan-level threshold of significant effect.

ASSUMPTIONS & MODEL OUTPUT

1. Housing Product and Population

The CalEEMod 2016.3.2 default values are 1,800 square feet for the average single-family house 2.86 persons per household. These were adjusted for the proposed project.

> **APPLIED ASSUMPTIONS**: Houses would have 900–1,500 square feet. By assumption, the average household size would be 4 persons per house.

2. Haul Trip Length

Asphalt, concrete, and base rock for the proposed project would be obtained locally. Demolition debris would be disposed or recycled locally.

> **APPLIED ASSUMPTIONS**: Haul trip lengths were standard default 20 miles per trip. No changes were made to the default trip lengths. See Chart A.

CHART A
CalEEMod 2016.3.2 Default Trip Lengths

Haul Trip	Default Miles	Adjusted Miles
	CalEEMod2016.3.2	Applicant/Contractor
Asphalt, concrete	20	20
Base rock	20	20
Demolition debris disposal	20	20

NOTES:
1. All loads 10 cubic yards.
2. Half of the trips are made with empty trucks.

SOURCE: CalEEMod 2016.3.2; Environmental Service, 2018.

3. Construction Duration

The project is expected to be constructed in 254-work days or just under one year. The CalEEMod 2016.3.2 default construction duration for six (6) houses and one (1) ADU is 246 work days (or, 344 calendar days). The default assumption in CalEEMod 2016.3.2 is no phase overlap.

> **APPLIED ASSUMPTIONS**: Overlap of 2 weeks was allowed for building construction and painting. See Chart B.

4. Construction Demolition, Site Preparation and Grading

Earth disturbance would occur on 1.92 acres. The time needed for demolition, site preparation and earthwork is approximately 14 work days.

5. Construction Equipment

The default CalEEMod 2016.3.2 equipment list was the default list expected to be necessary for construction of the proposed project. Minor adjustments were allowed for consistency with another similar project recently evaluated in the City of Campbell.

APPLIED ASSUMPTIONS: See Chart C.

CHART B

Construction Phases with Begin and End Dates

1631 W. Hacienda Avenue, City of Campbell, Santa Clara County, California

Phase Number	Construction Phase	Start Date	End Date	Number Days per Week	Number of Work Days
1	Demolition	8/13/2018	7/11/2018	5	5
2	Site preparation	7/12/2018	7/16/2018	5	3
3	Grading	7/17/2018	7/24/2018	5	6
4	Trenching	7/25/2018	8/1/2018	5	6
5	Paving	8/2/2018	8/8/2018	5	5
6	Building construction	8/9/2018	6/12/2018	5	220
7	Painting	4/24/2019	6/25/2019	5	45
OVERALL DURATION		7/5/2018	6/25/2019	5	**254**

SOURCE: CalEEMod 2016.3.2; Environmental Service, 2018

CHART C

Construction Equipment, Number of Pieces, Hours Per Day

1631 W. Hacienda Avenue, City of Campbell, Santa Clara County, California

Phase Name	Non-road Equipment	Number	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Excavators	0	8.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Scrapers	1	8.00	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Building construction	Cranes	1	8.00	226	0.29
Building construction	Forklifts	2	7.00	89	0.20
Building construction	Generator Sets	1	8.00	84	0.74
Building construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building construction	Welders	3	8.00	46	0.45
Painting	Air Compressors	1	6.00	78	0.48

MODEL OUTPUT

1631 W. Hacienda Avenue Campbell, CA

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.40	Acre	0.40	17,424.00	0
Single Family Housing	7.00	Dwelling Unit	1.52	10,000.00	24

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

1631 W. Hacienda Avenue Campbell, CA - Santa Clara County, Annual

Project Characteristics -

Land Use - 1.92 acres gross. Assume 3.5 persons per household plus 3 in the ADU.

Construction Phase - Modified demolition for small job. Moved paving sequence before building construction. Overlapped building and painting. Overall 7/5/2018 to 6/12/2019 (~342 calendar days).

Off-road Equipment -

Trips and VMT -

Demolition -

Grading - 1.92 acre site.

Architectural Coating - Smaller houses 900 to 1,500 sq. ft.

Vehicle Trips - Adjusted

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - Adjusted

Area Coating - Larger houses.

Energy Use -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	1045	1200
tblAreaCoating	Area_Residential_Exterior	7425	8505
tblAreaCoating	Area_Residential_Interior	22275	25515
tblConstructionPhase	NumDays	10.00	45.00
tblConstructionPhase	NumDays	200.00	220.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	4.00	6.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	2.00	3.00

tblFireplaces	FireplaceDayYear	11.14	6.29
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	1.50	6.00
tblFireplaces	NumberNoFireplace	0.48	0.00
tblFireplaces	NumberWood	2.58	0.00
tblFleetMix	HHD	0.02	0.02
tblFleetMix	HHD	0.02	0.02
tblFleetMix	LDA	0.60	0.60
tblFleetMix	LDA	0.60	0.60
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.19
tblFleetMix	LDT2	0.19	0.19
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD2	4.9650e-003	4.9480e-003
tblFleetMix	LHD2	4.9650e-003	4.9480e-003
tblFleetMix	MCY	5.3880e-003	5.4100e-003
tblFleetMix	MCY	5.3880e-003	5.4100e-003
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MH	8.1200e-004	8.4100e-004
tblFleetMix	MH	8.1200e-004	8.4100e-004
tblFleetMix	MHD	0.01	0.01
tblFleetMix	MHD	0.01	0.01
tblFleetMix	OBUS	2.0450e-003	2.0070e-003
tblFleetMix	OBUS	2.0450e-003	2.0070e-003

tblFleetMix	SBUS	6.1600e-004	6.1200e-004
tblFleetMix	SBUS	6.1600e-004	6.1200e-004
tblFleetMix	UBUS	1.6020e-003	1.6260e-003
tblFleetMix	UBUS	1.6020e-003	1.6260e-003
tblGrading	AcresOfGrading	3.00	1.92
tblGrading	AcresOfGrading	4.50	1.92
tblGrading	MaterialExported	0.00	1,000.00
tblGrading	MaterialExported	0.00	60.00
tblGrading	MaterialImported	0.00	1,000.00
tblLandUse	LandUseSquareFeet	12,600.00	10,000.00
tblLandUse	LotAcreage	2.27	1.52
tblLandUse	Population	20.00	24.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	367.00	361.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	158.00	162.00
tblOffRoadEquipment	HorsePower	130.00	125.00
tblOffRoadEquipment	HorsePower	132.00	130.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00

tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblSequestration	NumberOfNewTrees	0.00	35.00
tblSolidWaste	SolidWasteGenerationRate	10.08	11.76
tblTripsAndVMT	HaulingTripNumber	6.00	8.00
tblTripsAndVMT	HaulingTripNumber	6.00	8.00
tblTripsAndVMT	VendorTripNumber	3.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	8.00
tblTripsAndVMT	WorkerTripNumber	9.00	11.00
tblVehicleEF	HHD	0.56	0.57
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	0.13	0.16
tblVehicleEF	HHD	2.99	3.13
tblVehicleEF	HHD	1.04	1.06
tblVehicleEF	HHD	3.97	4.54
tblVehicleEF	HHD	4,609.70	4,586.38
tblVehicleEF	HHD	1,687.08	1,707.21
tblVehicleEF	HHD	12.14	13.51
tblVehicleEF	HHD	23.72	24.77
tblVehicleEF	HHD	4.88	5.20
tblVehicleEF	HHD	19.51	19.50
tblVehicleEF	HHD	0.03	0.04
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03

tblVehicleEF	HHD	1.5000e-004	2.7200e-004
tblVehicleEF	HHD	0.03	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8150e-003	8.8110e-003
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	1.3900e-004	2.5600e-004
tblVehicleEF	HHD	1.2500e-004	1.7000e-004
tblVehicleEF	HHD	7.5960e-003	0.01
tblVehicleEF	HHD	0.77	0.81
tblVehicleEF	HHD	7.4000e-005	9.7000e-005
tblVehicleEF	HHD	0.16	0.17
tblVehicleEF	HHD	6.3900e-004	9.2600e-004
tblVehicleEF	HHD	0.15	0.19
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.8800e-004	2.1200e-004
tblVehicleEF	HHD	1.2500e-004	1.7000e-004
tblVehicleEF	HHD	7.5960e-003	0.01
tblVehicleEF	HHD	0.89	0.93
tblVehicleEF	HHD	7.4000e-005	9.7000e-005
tblVehicleEF	HHD	0.23	0.24
tblVehicleEF	HHD	6.3900e-004	9.2600e-004
tblVehicleEF	HHD	0.16	0.20
tblVehicleEF	HHD	0.53	0.54
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	0.12	0.15
tblVehicleEF	HHD	2.19	2.29

tblVehicleEF	HHD	1.05	1.07
tblVehicleEF	HHD	3.66	4.23
tblVehicleEF	HHD	4,879.77	4,854.18
tblVehicleEF	HHD	1,687.08	1,707.21
tblVehicleEF	HHD	12.14	13.51
tblVehicleEF	HHD	24.47	25.56
tblVehicleEF	HHD	4.69	5.00
tblVehicleEF	HHD	19.49	19.47
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	1.5000e-004	2.7200e-004
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8150e-003	8.8110e-003
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	1.3900e-004	2.5600e-004
tblVehicleEF	HHD	2.9400e-004	4.1100e-004
tblVehicleEF	HHD	8.1990e-003	0.01
tblVehicleEF	HHD	0.73	0.76
tblVehicleEF	HHD	1.6800e-004	2.2800e-004
tblVehicleEF	HHD	0.16	0.17
tblVehicleEF	HHD	6.2700e-004	9.1800e-004
tblVehicleEF	HHD	0.14	0.18
tblVehicleEF	HHD	0.05	0.05
tblVehicleEF	HHD	0.02	0.02

tblVehicleEF	HHD	1.8300e-004	2.0700e-004
tblVehicleEF	HHD	2.9400e-004	4.1100e-004
tblVehicleEF	HHD	8.1990e-003	0.01
tblVehicleEF	HHD	0.84	0.88
tblVehicleEF	HHD	1.6800e-004	2.2800e-004
tblVehicleEF	HHD	0.23	0.24
tblVehicleEF	HHD	6.2700e-004	9.1800e-004
tblVehicleEF	HHD	0.15	0.19
tblVehicleEF	HHD	0.61	0.62
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	0.14	0.17
tblVehicleEF	HHD	4.11	4.30
tblVehicleEF	HHD	1.03	1.05
tblVehicleEF	HHD	4.26	4.89
tblVehicleEF	HHD	4,236.75	4,216.56
tblVehicleEF	HHD	1,687.08	1,707.21
tblVehicleEF	HHD	12.14	13.51
tblVehicleEF	HHD	22.68	23.69
tblVehicleEF	HHD	4.96	5.28
tblVehicleEF	HHD	19.53	19.52
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	1.5000e-004	2.7200e-004
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03

tblVehicleEF	HHD	8.8150e-003	8.8110e-003
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	1.3900e-004	2.5600e-004
tblVehicleEF	HHD	6.3000e-005	8.2000e-005
tblVehicleEF	HHD	8.4360e-003	0.01
tblVehicleEF	HHD	0.83	0.87
tblVehicleEF	HHD	3.7000e-005	4.6000e-005
tblVehicleEF	HHD	0.16	0.16
tblVehicleEF	HHD	7.0400e-004	1.0130e-003
tblVehicleEF	HHD	0.16	0.20
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.9300e-004	2.1800e-004
tblVehicleEF	HHD	6.3000e-005	8.2000e-005
tblVehicleEF	HHD	8.4360e-003	0.01
tblVehicleEF	HHD	0.96	1.00
tblVehicleEF	HHD	3.7000e-005	4.6000e-005
tblVehicleEF	HHD	0.23	0.23
tblVehicleEF	HHD	7.0400e-004	1.0130e-003
tblVehicleEF	HHD	0.17	0.22
tblVehicleEF	LDA	5.1170e-003	5.7750e-003
tblVehicleEF	LDA	8.5320e-003	0.01
tblVehicleEF	LDA	0.67	0.74
tblVehicleEF	LDA	1.68	1.93
tblVehicleEF	LDA	275.17	285.13
tblVehicleEF	LDA	63.41	65.28
tblVehicleEF	LDA	0.06	0.07

tblVehicleEF	LDA	0.11	0.13
tblVehicleEF	LDA	1.7370e-003	1.7310e-003
tblVehicleEF	LDA	2.3030e-003	2.3260e-003
tblVehicleEF	LDA	1.6010e-003	1.5970e-003
tblVehicleEF	LDA	2.1180e-003	2.1400e-003
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.12	0.14
tblVehicleEF	LDA	2.7560e-003	2.8570e-003
tblVehicleEF	LDA	6.6300e-004	6.8600e-004
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.13	0.15
tblVehicleEF	LDA	5.6930e-003	6.4150e-003
tblVehicleEF	LDA	7.0610e-003	8.3900e-003
tblVehicleEF	LDA	0.79	0.87
tblVehicleEF	LDA	1.33	1.53
tblVehicleEF	LDA	296.73	307.48
tblVehicleEF	LDA	63.41	65.28
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.10	0.12

tblVehicleEF	LDA	1.7370e-003	1.7310e-003
tblVehicleEF	LDA	2.3030e-003	2.3260e-003
tblVehicleEF	LDA	1.6010e-003	1.5970e-003
tblVehicleEF	LDA	2.1180e-003	2.1400e-003
tblVehicleEF	LDA	0.09	0.11
tblVehicleEF	LDA	0.14	0.16
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.10	0.11
tblVehicleEF	LDA	2.9740e-003	3.0820e-003
tblVehicleEF	LDA	6.5700e-004	6.7900e-004
tblVehicleEF	LDA	0.09	0.11
tblVehicleEF	LDA	0.14	0.16
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.10	0.12
tblVehicleEF	LDA	4.9920e-003	5.6410e-003
tblVehicleEF	LDA	9.6800e-003	0.01
tblVehicleEF	LDA	0.66	0.73
tblVehicleEF	LDA	1.97	2.25
tblVehicleEF	LDA	271.61	281.44
tblVehicleEF	LDA	63.41	65.28
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.12	0.14
tblVehicleEF	LDA	1.7370e-003	1.7310e-003

tblVehicleEF	LDA	2.3030e-003	2.3260e-003
tblVehicleEF	LDA	1.6010e-003	1.5970e-003
tblVehicleEF	LDA	2.1180e-003	2.1400e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.13	0.15
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.13	0.16
tblVehicleEF	LDA	2.7210e-003	2.8200e-003
tblVehicleEF	LDA	6.6800e-004	6.9200e-004
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.13	0.15
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.14	0.17
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	1.55	1.78
tblVehicleEF	LDT1	3.68	4.14
tblVehicleEF	LDT1	331.00	339.12
tblVehicleEF	LDT1	75.68	77.26
tblVehicleEF	LDT1	0.16	0.18
tblVehicleEF	LDT1	0.21	0.24
tblVehicleEF	LDT1	2.6700e-003	2.8490e-003
tblVehicleEF	LDT1	3.5100e-003	3.7510e-003

tblVehicleEF	LDT1	2.4600e-003	2.6270e-003
tblVehicleEF	LDT1	3.2300e-003	3.4540e-003
tblVehicleEF	LDT1	0.11	0.12
tblVehicleEF	LDT1	0.28	0.31
tblVehicleEF	LDT1	0.08	0.09
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.26	0.30
tblVehicleEF	LDT1	3.3300e-003	3.4150e-003
tblVehicleEF	LDT1	8.2200e-004	8.4600e-004
tblVehicleEF	LDT1	0.11	0.12
tblVehicleEF	LDT1	0.28	0.31
tblVehicleEF	LDT1	0.08	0.09
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.28	0.33
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	1.78	2.03
tblVehicleEF	LDT1	2.88	3.26
tblVehicleEF	LDT1	355.59	364.20
tblVehicleEF	LDT1	75.68	77.26
tblVehicleEF	LDT1	0.14	0.16
tblVehicleEF	LDT1	0.18	0.21
tblVehicleEF	LDT1	2.6700e-003	2.8490e-003
tblVehicleEF	LDT1	3.5100e-003	3.7510e-003
tblVehicleEF	LDT1	2.4600e-003	2.6270e-003

tblVehicleEF	LDT1	3.2300e-003	3.4540e-003
tblVehicleEF	LDT1	0.26	0.28
tblVehicleEF	LDT1	0.32	0.35
tblVehicleEF	LDT1	0.17	0.19
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	0.21	0.25
tblVehicleEF	LDT1	3.5790e-003	3.6690e-003
tblVehicleEF	LDT1	8.0800e-004	8.3000e-004
tblVehicleEF	LDT1	0.26	0.28
tblVehicleEF	LDT1	0.32	0.35
tblVehicleEF	LDT1	0.17	0.19
tblVehicleEF	LDT1	0.05	0.07
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	0.23	0.27
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	1.54	1.78
tblVehicleEF	LDT1	4.33	4.87
tblVehicleEF	LDT1	326.95	334.99
tblVehicleEF	LDT1	75.68	77.26
tblVehicleEF	LDT1	0.17	0.20
tblVehicleEF	LDT1	0.23	0.26
tblVehicleEF	LDT1	2.6700e-003	2.8490e-003
tblVehicleEF	LDT1	3.5100e-003	3.7510e-003
tblVehicleEF	LDT1	2.4600e-003	2.6270e-003
tblVehicleEF	LDT1	3.2300e-003	3.4540e-003

tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.31	0.34
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.24	0.26
tblVehicleEF	LDT1	0.30	0.34
tblVehicleEF	LDT1	3.2890e-003	3.3730e-003
tblVehicleEF	LDT1	8.3300e-004	8.5900e-004
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.31	0.34
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.24	0.26
tblVehicleEF	LDT1	0.32	0.38
tblVehicleEF	LDT2	7.2650e-003	8.1210e-003
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.92	1.02
tblVehicleEF	LDT2	2.17	2.46
tblVehicleEF	LDT2	380.30	391.04
tblVehicleEF	LDT2	87.35	89.51
tblVehicleEF	LDT2	0.11	0.12
tblVehicleEF	LDT2	0.19	0.22
tblVehicleEF	LDT2	1.6260e-003	1.6030e-003
tblVehicleEF	LDT2	2.2080e-003	2.2020e-003
tblVehicleEF	LDT2	1.4950e-003	1.4750e-003
tblVehicleEF	LDT2	2.0310e-003	2.0260e-003
tblVehicleEF	LDT2	0.05	0.05

tblVehicleEF	LDT2	0.14	0.15
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	0.14	0.17
tblVehicleEF	LDT2	3.8110e-003	3.9200e-003
tblVehicleEF	LDT2	9.1100e-004	9.3800e-004
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.14	0.15
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	0.16	0.18
tblVehicleEF	LDT2	8.0480e-003	8.9800e-003
tblVehicleEF	LDT2	8.8950e-003	0.01
tblVehicleEF	LDT2	1.07	1.19
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tblVehicleEF	LDT2	87.35	89.51
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.17	0.20
tblVehicleEF	LDT2	1.6260e-003	1.6030e-003
tblVehicleEF	LDT2	2.2080e-003	2.2020e-003
tblVehicleEF	LDT2	1.4950e-003	1.4750e-003
tblVehicleEF	LDT2	2.0310e-003	2.0260e-003
tblVehicleEF	LDT2	0.11	0.12
tblVehicleEF	LDT2	0.15	0.17

tblVehicleEF	LDT2	0.09	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.08
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	4.1020e-003	4.2200e-003
tblVehicleEF	LDT2	9.0300e-004	9.2900e-004
tblVehicleEF	LDT2	0.11	0.12
tblVehicleEF	LDT2	0.15	0.17
tblVehicleEF	LDT2	0.09	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.08	0.08
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	7.0970e-003	7.9420e-003
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.90	1.01
tblVehicleEF	LDT2	2.54	2.88
tblVehicleEF	LDT2	375.53	386.14
tblVehicleEF	LDT2	87.35	89.51
tblVehicleEF	LDT2	0.12	0.13
tblVehicleEF	LDT2	0.21	0.24
tblVehicleEF	LDT2	1.6260e-003	1.6030e-003
tblVehicleEF	LDT2	2.2080e-003	2.2020e-003
tblVehicleEF	LDT2	1.4950e-003	1.4750e-003
tblVehicleEF	LDT2	2.0310e-003	2.0260e-003
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.14	0.16
tblVehicleEF	LDT2	0.02	0.02

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.19
tblVehicleEF	LDT2	3.7630e-003	3.8710e-003
tblVehicleEF	LDT2	9.1700e-004	9.4500e-004
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.14	0.16
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.18	0.21
tblVehicleEF	LHD1	6.4470e-003	6.6480e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.16	0.16
tblVehicleEF	LHD1	1.41	1.53
tblVehicleEF	LHD1	3.33	3.54
tblVehicleEF	LHD1	8.97	8.97
tblVehicleEF	LHD1	722.52	731.80
tblVehicleEF	LHD1	35.60	36.43
tblVehicleEF	LHD1	0.07	0.07
tblVehicleEF	LHD1	1.53	1.64
tblVehicleEF	LHD1	1.17	1.21
tblVehicleEF	LHD1	8.4000e-004	8.2200e-004
tblVehicleEF	LHD1	9.8280e-003	9.7590e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.2210e-003	1.3020e-003

tblVehicleEF	LHD1	8.0300e-004	7.8700e-004
tblVehicleEF	LHD1	2.4570e-003	2.4400e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.1240e-003	1.1990e-003
tblVehicleEF	LHD1	2.9630e-003	3.0160e-003
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.15
tblVehicleEF	LHD1	0.34	0.34
tblVehicleEF	LHD1	0.35	0.37
tblVehicleEF	LHD1	7.1160e-003	7.2140e-003
tblVehicleEF	LHD1	4.1900e-004	4.3100e-004
tblVehicleEF	LHD1	2.9630e-003	3.0160e-003
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.18	0.19
tblVehicleEF	LHD1	0.34	0.34
tblVehicleEF	LHD1	0.38	0.40
tblVehicleEF	LHD1	6.4470e-003	6.6480e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.16	0.16
tblVehicleEF	LHD1	1.44	1.57
tblVehicleEF	LHD1	3.08	3.27
tblVehicleEF	LHD1	8.97	8.97
tblVehicleEF	LHD1	722.52	731.80
tblVehicleEF	LHD1	35.60	36.43

tblVehicleEF	LHD1	0.07	0.07
tblVehicleEF	LHD1	1.46	1.56
tblVehicleEF	LHD1	1.09	1.13
tblVehicleEF	LHD1	8.4000e-004	8.2200e-004
tblVehicleEF	LHD1	9.8280e-003	9.7590e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.2210e-003	1.3020e-003
tblVehicleEF	LHD1	8.0300e-004	7.8700e-004
tblVehicleEF	LHD1	2.4570e-003	2.4400e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.1240e-003	1.1990e-003
tblVehicleEF	LHD1	6.7860e-003	6.9480e-003
tblVehicleEF	LHD1	0.13	0.13
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.0490e-003	3.0880e-003
tblVehicleEF	LHD1	0.14	0.15
tblVehicleEF	LHD1	0.33	0.33
tblVehicleEF	LHD1	0.33	0.34
tblVehicleEF	LHD1	7.1170e-003	7.2150e-003
tblVehicleEF	LHD1	4.1500e-004	4.2600e-004
tblVehicleEF	LHD1	6.7860e-003	6.9480e-003
tblVehicleEF	LHD1	0.13	0.13
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	3.0490e-003	3.0880e-003
tblVehicleEF	LHD1	0.18	0.19
tblVehicleEF	LHD1	0.33	0.33
tblVehicleEF	LHD1	0.36	0.38

tblVehicleEF	LHD1	6.4470e-003	6.6480e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.16	0.16
tblVehicleEF	LHD1	1.39	1.51
tblVehicleEF	LHD1	3.58	3.80
tblVehicleEF	LHD1	8.97	8.97
tblVehicleEF	LHD1	722.52	731.80
tblVehicleEF	LHD1	35.60	36.43
tblVehicleEF	LHD1	0.07	0.07
tblVehicleEF	LHD1	1.57	1.68
tblVehicleEF	LHD1	1.24	1.28
tblVehicleEF	LHD1	8.4000e-004	8.2200e-004
tblVehicleEF	LHD1	9.8280e-003	9.7590e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.2210e-003	1.3020e-003
tblVehicleEF	LHD1	8.0300e-004	7.8700e-004
tblVehicleEF	LHD1	2.4570e-003	2.4400e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.1240e-003	1.1990e-003
tblVehicleEF	LHD1	1.4660e-003	1.4810e-003
tblVehicleEF	LHD1	0.13	0.13
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	7.3300e-004	7.2600e-004
tblVehicleEF	LHD1	0.14	0.15
tblVehicleEF	LHD1	0.38	0.38
tblVehicleEF	LHD1	0.37	0.39

tblVehicleEF	LHD1	7.1160e-003	7.2140e-003
tblVehicleEF	LHD1	4.2400e-004	4.3600e-004
tblVehicleEF	LHD1	1.4660e-003	1.4810e-003
tblVehicleEF	LHD1	0.13	0.13
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	7.3300e-004	7.2600e-004
tblVehicleEF	LHD1	0.18	0.18
tblVehicleEF	LHD1	0.38	0.38
tblVehicleEF	LHD1	0.40	0.42
tblVehicleEF	LHD2	4.2590e-003	4.4520e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	0.76	0.85
tblVehicleEF	LHD2	1.66	1.84
tblVehicleEF	LHD2	14.13	14.14
tblVehicleEF	LHD2	738.54	749.51
tblVehicleEF	LHD2	26.49	27.25
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.27	1.47
tblVehicleEF	LHD2	0.62	0.66
tblVehicleEF	LHD2	1.3260e-003	1.3240e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.6600e-004	6.2600e-004
tblVehicleEF	LHD2	1.2680e-003	1.2660e-003
tblVehicleEF	LHD2	2.6660e-003	2.6570e-003

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.2000e-004	5.7600e-004
tblVehicleEF	LHD2	1.2250e-003	1.3640e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.9500e-004	6.4300e-004
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.16	0.18
tblVehicleEF	LHD2	7.1920e-003	7.3030e-003
tblVehicleEF	LHD2	2.9600e-004	3.0700e-004
tblVehicleEF	LHD2	1.2250e-003	1.3640e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.9500e-004	6.4300e-004
tblVehicleEF	LHD2	0.15	0.15
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.17	0.19
tblVehicleEF	LHD2	4.2590e-003	4.4520e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	0.77	0.86
tblVehicleEF	LHD2	1.54	1.71
tblVehicleEF	LHD2	14.13	14.14
tblVehicleEF	LHD2	738.54	749.51
tblVehicleEF	LHD2	26.49	27.25

tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.22	1.41
tblVehicleEF	LHD2	0.58	0.62
tblVehicleEF	LHD2	1.3260e-003	1.3240e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.6600e-004	6.2600e-004
tblVehicleEF	LHD2	1.2680e-003	1.2660e-003
tblVehicleEF	LHD2	2.6660e-003	2.6570e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.2000e-004	5.7600e-004
tblVehicleEF	LHD2	2.8110e-003	3.1510e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.2760e-003	1.3990e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.11	0.13
tblVehicleEF	LHD2	0.15	0.17
tblVehicleEF	LHD2	7.1930e-003	7.3030e-003
tblVehicleEF	LHD2	2.9300e-004	3.0400e-004
tblVehicleEF	LHD2	2.8110e-003	3.1510e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.2760e-003	1.3990e-003
tblVehicleEF	LHD2	0.15	0.16
tblVehicleEF	LHD2	0.11	0.13
tblVehicleEF	LHD2	0.16	0.18

tblVehicleEF	LHD2	4.2590e-003	4.4520e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	0.75	0.84
tblVehicleEF	LHD2	1.77	1.97
tblVehicleEF	LHD2	14.13	14.14
tblVehicleEF	LHD2	738.54	749.51
tblVehicleEF	LHD2	26.49	27.25
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.30	1.50
tblVehicleEF	LHD2	0.65	0.70
tblVehicleEF	LHD2	1.3260e-003	1.3240e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.6600e-004	6.2600e-004
tblVehicleEF	LHD2	1.2680e-003	1.2660e-003
tblVehicleEF	LHD2	2.6660e-003	2.6570e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.2000e-004	5.7600e-004
tblVehicleEF	LHD2	6.0800e-004	6.7000e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.0600e-004	3.2800e-004
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.13	0.15
tblVehicleEF	LHD2	0.16	0.18

tblVehicleEF	LHD2	7.1920e-003	7.3030e-003
tblVehicleEF	LHD2	2.9800e-004	3.0900e-004
tblVehicleEF	LHD2	6.0800e-004	6.7000e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.0600e-004	3.2800e-004
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	0.13	0.15
tblVehicleEF	LHD2	0.18	0.20
tblVehicleEF	MCY	0.43	0.43
tblVehicleEF	MCY	0.17	0.17
tblVehicleEF	MCY	20.31	20.86
tblVehicleEF	MCY	10.09	10.07
tblVehicleEF	MCY	167.45	166.66
tblVehicleEF	MCY	46.87	47.37
tblVehicleEF	MCY	1.16	1.17
tblVehicleEF	MCY	0.32	0.32
tblVehicleEF	MCY	1.8400e-003	1.7840e-003
tblVehicleEF	MCY	4.2320e-003	4.3770e-003
tblVehicleEF	MCY	1.7260e-003	1.6760e-003
tblVehicleEF	MCY	4.0030e-003	4.1460e-003
tblVehicleEF	MCY	0.92	0.92
tblVehicleEF	MCY	0.75	0.77
tblVehicleEF	MCY	0.51	0.51
tblVehicleEF	MCY	2.30	2.34
tblVehicleEF	MCY	0.66	0.68
tblVehicleEF	MCY	2.26	2.29

tblVehicleEF	MCY	2.0730e-003	2.0750e-003
tblVehicleEF	MCY	7.0100e-004	7.0600e-004
tblVehicleEF	MCY	0.92	0.92
tblVehicleEF	MCY	0.75	0.77
tblVehicleEF	MCY	0.51	0.51
tblVehicleEF	MCY	2.82	2.85
tblVehicleEF	MCY	0.66	0.68
tblVehicleEF	MCY	2.46	2.49
tblVehicleEF	MCY	0.42	0.41
tblVehicleEF	MCY	0.14	0.14
tblVehicleEF	MCY	19.51	20.02
tblVehicleEF	MCY	8.95	8.95
tblVehicleEF	MCY	167.45	166.66
tblVehicleEF	MCY	46.87	47.37
tblVehicleEF	MCY	1.02	1.03
tblVehicleEF	MCY	0.29	0.29
tblVehicleEF	MCY	1.8400e-003	1.7840e-003
tblVehicleEF	MCY	4.2320e-003	4.3770e-003
tblVehicleEF	MCY	1.7260e-003	1.6760e-003
tblVehicleEF	MCY	4.0030e-003	4.1460e-003
tblVehicleEF	MCY	2.36	2.37
tblVehicleEF	MCY	0.97	0.98
tblVehicleEF	MCY	1.38	1.39
tblVehicleEF	MCY	2.21	2.24
tblVehicleEF	MCY	0.62	0.64
tblVehicleEF	MCY	1.89	1.91
tblVehicleEF	MCY	2.0570e-003	2.0580e-003

tblVehicleEF	MCY	6.7000e-004	6.7600e-004
tblVehicleEF	MCY	2.36	2.37
tblVehicleEF	MCY	0.97	0.98
tblVehicleEF	MCY	1.38	1.39
tblVehicleEF	MCY	2.70	2.73
tblVehicleEF	MCY	0.62	0.64
tblVehicleEF	MCY	2.06	2.07
tblVehicleEF	MCY	0.45	0.44
tblVehicleEF	MCY	0.19	0.20
tblVehicleEF	MCY	21.98	22.62
tblVehicleEF	MCY	11.48	11.44
tblVehicleEF	MCY	167.45	166.66
tblVehicleEF	MCY	46.87	47.37
tblVehicleEF	MCY	1.25	1.25
tblVehicleEF	MCY	0.34	0.34
tblVehicleEF	MCY	1.8400e-003	1.7840e-003
tblVehicleEF	MCY	4.2320e-003	4.3770e-003
tblVehicleEF	MCY	1.7260e-003	1.6760e-003
tblVehicleEF	MCY	4.0030e-003	4.1460e-003
tblVehicleEF	MCY	0.40	0.40
tblVehicleEF	MCY	0.91	0.93
tblVehicleEF	MCY	0.19	0.19
tblVehicleEF	MCY	2.41	2.45
tblVehicleEF	MCY	0.78	0.80
tblVehicleEF	MCY	2.64	2.66
tblVehicleEF	MCY	2.1030e-003	2.1060e-003
tblVehicleEF	MCY	7.3500e-004	7.4000e-004

tblVehicleEF	MCY	0.40	0.40
tblVehicleEF	MCY	0.91	0.93
tblVehicleEF	MCY	0.19	0.19
tblVehicleEF	MCY	2.94	2.98
tblVehicleEF	MCY	0.78	0.80
tblVehicleEF	MCY	2.87	2.90
tblVehicleEF	MDV	0.01	0.02
tblVehicleEF	MDV	0.02	0.03
tblVehicleEF	MDV	1.59	1.71
tblVehicleEF	MDV	3.91	4.26
tblVehicleEF	MDV	499.19	510.74
tblVehicleEF	MDV	112.70	114.92
tblVehicleEF	MDV	0.21	0.23
tblVehicleEF	MDV	0.36	0.40
tblVehicleEF	MDV	1.9140e-003	1.9030e-003
tblVehicleEF	MDV	2.6670e-003	2.6930e-003
tblVehicleEF	MDV	1.7670e-003	1.7570e-003
tblVehicleEF	MDV	2.4560e-003	2.4800e-003
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.19	0.19
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	0.11	0.12
tblVehicleEF	MDV	0.32	0.35
tblVehicleEF	MDV	5.0060e-003	5.1230e-003
tblVehicleEF	MDV	1.1970e-003	1.2250e-003
tblVehicleEF	MDV	0.07	0.07

tblVehicleEF	MDV	0.19	0.19
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.11	0.12
tblVehicleEF	MDV	0.34	0.38
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	1.82	1.97
tblVehicleEF	MDV	3.11	3.39
tblVehicleEF	MDV	536.26	548.67
tblVehicleEF	MDV	112.70	114.92
tblVehicleEF	MDV	0.18	0.20
tblVehicleEF	MDV	0.32	0.36
tblVehicleEF	MDV	1.9140e-003	1.9030e-003
tblVehicleEF	MDV	2.6670e-003	2.6930e-003
tblVehicleEF	MDV	1.7670e-003	1.7570e-003
tblVehicleEF	MDV	2.4560e-003	2.4800e-003
tblVehicleEF	MDV	0.15	0.15
tblVehicleEF	MDV	0.21	0.21
tblVehicleEF	MDV	0.12	0.12
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	0.11	0.11
tblVehicleEF	MDV	0.26	0.29
tblVehicleEF	MDV	5.3800e-003	5.5060e-003
tblVehicleEF	MDV	1.1820e-003	1.2100e-003
tblVehicleEF	MDV	0.15	0.15
tblVehicleEF	MDV	0.21	0.21

tblVehicleEF	MDV	0.12	0.12
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.11	0.11
tblVehicleEF	MDV	0.29	0.31
tblVehicleEF	MDV	0.01	0.02
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	1.58	1.71
tblVehicleEF	MDV	4.57	4.98
tblVehicleEF	MDV	493.08	504.49
tblVehicleEF	MDV	112.70	114.92
tblVehicleEF	MDV	0.22	0.25
tblVehicleEF	MDV	0.39	0.44
tblVehicleEF	MDV	1.9140e-003	1.9030e-003
tblVehicleEF	MDV	2.6670e-003	2.6930e-003
tblVehicleEF	MDV	1.7670e-003	1.7570e-003
tblVehicleEF	MDV	2.4560e-003	2.4800e-003
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.20	0.20
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.36	0.39
tblVehicleEF	MDV	4.9450e-003	5.0610e-003
tblVehicleEF	MDV	1.2090e-003	1.2380e-003
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.20	0.20
tblVehicleEF	MDV	0.03	0.03

tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.39	0.43
tblVehicleEF	MH	0.05	0.06
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	4.46	5.46
tblVehicleEF	MH	8.08	8.91
tblVehicleEF	MH	1,235.28	1,241.81
tblVehicleEF	MH	64.85	67.91
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tblVehicleEF	MH	1.01	1.06
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.9720e-003	2.3970e-003
tblVehicleEF	MH	3.2090e-003	3.2050e-003
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.8330e-003	2.2370e-003
tblVehicleEF	MH	1.15	1.24
tblVehicleEF	MH	0.10	0.10
tblVehicleEF	MH	0.38	0.41
tblVehicleEF	MH	0.18	0.22
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.51	0.58
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	7.9100e-004	8.3700e-004
tblVehicleEF	MH	1.15	1.24
tblVehicleEF	MH	0.10	0.10

tblVehicleEF	MH	0.38	0.41
tblVehicleEF	MH	0.24	0.29
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.56	0.64
tblVehicleEF	MH	0.05	0.06
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	4.55	5.52
tblVehicleEF	MH	7.38	8.18
tblVehicleEF	MH	1,235.28	1,241.81
tblVehicleEF	MH	64.85	67.91
tblVehicleEF	MH	1.59	1.69
tblVehicleEF	MH	0.94	0.99
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.9720e-003	2.3970e-003
tblVehicleEF	MH	3.2090e-003	3.2050e-003
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.8330e-003	2.2370e-003
tblVehicleEF	MH	2.64	2.87
tblVehicleEF	MH	0.10	0.11
tblVehicleEF	MH	0.84	0.91
tblVehicleEF	MH	0.19	0.22
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.47	0.54
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	7.7900e-004	8.2400e-004
tblVehicleEF	MH	2.64	2.87

tblVehicleEF	MH	0.10	0.11
tblVehicleEF	MH	0.84	0.91
tblVehicleEF	MH	0.25	0.29
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.52	0.59
tblVehicleEF	MH	0.05	0.06
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	4.47	5.54
tblVehicleEF	MH	8.82	9.73
tblVehicleEF	MH	1,235.28	1,241.81
tblVehicleEF	MH	64.85	67.91
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tblVehicleEF	MH	1.07	1.12
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.9720e-003	2.3970e-003
tblVehicleEF	MH	3.2090e-003	3.2050e-003
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.8330e-003	2.2370e-003
tblVehicleEF	MH	0.55	0.60
tblVehicleEF	MH	0.12	0.13
tblVehicleEF	MH	0.21	0.22
tblVehicleEF	MH	0.18	0.22
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.54	0.63
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	8.0400e-004	8.5100e-004

tblVehicleEF	MH	0.55	0.60
tblVehicleEF	MH	0.12	0.13
tblVehicleEF	MH	0.21	0.22
tblVehicleEF	MH	0.24	0.29
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.59	0.68
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.07	0.08
tblVehicleEF	MHD	0.51	0.54
tblVehicleEF	MHD	0.92	1.09
tblVehicleEF	MHD	8.76	9.73
tblVehicleEF	MHD	143.00	143.73
tblVehicleEF	MHD	1,215.35	1,219.96
tblVehicleEF	MHD	62.36	63.55
tblVehicleEF	MHD	1.13	1.25
tblVehicleEF	MHD	3.17	3.63
tblVehicleEF	MHD	10.66	10.75
tblVehicleEF	MHD	4.8580e-003	5.7970e-003
tblVehicleEF	MHD	0.08	0.10
tblVehicleEF	MHD	1.1530e-003	1.3360e-003
tblVehicleEF	MHD	4.6480e-003	5.5460e-003
tblVehicleEF	MHD	0.08	0.09
tblVehicleEF	MHD	1.0620e-003	1.2350e-003
tblVehicleEF	MHD	1.2920e-003	1.4490e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	0.04	0.04

tblVehicleEF	MHD	6.1300e-004	6.7500e-004
tblVehicleEF	MHD	0.20	0.24
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	0.52	0.59
tblVehicleEF	MHD	1.3770e-003	1.3840e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.7700e-004	8.0600e-004
tblVehicleEF	MHD	1.2920e-003	1.4490e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	6.1300e-004	6.7500e-004
tblVehicleEF	MHD	0.24	0.28
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	0.57	0.64
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.07	0.07
tblVehicleEF	MHD	0.36	0.38
tblVehicleEF	MHD	0.93	1.11
tblVehicleEF	MHD	8.05	8.95
tblVehicleEF	MHD	151.63	152.41
tblVehicleEF	MHD	1,215.35	1,219.96
tblVehicleEF	MHD	62.36	63.55
tblVehicleEF	MHD	1.17	1.29
tblVehicleEF	MHD	3.04	3.49
tblVehicleEF	MHD	10.58	10.66
tblVehicleEF	MHD	4.0950e-003	4.8870e-003

tblVehicleEF	MHD	0.08	0.10
tblVehicleEF	MHD	1.1530e-003	1.3360e-003
tblVehicleEF	MHD	3.9180e-003	4.6750e-003
tblVehicleEF	MHD	0.08	0.09
tblVehicleEF	MHD	1.0620e-003	1.2350e-003
tblVehicleEF	MHD	3.0700e-003	3.4700e-003
tblVehicleEF	MHD	0.06	0.07
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	1.4050e-003	1.5730e-003
tblVehicleEF	MHD	0.20	0.24
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	0.49	0.55
tblVehicleEF	MHD	1.4580e-003	1.4660e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.6500e-004	7.9300e-004
tblVehicleEF	MHD	3.0700e-003	3.4700e-003
tblVehicleEF	MHD	0.06	0.07
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	1.4050e-003	1.5730e-003
tblVehicleEF	MHD	0.24	0.28
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	0.53	0.60
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.07	0.08
tblVehicleEF	MHD	0.68	0.72
tblVehicleEF	MHD	0.91	1.08

tblVehicleEF	MHD	9.41	10.46
tblVehicleEF	MHD	131.45	132.12
tblVehicleEF	MHD	1,215.35	1,219.96
tblVehicleEF	MHD	62.36	63.55
tblVehicleEF	MHD	1.08	1.19
tblVehicleEF	MHD	3.23	3.70
tblVehicleEF	MHD	10.73	10.83
tblVehicleEF	MHD	5.9110e-003	7.0540e-003
tblVehicleEF	MHD	0.08	0.10
tblVehicleEF	MHD	1.1530e-003	1.3360e-003
tblVehicleEF	MHD	5.6560e-003	6.7480e-003
tblVehicleEF	MHD	0.08	0.09
tblVehicleEF	MHD	1.0620e-003	1.2350e-003
tblVehicleEF	MHD	6.1800e-004	6.8500e-004
tblVehicleEF	MHD	0.06	0.07
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	2.9900e-004	3.2400e-004
tblVehicleEF	MHD	0.20	0.24
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	0.55	0.62
tblVehicleEF	MHD	1.2680e-003	1.2750e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.8800e-004	8.1900e-004
tblVehicleEF	MHD	6.1800e-004	6.8500e-004
tblVehicleEF	MHD	0.06	0.07
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	2.9900e-004	3.2400e-004

tblVehicleEF	MHD	0.24	0.28
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	0.60	0.68
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.29	0.29
tblVehicleEF	OBUS	0.75	0.85
tblVehicleEF	OBUS	6.18	6.59
tblVehicleEF	OBUS	109.55	108.50
tblVehicleEF	OBUS	1,329.73	1,337.21
tblVehicleEF	OBUS	68.50	69.35
tblVehicleEF	OBUS	0.71	0.74
tblVehicleEF	OBUS	2.56	2.70
tblVehicleEF	OBUS	2.95	2.98
tblVehicleEF	OBUS	3.9400e-004	4.3800e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.7800e-004	7.9800e-004
tblVehicleEF	OBUS	3.7700e-004	4.1900e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.1800e-004	7.3900e-004
tblVehicleEF	OBUS	1.2500e-003	1.2950e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	5.2500e-004	5.3600e-004
tblVehicleEF	OBUS	0.09	0.10
tblVehicleEF	OBUS	0.03	0.03

tblVehicleEF	OBUS	0.39	0.42
tblVehicleEF	OBUS	1.0570e-003	1.0470e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.9400e-004	8.1000e-004
tblVehicleEF	OBUS	1.2500e-003	1.2950e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	5.2500e-004	5.3600e-004
tblVehicleEF	OBUS	0.11	0.12
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.43	0.46
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.27	0.28
tblVehicleEF	OBUS	0.77	0.87
tblVehicleEF	OBUS	5.64	6.02
tblVehicleEF	OBUS	115.07	113.95
tblVehicleEF	OBUS	1,329.73	1,337.21
tblVehicleEF	OBUS	68.50	69.35
tblVehicleEF	OBUS	0.74	0.76
tblVehicleEF	OBUS	2.45	2.59
tblVehicleEF	OBUS	2.89	2.91
tblVehicleEF	OBUS	3.3200e-004	3.6900e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.7800e-004	7.9800e-004
tblVehicleEF	OBUS	3.1800e-004	3.5300e-004

tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.1800e-004	7.3900e-004
tblVehicleEF	OBUS	2.8280e-003	2.9450e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	1.1340e-003	1.1700e-003
tblVehicleEF	OBUS	0.09	0.10
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.37	0.39
tblVehicleEF	OBUS	1.1100e-003	1.0990e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.8500e-004	8.0000e-004
tblVehicleEF	OBUS	2.8280e-003	2.9450e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	1.1340e-003	1.1700e-003
tblVehicleEF	OBUS	0.11	0.12
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.40	0.43
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	0.32	0.32
tblVehicleEF	OBUS	0.74	0.84
tblVehicleEF	OBUS	6.67	7.11
tblVehicleEF	OBUS	101.93	100.98
tblVehicleEF	OBUS	1,329.73	1,337.21

tblVehicleEF	OBUS	68.50	69.35
tblVehicleEF	OBUS	0.68	0.71
tblVehicleEF	OBUS	2.61	2.75
tblVehicleEF	OBUS	3.01	3.04
tblVehicleEF	OBUS	4.7900e-004	5.3300e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.7800e-004	7.9800e-004
tblVehicleEF	OBUS	4.5800e-004	5.1000e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.1800e-004	7.3900e-004
tblVehicleEF	OBUS	6.5800e-004	6.7600e-004
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	2.9300e-004	2.9700e-004
tblVehicleEF	OBUS	0.09	0.10
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	0.42	0.45
tblVehicleEF	OBUS	9.8500e-004	9.7600e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.0200e-004	8.1900e-004
tblVehicleEF	OBUS	6.5800e-004	6.7600e-004
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	2.9300e-004	2.9700e-004
tblVehicleEF	OBUS	0.11	0.12
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	0.45	0.49

tblVehicleEF	SBUS	0.87	0.88
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.10	0.11
tblVehicleEF	SBUS	7.81	7.68
tblVehicleEF	SBUS	1.44	1.57
tblVehicleEF	SBUS	11.29	11.74
tblVehicleEF	SBUS	1,160.06	1,172.69
tblVehicleEF	SBUS	1,082.96	1,092.06
tblVehicleEF	SBUS	51.90	50.72
tblVehicleEF	SBUS	11.07	11.74
tblVehicleEF	SBUS	5.15	5.55
tblVehicleEF	SBUS	13.04	13.31
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	8.5500e-004	8.6200e-004
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	2.6570e-003	2.6660e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	7.8600e-004	7.9300e-004
tblVehicleEF	SBUS	4.1200e-003	4.3930e-003
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	0.94	0.93
tblVehicleEF	SBUS	1.5240e-003	1.5570e-003
tblVehicleEF	SBUS	0.14	0.15
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.56	0.58

tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	7.1400e-004	7.1000e-004
tblVehicleEF	SBUS	4.1200e-003	4.3930e-003
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	1.36	1.34
tblVehicleEF	SBUS	1.5240e-003	1.5570e-003
tblVehicleEF	SBUS	0.18	0.19
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.61	0.64
tblVehicleEF	SBUS	0.87	0.88
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	0.08	0.09
tblVehicleEF	SBUS	7.67	7.53
tblVehicleEF	SBUS	1.47	1.62
tblVehicleEF	SBUS	8.30	8.62
tblVehicleEF	SBUS	1,213.77	1,227.50
tblVehicleEF	SBUS	1,082.96	1,092.06
tblVehicleEF	SBUS	51.90	50.72
tblVehicleEF	SBUS	11.42	12.11
tblVehicleEF	SBUS	4.93	5.31
tblVehicleEF	SBUS	12.98	13.25
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	8.5500e-004	8.6200e-004
tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	2.6570e-003	2.6660e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	7.8600e-004	7.9300e-004
tblVehicleEF	SBUS	9.4360e-003	0.01
tblVehicleEF	SBUS	0.04	0.05
tblVehicleEF	SBUS	0.94	0.93
tblVehicleEF	SBUS	3.3630e-003	3.4920e-003
tblVehicleEF	SBUS	0.14	0.15
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.47	0.49
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.6400e-004	6.5800e-004
tblVehicleEF	SBUS	9.4360e-003	0.01
tblVehicleEF	SBUS	0.04	0.05
tblVehicleEF	SBUS	1.36	1.33
tblVehicleEF	SBUS	3.3630e-003	3.4920e-003
tblVehicleEF	SBUS	0.18	0.19
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.52	0.54
tblVehicleEF	SBUS	0.87	0.88
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.11	0.12
tblVehicleEF	SBUS	8.00	7.88
tblVehicleEF	SBUS	1.41	1.54
tblVehicleEF	SBUS	14.31	14.87
tblVehicleEF	SBUS	1,085.88	1,097.00

tblVehicleEF	SBUS	1,082.96	1,092.06
tblVehicleEF	SBUS	51.90	50.72
tblVehicleEF	SBUS	10.58	11.22
tblVehicleEF	SBUS	5.25	5.66
tblVehicleEF	SBUS	13.10	13.37
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	8.5500e-004	8.6200e-004
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	2.6570e-003	2.6660e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	7.8600e-004	7.9300e-004
tblVehicleEF	SBUS	2.1320e-003	2.2340e-003
tblVehicleEF	SBUS	0.04	0.05
tblVehicleEF	SBUS	0.95	0.93
tblVehicleEF	SBUS	8.4700e-004	8.5500e-004
tblVehicleEF	SBUS	0.14	0.15
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	0.64	0.67
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	7.6400e-004	7.6200e-004
tblVehicleEF	SBUS	2.1320e-003	2.2340e-003
tblVehicleEF	SBUS	0.04	0.05
tblVehicleEF	SBUS	1.36	1.34
tblVehicleEF	SBUS	8.4700e-004	8.5500e-004

tblVehicleEF	SBUS	0.17	0.19
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	0.70	0.73
tblVehicleEF	UBUS	0.28	0.28
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	6.08	6.47
tblVehicleEF	UBUS	7.73	7.67
tblVehicleEF	UBUS	2,181.27	2,214.91
tblVehicleEF	UBUS	81.64	75.08
tblVehicleEF	UBUS	13.91	15.34
tblVehicleEF	UBUS	16.09	16.55
tblVehicleEF	UBUS	0.65	0.67
tblVehicleEF	UBUS	0.32	0.36
tblVehicleEF	UBUS	8.8200e-004	8.0400e-004
tblVehicleEF	UBUS	0.28	0.29
tblVehicleEF	UBUS	0.31	0.34
tblVehicleEF	UBUS	8.1100e-004	7.3900e-004
tblVehicleEF	UBUS	2.2120e-003	2.2220e-003
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	9.9000e-004	9.8100e-004
tblVehicleEF	UBUS	0.87	0.95
tblVehicleEF	UBUS	7.6630e-003	7.5600e-003
tblVehicleEF	UBUS	0.51	0.50
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	9.5300e-004	8.8600e-004
tblVehicleEF	UBUS	2.2120e-003	2.2220e-003
tblVehicleEF	UBUS	0.04	0.04

tblVehicleEF	UBUS	9.9000e-004	9.8100e-004
tblVehicleEF	UBUS	1.22	1.31
tblVehicleEF	UBUS	7.6630e-003	7.5600e-003
tblVehicleEF	UBUS	0.56	0.54
tblVehicleEF	UBUS	0.28	0.29
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	6.15	6.54
tblVehicleEF	UBUS	6.11	6.04
tblVehicleEF	UBUS	2,181.27	2,214.91
tblVehicleEF	UBUS	81.64	75.08
tblVehicleEF	UBUS	13.35	14.72
tblVehicleEF	UBUS	16.04	16.50
tblVehicleEF	UBUS	0.65	0.67
tblVehicleEF	UBUS	0.32	0.36
tblVehicleEF	UBUS	8.8200e-004	8.0400e-004
tblVehicleEF	UBUS	0.28	0.29
tblVehicleEF	UBUS	0.31	0.34
tblVehicleEF	UBUS	8.1100e-004	7.3900e-004
tblVehicleEF	UBUS	5.3700e-003	5.4140e-003
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	2.4400e-003	2.4390e-003
tblVehicleEF	UBUS	0.88	0.96
tblVehicleEF	UBUS	7.0760e-003	6.9900e-003
tblVehicleEF	UBUS	0.44	0.43
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	9.2500e-004	8.5800e-004
tblVehicleEF	UBUS	5.3700e-003	5.4140e-003

tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	2.4400e-003	2.4390e-003
tblVehicleEF	UBUS	1.24	1.33
tblVehicleEF	UBUS	7.0760e-003	6.9900e-003
tblVehicleEF	UBUS	0.48	0.47
tblVehicleEF	UBUS	0.27	0.28
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	6.03	6.42
tblVehicleEF	UBUS	9.29	9.22
tblVehicleEF	UBUS	2,181.27	2,214.91
tblVehicleEF	UBUS	81.64	75.08
tblVehicleEF	UBUS	14.13	15.58
tblVehicleEF	UBUS	16.14	16.59
tblVehicleEF	UBUS	0.65	0.67
tblVehicleEF	UBUS	0.32	0.36
tblVehicleEF	UBUS	8.8200e-004	8.0400e-004
tblVehicleEF	UBUS	0.28	0.29
tblVehicleEF	UBUS	0.31	0.34
tblVehicleEF	UBUS	8.1100e-004	7.3900e-004
tblVehicleEF	UBUS	1.1440e-003	1.1450e-003
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	4.8600e-004	4.7600e-004
tblVehicleEF	UBUS	0.86	0.94
tblVehicleEF	UBUS	9.3180e-003	9.1740e-003
tblVehicleEF	UBUS	0.57	0.56
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	9.8000e-004	9.1300e-004

tblVehicleEF	UBUS	1.1440e-003	1.1450e-003
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	4.8600e-004	4.7600e-004
tblVehicleEF	UBUS	1.20	1.30
tblVehicleEF	UBUS	9.3180e-003	9.1740e-003
tblVehicleEF	UBUS	0.63	0.61
tblWater	IndoorWaterUseRate	390,924.15	456,078.18
tblWater	OutdoorWaterUseRate	246,452.18	287,527.55
tblWoodstoves	NumberCatalytic	0.24	0.00
tblWoodstoves	NumberNoncatalytic	0.24	0.00
tblWoodstoves	WoodstoveDayYear	21.06	0.00
tblWoodstoves	WoodstoveWoodMass	956.80	0.00

2.0 Emissions Summary

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					
2018	0.1778	1.3644	1.0134	1.7400e-003	0.0308	0.0779	0.1087	0.0129	0.0742	0.0872	0.0000	150.7689	150.7689	0.0305	0.0000	151.5322
2019	0.2397	1.1714	0.9581	1.6400e-003	7.0000e-003	0.0666	0.0736	1.9000e-003	0.0640	0.0659	0.0000	138.7842	138.7842	0.0262	0.0000	139.4402
Maximum	**0.2397**	**1.3644**	**1.0134**	**1.7400e-003**	**0.0308**	**0.0779**	**0.1087**	**0.0129**	**0.0742**	**0.0872**	**0.0000**	**150.7689**	**150.7689**	**0.0305**	**0.0000**	**151.5322**

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					
2018	0.1778	1.3644	1.0134	1.7400e-003	0.0308	0.0779	0.1087	0.0129	0.0742	0.0872	0.0000	150.7687	150.7687	0.0305	0.0000	151.5320
2019	0.2397	1.1714	0.9581	1.6400e-003	7.0000e-003	0.0666	0.0736	1.9000e-003	0.0640	0.0659	0.0000	138.7840	138.7840	0.0262	0.0000	139.4401
Maximum	**0.2397**	**1.3644**	**1.0134**	**1.7400e-003**	**0.0308**	**0.0779**	**0.1087**	**0.0129**	**0.0742**	**0.0872**	**0.0000**	**150.7687**	**150.7687**	**0.0305**	**0.0000**	**151.5320**

	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	N20	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**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-5-2018	10-4-2018	0.7914	0.7914
2	10-5-2018	1-4-2019	0.7889	0.7889
3	1-5-2019	4-4-2019	0.7049	0.7049
4	4-5-2019	7-4-2019	0.6686	0.6686
		Highest	0.7914	0.7914

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	0.0511	9.7000e-004	0.0524	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.5078	0.5078	9.0000e-005	1.0000e-005	0.5124
Energy	1.1000e-003	9.3700e-003	3.9900e-003	6.0000e-005		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004	0.0000	27.3326	27.3326	9.5000e-004	3.5000e-004	27.4617
Mobile	0.0218	0.0873	0.2552	6.9000e-004	0.0568	8.3000e-004	0.0576	0.0152	7.8000e-004	0.0160	0.0000	63.0462	63.0462	2.5500e-003	0.0000	63.1099
Waste						0.0000	0.0000		0.0000	0.0000	2.3872	0.0000	2.3872	0.1411	0.0000	5.9141
Water						0.0000	0.0000		0.0000	0.0000	0.1447	1.0107	1.1554	0.0149	3.6000e-004	1.6354
Total	**0.0740**	**0.0976**	**0.3116**	**7.6000e-004**	**0.0568**	**1.9100e-003**	**0.0587**	**0.0152**	**1.8600e-003**	**0.0171**	**2.5319**	**91.8973**	**94.4292**	**0.1596**	**7.2000e-004**	**98.6336**

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	0.0511	9.7000e-004	0.0524	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.5078	0.5078	9.0000e-005	1.0000e-005	0.5124
Energy	1.1000e-003	9.3700e-003	3.9900e-003	6.0000e-005		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004	0.0000	27.3326	27.3326	9.5000e-004	3.5000e-004	27.4617
Mobile	0.0218	0.0873	0.2552	6.9000e-004	0.0568	8.3000e-004	0.0576	0.0152	7.8000e-004	0.0160	0.0000	63.0462	63.0462	2.5500e-003	0.0000	63.1099
Waste						0.0000	0.0000		0.0000	0.0000	2.3872	0.0000	2.3872	0.1411	0.0000	5.9141
Water						0.0000	0.0000		0.0000	0.0000	0.1447	1.0107	1.1554	0.0149	3.6000e-004	1.6354
Total	**0.0740**	**0.0976**	**0.3116**	**7.6000e-004**	**0.0568**	**1.9100e-003**	**0.0587**	**0.0152**	**1.8600e-003**	**0.0171**	**2.5319**	**91.8973**	**94.4292**	**0.1596**	**7.2000e-004**	**98.6336**

	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	N20	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**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	24.7800
Vegetation Land Change	0.0000
Total	**24.7800**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/5/2018	7/11/2018	5	5	structure removal
2	Site Preparation	Site Preparation	7/12/2018	7/16/2018	5	3	grubbing
3	Grading	Grading	7/17/2018	7/24/2018	5	6	earthwork, cut and fill
4	Trenching	Trenching	7/25/2018	8/1/2018	5	6	
5	Paving	Paving	8/2/2018	8/8/2018	5	5	paving
6	Building construction	Building Construction	8/9/2018	6/12/2019	5	220	
7	Painting	Architectural Coating	4/24/2019	6/25/2019	5	45	

Acres of Grading (Site Preparation Phase): 1.92

Acres of Grading (Grading Phase): 1.92

Acres of Paving: 0.4

Residential Indoor: 22,275; Residential Outdoor: 7,425; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 1,045 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	0		158	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Scrapers	1	8.00	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building construction	Cranes	1	8.00	226	0.29
Building construction	Forklifts	2	7.00	89	0.20
Building construction	Generator Sets	1	8.00	84	0.74
Building construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building construction	Welders	3	8.00	46	0.45
Painting	Air Compressors	1	6.00	78	0.48

Trips and VMT

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
Demolition	5	8.00	0.00	8.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	8.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	250.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building construction	8	11.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Painting	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

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					6.4000e-004	0.0000	6.4000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.2100e-003	0.0609	0.0378	6.0000e-005		3.5900e-003	3.5900e-003		3.3600e-003	3.3600e-003	0.0000	5.4231	5.4231	1.3700e-003	0.0000	5.4574
Total	**6.2100e-003**	**0.0609**	**0.0378**	**6.0000e-005**	**6.4000e-004**	**3.5900e-003**	**4.2300e-003**	**1.0000e-004**	**3.3600e-003**	**3.4600e-003**	**0.0000**	**5.4231**	**5.4231**	**1.3700e-003**	**0.0000**	**5.4574**

3.2 Demolition - 2018

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	4.0000e-005	1.3100e-003	2.5000e-004	0.0000	7.0000e-005	1.0000e-005	7.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.3113	0.3113	1.0000e-005	0.0000	0.3117
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	8.0000e-005	6.0000e-005	6.3000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1447	0.1447	0.0000	0.0000	0.1448
Total	**1.2000e-004**	**1.3700e-003**	**8.8000e-004**	**0.0000**	**2.3000e-004**	**1.0000e-005**	**2.3000e-004**	**6.0000e-005**	**1.0000e-005**	**6.0000e-005**	**0.0000**	**0.4560**	**0.4560**	**1.0000e-005**	**0.0000**	**0.4565**

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					6.4000e-004	0.0000	6.4000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.2100e-003	0.0609	0.0378	6.0000e-005		3.5900e-003	3.5900e-003		3.3600e-003	3.3600e-003	0.0000	5.4231	5.4231	1.3700e-003	0.0000	5.4574
Total	**6.2100e-003**	**0.0609**	**0.0378**	**6.0000e-005**	**6.4000e-004**	**3.5900e-003**	**4.2300e-003**	**1.0000e-004**	**3.3600e-003**	**3.4600e-003**	**0.0000**	**5.4231**	**5.4231**	**1.3700e-003**	**0.0000**	**5.4574**

3.2 Demolition - 2018

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	4.0000e-005	1.3100e-003	2.5000e-004	0.0000	7.0000e-005	1.0000e-005	7.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.3113	0.3113	1.0000e-005	0.0000	0.3117
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	8.0000e-005	6.0000e-005	6.3000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1447	0.1447	0.0000	0.0000	0.1448
Total	**1.2000e-004**	**1.3700e-003**	**8.8000e-004**	**0.0000**	**2.3000e-004**	**1.0000e-005**	**2.3000e-004**	**6.0000e-005**	**1.0000e-005**	**6.0000e-005**	**0.0000**	**0.4560**	**0.4560**	**1.0000e-005**	**0.0000**	**0.4565**

3.3 Site Preparation - 2018

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					1.0200e-003	0.0000	1.0200e-003	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2900e-003	0.0369	0.0230	4.0000e-005		1.7700e-003	1.7700e-003		1.6300e-003	1.6300e-003	0.0000	3.2650	3.2650	1.0200e-003	0.0000	3.2904
Total	**3.2900e-003**	**0.0369**	**0.0230**	**4.0000e-005**	**1.0200e-003**	**1.7700e-003**	**2.7900e-003**	**1.1000e-004**	**1.6300e-003**	**1.7400e-003**	**0.0000**	**3.2650**	**3.2650**	**1.0200e-003**	**0.0000**	**3.2904**

3.3 Site Preparation - 2018

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	4.0000e-005	1.3100e-003	2.5000e-004	0.0000	7.0000e-005	1.0000e-005	7.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.3113	0.3113	1.0000e-005	0.0000	0.3117
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	5.0000e-005	4.0000e-005	3.8000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0868	0.0868	0.0000	0.0000	0.0869
Total	**9.0000e-005**	**1.3500e-003**	**6.3000e-004**	**0.0000**	**1.7000e-004**	**1.0000e-005**	**1.7000e-004**	**5.0000e-005**	**1.0000e-005**	**5.0000e-005**	**0.0000**	**0.3982**	**0.3982**	**1.0000e-005**	**0.0000**	**0.3986**

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					1.0200e-003	0.0000	1.0200e-003	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2900e-003	0.0369	0.0230	4.0000e-005		1.7700e-003	1.7700e-003		1.6300e-003	1.6300e-003	0.0000	3.2650	3.2650	1.0200e-003	0.0000	3.2904
Total	**3.2900e-003**	**0.0369**	**0.0230**	**4.0000e-005**	**1.0200e-003**	**1.7700e-003**	**2.7900e-003**	**1.1000e-004**	**1.6300e-003**	**1.7400e-003**	**0.0000**	**3.2650**	**3.2650**	**1.0200e-003**	**0.0000**	**3.2904**

3.3 Site Preparation - 2018

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	4.0000e-005	1.3100e-003	2.5000e-004	0.0000	7.0000e-005	1.0000e-005	7.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.3113	0.3113	1.0000e-005	0.0000	0.3117
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	5.0000e-005	4.0000e-005	3.8000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0868	0.0868	0.0000	0.0000	0.0869
Total	**9.0000e-005**	**1.3500e-003**	**6.3000e-004**	**0.0000**	**1.7000e-004**	**1.0000e-005**	**1.7000e-004**	**5.0000e-005**	**1.0000e-005**	**5.0000e-005**	**0.0000**	**0.3982**	**0.3982**	**1.0000e-005**	**0.0000**	**0.3986**

3.4 Grading - 2018

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					0.0192	0.0000	0.0192	0.0101	0.0000	0.0101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1200e-003	0.0738	0.0532	6.0000e-005		4.0000e-003	4.0000e-003		3.6800e-003	3.6800e-003	0.0000	5.6320	5.6320	1.7500e-003	0.0000	5.6758
Total	**7.1200e-003**	**0.0738**	**0.0532**	**6.0000e-005**	**0.0192**	**4.0000e-003**	**0.0232**	**0.0101**	**3.6800e-003**	**0.0137**	**0.0000**	**5.6320**	**5.6320**	**1.7500e-003**	**0.0000**	**5.6758**

3.4 Grading - 2018

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-003	0.0410	7.9700e-003	1.0000e-004	2.1200e-003	1.6000e-004	2.2800e-003	5.8000e-004	1.6000e-004	7.4000e-004	0.0000	9.7287	9.7287	4.6000e-004	0.0000	9.7402
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	1.2000e-004	9.0000e-005	9.5000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2171	0.2171	1.0000e-005	0.0000	0.2172
Total	**1.3200e-003**	**0.0411**	**8.9200e-003**	**1.0000e-004**	**2.3600e-003**	**1.6000e-004**	**2.5200e-003**	**6.4000e-004**	**1.6000e-004**	**8.0000e-004**	**0.0000**	**9.9458**	**9.9458**	**4.7000e-004**	**0.0000**	**9.9574**

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					0.0192	0.0000	0.0192	0.0101	0.0000	0.0101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1200e-003	0.0738	0.0532	6.0000e-005		4.0000e-003	4.0000e-003		3.6800e-003	3.6800e-003	0.0000	5.6320	5.6320	1.7500e-003	0.0000	5.6758
Total	**7.1200e-003**	**0.0738**	**0.0532**	**6.0000e-005**	**0.0192**	**4.0000e-003**	**0.0232**	**0.0101**	**3.6800e-003**	**0.0137**	**0.0000**	**5.6320**	**5.6320**	**1.7500e-003**	**0.0000**	**5.6758**

3.4 Grading - 2018

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-003	0.0410	7.9700e-003	1.0000e-004	2.1200e-003	1.6000e-004	2.2800e-003	5.8000e-004	1.6000e-004	7.4000e-004	0.0000	9.7287	9.7287	4.6000e-004	0.0000	9.7402
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	1.2000e-004	9.0000e-005	9.5000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2171	0.2171	1.0000e-005	0.0000	0.2172
Total	**1.3200e-003**	**0.0411**	**8.9200e-003**	**1.0000e-004**	**2.3600e-003**	**1.6000e-004**	**2.5200e-003**	**6.4000e-004**	**1.6000e-004**	**8.0000e-004**	**0.0000**	**9.9458**	**9.9458**	**4.7000e-004**	**0.0000**	**9.9574**

3.5 Trenching - 2018

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	2.4900e-003	0.0253	0.0241	3.0000e-005		1.5800e-003	1.5800e-003		1.4500e-003	1.4500e-003	0.0000	3.1524	3.1524	9.8000e-004	0.0000	3.1769
Total	**2.4900e-003**	**0.0253**	**0.0241**	**3.0000e-005**		**1.5800e-003**	**1.5800e-003**		**1.4500e-003**	**1.4500e-003**	**0.0000**	**3.1524**	**3.1524**	**9.8000e-004**	**0.0000**	**3.1769**

3.5 Trenching - 2018

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	1.0000e-004	7.0000e-005	7.6000e-004	0.0000	1.9000e-004	0.0000	1.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1737	0.1737	1.0000e-005	0.0000	0.1738
Total	**1.0000e-004**	**7.0000e-005**	**7.6000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1737**	**0.1737**	**1.0000e-005**	**0.0000**	**0.1738**

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	2.4900e-003	0.0253	0.0241	3.0000e-005		1.5800e-003	1.5800e-003		1.4500e-003	1.4500e-003	0.0000	3.1524	3.1524	9.8000e-004	0.0000	3.1769
Total	**2.4900e-003**	**0.0253**	**0.0241**	**3.0000e-005**		**1.5800e-003**	**1.5800e-003**		**1.4500e-003**	**1.4500e-003**	**0.0000**	**3.1524**	**3.1524**	**9.8000e-004**	**0.0000**	**3.1769**

3.5 Trenching - 2018

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	1.0000e-004	7.0000e-005	7.6000e-004	0.0000	1.9000e-004	0.0000	1.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1737	0.1737	1.0000e-005	0.0000	0.1738
Total	**1.0000e-004**	**7.0000e-005**	**7.6000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1737**	**0.1737**	**1.0000e-005**	**0.0000**	**0.1738**

3.6 Paving - 2018

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	3.4700e-003	0.0352	0.0296	4.0000e-005		2.1000e-003	2.1000e-003		1.9400e-003	1.9400e-003	0.0000	3.9686	3.9686	1.2100e-003	0.0000	3.9989
Paving	5.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.9900e-003**	**0.0352**	**0.0296**	**4.0000e-005**		**2.1000e-003**	**2.1000e-003**		**1.9400e-003**	**1.9400e-003**	**0.0000**	**3.9686**	**3.9686**	**1.2100e-003**	**0.0000**	**3.9989**

3.6 Paving - 2018

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	3.0000e-004	2.3000e-004	2.3700e-003	1.0000e-005	1.1100e-003	0.0000	1.1100e-003	2.8000e-004	0.0000	2.9000e-004	0.0000	0.5427	0.5427	2.0000e-005	0.0000	0.5431
Total	**3.0000e-004**	**2.3000e-004**	**2.3700e-003**	**1.0000e-005**	**1.1100e-003**	**0.0000**	**1.1100e-003**	**2.8000e-004**	**0.0000**	**2.9000e-004**	**0.0000**	**0.5427**	**0.5427**	**2.0000e-005**	**0.0000**	**0.5431**

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	3.4700e-003	0.0352	0.0296	4.0000e-005		2.1000e-003	2.1000e-003		1.9400e-003	1.9400e-003	0.0000	3.9686	3.9686	1.2100e-003	0.0000	3.9988
Paving	5.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.9900e-003**	**0.0352**	**0.0296**	**4.0000e-005**		**2.1000e-003**	**2.1000e-003**		**1.9400e-003**	**1.9400e-003**	**0.0000**	**3.9686**	**3.9686**	**1.2100e-003**	**0.0000**	**3.9988**

3.6 Paving - 2018

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	3.0000e-004	2.3000e-004	2.3700e-003	1.0000e-005	1.1100e-003	0.0000	1.1100e-003	2.8000e-004	0.0000	2.9000e-004	0.0000	0.5427	0.5427	2.0000e-005	0.0000	0.5431
Total	**3.0000e-004**	**2.3000e-004**	**2.3700e-003**	**1.0000e-005**	**1.1100e-003**	**0.0000**	**1.1100e-003**	**2.8000e-004**	**0.0000**	**2.9000e-004**	**0.0000**	**0.5427**	**0.5427**	**2.0000e-005**	**0.0000**	**0.5431**

3.7 Building construction - 2018

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	0.1494	1.0588	0.8067	1.2800e-003		0.0644	0.0644		0.0618	0.0618	0.0000	108.2600	108.2600	0.0233	0.0000	108.8417
Total	**0.1494**	**1.0588**	**0.8067**	**1.2800e-003**		**0.0644**	**0.0644**		**0.0618**	**0.0618**	**0.0000**	**108.2600**	**108.2600**	**0.0233**	**0.0000**	**108.8417**

3.7 Building construction - 2018

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	1.1300e-003	0.0276	7.6800e-003	6.0000e-005	1.3600e-003	2.2000e-004	1.5800e-003	3.9000e-004	2.1000e-004	6.0000e-004	0.0000	5.4525	5.4525	2.8000e-004	0.0000	5.4595
Worker	2.2800e-003	1.7500e-003	0.0179	5.0000e-005	4.4900e-003	3.0000e-005	4.5200e-003	1.1900e-003	3.0000e-005	1.2200e-003	0.0000	4.0992	4.0992	1.2000e-004	0.0000	4.1023
Total	**3.4100e-003**	**0.0294**	**0.0255**	**1.1000e-004**	**5.8500e-003**	**2.5000e-004**	**6.1000e-003**	**1.5800e-003**	**2.4000e-004**	**1.8200e-003**	**0.0000**	**9.5516**	**9.5516**	**4.0000e-004**	**0.0000**	**9.5618**

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	0.1494	1.0588	0.8067	1.2800e-003		0.0644	0.0644		0.0618	0.0618	0.0000	108.2599	108.2599	0.0233	0.0000	108.8415
Total	**0.1494**	**1.0588**	**0.8067**	**1.2800e-003**		**0.0644**	**0.0644**		**0.0618**	**0.0618**	**0.0000**	**108.2599**	**108.2599**	**0.0233**	**0.0000**	**108.8415**

3.7 Building construction - 2018

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	1.1300e-003	0.0276	7.6800e-003	6.0000e-005	1.3600e-003	2.2000e-004	1.5800e-003	3.9000e-004	2.1000e-004	6.0000e-004	0.0000	5.4525	5.4525	2.8000e-004	0.0000	5.4595
Worker	2.2800e-003	1.7500e-003	0.0179	5.0000e-005	4.4900e-003	3.0000e-005	4.5200e-003	1.1900e-003	3.0000e-005	1.2200e-003	0.0000	4.0992	4.0992	1.2000e-004	0.0000	4.1023
Total	**3.4100e-003**	**0.0294**	**0.0255**	**1.1000e-004**	**5.8500e-003**	**2.5000e-004**	**6.1000e-003**	**1.5800e-003**	**2.4000e-004**	**1.8200e-003**	**0.0000**	**9.5516**	**9.5516**	**4.0000e-004**	**0.0000**	**9.5618**

3.7 Building construction - 2019

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	0.1490	1.0986	0.8895	1.4600e-003		0.0635	0.0635		0.0608	0.0608	0.0000	122.0501	122.0501	0.0253	0.0000	122.6831
Total	**0.1490**	**1.0986**	**0.8895**	**1.4600e-003**		**0.0635**	**0.0635**		**0.0608**	**0.0608**	**0.0000**	**122.0501**	**122.0501**	**0.0253**	**0.0000**	**122.6831**

3.7 Building construction - 2019

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	1.1500e-003	0.0296	7.9300e-003	6.0000e-005	1.5400e-003	2.1000e-004	1.7500e-003	4.5000e-004	2.0000e-004	6.5000e-004	0.0000	6.1554	6.1554	3.1000e-004	0.0000	6.1631
Worker	2.3400e-003	1.7400e-003	0.0180	5.0000e-005	5.1000e-003	3.0000e-005	5.1400e-003	1.3600e-003	3.0000e-005	1.3900e-003	0.0000	4.5179	4.5179	1.2000e-004	0.0000	4.5210
Total	**3.4900e-003**	**0.0313**	**0.0259**	**1.1000e-004**	**6.6400e-003**	**2.4000e-004**	**6.8900e-003**	**1.8100e-003**	**2.3000e-004**	**2.0400e-003**	**0.0000**	**10.6733**	**10.6733**	**4.3000e-004**	**0.0000**	**10.6840**

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	0.1490	1.0986	0.8895	1.4600e-003		0.0635	0.0635		0.0608	0.0608	0.0000	122.0500	122.0500	0.0253	0.0000	122.6830
Total	**0.1490**	**1.0986**	**0.8895**	**1.4600e-003**		**0.0635**	**0.0635**		**0.0608**	**0.0608**	**0.0000**	**122.0500**	**122.0500**	**0.0253**	**0.0000**	**122.6830**

3.7 Building construction - 2019

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	1.1500e-003	0.0296	7.9300e-003	6.0000e-005	1.5400e-003	2.1000e-004	1.7500e-003	4.5000e-004	2.0000e-004	6.5000e-004	0.0000	6.1554	6.1554	3.1000e-004	0.0000	6.1631
Worker	2.3400e-003	1.7400e-003	0.0180	5.0000e-005	5.1000e-003	3.0000e-005	5.1400e-003	1.3600e-003	3.0000e-005	1.3900e-003	0.0000	4.5179	4.5179	1.2000e-004	0.0000	4.5210
Total	**3.4900e-003**	**0.0313**	**0.0259**	**1.1000e-004**	**6.6400e-003**	**2.4000e-004**	**6.8900e-003**	**1.8100e-003**	**2.3000e-004**	**2.0400e-003**	**0.0000**	**10.6733**	**10.6733**	**4.3000e-004**	**0.0000**	**10.6840**

3.8 Painting - 2019

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	0.0811					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.9900e-003	0.0413	0.0414	7.0000e-005		2.9000e-003	2.9000e-003		2.9000e-003	2.9000e-003	0.0000	5.7448	5.7448	4.9000e-004	0.0000	5.7570
Total	**0.0871**	**0.0413**	**0.0414**	**7.0000e-005**		**2.9000e-003**	**2.9000e-003**		**2.9000e-003**	**2.9000e-003**	**0.0000**	**5.7448**	**5.7448**	**4.9000e-004**	**0.0000**	**5.7570**

3.8 Painting - 2019

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	1.6000e-004	1.2000e-004	1.2600e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3159	0.3159	1.0000e-005	0.0000	0.3162
Total	**1.6000e-004**	**1.2000e-004**	**1.2600e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3159**	**0.3159**	**1.0000e-005**	**0.0000**	**0.3162**

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	0.0811					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.9900e-003	0.0413	0.0414	7.0000e-005		2.9000e-003	2.9000e-003		2.9000e-003	2.9000e-003	0.0000	5.7448	5.7448	4.9000e-004	0.0000	5.7569
Total	**0.0871**	**0.0413**	**0.0414**	**7.0000e-005**		**2.9000e-003**	**2.9000e-003**		**2.9000e-003**	**2.9000e-003**	**0.0000**	**5.7448**	**5.7448**	**4.9000e-004**	**0.0000**	**5.7569**

3.8 Painting - 2019

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	1.6000e-004	1.2000e-004	1.2600e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3159	0.3159	1.0000e-005	0.0000	0.3162
Total	**1.6000e-004**	**1.2000e-004**	**1.2600e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3159**	**0.3159**	**1.0000e-005**	**0.0000**	**0.3162**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	0.0218	0.0873	0.2552	6.9000e-004	0.0568	8.3000e-004	0.0576	0.0152	7.8000e-004	0.0160	0.0000	63.0462	63.0462	2.5500e-003	0.0000	63.1099
Unmitigated	0.0218	0.0873	0.2552	6.9000e-004	0.0568	8.3000e-004	0.0576	0.0152	7.8000e-004	0.0160	0.0000	63.0462	63.0462	2.5500e-003	0.0000	63.1099

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	66.64	69.37	60.34	152,734	152,734
Total	66.64	69.37	60.34	152,734	152,734

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
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
Other Asphalt Surfaces	0.596719	0.040200	0.188056	0.111125	0.016796	0.004948	0.012194	0.019466	0.002007	0.001626	0.005410	0.000612	0.000841
Single Family Housing	0.596719	0.040200	0.188056	0.111125	0.016796	0.004948	0.012194	0.019466	0.002007	0.001626	0.005410	0.000612	0.000841

5.0 Energy Detail

Historical Energy Use: N

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	16.4755	16.4755	7.4000e-004	1.5000e-004	16.5400
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	16.4755	16.4755	7.4000e-004	1.5000e-004	16.5400
NaturalGas Mitigated	1.1000e-003	9.3700e-003	3.9900e-003	6.0000e-005		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004	0.0000	10.8572	10.8572	2.1000e-004	2.0000e-004	10.9217
NaturalGas Unmitigated	1.1000e-003	9.3700e-003	3.9900e-003	6.0000e-005		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004	0.0000	10.8572	10.8572	2.1000e-004	2.0000e-004	10.9217

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					
Other Asphalt Surfaces	0	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
Single Family Housing	203456	1.1000e-003	9.3700e-003	3.9900e-003	6.0000e-005		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004	0.0000	10.8572	10.8572	2.1000e-004	2.0000e-004	10.9217
Total		**1.1000e-003**	**9.3700e-003**	**3.9900e-003**	**6.0000e-005**		**7.6000e-004**	**7.6000e-004**		**7.6000e-004**	**7.6000e-004**	**0.0000**	**10.8572**	**10.8572**	**2.1000e-004**	**2.0000e-004**	**10.9217**

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					
Other Asphalt Surfaces	0	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
Single Family Housing	203456	1.1000e-003	9.3700e-003	3.9900e-003	6.0000e-005		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004	0.0000	10.8572	10.8572	2.1000e-004	2.0000e-004	10.9217
Total		**1.1000e-003**	**9.3700e-003**	**3.9900e-003**	**6.0000e-005**		**7.6000e-004**	**7.6000e-004**		**7.6000e-004**	**7.6000e-004**	**0.0000**	**10.8572**	**10.8572**	**2.1000e-004**	**2.0000e-004**	**10.9217**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	56634	16.4755	7.4000e-004	1.5000e-004	16.5400
Total		**16.4755**	**7.4000e-004**	**1.5000e-004**	**16.5400**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	56634	16.4755	7.4000e-004	1.5000e-004	16.5400
Total		**16.4755**	**7.4000e-004**	**1.5000e-004**	**16.5400**

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	0.0511	9.7000e-004	0.0524	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.5078	0.5078	9.0000e-005	1.0000e-005	0.5124
Unmitigated	0.0511	9.7000e-004	0.0524	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.5078	0.5078	9.0000e-005	1.0000e-005	0.5124

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	9.2900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0402					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	4.0000e-005	3.7000e-004	1.6000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4229	0.4229	1.0000e-005	1.0000e-005	0.4254
Landscaping	1.6000e-003	6.1000e-004	0.0522	0.0000		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	0.0849	0.0849	8.0000e-005	0.0000	0.0870
Total	**0.0511**	**9.8000e-004**	**0.0524**	**0.0000**		**3.2000e-004**	**3.2000e-004**		**3.2000e-004**	**3.2000e-004**	**0.0000**	**0.5078**	**0.5078**	**9.0000e-005**	**1.0000e-005**	**0.5124**

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	9.2900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0402					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	4.0000e-005	3.7000e-004	1.6000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4229	0.4229	1.0000e-005	1.0000e-005	0.4254
Landscaping	1.6000e-003	6.1000e-004	0.0522	0.0000		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	0.0849	0.0849	8.0000e-005	0.0000	0.0870
Total	**0.0511**	**9.8000e-004**	**0.0524**	**0.0000**		**3.2000e-004**	**3.2000e-004**		**3.2000e-004**	**3.2000e-004**	**0.0000**	**0.5078**	**0.5078**	**9.0000e-005**	**1.0000e-005**	**0.5124**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.1554	0.0149	3.6000e-004	1.6354
Unmitigated	1.1554	0.0149	3.6000e-004	1.6354

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.456078 / 0.287528	1.1554	0.0149	3.6000e-004	1.6354
Total		**1.1554**	**0.0149**	**3.6000e-004**	**1.6354**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.456078 / 0.287528	1.1554	0.0149	3.6000e-004	1.6354
Total		**1.1554**	**0.0149**	**3.6000e-004**	**1.6354**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.3872	0.1411	0.0000	5.9141
Unmitigated	2.3872	0.1411	0.0000	5.9141

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	11.76	2.3872	0.1411	0.0000	5.9141
Total		**2.3872**	**0.1411**	**0.0000**	**5.9141**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	11.76	2.3872	0.1411	0.0000	5.9141
Total		**2.3872**	**0.1411**	**0.0000**	**5.9141**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	24.7800	0.0000	0.0000	24.7800

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Others	2.12 / 0.9	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	35	24.7800	0.0000	0.0000	24.7800
Total		**24.7800**	**0.0000**	**0.0000**	**24.7800**

APPENDIX B
WIND ROSE CLIMATOLOGY

The project site is located near the southwestern margin of the Santa Clara Valley air basin. The valley floor trends generally northwest-southeast and is bracketed by hills on the west and east.

In the center of the valley floor, surface winds tend to follow a northwesterly or southeasterly pattern.[13] San Jose International Airport runways are aligned to take advantage of prevailing wind directions which align with the center of the valley. Near the hills and valley margins, winds are influenced by topography, radiational warming and cooling of the ground surface and air above ground surface, and urban heat island effect. Radiational cooling at night is associated with downslope drainage winds known technically as katabatic winds. Cooler, higher-density air follows gravity and moves downhill. Warming in daytime is associated with ascending winds known technically as anabatic winds. Anabatic winds move upslope as incident sunlight warms the slope and air above.

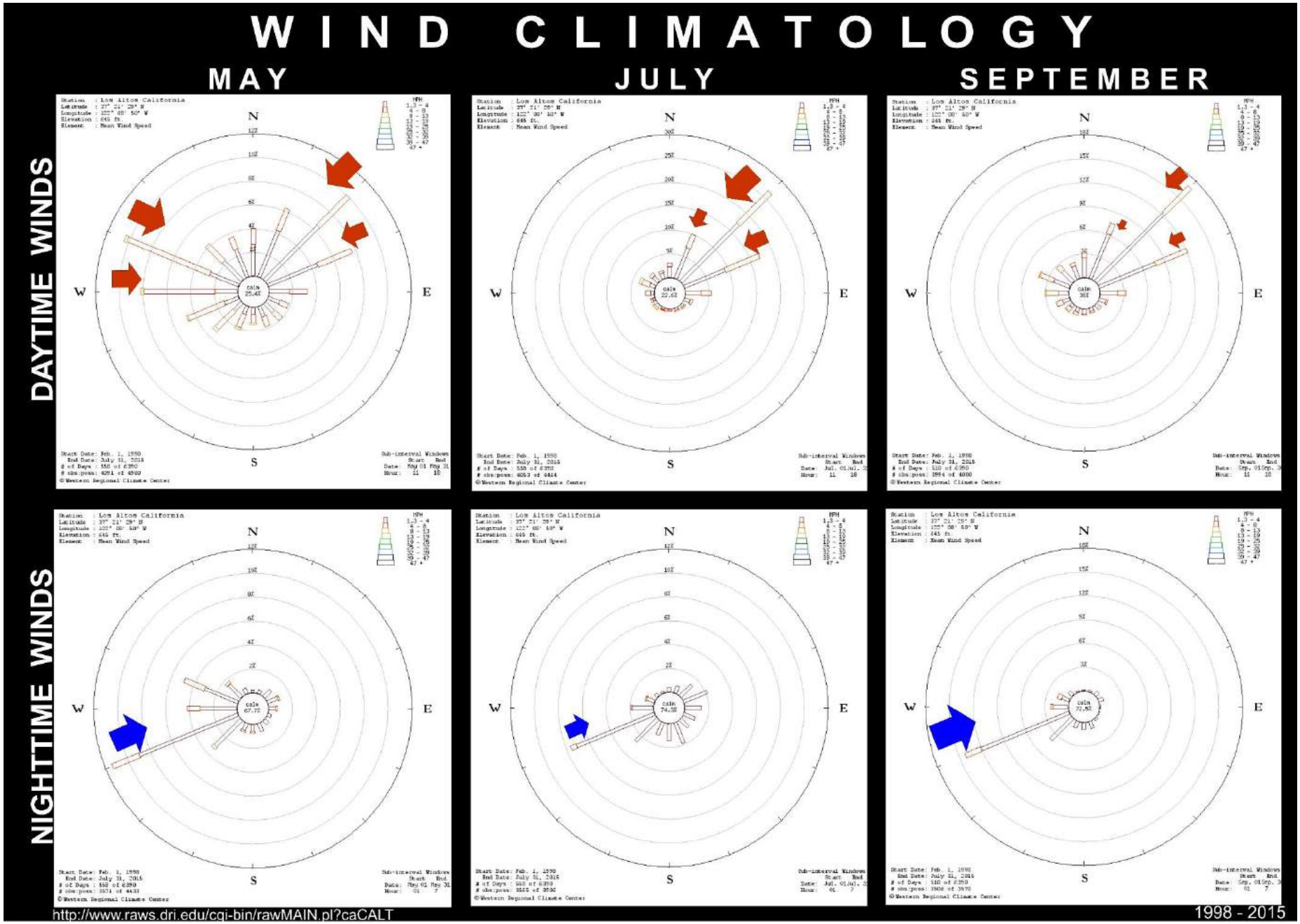
Wind roses were reviewed for Los Gatos, Los Altos and San Jose. Instead of focusing on 24-hour wind roses, data were stratified to consider nighttime and daytime conditions during May-September (see "Wind Climatology," next page). Looking at the data stratified by time of day and by month shows that in summer months the locally prevailing daytime wind originates from the northeast. At nighttime, the direction is reversed 180 degrees so that southwesterly winds predominate at night.

Local northeasterly daytime winds can be considered as the resultant of two components: 1) prevailing northwest-to-southeast wind down the valley floor and 2) local anabatic wind moving upslope during summer insolation and heating of the east-facing slopes. Insolation and heating of the east-facing slopes is at its maximum during the hot weather (June–September). The effect of anabatic winds is relatively less in the cooler months and transitional months April, May, October and November.

Prevailing daytime winds during summer are expected to carry air pollution from the construction site toward the southwest, west-southwest, and south-southwest. During June–September, this expectation is 2x to 3x more likely than advection air pollution from the construction site toward the east, northeast, and southeast.

The relevance of wind rose climatology is that construction fumes and dust during demolition, site preparation, grading, trenching and paving (May – June) would tend to advect and disperse in the direction of daytime winds. Measures for permanent buffering would be more likely to be effective if placed along the windward or western edge of the project site than along the eastern edge. Annual 24-hour wind roses include the effect of nighttime drainage winds, which are not relevant to buffering strategies since construction will not occur during midnight–7 a.m.

[13] By convention, northwesterly winds mean winds that blow from the northwest. In wind rose diagrams, winds are depicted by origin as opposed to destination.


WIND CLIMATOLOGY
MAY
JULY
SEPTEMBER
DAYTIME WINDS
NIGHTTIME WINDS
N
E
S
W
http://www.raws.dri.edu/cgi-bin/rawMAIN.pl?caCALT
1998 - 2015

APPENDIX C
CONSTRUCTION BASIC AND BEST PRACTICES

Table C-1 presents a current list of basic and best practices for construction equipment identified by the Bay Area Air Quality Management District (BAAQMD, 2017). Basic and best practices address both dust generated by construction activity as well as diesel particulate exhaust from construction equipment. All of the best practices applicable to a project should be required at the time grading permits are issued. Key Construction Best Practices (CBPs) include the following:

- To minimize fugitive dust and DPM emission and downwind DPM concentrations from on-site construction and equipment, implement Basic Practices aimed at reducing dust and controlling exhaust emissions (see Table 4, Basic Practices A6-A8, or Appendix C, Table C-1)
- Use Tier 4 non-road construction equipment and/or Tier 2 or Tier 3 non-road equipment retrofitted with Level 3 Verified Diesel Emission Control Strategies (VDECS) as certified by the California Air Resources Board (ARB). (NOTE: *Tier 4 engines automatically meet this recommendation.*)
- Prohibit portable diesel engines where access to alternative sources of power are available.
- Restrict idling to two minutes during idle episodes.
- Properly maintain and tune equipment in accordance with manufacturer specifications.

Other Basic Practices and CBPs are listed in Table C-1.

Table C-1. Basic and Best Practices for Dust Control

Construction Basic Practice for Dust Control

A1. Water [*at least*] two times per day exposed soil surfaces (*e.g*., staging areas, soil piles, graded areas, and unpaved access roads). BEST Maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.

A2. Cover haul trucks transporting soil, sand, or other loose material to or from the site.

A3. Remove visible mud or dirt track-out onto adjacent public roads, using wet power vacuum street sweepers at least once per day. The use of dry power sweeping should be done in conjunction with thorough watering of the subject roads.

A4. Limit vehicle speeds on unpaved roads [*less than*] 15 mph.

A5. Complete road, driveway and sidewalk paving as soon as possible.

A8. Post a sign visible to the public with the telephone number and person to contact at the Lead Agency regarding dust or odor complaints. The Air District's Complaint Line (1-800-334-6367) shall also be included on posted signs to ensure compliance with applicable best practices and regulations. *NOTE: The recommended response time for corrective actions, if any, shall be within 48 hours*.

Construction Best Practices for Dust Control

CBP1. Water exposed soil surfaces to maintain soil moisture at 12 percent or higher.

CBP2. Suspend grading or demolition when average wind speed exceeds 20 mph.

CBP3. Install wind breaks (*e.g*., trees, fences) on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.

CBP4. Plant vegetative ground cover (*e.g*. fast germinating native grass seed) in disturbed areas as soon as possible and watered appropriately until vegetation is established.

CBP5. Phase or stagger grading activities to reduce the amount of earth disturbance and equipment exhaust occurring next to a specific sensitive receptor at any one time.

CBP6. Wash truck beds, trailers, equipment tracks or tire treads before hauling or transporting equipment off site.

CBP7. Treat the site entry with a six- to 12-inch compacted layer of wood chips, mulch, or gravel, to minimize mud/dirt track-out.

Table C-2. Practices for Control of Exhaust and VOCs

Construction Basic Practice for Control of Exhaust

A6. Minimize idling times 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.

A7. All construction equipment shall be maintained and properly tuned in accordance with the manufacturers' specifications.

Construction Best Practices for Control of Exhaust

CBP9. Idling time of diesel powered construction equipment, trucks and generators shall be limited to no more than 2 minutes. Clear signage regarding the Idling Time Limit shall be posted at all access points.

CBP10. The applicant/general contractor for the project shall demonstrate to the local jurisdiction that all off-road equipment greater than 50 hp that will be operating during construction, including equipment from subcontractors, would achieve a project-wide fleet-average 20 percent NO_x reduction and 45 percent PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines (Tier 3 or Tier 4), alternative fuels, engine retrofit technology, after-treatment low-emission diesel products, add-on devices such as particulate filters (DPFs), and/or other options as such become available

NOTE: Equipment with engines meeting Tier 4 Interim or Tier 4 Final emission standards automatically meet the Verified Diesel Emission Control Strategies (VDECS) requirement.

CBP12. Require that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO_x and PM.

CBP13. Require contractors to use equipment that meets California ARB's most recent certification standard for non-road heavy duty diesel engines.

Construction Best Practices for Control of VOCs

CBP11. Use low VOC (*i.e.*, ROG) coatings beyond the local requirements (*i.e.*, Regulation 8, Rule 3: Architectural Coatings).

References

BAAQMD, 2017. *California Environmental Quality Act Air Quality Guidelines*, May 2017, (224 pp.).
http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

BAAQMD, 2016. *Planning Healthy Places; A Guidebook for Addressing Local Sources of Air Pollutants in Community Planning*, DRAFT, January 2016, (44 pp.), pp. 14-15 and 25-26. http://www.baaqmd.gov/~/media/files/planning-and-research/planning-healthy-places/draft_planninghealthyplaces_marchworkshop-pdf.pdf?la=en

ATTACHMENT 2

BIOLOGICAL RESOURCE ASSESSMENT

BIOLOGICAL RESOURCES ANALYSIS REPORT

FOR THE

HACIENDA AVENUE PROPERTY

CITY OF CAMPBELL, SANTA CLARA COUNTY, CALIFORNIA

Prepared for:

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JANUARY 2018

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Figure 5	CNDDB Wildlife Occurrences within 5 miles
Figure 6	CNDDB Plant Occurrences within 5 miles
Figure 7	USFWS Critical Habitat
Figure 8	Soils Map
Figure 9	Photo Location Map
Figure 10	Habitat Map

ATTACHMENT 2 TABLES

Table 1	Plant and Wildlife Species Observed Within/Adjacent to the Survey Area
Table 2	Special-Status Species for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir 7.5 Minute Quadrangle Maps

ATTACHMENT 3 SITE PHOTOGRAPHS

This report should be cited as: Olberding Environmental, Inc. January 2018. *Biological Resources Analysis Report for the Hacienda Avenue Property, City of Campbell, Santa Clara County, California*. Prepared for Hacienda Street Holdings LLC, East Palo Alto, California.

SUMMARY

On January 10, 2018, Olberding Environmental, Inc. conducted a field reconnaissance survey of the Hacienda Avenue Property (Property) for the purpose of identifying sensitive plant and wildlife species, sensitive habitats, and biological constraints potentially occurring on the Property. The Property surveyed is comprised of approximately 1.36 acres located within the City of Campbell, Santa Clara County, California.

Results of this initial reconnaissance survey indicate that the Property does not appear to contain wetlands/waters that are considered potentially jurisdictional by the U.S. Army Corps of Engineers (Corps) because the site lacks evidence of all three parameters (wetland soils, hydrology, and vegetation) that are used to indicate wetlands.

A query of the California Natural Diversity Database (CNDDB) showed that eight special-status plant species have been observed within five-miles of the Property. However, none were identified as having a potential to occur based on the absence of suitable habitat on the Property for these species.

A total of seven bird species were identified as having the potential to occur on or adjacent to the Property. The following four bird species have a moderate potential to occur in a foraging capacity only: red-shouldered hawk (*Buteo lineatus*), white-tailed kite (*Elanus leucurus*), American kestrel (*Falco sparverius)*, and sharp-shinned hawk (*Accipiter striatus*). The red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk (*Accipiter cooperii*), and loggerhead shrike (*Lanius ludovicianus*) have a moderate potential to occur in a foraging and nesting capacity. Due to lack of suitable habitat (ground squirrel burrows and cattails) the burrowing owl (*Athene cunicularia*) and tri-colored blackbird (*Agelaius tricolor*) are presumed absent. If project construction-related activities such as tree and vegetation removal or grading take place during the nesting season (February through August), preconstruction surveys for nesting passerine birds and raptors are recommended.

No evidence of bat use was observed on the Property during the January 2018 survey; however, based on habitat suitability, it was determined that bats have a low to moderate potential to utilize the site in a foraging or roosting capacity. These bat species include: pallid bat (*Antrozous pallidus*), western red bat (*Lasiurus blossevillii*), and hoary bat (*Lasiurus cinereus)*. This holds especially true for the empty structure on the western edge of the Property. If project construction-related activities such as tree removal or building demolition take place it is recommended that a bat habitat assessment should be conducted by a qualified bat biologist during seasonal periods of bat activity, from May through October, to determine suitability of the on-site habitat. If special-status bat species are discovered, construction activities may be timed to minimize impacts and additional mitigation may be required.

The CNDDB has listed occurrences of the California red-legged frog (*Rana draytonii*) (CRLF), and California tiger salamander (*Ambystoma californiense*) (CTS) within a 5-mile radius of the Property. However, due to the historic nature of the occurences, the lack of suitable habitat for each and the surrounding residential development, it is unlikely that these species could use the Property for dispersal and both of these species are presumed absent from the Property.

1.0 INTRODUCTION

Olberding Environmental, Inc. has conducted a biological resources analysis (biological constraints assessment) of the Property, located within the city limits of Campbell, Santa Clara County, California. This biological resources analysis included a review of pertinent literature on relevant background information and habitat characteristics of the site. Our review included researching existing information in the California Natural Diversity Database (CNDDB 2018) maintained by the CDFW and the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2018). Also included was a review of information related to species of plants and animals that could potentially utilize the described habitats identified on and immediately surrounding the Property. To assist in the assessment, a field reconnaissance investigation of the Property was conducted on January 10, 2018. This report documents the methods, results, and conclusions for the reconnaissance-level survey associated with the biological resources analysis for the Property.

2.0 LOCATION

The Property is surrounded by residential housing on all boundaries. Attachment 1, Figure 1 depicts the regional location of the Property in Santa Clara County, while Attachment 1, Figure 2 illustrates the vicinity of the Property in relationship to the City of Campbell. Attachment 1, Figure 3 identifies the location of the Property in the San Jose West USGS 7.5-minute Quadrangle. An aerial photograph of the Property has been included as Attachment 1, Figure 4.

Access to the Property is provided from Interstate 880. From I-880 South, keep left to continue onto California 17 South. After 3.4 miles take the exit for Camden Avenue/San Tomas Expressway. Turn right onto San Tomas Expressway/County Highway G4 and then take the Winchester Boulevard South Exit. From Winchester Boulevard, turn right on to Hacienda Avenue. The Property is located at 1631 Hacienda Avenue.

3.0 PROPERTY DESCRIPTION

The Property encompasses approximately 1.36 acres in a capital "F" shape bound by residential area on all boundaries with Hacienda Avenue along the southern boundary.

A majority of the Property supports California non-native annual grassland that has been routinely maintained by disking. Characteristic vegetation includes a mixture of annual grasses and forbs. These include Bermuda grass (*Cynodon dactylon*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceu*s), wild oats (*Avena* spp.), wild fennel (*Foeniculum vulgare*), Himalayan blackberry (*Rubus armeniacus*) and black mustard (*Brassica nigra*). The Property has multiple structures existing on-site including a house and several sheds. Ornamental trees and shrubs including but not limited to, privet (*Ligustrum spp.*), orange (*Citrus sinensis*), and persimmon (*Diospyros sp.*) trees were found in this area as well. The topography of the Property consists of relatively flat land that ranges from 240 to 247 feet above sea level.

4.0 REGULATORY SETTING

4.1 Federal Regulatory Setting

4.1.1 Plants and Wildlife

The federal Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq., as amended) prohibits federal agencies from authorizing, permitting, or funding any action that would result in biological jeopardy to a plant or animal species listed as Threatened or Endangered under the Act. Listed species are taxa for which proposed and final rules have been published in the Federal Register (U.S. Fish and Wildlife Service [USFWS] 2017a). If a proposed project may jeopardize listed species, Section 7 of the ESA requires consideration of those species through formal consultations with the USFWS. Federal Proposed species (USFWS, 2017b) are species for which a proposed listing as Threatened or Endangered under ESA has been published in the Federal Register. If a proposed project may jeopardize proposed species, Section 7 of the ESA affords consideration of those species through informal conferences with USFWS. The USFWS defines federal Candidate species as "those taxa for which we have on file sufficient information on biological vulnerability and threats to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded by other higher priority listing actions" (USFWS, 2017b). Federal Candidate species are not afforded formal protection, although USFWS encourages other federal agencies to give consideration to Candidate species in environmental planning.

4.1.2 Wetlands/Waters

The federal government, acting through the U.S. Army Corps of Engineers (Corps) and the Environmental Protection Agency (EPA), has jurisdiction over all "waters of the United States" as authorized by §404 of the Clean Water Act (CWA) and §10 of the Rivers and Harbors Act of 1899 (33 CFR Parts 320-330). Properties that cause the discharge of dredged or fill material into waters of the United States require permitting by the Corps. Actions affecting small areas of jurisdictional waters of the United States may qualify for a Nationwide Permit (NWP), provided conditions of the permit are met, such as avoiding impacts to threatened or endangered species or to important cultural sites. Properties that affect larger areas or which do not meet the conditions of an NWP require an Individual Permit. The process for obtaining an Individual Permit requires a detailed alternatives analysis and development of a comprehensive mitigation/monitoring plan. Waters of the United States are classified as wetlands, navigable waters, or other waters. Wetlands are transitional habitats between upland terrestrial areas and deeper aquatic habitats such as rivers and lakes. Under federal regulation, wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR Part 328.3[b]). Swamps, marshes, bogs, fens, and estuaries are all defined as wetlands, as are seasonally saturated or inundated areas such as vernal pools, alkali wetlands, seeps, and springs. In addition, portions of the riparian habitat along a river or stream may be a wetland where the riparian vegetation is at or below the ordinary high water mark and thus also meets the wetland hydrology and hydric soil criteria.

Navigable waters include all waters subject to the ebb and flow of the tides, including the open ocean, tidal bays, and tidal sloughs. Navigable waters also include some large, non-tidal rivers and lakes, which are important for transportation in commerce. The jurisdictional limit over navigable waters extends laterally to the entire water surface and bed of the waterbody landward to the limits of the mean high tide line. For non-tidal rivers or lakes, which have been designated (by the Corps) to be navigable waters, the limit of jurisdiction along the shoreline is defined by the ordinary high water mark. "Other waters" refer to waters of the United States other than wetlands or navigable waters. Other waters include streams and ponds, which are generally open water bodies and are not vegetated. Other waters can be perennial or intermittent water bodies and waterways. The Corps regulates other waters to the outward limit of the ordinary high water mark. Streams should exhibit a defined channel, bed and banks to be delineated as other waters.

The Corps does not generally consider "non-tidal drainage and irrigation ditches excavated on dry land" to be jurisdictional waters of the United States (and such ditches would therefore not be regulated by the Corps (33 CFR Parts 320-330, November 13, 1986). Other areas generally not considered jurisdictional waters include: 1) artificially irrigated areas that would revert to upland habitat if the irrigation ceased; 2) artificial lakes and ponds created by excavating and/or diking of dry land to collect and retain water, used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing; 3) waste treatment ponds; 4) ponds formed by construction activities including borrow pits until abandoned; and 5) ponds created for aesthetic reasons such as reflecting or ornamental ponds (33 CFR Part 328.3). However, the preamble also states that "the Corps reserves the right on a case-by-case basis to determine that a particular waterbody within these categories" can be regulated as jurisdictional water. The EPA also has authority to determine jurisdictional waters of the U.S. on a case-by-case basis. Riparian habitat that is above the ordinary high water mark and does not meet the three-parameter criteria for a wetland would not be regulated as jurisdictional waters of the United States.

4.1.3 Migratory Bird Treaty Act

Raptors are migratory bird species protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Sections 3503, 3503.5, and 3800 of the California Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs. Implementation of the take provisions requires that Property-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (generally February 1 – September 1, annually). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) or the loss of habitat upon which the birds depend, is considered "taking" and is potentially punishable by fines and/or imprisonment. Such taking would also violate federal law protecting migratory birds (e.g., MBTA).

4.1.4 Federal Bald and Golden Eagle Protection Act

In addition to protection under the MBTA, both the bald eagle and the golden eagle are also

protected by the Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668-668c). The Bald and Golden Eagle Protection Act, and amended several times since being enacted in 1940, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, including their parts, nests, or eggs (USFWS 2017c). The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (USFWS 2017c).

For purposes of these guidelines, "disturb" means: "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (USFWS 2017c).

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment (USFWS 2017c).

4.2 State Regulatory Setting

4.2.1 Plants and Wildlife

Property permitting and approval requires compliance with California Environmental Quality Act (CEQA), the 1984 California Endangered Species Act (CESA), and the 1977 Native Plant Protection Act (NPPA). The CESA and NPPA authorize the California Fish and Game Commission to designate Endangered, Threatened and Rare species and to regulate the taking of these species (§§2050-2098, Fish & Game Code). The California Code of Regulations (Title 14, §670.5) lists animal species considered Endangered or Threatened by the State.

The Natural Heritage Division of the California Department of Fish and Wildlife (CDFW) administers the state rare species program. The CDFW maintains lists of designated Endangered, Threatened, and Rare plant and animal species (CDFW 2017b and 2017c). Listed species either were designated under the NPPA or designated by the Fish and Game Commission. In addition to recognizing three levels of endangerment, the CDFW can afford interim protection to candidate species while they are being reviewed by the Fish and Game Commission.

The CDFW also maintains a list of animal species of special concern (CDFW 2017b), most of which are species whose breeding populations in California may face extirpation. Although these species have no legal status, the CDFW recommends considering them during analysis of proposed property impacts to protect declining populations and avoid the need to list them as endangered in the future.

Under provisions of §15380(d) of the CEQA Guidelines, the CEQA lead agency and CDFW, in

making a determination of significance, must treat non-listed plant and animal species as equivalent to listed species if such species satisfy the minimum biological criteria for listing. In general, the CDFW considers plant species on List 1A (Plants Presumed Extinct in California), List 1B (Plants Rare, Threatened, or Endangered in California and elsewhere), or List 2 (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere) of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (Skinner and Pavlik 1994) as qualifying for legal protection under §15380(d). Species on CNPS Lists 3 or 4 may, but generally do not, qualify for protection under this provision.

Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species and CDFW Species of Special Concern, areas of high biological diversity, areas providing important wildlife habitat, and unusual or regionally restricted habitat types. Habitat types considered sensitive include those listed on the California Natural Diversity Data Base's (CNDDB) working list of "high priority" habitats (i.e., those habitats that are rare or endangered within the borders of California) (Holland 1986).

4.2.2 Wetlands/Waters

The Regional Water Quality Control Board (RWQCB) regulates activities in wetlands and other waters through §401 of the Clean Water Act. Section 401 requires a state water quality certification for properties subject to 404 regulations. Requirements of the certification include mitigation for loss of wetland habitat. In the San Francisco Bay region, the RWQCB may identify additional wetland mitigation beyond the mitigation required by the Corps. California Fish and Game Code §§1600-1607 require the CDFW be notified of any activity that could affect the bank or bed of any stream that has value to fish and wildlife. Upon notification, the CDFW has the discretion to execute a Streambed Alteration Agreement. The CDFW defines a stream as follows:

> *"... a body of water that flows at least periodically...through a bed or channel having banks and supporting fish and other aquatic life. This includes watercourses having a subsurface flow that supports or has supported riparian vegetation."*
>
> (Source: Streambed Alteration Program, California Department of Fish and Wildlife, 2016).

In practice, CDFW authority is extended to any "blue line" stream shown on a USGS topographic map, as well as unmapped channels with a definable bank and bed. Wetlands, as defined by the Corps, need not be present for CDFW to exert authority.

4.2.3 California Environmental Quality Act

According to Appendix G of the California Environmental Quality Act (CEQA 2017) Guidelines, a proposed project would have a significant impact on biological resources if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional

plans, policies, or regulations, or by the California Department of Fish and Wildlife or 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, and regulations or by the California Department of Fish and Wildlife 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?

5.0 METHODS OF ANALYSIS FOR GENERAL BIOLOGICAL RESOURCES

A special-status plant and wildlife species database search and review was conducted using the CNDDB and other sources. An additional search was conducted for special-status plants using CNPS *Inventory* on-line. Special-status species reports were accessed by searching the CNDDB database for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir USGS 7.5-minute quadrangles (adjacent USGS 7.5-minute quadrangles) which surround the Property, and by examining those species that have been identified in the vicinity of the Property. These quadrangles will be henceforth noted as surrounding quads. The database report identified special-status species known to occur in the region or those that have the potential to occur in the vicinity of the Property. The CNDDB report was used to focus special-status species analysis of the site prior to the reconnaissance surveys.

An Olberding Environmental biologist conducted a reconnaissance-level survey of the Property on January 10, 2018. The survey consisted of walking throughout the Property and evaluating the site and adjacent lands for potential biological resources. Existing conditions, observed plants and wildlife, adjacent land use, soils and potential biological resource constraints were recorded during the visit. Plant and wildlife species observed within and adjacent to the Property during the reconnaissance survey are included in Attachment 2, Table 1.

The objectives of the field survey were to determine the potential presence or absence of special-status species habitat listed in the CNDDB database report and to identify any wetland areas that could be potentially regulated by the Corps, RWQCB, and/or CDFW (CNDDB 2018). In

addition, the Olberding Environmental biologist looked for other potential sensitive species or habitats which may not have been obvious from background database reports or research. Surveys conducted after the growing season or conducted outside of the specific flowering period for a special-status plant cannot conclusively determine the presence or absence of such plant species; therefore, site conditions and habitat type were used to determine potential for occurrence. When suitable habitat was observed to support a special-status plant or animal species it was noted in the discussion for that particular species. Regulatory agencies evaluate the possibility of occurrence based on habitats observed on-site and the degree of connectivity with other special-status animal habitats in the vicinity of the Property. These factors are discussed in each special-status plant or animal section. Potential for occurrence of each special-status or protected plant and animal species was evaluated using the following criteria.

- **Present**: The species has been recorded by CNDDB or other literature as occurring on the Property and/or was observed on the Property during the reconnaissance survey or protocol surveys.

- **May Occur**: The species has been recorded by CNDDB or other literature as occurring within five miles of the Property, and/or was observed within five miles of the Property, and/or suitable habitat for the species is present on the Property or its immediate vicinity.

- **Not Likely to Occur**: The species has historically occurred on or within five miles of the Property, but has no current records. The species occurs within five miles of the Property but only marginally suitable habitat conditions are present. The Property is likely to be used only as incidental foraging habitat or as an occasional migratory corridor.

- **Presumed Absent**: The species will not occur on the Property due to the absence of suitable habitat conditions, and/or the lack of current occurrences. Alternatively, if directed or protocol-level surveys were done during the proper occurrence period and the species was not found, it is presumed absent.

Sources consulted for agency status information include USFWS (2017a) for federally listed species and CDFW (2017b) for State of California listed species. Based on information from the above sources, Olberding Environmental developed a target list of special-status plants and animals with the potential to occur within or in the vicinity of the Property (Attachment 2, Table 2).

5.1 Soils Evaluation

The soils present on a property may determine if habitat on the site is suitable for certain special-status plants and animals. The host plants of some special-status invertebrates may also require specific soil conditions. In the absence of suitable soil conditions, special-status plants or animals requiring those conditions would be presumed absent. Information regarding soil characteristics for the Property was obtained by viewing the Natural Resources Conservation Service (NRCS) Web Soil Survey report for the Property (NRCS 2018).

5.2 Plant Survey Methods

The purposes of the botanical surveys were (1) to characterize the habitat types (plant communities) of the study area; (2) to determine whether any suitable habitat for any special-status plant species occurs within the study area; and (3) to determine whether any sensitive habitat types (wetlands) occur within the study area. Site conditions and plant habitat surveys are important tools in determining the potential occurrence of plants not recorded during surveys (e.g., special-status plants) because presence cannot conclusively be determined if field surveys are conducted after the growing season or conducted outside a specific flowering period.

5.2.1 Review of Literature and Data Sources

The biologist conducted focused surveys of literature and special-status species databases in order to identify special-status plant species and sensitive habitat types with potential to occur in the study area. Sources reviewed included the CNDDB occurrence records (CNDDB 2017) and CNPS *Inventory* (Skinner and Pavlik 1994) for the surrounding quads; and standard flora (Hickman 1993). From the above sources, a list of special-status plant species with potential to occur in the Property vicinity was developed (Attachment 2, Table 2).

5.2.2 Field Surveys

A biologist from Olberding Environmental conducted a reconnaissance-level survey to determine habitat types and the potential for special-status plants based on the observed habitat types. All vascular plant species that were identifiable at the time of the survey were recorded and identified using keys and descriptions in Hickman (1993).

The habitat types occurring on the Property were characterized according to pre-established categories. In classifying the habitat types on the site, the generalized plant community classification schemes of *A Manual of California Vegetation* (Sawyer, Keeler-Wolf, and Evens 2009) were consulted. The final classification and characterization of the habitat types of the study area were based on field observations.

5.3 Wildlife Survey Methods

The purpose of the wildlife survey was to identify special-status wildlife species and/or potential special-status wildlife habitats within the study area.

5.3.1 Review of Literature and Data Sources

A focused review of literature and data sources was conducted in order to determine which special-status wildlife species had potential to occur in the vicinity of the Property. Current agency status information was obtained from USFWS (2017a) for species listed as Threatened or Endangered, as well as Proposed and Candidate species for listing, under the federal ESA; and from CDFW (2017b, 20176c) for species listed as Threatened or Endangered by the state of California under the CESA, or listed as “species of special concern” by CDFW. From the above

sources, a list of special-status wildlife species with potential to occur in the Property vicinity was developed (Attachment 2, Table 2).

5.3.2 Field Surveys

General Wildlife Survey – An Olberding Environmental biologist conducted a survey of species habitat within the entire study area, including visible portions of the adjacent properties. The purpose of the habitat survey was to evaluate wildlife habitats and the potential for any protected species to occur on or adjacent to the Property.

Reconnaissance-Level Raptor Survey – A reconnaissance-level raptor survey was conducted on the Property. Observation points were established on the periphery of the site to view raptor activity over a fifteen- to thirty-minute time period. This survey was conducted with the use of binoculars and notes were taken for each species occurrence. Additionally, utility poles and perch sites in the vicinity of the Property were observed. All raptor activity within and adjacent to the Property was recorded during the reconnaissance-level observation period.

Reconnaissance-Level Burrowing Owl (Athene cunicularia) Survey – A reconnaissance-level burrowing owl (*Athene cunicularia*) survey was also conducted in the Property to identify potential burrow sites or burrowing owl use of on-site habitat. The general presence and density of suitable burrow sites (e.g., rodent burrows) was evaluated for the Property.

6.0 RESULTS FOR GENERAL BIOLOGICAL RESOURCES

The search and review of the CNDDB database reports revealed the occurrence of special-status plant and wildlife species that occur in the habitats found within the Property boundaries (CNDDB 2018). The CNDDB database and background data were reviewed for the surrounding quads (Attachment 2, Table 2). Those plants and animals listed in Attachment 2, Table 2 were reviewed for their potential to occur on the Property based on general habitat types. All of the plant and several of the animal species identified by the CNDDB require specific habitat microclimates that were not found to occur within the Property.

6.1 Soil Evaluation Results

The NRCS (2018) reports one soil type within the Property. A detailed map of the soil type can be found in Attachment 1, Figure 8. The soils mapped included the following types:

- **140-Urban land Flaskan complex, 0 to 2 percent slopes –** The Flaskan series consists of very deep, well drained soils that formed in alluvium from mixed rock sources. Flaskan soils are on alluvial fans. Slopes range from 0 to 30 percent. The mean annual precipitation is about 16 inches. The composition of this soil type within the Property consists of 70 percent Urban land, 20 percent Flaskan and 10 percent minor components including Pachic haploxerolls (5%), Landelspark (2%), Botella (2%) and Stevenscreek (1%).

Ap--0 to 2 inches; brown broken face sandy loam, dark brown broken face moist; 19 percent clay; strong medium subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; slightly acid, pH 6.4

ABt--2 to 7 inches; brown broken face sandy clay loam, dark brown broken face moist; 22 percent clay; strong medium subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; slightly acid, pH 6.6 by pH meter

Bt1--7 to 17 inches; brown broken face gravelly sandy clay loam, dark brown broken face moist; 25 percent clay; strong medium subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; slightly acid, pH 6.5

Bt2--17 to 31 inches; yellowish brown broken face gravelly sandy clay loam, dark yellowish brown broken face moist; 22 percent clay; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; slightly acid, pH 6.5

C--31 to 59 inches: dark yellowish brown broken face very gravelly sandy loam, dark yellowish brown broken face moist; 17 percent clay; strong coarse granular structure; soft, loose, slightly sticky, slightly plastic; slightly acid, pH 6.4.

6.2 Plant Survey Results

6.2.1 Floristic Inventory and Habitat Characterization

The Property supports two habitat types consisting of urban/developed and non-native grassland habitat. In classifying the habitat types on the Property, generalized plant community classification schemes were used (Sawyer, Keeler-Wolf, and Evens 2009). The final classification and characterization of the habitat type of the Property was based on field observations.

The habitat type and a description of the plant species present within the habitat types are provided below. Dominant plant species are also noted. A complete list of plant species observed on the Property can be found within Attachment 2, Table 1.

Urban/Developed

A house is present at the southern edge of the Property. There are also several sheds, a debris pile and a collection of patio furniture within the southern portion of the Property. These structures are primarily surrounded by ornamental or landscaping plants such as geranium (*Pelargonium hortorum*), privet, ornamental shrubs and fruit trees, and a large valley oak (*Quercus lobata).*

Non-native grassland

The majority of the Property is dominated by ruderal vegetation. Several large coast live oak trees and a eucalyptus tree are located along the edges of the Property. Large palm and conifer

trees are visible on adjacent parcels and there are several large oak trees and shrubs along the Property's eastern and western edges. Dominant ruderal vegetation consisted of species including but not limited to, Bermuda grass, rip-gut brome, wild radish (*Raphanus raphanistrum*), Himalayan blackberry, common vetch (*Vicia sativa*) and prickly lettuce (*Lactuca serriola*).

6.2.2 Special-Status Plant Species

Special-status plant species include species listed as Rare, Threatened, or Endangered by the USFWS (2017a) or by the State of California (CDFW 2017c). Federal Proposed and Candidate species (USFWS, 2017b) are also considered to be special-status species. Special-status species also include species listed on List 1A, List 1B, or List 2 of the CNPS Inventory (Skinner and Pavlik, 1994; CNPS 2009). All species in the above categories fall under state regulatory authority under the provisions of CEQA, and may also fall under federal regulatory authority. Considered special-status species are species included on List 3 (Plants About Which We Need More Information—A Review List) or List 4 (Plants of Limited Distribution—A Watch List) of the CNPS *Inventory*. These species are considered to be of lower sensitivity and generally do not fall under specific state or federal regulatory authority. Specific mitigation considerations are not generally required for List 3 and List 4 species.

Attachment 2, Table 2 includes a list of special-status plants with the potential to occur within or in the immediate vicinity of the Property based on a review of the surrounding quads. The special-status plant species identified by the CNDDB as potentially occurring on the Property are known to grow only from specific habitat types. The specific habitats or "micro-climate" necessary for many of the plant species to occur are not found within the boundaries of the Property. The habitats necessary for the CNDDB reported plant species consist of valley and foothill grassland, cismontane woodlands, chaparral, playas, chenopod scrub, adobe clay soils, alkaline soils, serpentine soils, sandy soils, gravelly soils, coastal prairie, coastal scrub, coastal dunes, coastal bluff scrub, coastal salt marsh, vernal pools, seeps, meadows and sinks, marshes or swamps, riparian woodlands, on slopes near drainages, closed cone coniferous forest, north coast coniferous forest, redwood forest, lower montane coniferous forest, and broad leafed upland forest.

Occurrences of special-status plants within a five-mile radius of the point roughly representing the center of the Property are described in detail. Occurrence distance from the Property is estimated from this center point (Attachment 1, Figure 6).

No special-status plants were found to potentially occur within the Property due to unsuitable habitats and lack of nearby CNDDB occurrences.

6.3 Wildlife Survey Results

6.3.1 General Wildlife Species and Habitats

A complete list of wildlife species observed within the Property can be found in Attachment 2,

Table 1. Wildlife species commonly occurring within habitat types present on the Property are discussed below:

Urban/Developed

Although none were observed, a variety of bat species including the pallid bat, hoary bat and others could utilize the existing structures for roosting habitat.

Non-native grassland

Though the Property is routinely disked, seeds produced by vegetation growing in this ruderal habitat offer foraging opportunities for an assortment of wildlife species.

Small passerines, including the cedar waxwing (*Bombycilla cedrorum),* yellow-rumped warbler (*Setophaga coronate*), California towhee (*Pipilo crissalis*), Anna's hummingbird (*Calypte anna*), and Bewick's wren (*Thryomanes bewickii*) were observed foraging in the Property. Western scrub-jay (*Aphelocoma californica*), American crow (*Corvus bracyrynchos*), and red-crowned parrot (*Amazona viridigenalis)* were observed foraging on the site as well. Loggerhead shrike could also potentially forage in this habitat.

Raptors that could potentially forage in the annual grassland habitat are sharp-shinned hawk, Cooper's hawk, red-tailed hawk, white-tailed kite and red-shouldered hawk. Small mammals that could forage on the seeds and plants found in annual grasslands include field mouse (*Peromyscus sp.*), Botta's pocket gopher (*Thomomys bottae*) and fox squirrel (*Sciurus niger*).

BIRDS

Red-shouldered Hawk (*Buteo lineatus*). State Protected.

The red-shouldered hawk is a medium-sized, slender *Buteo* with long legs and a long tail and is smaller than the red-tailed hawk. Upperparts are dark with pale spotting, and rusty-reddish feathers on the wing create the distinctive shoulder patch. The tail has several wide, dark bars; the intervening narrow stripes and the tip of the tail are white, and there is variation in the number of tail bars among adults and juveniles. The habitat that the red-shouldered hawk prefers varies from bottomland hardwoods and riparian areas to upland deciduous or mixed deciduous-conifer forest, and almost always includes some form of water, such as a swamp, marsh, river, or pond. In the west, the red-shouldered hawk sometimes occurs in coniferous forests, and has been expanding its range of occupied habitats to include various woodlands, including stands of eucalyptus trees amid urban sprawl. They typically place their nests in a broad-leaved tree (occasionally in a conifer), below the forest canopy but toward the tree top, usually in the crotch of the main trunk. Nest trees are often near a pond, stream, or swamp, and can be in suburban neighborhoods or parks. These hawks eat mostly small mammals, lizards, snakes, and amphibians. They also eat toads, snakes, and crayfish. They occasionally eat birds, sometimes from bird feeders; recorded prey includes sparrows, starlings, and doves.

CNDDB did not list the red-shouldered hawk as occurring within the vicinity of the Property. While there are large oak and eucalyptus trees throughout the Property that could provide

marginally suitable nesting opportunities for this species, it is unlikely they will use them as a nest site. The Property offers a potential for foraging opportunities throughout the grassland habitat. Given the information above, this species has a moderate potential to occur on the Property in a foraging capacity only.

Red-Tailed Hawk (*Buteo jamaicensis*). State Protected.

The red-tailed hawk is a large *Buteo* that is distinct due to the red color of its tail feathers in contrast to the brown color of its body. Not all red-tailed hawks exhibit the distinct coloration on their tail and gradations may occur especially in young birds. Red-tailed hawks hunt rodents by soaring over grassland habitat. Nest trees for red-tailed hawks are usually tall trees with a well-developed canopy that includes a strong branching structure on which to build a nest.

CNDDB did not list the red-tailed hawk as occurring within the vicinity of the Property. Large eucalyptus and oak trees throughout the Property and the large conifers on the adjacent properties may provide suitable nesting opportunities for this species. The Property offers a potential for foraging opportunities throughout the grassland habitat. Given the information above and the ubiquitous nature of this species, the red-tailed hawk has a moderate potential to occur on the Property in a nesting and foraging capacity.

American Kestrel (*Falco sparverius*). State Protected.

The American kestrel is the smallest of raptor species and is distinct due to the black barring on its face. The female kestrel is slightly larger than the male bird and is differentiated by its brown and red coloration. The male kestrel is slightly smaller than the female and has gray wing patches near the top of the wing. Kestrels favor open areas with short ground vegetation and sparse trees. You'll find them in meadows, grasslands, deserts, parks, farm fields, cities, and suburbs. Kestrels utilize cavities in trees for nesting and hunt small rodents and birds.

CNDDB did not list the American kestrel as occurring within the vicinity of the Property. Large eucalyptus and oak trees along the edges of the Property could provide nesting opportunities for this species but it is unlikely that they will use it as a nesting site. The Property offers a potential for foraging opportunities throughout the grassland habitat. Given the information above, this species has a moderate potential to occur on the Property in a foraging capacity only.

White-tailed Kite (*Elanus leucurus*). Federal Species of Concern, CDFW: Fully Protected.

The white-tailed kite is falcon-shaped with a long white tail. This raptor has black patches on the shoulders that are highly visible while the bird is flying or perching. White-tailed kites forage in annual grasslands, farmlands, orchards, chaparral, and at the edges of marshes and meadows. They are found nesting in trees and shrubs such as willows (*Salix* sp.), California sycamore (*Platanus racemosa*), and coast live oak (*Quercus agrifolia*) often near marshes, lakes, rivers, or ponds. This raptor often hovers while inspecting the ground below for prey. The White-tailed Kite eats mainly small mammals, as well as some birds, lizards, and insects. Annual grasslands are considered good foraging habitat for white-tailed kites, which will forage in human-impacted areas.

CNDDB did not list the white-tailed kite as occurring within the vicinity of the Property. Large eucalyptus and oak trees within the Property may provide nesting opportunities for this species but it is unlikely that they will use them as nesting sites due to the human disturbances. The Property offers a potential for foraging opportunities throughout the grassland habitat. Given the information above, this species has a moderate potential to occur on the Property in a foraging capacity only.

Loggerhead Shrike (*Lanius ludovicianus*). Federal Species of Special Concern, California Species of Special Concern.

The loggerhead shrike is a black and white perching bird with a black face mask that extends over the bill. A common resident and winter visitor in lowlands and foothills throughout California. It prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. It occurs only rarely in heavily urbanized areas, but is often found in open cropland. This species hunts large insects, small rodents and even small birds. Loggerhead shrikes are known for their habit of impaling their food on thorns or barb wire for future consumption. The range and habitat for the loggerhead shrike has steadily shrunk due to human development within grasslands; however, this species is often found on lands grazed by cattle that are fenced with barb wire. These birds use shrubs, dense trees, and thickets of vegetation for nesting sites.

CNDDB did not list the loggerhead shrike as occurring within the vicinity of the Property. The trees and shrubs present within the Property offer potentially suitable nesting habitat although they may not occur within such a heavily urbanized area. Given the information above the loggerhead shrike has low potential to occur on the Property in a foraging and nesting capacity.

Sharp-Shinned Hawk (*Accipiter striatus*). State Protected.

Cooper's Hawk (*Accipiter cooperii*). State Protected.

The sharp-shinned hawk is a small raptor with short, rounded wings. This hawk has a long tail that is squared-off at tip with prominent corners. This raptor typically flies with several quick, snappy wingbeats and a short glide, but also soars. Its small, rounded head does not project far beyond the wings when soaring. The adult sharp-shinned hawk exhibits a red eye, black cap, and a blue-gray back and upperwings. The white breast, belly, and underwing coverts are marked by fine, thin, reddish bars.

The Cooper's hawk looks similar to the sharp-shinned hawk, although it is slightly larger in size and has a long rounded tail. Both hawks hunt in woodlands, riparian areas, and even densely vegetated urban areas. These raptors capture small birds, rodents, and reptiles. They often hunt along the edges of woodlands, shorelines, and riparian habitats where migrating passerines are found. Nesting habitat for these raptors consists of woodlands, coniferous forest, and dense oak woodland adjacent or close to open areas. Neither species was observed on the site during the reconnaissance surveys, nor was any evidence of current nesting detected.

CNDDB listed two occurrences of the Cooper's hawk within a 5-mile radius of the Property. The closest occurrence (Occurrence #85) is located approximately 3 miles northeast of the Property where a pair was observed nesting in 2003. Large eucalyptus and oak trees within the Property could provide moderately suitable nesting opportunities for Cooper's hawk but it is unlikely that the sharp-shinned hawk would use the trees on the Property as nesting sites. The Property offers a potential for foraging opportunities for both species. Given the information above, the Cooper's hawk has a moderate potential to occur in a nesting and foraging capacity and sharp-shinned hawk has a moderate potential to occur on the Property in a foraging capacity only.

Burrowing Owl (*Athene cunicularia*). Federal Species of Special Concern, California Species of Special Concern.

The U.S. Fish and Wildlife Service has identified the burrowing owl is as a "candidate" species. Candidate species are animals and plants that may warrant official listing as threatened or endangered, but there is no conclusive data to give them this protection at the present time. As a candidate species, burrowing owls receive no legal protection under the Endangered Species Act (ESA). However, this species does receive some legal protection from the U.S. through the Migratory Bird Treaty Act, which forbids the destruction of the birds and active nests. In California, the burrowing owl considered a "species of special concern."

Burrowing owls are ground dwelling members of the owl family and are small brown to tan colored birds with bold spots and barring. Burrowing owls generally require open annual grassland habitats in which to nest, but can be found on abandoned lots, roads, airports, and other urban areas. Burrowing owls generally use abandoned California ground squirrel holes for their nesting burrow, but are also known to use pipes or other debris for nesting purposes. Burrowing owls prefer annual grassland habitats with low vegetative cover. The breeding season for burrowing owls occurs from March through August. Burrowing owls often nest in loose colonies about 100 yards apart. They lay three to twelve eggs from mid-May to early June. The female incubates the clutch for about 28 days, while the male provides her with food. The young owls begin appearing at the burrow's entrance two weeks after hatching and leave the nest to hunt for insects on their own after about 45 days. The chicks can fly well at six weeks old.

The CNDDB did not list any occurrences of burrowing owl within the vicinity of the Property. No ground squirrels or other large burrows were observed during the reconnaissance survey. During the January 2018 survey burrowing owls were not observed on the Property and with lack of burrowing mammal burrows and no CNDDB records nearby they are presumed absent from the Property.

MAMMALS

Special-status Bats

Bats (Order - *Chiroptera*) are the only mammals capable of "true" flight. They are nocturnal feeders and locate their prey which consists of small to medium sized insects by echolocation. Bats consume vast amounts of insects making them very effective pest control agents. They may eat as much as their body weight in insects per day. Maternity roosts comprised of only females,

may be found in buildings or mine shafts with temperatures up to 40 degrees Celsius and a high percentage of humidity to ensure rapid growth of their young. Female bats give birth to only one or two young annually and roost in small or large numbers. Males may live singly or in small groups, but scientists are still unsure of the whereabouts of most males in summer.

Special-status bats with the potential to occur on the Property are listed below.

- Pallid bat (*Antrozous pallidus*)
- Western red bat (*Lasiurus blossevillii*)
- Hoary bat (*Lasiurus cinereus)*

The CNDDB listed two occurrences of hoary bat within a 5-mile radius of the Property. Additionally, there were several large trees and unoccupied structures that may provide roosting habitat within the Property. The habitats provided on and near the Property provide an array of insects allowing for abundant foraging opportunities. Given the presence of suitable roosting habitat and foraging opportunities; the pallid bat and hoary bat have a potential to occur on the Property in a foraging and roosting capacity. Western red bats roost in forests and woodlands; therefore, because this Property does not support dense stands of trees, it is unlikely that Western red bats would find suitable roosting habitat but they may occur on the Property in a foraging capacity.

AMPHIBIANS

California Red-Legged Frog (*Rana draytonii*). Federally Threatened, California Species of Special Concern.

California red-legged frog (CRLF) was listed as a Federal threatened species on May 31, 1996 (61 FR 25813) and is considered threatened throughout its range. If a proposed Property may jeopardize listed species, Section 7 of the ESA requires consideration of those species through formal consultations with the USFWS. Federal Proposed species (USFWS 2006c) are species for which a proposed listing as Threatened or Endangered under the ESA has been published in the Federal Register. If a proposed Property may jeopardize proposed species, Section 7 of the ESA affords consideration of those species through informal conferences with USFWS. On April 13, 2006, USFWS designated critical habitat for the CRLF under the ESA. In total, approximately 450,288 acres fell within the boundaries of critical habitat designation. A new ruling by the USFWS on March 17, 2010, revised the designation of critical habitat for CRLF (75 FR 12815 12959). In total, approximately 1,636,609 acres of critical habitat in 27 California counties fall within the boundaries of the final revised critical habitat designation. This rule became effective on April 16, 2010.

The CRLF is a rather large frog, measuring one and a half to five inches in length. They are reddish-brown to gray in color, with many poorly defined dark specks and blotches. Dorsolateral folds are present. The underside of the CRLF is washed with red on the lower abdomen and hind legs. The CRLF has a dark mask bordered by a light stripe on the jaw, smooth eardrums, and not fully webbed toes. The male has enlarged forearms and swollen thumbs. Its vocals consist of a series of weak throaty notes, rather harsh, and lasting two to three seconds. Breeding occurs from

December to March with egg masses laid in permanent bodies of water.

The CRLF is found in lowlands, foothill woodland and grasslands, near marshes, lakes, ponds or other water sources. These amphibians require dense shrubby or emergent vegetation closely associated with deep still or slow-moving water. Generally, these frogs favor intermittent streams with water at least two and a half feet deep and where the shoreline has relatively intact emergent or shoreline vegetation. CRLF is known from streams with relatively low gradients and those waters where introduced fish and bullfrogs are absent. CRLF are known to take refuge upland in small mammal burrows during periods of high water flow. CRLF occurs west of the Sierra Nevada-Cascade and in the Coast Ranges along the entire length of the state. Historically, they occurred throughout the Central Valley and Sierra Nevada foothills south to northern Baja California. Now they are found from Sonoma and Butte Counties south to Riverside, but mainly in Monterey, San Luis Obispo, and Santa Barbara Counties.

The CNDDB has listed two occurrences of the California red-legged frog within a 5-mile radius of the Property. The closest occurrence (Occurrence #211) is located approximately 4.75 miles west of the Property where a juvenile frog was captured in Saratoga Creek in 1997. The most recent occurrence (Occurrence #961) is located approximately 4.5 miles west of the Property where an adult and 3 larvae were observed in Calabasas Creek in 2007. The Property is completely surrounded by existing residential development with no breeding habitat present. The isolated nature of the site would preclude the existence of any population of CRLF. Our site assessment concluded that CRLF would not be present based on the lack of breeding habitat both on and immediately surrounding the Property, lack of occurrences in the vicinity, dispersal barriers such as existing development and past use of the Property for farming purposes. CRLF are presumed to be absent from the Property.

California Tiger Salamander (*Ambystoma californiense*). Federally Threatened, State Threatened.

Adult California tiger salamanders (CTS) inhabit rolling grassland and oak savannah. Adults spend most of the year in subterranean retreats such as rodent burrows, but may be found on the surface during dispersal to and from breeding sites. The preferred breeding sites are vernal pools and other temporary ponds. However, CTS may use permanent manmade ponds as breeding habitat. CTS adults begin migrating to ponds after the first heavy rains of fall and can be found in or around the breeding ponds during and after winter rainstorm events. In extremely dry years, CTS may not reproduce.

After mating, females lay several small clusters of eggs, which contain from one to over 100 eggs. The eggs are deposited on both emergent and submerged vegetation, as well as submerged detritus. A minimum of ten weeks is required to complete larval development through metamorphosis, at which time the larvae will normally weigh about ten grams. Larvae remaining in pools for a longer time period can grow to much larger sizes. Upon metamorphosis, juvenile CTS migrate in large masses at night from the drying breeding sites to refuge sites. Prior to this migration, the juveniles spend anywhere from a few hours to a few days near the pond margin. Adult CTS are largely opportunistic feeders, preying upon arthropod and annelid species that occur in burrow systems, as well as aquatic invertebrates found within

seasonal pools. The larvae feed on aquatic invertebrates and insects, showing a distinct preference for larvae of the Pacific tree frog.

On August 4, 2004, the U.S. Fish and Wildlife Service (USFWS) announced the listing of the CTS as threatened throughout its range with the exception of the Sonoma and Santa Barbara County populations which are listed as endangered (USFWS 2006). On March 3, 2010, the California Fish and Game Commission designated CTS as threatened under the California Endangered Species Act. On August 23, 2005, the Service designated 199,109 acres of critical habitat in 19 counties for the central California population of the CTS. On August 2, 2005, they proposed 74,223 acres of critical habitat for CTS in Sonoma County, California. This habitat is located in the Santa Rosa Plain in central Sonoma and includes lands bordered on the west by Laguna de Santa Rosa, to the south by Skillman Road, northwest of Petaluma, to the east by foothills, and to the north by Windsor Creek. On December 14, 2005, in a final decision, USFWS designated and excluded 17,418 acres of critical habitat for CTS, so that no critical habitat is being designated for the Sonoma County population.

The CNDDB has listed one occurrence of the California tiger salamander roughly 2 miles northeast of the Property. This occurrence is a historical record of a museum collection made in San Jose in 1895 and the site is now considered extirpated. The Property is completely surrounded by existing residential development with no breeding or aestivation habitat present. The isolated nature of the site would preclude the existence of any population of CTS. For these reasons CTS are presumed absent from the Property.

REPTILES

Western Pond Turtle (*Emys marmorata*). California Species of Special Concern.

The western pond turtle is a thoroughly aquatic turtle that may be found in marshes, ponds, streams and irrigation ditches where aquatic vegetation is present. The turtles, which range from nine to ten inches in size, require basking sites and suitable upland habitat for egg laying. Suitable breeding upland habitats may consist of sandy banks or grassy open fields. The western pond turtle has a dark brown to olive-colored carapace with hexagonal scales that lack prominent markings.

Nesting and incubation occur from April to September, with a peak time for mating and egg laying occurring from March to May. After a 73 to 80-day gestation or incubation period, 5 to 13 eggs will be laid from July to October. Eggs are produced either once or twice a year. Females may travel some distance from water for egg-laying, moving as much as 0.8 kilometers (a hale mile) away from and up to 90 meters (300 feet) above the nearest source of water. Most nests are with 90 meters (300 feet) of water. The female usually leaves the water in the evening and may wander far before selecting a nest site, often in an open area of sand or hardpan that is facing southwards. The nest is flask-shaped with an opening of about five centimeters (two inches). Females spend considerable time covering up the nest with soil and adjacent low vegetation, making it difficult for a person to find unless it has been disturbed by a predator.

Activity slows from November to February. During the winter when water and air temperatures cool, usually from September to March, the turtles begin to hibernate. During hibernation, turtles either bury themselves in the mud at the bottom of ponds or will bury themselves on land in duff (top layer of decomposing vegetation and soil). Some turtles travel more than a half mile to over-winter on land, though many select the nearest wooded or shrubby area they can bury in. Turtles then emerge from hibernation in the spring to start the yearly cycle again.

The CNDDB listed two occurrence of western pond turtle within a 5-mile radius of the Property. However, there was no ponded water or aquatic vegetation present on site making it very unlikely this species would be found on the Property. Additionally, there are substantial barriers to movement considering the development surrounding the Property. This western pond turtle was not seen during the January 2018 survey and is presumed absent from the site.

7.0 CONCLUSIONS

7.1 Wetlands

Results of the biological resource analysis survey conducted by Olberding Environmental on January 10, 2018, did not identify any wetland/waters on the Property that may be considered jurisdictional by the Corps showing no positive indicators of wetland soils, hydrology, and vegetation. Based on the results of our reconnaissance survey, the site lacked all criteria used by the Corps to determine wetland status.

7.2 Special-status Plants

No special-status plant species were determined to have a potential to occur on the Property. This was based on the absence of suitable habitats, soil types, and nearby and recent CNDDB occurrences.

7.3 Special-status Wildlife

Foraging or Nesting Raptor/Passerine Species – A total of seven birds were determined to have a potential to occur on the Property. The following four birds have a moderate potential to occur in a foraging capacity only: white-tailed kite, red-shouldered hawk, American kestrel, and sharp-shinned hawk. The red-tailed hawk, Cooper's hawk and loggerhead shrike have a moderate potential to occur in a foraging or nesting capacity. The burrowing owl and tri-colored blackbird are presumed absent from the Property.

Special-status Mammal Species – Given the presence of suitable onsite habitat; the pallid bat and hoary bat have a potential to occur on the Property in a foraging and roosting capacity and the western red bat has a potential to occur on the Property in a foraging capacity only. No immediate signs were present during the initial survey but the unoccupied structures along the western edge and the large trees on-site could provide suitable roosting habitat.

Special-Status Amphibians – The Property does not provide suitable breeding habitat for CRLF or CTS as there is no permanent water source, and the annual grassland habitat on the site is not suitable for upland refuge due to lack of burrowing mammal burrows. CNDDB notes a few occurrences of CRLF and CTS within five miles but they are all historic. Additionally, it is very unlikely that CRLF or CTS would be able to disperse onto the Property due to surrounding residential development. The CRLF and CTS are presumed absent from the Property.

Special-Status Reptiles– There is no standing water or aquatic vegetation within the Property and therefore there is no suitable habitat for the western pond turtle. The Property has residential housing on all boundaries making it impossible for the turtle to disperse onto the Property. The western pond turtle is presumed absent from the Property.

8.0 RECOMMENDATIONS

- **Pre-Construction Avian Survey** – If project construction-related activities would take place during the nesting season (February through August), preconstruction surveys for nesting passerine birds and raptors (birds of prey) within the Property and the large trees within the adjacent riparian area should be conducted by a competent biologist 14 days prior to the commencement of the tree removal or site grading activities. If any bird listed under the Migratory Bird Treaty Act is found to be nesting within the project site or within the area of influence, an adequate protective buffer zone should be established by a qualified biologist to protect the nesting site. This buffer shall be a minimum of 75 feet from the project activities for passerine birds, and a minimum of 200 feet for raptors. The distance shall be determined by a competent biologist based on the site conditions (topography, if the nest is in a line of sight of the construction and the sensitivity of the birds nesting). The nest site(s) shall be monitored by a competent biologist periodically to see if the birds are stressed by the construction activities and if the protective buffer needs to be increased. Once the young have fledged and are flying well enough to avoid project construction zones (typically by August), the project can proceed without further regard to the nest site(s).

- **Pre-construction Bat Survey –** To avoid "take" of special–status bats, the following mitigation measures shall be implemented prior to the removal of any existing trees or structures on the project site:

  a) A bat habitat assessment shall be conducted by a qualified bat biologist during seasonal periods of bat activity (mid–February through mid–October. Feb. 15 – Apr. 15, and Aug. 15 – October 30), to determine suitability of each existing structure as bat roost habitat.

  b) Structures found to have no suitable openings can be considered clear for project activities as long as they are maintained so that new openings do not occur.

  c) Structures found to provide suitable roosting habitat, but without evidence of use by bats, may be sealed until project activities occur, as recommended by the bat biologist. Structures with openings and exhibiting evidence of use by bats shall be scheduled for

humane bat exclusion and eviction, conducted during appropriate seasons, and under supervision of a qualified bat biologist.

d) Bat exclusion and eviction shall only occur between February 15 and April 15, and from August 15 through October 30, in order to avoid take of non–volant (non–flying or inactive, either young, or seasonally torpid) individuals.

OR

A qualified wildlife biologist experienced in surveying for and identifying bat species should survey the portion of the mixed oak woodland and mixed riparian habitats if tree removal is proposed to determine if any special–status bats reside in the trees. Any special–status bats identified should be removed without harm. Bat houses sufficient to shelter the number of bats removed should be erected in open space areas that would not be disturbed by project development.

- **Erosion Control** – Grading and excavation activities could expose soil to increased rates of erosion during construction periods. During construction, runoff from the Property could adversely affect aquatic life through storm water runoff systems that flow to nearby streams and creeks. Surface water runoff could remove particles of fill or excavated soil from the site, or could erode soil down-gradient, if the flow were not controlled. Deposition of eroded material in nearby water features could increase turbidity, thereby endangering aquatic life, and reducing wildlife habitat. Implementation of appropriate mitigation measures would ensure that impacts to aquatic organisms would be avoided or minimized. Mitigation measures may include best management practices (BMP's) such as hay bales, silt fencing, placement of straw mulch and hydro seeding of exposed soils after construction as identified in a Storm Water Pollution Prevention Plan (SWPPP) for the Property during development activities.

9.0 LITERATURE CITED

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ATTACHMENTS

ATTACHMENT 1
FIGURES

Figure 1	**Regional Map**
Figure 2	**Vicinity Map**
Figure 3	**USGS Quadrangle Map for San Jose West**
Figure 4	**Aerial Photograph**
Figure 5	**CNDDB Map of Special Status Wildlife**
Figure 6	**CNDDB Map of Special Status Plants**
Figure 7	**USFWS Designated Critical Habitat**
Figure 8	**Soils Map**
Figure 9	**Photo Location Map**
Figure 10	**Habitat Map**

Figure 1
Regional Map

Figure 1: Regional Map
1631 Hacienda Avenue, Campbell Property
Santa Clara County

192 Blue Ravine Road, Ste. 165
Folsom, California 95630
Phone: (916) 985-1188

Map Revision Date: 1/8/2018

Figure 2
Vicinity Map

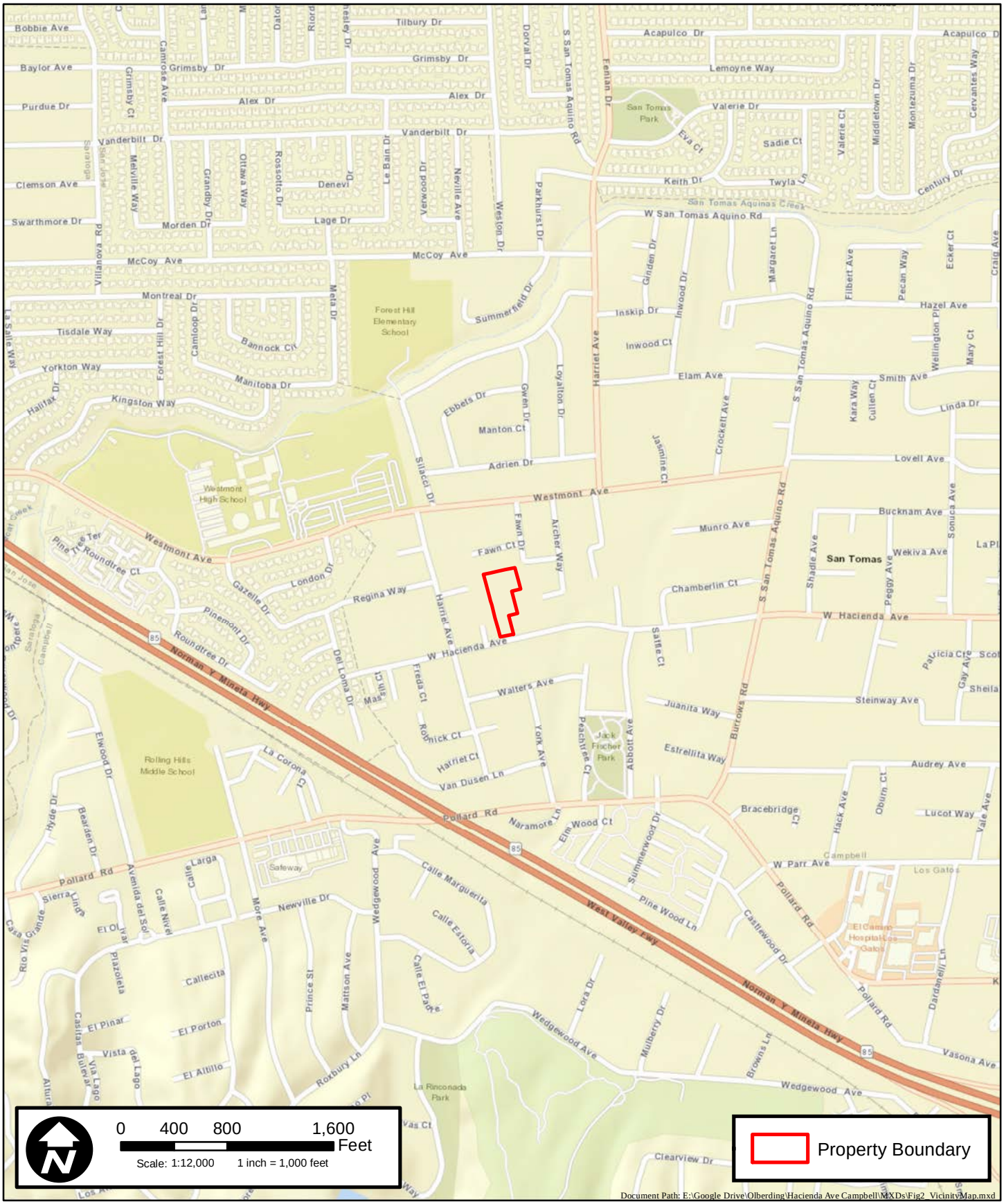

Figure 2: Vicinity Map
1631 Hacienda Avenue, Campbell Property
Santa Clara County

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Folsom, California 95630
Phone: (916) 985-1188

Map Revision Date: 1/8/2018

Figure 3
USGS Quadrangle Map for San Jose West

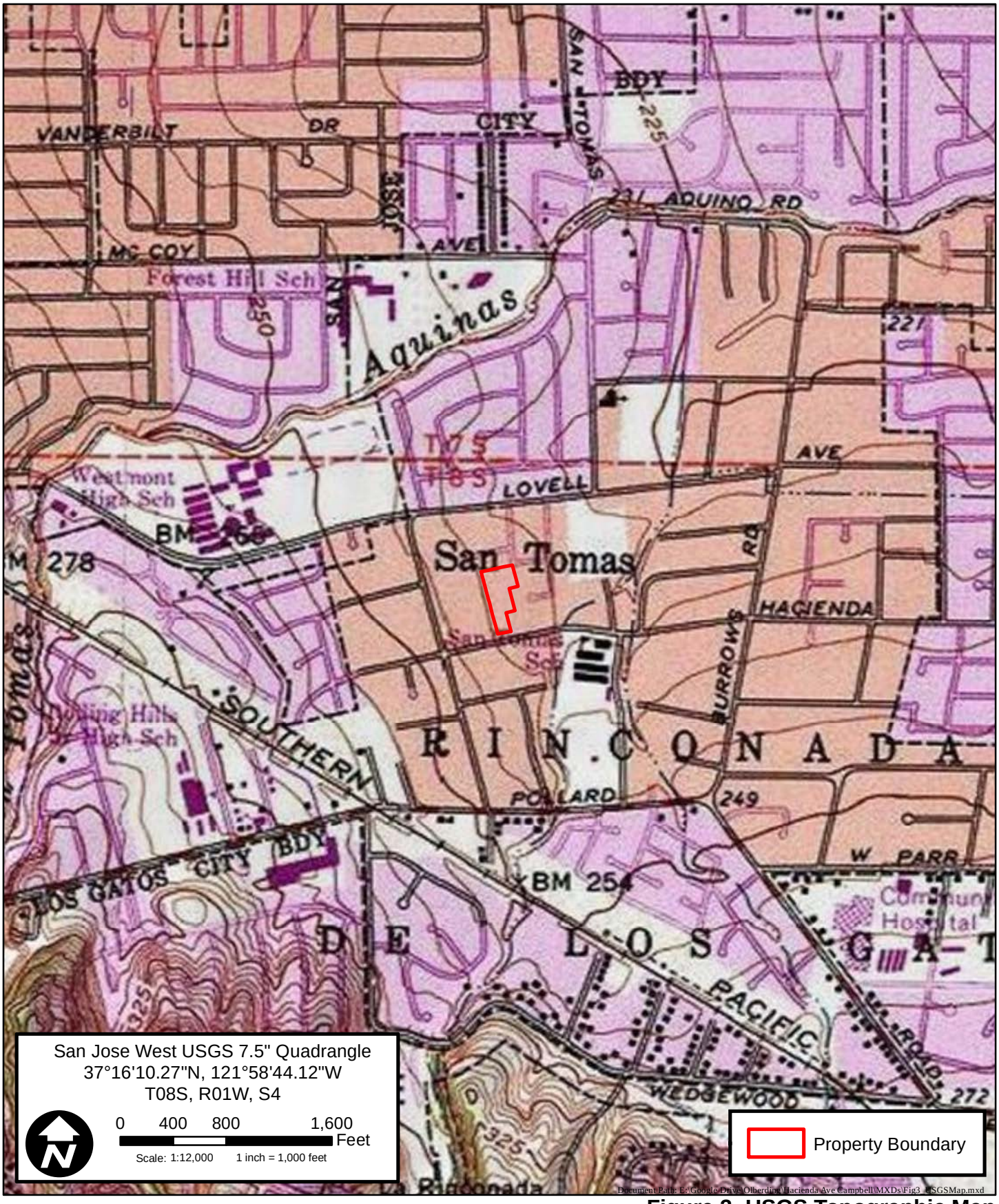

Figure 3: USGS Topographic Map
1631 Hacienda Avenue, Campbell Property
Santa Clara County

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192 Blue Ravine Road, Ste. 165
Folsom, California 95630
Phone: (916) 985-1188

Map Revision Date: 1/8/2018

Figure 4
Aerial Photograph

Figure 4: Aerial Map
1631 Hacienda Avenue, Campbell Property
Santa Clara County

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Folsom, California 95630
Phone: (916) 985-1188

Map Revision Date: 1/8/2018

Figure 5
CNDDB Map of Special Status Wildlife

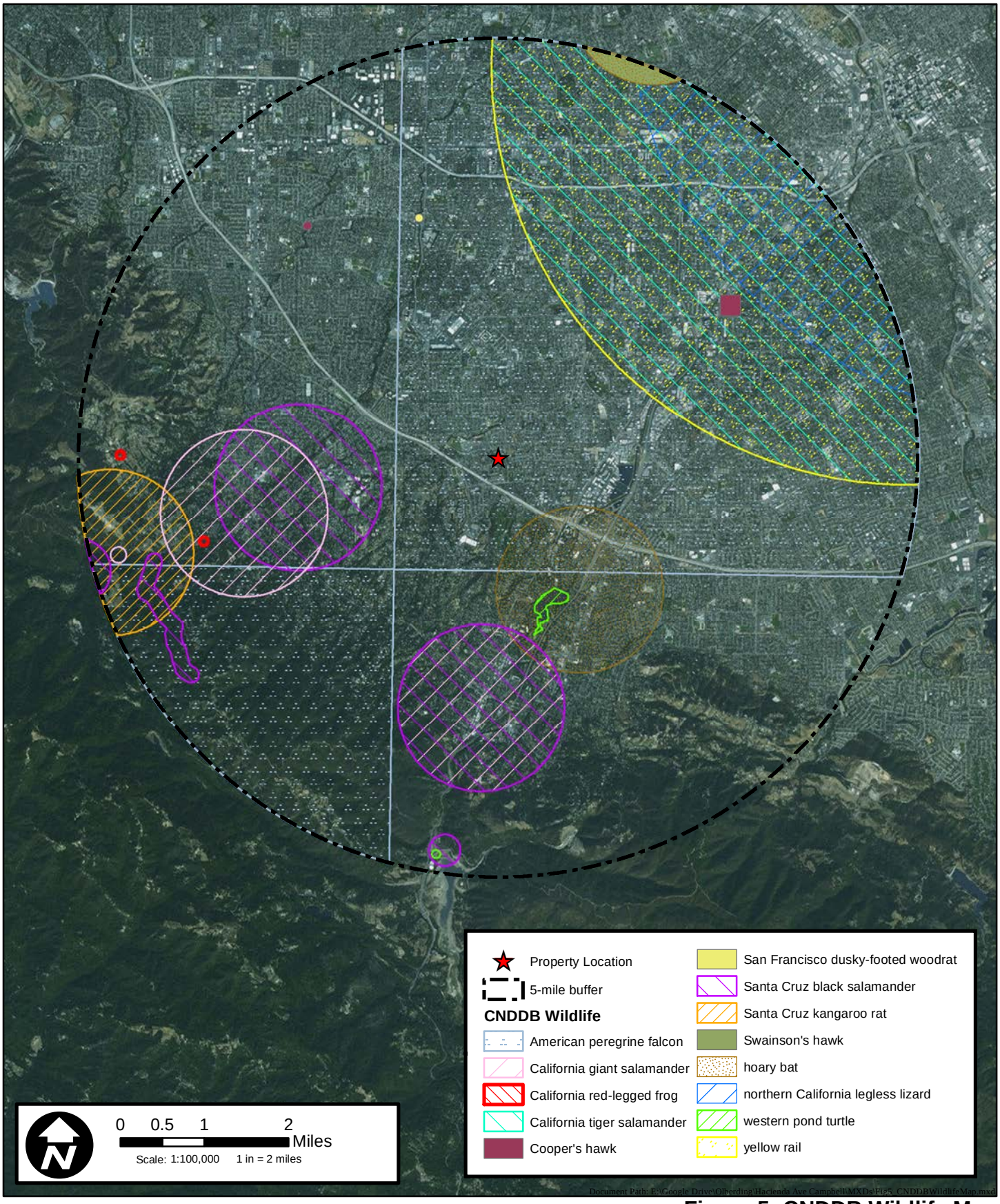

Figure 5: CNDDB Wildlife Map
1631 Hacienda Avenue, Campbell Property
Santa Clara County

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Folsom, California 95630
Phone: (916) 985-1188

Map Revision Date: 1/8/2018

Figure 6
CNDDB Map of Special Status Plants

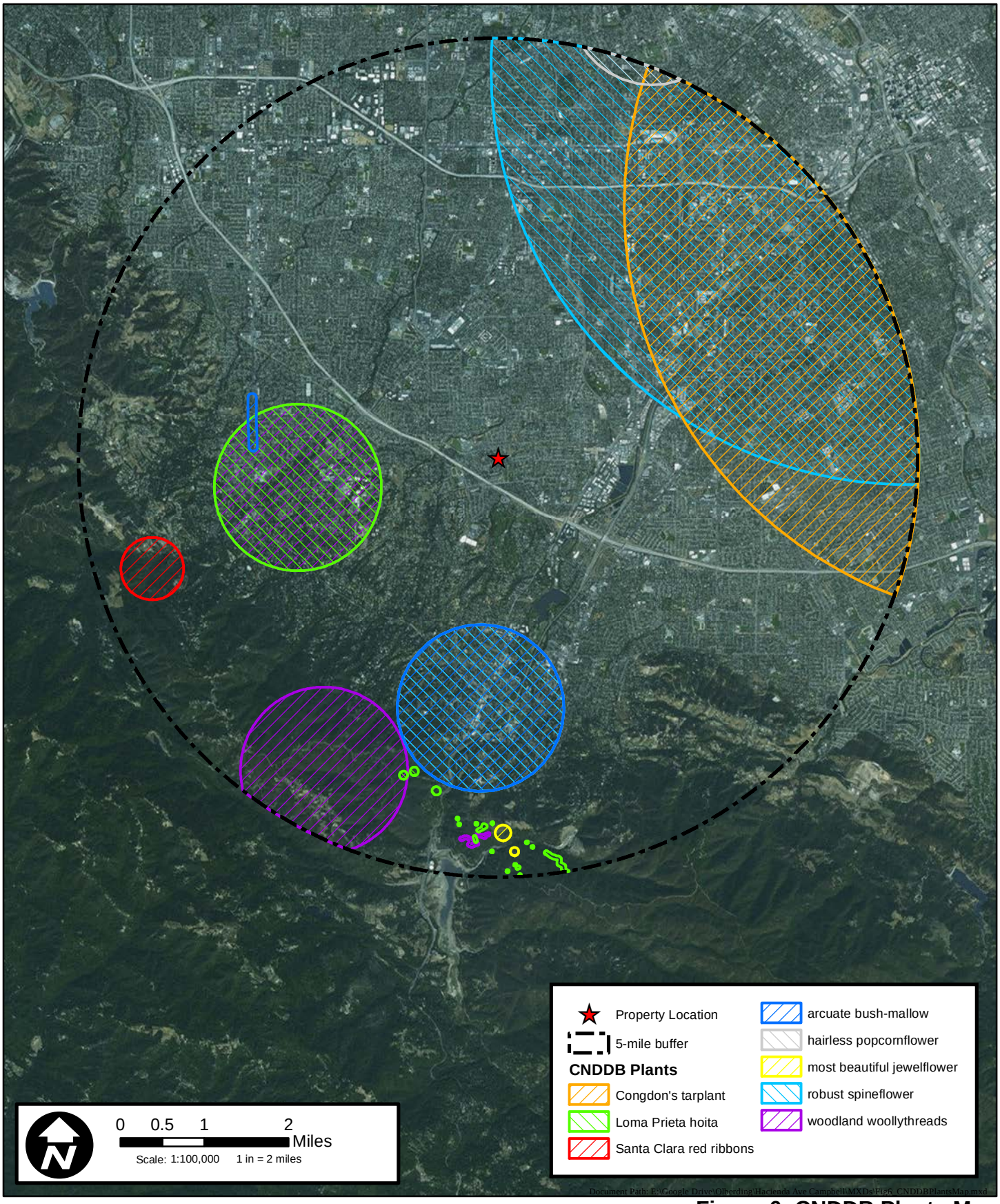

Figure 6: CNDDB Plants Map
1631 Hacienda Avenue, Campbell Property
Santa Clara County

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192 Blue Ravine Road, Ste. 165
Folsom, California 95630
Phone: (916) 985-1188

Map Revision Date: 1/8/2018

Figure 7
USFWS Designated Critical Habitat

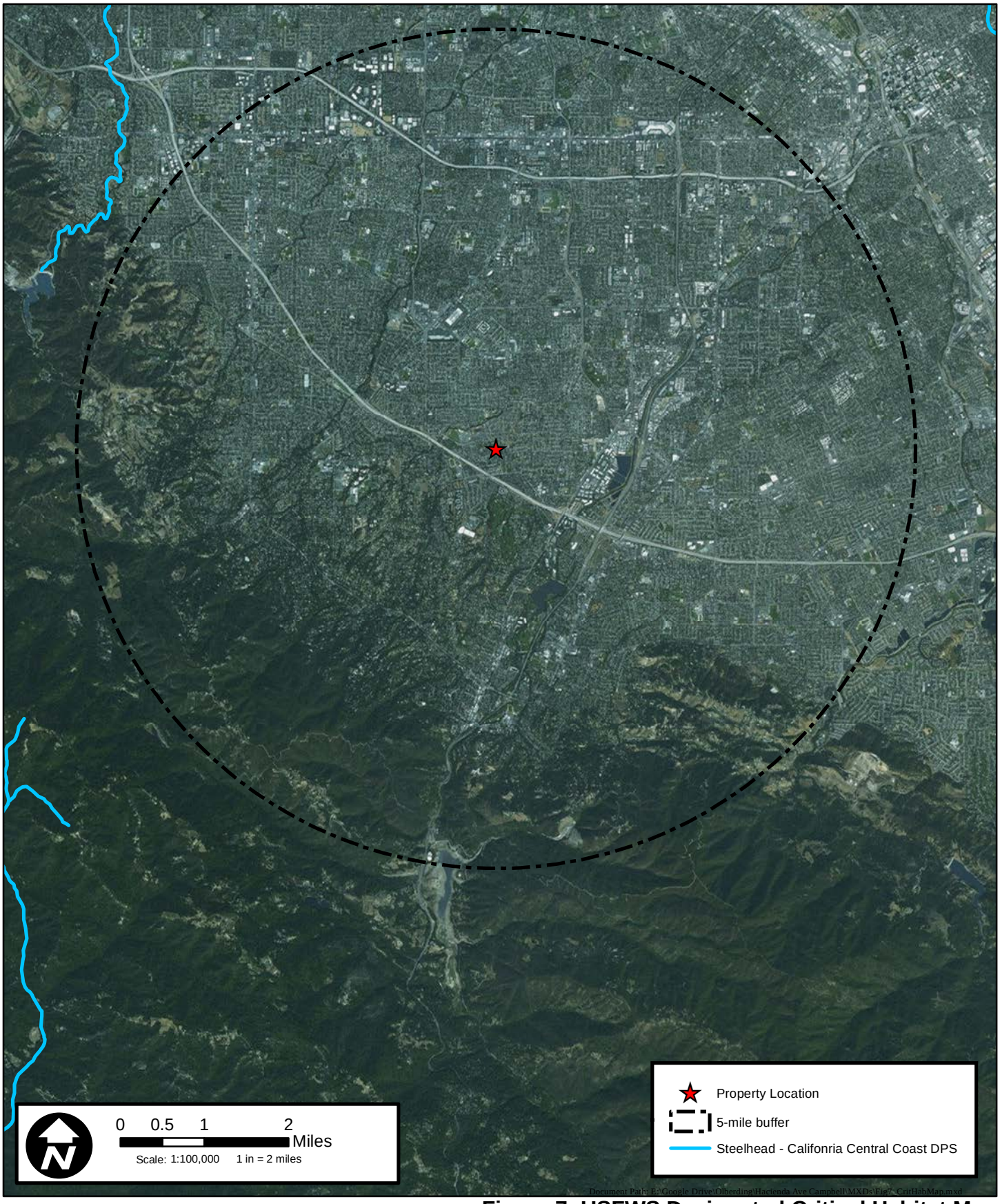

Figure 7: USFWS Designated Critical Habitat Map
1631 Hacienda Avenue, Campbell Property
Santa Clara County

OLBERDING ENVIRONMENTAL INC.
192 Blue Ravine Road, Ste. 165
Folsom, California 95630
Phone: (916) 985-1188

Map Revision Date: 1/12/2018

Figure 8
Soils Map

Figure 8: Soils Map
1631 Hacienda Avenue, Campbell Property
Santa Clara County

OLBERDING ENVIRONMENTAL INC.
192 Blue Ravine Road, Ste. 165
Folsom, California 95630
Phone: (916) 985-1188

Map Revision Date: 1/12/2018

Figure 9
Photo Location Map

Figure 9: Photo Points Map
1631 Hacienda Avenue, Campbell Property
Santa Clara County

OLBERDING ENVIRONMENTAL INC.
192 Blue Ravine Road, Ste. 165
Folsom, California 95630
Phone: (916) 985-1188

Map Revision Date: 1/12/2018

Figure 10
Habitat Map

Figure 10: Habitat Map
1631 Hacienda Avenue, Campbell Property
Santa Clara County

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192 Blue Ravine Road, Ste. 165
Folsom, California 95630
Phone: (916) 985-1188

Map Revision Date: 1/12/2018

ATTACHMENT 2

TABLES

Table 1

Plant and Wildlife Species Observed

Within/Adjacent to the Survey Area

Table 1

Wildlife Species Observed Within/Adjacent to the Survey Area

Scientific Name	Common Name
Plant Species Observed	
Avena fatua	Wild oat
Brassica nigra	Black mustard
Bromus diandrus	Rip-gut brome
Bromus hordeaceous	Soft chess
Camellia sp.	Camellia bush
Citrus x limon	Lemon tree
Citrus x sinensis	Orange tree
Clematis vitalba	Clematis
Cynodon dactylon	Bermuda grass
Diospyros sp.	Persimmon tree
Dittrichia graveolens	Stinkwort
Erodium botrys	Red-stemmed filaree
Eucalyptus polyanthemos	Silver dollar gum
Foeniculum vulgare	Wild fennel
Festuca perennis	Italian rye grass
Hedera helix	English ivy
Helminthotheca echioides	Bristly ox-tongue
Lactuca serriola	Prickly lettuce
Ligustrum japonicum	Wax-leafed privet
Ligustrum ovalifolium	California privet
Magnolia grandiflora	Magnolia tree
Malva parviflora	Cheeseweed
Medicago polymorpha	Bur clover
N/A	Ornamental shrubs
N/A	Ornamental succulents
Nandina domestica	Heavenly bamboo
Narcissus papyraceus	Paperwhite daffodil
Olea europaea	Olive tree
Oxalis stricta	Yellow woodsorrel
Quercus agrifolia	Coast live oak
Quercus lobate	Valley oak
Pelargonium hortorum	Ornamental geranium
Persea americana	Avocado tree
Phyllostachys sp.	Ornamental bamboo
Piptatherum miliaceum	Smilo grass
Raphanus raphanistrum	Wild radish
Rosa californica	California rose
Rosmarinus officinalis	Rosemary
Rubus armeniacus	Himalayan blackberry
Rumex crispus	Curly dock
Salvia sp.	Ornamental sage

Table 1

Wildlife Species Observed Within/Adjacent to the Survey Area

Scientific Name	Common Name
Sambucus nigra	Elderberry
Strelitzia reginae	Bird of paradise
Vicia sativa	Common vetch
Vinca minor	Periwinkle
Washingtonia robusta	Mexican fan palm
Zantedeschia aethiopica	Calla lily
Animal Species Observed	
Birds	
Amazona viridigenalis	Red-crowned parrot
Aphelocoma californica	Western scrub jay
Bombycilla cedrorum	Cedar waxwing
Calypte anna	Anna's hummingbird
Corvus brachyrhynchos	American crow
Corvus corax	Common raven
Melozone crissalis	California towhee
Passer domesticus	House sparrow
Picoides nuttallii	Nuttall's woodpecker
Psaltriparus minimus	Bushtit
Setophaga coronata	Yellow-rumped warbler
Thryomanes bewickii	Bewick's wren
Turdus migratorius	American robin
Zenaida macroura	Mourning dove
Mammals	
Felis catus	Domestic feral cat
Sciurus griseus	Gray squirrel
Sciurus niger	Fox squirrel
Thomomys bottae	Botta's pocket gopher

Table 2

Special-Status Species for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir 7.5 Minute Quadrangle Maps

Table 2

Special-Status Species for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
PLANTS					
California Androsace (*Androsace elongate ssp. acuta)*	-/-/4.2	March – June	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland	Low No suitable habitat present	Presumed absent
Alkali Milk-Vetch (*Astragalus tener* var. *tener*)	-/-/1B	March – June	Playas, valley and foothill grasslands in adobe clay soils, and vernal pools in alkaline soils.	Low No suitable habitat present	Presumed absent
Congdon's Tarplant (*Centromadia parryi* ssp. *condonii*)	-/-/1B	June – November	Valley and foothill grasslands in alkaline soils.	Low No suitable habitat present	Presumed absent
Point Reyes Bird's-Beak (*Cordylanthus maritimus* ssp. *palustris*)	-/-/1B	June – October	Coastal salt marsh, usually in coastal salt marsh with *Salicornia, Distichlis, Jaumea, Spartina*, etc. Also, marshes and swamps.	Low No suitable habitat present	Presumed absent
Robust Spineflower (*Chorizanthe robusta* var. *robusta*)	E/-/1B	April – September	Openings in cismontane woodlands, coastal dunes, and in valley and foothill grasslands with sandy or gravelly soils.	Low No suitable habitat present	Presumed absent
Mt. Hamilton Fountain Thistle (*Cirsium fontinale var. campylon)*	-/-/1B	April – October	Serpentine seeps. Chaparral, cismontane woodland, valley and foothill grassland.	Low No suitable habitat present	Presumed absent
Santa Clara Red Ribbons (*Clarkia concinna* ssp. a*utomixa*)	-/-/4	May – June	Cismontane woodland, chaparral, on slopes and near drainages.	Low No suitable habitat present	Presumed absent

Table 2

Special-Status Species for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Lewis' Clarkia (*Clarkia lewisii)*	-/-/4.3	May – July	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub	Low No suitable habitat present	Presumed absent
San Francisco Collinsia (*Collinsia multicolor)*	-/-/1B	March – May	Sometimes serpentine. Closed-cone coniferous forest, coastal scrub.	Low No suitable habitat present	Presumed absent
Santa Clara Valley Dudleya (*Dudleya abramsii ssp. Setchellii)*	E/-/1B	April – October	Serpentine, rocky environments. Cismontane woodland, valley and foothill grassland.	Low No suitable habitat present	Presumed absent
Hoover's Button-Celery (*Eryngium aristulatum var. hooveri)*	-/-/1B	June – August	Vernal pools.	Low No suitable habitat present	Presumed absent
Fragrant Fritillary (*Fritillaria liliacea*)	-/-/1B	February – April	Cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grasslands, often in serpentine soils.	Low No suitable habitat present	Presumed absent
Phlox-Leaf Serpentine Bedstraw (*Galium andrewsii ssp. gatense)*	-/-/4.2	April – June	Serpentine, rocky environments. Chaparral, cismontane woodland, lower montane coniferous forest.	Low No suitable habitat present	Presumed absent
Loma Prieta Hoita (*Hoita strobilina*)	-/-/1B	May – October	Chaparral, cismontane woodland, riparian woodland, usually in mesic, serpentine soils.	Low No suitable habitat present	Presumed absent
Coast Iris (*Iris longipetala)*	-/-/4.2	March – May	Mesic environments. Coastal prairie, lower montane coniferous forest, meadows and seeps.	Low No suitable habitat present	Presumed absent

Table 2

Special-Status Species for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Contra Costa Goldfields (*Lasthenia conjugens)*	E/-/1B	March – June	Mesic soils. Cismontane woodland, alkaline playas, valley and foothill grassland, vernal pools.	Low No suitable habitat present	Presumed absent
Bristly Leptosiphon (*Leptosiphon acicularis)*	-/-/4.2	April – July	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland	Low No suitable habitat present	Presumed absent
Serpentine Leptosiphon (*Leptosiphon ambiguus)*	-/-/4.2	March - June	Usually serpentine. Cismontane woodland, coastal scrub, valley and foothill grassland.	Low No suitable habitat present	Presumed absent
Large-Flowered Leptosiphon (*Leptosiphon grandiflorus)*	-/-/4.2	April – August	Usually sandy soils. Coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal dunes, coastal prairie, valley and foothill grassland	Low No suitable habitat present	Presumed absent
Smooth Lessingia (*Lessingia micradenia var. glabrata)*	-/-/1B	(April – June) July – November	Serpentine, often on roadsides. Chaparral, cismontane woodland, valley and foothill grassland	Low No suitable habitat present	Presumed absent
Arcuate Bush-Mallow (*Malacothamnus arcuatus)*	-/-/1B	April – September	Chaparral, cismontane woodland	Low No suitable habitat present	Presumed absent
Hall's Bush-Mallow (*Malacothamnus hallii)*	-/-/1B	May – September	Chaparral, coastal scrub	Low No suitable habitat present	Presumed absent

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Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Woodland Woolythreads (*Monolopia gracilens*)	-/-/1B	February – July	Found in serpentine, broadleafed upland forest (openings), chaparral (openings), cismontane woodland, north coast coniferous forest (openings), valley and foothill grassland.	Low No suitable habitat present	Presumed absent
Hickman's Popcorn Flower (*Plagiobothrys chorisianus var. hickmanii)*	-/-/4.2	April – June	Closed-cone coniferous forest, chaparral, coastal scrub, marshes and swamps, vernal pools	Low No suitable habitat present	Presumed absent
Hairless Popcorn Flower (*Plagiobothrys glaber*)	-/-/1A	March – May	Meadows and seeps, marshes and swamps, coastal salt marshes and alkaline meadows.	Low No suitable habitat present	Presumed absent
Metcalf Canyon Jewel-Flower (*Streptanthus albidus ssp. albidus)*	E/-/1B	April – June	Valley and foothill grassland in serpentine soils	Low No suitable habitat present	Presumed absent
Most Beautiful Jewel-Flower (*Streptanthus albidus* ssp. peramoenus)	-/-/1B	April – September	Serpentine soils. Chaparral, cismontane woodland, valley and foothill grassland	Low No suitable habitat present	Presumed absent
California Seablite (*Suaeda californica*)	E/-/1B	July – October	Marshes and swamps, margins of coastal salt marshes.	Low No suitable habitat present	Presumed absent
Saline Clover (*Trifolium hydrophilum)*	-/-/1B	April – June	Marshes and swamps, vernal fools, and valley and foothill grassland with mesic, alkaline soils	Low No suitable habitat present	Presumed absent

Table 2

Special-Status Species for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
INVERTEBRATES					
Vernal Pool Tadpole Shrimp (*Lepidurus packardi*)	E/-/-	Once every two weeks within two weeks of pool inundation, continuing until pool has been inundated for 120 continuous days (usually December – May)	Turbid vernal pools and swales in Sacramento Valley. Grass bottomed swales of unplowed grasslands.	Low No suitable habitat present	Presumed absent
BIRDS					
Cooper's Hawk (*Accipiter cooperii*)	-/CP	February – August	Oak woodlands, coniferous forests, riparian corridors. Often hunts on edges between habitats.	Moderate Suitable habitat present	May occur
Sharp-Shinned Hawk (*Accipiter striatus*)	-/CP	February – August	Oak woodlands, coniferous forests, riparian corridors. Often hunts on edges between habitats.	Moderate Foraging capacity only	May occur
Tricolored Blackbird (*Agelaius tricolor*)	SOC/-/SSC	February – August	Nesting within seasonal wetland marshes, blackberry brambles or other protected substrates. Forages in annual grassland and wetland habitats.	Low No suitable habitat present	Presumed Absent
Golden Eagle (*Aquila chrysaetos*)	FP/CP/-	February – August	Nests in cliff-walled canyons and tall trees in open areas. (Nesting and wintering) Rolling foothills mountain areas, sage-juniper flats, and desert.	Low No suitable habitat present	Presumed Absent

Table 2

Special-Status Species for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Great Egret (*Ardea alba*) ROOKERIES	-/-/-	February – August	Freshwater, brackish and marine wetlands. Form breeding colonies on lakes, ponds, marshes, estuaries or islands. Forage in marshes, swamps, streams rivers, ponds, tidal flats, canals and flooded fam fields.	Low No suitable habitat present	Presumed Absent
Great Blue Heron (*Ardea herodias*) ROOKERIES	-/-/-	February – August	Saltwater and freshwater habitats from open coasts, marshes, sloughs, riverbanks, and lakes to small ponds. Also forage in grasslands and agricultural fields.	Low No suitable habitat present	Presumed Absent
Bell's Sage Sparrow (*Artemisiospiza belli belli*)	-/-/WL	February - August	Shrubby habitats such as coastal sagebrush, chaparral and desert.	Low No suitable habitat present	Presumed absent
Burrowing Owl (*Athene cunicularia*)	SOC/-/SC	February – August	Dry open annual or perennial grassland, desert and scrubland. Uses abandoned mammal burrows for nesting.	Low No suitable habitat present	Presumed Absent
Red-tailed Hawk (*Buteo jamaicensis*)	-/CP/-	February – August	Various grassland habitats, urban land, oak woodlands with grassland for foraging.	Moderate Suitable habitat present	May occur
Red-shouldered Hawk (*Buteo lineatus)*	-/CP/-	February – August	Forages in variety of semi-developed habitats including orchards. Forages in woodlands and riparian areas. Nests in riparian habitat but also eucalyptus groves.	Moderate Foraging capacity only	May occur
Ferruginous Hawk (*Buteo regalis*)	-/CP/-	Late Fall – Winter	Open country such as semiarid grasslands with few trees, rocky outcrops, and open valleys. Also along streams or in agricultural areas during migration.	Low No suitable habitat present	Presumed Absent

Table 2

Special-Status Species for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Swainson's Hawk (*Buteo swainsonii)*	-/T/-	February – October	Nests in riparian areas and in oak savannah near foraging areas. Forages in alfalfa and grain fields with rodent populations.	Low No suitable habitat present	Presumed Absent
Western Snowy Plover (*Charadrius alexandrinus nivosus*)	T/-/SSC	February – August	Sandy beaches, salt pond levees, shores of large alkali lakes. Requires sandy, gravelly, or friable soils for nesting.	Low No suitable habitat present	Presumed Absent
Northern Harrier (*Circus cyaneus*)	-/SC	February – August	Nests in grasslands and marshlands, ground nesting bird.	Low No suitable habitat present	Presumed Absent
Yellow Rail (*Coturnicops noveboracensis)*	-/-/SSC	February - August	Salt or brackish marshes or wet meadows. Prefers habitats with tall, dense vegetation such as sedges or cattails.	Low No suitable habitat present	Presumed absent
Snowy Egret (*Egretta thula*) ROOKERIES	-/-/-	February - August	Found along the coast but breed in inland wetlands. Nest on thick vegetation in barrier islands, saltmarsh islands, swamps or marshes.	Low No suitable habitat present	Presumed Absent
White-tailed Kite (*Elanus leucurus*)	SOC/CP/FP	February – August	Various grassland habitats, urban land, oak woodlands with grassland for foraging.	Moderate Foraging capacity only	May occur
Merlin Falcon (*Falco columbarius*)	-/CP/WL	September – May	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms and ranches, near water. Clumps of trees or windbreaks are required for	Low No suitable habitat present	Presumed Absent
American Peregrine Falcon (*Falco peregrinus anatum)*	-/-/FP	February - August	Nests near wetlands, lakes, rivers, or other water. On cliffs, banks, dunes, mounds, and human-made structures.	Low No suitable habitat present	Presumed Absent

Table 2

Special-Status Species for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
American Kestrel (*Falco sparverius)*	-/CP/-	February – August	Various grassland habitats, urban land, oak woodlands with grassland for foraging.	Moderate Foraging capacity only	May occur
Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*)	SOC/-/SSC	February – August	Fresh and saltwater marshes of the San Francisco Bay area. Forages in thick, continuous vegetation down to water surface. Nests in tall grasses, tule patches, and willows.	Low No suitable habitat present	Presumed Absent
Bald Eagle (*Haliaeetus leucocephalus)*	-/E/FP	January – July	Wetland habitats such as coasts, rivers, lakes or marshes. Uses large mature conifers or hardwood trees for nesting.	Low No suitable habitat present	Presumed Absent
Loggerhead Shrike (*Lanius ludovicianus*)	SOC/-/SSC	February – August	Open grassland habitats, grazed grasslands. Uses shrubs for nesting.	Moderate Suitable habitat present	May occur
California Gull (*Larus californicus)*	-/-/WL	February – August	Breed on sparsely vegetated islands or levees near water. Forage in any open area where they can find food including dumps, meadows, beaches or mudflats.	Low Suitable foraging habitat present	Not likely to occur
Alameda Song Sparrow (*Melospiza melodia pusillula*)	-/-/SSC	February – August	Resident of salt marshes bordering south arm of San Francisco Bay, inhabits *Salicornia* marshes, nests low in *Grindelia* bushes (high enough to escape high tides) and in *Salicornia.*	Low No suitable habitat present	Presumed Absent
Black-Crowned Night Heron (*Nycticorax nycticorax*) ROOKERIES	-/-/-	February – August	Inhabits wetlands including saltmarshes, freshwater marshes, swamps, streams, rivers, lakes, canals and tidal mudflats.	Low No suitable habitat present	Presumed Absent

Table 2

Special-Status Species for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Double-Crested Cormorant (*Phalacrocorax auratus*)	-/-/WL	February – August	Seek large bodies of water. Inhabit coasts, inland lakes, freshwater marshes and saltmarshes.	Low No suitable habitat present	Presumed Absent
Yellow Warbler (*Setophaga petechia)*	-/-/SSC	February – August	Breeds in shrubby thickets and woods, particularly along water or wetlands. Forage in small trees or shrubs.	Low Suitable habitat present	Not likely to occur
MAMMALS					
Pallid Bat (*Antrozous pallidus*)	-/SC/-	N/A	Forages in grasslands, shrublands, deserts, forests, and woodlands. Most common in open, dry habitats. Roosts in rock crevices, caves, tree hollows, and artificial structures. Roosts must protect bats from high temperatures; very sensitive to disturbance of roosting sites.	Moderate Suitable habitat present	May occur
Townsend's Big-Eared Bat (*Corynorhinus townsendii*)	-/SSC/-	Resident	Throughout California in a wide variety of habitats; roosts in the open, hanging from walls and ceilings. Needs sites free from human disturbance. Most common in mesic sites.	Low Suitable habitat present	Not likely to occur
Western Red Bat (*Lasiurus blossevillii)*	-/-/SSC	Resident	Winter in western lowlands and coastal regions of the San Francisco Bay. Roosts in forests and woodlands. Feed in grasslands, shrublands, open woodlands and forests and croplands.	Moderate Foraging capacity only	May occur

Table 2

Special-Status Species for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Hoary Bat (*Lasiurus cinereus*)	-/-/-	Resident	Prefers open habitats or habitat mosaics with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees near water. Feeds mainly on moths.	Moderate Suitable habitat present	May occur
Long-Eared Myotis (*Myotis evotis)*	-/-/-	Resident	Semi-arid shrublands, prairie, subalpine forests. Roost in tree cavities, rock crevices, caves or abandoned buildings but prefer rock crevices.	Low Suitable habitat present	Not likely to occur
Yuma Myotis (*Myotis yumanensis*)	-/-/-	Resident	Roosts primarily in caves, rocks and crevices, but also found in artificial structures. Opportunistic hunters with a wide range of insect prey. Hunts for insects above the surface of slow moving water or in vegetation close to the water's edge.	Low No suitable habitat present	Presumed Absent
San Francisco Dusky-Footed Woodrat (*Neotoma fuscipes annectens)*	-/-/SSC	Resident	Oak and willow woodland. Prefers moderate canopy and a brushy understory with suitable house and nesting building materials	Low No suitable habitat present	Presumed Absent

Table 2

Special-Status Species for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
AMPHIBIAN					
California Tiger Salamander (*Ambystoma californiense*)	T/T/-	Aquatic Surveys - Once each in March, April, and May with at least 10 days between surveys. Upland Surveys - 20 nights of surveying under proper conditions beginning October 15 and ending March 15.	Vernal pools, swales and depressions for breeding, needs underground refugia.	Low No suitable habitat present	Presumed Absent
Santa Cruz Black Salamander (*Aneides niger)*	-/-/SSC	Year-round resident	Occurs in mixed deciduous woodland, coniferous forests, coastal grasslands. Found under rocks near streams, in talus, under damp logs, and other objects.	Low No suitable habitat present	Presumed Absent
California Giant Salamander (*Dicamptodon ensatus)*	-/-/SSC	Year-round resident	Occurs in wet coastal forests in or near clear, cold permanent and semi-permanent streams and seepages. One population has been found inhabiting flowing water in a network of caves.	Low No suitable habitat present	Presumed Absent
Foothill Yellow-Legged Frog (*Rana boylii*)	SOC/-/SC	Year-round resident	Partially-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need cobble for egg-laying.	Low No suitable habitat present	Presumed Absent

Table 2

Special-Status Species for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
California Red-Legged Frog (*Rana draytonii*)	T/-/SC	May 1 – November 1	Lowlands and foothills in or near permanent deep water with dense, shrubby or emergent riparian habitat. Requires 11-20 weeks of permanent water for breeding and larval development. Must have access to aestivation habitat.	Low No suitable habitat present	Presumed Absent
Coast Range Newt (*Taricha torosa)*	-/-/SSC	Year-round resident	Found in wet forests, oak forests, chaparral, and rolling grasslands	Low No suitable habitat present	Presumed Absent
REPTILE					
Northern California Legless Lizard (*Anniella pulchra)*	-/-/SSC	Year-round resident	Occurs in moist warm loose soil with plant cover. Moisture is essential. Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks.	Low No suitable habitat present	Presumed Absent
Western Pond Turtle (*Emys marmorata*)	-/-/SC	March – October	Aquatic turtle needs permanent water in ponds, streams, irrigation ditches. Nests on sandy banks or grassy fields.	Low No suitable habitat present	Presumed Absent
Coast Horned Lizard (*Phrynosoma blainvillii*)	-/SSC/-	Year-round resident	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes; requires open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Low No suitable habitat present	Presumed Absent

Table 2

Special-Status Species for the San Jose West, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas and Calaveras Reservoir 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**

1. Special-status plants and animals as reported by the California Natural Diversity Data Base, California Native Plant Society, and other background research January 2018
2. Order of Codes for Plants - Fed/State/CNPS
   Order of Codes for Animals - Fed/State/CDFW
   Codes:
   SOC - Federal Species of Concern
   SC - California Species of Special Concern
   E - Federally/State Listed as an Endangered Species
   T - Federally/State Listed as a Threatened Species
   C - Species listed as a Candidate for Federal Threatened or Endangered Status
   R - Rare
   D - Delisted
   CP- California protected
   FP - State Fully Protected
   DFG: SC California Special Concern species
   1B - California Native Plant Society considers the plant Rare, Threatened, or Endangered in California and elsewhere.
   1A - CNPS Plants presumed extinct in California.
   2 - CNPS Plants Rare, Threatened or Endangered in California, but more common elsewhere.
   3 - CNPS Plants on a review list to find more information about a particular species.
   4 - CNPS Plants of limited distribution - a watch list.

ATTACHMENT 3

SITE PHOTOGRAPHS

Photo 1: Facing northeast, photo shows house on southern end of the Property.

Photo 2: Facing east, photo shows junk piles and ornamental bushes behind the house on the Property.

Photo 3: Facing northeast, photo shows annual grassland habitat and large trees on the northern half of the Property.

Photo 4: Facing south, photo shows small abandond sheds present on the Property.

Photo 5: Facing west, photo shows large abandoned shed and oak trees on the western edge of the Property. This structure could provide suitable roosting habitat for several bat species.

Photo 6: Facing west, photo shows grassland habitat and large trees present on the western edge of the Property.

Photo 7: Facing east, photo shows large eucalyptus tree in the northeast corner of the Property and annual grassland habitat.

Photo 8: Facing south, photo annual grassland habitat and large trees on and adjacent to the Property. The house is visible in the background.

Photo 9: Facing northwest, photo shows grassland habitat on the northwest corner of the Property and conifer trees present on the adjacent property.

Photo 10: Facing northwest, photo shows wooded area on the western edge of the Property. The charred trees and charcoal present on the grass suggests a fire occurred.

ATTACHMENT 3

REVISED ARBORIST EVALUATION

LIVE OAK ASSOCIATES, INC.
an Ecological Consulting Firm

October 2, 2018

Sachneel Patel
Hacienda Street Holdings, LLC
225 Demeter Street
East Palo Alto, CA 94303

Re: Revised Arborist Evaluation and Tree Protection Plan, 1631 W. Hacienda Avenue, Campbell

Dear Mr. Patel:

Per your request, Live Oak Associates, Inc. (LOA) conducted an arborist survey for the proposed residential development located at 1631 W. Hacienda Avenue, Campbell. The site consists of a single parcel (approximately 1.8 acres) that is proposed for subdivision into six separate lots. The site consists of one residence near the street, with open vacant land behind the residence. LOA staff ecologist Anna Godinho and myself, a certified arborist, conducted this tree survey on December 5, 2017. I made a follow-up visit on April 11, 2018 to assess the current health of Tree #1. Revised site plans were provided on July 6, 2018 and September 28, 2018, and this report was revised on each occasion to reflect plan modifications.

CITY OF CAMPBELL TREE ORDINANCE

This arborist report was prepared in compliance with the City of Campbell's "Tree Protection Regulations" (Chapter 21.32). Per the City's tree ordinance, a "protected tree" on multi-family residential sites refers to any tree or multi-trunk tree with at least one trunk measuring 12 inches (") or greater in diameter, measured four (4) feet above the adjacent grade. Per the ordinance, fruit trees, eucalyptus trees, and dead and dying trees are exempt.

METHODS

All trees within the project boundaries, as well as trees immediately adjacent to the site whose canopy overlapped boundaries of the project site, were surveyed for this report. The field inspection located, identified, and assessed the health, structure and condition of protected trees. First, the tree was identified to species to determine if it was exempt, and if not exempt, the diameter at breast height (DBH) was taken to determine if the tree met the minimum size criteria (12" DBH) to be considered a protected tree. Data collected for each protected tree during the arborist survey is included as Attachment 1.

The location of each tree was identified using a Rino 120 Garmin GPS unit. Specific data collected for each of the protected trees included the species, size, estimated canopy diameter and height, condition rating, suitability for preservation, life expectancy, and anticipated level of impact. The field work included a visual examination of each of the trees, using binoculars to

view the trees from all accessible angles. As required by the ordinance, photographic documentation of each protected tree on the site has been provided (Attachment 2).

The plans reviewed included Site Plans from various dates during 2018 provided by Ver Consultants, Inc. The current tree protection plan locating each protected tree is provided in Attachment 3; the numbers on the map correspond with the tree numbers on the data sheet.

SURVEY RESULTS

Trees were primarily concentrated in the southern third of the site near the residence or along the property boundaries. A total of 16 protected trees representing six species were documented during the December 2017 survey. Two species were native oaks, including one valley oak (*Quercus lobata*) tree and 11 coast live oak (*Quercus agrifolia*) trees. Although not native to this part of California, incense cedar (*Calocedrus decurrens*) is native to montane areas of California. The remaining three species of protected trees, including southern magnolia (*Magnolia grandiflora*), Japanese privet (*Ligustrum japonicum*), and Australian blackwood (*Acacia melanoxylon*) were not native to California. With the exception of the coast live oak, one individual of each of the remaining species was found on the site.

Several exempt trees were also present on the site, including coast live oaks smaller than 12" DBH, eucalyptus, and fruit trees. Some of the exempt tree species observed on the site included loquat (*Eriobotrya japonica*), persimmon (*Diospyros kaki*), purple robe locust (*Robinia pseudoacacia* 'purple robe'), silver dollar eucalyptus (*Eucalyptus polyanthemos*), lemon (*Citrus lemon*), and avocado (*Persea americana*). One unidentifiable tree was dead, appearing to have been killed by a small fire years ago. These trees were not mapped or discussed further in this analysis.

DEVELOPMENT IMPACTS AND MITIGATION RECOMMENDATIONS

Trees to be Removed

Based on the field inspections, careful review of the grading plans and communications with the project engineer, six (6) of the protected trees found on the site are either recommended for removal based on poor health, or otherwise cannot be avoided to accommodate the proposed project (Table 1). Two of the proposed removal trees are ornamental species, not native to the area, and not necessarily trees of high value. Four of the trees to be removed are small to medium sized coast live oaks in fair or good health, which fall within the footprint of construction for the culdesac, utility lines, residences, or driveways.

Per the City of Campbell's tree protection regulations, each tree between 12" and 24" must be replaced with a box tree with a minimum size of 24". Each protected tree greater than 24" DBH must be replaced with a box tree of minimum size 36". Furthermore, the applicant must apply for a tree removal permit for trees that cannot be retained.

Table 1. Trees to be Removed from Development of 1631 Hacienda Avenue, Campbell.

Tree #	Tag #	Common Name	Species	DBH	Condition Rating	Reason for Removal	Minimum Compensation Requirements
3	3	Southern Magnolia	*Magnolia grandiflora*	29.1	70 Fair	Construction of Culdesac	One 36" Box Tree
4	4	Japanese Privet	*Ligustrum japonicum*	2xstem 13,6, 6.0	60 Fair	Construction of Culdesac	One 24" Box Tree
7	5	Coast Live Oak	*Quercus agrifolia*	4xstem 18.3, 13.0, 12.0, 10.8	90 Good	Development of Lot 3	One 36" Box Tree
10	6	Coast Live Oak	*Quercus agrifolia*	14.1	90 Good	Utility Lines, Driveway and development of Lot 6	One 24" Box Tree
11	7	Coast Live Oak	*Quercus agrifolia*	2xstem 21.7, 4.4	90 Good	Utility Lines, Driveway and development of Lot 6	One 36" Box Tree
15	11	Coast Live Oak	*Quercus agrifolia*	2xstem 18.3, 8.8	50 Fair	Construction of Culdesac	One 36" Box Tree
	6		4 native oaks, 2 non-native ornamentals		3 Fair 3 Good		7 Replacement Trees including (5) 36" and (2) 24 "

Based on review of the landscaping plans provided by Thomas Baak & Associates, LLP (dated 12-20-17), seven 36" box trees (four coast live oaks and three strawberry trees (*Arbutus marina*) and two 24" box trees (London plane (*Platanus* 'columbia') are proposed for planting on the site. Additionally, fifteen 15 gallon trees will be planted. Dozens of drought tolerant mostly native shrubs and ground covers are also proposed for planting on the site. The proposed planting plan will more than accommodate the required mitigation to replace the trees that cannot be avoided.

Trees to be Retained and Protected

The largest tree on the site was a 49-inch diameter valley oak. This decadent tree is in poor health; the trunk of which is estimated to be approximately 2/3 dead. Previous pruning of one of the main branches of the tree resulted in prevalence of a significant trunk cavity. This rot likely extends throughout the main trunk, which poses a risk to life and property. Although removal of this potentially hazardous tree is recommended, the City has expressed the desire to retain it.

The project has been redesigned to retain the tree. The development footprint has been shifted seven feet to the north of the original plan, and will now encroach approximately 1 foot within the dripline of the canopy. Currently, there is a concrete entryway to the house within the dripline at this location, which will be carefully removed, restoring the soils in this portion of the canopy. Furthermore, the driveway that was formerly proposed within the dripline has been excluded from the site plans.

In October of 2018, the need to place a power pole immediately west of Tree #1 (between Tree #1 and Tree # 2) became apparent. Placement of the pole will require some side pruning of Tree #1. Since the tree is currently side heavy and leans the direction of where the new pole will go, pruning, if done carefully and minimally, will help to balance the tree. The pruning will be done to ISA standards and performed by a certified arborist. Under these circumstances, it is my professional opinion that the tree would not be likely to be significantly harmed by the pruning.

The following impact assessment and tree protection measures are based on the International Society of Arboriculture Best Management Practices: *Managing Trees During Construction, Second Edition*. Champaign, IL: International Society of Arboriculture, 2016. Table 2 on the following page describes the anticipated obstructions within the tree protection zones (TPZ) of each tree, along with the anticipated level of impact.

TREE PROTECTION MEASURES

Development will alter the natural terrain and drainage patterns in the project area. Construction activities may result in soil compaction and/or cause physical damage to tree roots, trunks or canopies. Paving over the roots can limit water intake and aeration of the roots, and is known to be particularly detrimental to oaks. These factors and other development activities can affect long term health and survival of trees to be retained.

Tree protection measures will be implemented to minimize harmful effects to the remaining trees located on or immediately adjacent to the site. Implementation of the following tree protection measures will help to ensure that preserved oak trees covered by the City of Campbell tree ordinance will continue to thrive after site development:

- Work within the vicinity of the trees to be retained will be scheduled for fall or winter when trees are dormant or semi-dormant.

- Prior to any site preparation or construction work, all trees should have a protective buffer (six feet tall chain link fence) extending beyond the dripline of the canopy (tree protection zone)(TPZ), or the greatest feasible distance from the trunk as possible. Grading, deposition of fill, equipment storage, removal of soil, irrigation, or any other activities that may be detrimental to the health of the trees are strictly forbidden within the tree protection zone for the duration of site work. It is the ultimately applicants'

responsibility to ensure that the fencing remains intact and that the tree is not damaged during construction. Tree protection locations should be marked before any fence contractor arrives.

- 8.5 x 11" signs will be placed on the construction fencing (not on the trunks of the trees) stating that all areas within the fencing are Tree Protection Zones (TPZ) and that disturbance is prohibited.

- Pruning of limbs to provide clearance for structures, vehicular traffic, and construction equipment shall be performed during the fall or winter semi-dormant period and will conform to American National Standards Institute (ANSI) tree pruning standards. All tree pruning or removals shall be performed by a qualified arborist with a C-61/D-49.

- California Contractors License. Avoid aesthetic pruning immediately before, during or after construction impact. Perform only that pruning of dead limbs or those which conflict with the proposed development.

- Tree maintenance and care shall be specified in writing according to American National Standard for Tree Care Operations: *Tree, Shrub and Other Woody Plant Management: Standard Practices* parts 1 through 10 and adhere to ANSI Z133.1 safety standards and local regulations.

- Engineer site improvements so that water runoff will not slope toward the trunks. In areas where the proposed elevation of nearby development lies above the elevation of the oak tree, swales have been incorporated into the design to direct water away from the oak trees.

- Soak the ground beneath the canopy of each tree prior to, during, and right after construction. This deep watering method consists of a slow, all-day soaking within the root zone.

- If possible, construct the project with minimal filling, excavating, or trenching within the root zone. Minimize compaction within the root zone to the greatest extent practicable. Keep the elevation of the soil surface at the existing level within the protected area around the trunk. Do not stockpile any construction material within the root zone, even temporarily.

- Should any roots need to be severed during construction, cover any exposed or cut roots with burlap, soil or mulch as soon as possible until the native soil can be backfilled. If possible, use sharp tools (chainsaw or axe) for pruning roots. Using hand tools will help to heal the wounded roots more quickly than pruning with bulldozers, and will better avoid tearing of the roots behind the cuts. If excavation is for installation of underground utilities, roots should be left intact and lines will be treaded underneath the roots.

Table 2. Trees to be Retained and Protected, 1631 Hacienda Avenue, Campbell.									
Tree #	Tag #	Common Name	Species	DBH	Condition Rating	Obstructions within the TPZ	TPZ Radii (Distance in Feet)		Impact Level****
							From Trunk	From Edge of Canopy	
1	1	Valley Oak	*Quercus lobata*	49.3	60	Minimal. Pruning required on leaning side of tree.	20	-1	Moderate
2	2	Incense Cedar	*Calocedrus decurrens**	29.6	25	None	12.5	5	Low
5	No Tag**	Australian Blackwood	*Acacia melanoxylon*	24***	90	Minimal. A small portion (<10%) of the canopy will be paved over for Lot 3. Pruning required.	15	2.5	Low
6	No Tag**	Coast Live Oak	*Quercus agrifolia*	22***	65	Approx. 45 % of canopy will be paved over. Pruning Required.	2.5	0	High
8	No Tag**	Coast Live Oak	*Quercus agrifolia*	2xstem 13, 14 ***	70	Approx. 30 % of canopy will be paved over.	2.5	0	High
9	No Tag**	Coast Live Oak	*Quercus agrifolia*	2xstem 11, 16 ***	80	Minimal. Pruning required	19	7.5	Low
12	8	Coast Live Oak	*Quercus agrifolia*	2xstem 12.5, 13.9	80	Approx. 20 % of canopy will be paved over.	7.5	0	Moderate
13	9	Coast Live Oak	*Quercus agrifolia*	7xstem 2.7, 7.2, 10.1, 6.6, 7.8, 10.8, 6.5	90	Approx. 15 % of canopy will be paved over.	11	0	Moderate
14	10	Coast Live Oak	*Quercus agrifolia*	4xstem 13.5, 16.9, 12.2, 6.5	70	Approx. 10 % of canopy will be paved over.	19	0	Moderate
16	12	Coast Live Oak	*Quercus agrifolia*	32.2	95	Approx. 25 % of canopy will be paved over.	Varies on four sides between 2.5-7.5	-8 to -10	Moderate
Total			8 native trees, 2 non-native trees						10 trees

*Although native to California, this species is not native to this part of California.

**These trees were not tagged with metal tree tags because the trunks were on neighboring properties. Portions of the canopies, however, were on the site, so these trees were included in our analysis.

***The diameters of these trees were not measured, just estimated, since the trunks were on neighboring properties.

**** Impact level defines how a tree may be affected by construction activity and proximity to the tree, and is described as low, moderate, or high (Table 2). The following scale defines the impact rating:

- Low = The construction activity will have little influence on the tree.
- Moderate = The construction may cause future health or structural problems, and steps must be taken to protect the tree to reduce future problems.
- High = Tree structure and health will be compromised and removal is recommended, or other actions must be taken for the tree to remain. The tree is located in the building envelope.

Tree Protection Measures, cont'd.

- If trees are wounded or stressed during construction, they are more susceptible to insect and disease attack. Any wounds to the bark should be cleaned to sound wood by removing loose bark and wood, leaving a smooth edge around the wound. No application of a wound dressing is necessary.

- A tree protection clause will be included in the construction contract forbidding grading, filling, ditching, equipment parking, or material storage within the tree protection zone.

- No fertilizing should be performed without a soil analysis. Manage the soil according to recommendations from a qualified testing laboratory or have a qualified professional analyze the results and make the future recommendations for management of the tree.

- Should any landscaping be proposed within the dripline of any oaks, choose only drought-tolerant native plants that require no summer watering. In place of plants, cobbles, gravel and wood chips are good examples of ground covers that do not interfere with the roots ability to obtain oxygen and appropriate moisture.

Should any additional trees need to be removed to accommodate future residential development on the site, or should any retained and protected trees die during the recommended monitoring period (five years), the applicant shall conform with any replacement measures that may be required of the project as conditions of approval.

The basis for this evaluation is limited to the visual examination of accessible parts during the tree survey without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees in question may not arise in the future.

If you have any questions regarding findings or other elements of this report, please feel free to contact me at (559) 642-4880.

Sincerely,

Wendy C. Fisher

Wendy C. Fisher
Certified Arborist #WE-3872A

ATTACHMENT 1
ARBORIST DATA, 1631 HACIENDA AVENUE, CAMPBELL

2213-01

Attachment 1. Data on Protected Trees Located at 1631 Hacienda Avenue, City of Campbell. December ~~3~~ 5, 2017. and April 12, 2018.

UTM	Tree #	Tree Tag #	Common Name and Species	Diameter at 4 ft.	Height Estimate	Estimated Canopy Diameter	Health, Structure	Condition Rating*	Suitability for Preservation **	Life Expectancy ***	Level of Impact****	Photo #
590615E 4125286N	1	1	Valley oak Quercus lobata	49.3 in.	60'	60'	mature pruned in past - large rotten branch - cavity in branch scar	25	Poor	1	Mod	3 photos 3 species
590556E 4125169N	2	2	Incense cedar Calocedrus decurrens	29.6"	35'	20'	mature, topped/pruned due to power lines	25	Poor	3	Low	2
590537E 4125159N	3	3	Magnolia grandiflora S. magnolia	29.1"	35	25	mature	90	Good	1	R	2 photos 1 surface roots
590523E 4125200N	4	4	Ligustrum japonicum Japanese privet	2xstem 13.6" 6"	40	30	sideheavy next to shed cramped pruned	60	Fair	3	R	2 photos
590551E 4125252N	5	no tag	Acacia melanoxylon Australian blackwood	24" estimated, trunk is inaccessible due to fence, many low limbs, may be pruned	50'	40'	mature	90	Good	1	Low	1
590551E 4125260N	6	no tag	Coast live oak Quercus agrifolia	22" est.	40	35	leaner on site crowded by myrtle, many low limbs may be pruned	65	Good	1	High	1
590567E 4125265N	7	5	Quercus agrifolia Coast live oak	4xstem 18.3, 13, 12.9, 10.8 branched @ 2' height	40	40	some insect holes in trunk some dead limbs, lower are dead	90	good	1	R	3

Front Yard (trees 1–4)

R = Removed

Attachment 1. Data on Protected Trees Located at 1631 Hacienda Avenue, City of Campbell. December 5, 2017.

Tree #	Tree Tag #	Common Name and Species	Diameter at 4 ft.	Height Estimate	Estimated Canopy Diameter	Health, Structure	Condition Rating*	Suitability for Preservation **	Life Expectancy ***	Level of Impact****	Photo #
UTM 590564E 4125289N 8	no tag	Coast Live oak Quercus agrifolia	13"+14"	50"	40"	mature canopy overhangs, leaning onto site - tree on other side of fence	70	fair	1	High	2
590526E 4125307N 9	no tag	Coast live oak Quercus agrifolia	11"+16"	30"	25"	mature, canopy overhangs, leaning a bit onto site, tree on other side of fence	80	good	1	LOW	1
590499 E 4125264N 10	6	Q. agrifolia	14.1	40	20	leaning toward site healthy	90	good	1	R	Same Photo
590497E 4125263N 11	7	Q agrifolia	2 x stem 21.7" x 4.4	45	30	leaning healthy	90	good	1	R	
590499 4125264 12	8	Q agrifolia	2 x stem 12.5 13.9	35	25	leaning	80	good	1	Mod	1
590502E 4125259N 13	9	Q. agrifolia	12.7+ 7.2+ 10.1+6.6	50	35	healthy 7 x stem, possibility of 2 nests +7.8+10.8+6.5	90	good	1	Mod	1
590506 E 4125254N 14	10	Q. agrifolia	16.9+13.5+ 6.5+12.2	50	50	healthy some dead limbs 4 x stem scorched?	70	good	1	Mod	2

Attachment 1. Data on Protected Trees Located at 1631 Hacienda Avenue, City of Campbell. December 7, 2017.

Tree #	Tree Tag #	Common Name and Species	Diameter at 4 ft.	Height Estimate	Estimated Canopy Diameter	Health, Structure	Condition Rating*	Suitability for Preservation **	Life Expectancy ***	Level of Impact****	Photo #
590520 4125241 15	11	Q. agrifolia	18.3 8.8	35'	25'	fungus (black bark) galls sloughing bark	50	poor	4	R	N4
590505E 4125231N 16	12	Q. agrifolia	32.2	70'	60'	mature, healthy,	95 needs	good pruning.	1 good	LOW Portion of canopy overhangs shed and fenceline	N4
17											
18											
19											
20											
21											

*A tree's condition percentage is a determination of its overall health and structure based on five aspects: roots, trunk, scaffold branches, twigs, and foliage. The following scale defines the condition ratings and percentages:

- 100% = Exceptional = Good health and structure with significant size, location or quality.
- 75% = Good = No apparent problems, good structure and health.
- 50% = Fair = Minor problems, at least one structural defect or health concern, problems can be mitigated through cultural practices such as pruning or a plant health care program.
- 25% = Poor = Major problems with multiple structural defects or declining health, not a good candidate for retention.
- 0% = Dead/Unstable = Extreme problems, irreversible decline, failing structure, or dead.

**A tree's suitability for preservation is determined based on its health, structure, age, species characteristics, and longevity using a scale of good, fair, or poor. The following list defines the rating scale (Tree Care Industry Association, 2012):

- Good = Trees with good health, structural stability and longevity.
- Fair = Trees with fair health and/or structural defects that may be mitigated through treatment. These trees require more intense management and monitoring, and may have shorter life spans than those in the good category.
- Poor = Trees in poor health with significant structural defects that cannot be mitigated and will continue to decline regardless of treatment. The species or individual may possess characteristics that are incompatible or undesirable in landscape settings or unsuited for the intended use of the site.

***A tree's life expectancy is based on its size, health and structural integrity, in light of the design of the proposed development. Average lifespan of oak species is approximately 150-300 years; average lifespan of coast redwoods is 500-700 years.

- 1 = Greater than 40 years
- 2 = 15-40 years.
- 3 = 5-15 years
- 4 = Less than 5 years

****Level of Impact

- Low = The construction activity will have little influence on the tree.
- Moderate = The construction may cause future health or structural problems, and steps must be taken to protect the tree to reduce future problems.
- High = Tree structure and health will be compromised and removal is recommended, or other actions must be taken for the tree to remain. The tree is located in the building envelope

ATTACHMENT 2
PHOTOGRAPHS OF EACH PROTECTED TREE
ARBORIST REPORT
1631 HACIENDA AVENUE, CAMPBELL

Tree 1. This large (49.3 inches in diameter at breast height (DBH)) valley oak (*Quercus lobata*) was a mature tree in the front yard of the existing residence. The native tree had a large rotten which resulted from poor former pruning. Careful side pruning meeting ISA standards will be necessary for placement of a power pole. This tree is proposed to be retained and protected.

Tree #2 (upper left). This incense cedar (*Calocedrus decurrens*) is leaning and has been topped to accommodate the power lines. It will be retained and protected. Tree #3 (upper right). The southern magnolia (*Magnolia grandiflora*) near the existing driveway is healthy and in good condition, but must be removed to accommodate the proposed project.

Tree #4 (above). This Japanese privet (*Ligustrum japonicum*) is onlu in fair condition as it tends to be side heavy. It must be removed for the proposed culdesac.

Tree #5 (above). The trunk of this Australian blackwood (*Acacia melanoxylon*) is on the east side of the fence, though the canopy overhangs well onto the site. Tree #6 (below). This coast live oak (*Quercus agrifulia*) is also growing on the east side of the fence. It leans heavily onto the site and is cramped by the Australian blackwood. Both trees will need to be pruned, but will be retained and protected.

Tree #7 (above). This coast live oak is growing within the boundaries of the site, and is in good condition despite it being overgrown. It cannot be retained to accommodate the proposed development.

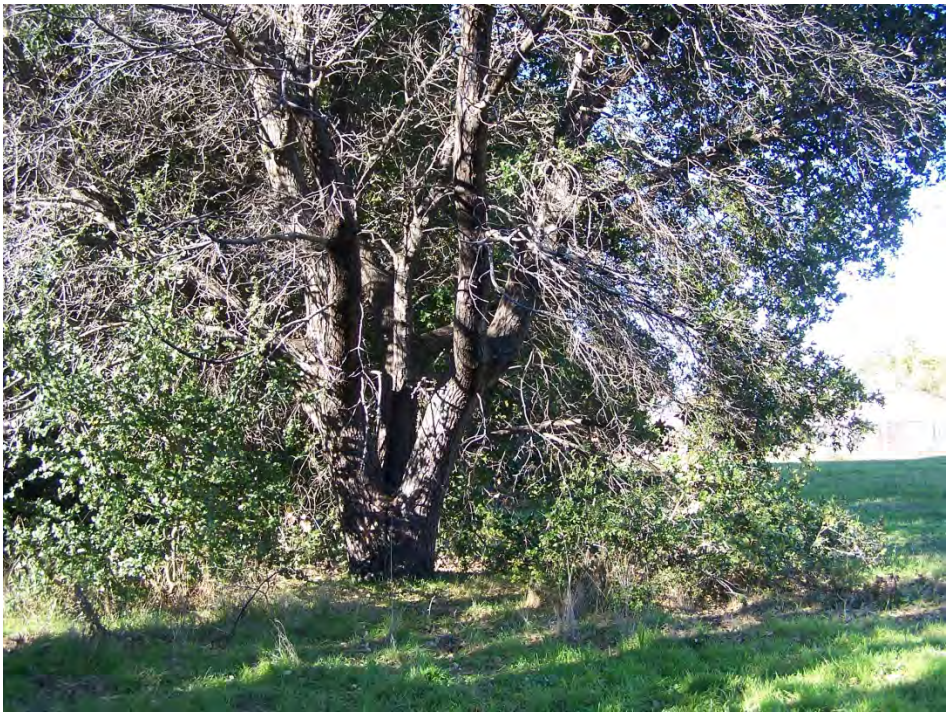
Tree #8 (above). This coast live oak leans onto the site, though the trunk is east of the property fenceline. It will be retained and protected.

Tree #9 (above). The trunk of this coast live oak was growing north of the property boundary, but had a canopy overhanging well onto the site. It will be pruned, retained and protected. Tree #10 (below). This coast live oak is along the western fenceline in a dense clump of oaks. It cannot be retained.

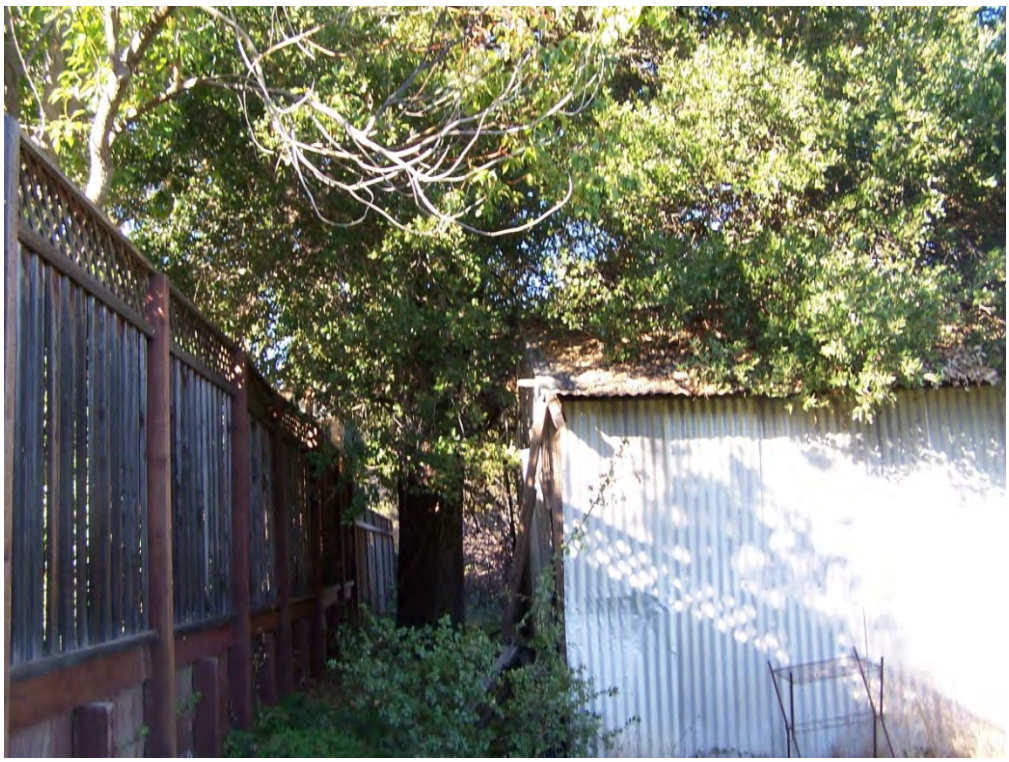
Tree #11 (above). This coast live oak is healthy and growing near the eastern fenceline near a pile of old wire. It cannot be retained. Tree #12 (below). Coast live oak along the eastern fenceline is in good condition. It will be retained and protected.

Tree #13 (above). This healthy coast live oak to be retained and protected has 7 trunks and is healthy.

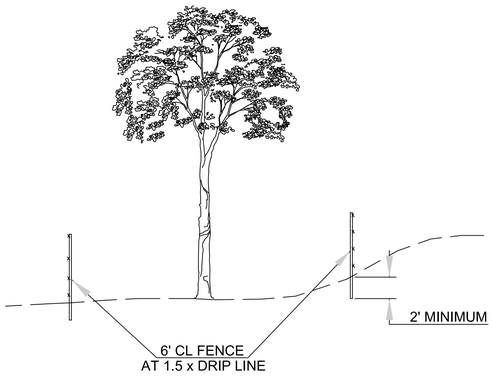
Tree #14 (below). This coast live oak to be retained and protected is in the eastern part of the site and shows evidence of being scorched from the small fire that killed the tree to the south.



Tree # 15 (above). This coast live oak tree is in poor condition and shows evidence of being burned from the small fire which apparently killed the tree to the east. This tree will be removed to accommodate the proposed development.Tree #16 (below). This large coast live oak is in excellent condition with good form. The project has been redesigned to retain this tree.



ATTACHMENT 3. TREE PROTECTION PLAN
1631 HACIENDA AVENUE, CAMPBELL



TREE PROTECTION DETAIL

NTS

NOTE: TREE PROTECTION FENCING SHALL BE PLACED AT 1.5 TIMES THE DIAMETER OF THE TREE DRIP LINE WHEREVER POSSIBLE TO PROVIDE THE LARGEST TREE PROTECTION ZONE POSSIBLE.

LEGEND

(Symbol Size May Vary)

EXISTING		PROPOSED
	Property Boundary	
	Rolled Curb and Gutter	
	Center Line	
	Lot Line	
100.00	Contour	100.00
	Right-of-Way	
	Sidewalk	
	Direction/Slope of Surface Drainage	1.0%
	Storm Drain	
△	Curb Inlet	▲
□	Catch Basin	■
◎	Storm Manhole	◉
	Overland Release	
	Existing Trees to Remain (See the List of trees on sheet 3.1)	1083
	Existing Trees to be Removed (See the list of tress on sheet 3.1)	1083

TREE PROTECTION MEASURES

Development will alter the natural terrain and drainage patterns in the project area. Construction activities may result in soil compaction and/or cause physical damage to tree roots, trunks or canopies. Paving over the roots can limit water intake and aeration of the roots, and is known to be particularly detrimental to oaks. These factors and other development activities can affect long term health and survival of trees to be retained.

Tree protection measures will be implemented to minimize harmful effects to the remaining trees located on or immediately adjacent to the site. Implementation of the following tree protection measures will help to ensure that preserved oak trees covered by the City of Campbell tree ordinance will continue to thrive after site development:

- Work within the vicinity of the trees to be retained will be scheduled for fall or winter when trees are dormant or semi-dormant.
- Prior to any site preparation or construction work, all trees should have a protective buffer (6 feet tall chain link fence) extending beyond the dripline of the canopy (tree protection zone)(TPZ), or the greatest feasible distance from the trunk as possible. Grading, deposition of fill, equipment storage, removal of soil, irrigation, or any other activities that may be detrimental to the health of the trees are strictly forbidden within the tree protection zone for the duration of site work. It is the ultimately applicants' responsibility to ensure that the fencing remains intact and that the tree is not damaged during construction. Tree protection locations should be marked before any fence contractor arrives.
- 8.5 x 11" signs will be placed on the construction fencing (not on the trunks of the trees) stating that all areas within the fencing are Tree Protection Zones (TPZ) and that disturbance is prohibited.
- Pruning of limbs to provide clearance for structures, vehicular traffic, and construction equipment shall be performed during the fall or winter semi-dormant period and will conform to American National Standards Institute (ANSI) tree pruning standards. All tree pruning or removals shall be performed by a qualified arborist with a C-61/D-49 California Contractors License. Avoid aesthetic pruning immediately before, during or after construction impact. Perform only that pruning of dead limbs or those which conflict with the proposed development.
- Tree maintenance and care shall be specified in writing according to American National Standard for Tree Care Operations: *Tree, Shrub and Other Woody Plant Management:*

  Standard Practices parts 1 through 10 and adhere to ANSI Z133.1 safety standards and local regulations.
- Engineer site improvements so that water runoff will not slope toward the trunks. In areas where the proposed elevation of nearby development lies above the elevation of the oak tree, swales have been incorporated into the design to direct water away from the oak trees.
- Soak the ground beneath the canopy of each tree prior to, during, and right after construction. This deep watering method consists of a slow, all-day soaking within the root zone.
- If possible, construct the project with minimal filling, excavating, or trenching within the root zone. Minimize compaction within the root zone to the greatest extent practicable. Keep the elevation of the soil surface at the existing level within the protected area around the trunk. Do not stockpile any construction material within the root zone, even temporarily.
- Should any roots need to be severed during construction, cover any exposed or cut roots with burlap, soil or mulch as soon as possible until the native soil can be backfilled. If possible, use sharp tools (chainsaw or axe) for pruning roots. Using hand tools will help to heal the wounded roots more quickly than pruning with bulldozers, and will better avoid tearing of the roots behind the cuts. If excavation is for installation of underground utilities, roots should be left intact and lines will be treaded underneath the roots.
- If trees are wounded or stressed during construction, they are more susceptible to insect and disease attack. Any wounds to the bark should be cleaned to sound wood by removing loose bark and wood, leaving a smooth edge around the wound. No application of a wound dressing is necessary.
- A tree protection clause will be included in the construction contract forbidding grading, filling, ditching, equipment parking, or material storage within the tree protection zone.
- No fertilizing should be performed without a soil analysis. Manage the soil according to recommendations from a qualified testing laboratory or have a qualified professional analyze the results and make the future recommendations for management of the tree.
- Should any landscaping be proposed within the dripline of any oaks, choose only drought-tolerant native plants that require no summer watering. In place of plants, cobbles, gravel and wood chips are good examples of ground covers that do not interfere with the roots ability to obtain oxygen and appropriate moisture.

Should any additional trees need to be removed to accommodate future residential development on the site, or should any retained and protected trees die during the recommended monitoring period (5 years), the applicant shall conform with any replacement measures that may be required of the project as conditions of approval.

Table 2. Trees to be Retained and Protected, 1631 Hacienda Avenue, Campbell.

Tree #	Tag #	Common Name	Species	DBH	Condition Rating	Obstructions within the TPZ	TPZ Radii (Distance in Feet)		Impact Level****
							From Trunk	From Edge of Canopy	
1	1	Valley Oak	*Quercus lobata*	49.3	60	Minimal. Pruning required on leaning side of tree.	20	-1	Moderate
2	2	Incense Cedar	*Calocedrus decurrens* *	29.6	25	None	12.5	5	Low
5	No Tag**	Australian Blackwood	*Acacia melanoxylon*	24***	90	Minimal. A small portion (<10%) of the canopy will be paved over for Lot 3. Pruning required.	15	2.5	Low
6	No Tag**	Coast Live Oak	*Quercus agrifolia*	22***	65	Approx. 45 % of canopy will be paved over. Pruning Required.	2.5	0	High
8	No Tag**	Coast Live Oak	*Quercus agrifolia*	2xstem 13, 14 ***	70	Approx. 30 % of canopy will be paved over.	2.5	0	High
9	No Tag**	Coast Live Oak	*Quercus agrifolia*	2xstem 11, 16 ***	80	Minimal. Pruning required	19	7.5	Low
12	8	Coast Live Oak	*Quercus agrifolia*	2xstem 12.5, 13.9	80	Approx. 20 % of canopy will be paved over.	7.5	0	Moderate
13	9	Coast Live Oak	*Quercus agrifolia*	7xstem 2.7, 7.2, 10.1, 6.6, 7.8, 10.8, 6.5	90	Approx. 15 % of canopy will be paved over.	11	0	Moderate
14	10	Coast Live Oak	*Quercus agrifolia*	4xstem 13.5, 16.9, 12.2, 6.5	70	Approx. 10 % of canopy will be paved over.	19	0	Moderate
16	12	Coast Live Oak	*Quercus agrifolia*	32.2	95	Approx. 25 % of canopy will be paved over.	Varies on four sides between 2.5-7.5	-8 to -10	Moderate
Total			8 native trees, 2 non-native trees						10 trees

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NOT FOR CONSTRUCTION

SITE AND ARCHITECTURAL REVIEW
1631 HACIENDA AVENUE
TREE PROTECTION PLAN

CAMPBELL CALIFORNIA

NO	DATE	DESCRIPTION
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△		
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REVISIONS

PROJECT:	2017.607
FILE:	2017.607 DEMO.DWG
DATE:	OCT 1, 2018
SCALE:	AS SHOWN
DESIGNED BY:	DRR
DRAWN BY:	YC
REVIEWED BY:	DRR