



SAN FRANCISCO PLANNING DEPARTMENT

Mitigated Negative Declaration

PMND Date: May 9, 2018; amended on November 28, 2018 (amendments to the PMND include additions shown as double underline).

Case No.: **2015-004297ENV**

Project Title: **271 Upper Terrace, 301 – 303 Upper Terrace, and 4500 17th Street**

Zoning: RH-2 (Residential-House, Two Family) Use District
40-X Height and Bulk District

Block/Lot: 2628/032, 034, and 035

Lot Size: 15,800 square feet

Project Sponsor: Tim Clinton, Dawson & Clinton, 415-359-9991

Lead Agency: San Francisco Planning Department

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PROJECT DESCRIPTION:

The project site is approximately 15,800 square feet (0.36 acre), composed of three adjacent parcels (Assessor's Block 2628, Lots 032, 034, and 035), and is situated on a steeply sloping hillside. The project site fronts three streets, Upper Terrace on the north and Roosevelt Way and 17th Street on the south, in the Castro/Upper Market neighborhood.

Lot 032 is a through lot fronting Upper Terrace and Roosevelt Way, with the northern end of the lot occupied by a two-story single-family dwelling (271 Upper Terrace). Lot 034 fronts 17th Street and Roosevelt Way and is undeveloped. Lot 035 is a through-lot fronting Upper Terrace and 17th Street with the northern end occupied by a three-story two-family dwelling (301 – 303 Upper Terrace). The undeveloped portions of the lots are highly disturbed.

The proposed project would subdivide three contiguous lots into five lots, demolish a single-family residence, remodel an existing two-unit residence, and construct eight new units. Specifically the project would:

- Subdivide Lot 032 into two lots (Lot 032A fronting Upper Terrace and Lot 032B fronting Roosevelt Way),
- Subdivide Lot 035 into two lots (Lot 035A fronting Upper Terrace and Lot 035B fronting 17th Street),
- Excavate the existing hillside,
- Demolish the existing single-family dwelling (built in 1945) on the new Lot 032A and construct a new six level (two-story over four-level basement), two-family dwelling with a three-car garage,
- Renovate the existing three level (two-story over basement), two-family dwelling (built in 1954), add two basement levels, and expand the existing two-car garage into a three-car garage on the new Lot 035A,
- Construct a new six level (five-story over basement), two-family dwelling with a three-car garage on the new Lot 032B,

- Construct a new six level (five-story over basement), two-family dwelling with a three-car garage on Lot 034, and
- Construct a new six level (five-story over basement), two-family dwelling with a three-car garage on the new Lot 035B.

The proposed project would also make streetscape improvements on Upper Terrace, 17th Street, and Roosevelt Way.

The proposed project would result in 10 dwelling units and 15 off-street parking spaces (seven net new units and 11 net new parking spaces).

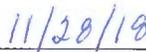
FINDING:

This project could not have a significant effect on the environment. This finding is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15064 (Determining Significant Effect), 15065 (Mandatory Findings of Significance), and 15070 (Decision to prepare a Negative Declaration), and the following reasons as documented in the Initial Evaluation (Initial Study) for the project, which is attached. Mitigation measures are included in this project to avoid potentially significant effects. See pages Section F, pages 125 – 130.

In the independent judgment of the Planning Department, there is no substantial evidence that the project could have a significant effect on the environment.



Lisa Gibson
Environmental Review Officer



Date of Issuance of Final Mitigated
Negative Declaration

cc: Tim Clinton, Dawson & Clinton; Chris Townes, Current Planning; M.D.F

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Initial Study

271 Upper Terrace, 301 – 303 Upper Terrace, and 4500 17th Street Planning Department Case No. 2015-004297ENV

A. PROJECT DESCRIPTION

The proposed 271 Upper Terrace, 301 – 303 Upper Terrace, and 4500 – 4502 17th Street Project (project) is located in the Castro/Upper Market neighborhood in San Francisco. A description of the proposed project, a detailed description of the proposed project's regional and local context, planning process and background, as well as a discussion of requested project approvals is included below.

Project Location

The approximately 15,794 square-foot (0.36 acre) project site consists of three adjacent parcels: Assessor's Block 2628, Lots 032, 034, and 035. The project site fronts three streets: Upper Terrace on the north and Roosevelt Way¹ and 17th Street on the south. See Figure 1 for the project location.

The project site is located within the RH-2 (Residential-House, Two Family) Zoning District and a 40-X Height and Bulk District.

The project site is situated on a steeply sloping hillside; the elevation of the northern property line of the project site is approximately 95 feet higher than the southern property line. See Figure 2 for the existing site plan.

Project Characteristics

The proposed project would subdivide three contiguous lots into five lots, demolish a single-family residence, remodel an existing two-unit residence, and construct eight new units. Specifically the project would:

- Subdivide Lot 032 into two lots (Lot 032A fronting Upper Terrace and Lot 032B fronting Roosevelt Way),
- Subdivide Lot 035 into two lots (Lot 035A fronting Upper Terrace and Lot 035B fronting 17th Street),
- Excavate the existing hillside,
- Demolish the existing single-family dwelling on the new Lot 032A and construct a new two-family dwelling with a three-car garage,

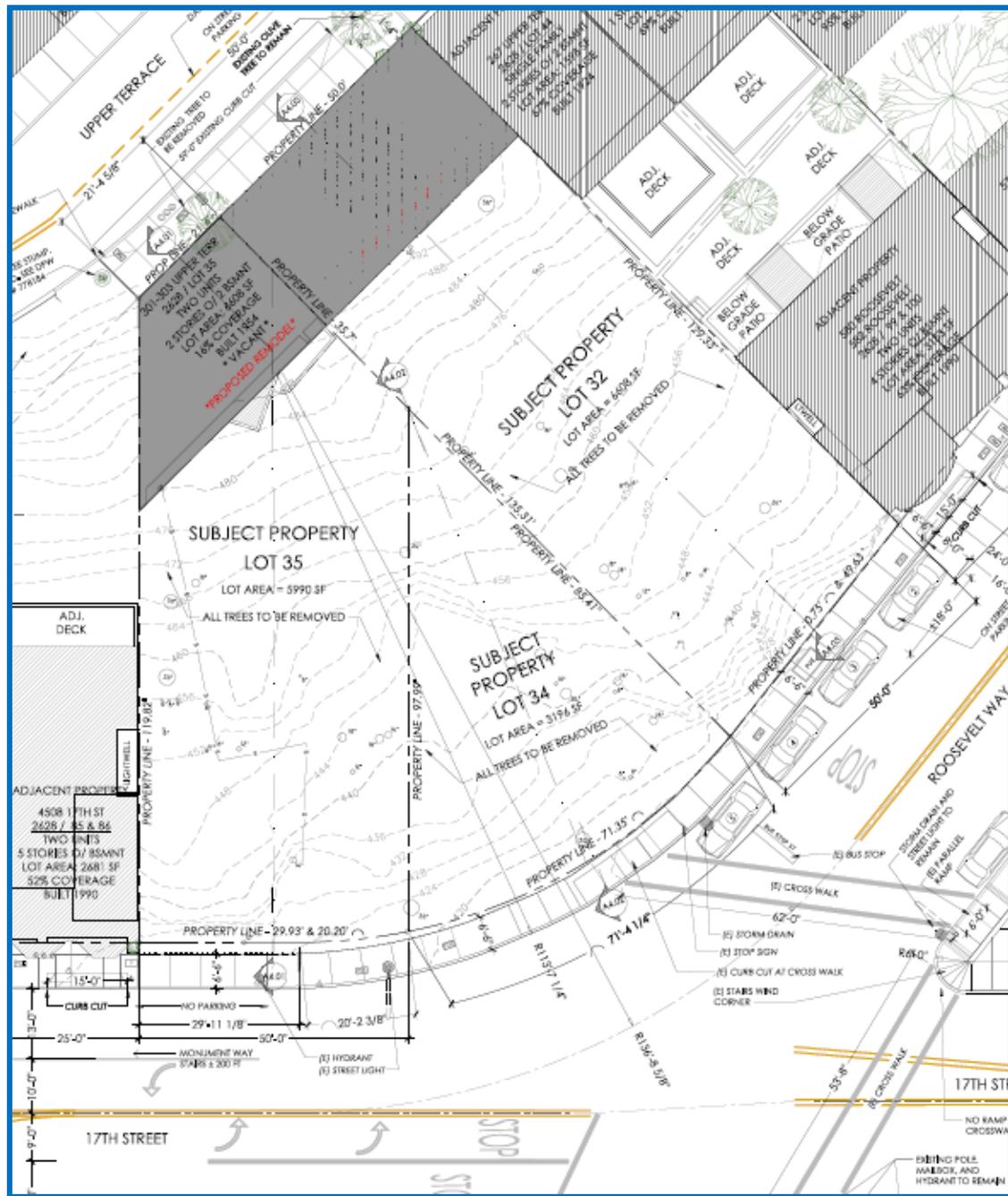
¹ South of the intersection with 17th Street, Roosevelt Way becomes Uranus Terrace.

Figure 1: Project Location



SOURCE: San Francisco Planning Department, 2018

Figure 2: Existing Site Plan



SOURCE: Dawson & Clinton, 2018

Renovate the existing two-family dwelling and retain the two-car garage on the new Lot 035A,

- Construct a new two-family dwelling with a three-car garage on the new Lot 032B,
- Construct a new two-family dwelling with a three-car garage on Lot 034, and
- Construct a new two-family dwelling with a three-car garage on the new Lot 035B.

The building on the new Lot 032A (271 – 273 Upper Terrace) would contain six stories; two stories above and four stories below Upper Terrace street level (approximately 13,000 gross square feet). The building on the new Lot 035A (301 – 303 Upper Terrace) would contain five stories; two stories above and three stories below Upper Terrace street level (approximately 6,500 gross square feet). The buildings on the new Lot 032B (588 – 590 Roosevelt Way) (approximately 9,800 gross square feet), Lot 034 (4500 – 4502 17th Street) (approximately 10,600 gross square feet), and the new Lot 035B (4504 – 4506 17th Street) (approximately 9,200 gross square feet) would each contain six stories, all above 17th Street and Roosevelt Way street level.

Collectively, the proposed project would result in 10 dwelling units and 15 off-street parking spaces (seven net new units and 11 net new parking spaces). The project would include a total of 10 *class 1* bicycle parking spaces in the proposed garages and private decks for each dwelling unit.² See Table 1: Existing and Proposed Conditions, for a summary of the existing and proposed conditions on the project site.

The proposed project also includes streetscape improvements. In the public streetscape on Upper Terrace the proposed project would:

- Remove the existing 55-foot-wide curb cut,
- Add a 10-foot-wide curb cut for each Lot 32A and Lot 35A; and
- Add three street trees to the public right-of-way (ROW).

In the public streetscape on 17th Street and Roosevelt Way the proposed project would:

- Remove street parking (approximately four spaces),
- Create a sidewalk bulb-out the length of the project site,
- Widen the sidewalk to 12.5 feet,
- Square the corner from a 114-foot radius to a 20-foot radius,
- Add three 10-foot-wide curb cuts: two on Roosevelt Way and one on 17th Street,
- Replace three existing crosswalks traversing Roosevelt Way, 17th Street, and Uranus Terrace with new high-visibility crosswalks,
- Add a high-visibility crosswalk on 17th Street (where no crosswalk currently exists),
- Add a bench in the public ROW on Roosevelt Way fronting proposed Lot 32B to serve the San Francisco Municipal Railway (Muni) route 37 Corbett,
- Add four street trees to the public ROW; and
- Add a public garden with two benches in the public ROW in front of Lot 034.

² Section 155.1(a) of the planning code defines class 1 bicycle spaces as “spaces in secure, weather-protected facilities intended for use as long-term, overnight, and work-day bicycle storage by dwelling unit residents, nonresidential occupants, and employees” and defines class 2 bicycle spaces as “spaces located in a publicly-accessible, highly visible location intended for transient or short-term use by visitors, guests, and patrons to the building or use.”

Table 1: Existing and Proposed Conditions

Existing Conditions					Proposed Conditions				
Parcel	Address	Number of Dwelling Units	Number of Parking Spaces	Number of Stories	Parcel	Address	Number of Dwelling Units	Number of Parking Spaces	Number of Stories
032	271 Upper Terrace	1	2	2 above street level and 1 below street level	032A	271-273 Upper Terrace	2	3	2 above street level and 4 below street level
					032B	588-590 Roosevelt Way	2	3	6 above street level
034	N/A	0	0	0	034	4500-4502 17th Street	2	3	6 above street level
035	301-303 Upper Terrace	2	2	2 above street level and 1 below street level	035A	301-303 Upper Terrace	2	3	2 above street level and 3 below street level
					035B	4504-4506 17th Street	2	3	6 above street level
Total	N/A	3	4	N/A	Total	N/A	10	15	N/A

Source: Dawson & Clinton, 2018.

The project sponsor proposes the following improvements at the intersection of 17th Street and Roosevelt Way/Uranus Terrace:

Northeastern corner (17th Street and Roosevelt Way):

- Add a curb ramp for the crosswalk across Roosevelt Way,
- Replace the striping to high visibility type.

Southeastern corner (17th Street and Uranus Terrace)

- No changes.

Southwestern corner (17th Street and Uranus Terrace)

- Add a curb ramp for the crosswalk across Roosevelt Way, and
- Replace the stop sign and striping, as required.

Northwestern corner (17th Street and Roosevelt Way):

- Add a ramp on the curb for the crosswalk across 17th Street,
- Move existing street light toward the new curb line on 17th Street, and
- Move existing fire hydrant toward the curb line on 17th Street.

The existing condition of the project site is shown in Figure 2. Plans for the proposed project are in Figures 3 through 23.

Project Construction

Construction of the proposed project is expected to last about 37 months. Mat Slab foundations would support the proposed buildings and project construction would require excavation of the existing hillside and removal of about 13,640 cubic yards of soil.

Project Approvals

Planning Commission

The project sponsor would need to obtain a Conditional Use Authorization from the Planning Commission per Planning Code sections 303, and 317, and 249.77, to demolish the existing single-family structure, modify the existing two-family structure, divide three lots into five lots, develop a vacant parcel resulting in a total gross square floor area exceeding 3,000 square feet per lot, and construct four new two-family structures within an RH-2 Zoning District with 40-X Height and Bulk designation.

Approval Action: Approval of the Conditional Use Authorization by the San Francisco Planning Commission is the *approval action* for the proposed project for the purposes of a California Environmental Quality Act (CEQA) appeal. The approval action date would establish the start of the 30-day appeal period for appeal of the Final Mitigated Negative Declaration to the Board of Supervisors pursuant to section 31.04(h) of the San Francisco Administrative Code.

Department of Building Inspection

Approval of demolition and building permits would require review and approval by the San Francisco Department of Building Inspection.

Public Works

Construction of a new bulb-out along the 17th Street/Roosevelt Way frontage and the proposed sidewalk garden in the public ROW on 17th Street in front of Lot 034 would require permits from San Francisco Public Works. If sidewalk(s) are used for construction staging and pedestrian walkways are constructed in the curb lane(s), the project would require a street space permit from the Bureau of Street Use and Mapping at Public Works. Furthermore, inclusion of street trees along the 17th Street frontage would require coordination with the Bureau of Urban Forestry at Public Works.

San Francisco Municipal Transportation Agency

If sidewalk(s) are used for construction staging and pedestrian walkways are constructed in the curb lane(s), the project would require a special traffic permit from the San Francisco Municipal Transportation Agency (SFMTA) Sustainable Streets Division.

San Francisco Public Utilities Commission

Approval by the San Francisco Public Utilities Commission (SFPUC) is required for any changes to sewer laterals (connections to the City sewer). If groundwater is encountered during construction or operation, the sponsor would need a permit from SFPUC's Wastewater Enterprise Collection System Division.

SFPUC requires hydraulic analysis to confirm the adequacy of the water distribution system for proposed new potable and fire water services.

Additionally, the SFPUC will review for approval an *erosion and sediment control* plan prior to the start of construction, and the sponsor would seek approval for compliance with post-construction stormwater design guidelines, including a stormwater control plan that complies with the City's Stormwater Design Guidelines.

B. PROJECT SETTING

Project Site and Surrounding Land Uses

Lot 032 is a through lot that fronts Upper Terrace and Roosevelt Way. The northern end of this lot is occupied by a single-family dwelling (271 Upper Terrace), and the remainder of this lot is undeveloped. Lot 034 is a wedge shaped lot that fronts 17th Street and Roosevelt Way. This lot is undeveloped. Lot 035 is a through-lot that fronts Upper Terrace and 17th Street. The northern end of this lot is occupied by a two-family dwelling (301 – 303 Upper Terrace). The undeveloped portions of the lots are highly disturbed, with vegetation, and show evidence of excavation, utility piping, concrete walls, stone stairways, and footpaths. The Upper Terrace frontage contains two existing street trees while the 17th and Roosevelt Way frontage does not include any street trees.

The sidewalks adjacent to the project site are 10 feet wide on Upper Terrace and 6.5 feet wide on 17th Street and Roosevelt Way.

There are adjacent residential buildings to the east and west of the project site.

The project site is well served by public transportation. Within one-quarter mile of the project site, Muni operates the following bus lines: the 6 Haight/Parnassus, 33 Ashbury/18th, and the 37 Corbett. The 37 Corbett passes the project site and has a bus stop location on Roosevelt Way adjacent to existing Lot 034. In addition, Muni operates several light rail lines in the project vicinity. The N Judah runs along Duboce and Carl streets to the north of the project site, just outside of the one-quarter-mile radius. The K Ingleside/T Third Street, L Taraval, and M Oceanview all pass through the Muni station at 17th and Castro streets, about one-half mile east of the project site.

Cumulative

The cumulative context for land use effects are typically localized, within the immediate vicinity of the project site, or at the neighborhood level. Cumulative development in the project vicinity (within approximately a quarter-mile radius of the project site) includes the following projects, which are either under construction or for which the planning department has an *environmental evaluation application* on file. The areas and the projects relevant to the analysis vary, depending on the topic, as detailed in the cumulative analyses presented in subsequent sections of this document.

- Case No. 2014.1158E: 893 Clayton Street (addition of a two-car garage to a single-family dwelling)
- Case No. 2016-002089ENV: 379 – 383 Upper Terrace (interior and exterior alterations to an existing three-unit building, infilling the hillside below the existing deck and building, addition of one accessory dwelling unit)
- Case No. 2016-006156ENV: 78 Piedmont Street (interior and exterior alterations to a single-family dwelling, addition of one vehicle parking space)
- Case No. 2016-010185ENV: 160 Caselli Avenue (demolish two-story single-family residence, removal of illegal dwelling unit, and construct three-story building with two dwelling units)
- Case No. 2017-005992ENV: 48 Saturn Street (construct four-story, single-family dwelling unit)
- Case No. 2017-009331ENV: 482 Belvedere Street (addition of partial fourth floor)

The nearby cumulative development projects would remove an illegal dwelling unit, add one single family dwelling unit, add one accessory dwelling unit, and add living space and parking to existing residential buildings in the project vicinity. See Figure 23 for the locations of the cumulative development projects.

Figure 3: Proposed Site Plan

SOURCE: Dawson & Clinton, 2018

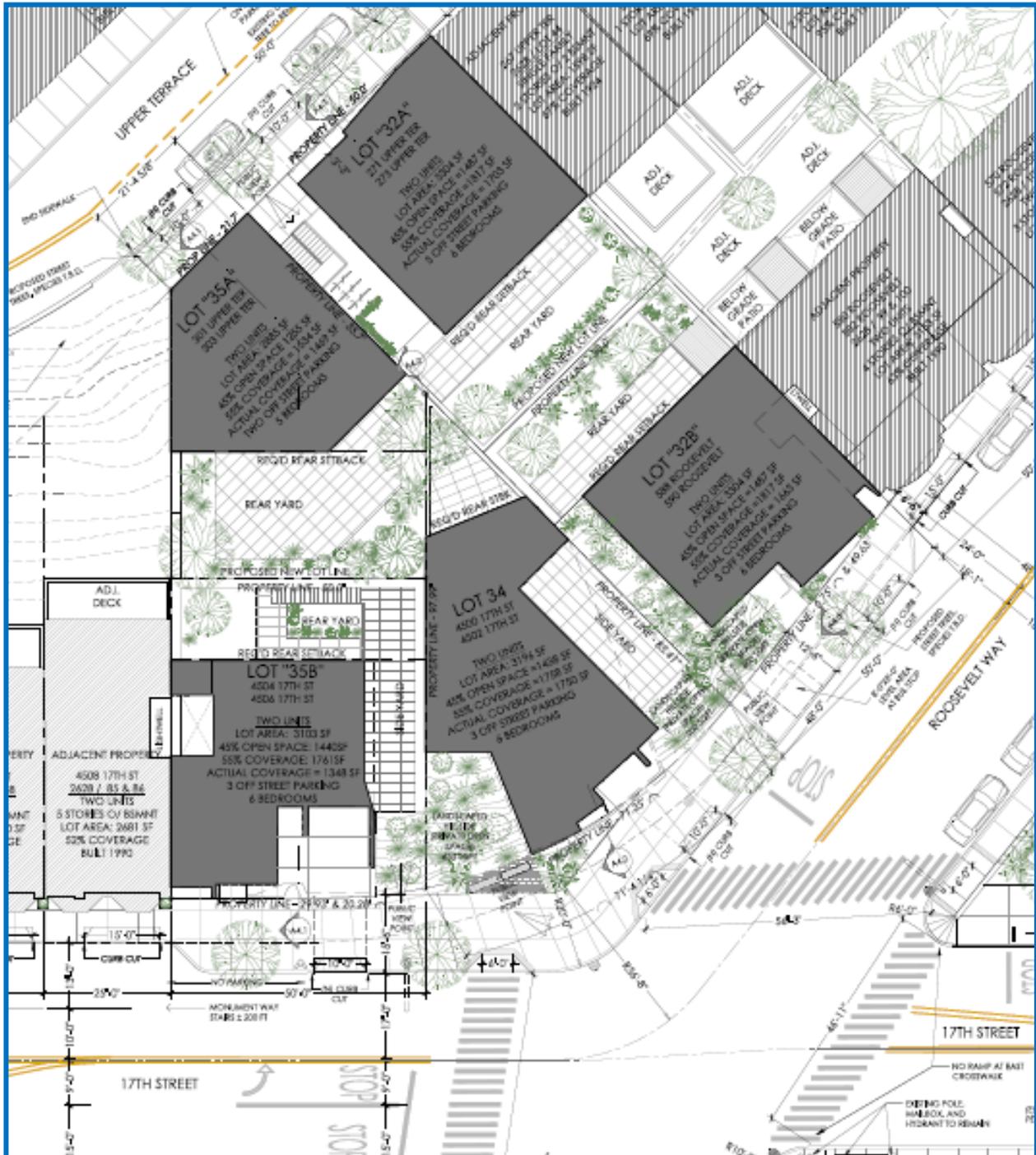
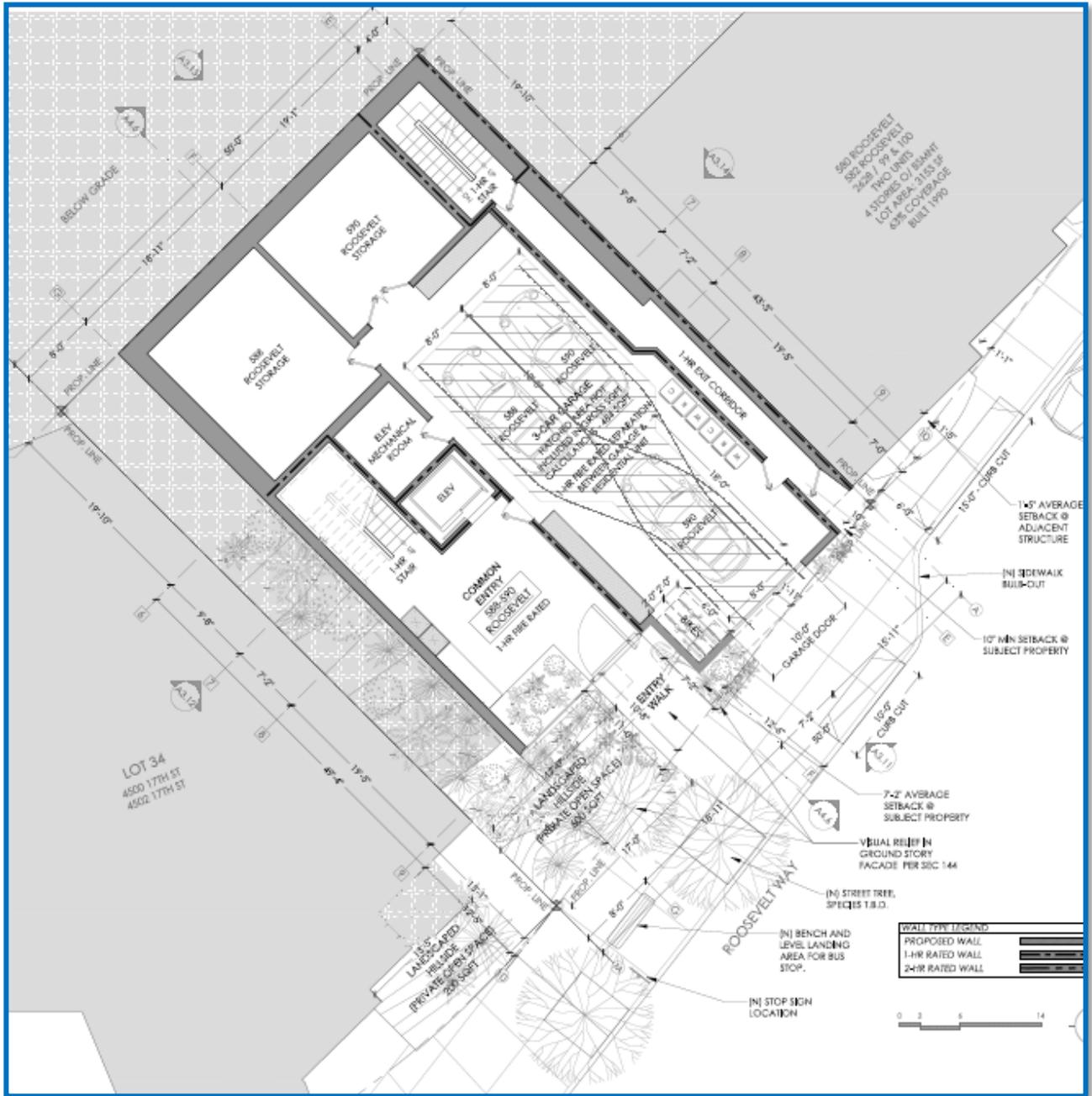
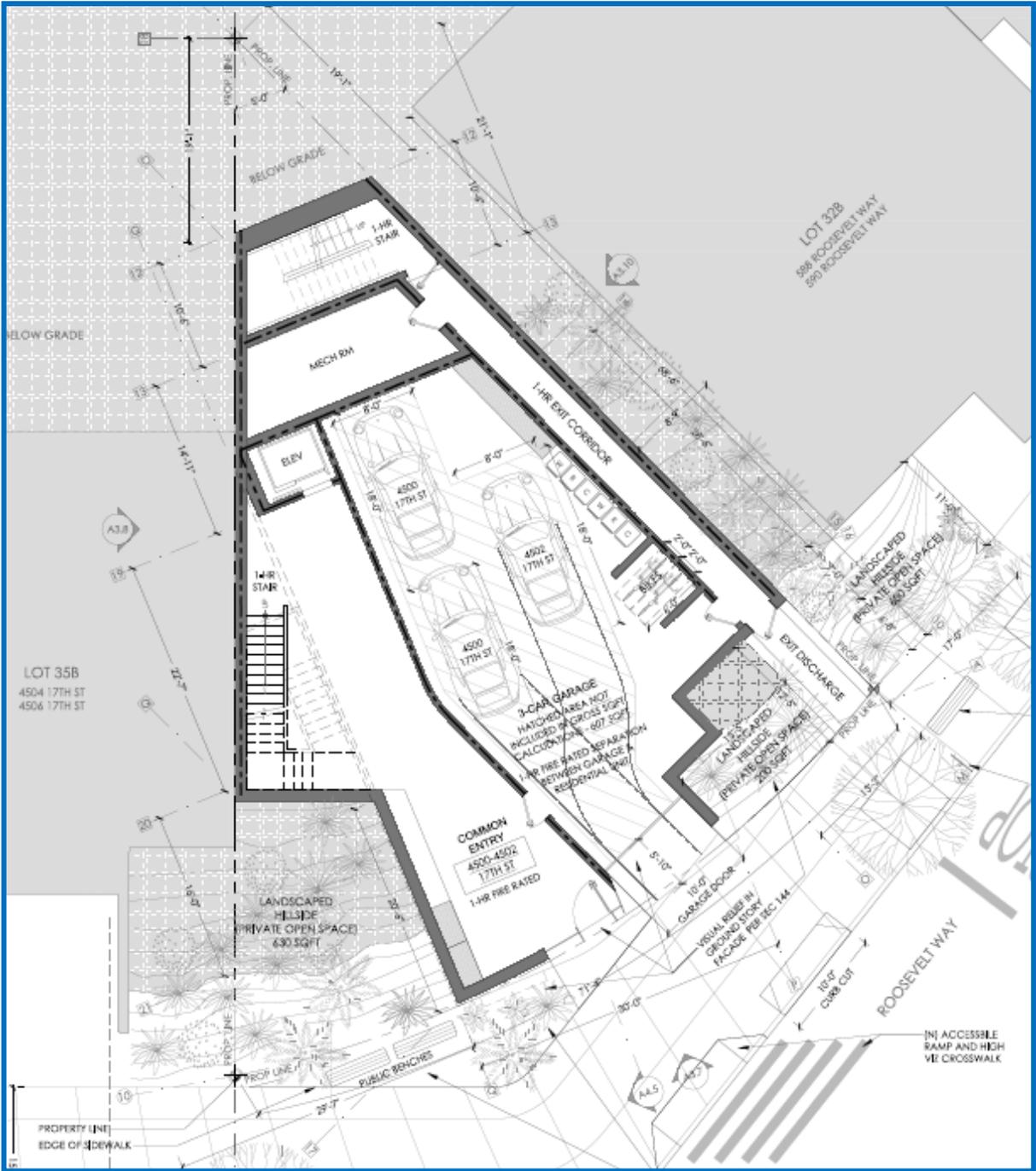


Figure 5: Proposed Entry Level for Lot 32B



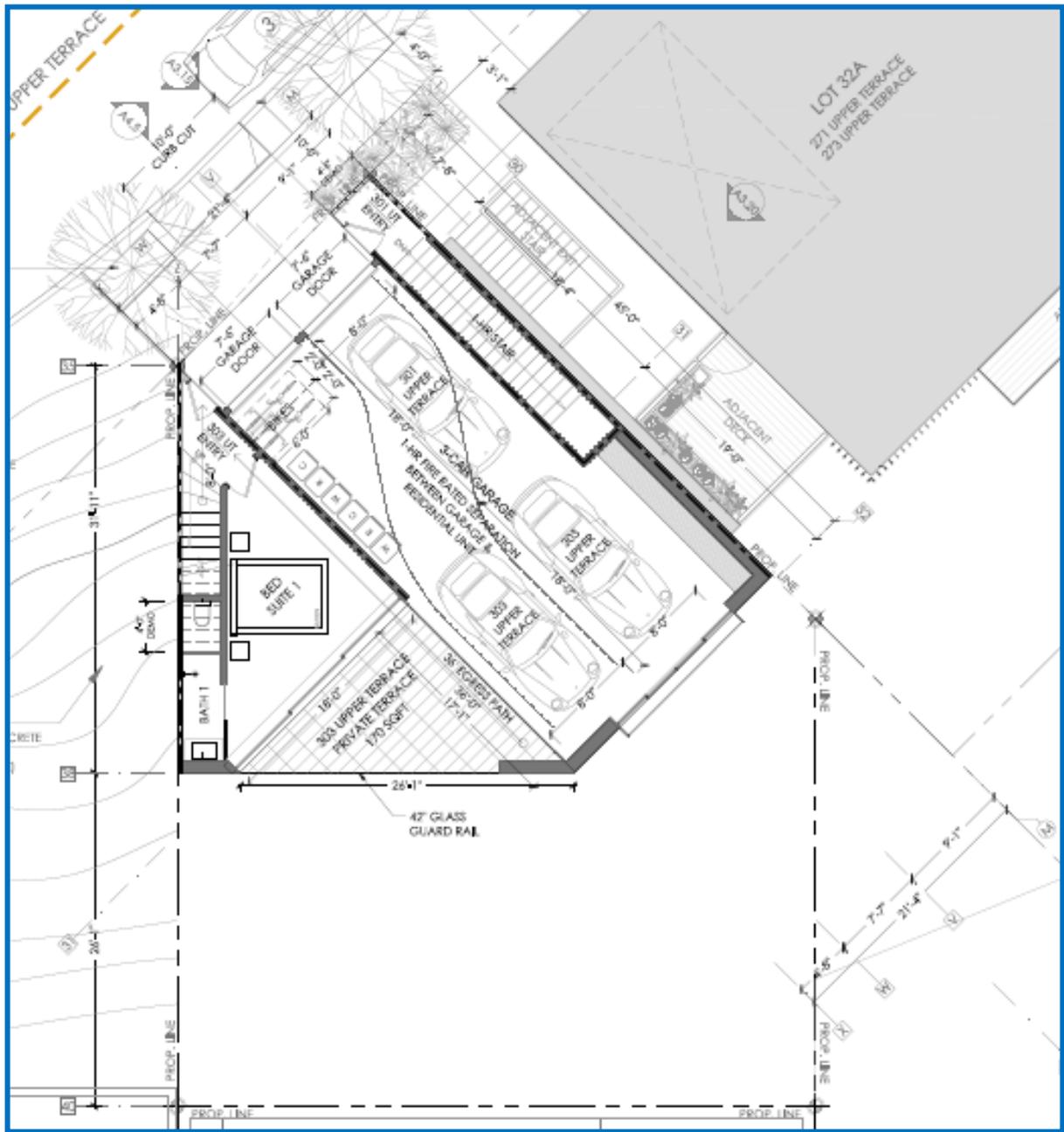
SOURCE: Dawson & Clinton, 2018

Figure 6: Proposed Entry Level for Lot 34



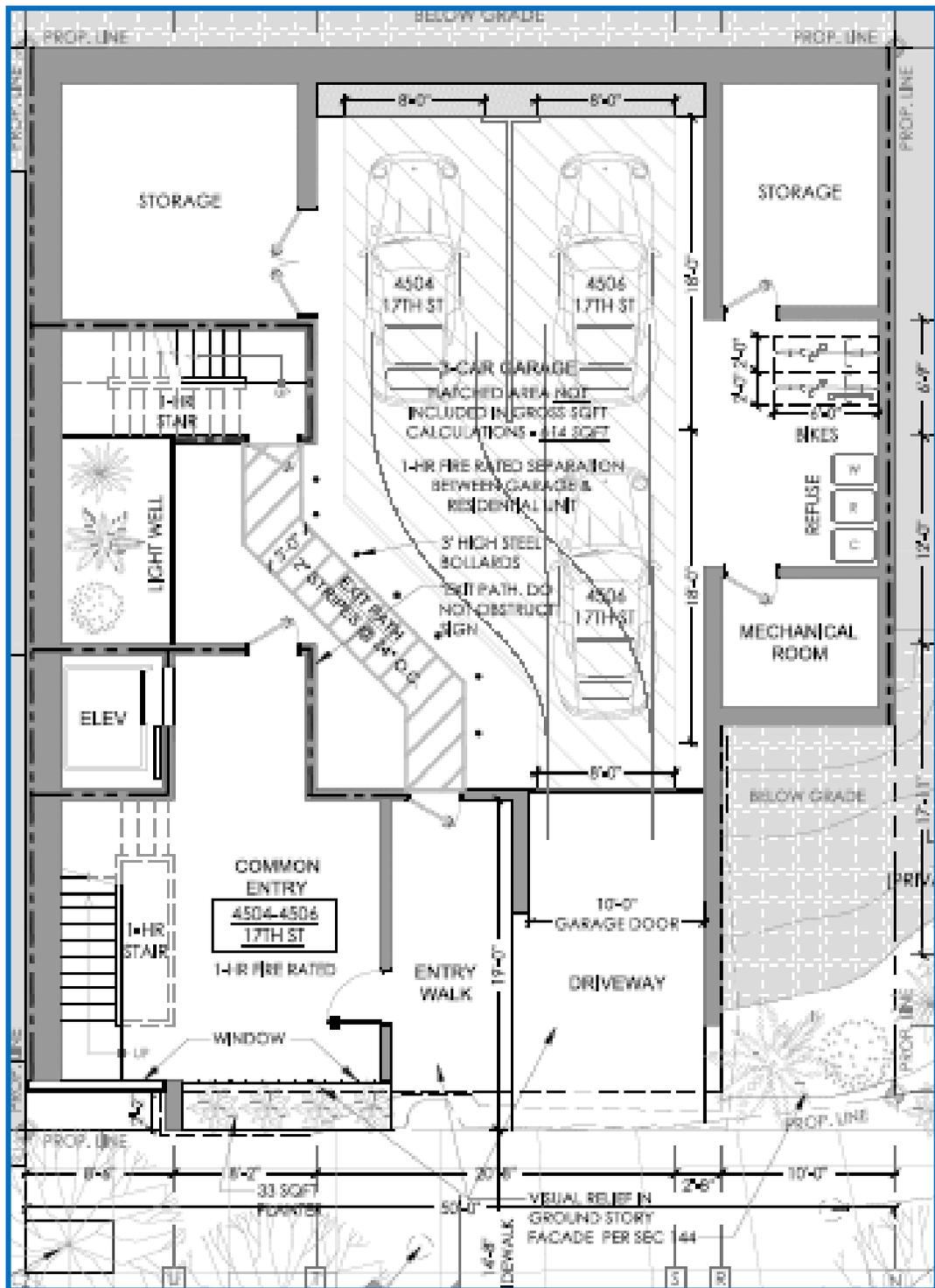
SOURCE: Dawson & Clinton, 2018

Figure 7: Proposed Entry Level for Lot 35A



SOURCE: Dawson & Clinton, 2018

Figure 8: Proposed Entry Level for Lot 35B



SOURCE: Dawson & Clinton, 2018

Figure 9: Representative Upper Floor for Lot 32A



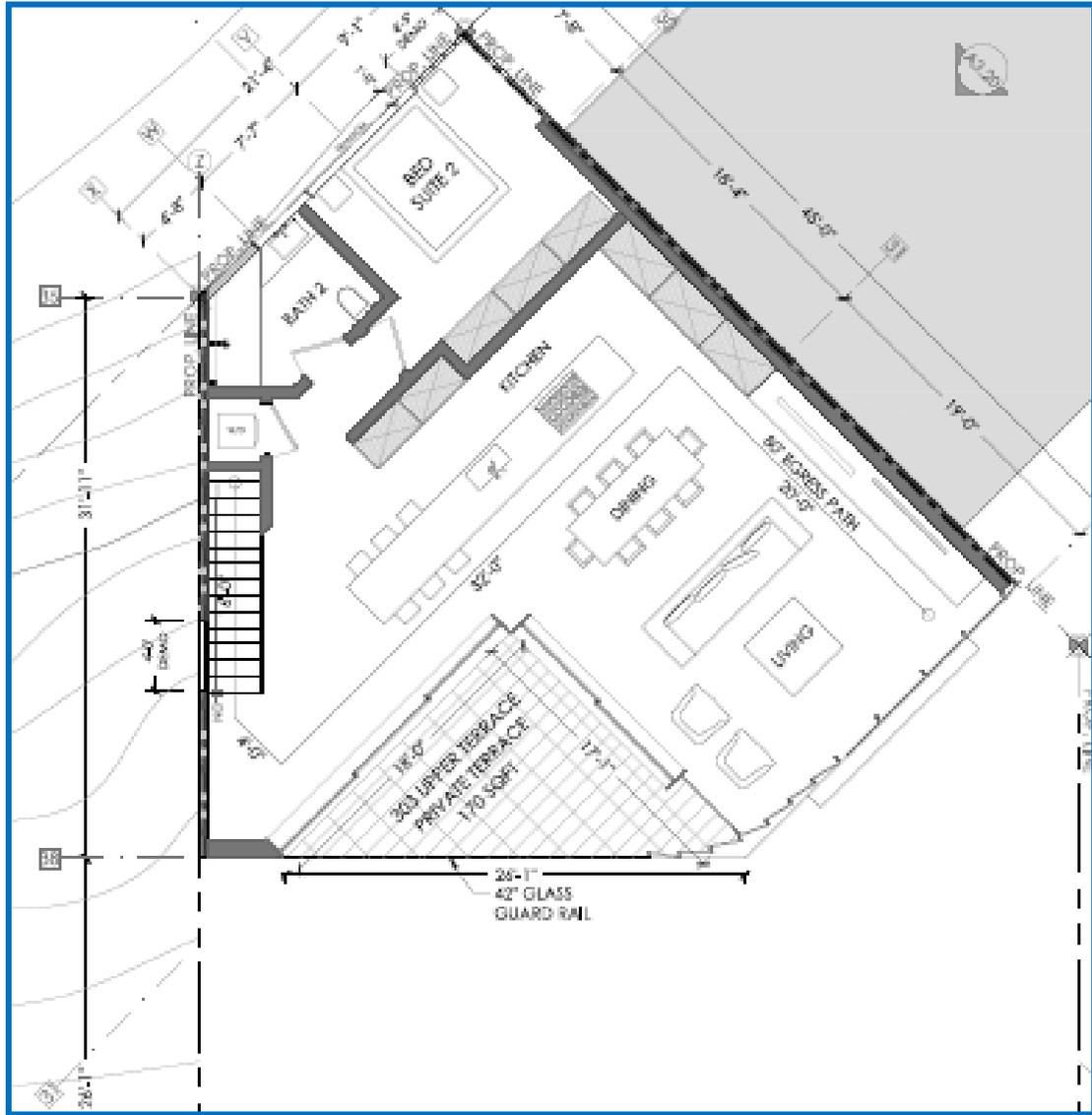
SOURCE: Dawson & Clinton, 2018

Figure 10: Representative Upper Floor for Lot 32B



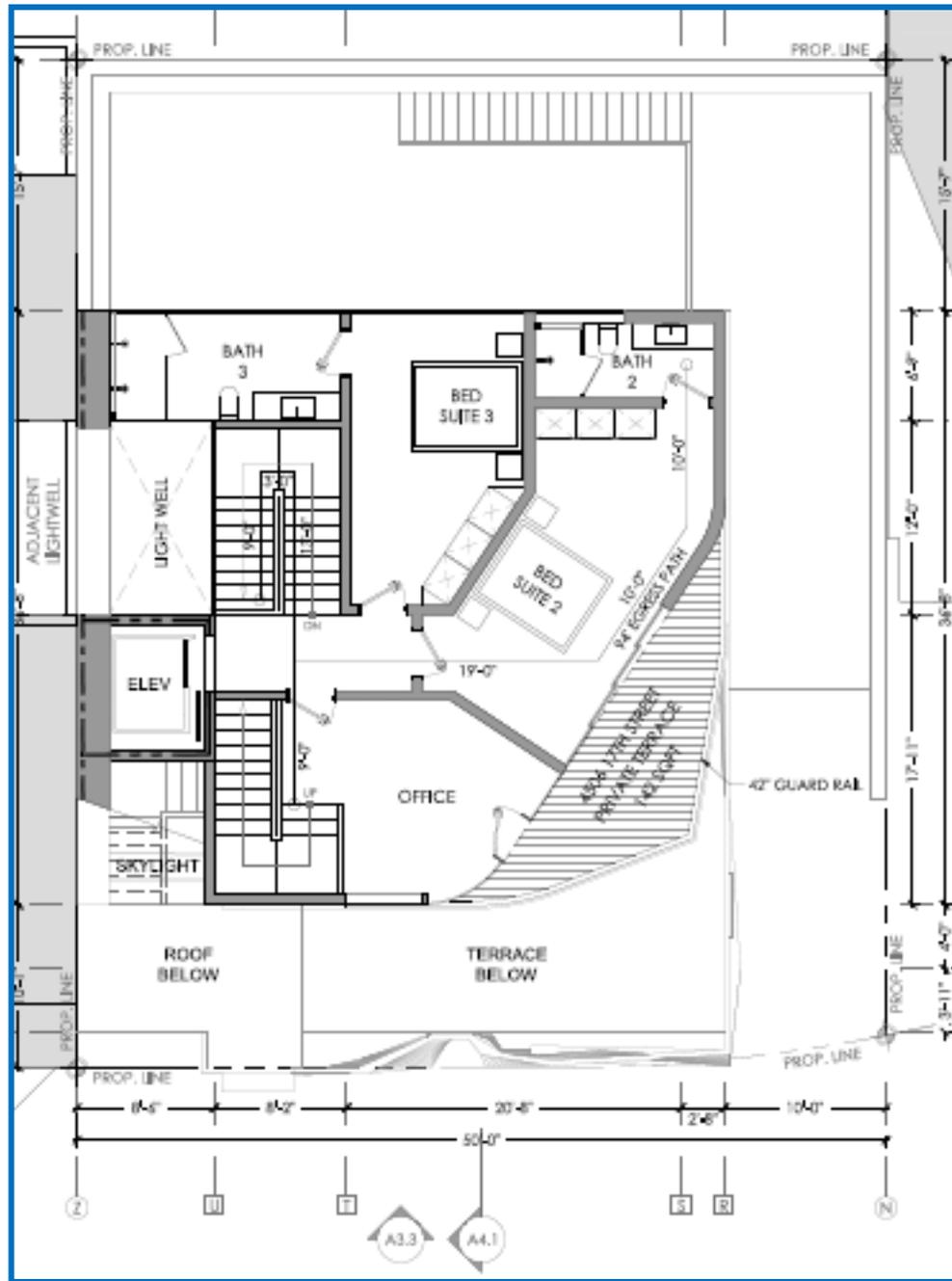
SOURCE: Dawson & Clinton, 2018

Figure 12: Representative Upper Floor for Lot 35A



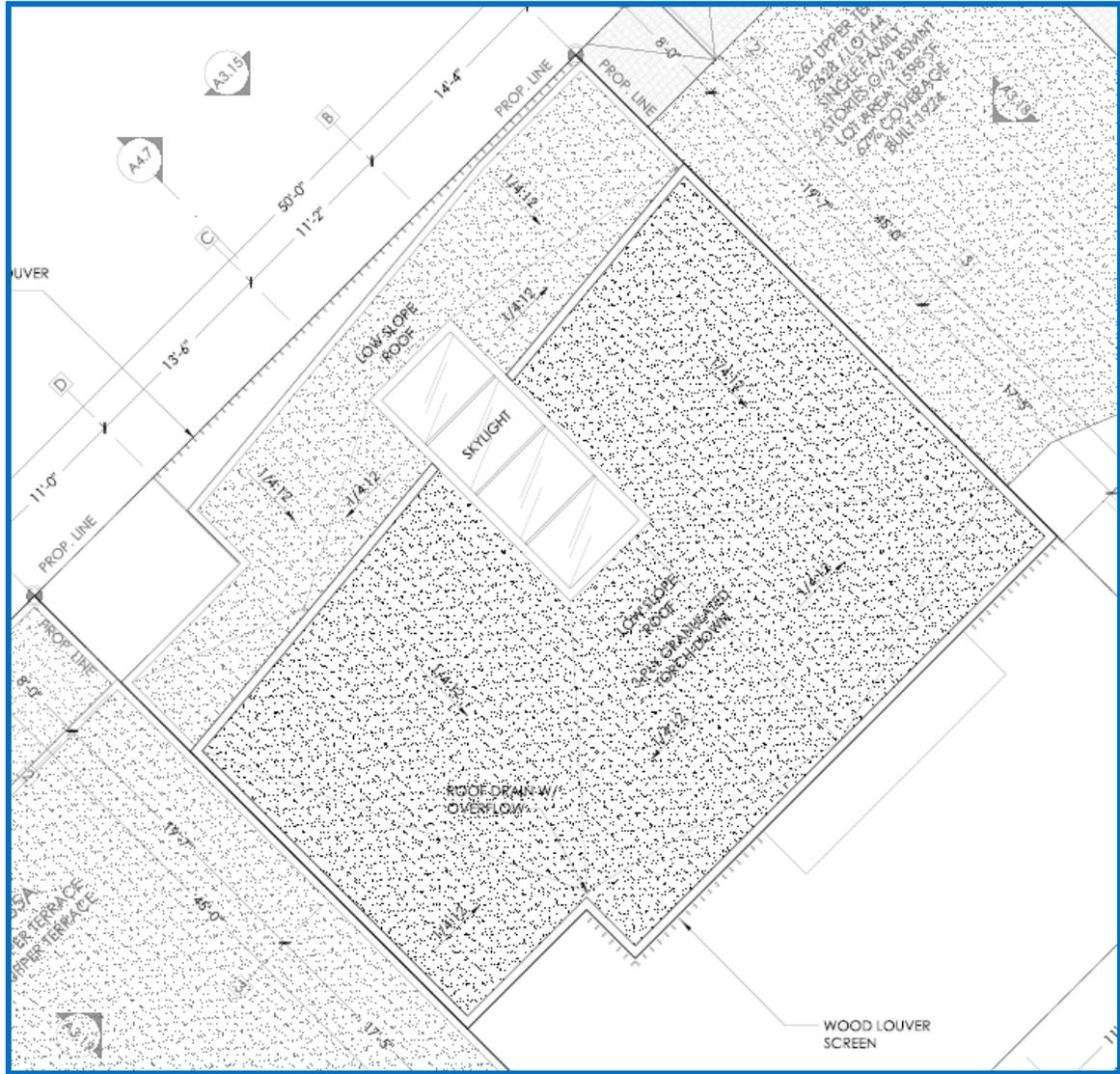
SOURCE: Dawson & Clinton, 2018

Figure 13: Representative Upper Floor for Lot 35B



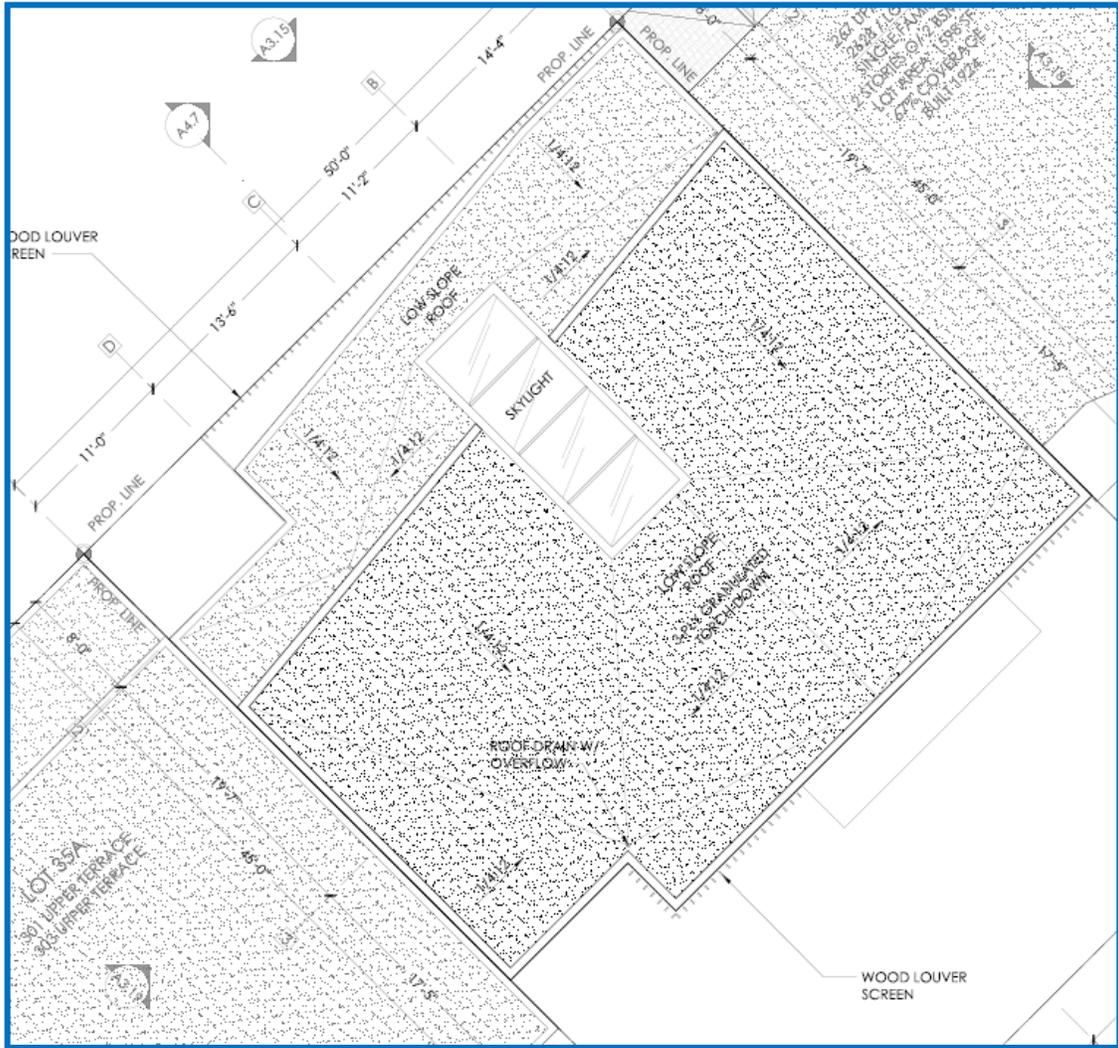
SOURCE: Dawson & Clinton, 2018

Figure 14: Roof Plan for Lot 32A



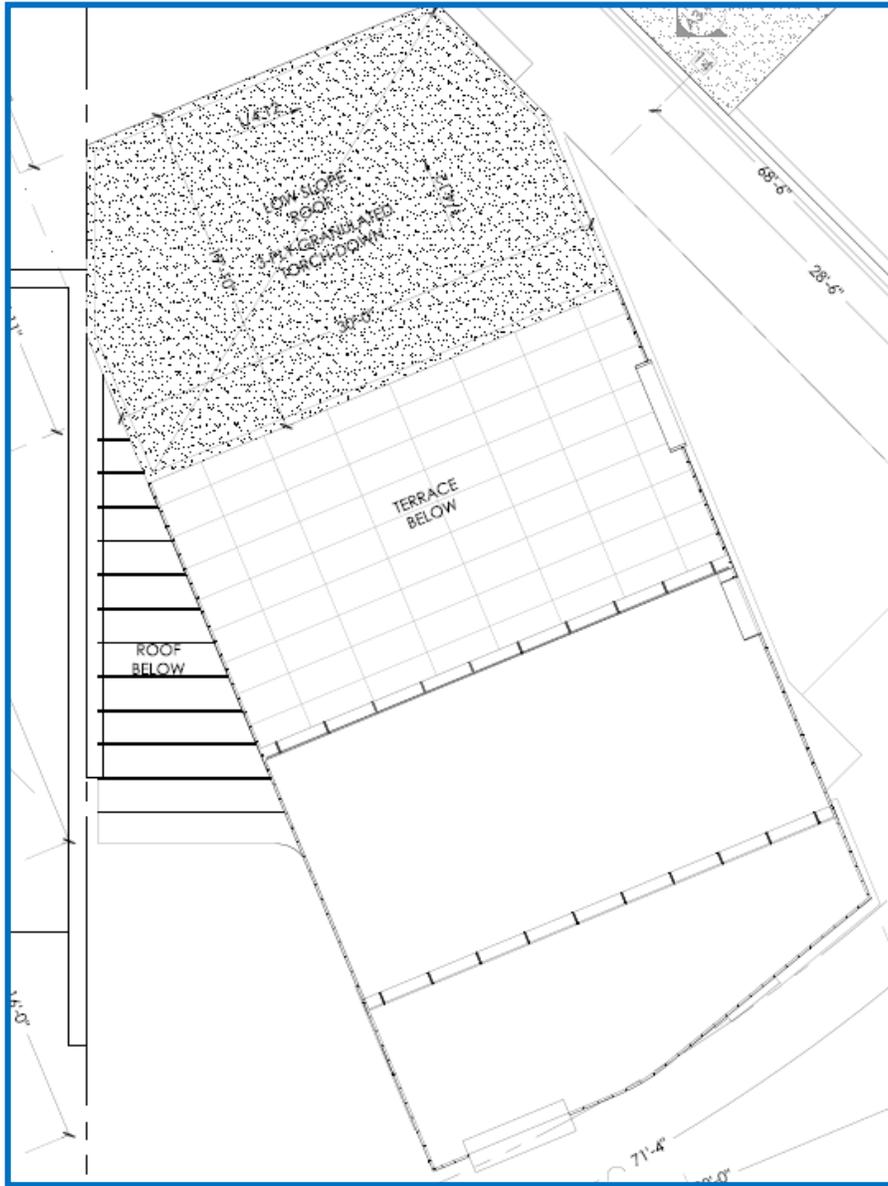
SOURCE: Dawson & Clinton, 2018

Figure 15: Roof Plan for Lot 32B



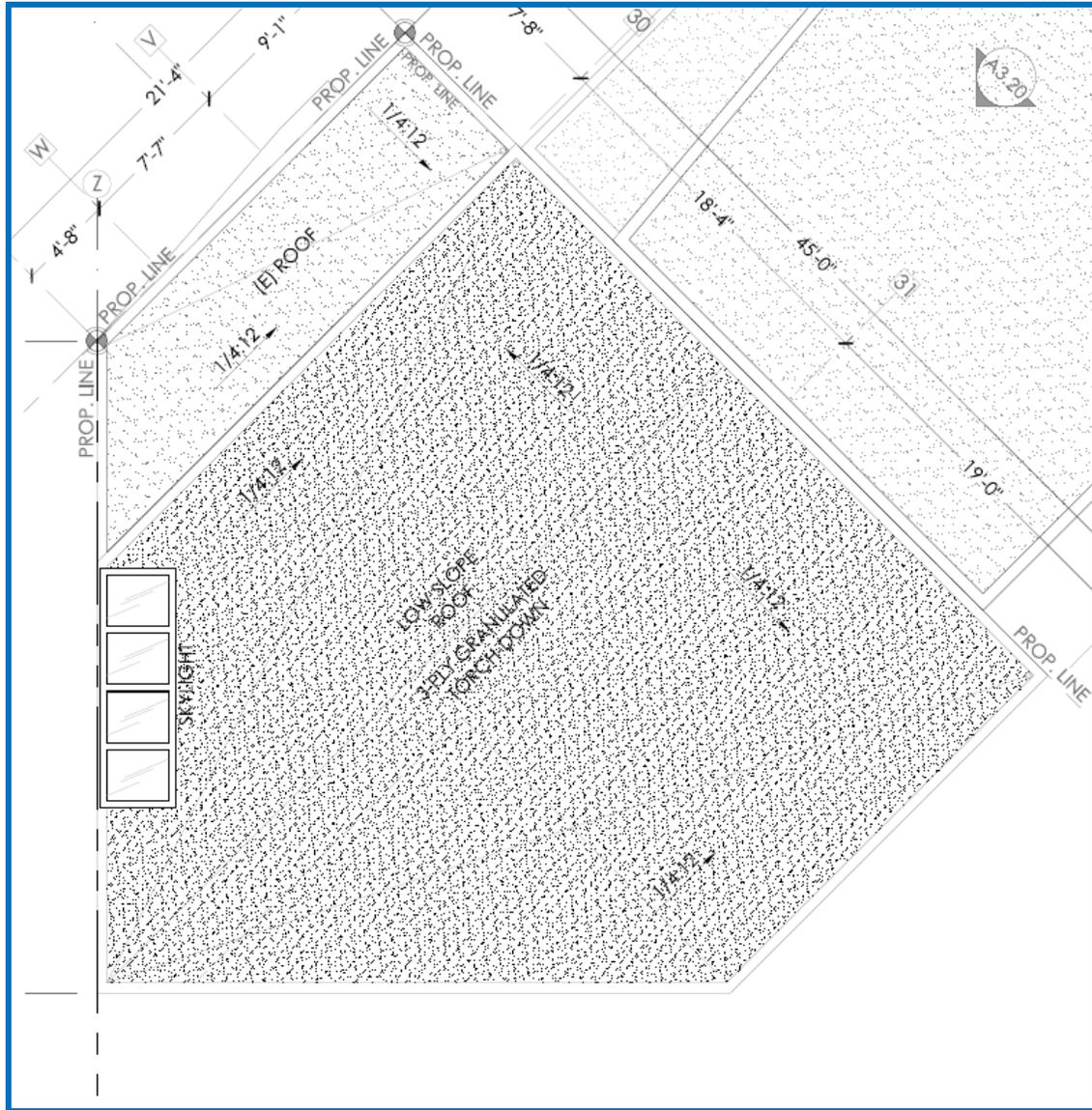
SOURCE: Dawson & Clinton, 2018

Figure 16: Roof Plan for Lot 34



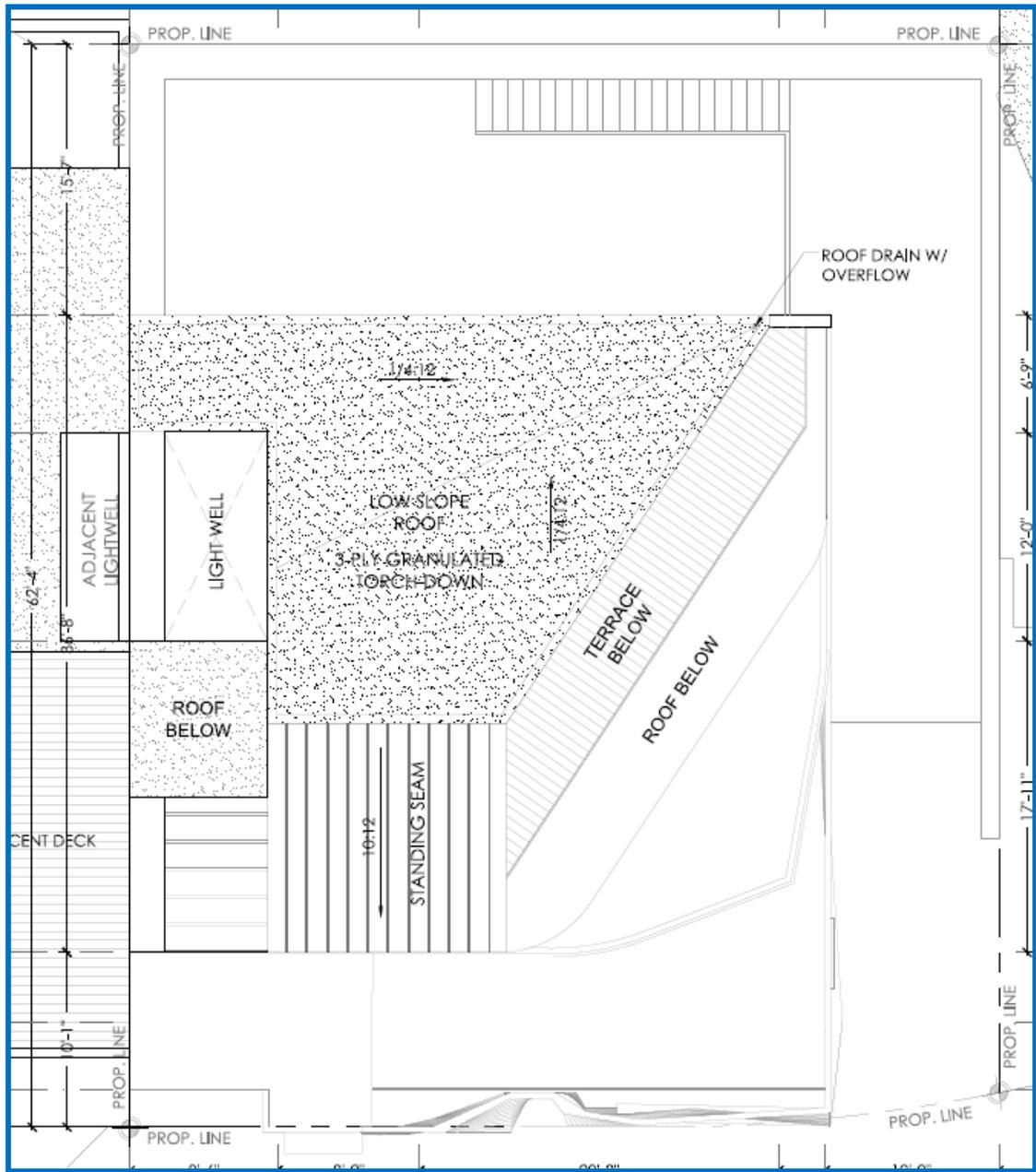
SOURCE: Dawson & Clinton, 2018

Figure 17: Roof Plan for Lot 35A



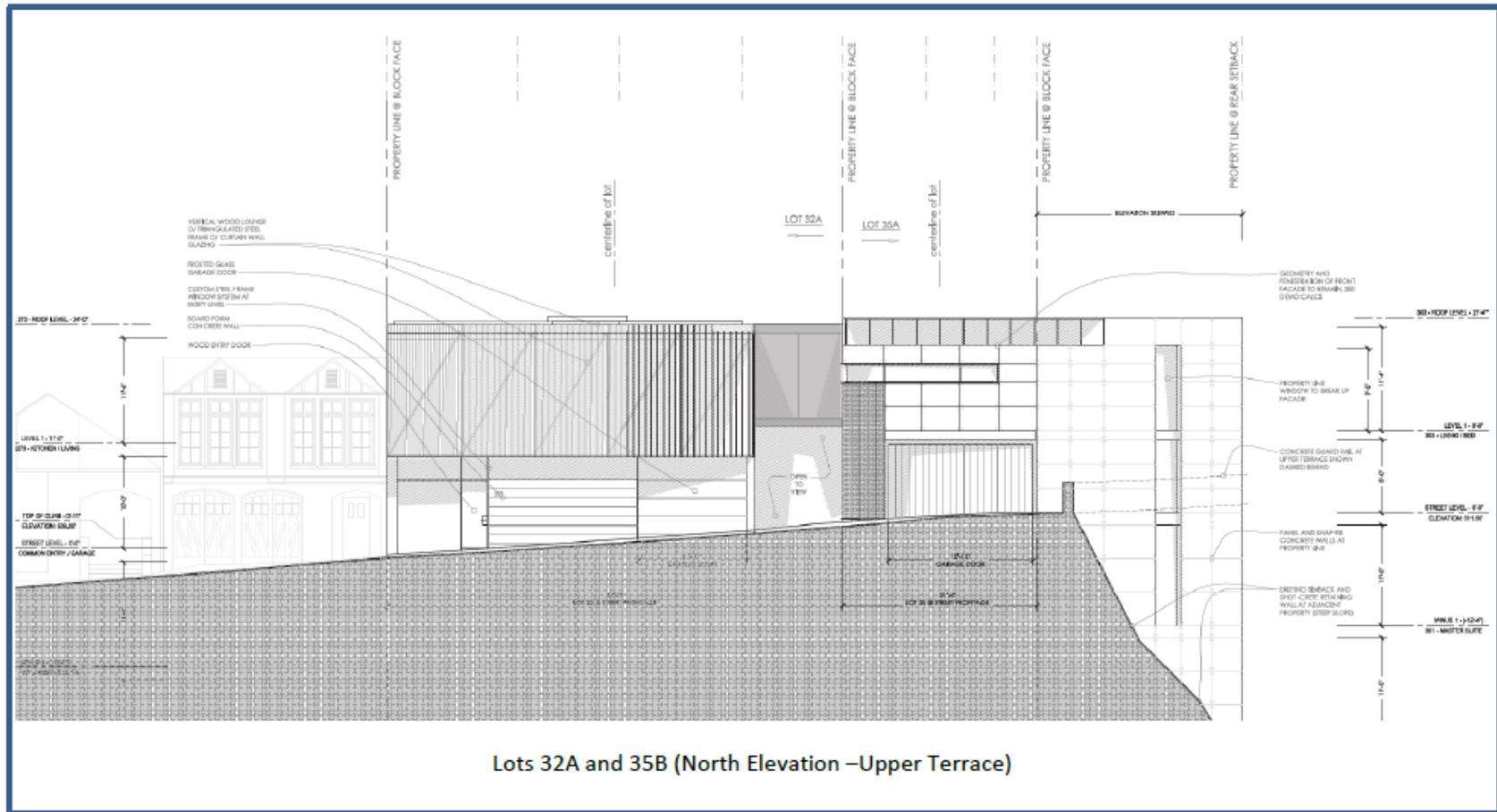
SOURCE: Dawson & Clinton, 2018

Figure 18: Roof Plan for Lot 35B



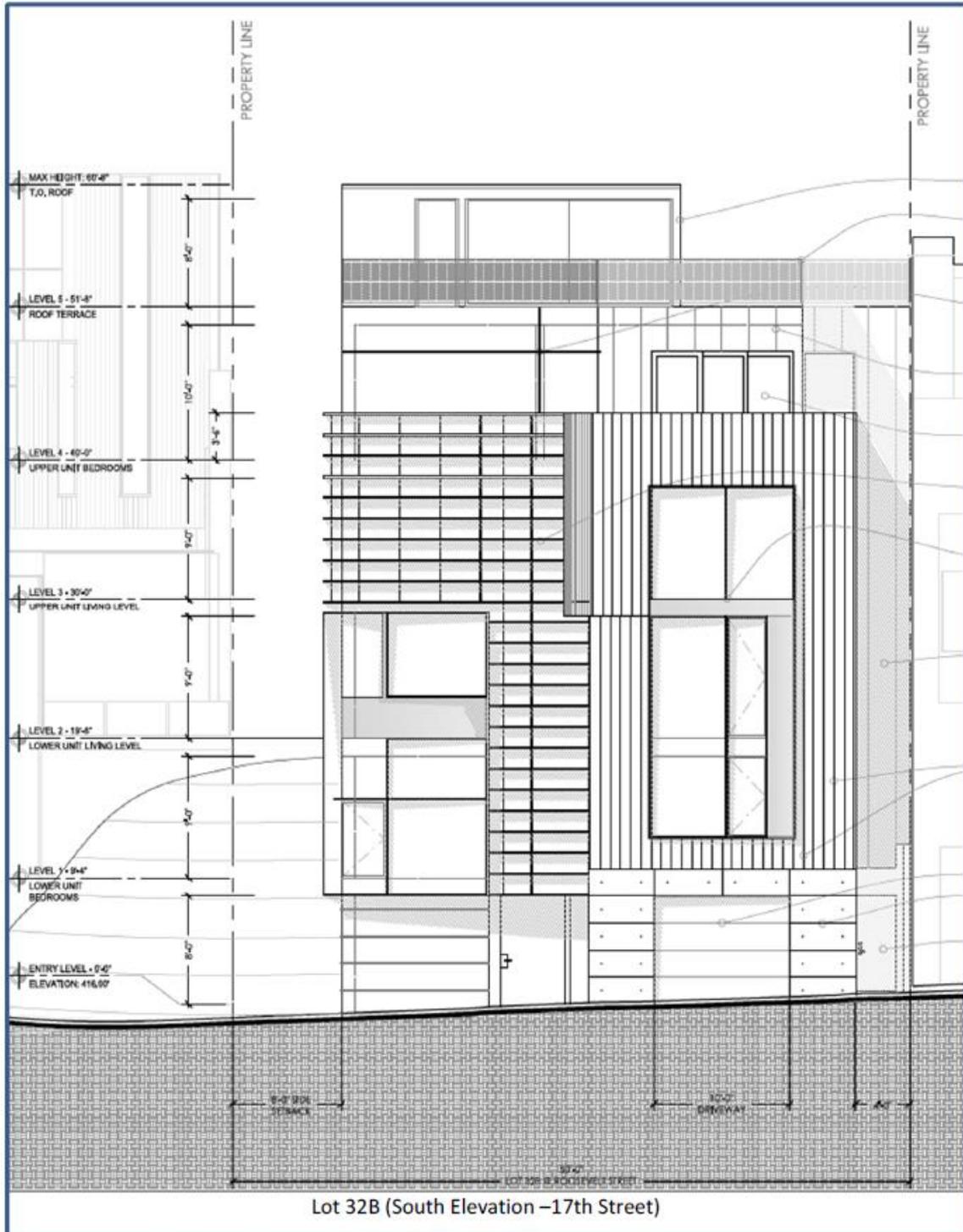
SOURCE: Dawson & Clinton, 2018

Figure 19: Visible Façade for Lots 32A and 35B



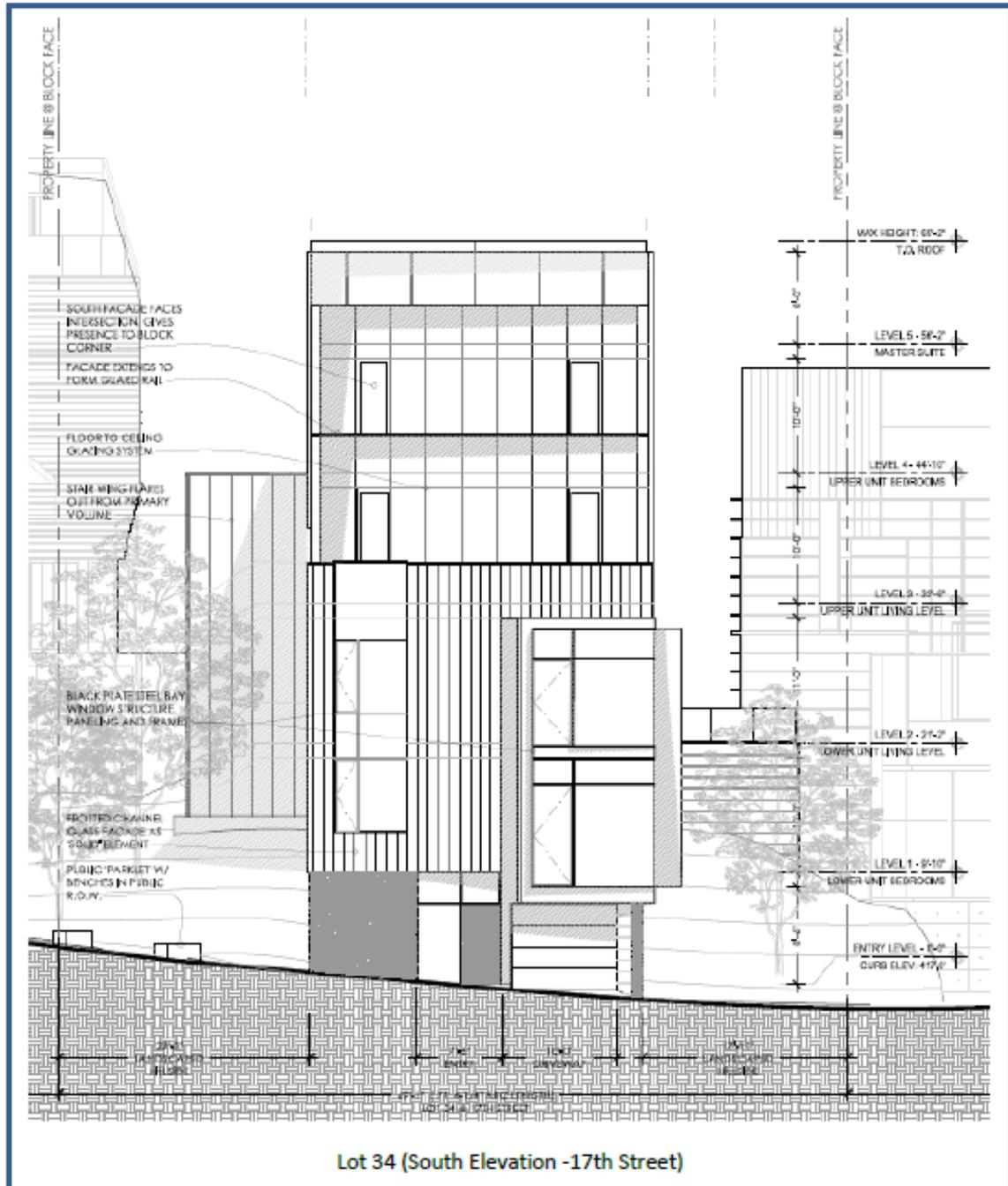
SOURCE: Dawson & Clinton, 2018

Figure 20: Visible Façade for Lot 32B



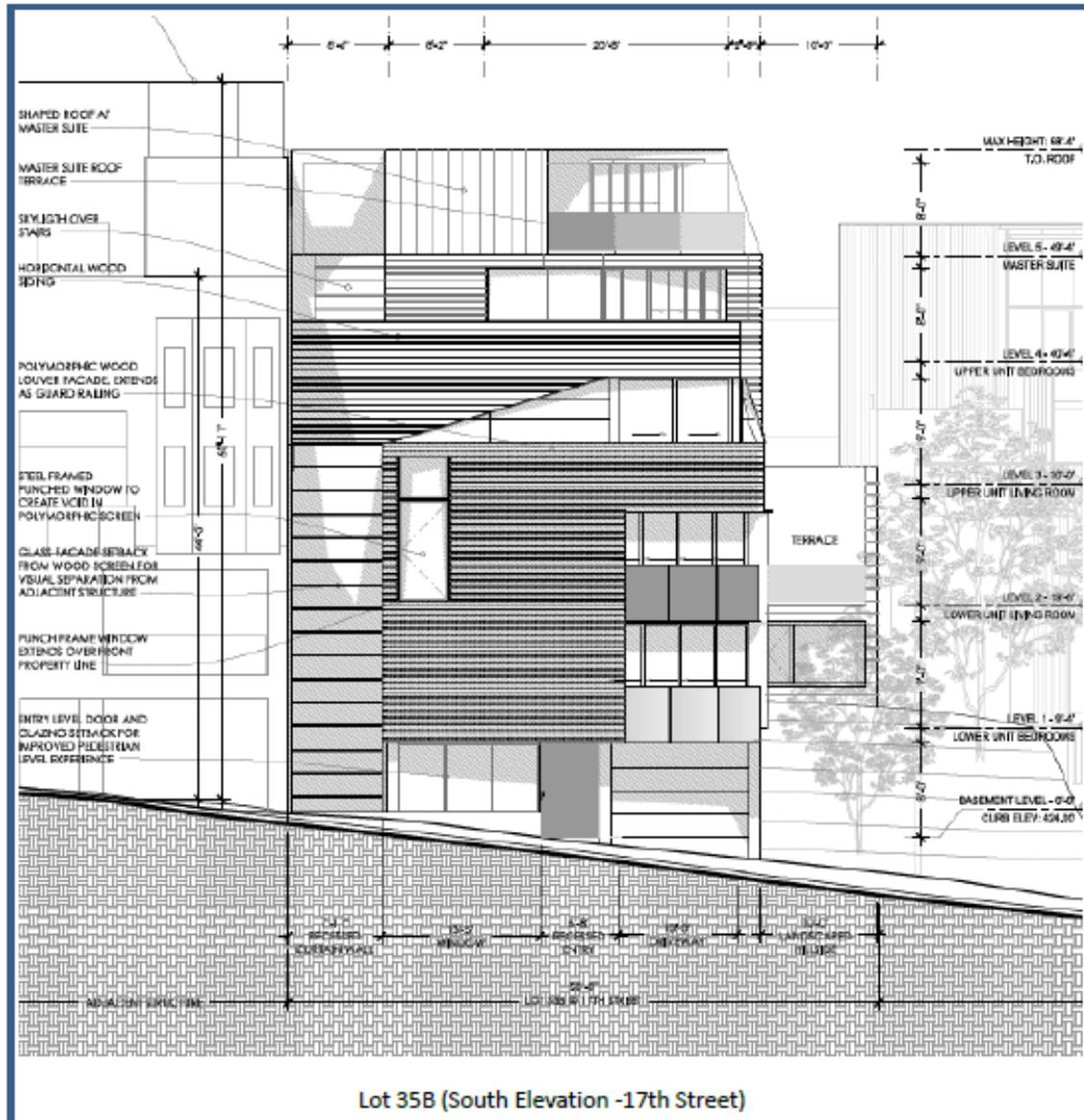
SOURCE: Dawson & Clinton, 2017

Figure 21: Visible Façade for Lot 34



SOURCE: Dawson & Clinton, 2018

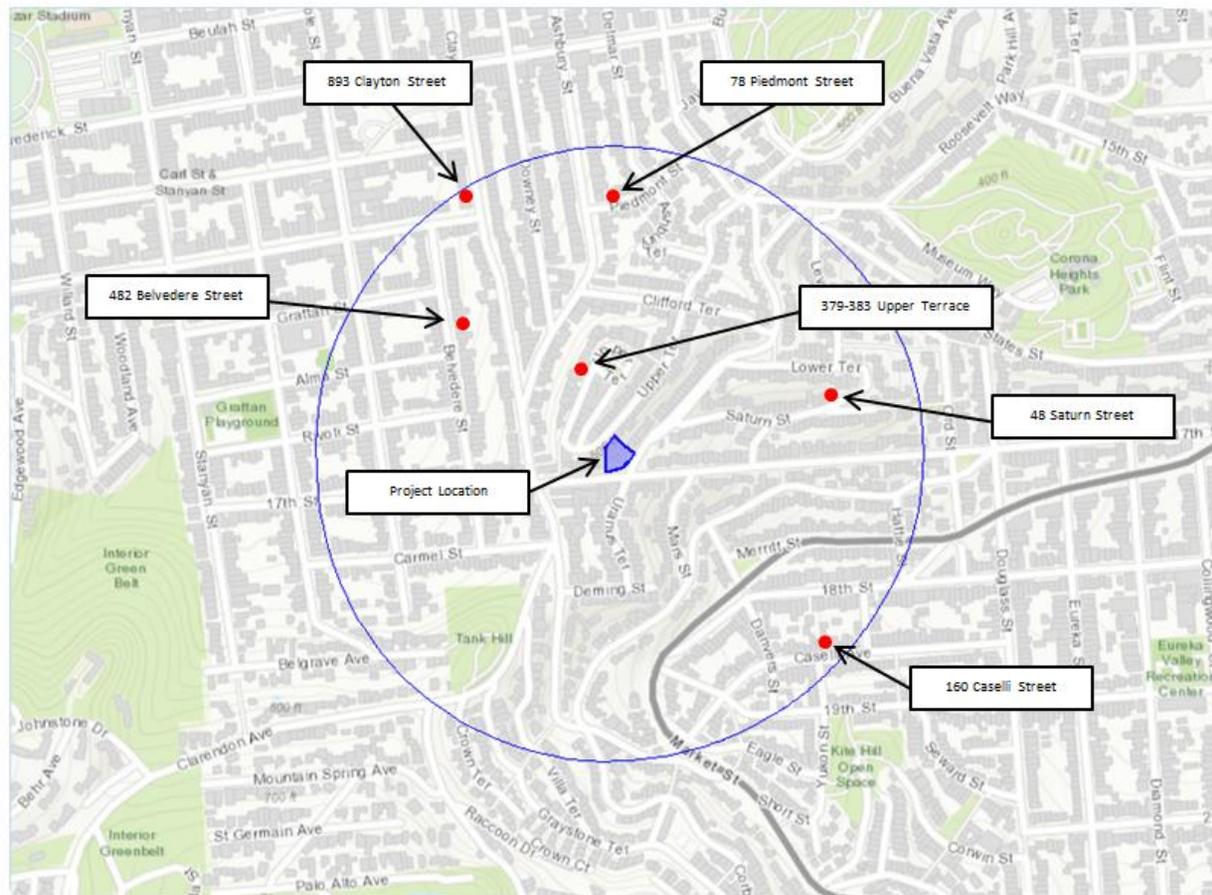
Figure 22: Visible Façade for Lot 35A



SOURCE: Dawson & Clinton, 2018

Figure 23: Cumulative Development Project Locations

1320ft Radius Map for Planning Department Project 2015-004297ENV



SOURCE: <http://SFplanningGIS/RadiusMap>, 2018

C. COMPATIBILITY WITH EXISTING ZONING AND PLANS

	<i>Applicable</i>	<i>Not Applicable</i>
Discuss any variances, special authorizations, or changes proposed to the Planning Code or Zoning Map, if applicable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Discuss any conflicts with any adopted plans and goals of the City or Region, if applicable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Discuss any approvals and/or permits from City departments other than the Planning Department or the Department of Building Inspection, or from Regional, State, or Federal Agencies.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

San Francisco Planning Code and Zoning Maps

The San Francisco Planning Code, which incorporates by reference the City’s zoning maps, governs permitted uses, densities, and the configuration of buildings within San Francisco. Permits to construct new buildings (or to alter or demolish existing ones) may not be issued unless the proposed project complies with the planning code, an exception or variance is granted pursuant to the provisions of the planning code, or legislative amendments to the planning code are included and adopted as part of the proposed project.

Land Use

The project site is in an RH-2 District. Pursuant to Planning Code section 209.1, RH-2 districts are devoted to one- and two-family houses. Structures usually do not exceed 25 feet in width or 40 feet in height. Building styles are often more varied than in single-family areas, but certain streets and tracts are quite uniform. In some cases, group housing and institutions are found in RH-2 districts, although nonresidential uses tend to be quite limited.

Height and Bulk

The project site is in a 40-X Height and Bulk District, which permits a maximum building height of 40 feet. Bulk controls reduce the size of a building’s floorplates as the building increases in height. Pursuant to Planning Code section 270(a), there are no bulk controls in an X Bulk District. Based on how building height is defined and measured pursuant to planning code sections 102.12(c) and 261(c)(1), the proposed project complies with the 40-foot height limit.

Floor Area Ratio

Floor area ratio (FAR) is the ratio of gross floor area of all the buildings on a lot to the area of the lot. Pursuant to Planning Code section 124(b), FAR shall not apply to dwellings or other residential uses in R Districts. The proposed project consists of residential uses in an RH-2 District. Therefore, FAR is not applicable to the proposed project.

Plans and Policies

San Francisco General Plan

The San Francisco General Plan establishes objectives and policies to guide land use decisions related to the physical development of San Francisco. It is comprised of ten elements, each of which addresses a particular topic that applies citywide: Air Quality; Arts; Commerce and Industry; Community Facilities; Community Safety; Environmental Protection; Housing; Recreation and

Open Space; Transportation; and Urban Design. Any conflict between the proposed project and polices that relate to physical environmental issues are discussed in Section E, Evaluation of Environmental Effects. The compatibility of the proposed project with general plan policies that do not relate to physical environmental issues will be considered by decision-makers as part of their decision whether to approve or disapprove the proposed project.

Proposition M – The Accountable Planning Initiative

In November 1986, the voters of San Francisco approved Proposition M, the Accountable Planning Initiative, which added section 101.1 to the planning code and established eight Priority Policies. These policies, and the topics in section E, Evaluation of Environmental Effects, that address the environmental issues associated with these policies, are: (1) preservation and enhancement of neighborhood-serving retail uses; (2) protection of neighborhood character; (3) preservation and enhancement of affordable housing (Question 3b, Population and Housing, regarding housing supply and displacement issues); (4) discouragement of commuter automobiles (Questions 4a, 4b, 4f, and 4g, Transportation and Circulation); (5) protection of industrial and service land uses from commercial office development and enhancement of resident employment and business ownership; (6) maximization of earthquake preparedness (Questions 13a through 13d, Geology/Soils); (7) landmark and historic building preservation (Question 3a, Cultural Resources); and (8) protection of open space (Questions 8a and 8b, Wind and Shadow, and Question 9a, Recreation).

Prior to issuing a permit for any project that requires an Initial Study under CEQA, and prior to issuing a permit for any demolition, conversion, or change of use, and prior to taking any action that requires a finding of consistency with the general plan, the City is required to find that the proposed project or legislation would be consistent with the Priority Policies.

As noted above, the compatibility of the proposed project with general plan objectives and policies that do not relate to physical environmental issues will be considered by decision-makers as part of their decision whether to approve or disapprove the proposed project. Any potential conflicts identified as part of the process would not alter the physical environmental effects of the proposed project.

Regional Plans and Policies

The five principal regional planning agencies and their overarching policy-plans to guide planning in the nine-county Bay Area include the Association for Bay Area Governments' *Projections 2013*, the Bay Area Air Quality Management District's (BAAQMD's) *Bay Area 2017 Clean Air Plan (2017 Clean Air Plan)*, the Metropolitan Transportation Commission's *Regional Transportation Plan – Transportation 2035*, the San Francisco Regional Water Quality Control Board's *San Francisco Basin Plan*, and the San Francisco Bay Conservation and Development Commission's *San Francisco Bay Plan*. Based on the size and nature of the proposed project, no anticipated conflicts with regional plans would occur.

Required Approvals by Other Agencies

See section A, Project Description, for a list of required project approvals.

D. SUMMARY OF ENVIRONMENTAL EFFECTS

The proposed project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

<input type="checkbox"/>	Land Use/Planning	<input type="checkbox"/>	Air Quality	<input checked="" type="checkbox"/>	Biological Resources
<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Greenhouse Gas Emissions	<input checked="" type="checkbox"/>	Geology/Soils
<input type="checkbox"/>	Population and Housing	<input type="checkbox"/>	Wind and Shadow	<input type="checkbox"/>	Hydrology/Water Quality
<input checked="" type="checkbox"/>	Cultural Resources	<input type="checkbox"/>	Recreation	<input type="checkbox"/>	Hazards & Hazardous Materials
<input type="checkbox"/>	Transportation and Circulation	<input type="checkbox"/>	Utilities/Service Systems	<input type="checkbox"/>	Mineral/Energy Resources
<input checked="" type="checkbox"/>	Noise	<input type="checkbox"/>	Public Services	<input type="checkbox"/>	Agriculture and Forestry Resources
				<input type="checkbox"/>	Mandatory Findings of Significance

This Initial Study examines the proposed project to identify potential effects on the environment. For each item on the Initial Study checklist, the evaluation has considered the impacts of the proposed project both individually and cumulatively. All items on the Initial Study Checklist that have been checked "Less than Significant Impact with Mitigation Incorporated," "Less than Significant Impact," "No Impact," or "Not Applicable" indicate that, upon evaluation, staff has determined that the proposed project could not have a significant adverse environmental effect relating to that issue. A discussion is included for those issues checked "Less than Significant Impact with Mitigation Incorporated" and "Less than Significant Impact," and for most items checked with "No Impact" or "Not Applicable." For all of the items checked "No Impact" or "Not Applicable" without discussion, the conclusions regarding potential significant adverse environmental effects are based upon field observation, staff experience and expertise on similar projects, and/or standard reference material available within the planning department, such as the *Transportation Impact Analysis Guidelines for Environmental Review* or the California Natural Diversity Data Base and maps, published by the California Department of Fish and Wildlife. For each checklist item, the evaluation has considered the impacts of the proposed project both individually and cumulatively. The items checked above have been determined to be "Less than Significant with Mitigation Incorporated."

Aesthetics and Parking

In accordance with CEQA section 21099: Modernization of Transportation Analysis for Transit-Oriented Projects, aesthetics and parking shall not be considered in determining if a project has the potential to result in significant environmental effects, provided the project meets all of the following three criteria:

- a) The project is in a transit priority area;
- b) The project is on an infill site; and
- c) The project is residential, mixed-use residential, or an employment center.

The proposed project meets each of the above criteria; therefore, this initial study does not consider aesthetics or parking in determining the significance of project impacts under CEQA.³ Project elevations and an architectural rendering are included in the project description.

Automobile Delay and Vehicle Miles Traveled

In addition, CEQA section 21099(b)(1) requires that the State Office of Planning and Research (OPR) develop revisions to the CEQA Guidelines establishing criteria for determining the significance of transportation impacts of projects that “promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.” CEQA section 21099(b)(2) states that upon certification of the revised guidelines for determining transportation impacts pursuant to section 21099(b)(1), automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment under CEQA.

In January 2016, the OPR published for public review and comment a *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA*⁴ recommending that transportation impacts for projects be measured using a vehicle miles traveled (VMT) metric. On March 3, 2016, in anticipation of the future certification of the revised CEQA Guidelines, the San Francisco Planning Commission adopted the OPR’s recommendation to use the VMT metric instead of automobile delay to evaluate the transportation impacts of projects (resolution No. 19579). The VMT metric does not apply to the analysis of project impacts on non-automobile modes of travel such as riding transit, walking, and bicycling.

E. EVALUATION OF ENVIRONMENTAL EFFECTS

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
1. LAND USE AND PLANNING. Would the project:					
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

³ San Francisco Planning Department, *Eligibility Checklist for CEQA section 21099: Modernization of Transportation Analysis, 271 Upper Terrace* (hereinafter “CEQA section 21099 Checklist”), May 31, 2017.

⁴ This document is available online at: https://www.opr.ca.gov/s_sb743.php.

Impact LU-1: The proposed project would not physically divide an established community. (Less than Significant)

The division of an established community typically involves the construction of a physical barrier to neighborhood access, such as a new freeway, or the removal of a means of access, such as a bridge or a roadway. Implementation of the proposed project would not result in the construction of a physical barrier to neighborhood access or the removal of an existing means of access; it would result in the construction of four separate buildings, and demolition and renovation of one existing building for a total of 10 dwelling units. Implementation of the proposed project would not alter the established street grid or permanently close any streets or sidewalks. Although portions of the sidewalk adjacent to the project site could be closed for periods of time during project construction, these closures would be temporary in nature. For these reasons, the proposed project would not physically divide an established community. This impact would be less than significant, and no mitigation measures are necessary.

Impact LU-2: The proposed project would not 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. (Less than Significant)

Plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect are those that directly address environmental issues and/or contain targets or standards that must be met in order to maintain or improve characteristics of the City's physical environment. Examples of such plans, policies, or regulations include the Bay Area Air Quality Management District's 2017 Clean Air Plan and the San Francisco Regional Water Quality Control Board's San Francisco Basin Plan. As discussed in section C, Compatibility with Existing Zoning and Plans, the proposed project would not substantially conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. This impact would be less than significant, and no mitigation measures are necessary.

Impact C-LU-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative land use impact. (Less than Significant)

Cumulative development in the project vicinity (within a quarter-mile radius of the project site) includes projects that are either under construction or for which the planning department has an *environmental evaluation application* on file.

As first identified under the Project Setting, above, the nearby cumulative development projects would remove an illegal dwelling unit, add one single family dwelling unit, add one accessory dwelling unit, and add living space and/or parking to existing residential buildings in the project vicinity. The nearby cumulative development projects would not physically divide an established community by constructing a physical barrier to neighborhood access or removing a means of access. None of the nearby cumulative development projects would substantially conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. For these reasons, the proposed project would not combine with past,

present, and reasonably foreseeable future projects to create a significant cumulative land use impact.

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
2. POPULATION AND HOUSING. Would the project:					
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing housing units, necessitating the construction of replacement housing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact PH-1: The proposed project would not directly or indirectly induce substantial population growth in an area. (*Less than Significant*)

In general, a project would be considered growth inducing if its implementation were to result in a substantial population increase or new development that might not occur without the project. The proposed project, which would result in the construction of four separate buildings, and alterations (demolition and renovation) of a fifth, existing building; totaling 10 dwelling units, would directly increase the residential population on the project site and contribute to anticipated population growth in both the neighborhood and citywide contexts.

The 2010 U.S. Census reported a population of 805,235 persons in San Francisco and a population of 3,689 persons in Census Tract 170, which includes the project site and its immediate vicinity.^{5,6} The population of census tracts within a quarter-mile radius of the project site is about 14,679 persons.⁷ Based on an average household size for San Francisco of 2.27 persons per unit in 2015, the renovation of a two family dwelling and the addition of eight dwelling units would

⁵ U.S. Census Bureau, *American FactFinder, Profile of General Population and Housing Characteristics: 2010, 2010 Demographic Profile Data*. Available online at <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>, accessed May 8, 2017.

⁶ Census Tract 170 is triangular, with 17th Street (south) and Castro Street (east) forming the legs of the triangle and Buena Vista Avenue East/Upper Terrace (north/west) forming the hypotenuse.

⁷ Census Tracts 171.01, 171.02, 204.01, and 301.02. U.S. Census Bureau, *American FactFinder, Profile of General Population and Housing Characteristics: 2010, 2010 Demographic Profile Data*. Available online at <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>, accessed May 8, 2017.

increase the population at the project site by about 23 residents.⁸ This would represent a residential population increase of about 0.62 percent over the 2010 population within Census Tract 170, about 0.15 percent over the 2010 population within the project vicinity (census tracts within a quarter-mile of the project site), and less than 0.01 percent over the 2010 citywide population. The population increase attributable to the proposed project would represent about 0.01 percent of the projected citywide increase in population of about 280,465 persons anticipated between 2010 and 2040.⁹ The increase in the number of dwelling units associated with the proposed project is not considered substantial. Implementation of the proposed project would not directly induce substantial population growth in the project vicinity that would cause a substantial adverse physical change to the environment. The proposed project would not indirectly induce substantial population growth in the project vicinity, because it would not involve any changes to roads, utilities, or other infrastructure.

Construction of the proposed project would result in temporary employees on the project site for the duration of the construction period. Operation of the proposed project would not result in any permanent employees on the project site. For these reasons, implementation of the proposed project would not induce substantial growth or concentration of employment that would cause a substantial adverse physical change to the environment.

In summary, the project-related increase in residential population would be less than significant in relation to the existing number of residents in the project vicinity and in relation to the expected increases in the residential population of San Francisco. The proposed project would not directly or indirectly induce substantial population growth or concentration of employment in the project vicinity or citywide such that an adverse physical change to the environment would occur. This impact would be less than significant, and no mitigation measures are necessary.

Impact PH-2: The proposed project would not displace substantial numbers of existing housing units or people necessitating the construction of replacement housing. (*Less than Significant*)

The proposed project would not displace substantial numbers of existing housing units. As part of the proposed project, the existing single-family dwelling at 271 Upper Terrace would be demolished and replaced with a new two-family dwelling, and the existing two-family dwelling at 301 – 303 Upper Terrace would be retained and renovated. The proposed project would therefore not displace substantial numbers of people. Of the three existing units on the project site, two units are occupied by members of the project sponsor's team, and the other unit is vacant. Implementation of the proposed project would not result in the need to construct replacement units to house substantial numbers of people. This impact would be less than significant, and no mitigation measures are necessary.

⁸ Association of Bay Area Governments (ABAG), *Projections 2013*, p. 74.

⁹ ABAG, *Projections 2013*, p. 75. The projected residential population of San Francisco for 2040 is 1,085,700 persons.

Impact C-PH-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative impact related to population and housing. (*Less than Significant*)

Implementation of the proposed project, in combination with cumulative development in the project vicinity, would result in the construction of seven net new dwelling units and an incremental increase in population at the neighborhood, citywide, and regional levels. This cumulative growth is consistent with projections presented in Plan Bay Area and Projections 2013. As discussed under Impacts PH-1 and PH-2, the proposed project’s contribution to this cumulative growth would not be substantial. The proposed project would not combine with past, present, and reasonably foreseeable future projects to create a significant cumulative impact related to population and housing.

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
3. CULTURAL RESOURCES. Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code §21074?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact CR-1: The proposed project would not cause a substantial adverse change in the significance of a historical resource. (*Less than Significant*)

Historical resources are those properties that meet the definitions in section 21084.1 of the CEQA statute and section 15064.5 of the CEQA Guidelines. Historical resources include properties listed in, or formally determined eligible for listing in, the California Register of Historical Resources or in an adopted local historic register. Historical resources also include resources identified as significant in a historical resource survey meeting certain criteria. Additionally, properties that are not listed but are otherwise determined to be historically significant, based on substantial evidence, would also be considered historical resources. The significance of a historical resource is materially

impaired when a project “demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance.”¹⁰

Implementation of the proposed project would include the demolition of the existing building at 271 Upper Terrace and renovations of the existing two-family building at 301 – 303 Upper Terrace. In evaluating whether the proposed project would cause a substantial adverse change in the significance of a historical resource, the planning department must first determine whether the existing buildings on the project site are historical resources. A property may be considered a historical resource if it meets any of the California register criteria related to (1) events, (2) persons, (3) architecture, or (4) information potential, that make it eligible for listing in the California register, or if it is considered a contributor to a potential historic district.

The building at 271 Upper Terrace was constructed in 1945, and the building at 301 – 303 Upper Terrace was constructed in 1954. Neither building is listed in a local, state, or national historical register, and neither building is a contributor to an existing or potential historic district. *Historic resource evaluations* were prepared for both buildings to assist the planning department in determining whether the existing buildings are historical resources.¹¹ The planning department reviewed the evaluations, concurred with the findings, and issued *preservation team review forms* determining that the buildings are not historical resources.¹²

The building at 271 Upper Terrace was designed and constructed by James Hjul, who worked as a contractor, civil engineer, structural engineer, and construction engineer in San Francisco from 1907 until 1957, and was known for designing and constructing commercial and industrial buildings in San Francisco’s South of Market neighborhood. No known historic events occurred at the subject property.¹³ Therefore, the building is not eligible for listing in the California register under Criterion 1: Events. The building was owned and occupied by James Hjul’s son and daughter-in-law, Ethel and Kenneth Hjul, from 1945 until 1991. Kenneth Hjul was an engineer who worked alongside his father but was not as active or prolific as his father and does not rank as an influential historical figure.¹⁴ Therefore, the building is not eligible for listing in California register under Criterion 2: Persons. The building at 271 Upper Terrace is not characteristic of and deviates from James Hjul’s typical work in that it is a residential building on Mount Olympus. Although the building was designed in and demonstrates some of the hallmark traits of the Second Bay Tradition style, the building is not considered a prime example of the style.¹⁵ Therefore, the building does not appear to be eligible for listing in the California register under Criterion 3: Architecture. The building is not an example of rare construction materials or methods that influenced local

¹⁰ CEQA Guidelines 15064.5(b).

¹¹ Left Coast Architectural History, *271 Upper Terrace Historic Resource Evaluation*, September 2, 2015, and *301-303 Upper Terrace Historic Resource Evaluation*, September 2, 2015.

¹² San Francisco Planning Department, *Preservation Team Review Form, 271 Upper Terrace*, December 7, 2016, and *Preservation Team Review Form, 301-303 Upper Terrace*, December 7, 2016.

¹³ San Francisco Planning Department, *Preservation Team Review Form, 271 Upper Terrace*, December 7, 2016, p. 3.

¹⁴ *Ibid*, p. 3.

¹⁵ *Ibid*, p. 3.

building development.¹⁶ In addition, the subject property contains no archeological resources that could yield information important to history (see Impact CR-2). Therefore, the building is not eligible for listing in the California register under Criterion 4: Information Potential.

The building at 301 – 303 Upper Terrace was also designed and constructed by James Hjul. No known historic events occurred at the subject property, and the building is not eligible for listing in the California Register under Criterion 1: Events.¹⁷ No influential historical figures were associated with the subject property, so the building is not eligible for listing in the California Register under Criterion 2: Persons.¹⁸ Similar to 271 Upper Terrace, 301 – 301 Upper Terrace was designed in and demonstrates some of the hallmark traits of the Second Bay Tradition style, but is not considered a prime example of the style and does not appear eligible for listing in the California Register under Criterion 3: Architecture. Also similar to 271 Upper Terrace, the building is not an example of rare construction materials or methods that influenced local building development,¹⁹ and does not contain archeological resources that could yield information important to history (see Impact CR-2). Therefore, the building is not eligible for listing in the California register under Criterion 4: Information Potential.

The nearest historic district to the proposed project, the Duboce Park Historic District, is 0.75 mile to the northeast of the site.

In conclusion, the existing buildings at 271 Upper Terrace and 301 – 303 Upper Terrace are not eligible for listing in the California register as individual resources or as contributors to a historic district and thus are not considered historical resources under CEQA. For these reasons, the proposed project would not cause a substantial adverse change in the significance of a historical resource. This impact would be less than significant, and no mitigation measures are necessary.

Impact CR-2: The proposed project would cause a substantial adverse change in the significance of an archeological resource. (*Less than Significant with Mitigation*)

Determining the potential for encountering archeological resources includes relevant factors such as the location, depth, and amount of excavation proposed as well as any recorded information on known resources in the area. Construction of the proposed project would require excavation to a depth of 50 feet below ground surface and the removal of approximately 13,640 cubic yards of soil. A substantial portion of the existing 95-foot-tall hillside on the project site would be excavated. Due to the depth of the proposed excavation, the planning department conducted a *preliminary archeological review* and determined that although it is unlikely that there are any archeological resources on the project site, Mitigation Measure M-CR-2: Accidental Discovery, would ensure that

¹⁶ *Ibid*, p. 4.

¹⁷ San Francisco Planning Department, *Preservation Team Review Form, 301-303 Upper Terrace*, December 7, 2016, p. 3.

¹⁸ *Ibid*, p. 3.

¹⁹ *Ibid*, p. 4.

the proposed project would not cause a substantial adverse change in the significance of an archeological resource should one be discovered during excavation of the project site.²⁰

Mitigation Measure M-CR-2: Accidental Discovery

The following mitigation measure is required to avoid any potential adverse effect from the proposed project on accidentally discovered buried or submerged historical resources as defined in *CEQA Guidelines* Section 15064.5(a) and (c). The project sponsor shall distribute the Planning Department archeological resource “ALERT” sheet to the project prime contractor; to any project subcontractor (including demolition, excavation, grading, foundation, pile driving, etc. firms); or utilities firm involved in soils disturbing activities within the project site. Prior to any soils disturbing activities being undertaken each contractor is responsible for ensuring that the “ALERT” sheet is circulated to all field personnel including, machine operators, field crew, pile drivers, supervisory personnel, etc. The project sponsor shall provide the Environmental Review Officer (ERO) with a signed affidavit from the responsible parties (prime contractor, subcontractor(s), and utilities firm) to the ERO confirming that all field personnel have received copies of the Alert Sheet.

Should any indication of an archeological resource be encountered during any soils disturbing activity of the project, the project Head Foreman and/or project sponsor shall immediately notify the ERO and shall immediately suspend any soils disturbing activities in the vicinity of the discovery until the ERO has determined what additional measures should be undertaken.

If the ERO determines that an archeological resource may be present within the project site, the project sponsor shall retain the services of an archaeological consultant from the pool of qualified archaeological consultants maintained by the Planning Department archaeologist. The archeological consultant shall advise the ERO as to whether the discovery is an archeological resource, retains sufficient integrity, and is of potential scientific/historical/cultural significance. If an archeological resource is present, the archeological consultant shall identify and evaluate the archeological resource. The archeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the ERO may require, if warranted, specific additional measures to be implemented by the project sponsor.

Measures might include: preservation in situ of the archeological resource; an archaeological monitoring program; or an archeological testing program. If an archeological monitoring program or archeological testing program is required, it shall be consistent with the Environmental Planning (EP) division guidelines for such programs. The ERO may also require that the project sponsor immediately implement a site security program if the archeological resource is at risk from vandalism, looting, or other damaging actions.

The project archeological consultant shall submit a Final Archeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archeological resource and describing the archeological and historical research methods employed in the archeological

²⁰ Allison Vanderslice, San Francisco Planning Department, email to Michael Li, San Francisco Planning Department, June 1, 2017.

monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report.

Copies of the Draft FARR shall be sent to the ERO for review and approval. Once approved by the ERO, copies of the FARR shall be distributed as follows: California Archaeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Environmental Planning division of the Planning Department shall receive one bound copy, one unbound copy and one unlocked, searchable PDF copy on CD of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.

With implementation of Mitigation Measure M-CR-2, this impact would be less than significant.

Impact CR-3: The proposed project would not disturb human remains. (*Less than Significant*)

Impacts on Native American burials are considered under Public Resources Code section 15064.5(d)(1). When an Initial Study identifies the existence of, or the probable likelihood of, Native American human remains on a project site, the lead agency is required to work with the appropriate tribal entity, as identified by the California Native American Heritage Commission. The lead agency may develop an agreement with the appropriate tribal entity for testing or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials. By implementing such an agreement, a project becomes exempt from the general prohibition on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (Health and Safety Code section 7050.5) and the requirements of CEQA pertaining to Native American human remains. The treatment of human remains and of associated or unassociated funerary objects discovered during the proposed project's soils-disturbing activities would comply with applicable state laws, including immediate notification of the San Francisco Coroner. If the coroner were to determine that the remains are Native American, the Native American Heritage Commission would be notified and would appoint a Most Likely Descendant (Public Resources Code section 5097.98).

In the event that human remains and associated funerary objects are discovered during excavation, the project sponsor and the construction contractor would be required to follow local, state, and federal procedures pertaining to the handling, relocation, and/or disposal with dignity of such remains and objects. This impact would be less than significant, and no mitigation measures are necessary.

Impact CR-4: The proposed project would not cause a substantial adverse change in the significance of a tribal cultural resource. (*Less than Significant*)

Tribal cultural resources are those resources that meet the definitions in Public Resources Code section 21074. Tribal cultural resources are defined as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are also either (a) included or determined to be eligible for inclusion in the California register or

(b) included in a local register of historical resources as defined in Public Resources Code section 5020.1(k). Based on discussions with Native American tribal representatives in San Francisco, prehistoric archeological resources are presumed to be potential tribal cultural resources. A tribal cultural resource is adversely affected when a project impacts its significance.

Pursuant to Assembly Bill 52, effective July 1, 2015, within 14 days of a determination that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency is required to contact the Native American tribes that are culturally or traditionally affiliated with the geographic area in which the project is located. Notified tribes have 30 days to request consultation with the lead agency to discuss potential impacts on tribal cultural resources and measures for addressing those impacts.

On May 25, 2017, the planning department mailed a “Tribal Notification Regarding Tribal Cultural Resources and CEQA” to the appropriate Native American tribal representatives who have requested notification. During the 30-day comment period, no Native American tribal representatives contacted the planning department to request consultation. Furthermore, as discussed under Impact CR-2, it is unlikely that there are any archeological resources on the project site. For these reasons, the proposed project would not cause a substantial adverse change in the significance of a tribal cultural resource. This impact would be less than significant, and no mitigation measures are necessary.

Impact C-CR-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in cumulative impacts on cultural resources. (*Less than Significant*)

As discussed under Impact CR-1, implementation of the proposed project would not cause a substantial adverse change in the significance of a historical resource because the buildings on the project site are not historically significant or in proximity to a historic district, thus the proposed project would have no direct impact on historic resources.

Cumulative impacts on archeological resources, tribal cultural resources, and human remains are site-specific and generally limited to the immediate construction area. For these reasons, the proposed project, in combination with other past, present, and reasonably foreseeable future projects, would not result in a cumulatively considerable impact on archeological resources, tribal cultural resources, and human remains.

For these reasons, the proposed project would not make a considerable contribution to any cumulative impact on cultural resources that could result from past, present, or reasonably foreseeable future projects in the project vicinity.

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
4. TRANSPORTATION AND CIRCULATION.					
Would the project:					
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

The project site fronts three streets: Upper Terrace on the north and 17th Street and Roosevelt Way on the south. Upper Terrace circles Mount Olympus and loops back on itself. Some segments of Upper Terrace have two lanes of travel (one in each direction) with no curbside parking on either side of the street, and some segments of Upper Terrace have one lane of travel with parking on both sides of the street. In front of the project site, Upper Terrace runs southwest-northeast, has two travel lanes (one in each direction) and curbside parking on either side of the road. The Upper Terrace sidewalk in front of the project site is 10 feet wide.

The segment of Roosevelt Way in front of the project site runs southwest-northeast (parallel to Upper Terrace) and has two lanes of travel (one in each direction) with curbside parking on either side of the street. The Roosevelt Way sidewalk in front of the project site is 6.5 feet wide.

The segment of 17th Street in front of the project site runs east-west and has four lanes of travel west of Roosevelt Way (two westbound and one eastbound proceeding straight and one for a left-

hand turn onto Roosevelt heading north) with no curbside parking on either side of the street. The 17th Street sidewalk in front of the project site is 6.5 feet wide.

Over 200 feet to the west of the project site is a public stairway, Monument Way Stairway, which connects Upper Terrace and Roosevelt Way. There are two designated bicycle routes one block west of the project site. Bicycle Route No. 40 runs along Clayton Street, and Bicycle Route No. 55 runs along Clayton Street before continuing along Ashbury Street. Each of these bicycle routes features a shared lane (one in each direction) used by bicycles and vehicles.²¹

Trip Generation

The proposed project consists of five buildings containing a total of 10 dwelling units and 15 parking spaces.

Localized trip generation of the proposed project was calculated using a trip-based analysis and information in the *2002 Transportation Impacts Analysis Guidelines for Environmental Review (Transportation Guidelines)* developed by the San Francisco Planning Department.²² The proposed project would generate an estimated 98 person trips (inbound and outbound) on a weekday daily basis, consisting of 49 person trips by auto, 36 transit trips, three walk trips, and nine trips by other modes. During the p.m. peak hour, the proposed project would generate an estimated 17 person trips, consisting of eight person trips by auto (eight vehicle trips accounting for vehicle occupancy data for this census tract), six transit trips, one walk trip, and two trips by other modes.

Impact TR-1: The proposed project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system and would not conflict with an applicable congestion management program. (*Less than Significant*)

Vehicle Miles Traveled Analysis

As previously discussed under section D, Summary of Environmental Effects, in response to state legislation that called for removing automobile delay from CEQA analysis, the Planning Commission adopted resolution No. 19579 replacing automobile delay with a VMT metric for analyzing transportation impacts of a project.

Many factors affect travel behavior. These factors include density, diversity of land uses, design of the transportation network, access to regional destinations, distance to high-quality transit, development scale, demographics, and transportation demand management. Typically, low-density development at great distance from other land uses, located in areas with poor access to non-private vehicular modes of travel, generate more automobile travel compared to development located in urban areas, where a higher density, mix of land uses, and travel options other than private vehicles are available.

²¹ San Francisco Municipal Transportation Agency, *San Francisco Bike Map and Walking Guide*, 14th Edition, 2014. Available online at <https://www.sfmta.com/maps/san-francisco-bike-map-and-walking-guide>, accessed May 17, 2017.

²² San Francisco Planning Department, *271 Upper Terrace Transportation Calculations*, May 17, 2017.

Given these travel behavior factors, San Francisco has a lower VMT ratio than the nine-county San Francisco Bay Area region. In addition, some areas of the City have lower VMT ratios than other areas of the City. These areas of the City can be expressed geographically through transportation analysis zones (TAZ). TAZs are used in transportation planning models for transportation analysis and other planning purposes. The zones vary in size from single city blocks in the downtown core, multiple blocks in outer neighborhoods, to even larger zones in historically industrial areas like the Hunters Point Shipyard.

The San Francisco County Transportation Authority (Transportation Authority) uses the San Francisco Chained Activity Model Process (SF-CHAMP) to estimate VMT by private automobiles and taxis for different land use types. Travel behavior in SF-CHAMP is calibrated based on observed behavior from the California Household Travel Survey 2010 - 2012, census data regarding automobile ownership rates and county-to-county worker flows, and observed vehicle counts and transit boardings. SF-CHAMP uses a synthetic population, which is a set of individual actors that represents the Bay Area's actual population, who make simulated travel decisions for a complete day. The Transportation Authority uses tour-based analysis for office and residential uses, which examines the entire chain of trips over the course of a day, not just trips to and from the project. For retail uses, the Transportation Authority uses trip-based analysis, which counts VMT from individual trips to and from the project (as opposed to the entire chain of trips). A trip-based approach, as opposed to a tour-based approach, is necessary for retail projects because a tour is likely to consist of trips stopping in multiple locations, and the summarizing of tour VMT to each location would overestimate VMT.^{23, 24}

For residential development, the existing regional average daily VMT per capita is 17.2.²⁵ Average daily VMT for this land use is projected to decrease under future 2040 cumulative conditions. Please see Table 2: Daily Vehicle Miles Traveled, which includes TAZ 217, in which the project site is located.

²³ To state another way: a tour-based assessment of VMT at a retail site would consider the VMT for all trips in the tour, for any tour with a stop at the retail site. If a single tour stops at two retail locations, for example, a coffee shop on the way to work and a restaurant on the way back home, then both retail locations would be allotted the total tour VMT. A trip-based approach allows us to apportion all retail-related VMT to retail sites without double-counting.

²⁴ San Francisco Planning Department, *Executive Summary: Resolution Modifying Transportation Impact Analysis*, Appendix F, Attachment A, March 3, 2016.

²⁵ Includes the VMT generated by the households in the development and averaged across the household population to determine VMT per capita.

Table 2: Average Daily Vehicle Miles Traveled

Land Use	Existing			Cumulative 2040		
	Bay Area Regional Average	Bay Area Regional Average minus 15%	TAZ 217 Average	Bay Area Regional Average	Bay Area Regional Average minus 15%	TAZ 217 Average
Households (Residential)	17.2	14.6	8.3	16.1	13.7	7.6

A project would have a significant effect on the environment if it would cause substantial additional VMT. OPR's *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA* (proposed transportation impact guidelines) recommends screening criteria to identify types, characteristics, or locations of projects that would not result in significant impacts to VMT. If a project meets one of the three screening criteria provided (Map-Based Screening, Small Projects, and Proximity to Transit Stations), then it is presumed that VMT impacts would be less than significant for the project and a detailed VMT analysis is not required. Map-Based Screening is used to determine if a project site is located within a TAZ that exhibits low levels of VMT. Small Projects are projects that would generate fewer than 100 vehicle trips per day. The Proximity to Transit Stations criterion includes projects that are within a half-mile of an existing major transit stop, have a FAR that is equal to or greater than 0.75, vehicle parking that is less than or equal to that required or allowed by the planning code without conditional use authorization, and are consistent with the applicable Sustainable Communities Strategy.

In TAZ 217, the existing average daily household VMT per capita is 8.3, and the future 2040 average daily household VMT per capita is estimated to be 7.6.²⁶ Given that the project site is located in an area in which the existing and future 2040 residential VMT would be more than 15 percent below the existing and future 2040 regional averages, the proposed project's residential uses would not result in substantial additional VMT, and impacts would be less than significant. Furthermore, the project site meets the Proximity to Transit Stations screening criterion, which also indicates the proposed project's residential uses would not cause substantial additional VMT.²⁷

Induced Automobile Travel Analysis

A proposed project would have a significant effect on the environment if it would substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (e.g., by adding new mixed-flow lanes) or by adding new roadways to the network. The OPR's

²⁶ San Francisco Planning Department, *Eligibility Checklist for CEQA section 21099: Modernization of Transportation Analysis*, 271 Upper Terrace, May 31, 2017.

²⁷ *Ibid.*

proposed transportation impact guidelines includes a list of transportation project types that would not likely lead to a substantial or measureable increase in VMT. If a project fits within the general types of projects (including combinations of types), then it is presumed that VMT impacts would be less than significant, and a detailed VMT analysis is not required.

The proposed project is not a transportation project. However, the proposed project would include features located within the transportation network. The existing 55-foot-wide curb cut on Upper Terrace would be removed and replaced with two new curb cuts that are 10 and 15 feet wide. Additionally, three new 10-foot-wide curb cuts (two on Roosevelt Way and one on 17th Street) would be provided. The sidewalks on 17th Street and Roosevelt Way would be widened from 6.5 feet to 12.5 feet. Other streetscape improvements that are part of the proposed project include a new crosswalk across 17th Street on the southwestern corner of the intersection of 17th Street and Roosevelt Way/Uranus Terrace, striped median on Roosevelt Way (as needed), and widened sidewalks. These features fit within the general types of projects that would not substantially induce automobile travel, and the impacts would be less than significant.²⁸

Construction Traffic

Construction of the proposed project would last about 37 months. Depending on the construction phase, construction staging would occur primarily on and/or adjacent to the project site. There could be temporary closures of segments of Upper Terrace, Roosevelt Way, and 17th Street, and sidewalks adjacent to the project site. During the construction period, there would be a flow of construction-related trucks to and from the project site. Due to the slower movement and larger turning radii of trucks, there would be a temporary reduction in the capacities of local streets. Construction activities would generate construction worker trips to and from the project site and a temporary demand for parking and public transit. Due to the temporary nature of the construction activities, the construction-related impacts on transportation and circulation would be less than significant. No mitigation measures are necessary, but the project sponsor has agreed to implement Improvement Measure I-TR-1 in order to minimize construction-related traffic congestion as much as possible.

Improvement Measure I-TR-1

The project sponsor should require the construction contractor to limit truck movements to the hours between 9 a.m. and 3:30 p.m., or other times if approved by the San Francisco Municipal Transportation Agency (SFMTA), in order to minimize the disruption of the general traffic flow on adjacent streets during the a.m. and p.m. peak periods. The project sponsor and construction contractor should meet with the Traffic Engineering Division of the SFMTA, the fire department, the San Francisco Municipal Railway (Muni), the planning department, and other City agencies to determine feasible measures to reduce traffic congestion and other potential transit and pedestrian circulation effects during the construction period. In addition, the construction contractor should make arrangements for off-site parking for construction workers during the construction period.

²⁸ *Ibid.*

Loading

Pursuant to Planning Code section 152, the proposed project is not required to provide any off-street loading spaces. There are no on-street loading zones (yellow curbs) on the segments of Upper Terrace, Roosevelt Way, or 17th Street adjacent to or across from the project site.

Loading demand for the proposed project was calculated using the methodology set forth in the *Transportation Guidelines*. The proposed project would generate an average peak-hour loading demand of less than one space.

Residential move-in/move-out activities could be accommodated by one of two options. Residents' private vehicles and/or small moving trucks could park in the driveways on the project site or use available on-street parking spaces near the project site. In the event that longer moving trucks are needed, residents would be required to obtain permits to temporarily reserve on-street parking spaces near the project site.

Impact TR-2: The proposed project would not result in a change in air traffic patterns. (No Impact)

The project site is not within the vicinity of a public airport, a public use airport, or a private airstrip. The proposed buildings at 588 – 590 Roosevelt Way, 4500 – 4502 17th Street, and 4504 – 4506 17th Street would contain six stories, all above street level but would be located on a lower portion of the slope. The proposed building at 271 – 273 Upper Terrace would contain six stories; two stories would be above street level, and four stories would be below street level. The proposed building at 301 – 303 Upper Terrace would contain five stories; two stories would be above street level, and three stories would be below street level. None of these buildings would be tall enough to result in changes to air traffic patterns. No impact would occur.

Impact TR-3: The proposed project would not substantially increase hazards due to a design feature or incompatible uses. (Less than Significant)

Implementation of the proposed project would not introduce a new hazardous design feature, such as a sharp curve or a dangerous intersection. The proposed project would be constructed within the boundaries of the project site and includes the improvements to public streetscape on the proposed project's frontage on Upper Terrace, Roosevelt Way/Uranus Terrace, and 17th Street; there would be no realignment or reconfiguration of the existing street grid. The proposed project includes residential uses; it does not include any land uses that would be incompatible with existing land uses in the project vicinity. For these reasons, the proposed project would not increase traffic hazards due to a design feature or incompatible use. This impact would be less than significant, and no mitigation measures are necessary.

Impact TR-4: The proposed project would not result in inadequate emergency access. (Less than Significant)

Implementation of the proposed project would not result in the permanent closure of any existing streets in the project vicinity; emergency access would remain unchanged from existing conditions.

Following implementation of the proposed project, emergency vehicles would be able to access the northern side of the project site from Upper Terrace and the southern side of the project site from Roosevelt Way or 17th Street, as they can under existing conditions.

During construction, emergency access to the project site would be largely the same as under existing conditions, with the exception of the potential temporary closures of segments of Upper Terrace, Roosevelt Way, and 17th Street. In general, a closure or an encroachment of public ROW or diversions are subject to review and approval by the City's Transportation Advisory Staff Committee, which consists of representatives from the Fire Department, Police Department, SFMTA Traffic Engineering Division, and Public Works. Through compliance with this requirement, the proposed project would not have a significant impact on emergency access during construction. This impact would be less than significant, and no mitigation measures are necessary.

Impact TR-5: The proposed project would not conflict with adopted policies, plans or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such features. (*Less than Significant*)

Transit

The project site is served by public transportation. As previously identified, within one-quarter mile of the project site, Muni operates the 6 Haight/Parnassus, 33 Ashbury/18th, and 37 Corbett bus lines, as well as the N Judah light rail line. Additionally Muni operates the K Ingleside/T Third Street, L Taraval, and M Oceanview light rail lines, which pass through the Muni station at 17th and Castro streets, about one-half mile east of the project site.

The proposed project would generate 36 daily transit trips, including six during the p.m. peak hour.²⁹ These transit trips would be distributed among the multiple transit lines serving the project vicinity. Given the availability of nearby transit, the addition of six p.m. peak-hour transit trips would be accommodated by existing capacity. For these reasons, the proposed project would not result in unacceptable levels of transit service or cause a substantial increase in delays or operating costs such that significant adverse impacts in transit service could result.

Bicycles

It is anticipated that some of the daily person trips to and from the project site would be made by bicycle (nine daily and two p.m. peak-hour person trips by other modes).³⁰ Implementation of the proposed project would not realign or reconfigure the existing street grid or result in other physical changes that would affect Bicycle Routes No. 40 and 55. The proposed project would generate 45 daily and eight p.m. peak-hour vehicle trips.³¹ These vehicle trips would be distributed among all of the streets in the project vicinity and would not be concentrated along Bicycle Route Nos. 40 and 55. Given the low volume of daily and p.m. peak-hour bicycle trips and the low volume of daily and p.m. peak-hour vehicle trips, conflicts between bicycles and vehicles would be minimal.

²⁹ San Francisco Planning Department, *271 Upper Terrace Transportation Calculations*, May 17, 2017.

³⁰ *Ibid.*

³¹ *Ibid.*

For these reasons, the proposed project would not conflict with adopted policies, plans or programs regarding bicycle facilities or decrease the performance or safety of such features. This impact would be less than significant, and no mitigation measures are necessary.

Pedestrians

The proposed project would generate three daily pedestrian trips to and from the project site, including one pedestrian trip during the p.m. peak hour.³² Given the low volume of daily and p.m. peak-hour pedestrian trips and the low volume of daily and p.m. peak-hour vehicle trips discussed above, conflicts between pedestrians and vehicles would be minimal. In addition, the project site is not adjacent to any streets that have been identified as pedestrian high-injury corridors.

As part of the proposed project, the 10-foot-wide sidewalk on Upper Terrace would not be widened, but the sidewalks on 17th Street and Roosevelt Way would be widened from 6.5 feet to 12.5 feet. The sidewalks in the project vicinity would be able to accommodate the additional pedestrian trips generated by the proposed project without becoming substantially overcrowded or substantially affecting pedestrian flows. This impact would be less than significant, and no mitigation measures are necessary.

Impact C-TR-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would result in less-than-significant cumulative impacts related to transportation. (*Less than Significant*)

Construction of the proposed project could overlap with construction of nearby cumulative development projects. The combined construction-related traffic would be temporary and would not result in permanent cumulative impacts related to transportation and circulation. Development of the proposed project in combination with nearby development projects would result in 12 dwelling units (eight net new), and living space and/or parking to existing residential buildings in the project vicinity. The development of the proposed project when combined with these development projects would not result in high volumes of daily and p.m. peak-hour transit, bicycle, and pedestrian trips. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects to result in a significant cumulative impact related to transportation and circulation.

³² *Ibid.*

<u>Topics:</u>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
5. NOISE. Would the project result in:					
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project site is not within an airport land use plan area or in the vicinity of a private airstrip. Therefore, Topics 5e and 5f are not applicable and will not be further discussed.

As discussed in the Project Description, the project site is in a residential area characterized by one to three-story single and multi-unit residential buildings. Background noise levels in the vicinity the project site are typical of noise levels in San Francisco’s residential neighborhoods and dominated by vehicular traffic (including cars, trucks, Muni buses, emergency vehicles) and periodic land use activities such as temporary construction-related noise and street maintenance. The City’s background noise levels map identifies traffic noise levels above 75 dBA (Ldn)³³ along the project site’s 17th Street and Roosevelt Way frontage and between 70 and 75 dBA (Ldn) along the project site’s Upper Terrace frontage. The interior of the project site has background noise levels between 65 and 75 dBA (Ldn).³⁴ The closest sensitive receptors are residences located adjacent to

³³ The term dBA refers to the sound level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and correlates well with subjective reactions to noise. “Ldn” refers to the average equivalent sound level over a 24-hour period, with a 10 dB penalty added to sounds which occur between the hours of 10 p.m. and 7a.m. to account for increased sensitivity to noise when people are generally asleep.

³⁴ City and County of San Francisco, *General Plan, Environmental Protection Element, Map 1 (Background*

the project site at 4508 17th Street, 580 and 582 Roosevelt Way, and 267 Upper Terrace. Other nearby sensitive receptors include several residences on Upper Terrace (opposite the uphill portion of the project site) and on 17th Street and Roosevelt Way (opposite the downhill portion of the project site).

Impact NO-1: Project demolition and construction would result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing conditions. (*Less than Significant with Mitigation*)

Temporary and periodic increases in ambient noise levels associated with project-related construction activities, such as the operation of certain tools, pieces of equipment, and trucks to haul excavated material, could disturb nearby residents. As discussed in the Project Description, construction of the proposed project would involve a number of phases over approximately three years. The construction activities with the highest noise levels would occur during excavation and earth shoring due to the use of large equipment, including impact equipment such as a hoe ram³⁵ and jackhammer. The excavation and earth shoring phase would take about 120 days. Approximately 13,640 cubic yards of dirt and rock in an area that is characterized by moderately to highly fractured chert belonging to the Franciscan Complex³⁶ would be excavated, requiring about 683 truckloads for removal from the site (assuming 20 cubic yard capacity haul trucks).

Construction noise varies with the construction phase and activity, and qualitative factors (e.g., duration and frequency of the noise and its proximity to sensitive receptors) are also taken into consideration in this analysis of whether the proposed project would result in a substantial temporary or periodic increase in the ambient noise level. For this reason, the quantitative criteria provided below are not strict thresholds for CEQA purposes, but rather quantitative information that is considered in combination with other qualitative factors to determine the significance of the proposed project's construction noise.

Section 2908 of San Francisco's Noise Ordinance restricts increases in ambient noise levels from construction work to 5 dBA at the nearest property line between 8 p.m. and 7 a.m. unless such work has been permitted by the director of public works and/or the director of the building inspection. There are no plans for nighttime work and construction of the proposed project would be required to comply with this element of the noise ordinance.³⁷

Noise Levels, 2009). This document is available for review at:
http://generalplan.sfplanning.org/images/I6.environmental/ENV_Map1_Background_Noise%20Levels.pdf.
Accessed August 8, 2017.

³⁵ A hoe ram is a powerful percussion hammer mounted on an excavator that can be used to demolish rock.

³⁶ Ryan Geological Consulting, Inc. *Geotechnical Investigation Report Proposed 5-Lot Subdivision Upper Terrace Above 17th Street and Roosevelt Way, San Francisco, California*. January 25, 2016.

³⁷ San Francisco's Noise Ordinance is found in article 29 of the Police Code, available at:
http://www.amlegal.com/codes/client/san-francisco_ca/. Accessed August 8, 2017.

Construction Equipment Noise

Given the moderately to highly fractured condition of the rock underlying the project site, the sponsor's contractor believes that the bulk of the rock proposed for excavation could be removed by an excavator.³⁸ As excavation approaches the proposed project's boundary and adjacent properties, the contractor would use a hand-held jackhammer or a hoe ram because these pieces of equipment allow for more targeted fracturing and removal of rock. The contractor would then use a front loader to place the excavated rock into dump trucks for transport to Baylands Soil Processing facility, a landfill in Brisbane.

The proposed project would use non-impact equipment (e.g., excavator and dump truck), and impact equipment (e.g., jackhammer and hoe ram). Non-impact tools may be evaluated according to the noise ordinance section 2907(a) limit of 80 dBA at a distance of 100 feet from the equipment noise source. Section 2907(b) of the noise ordinance conditionally exempts impact tools such as a hoe ram and jackhammer from the 80 dBA at 100 feet standard if they are equipped with noise attenuation mufflers and shields that are approved by the director of public works or the director of the building department as best accomplishing maximum noise attenuation.

The Federal Transit Administration provides guidelines for the analysis of both non-impact and impact construction equipment.³⁹ The guidelines recommend a standard of no more than 90 dBA (1-hour Leq) at the nearest sensitive receptor for the combined noise from the simultaneous operation of the two loudest pieces of construction equipment. Also per the transit administration guidelines, modeled combined construction noise levels are to be compared to the ambient noise levels in the area in order to determine if a 10 dBA above-ambient increase occurred.⁴⁰ This criterion addresses whether the project would result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. Therefore, the proposed project's potential construction equipment noise levels during the noisiest phase are evaluated according to the following three standards:

1. Comparing the noise-generating potential for each individual piece of equipment proposed for use with the noise ordinance section 2907(a) limit of 80 dBA at 100 feet (or equivalent sound level at some other convenient distance);
2. Comparing the combined noise level resulting from simultaneous operation of the two loudest pieces of equipment with the Federal Transit Administration's general

³⁸ Phone conversation between Ryan Borman, Dawton & Clinton GC, and Chris Thomas, Environmental Planner, San Francisco Planning Department, August 9, 2017.

³⁹ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06. p. 12-7. Available:

<https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/noise-and-vibration>.

Accessed: August 8, 2017

⁴⁰ A 10 dB increase above ambient would represent a doubling in the noise level – a potentially significant increase.

construction assessment criterion of 90 dBA 1-hour Leq⁴¹ at the nearest residential receptor; and

3. Determining if the combined noise level resulting from simultaneous operation of the two loudest pieces of equipment would be greater than 10 dBA above the background noise level.⁴²

For the first analysis, noise levels from individual pieces of non-impact equipment used for excavation and shoring work were compared to the section 2907(a) limit for construction equipment noise (i.e., 80 dBA at 100 feet). The nearest residential receptors to the project site are about 10 feet from where excavation would occur. Noise increases at a rate of about 6 dB per halving of the distance between the source and receptor (e.g., 80 dBA at 100 feet equates to approximately 100 dBA at a distance of 10 feet.)

Table 3 below provides the anticipated noise levels at distances of 50 and 100 feet for project excavation and foundation work equipment.

Table 3: Anticipated Noise Levels of Equipment for Construction of the Proposed Project

Equipment	Lmax at 10 feet (dBA)	Lmax at 100 feet (dBA)
Auger drill rig	98	78
Back hoe	92	72
Concrete mixer truck	93	73
Concrete pump truck	95	75
Dump truck	90	70
Jackhammer	103	83
Excavator	95	75
Hoe ram	104	84

Note: All values represent the maximum noise Lmax (which represents the maximum sound level measured during a given period of time), not the equivalent noise or Leq.

Bold text indicates the 2907(a) standard is exceeded.

Source: Federal Highway Administration, *Roadway Construction Noise Model User's Guide*, 2006. Available: http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf. Accessed August 8, 2017.

As indicated in Table 3, the non-impact equipment that would be used for excavation of the rock and earth shoring would not exceed the section 2907(a) standard of 80 dBA at 100 feet (or 100 dBA at 10 feet). However, the jackhammer and hoe ram do exceed this standard, but as impact tools they are conditionally exempt from the noise ordinance. Therefore, based on the construction noise

⁴¹ The 1-hour Leq (or Leq 1h) represents the equivalent steady-state sound level that, in one hour, would contain the same acoustical energy.

⁴² An increase of 10 dBA would represent a perceived doubling of noise above existing conditions, a potentially substantial temporary or periodic increase in ambient noise levels in the project vicinity.

standards in the noise ordinance, the noisiest construction phase for the proposed project would not result in substantial temporary or periodic increase in ambient noise levels in the project vicinity.

For the second and third analyses, the transit administration guidelines apply to the combined noise levels that would result from simultaneous operation of the two loudest pieces of equipment that could reasonably be expected to operate at the same time while taking into consideration their respective “usage factors.”⁴³ A usage factor represents the percentage of time that a piece of construction equipment is operating at full power. The time-varying noise levels are then converted to a single number (Leq-1 hour) for each piece of equipment during construction. When determining the noise level for simultaneously operating equipment, the decibel noise levels from the respective pieces of equipment cannot be added and subtracted arithmetically because the decibel is based on a logarithmic scale. In general, if the difference between two noise sources is 0 – 1 dBA, the resultant noise level will be 3 dBA higher than the louder noise source, or both sources if they are equal. If the difference between two noise sources is 2 – 3 dBA, the resultant noise level will be 2 dBA above the louder noise source. If the difference between two noise sources is 4 – 10 dBA, the resultant noise level will be 1 dBA higher than the louder noise source. If the difference between two noise sources is 10 dBA or more, the louder noise source will dominate and the resultant noise level will be equal to the noise level of the louder source.⁴⁴

The sponsor’s contractor has stated that it would be unlikely for two separate pieces of equipment to be operating simultaneously given the small size of the project site (which limits the area equipment can operate) and the incremental nature of removing the rock.⁴⁵ However, the approach noted above and recommended by the transit administration’s general construction assessment criteria is used here with an assumption that the two loudest pieces of equipment operating simultaneously during excavation would be the jackhammer and the hoe ram. Noise levels from combined operation of these two pieces of impact equipment were modeled in the Federal Highway Administration’s Roadway Construction Noise Model, wherein the jackhammer has an Lmax of 99 dBA at 10 feet and a usage factor of 0.2, and the hoe ram has an Lmax of 104 dBA at 10 feet and a usage factor of 0.2.⁴⁶ Operating together and accounting for their respective maximum

⁴³ The noise ordinance section 2907(a) standard applies to a single piece of equipment operating at full power.

⁴⁴ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06. p. 2-3. Available: <https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/noise-and-vibration>. Accessed: August 8, 2017

⁴⁵ Phone conversation between general contractor Ryan Borman and Chris Thomas, Environmental Planner, San Francisco Planning Department, August 9, 2017. As noted, most of the excavation would be done with the excavator; the hoe ram and jackhammer would be used relatively infrequently where the edge of the excavation approaches the property boundary and more precise rock removal is necessary. Note that the drill rig would be used to take geologic core samples prior to the start of excavation and is not expected to operate at the same time as other equipment.

⁴⁶ Chris Thomas, San Francisco Planning Department, *Construction Noise Modeling for Proposed 271 Upper Terrace Way Project*, August 24, 2017. A description of the Roadway Construction Noise Model is

noise levels and usage factors, these two pieces of equipment would produce a total noise level of about 99.6 dBA (Leq 1-hour) which is 9.6 dB above the transit administration construction noise criterion for residential land use of 90 dBA (Leq 1-hour). Their combined noise would also be greater than 10 dBA above the 70 and the 75 dBA background noise levels on Upper Terrace and 17th Street/Roosevelt Way frontages of the project site, respectively. Therefore, construction noise impacts related to an exceedance of the Federal Transit Administration's criteria for combined construction noise. As previously discussed, the construction activities with the highest noise levels would occur during excavation and earth shoring, which is anticipated to have a duration of 120 days out of the 36 months of construction. This duration of approximately four months would represent a substantial temporary increase in construction noise for nearby residential receptors. Noise from construction equipment, including impact and nonimpact equipment, would not violate the City's Noise Ordinance. However, construction activities associated with project-related development would expose nearby sensitive receptors to noise levels that would be in excess of the 90 dBA Leq Federal Transit Administration daytime criterion. Further, construction noise could result in a substantial (more than 10 dB) temporary increase in ambient noise levels at nearby offsite receptors. This would be a significant impact. Various measures are available to reduce construction noise, including the use of appropriately-sized and well-maintained equipment and the use of mufflers, shrouds and noise-reducing barriers. Implementation of Mitigation Measure M-NO-1: Prepare and Implement a Noise Control Plan to Reduce Construction Noise at Nearby Residences, which would require such measures, would reduce this substantial temporary or periodic increase in construction noise for nearby residential receptors to a less-than-significant level.

Mitigation Measure M-NO-1: Prepare and Implement a Noise Control Plan to Reduce Construction Noise at Nearby Residences.

The project sponsor shall develop a noise control plan that specifies noise-reducing measures to be applied during the construction period. The noise control plan shall be reviewed and approved by the planning department and the building department prior to the issuance of building permits. Measures that can be used to limit noise include, but are not limited to, those listed below.

- The contractor shall deploy temporary barriers, barrier-backed sound curtains and/or acoustical panels around working impact equipment and, if necessary, around the project site perimeter that would limit noise at the project site boundary to no more than 80 dBA.
- Impact tools (e.g., jackhammer, hoe ram) shall use an exhaust muffler on the compressed air exhaust which can lower noise levels by up to about 10 dBA. Use external jackets on jackhammers, which could achieve a reduction of 5 dBA. Equip power construction equipment with best available state-of-the-art noise-shielding and muffling devices. Properly maintain all equipment to prevent the generation of additional noise attributable to worn or improperly maintained parts.

available here: https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/. Accessed August 8, 2017.

- Select the smallest hoe ram necessary to perform the task, as smaller devices tend to produce less noise. Use quieter makes and models of hoe rams whenever feasible. Wrap a noise shroud enclosure around the head (i.e., chisel) of the hoe ram.
- Place stationary-source construction equipment that may have a flexible location onsite (e.g., generators and compressors) to maintain the greatest feasible distance from sensitive land uses.
- Prohibit the idling of inactive construction equipment for prolonged periods (i.e., more than five minutes).
- Take and submit noise measurements to the planning department and the building department for review of the effectiveness of noise attenuation measures. A plan for noise monitoring shall be included in the noise control plan to be provided to the planning department and the building department for review prior to the commencement of construction.
- Include a list of measures for responding to and tracking complaints pertaining to construction noise in the noise control plan to be provided to the planning department and the building department for review prior to the commencement of construction.

These measures shall include:

- Identification of measures that shall be implemented to control construction noise.
- A procedure and phone numbers for notifying the building department, the Department of Public Health, or the Police Department of complaints (during regular construction hours and off-hours).
- A sign posted onsite describing noise complaint procedures and complaint hotline number that shall be answered at all times during construction.
- Designation of an onsite construction complaint and enforcement manager for the project.
- A plan for notification of neighboring residents and nonresidential building managers within 300 feet of the project construction area at least 30 days in advance of extreme noise-generating activities (defined as a activities that generate noise levels of 90 dBA or greater) about the estimated duration of the activity and the associated control measures that shall be implemented to reduce noise levels.

Noise from Truck Hauling

As noted above, removal of excavated rock would require approximately 682 truckloads. Two routes are proposed for hauling the excavated material to Baylands Soil Processing: one route could proceed northeast down Roosevelt Way to 14th Street, east to Market Street, northeast to Duboce Avenue, east onto U.S. 101 at the Howard Street onramp, and thence south to Brisbane (about seven miles). The second route could proceed from the project site south to Market Street, southeast to Portola Drive, southeast to Junipero Serra Boulevard, south to Brotherhood Way, east to the I-280 eastbound onramp, and thence south on U.S. 101 to Brisbane (about 11 miles).

As indicated in Table 3 above, a dump truck would be expected to generate about 70 dBA (L_{max}) at a distance of 100 feet, the equivalent 76 dBA (L_{max}) at 50 feet or 90 dBA (L_{max}) at 10 feet, which would be below the section 2907(a) equivalent standards of 86 dBA at 50 feet or 100 dBA at 10 feet.

Haul truck activity would be temporary and intermittent. The total number of days with hauling would depend upon the hauling schedule as dictated by the pace of excavation; 10 trips per day would take about 60 days of hauling to remove all the excavated material while 20 trips per day would take about 30 days of hauling. For these reasons, haul trucks used during construction of the project are anticipated to meet the noise standard in the noise ordinance and would not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing conditions.

Impact NO-2: Construction of the proposed project could result in the generation of excessive groundborne vibration or groundborne noise levels related to the damage of buildings or the annoyance of persons. (*Less than Significant*)

Construction-Induced Vibration

The operation of heavy construction equipment, particularly pile-driving equipment and other impact devices (e.g., jackhammers, hoe rams), creates seismic waves that radiate along the surface of the ground and downward. These surface waves can be felt as ground vibration. Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. The most frequently used method to describe vibration impacts is *peak particle velocity*, which is defined as the maximum instantaneous peak of the vibration signal in inches per second.⁴⁷

Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. This attenuation is a complex function of how energy is imparted into the ground as well as the soil or rock conditions through which the vibration travels. Variations in geology can result in different vibration levels, with denser soils and rock generally resulting in more rapid attenuation over a given distance.

The effects of groundborne vibration on buildings include movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Fragile buildings and underground facilities, in particular those that are considered historic, are included in an analysis of groundborne vibration because of the potential for structural damage. In extreme cases, high levels of vibration can damage fragile buildings or interfere with sensitive equipment.

The rumbling sound caused by the vibration of room surfaces can also result in a phenomenon called groundborne noise, which can occur as a result of the low-frequency components from a specific steady source of vibration, such as a rail line. Receptors sensitive to vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment.

With the exception of long-term occupational exposure, groundborne noise from vibration rarely affects human health. Instead, most people consider vibration to be an annoyance that can affect

⁴⁷ Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment*, May 2006, pp. 8-1 to 8-3, Table 8-1. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf. Accessed August 7, 2017.

concentration or disturb sleep. People may tolerate infrequent, short-duration vibration levels, but human annoyance to vibration becomes more pronounced if the vibration is continuous or occurs frequently. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. Annoyance generally occurs in reaction to newly introduced sources of noise that interrupt ongoing activities. Community annoyance is a summary measure of the general adverse reaction of people to noise that causes speech interference, sleep disturbance, or interference with the desire for a tranquil environment.⁴⁸ People react to the duration of groundborne noise events, judging longer events to be more annoying than shorter ones. Construction noise or vibration also often generates complaints, especially during lengthy periods of heavy construction, when nighttime construction is undertaken to avoid disrupting workday activity, or when the adjacent community has no clear understanding of the extent or duration of the construction.⁴⁹ Nighttime construction would not occur with the proposed project.

The City does not have regulations that define acceptable levels of vibration. Therefore, this analysis references a Federal Transit Administration publication concerning noise and vibration impact assessment from transit activities⁵⁰ and other relevant sources.

Construction Vibration Standards for Nearby Buildings and Persons

As noted above, construction of the proposed project would require excavation of approximately 13,640 cubic yards in an area that is characterized by moderately to highly fractured chert belonging to the Franciscan Complex. As also noted above, much of this rock could be broken apart and removed by means of an excavator, but as the excavation approaches adjacent property boundaries a jackhammer or hoe ram would be used because they are capable of more targeted fracturing and removal of the rock. The vibration generated by these and other pieces of equipment and vehicles that would be used for construction of the proposed project are provided in Table 4.

⁴⁸ Ibid, pp. 2-13 to 2-17

⁴⁹ Ibid. p. 12-1.

⁵⁰ City and County of San Francisco, City of San Francisco General Plan, December 2, 2004. Available: www.sf-planning.org/ftp/general_plan/index.htm. Accessed August 14, 2017.

**Table 4. Vibration Source Levels for Construction Equipment, Peak Particle Velocity
(inch/second)**

Equipment	25 Feet	50 Feet	75 Feet	100 Feet	175 Feet
Hoe ram	0.089	0.0315	0.0171	0.0111	0.0048
Large bulldozer	0.089	0.0315	0.0171	0.0111	0.0048
Loaded trucks	0.076	0.0269	0.0146	0.0095	0.0041
Jackhammer	0.035	0.0124	0.0067	0.0044	0.0019
Small bulldozer	0.0003	0.0011	0.0006	0.0004	0.0002

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, Office of Planning and Environment. Available: http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf. Accessed: August 10, 2017.

Residences are within 10 feet of the project site on its west, north and east sides. As Table 4 does not provide an estimate for the peak particle velocity that would result at a distance of 10 feet, the following equation, recommended by Caltrans,⁵¹ is used to determine the level of vibration at these nearest residences resulting from use of the hoe ram:

$$PPV_{\text{equip}} = PPV_{\text{ref}}(25/D)^n$$

Where:

PPV_{equip}: the Peak Particle Velocity (PPV) at 25 feet measured in inches/sec

PPV_{ref}: the PPV at the distance being measured

D: the distance being measured

n: a value determined by soil conditions, ranging from 1.5 to 1

The peak particle velocity measured at 25 feet for the hoe ram is 0.89. The distance being measured is 10 feet. For the n value reflecting soil conditions through which the vibration would travel, Caltrans provides the following information in Table 5:

⁵¹ Caltrans, *Transportation and Construction Vibration Guidance Manual*, September 2013. Available: http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf. Accessed August 23, 2017.

Table 5. Measured and Suggested “n” Values Based on Soil Class

Soil Class	Description of Soil Material	Value of “n” measured by Woods and Jedele	Suggested Value of “n”
I	Weak or soft soils: loose soils, dry or partially saturated peat and muck, mud, loose beach sand, and dune sand, recently plowed ground, soft spongy forest or jungle floor, organic soils, top soil. (shovel penetrates easily)	Data not available	1.4
II	Competent soils: most sands, sandy clays, silty clays, gravel, silts, weathered rock. (can dig with shovel)	1.5	1.3
III	Hard soils: dense compacted sand, dry consolidated clay, consolidated glacial till, some exposed rock. (cannot dig with shovel, need pick to break up)	1.1	1.1
IV	Hard, competent rock: bedrock, freshly exposed hard rock (difficult to break with hammer)	Data not available	1.0

Source: Caltrans, *Transportation and Construction Vibration Guidance Manual*, September 2013. Available: http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf. Accessed August 23, 2017.

As indicated, Caltrans recommends an *n*-value of 1.0 for “hard, competent rock, bedrock, exposed rock” that characterizes the chert bedrock beneath the project site. Utilizing the equation above, a lower *n*-value is associated with a lower peak particle velocity level—that is, harder rock reduces vibration more quickly than looser rock or soils. In order to obtain a conservative (worst-case) result, an *n*-value of 1.5, the maximum value, was used. Therefore:

$$0.89 \text{ (inch/second)} = \text{PPVref} (25/10)^{1.5} = \text{PPVref} (3.95) \text{ (inch/second)}$$

$$\text{PPVref} = 0.89/3.95 = 0.22 \text{ (inch/second)}$$

Therefore, a conservative estimate of the peak particle velocity of the hoe ram at the nearest residences would be about 0.22 inches per second. Depending upon the intensity of groundborne vibration, the condition of a structure, the distance between a structure and a piece of equipment such as a hoe ram, and the characteristics of the substrate through which the vibration travels, vibration has the potential to cause cosmetic or, in unusual cases, structural damage. Guidelines for the potential damage to buildings are provided in Table 6.

Table 6. Guidelines for Vibration Damage Potential

Structure and Condition	Maximum Peak Particle Velocity (inch/second)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Note: Transient sources create a single, isolated vibration event (e.g., blasting or drop balls). Continuous/frequent intermittent sources include hoe rams, impact pile drivers, pogo-tick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.
Source: California Department of Transportation. 2013. *Transportation and Construction Vibration Guidance Manual, Table 19*. September.
Available: http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf. Accessed: August 12, 2017.

None of the nearby dwellings are identified as historic resources in the City’s Property Information Map database.⁵² Visual inspection of the structures closest to the project site (4508 17th Street, 580 Roosevelt Way, and 267 Upper Terrace) indicates they may reasonably be considered newer residential structures that would be less susceptible to groundborne vibration. However, in order to provide a more conservative analysis, these three closest structures are considered older residential structures, with a reference peak particle velocity standard of 0.3 inches per second. The hoe ram’s peak particle velocity of 0.22 inches per second at a distance of 10 feet – as noted in the analysis above, a conservative estimate – is below the peak particle velocity standard for older residential structures of 0.3 inches per second for continuous/frequent intermittent sources provided in Table 6.

Groundborne vibration has the potential to affect persons (again, depending upon the intensity of vibration, its distance between source and resident, and the material through which the vibration travels). Table 7 provides guidelines for the annoyance. As a frequent or intermittent source, the hoe ram’s peak particle velocity of 0.22 inches per second at 10 feet would be between distinctly and strongly perceptible to adjacent residents, which would represent a less-than-significant

⁵² The San Francisco Property Information Map is available at: <http://propertymap.sfplanning.org/>. Accessed August 14, 2017.

impact with respect to annoyance. Additionally, vibration from the hoe ram would not be expected to disturb the sleep of nearby residents because it would occur intermittently during daylight hours during the excavation and shoring phases.

Table 7. Guidelines for Vibration Annoyance Potential

Human Response	Maximum PPV (inch/second)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Note: Transient sources create a single, isolated vibration event (e.g., blasting or drop balls). Continuous/frequent intermittent sources include impact pile drivers, pogo-tick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.
Source: California Department of Transportation. 2013. *Transportation and Construction Vibration Guidance Manual, Table 19*. September.
Available: http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf. Accessed: August 12, 2017.

Therefore, the potential for construction of the project to result in a vibration-related impact to either neighboring structures or residents would be considered less than significant, and no mitigation measures are necessary.

Impact NO-3: The proposed project would not result in the exposure of persons to or generation of noise levels in excess of established standards, nor would the proposed project result in a substantial permanent increase in ambient noise levels. (*Less than Significant*)

*Applicable Noise Standards*⁵³

California has established requirements for the construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings that are intended to limit the extent of noise transmitted into habitable spaces. These requirements are collectively known as the California Noise Insulation Standards (California Code of Regulations, title 24, part 2). The Noise Insulation Standards are provided in section 1207 of the 2016 California Building Standards Code and set forth an interior standard of 45 dBA L_{dn}/CNEL in any habitable room. (The Noise Insulation Standards are incorporated in the San Francisco Building Code.) The California Building Standards Code requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than 60 dBA L_{dn}/CNEL. Title 24 standards are typically enforced by local jurisdictions through the

⁵³ The applicable noise standards discussed in this analysis apply to a project’s operation (project-related traffic, mechanical noise, etc.). Applicable standards for construction noise and vibration are discussed in Impacts NO-1 and NO-2.

building permit application process. In San Francisco, the building department is responsible for enforcing title 24 requirements.

This interior noise limit may be considered in the context of federal and state guidelines regarding the compatibility of various land uses (including residential) in relation to the levels of exterior background noise. (Note that standard residential construction can typically provide an exterior-to-interior noise reduction of 15 to 25 dB.)⁵⁴ For example, the U.S. Department of Housing and Urban Development has developed minimum national noise standards for land use compatibility. The federal housing department considers background noise levels below 65 dB as generally “acceptable,” between 65 and 75 dB as “normally unacceptable,” and in excess of 75 dB as “unacceptable” for residential land uses.⁵⁵

In California, OPR has developed similar statewide guidelines⁵⁶ which have largely been incorporated into the San Francisco General Plan, in particular Policy 11.1 of the Environmental Protection Element.⁵⁷ Policy 11.1 contains a Land Use Compatibility Chart for Community Noise displaying the acceptable, conditionally acceptable, conditionally unacceptable, and unacceptable noise levels for a variety of land uses in the City. These noise levels provide the City’s guidance as to when, depending upon the type of land use proposed for development, a noise analysis should occur. For residential land uses, sound levels less than 60 dBA (Ldn) are considered satisfactory, with no special noise insulation or noise study requirements. Sound levels from 60 to 70 dBA (Ldn) are considered conditionally acceptable and the project should be undertaken only after a detailed analysis of noise reduction requirements and identification of noise insulation necessary to meet applicable interior noise standards is undertaken. When background noise levels are above 70 dBA (Ldn), the Land Use Compatibility Chart states that a detailed noise analysis is required.

The proposed project would be occupied by residents in an area where the background noise levels, ranging from 70 to greater than 75 dBA, are defined as conditionally unacceptable by the Land Use Compatibility Chart and, therefore, a noise study is required to identify the insulation necessary for the proposed project to meet the title 24 interior noise standard of 45 dBA. However, for purposes of this analysis, the California Supreme Court held, in a decision issued on December 17, 2015, that CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project’s future users or residents except where a project or its residents may exacerbate existing environmental hazards.⁵⁸ As discussed below, noise from operation of the proposed project (that is, once it is built and occupied) would not exacerbate

⁵⁴ Federal Highway Administration, *Highway Traffic Noise: Analysis and Abatement Guidance*, 2011, available at: https://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/analysis_and_abatement_guidance/revguidance.pdf). Accessed August 10, 2018.

⁵⁵ Code of Federal Regulations, title 24, part 51, section 51.100 – 51.105.

⁵⁶ Office of Planning and Research. *State of California General Plan Guidelines*. October, 2003.

⁵⁷ San Francisco General Plan. Environmental Protection Element, Policy 11.1. Available at: http://www.sf-planning.org/ftp/General_Plan/index.htm. Accessed: August 10, 2017.

⁵⁸ *California Building Industry Association v. Bay Area Air Quality Management District*, December 17, 2015, Case No. S213478. Available: <http://www.courts.ca.gov/documents/2-s213478-app-answer-pet-rev-100413.pdf>. Accessed August 12, 2017.

existing noise conditions in the vicinity of the project site. In any event, the proposed project would be subject to the San Francisco Building Code section 1207 and title 24 interior noise standards discussed above and, if deemed necessary by the building department, a detailed acoustical analysis taking into account the project site's existing noise levels would be required to ensure that interior noise levels do not exceed 45 dBA. Compliance with this interior noise standard would ensure the proposed project's consistency with the Land Use Compatibility Chart guidance.

Result in a Substantial Permanent Increase in Ambient Noise Levels

Noise associated with operation of the proposed project could result from fixed mechanical equipment (such as heating, ventilation, and air conditioning systems) and new vehicular traffic by the project's residents. Regarding fixed mechanical noise, large (potentially noisy) centralized equipment is not proposed for the three residential buildings. Regardless, section 2909(a)(1) of the City's Noise Ordinance limits noise from residential property produced by any machine, device, music or entertainment or any combination of same to a level of no more than 5 dBA above ambient at any point outside the property plane. Further, section 2909(d) of the noise ordinance limits the noise level measured inside any sleeping or living room in any dwelling unit located on residential property to 45 dBA between the hours of 10 p.m. to 7 a.m. and 55 dBA between the hours of 7 a.m. to 10 p.m. with the windows open. Compliance with these sections of the City's Noise Ordinance would ensure that noise from mechanical equipment and other fixed sources, should they ever be present, would be less than significant.

Regarding noise from vehicular travel by the proposed project's residents, traffic noise increases of 3 dBA are barely perceptible to people, while a 5 dBA increase is clearly noticeable.⁵⁹ As noted, the proposed project would be located in an area with noise levels defined as conditionally unacceptable by the Land Use Compatibility Chart. Thus, even a barely perceptible increase of 3 dBA in the existing ambient noise level due to project-related traffic would be considered significant. In order to raise the existing background noise level around the project site by 3 dBA, the project would have to approximately double the existing traffic volume. As discussed in the Transportation and Circulation section, the proposed project would generate 49 person trips by auto on local roadways, an increase that would not represent a doubling of existing traffic volumes.

For these reasons, the project would not result in a substantial permanent increase in ambient noise levels. Therefore, the proposed project would have a less-than-significant impact with regards to the exposure of persons to or generation of noise levels in excess of standards established in the local general plan, noise ordinance or applicable standards of other agencies, or a substantial permanent increase in ambient noise levels. The impact would be less than significant and no mitigation is required.

⁵⁹ California Department of Transportation, Division of Environmental Analysis. *Technical Noise Supplement*, pp. 2-48 and 2-49, November 2009. Available: http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf. Accessed August 12, 2017.

Impact C-NO-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would result in less-than-significant cumulative impacts related to noise and vibration. (*Less than Significant*)

Construction

The planning department’s Geographic Information System database was queried to identify projects within 500 feet of the project site for which an application has been received, are under construction, or have recently completed construction. No substantial active or reasonably foreseeable future projects within 500 feet of the project site were found and a cumulative construction noise impact is not present.⁶⁰ Therefore, the proposed project, in combination with past, present, and reasonably foreseeable future projects, would result in less-than-significant cumulative impacts related to construction noise and vibration.

Operation

As discussed in Impact NO-3, the proposed project would not include new fixed mechanical noise sources and the project-related contribution of 17 p.m. peak-hour vehicle trips would represent a small fraction of existing traffic volumes that would not contribute substantially to existing traffic. Given that the project vicinity is fully developed, there is little likelihood of substantial new development (residential or otherwise), a cumulative impact with regards to operational noise is unlikely. In any event, the proposed project would result in a less-than-significant impact with regards to operational noise and therefore would not be expected to contribute considerably to a cumulative noise condition, in the unlikely event one was to occur. Furthermore, the proposed project and future projects in the vicinity primarily consist of residential uses that do not typically generate substantial operational noise and are subject to the noise ordinance’s residential noise limits.

For these reasons, the proposed project, in combination with past, present and reasonably foreseeable future projects would not result in a considerable contribution to a permanent increase in noise or vibration near the project site. This impact would be less than significant and no mitigation measure would be required.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
6. AIR QUALITY. Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

⁶⁰ San Francisco Planning Department Geographic Information System, *Planning Applications Layer*, queried February 15, 2018.

<u>Topics:</u>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal, state, or regional ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Bay Area Air Quality Management District is the regional agency with jurisdiction over the nine-county San Francisco Bay Area Air Basin, which includes San Francisco, Alameda, Contra Costa, Marin, San Mateo, Santa Clara, and Napa counties and portions of Sonoma and Solano counties. The air district is responsible for attaining and maintaining federal and state air quality standards in the air basin, as established by the federal Clean Air Act and the California Clean Air Act, respectively. Specifically, the air district has the responsibility to monitor ambient air pollutant levels throughout the air basin and to develop and implement strategies to attain the applicable federal and state standards. The federal and state clean air acts require plans to be developed for areas that do not meet air quality standards, generally. The most recent air quality plan, the 2017 Clean Air Plan, was adopted by the air district on April 19, 2017. The 2017 Clean Air Plan updates the most recent Bay Area ozone plan, the 2010 Clean Air Plan, in accordance with the requirements of the state Clean Air Act to implement all feasible measures to reduce ozone; provide a control strategy to reduce particulate matter, air toxics, and greenhouse gases in a single, integrated plan; and establish emission control measures to be adopted or implemented. The 2017 Clean Air Plan contains the following primary goals:

- Protect air quality and health at the regional and local scale: Attain all state and national air quality standards, and eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants; and
- Protect the climate: Reduce Bay Area greenhouse gas emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

The 2017 Clean Air Plan is the most current applicable air quality for the air basin. Consistency with this plan is the basis for determining whether the proposed project would conflict with or obstruct implementation of an air quality plan.

Criteria Air Pollutants

In accordance with the state and federal clean air acts, air pollutant standards are identified for the following six *criteria air pollutants*: ozone, carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead. These air pollutants are termed criteria air pollutants because they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. In general, the air basin experiences low concentrations of most

pollutants when compared to federal or state standards. The air basin is designated as either in attainment⁶¹ or unclassified for most criteria air pollutants with the exception of ozone, fine particulate (PM_{2.5}),⁶² and coarse particulate (PM₁₀),⁶³ for which these pollutants are designated as non-attainment for either the state or federal standards. By its very nature, regional air pollution is largely a cumulative impact in that no single project is sufficient in size to, by itself, result in non-attainment of air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality impacts. If a project's contribution to cumulative air quality impacts is considerable, then the project's impact on air quality would be considered significant.⁶⁴

Land use projects may contribute to regional criteria air pollutants during the construction and operational phases of a project. Table 8 identifies air quality significance thresholds followed by a discussion of each threshold. Projects that would result in criteria air pollutant emissions below these significance thresholds would not violate an air quality standard, contribute substantially to an air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants within the air basin.

Table 8: Criteria Air Pollutant Significance Thresholds

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (pounds/day)	Average Daily Emissions (pounds/day)	Maximum Annual Emissions (tons/year)
ROG	54	54	10
NO _x	54	54	10
PM ₁₀	82 (exhaust)	82	15
PM _{2.5}	54 (exhaust)	54	10
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	

Ozone Precursors. As discussed previously, the air basin is currently designated as non-attainment for ozone and particulate matter. Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NO_x). The potential for a project to result in a cumulatively considerable net increase in criteria air pollutants, which may contribute to an existing or projected air quality violation, are based on the state and federal clean air acts emissions limits for stationary sources. To ensure that new stationary sources do not cause or contribute to a violation of an air quality standard, air district regulation 2, rule 2 requires that any new source that emits criteria air

⁶¹ "Attainment" status refers to those regions that are meeting federal and/or state standards for a specified criteria pollutant. "Non-attainment" refers to regions that do not meet federal and/or state standards for a specified criteria pollutant. "Unclassified" refers to regions where there is not enough data to determine the region's attainment status for a specified criteria air pollutant.

⁶² PM_{2.5}, termed "fine" particulate matter, is composed of particles that are 2.5 microns or less in diameter.

⁶³ PM₁₀ is often termed "coarse" particulate matter and is made of particulates that are 10 microns in diameter or smaller.

⁶⁴ Bay Area Air Quality Management District (BAAQMD), *California Environmental Quality Act Air Quality Guidelines*, May 2017, page 2-1.

pollutants above a specified emissions limit must offset those emissions. For ozone precursors ROG and NO_x, the offset emissions level is an annual average of 10 tons per year (or 54 pounds per day).⁶⁵ These levels represent emissions below which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants.

Although this regulation applies to new or modified stationary sources, land use development projects result in ROG and NO_x emissions as a result of increases in vehicle trips, architectural coating, and construction activities. Therefore, the above thresholds can be applied to the construction and operational phases of land use projects and those projects that result in emissions below these thresholds would not be considered to contribute to an existing or projected air quality violation or result in a considerable net increase in ROG and NO_x emissions. Due to the temporary nature of construction activities, only the average daily thresholds are applicable to construction phase emissions.

Particulate Matter. The air district has not established an offset limit for PM_{2.5}. However, the emissions limit in the federal New Source Review for stationary sources in nonattainment areas is an appropriate significance threshold. For PM₁₀ and PM_{2.5}, the emissions limit under New Source Review is 15 tons per year (82 pounds per day) and 10 tons per year (54 pounds per day), respectively. These emissions limits represent levels below which a source is not expected to have an impact on air quality.⁶⁶ Similar to ozone precursor thresholds identified above, land use development projects typically result in particulate matter emissions as a result of increases in vehicle trips, space heating and natural gas combustion, landscape maintenance, and construction activities. Therefore, the above thresholds can be applied to the construction and operational phases of a land use project. Again, because construction activities are temporary in nature, only the average daily thresholds are applicable to construction-phase emissions.

Fugitive Dust. Fugitive dust emissions are typically generated during construction phases. Studies have shown that the application of *best management practices* at construction sites significantly control fugitive dust⁶⁷ and individual measures have been shown to reduce fugitive dust by anywhere from 30 to 90 percent.⁶⁸ The air district has identified a number of best management practices to control fugitive dust emissions from construction activities.⁶⁹ The City's Construction Dust Control Ordinance (ordinance 176-08, effective July 30, 2008) requires a number of measures to control fugitive dust and the best management practices employed in compliance with the ordinance are an effective strategy for controlling construction-related fugitive dust.

Other Criteria Pollutants. Regional concentrations of CO in the Bay Area have not exceeded the state standards in the past 11 years and SO₂ concentrations have never exceeded the standards. The

⁶⁵ BAAQMD, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, page 17.

⁶⁶ BAAQMD, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, page 16.

⁶⁷ Western Regional Air Partnership. 2006. *WRAP Fugitive Dust Handbook*. September 7, 2006. This document is available online at http://www.wrapair.org/forums/dejff/dh/content/FDHandbook_Rev_06.pdf, accessed February 16, 2012.

⁶⁸ BAAQMD, *CEQA Air Quality Guidelines*, May 2017, page D-47.

⁶⁹ *Ibid.*

primary source of CO emissions from development projects is vehicle traffic. Construction-related SO₂ emissions represent a negligible portion of the total basin-wide emissions and construction-related CO emissions represent less than five percent of the Bay Area total basin-wide CO emissions. As discussed previously, the Bay Area is in attainment for both CO and SO₂. Furthermore, the air district has demonstrated, based on modeling, that to exceed the California ambient air quality standard of 9.0 parts per million (8-hour average) or 20.0 parts per million (1-hour average) for CO, project traffic in addition to existing traffic would need to exceed 44,000 vehicles per hour at affected intersections (or 24,000 vehicles per hour where vertical and/or horizontal mixing is limited). Therefore, given the Bay Area's attainment status and the limited CO and SO₂ emissions that could result from development projects, development projects would not result in a cumulatively considerable net increase in CO or SO₂ emissions, and quantitative analysis is not required.

Local Health Risks and Hazards

In addition to criteria air pollutants, individual projects may emit toxic air contaminants (TACs). TACs collectively refer to a diverse group of air pollutants that are capable of causing chronic (i.e., of long-duration) and acute (i.e., severe but short-term) adverse effects to human health, including carcinogenic effects. Human health effects of TACs include birth defects, neurological damage, cancer, and mortality. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

Unlike criteria air pollutants, TACs do not have ambient air quality standards but are regulated by the air district using a risk-based approach to determine which sources and pollutants to control as well as the degree of control. A *health risk assessment* is an analysis in which human health exposure to toxic substances is estimated, and considered together with information regarding the toxic potency of the substances, to provide quantitative estimates of health risks.⁷⁰

Air pollution does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. Land uses such as residences, schools, children's day care centers, hospitals, and nursing and convalescent homes are considered to be the most sensitive to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress or, as in the case of residential receptors, their exposure time is greater than that for other land uses. Therefore, these groups are referred to as sensitive receptors. Exposure assessment guidance typically assumes that residences would be exposed to air pollution 24 hours per day, seven days a week, for 30 years.⁷¹ Therefore, assessments

⁷⁰ In general, a health risk assessment is required if the air district concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggest a potential public health risk. The applicant is then subject to a health risk assessment for the source in question. Such an assessment generally evaluates chronic, long-term effects, estimating the increased risk of cancer as a result of exposure to one or more TACs.

⁷¹ California Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spot Program Risk Assessment Guidelines*, February, 2015. Pg. 4-44, 8-6

of air pollutant exposure to residents typically result in the greatest adverse health outcomes of all population groups.

Exposures to PM_{2.5} are strongly associated with mortality, respiratory diseases, and lung development in children, and other endpoints such as hospitalization for cardiopulmonary disease.⁷² In addition to PM_{2.5}, diesel particulate matter (DPM) is also of concern. The California Air Resources Board identified DPM as a TAC in 1998, primarily based on evidence demonstrating cancer effects in humans.⁷³ The estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other TAC routinely measured in the region.

In an effort to identify areas of San Francisco most adversely affected by sources of TACs, San Francisco partnered with the air district to conduct a citywide health risk assessment based on an inventory and assessment of air pollution and exposures from mobile, stationary, and area sources within San Francisco. Areas with poor air quality, termed the *air pollutant exposure zone*, were identified based on health-protective criteria that consider estimated cancer risk, exposures to fine particulate matter, proximity to freeways, and locations with particularly vulnerable populations. The project site is not located within the air pollutant exposure zone. Each of the air pollutant exposure zone criterion is discussed below.

Excess Cancer Risk. The air pollutant exposure zone includes areas where modeled cancer risk exceeds 100 incidents per million persons exposed. This criterion is based on U.S. Environmental Protection Agency (U.S. EPA) guidance for conducting air toxic analyses and making risk management decisions at the facility and community-scale level.⁷⁴ As described by the air district, the U.S. EPA considers a cancer risk of 100 per million to be within the “acceptable” range of cancer risk. Furthermore, in the 1989 preamble to the benzene National Emissions Standards for Hazardous Air Pollutants rulemaking,⁷⁵ the U.S. EPA states that it “...strives to provide maximum feasible protection against risks to health from hazardous air pollutants by (1) protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately one in one million, and (2) limiting to no higher than approximately one in ten thousand [100 in one million] the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years.” The 100 per one million excess cancer cases is also consistent with the ambient cancer risk in the most pristine portions of the Bay Area based on air district regional modeling.⁷⁶

Fine Particulate Matter. The U.S. EPA staff’s 2011 review of the federal PM_{2.5} standard concluded that the then current federal annual PM_{2.5} standard of 15 micrograms per cubic meter (µg/m³) should be revised to a level within the range of 13 to 11 µg/m³, with evidence strongly supporting

⁷² SFDPH, *Assessment and Mitigation of Air Pollutant Health Effects from Intra-Urban Roadways: Guidance for Land Use Planning and Environmental Review*, May 2008.

⁷³ California Air Resources Board (ARB), Fact Sheet, “The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines,” October 1998.

⁷⁴ BAAQMD, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, page 67.

⁷⁵ 54 Federal Register 38044, September 14, 1989.

⁷⁶ BAAQMD, *Clean Air Plan*, May 2017, page D-43.

a standard within the range of 12 to 11 $\mu\text{g}/\text{m}^3$.⁷⁷ The air pollutant exposure zone for San Francisco is based on the health protective $\text{PM}_{2.5}$ standard of 11 $\mu\text{g}/\text{m}^3$, as supported by the U.S. EPA's assessment, although lowered to 10 $\mu\text{g}/\text{m}^3$ to account for uncertainty in accurately predicting air pollutant concentrations using emissions modeling programs.

Proximity to Freeways. According to the California Air Resources Board, studies have shown an association between the proximity of sensitive land uses to freeways and a variety of respiratory symptoms, asthma exacerbations, and decreases in lung function in children. Siting sensitive uses in close proximity to freeways increases both exposure to air pollution and the potential for adverse health effects. As evidence shows that sensitive uses in an area within a 500-foot buffer of any freeway are at an increased health risk from air pollution,⁷⁸ parcels that are within 500 feet of freeways are included in the air pollutant exposure zone.

Health Vulnerable Locations. Based on the air district's evaluation of health vulnerability in the Bay Area, those zip codes (94102, 94103, 94105, 94124, and 94130) in the worst quintile of Bay Area health vulnerability scores as a result of air pollution-related causes were afforded additional protection by lowering the standards for identifying parcels in the air pollutant exposure zone to: (1) an excess cancer risk greater than 90 per one million persons exposed, and/or (2) $\text{PM}_{2.5}$ concentrations in excess of 9 $\mu\text{g}/\text{m}^3$.⁷⁹

The above citywide health risk modeling was also used as the basis in approving amendments to the San Francisco Building and Health codes, referred to as the Enhanced Ventilation Required for Urban Infill Sensitive Use Developments or Health Code, article 38 (ordinance 224-14, effective December 8, 2014) (article 38). The purpose of article 38 is to protect the public health and welfare by establishing an air pollutant exposure zone and imposing an enhanced ventilation requirement for all urban infill sensitive use development within the air pollutant exposure zone. In addition, projects within the air pollutant exposure zone require special consideration to determine whether the project's activities would add a substantial amount of emissions to areas already adversely affected by poor air quality.

Construction Air Quality Impacts

Project-related air quality impacts fall into two categories: short-term impacts from construction and long-term impacts from project operation. The following addresses construction-related air quality impacts resulting from the proposed project.

Impact AQ-1: The proposed project's construction activities would generate fugitive dust and criteria air pollutants, but would not violate an air quality standard, contribute substantially to

⁷⁷ U.S. EPA, *Policy Assessment for the Review of the Particulate Matter National Ambient Air Quality Standards*.

"Particulate Matter Policy Assessment." April 2011. Available online at:

<https://www3.epa.gov/ttn/naaqs/standards/pm/data/20110419pmpafinal.pdf>.

⁷⁸ California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005. Available online at: <http://www.arb.ca.gov/ch/landuse.htm>.

⁷⁹ San Francisco Planning Department and San Francisco Department of Public Health, *2014 Air Pollutant Exposure Zone Map (Memo and Map)*, April 9, 2014. These documents are part of San Francisco Board of Supervisors File No. 14806, Ordinance No. 224-14; Amendment to Health Code Article 38.

an existing or projected air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants. (*Less than Significant*)

Construction activities (short-term) typically result in emissions of ozone precursors and fine particulate matter in the form of dust (fugitive dust) and exhaust (e.g., vehicle tailpipe emissions). Emissions of ozone precursors and fine particulate matter are primarily a result of the combustion of fuel from on-road and off-road vehicles. However, ROG emissions are also emitted from activities that involve painting, other types of architectural coatings, or asphalt paving. The proposed project would excavate the hillside, demolish the existing single-family dwelling on the new Lot 32A to construct a new two-family unit and three off-street parking spaces, renovate the existing two-family dwelling, and retaining the two-car garage plus adding a space for a total of three cars on the new Lot 035A; construct a new, two-family dwelling with three-car garage on the new Lot 032B; construct a new, two-family dwelling with four-car garage on and Lot 034, and construct a new two-family dwelling with a three-car garage on the new Lot 035B. Collectively, the proposed project would result in seven new dwelling units and 11 new off-street parking spaces, as compared to the existing lots. During the project's approximately 37 month construction period, construction activities would have the potential to result in emissions of ozone precursors and fine particulate matter, as discussed below.

Fugitive Dust

Project-related demolition, excavation, grading, and other construction activities may cause wind-blown dust that could contribute particulate matter into the local atmosphere. Depending on exposure, adverse health effects can occur due to this particulate matter in general and also due to specific contaminants such as lead or asbestos that may be constituents of soil. Although there are federal standards for air pollutants and implementation of state and regional air quality control plans, air pollutants continue to have impacts on human health throughout the country. California has found that particulate matter exposure can cause health effects at lower levels than national standards. The current health burden of particulate matter demands that, where possible, public agencies take feasible available actions to reduce sources of particulate matter exposure. According to the California Air Resources Board, reducing PM_{2.5} concentrations to state and federal standards of 12 µg/m³ in the San Francisco Bay Area would prevent between 200 and 1,300 premature deaths.⁸⁰

In response, the San Francisco Board of Supervisors approved the Construction Dust Control Ordinance (ordinance 176-08, effective July 30, 2008) with the intent of reducing the quantity of dust generated during site preparation, demolition and construction work in order to protect the health of the general public and of onsite workers, minimize public nuisance complaints, and to avoid orders to stop work by the building department.

The Construction Dust Control Ordinance requires that all site preparation work, demolition, or other construction activities within San Francisco that have the potential to create dust or to expose or disturb more than 10 cubic yards or 500 square feet of soil comply with specified dust control measures whether or not the activity requires a permit from the building department. The director

⁸⁰ ARB, *Methodology for Estimating Premature Deaths Associated with Long-term Exposure to Fine Airborne Particulate Matter in California*, Staff Report, Table 4c, October 24, 2008.

of the building department may waive this requirement for activities on sites less than one half-acre that are unlikely to result in any visible wind-blown dust.

In compliance with the Construction Dust Control Ordinance, the project sponsor and the contractor responsible for construction activities at the project site would be required to use the following practices to control construction dust on the site or other practices that result in equivalent dust control that are acceptable to the director. Dust suppression activities may include watering all active construction areas sufficiently to prevent dust from becoming airborne; increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. During excavation and dirt-moving activities, contractors shall wet sweep or vacuum the streets, sidewalks, paths, and intersections where work is in progress at the end of the workday. Inactive stockpiles (where no disturbance occurs for more than seven days) greater than 10 cubic yards or 500 square feet of excavated material, backfill material, import material, gravel, sand, road base, and soil shall be covered with a 10 mil (0.01 inch) polyethylene plastic (or equivalent) tarp, braced down, or use other equivalent soil stabilization techniques. San Francisco ordinance 175-91 restricts the use of potable water for soil compaction and dust control activities undertaken in conjunction with any construction or demolition project occurring within the boundaries of San Francisco, unless permission is obtained from the SFPUC. Non-potable water must be used for soil compaction and dust control activities during project construction and demolition. The SFPUC operates a recycled water truck-fill station at the Southeast Water Pollution Control Plant that provides recycled water for these activities at no charge.

Compliance with the regulations and procedures set forth by the Dust Control Ordinance would ensure that potential dust-related air quality impacts would be reduced to a less-than-significant level.

Criteria Air Pollutants

As discussed above, construction activities would result in emissions of criteria air pollutants from the use of off- and on-road vehicles and equipment. To assist lead agencies in determining whether short-term construction-related air pollutant emissions require further analysis as to whether the project may exceed the criteria air pollutant significance thresholds shown in Table 8, above, the air district, in its CEQA Air Quality Guidelines (May 2017), developed screening criteria. If a proposed project meets the screening criteria, then construction of the project would result in less-than-significant criteria air pollutant impacts. A project that exceeds the screening criteria may require a detailed air quality assessment to determine whether criteria air pollutant emissions would exceed significance thresholds. The CEQA Air Quality Guidelines note that the screening levels are generally representative of new development on greenfield⁸¹ sites without any form of mitigation measures taken into consideration. In addition, the screening criteria do not account for project design features, attributes, or local development requirements that could also result in lower emissions.

The proposed project exceeds the criteria air pollutant screening criteria, therefore a quantitative analysis was conducted. Construction-related criteria air pollutants generated by the proposed

⁸¹ A greenfield site refers to agricultural or forest land or an undeveloped site earmarked for commercial, residential, or industrial projects.

project were quantified using the California Emissions Estimator Model (CalEEMod) and provided within an Air Quality Memorandum.⁸² The model was developed, including default data (e.g., emission factors, meteorology, etc.), in collaboration with California regional air districts' staff. Default assumptions were used where project-specific information was unknown. The model run assumes compliance with the Clean Construction Ordinance. For projects located outside the air pollutant exposure zone, like the proposed project, the Clean Construction Ordinance requires equipment to either meet or exceed Tier 2 standards for off-road engines or operate with the most effective California air board *verified diesel emission control strategy*. Construction of the proposed project would occur over an approximately 37 month period. Emissions were converted from tons per year to pounds per day using the estimated construction duration of 365 working days. As shown in Table 9, project construction emissions would not be above the thresholds of significance.

Table 9: Daily Project Construction Emissions

	<u>Pollutant Emissions (Average Pounds per Day)</u>			
	ROG	NOx	Exhaust PM ₁₀	Exhaust PM _{2.5}
Unmitigated Project Emissions	0.84	6.5	0.38	0.34
Mitigated Project Emissions	0.84	6.5	0.38	0.34
Significance Threshold	54.0	54.0	82.0	54.0

Source: Bay Area Air Quality Management District, California Environmental Quality Act Air Quality Guidelines, May 2017

Therefore, criteria air pollutants generated by the proposed project's construction activities would have a less-than-significant impact, and no mitigation measures are necessary.

Impact AQ-2: The proposed project's construction activities would generate toxic air contaminants, including diesel particulate matter, but would not expose sensitive receptors to substantial pollutant concentrations. (*Less than Significant*)

As discussed above, the project site is not within an air pollutant exposure zone. With regards to construction emissions, off-road equipment (which includes construction-related equipment) is a large contributor to diesel particulate matter emissions in California, although since 2007, the California air board has found the emissions to be substantially lower than previously expected.⁸³ Newer and more refined emission inventories have substantially lowered the estimates of diesel particulate matter emissions from off-road equipment such that off-road equipment is now considered the sixth largest source of diesel particulate matter emissions in California.⁸⁴ This

⁸² Air Quality Memorandum. Project File 2015-004297ENV – 271 Upper Terrace. August 22, 2017. This document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File No 2015-004297ENV.

⁸³ ARB, *Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed Amendments to the Regulation for In-Use Off-Road Diesel-Fueled Fleets and the Off-Road Large Spark-Ignition Fleet Requirements*, p.1 and p. 13 (Figure 4), October 2010.

⁸⁴ ARB, *Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed Amendments to the Regulation for In-Use Off-Road Diesel-Fueled Fleets and the Off-Road Large Spark-Ignition Fleet Requirements*, October 2010.

reduction in emissions is due, in part, to effects of the economic recession and refined emissions estimation methodologies. For example, revised fine particulate matter emission estimates for the year 2010, which diesel particulate matter is a major component of total fine particulate matter, have decreased by 83 percent from previous 2010 emission estimates for the air basin.⁸⁵ Approximately half of the reduction can be attributed to the economic recession and approximately half can be attributed to updated assumptions independent of the economic recession (e.g., updated methodologies used to better assess construction emissions).⁸⁶

Additionally, a number of federal and state regulations are requiring cleaner off-road equipment. Specifically, both the U.S. EPA and the California Air Resources Board have set emissions standards for new off-road equipment engines, ranging from Tier 1 to Tier 4. Tier 1 emission standards were phased in between 1996 and 2000 and Tier 4 interim and final emission standards for all new engines were phased in between 2008 and 2015. To meet the Tier 4 emission standards, engine manufacturers are required to produce new engines with advanced emission-control technologies. Although the full benefits of these regulations will not be realized for several years, the U.S. EPA estimates that by implementing the federal Tier 4 standards, NO_x and PM emissions will be reduced by more than 90 percent.⁸⁷

In addition, construction activities do not lend themselves to analysis of long-term health risks because of their temporary and variable nature. As explained in the air district's CEQA Air Quality Guidelines:

“Due to the variable nature of construction activity, the generation of TAC emissions in most cases would be temporary, especially considering the short amount of time such equipment is typically within an influential distance that would result in the exposure of sensitive receptors to substantial concentrations. Concentrations of mobile-source diesel PM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (ARB 2005). In addition, current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities. This results in difficulties with producing accurate estimates of health risk.”⁸⁸

Therefore, project-level analyses of construction activities have a tendency to produce overestimated assessments of long-term health risks. However, within the air pollutant exposure

⁸⁵ ARB, “In-Use Off-Road Equipment, 2011 Inventory Model,” Query accessed online, April 2, 2012, http://www.arb.ca.gov/msei/categories.htm#inuse_or_category.

⁸⁶ ARB, *Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed Amendments to the Regulation for In-Use Off-Road Diesel-Fueled Fleets and the Off-Road Large Spark-Ignition Fleet Requirements*, October 2010.

⁸⁷ United State Environmental Protection Agency (U.S. EPA), “Clean Air Nonroad Diesel Rule: Fact Sheet,” May 2004.

⁸⁸ BAAQMD, *CEQA Air Quality Guidelines*, May 2017, page 8-7.

zone, as discussed above, additional construction activity may adversely affect populations that are already at a higher risk for adverse long-term health risks from existing sources of air pollution.

Although on-road heavy-duty diesel vehicles and off-road equipment would be used during the proposed project's 37-month construction period, emissions would be temporary and variable in nature and would not be expected to expose sensitive receptors to substantial air pollutants. Furthermore, the proposed project would be required to comply with California regulations limiting idling to no more than five minutes,⁸⁹ which would further reduce exposure by nearby sensitive receptors to temporary and variable diesel particulate matter emissions. Therefore, because the project site is not within the air pollutant exposure zone and construction activities would be temporary and variable over the 37-month construction period, TAC emissions would result in a less-than-significant impact to sensitive receptors, and no mitigation measures are necessary.

Operational Air Quality Impacts

Land use projects typically result in emissions of criteria air pollutants and TACs primarily from an increase in motor vehicle trips. However, land use projects may also result in criteria air pollutants and toxic air contaminants from combustion of natural gas, landscape maintenance, use of consumer products, and architectural coating. The following addresses air quality impacts resulting from operation of the proposed project.

Impact AQ-3: During project operations, the proposed project would result in emissions of criteria air pollutants, but not at levels that would violate an air quality standard, contribute to an existing or projected air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants. (*Less than Significant*)

The BAAQMD has developed screening criteria to provide lead agencies with a conservative indication of whether the proposed project would result in potentially significant air quality impacts. If all of the screening criteria are met by a proposed project, then the lead agency would not need to perform a detailed air quality assessment of the proposed project's emissions. These screening levels are generally representative of new development without any form of mitigation measures taken into consideration. In addition, the screening criteria do not account for project design features, attributes, or local development requirements that could also result in lower emissions.

As discussed above in Impact AQ-1, the air district, in its CEQA Air Quality Guidelines (May 2017), has developed screening criteria to determine whether a project requires an analysis of project-generated criteria air pollutants. If all the screening criteria are met by a proposed project, then the lead agency or applicant does not need to perform a detailed air quality assessment.

The proposed project includes total of ten dwelling units (seven net new units) and an increase of 49 vehicle trips. The proposed project would be below the criteria air pollutant screening sizes for the site's proposed use, condo/townhouse, general, with a 451 dwelling unit operational threshold identified in the air district's CEQA Air Quality Guidelines. Thus, quantification of project-

⁸⁹ California Code of Regulations, title 13, division 3, section 2485 (on-road) and section 2449(d)(2) (off-road).

generated criteria air pollutant emissions is not required, and the proposed project would not exceed any of the significance thresholds for criteria air pollutants, and this would result in a less-than-significant impact with respect to criteria air pollutants, and no mitigation measures are necessary.

Impact AQ-4: During project operations, the proposed project would generate toxic air contaminants, including diesel particulate matter, but would not expose sensitive receptors to substantial air pollutant concentrations. (*Less than Significant*)

As discussed above, the project site is not within an air pollutant exposure zone. However, the proposed project would generate toxic air contaminants, as discussed below.

Sources of Toxic Air Contaminants

Individual projects result in emissions of TACs primarily as a result of an increase in vehicle trips. The air district considers roads with less than 10,000 vehicles per day “minor, low-impact” sources that do not pose a significant health impact even in combination with other nearby sources and recommends that these sources be excluded from the environmental analysis. The proposed project’s 49 vehicle trips would be well below this level and would be distributed throughout the local roadway network, therefore an assessment of project-generated toxic air contaminants resulting from vehicle trips is not required and the proposed project would not generate a substantial amount of TAC emissions that could affect nearby sensitive receptors.

Sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Individuals particularly vulnerable to diesel particulate matter are children, whose lung tissue is still developing, and the elderly, who may have serious health problems that can be aggravated by exposure to diesel particulate matter. Exposure from diesel exhaust associated with construction activity contributes to both cancer and chronic non-cancer health risks. As noted above, the project site is not located within an air pollutant exposure zone. Therefore, this impact would be less than significant, and no mitigation measures are necessary.

Impact AQ-5: The proposed project would not conflict with, or obstruct implementation of, the 2017 Clean Air Plan. (*Less than Significant*)

The most recently adopted air quality plan for the air basin is the 2017 Clean Air Plan. The 2017 Clean Air Plan is a road map that demonstrates how the San Francisco Bay Area will achieve compliance with the state ozone standards as expeditiously as practicable and how the region will reduce the transport of ozone and ozone precursors to neighboring air basins. In determining consistency with the plan, this analysis considers whether the project would: (1) support the primary goals of the plan, (2) include applicable control measures from the plan, and (3) avoid disrupting or hindering implementation of control measures identified in the plan.

The primary goals of the plan are to: (1) protect air quality and health at the regional and local scale; (2) eliminate disparities among Bay Area communities in cancer health risk from TACs; and (3) protect the climate by reducing greenhouse gas (GHGs) emissions. To meet the primary goals, the plan recommends specific control measures and actions. These control measures are grouped into various categories and include stationary and area source, mobile source, transportation

control, land use, and energy and climate. The plan recognizes that to a great extent, community design dictates individual travel mode, and that a key long-term control strategy to reduce emissions of criteria pollutants, air toxics, and GHGs from motor vehicles is to channel future Bay Area growth into vibrant urban communities where goods and services are close at hand, and people have a range of viable transportation options. To this end, the plan includes 85 control measures aimed at reducing air pollution in the air basin.

The measures most applicable to the proposed project are control measures for transportation and energy and climate. The proposed project's impact with respect to GHGs are discussed in section 7, Greenhouse Gas Emissions, which demonstrates that the proposed project would comply with the applicable provisions of the city's Greenhouse Gas Reduction Strategy.

The compact development of the proposed project and high availability of transportation options ensure that residents could bicycle, walk, and ride transit to and from the project site instead of taking trips via private automobile. These features ensure that the project would avoid substantial growth in automobile trips and vehicle miles traveled. The proposed project's anticipated 49 vehicle trips would result in a negligible increase in air pollutant emissions. Furthermore, the proposed project would be generally consistent with the San Francisco General Plan. Transportation control measures that are identified in the 2017 Clean Air Plan are implemented by the San Francisco General Plan and the San Francisco Planning Code, for example, through the city's Transit First Policy, bicycle parking requirements, and transit impact development fees. Compliance with these requirements would ensure the project includes relevant transportation control measures specified in the 2017 Clean Air Plan. Therefore, the proposed project would include applicable control measures identified in the 2017 Clean Air Plan to meet the 2017 Clean Air Plan's primary goals.

Examples of a project that could cause the disruption or delay of 2017 Clean Air Plan control measures are projects that would preclude the extension of a transit line or bike path, or projects that propose excessive parking beyond parking requirements. The proposed project would add residential dwellings and off-street parking to a dense, walkable urban area near a concentration of transit service. It would not preclude the extension of a transit line or a bike path or any other transit improvement, and thus would not disrupt or hinder implementation of control measures identified in the 2017 Clean Air Plan.

Though the project would result in a total of 15 parking spaces, which is above the minimum required for the RH-2 district, but is also permitted by the planning code for the zoning district. For the reasons described above, the proposed project would not interfere with implementation of the 2017 Clean Air Plan, and because the proposed project would be consistent with the applicable air quality plan that demonstrates how the region will improve ambient air quality and achieve the state and federal ambient air quality standards, this impact would be less than significant, and no mitigation measures are necessary.

Impact AQ-6: The proposed project would not create objectionable odors that would affect a substantial number of people. (*Less than Significant*)

Typical odor sources of concern include wastewater treatment plants, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing facilities, fiberglass manufacturing facilities, auto body shops, rendering plants, and coffee roasting

facilities. During construction of the proposed project, diesel exhaust from construction equipment would generate some odors. However, construction-related odors would be temporary and would not persist upon project completion. Additionally, the proposed project includes residential uses that would not create significant sources of new odors. Therefore, odor impacts would be less than significant, and no mitigation measures are necessary.

Impact C-AQ-1a: The proposed project, in combination with past, present, and reasonably foreseeable future development in the project area would result in less-than-significant cumulative air quality impacts. (Less than Significant)

As discussed above, regional air pollution is by its very nature largely a cumulative impact. Emissions from past, present, and future projects contribute to the region’s adverse air quality on a cumulative basis. No single project by itself would be sufficient in size to result in regional nonattainment of ambient air quality standards. Instead, a project’s individual emissions contribute to existing cumulative adverse air quality impacts.⁹⁰ The project-level thresholds for criteria air pollutants are based on levels by which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants. Therefore, because the proposed project’s construction (Impact AQ-1) and operational (Impact AQ-3) emissions would not exceed the project-level thresholds for criteria air pollutants, the proposed project would not be considered to result in a cumulatively considerable contribution to regional air quality impacts.

Although the project would increase motor vehicle trips, the project site is not located within an air pollutant exposure zone. The project’s incremental increase in localized TAC emissions resulting from new vehicle trips would be minor and would not contribute substantially to cumulative TAC emissions that could affect nearby existing and proposed sensitive land uses. Therefore, cumulative air quality impacts would be considered less than significant.

<u>Topics:</u>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
7. GREENHOUSE GAS EMISSIONS— Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

GHG emissions and global climate change represent cumulative impacts. GHG emissions cumulatively contribute to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average

⁹⁰ BAAQMD, *CEQA Air Quality Guidelines*, May 2017, page 2-1.

temperature; instead, the combination of GHG emissions from past, present, and future projects have contributed and will continue to contribute to global climate change and its associated environmental impacts.

The air district has prepared guidelines and methodologies for analyzing GHGs. These guidelines are consistent with CEQA Guidelines sections 15064.4 and 15183.5, which address the analysis and determination of significant impacts from a proposed project's GHG emissions. CEQA Guidelines section 15064.4 allows lead agencies to rely on a qualitative analysis to describe GHG emissions resulting from a project. CEQA Guidelines section 15183.5 allows for public agencies to analyze and mitigate GHG emissions as part of a larger plan for the reduction of GHGs and describes the required contents of such a plan. Accordingly, San Francisco has prepared *Strategies to Address Greenhouse Gas Emissions*⁹¹ which presents a comprehensive assessment of policies, programs, and ordinances that collectively represent San Francisco's qualified GHG reduction strategy in compliance with the CEQA guidelines. These GHG reduction actions have resulted in a 28 percent reduction in GHG emissions in 2015 compared to 1990 levels,⁹² exceeding the year 2020 reduction goals outlined in the air district's 2017 Clean Air Plan, Executive Order S-3-05, and Assembly Bill 32 (also known as the Global Warming Solutions Act).⁹³

Given that the City has met the state and region's 2020 GHG reduction targets and San Francisco's GHG reduction goals are consistent with, or more aggressive than, the long-term goals established under orders S-3-05⁹⁴ and B-30-15,^{95,96} and Senate Bill 32,^{97,98} the City's GHG reduction goals are

⁹¹ San Francisco Planning Department, *Strategies to Address Greenhouse Gas Emissions in San Francisco*, 2017. This document is available online at: <http://sf-planning.org/strategies-address-greenhouse-gas-emissions>.

⁹² San Francisco Department of the Environment, *San Francisco's Carbon Footprint*. Available at <https://sfenvironment.org/carbon-footprint>, accessed July 19, 2017.

⁹³ Executive Order S-3-05, Assembly Bill 32, and the air district's 2017 Clean Air Plan (continuing the trajectory set in the 2010 Clean Air Plan) set a target of reducing GHG emissions to below 1990 levels by year 2020.

⁹⁴ Office of the Governor, Executive Order S-3-05, June 1, 2005. Available at <http://www.pcl.org/projects/2008symposium/proceedings/Coatsworth12.pdf>, accessed March 16, 2016. Executive Order S-3-05 sets forth a series of target dates by which statewide emissions of GHGs need to be progressively reduced, as follows: by 2010, reduce GHG emissions to 2000 levels (approximately 457 million metric tons of carbon dioxide equivalents (MTCO₂E)); by 2020, reduce emissions to 1990 levels (approximately 427 million MTCO₂E); and by 2050 reduce emissions to 80 percent below 1990 levels (approximately 85 million MTCO₂E). Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

⁹⁵ Office of the Governor, *Executive Order B-30-15*, April 29, 2015. Available at <https://www.gov.ca.gov/news.php?id=18938>, accessed March 3, 2016. Executive Order B-30-15, issued on April 29, 2015, sets forth a target of reducing GHG emissions to 40 percent below 1990 levels by 2030 (estimated at 2.9 million MTCO₂E).

⁹⁶ San Francisco's GHG reduction goals are codified in Section 902 of the Environment Code and include: (i) by 2008, determine City GHG emissions for year 1990; (ii) by 2017, reduce GHG emissions by 25 percent below 1990 levels; (iii) by 2025, reduce GHG emissions by 40 percent below 1990 levels; and by 2050, reduce GHG emissions by 80 percent below 1990 levels.

⁹⁷ Senate Bill 32 amends California Health and Safety Code Division 25.5 (also known as the California Global Warming Solutions Act of 2006) by adding Section 38566, which directs that statewide greenhouse gas emissions to be reduced by 40 percent below 1990 levels by 2030.

⁹⁸ Senate Bill 32 was paired with Assembly Bill 197, which would modify the structure of the State Air Resources Board; institute requirements for the disclosure of greenhouse gas emissions criteria

consistent with orders S-3-05 and B-30-15, Assembly Bill 32, Senate Bill 32, and the 2017 Clean Air Plan. Therefore, proposed projects that are consistent with the City's GHG reduction strategy would be consistent with the aforementioned GHG reduction goals, would not conflict with these plans or result in significant GHG emissions, and would therefore not exceed San Francisco's applicable GHG threshold of significance.

The following analysis of the proposed project's impact on climate change focuses on the project's contribution to cumulatively significant GHG emissions. Because no individual project could emit GHGs at a level that could result in a significant impact on the global climate, this analysis is in a cumulative context, and this section does not include an individual project-specific impact statement.

Impact C-GG-1: The proposed project would generate greenhouse gas emissions, but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing greenhouse gas emissions. (*Less than Significant*)

Individual projects contribute to the cumulative effects of climate change by directly or indirectly emitting GHGs during construction and operational phases. Direct operational emissions include GHG emissions from new vehicle trips and area sources (natural gas combustion). Indirect emissions include emissions from electricity providers; energy required to pump, treat, and convey water; and emissions associated with waste removal, disposal, and landfill operations.

The proposed project would increase the intensity of use of the site by introducing seven additional dwelling units on a project site that is currently occupied by three dwelling units. Implementation of the proposed project would result in a total of 10 dwelling units and 15 parking spaces. Therefore, the proposed project would contribute to annual long-term increases in GHGs as a result of increased vehicle trips (mobile sources) and residential operations that result in an increase in energy use, water use, wastewater treatment, and solid waste disposal. Construction activities would also result in temporary increases in GHG emissions.

The proposed project would be subject to regulations adopted to reduce GHG emissions as identified in the GHG reduction strategy. As discussed below, compliance with the applicable regulations would reduce the project's GHG emissions related to transportation, energy use, waste disposal, wood burning, and use of refrigerants.

Compliance with the City's bicycle parking requirements would reduce the proposed project's transportation-related emissions. These regulations reduce GHG emissions from single-occupancy vehicles by promoting the use of alternative transportation modes with zero or lower GHG emissions on a per capita basis.

The proposed project would be required to comply with the energy efficiency requirements of the City's Green Building Code, Stormwater Management Ordinance, and the Residential Water Conservation Ordinance, and the Water Efficient Irrigation Ordinance, all of which would promote

pollutants, and toxic air contaminants; and establish requirements for the review and adoption of rules, regulations, and measures for the reduction of greenhouse gas emissions.

energy and water efficiency, thereby reducing the proposed project's energy-related GHG emissions.⁹⁹

The proposed project's waste-related emissions would be reduced through compliance with the City's Recycling and Compositing Ordinance, Construction and Demolition Debris Recovery Ordinance, and Green Building Code requirements. These regulations reduce the amount of materials sent to a landfill, reducing GHGs emitted by landfill operations. These regulations also promote reuse of materials, conserving their embodied energy¹⁰⁰ and reducing the energy required to produce new materials.

Compliance with the City's street tree planting requirements would serve to increase carbon sequestration. Regulations requiring low-emitting finishes would reduce volatile organic compounds.¹⁰¹ Thus, the proposed project was determined to be consistent with San Francisco's GHG reduction strategy.¹⁰²

The project sponsor is required to comply with these regulations, which have proven effective as San Francisco's GHG emissions have measurably decreased when compared to 1990 emissions levels, demonstrating that the City has met and exceeded Executive Order S-3-05, Assembly Bill 32, and the 2017 Clean Air Plan GHG reduction goals for the year 2020. Furthermore, the city has met its 2017 GHG reduction goal of reducing GHG emissions to 25% below 1990 levels by 2017. Other existing regulations, such as those implemented through Assembly Bill 32, will continue to reduce a proposed project's contribution to climate change. In addition, San Francisco's local GHG reduction targets are consistent with the long-term GHG reduction goals of orders S-3-05 and B-30-15, Assembly Bill 32, Senate Bill 32, and the 2017 Clean Air Plan. Therefore, because the proposed project is consistent with the City's GHG reduction strategy, it is also consistent with the GHG reduction goals of orders S-3-05 and B-30-15, Assembly Bill 32, Senate Bill 32, and the 2017 Clean Air Plan, would not conflict with these plans, and would therefore not exceed San Francisco's applicable GHG threshold of significance. As such, the proposed project would result in a less-than-significant impact with respect to GHG emissions. No mitigation measures are necessary.

⁹⁹ Compliance with water conservation measures reduce the energy (and GHG emissions) required to convey, pump and treat water required for the project.

¹⁰⁰ Embodied energy is the total energy required for the extraction, processing, manufacture and delivery of building materials to the building site.

¹⁰¹ While not a GHG, volatile organic compounds are precursor pollutants that form ground level ozone. Increased ground level ozone is an anticipated effect of future global warming that would result in added health effects locally. Reducing volatile organic compound emissions would reduce the anticipated local effects of global warming.

¹⁰² San Francisco Planning Department, *Greenhouse Gas Analysis: Compliance Checklist for 271 Upper Terrace*, May 17, 2017

<u>Topics:</u>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
8. WIND AND SHADOW. Would the project:					
a) Alter wind in a manner that substantially affects public areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Create new shadow in a manner that substantially affects outdoor recreation facilities or other public areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact WS-1: The proposed project would not alter wind in a manner that substantially affects public areas. (*Less than Significant*)

A proposed project’s wind impacts are directly related to its height, orientation, design, location, and surrounding development context. Based on wind analyses for other development projects in San Francisco, a building that does not exceed a height of 85 feet generally has little potential to cause substantial changes to ground-level wind conditions. The proposed buildings fronting Upper Terrace would be two stories (approximately 24 feet) above the sidewalk, similar in height to the existing adjacent building to the east and shorter than the existing buildings on the opposite side of Upper Terrace. The proposed buildings fronting 17th Street and Roosevelt Way would be five to six stories (approximately 61 to 65 feet) above the sidewalk, similar in height to the existing adjacent buildings to the west and east. The proposed buildings fronting 17th Street and Roosevelt Way would be nestled against the existing hillside and the rear of the proposed buildings fronting Upper Terrace.

Given its height and surrounding development context, the proposed project would not cause substantial changes to ground-level wind conditions adjacent to and near the project site. For these reasons, the proposed project would not alter wind in a manner that substantially affects public areas. This impact would be less than significant, and no mitigation measures are necessary.

Impact C-WS-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative wind impact. (*Less than Significant*)

As discussed above, buildings shorter than 85 feet have little potential to cause substantial changes to ground-level wind conditions. None of the nearby cumulative development projects involves construction of buildings or structures that would be tall enough to alter wind in a manner that substantially affects public areas. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the project vicinity to create a significant cumulative wind impact.

Impact WS-2: The proposed project would not create new shadow in a manner that substantially affects outdoor recreation facilities or other public areas. (*Less than Significant*)

In 1984, San Francisco voters approved an initiative known as “Proposition K, The Sunlight Ordinance,” which was codified as Planning Code section 295 in 1985. Planning Code section 295 generally prohibits new structures above 40 feet in height that would cast additional shadows on

open space that is under the jurisdiction of the San Francisco Recreation and Park Commission between one hour after sunrise and one hour before sunset, at any time of the year, unless that shadow would not result in a significant adverse effect on the use of the open space. Public open spaces that are not under the jurisdiction of the Recreation and Park Commission as well as private open spaces are not subject to Planning Code section 295.

Implementation of the proposed project would result in the construction of buildings exceeding 40 feet in height. Three of the buildings would be 61, 64, and 65 feet above the 17th Street and Roosevelt Way sidewalks on which they front; the other two buildings would be 22 and 24 feet above the Upper Terrace sidewalk on which they front. The planning department prepared a preliminary shadow fan analysis to determine whether the proposed project would have the potential to cast shadow on nearby parks or open spaces. The shadow fan analysis prepared by the planning department determined that the proposed project would not cast shadow on any nearby parks or open spaces.¹⁰³

The proposed project would shade portions of streets, sidewalks, and private properties in the project vicinity at various times of the day throughout the year. Shadows on streets and sidewalks would not exceed levels commonly expected in urban areas and would be considered a less-than-significant effect under CEQA. Although occupants of nearby properties may regard the increase in shadow as undesirable, the limited increase in shading of private properties as a result of the proposed project would not be considered a significant impact under CEQA.

For these reasons, the proposed project would not create new shadow in a manner that substantially affects outdoor recreation facilities or other public areas. This impact would be less than significant, and no mitigation measures are necessary.

Impact C-WS-2: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative shadow impact. (*Less than Significant*)

As discussed above, the proposed project would not shade any nearby parks or open spaces. Therefore, the proposed project would not contribute to any potential cumulative shadow impact on parks and open spaces.

The sidewalks in the project vicinity are already shadowed for much of the day by multi-story buildings. Although implementation of the proposed project and nearby cumulative development projects would add new shadow to the sidewalks in the project vicinity, these shadows would be transitory in nature, would not substantially affect the use of the sidewalks, and would not increase shadows above levels that are common and generally expected in a densely developed urban environment.

For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the project vicinity to create a significant cumulative shadow impact.

¹⁰³ San Francisco Planning Department, *271 Upper Terrace Shadow Fan, Block 2628, Lots 032A, 032B, 034, 035A, and 035B*, June 27, 2017.

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
9. RECREATION.					
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact RE-1: The proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated. (*Less than Significant*)

The neighborhood parks or other recreational facilities closest to the project site are Mount Olympus Park (approximately 250 feet north of the project site), Buena Vista Park and Corona Heights Park (both 0.3 mile northeast), the Saturn Street Steps (0.25 mile east), Kite Hill (0.3 mile southeast), Tank Hill (0.2 mile southwest), and Grattan Playground (0.3 mile west).

The proposed project would increase the population of the project site by about 23 residents. This total represents an increase of about 0.62 percent over the 2010 population within Census Tract 170 and about 0.15 percent over the 2010 population within the project vicinity (census tracts within a quarter-mile of the project site). This residential population growth would increase the demand for recreational facilities. The proposed project would partially offset the demand for recreational facilities by providing on-site open space for the project residents in the form of private decks for each dwelling. Although the project residents may use parks, open spaces, and other recreational facilities in the project vicinity, the additional use of these recreational facilities is expected to be modest in light of the small population increase that would result from the proposed project.

On a citywide/regional basis, the increased demand on recreational facilities from 23 new residents would be negligible considering the number of people living and working in San Francisco and the region as well as the number of existing and planned recreational facilities. For these reasons, implementation of the proposed project would not increase the use of existing recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated. This impact would be less than significant, and no mitigation measures are necessary.

Impact RE-2: The proposed project would not include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. (*Less than Significant*)

The proposed project would provide some on-site open space for the project residents in the form of private decks for each dwelling unit. In addition, the project site is within 0.3 mile of seven parks,

public open spaces, or other public recreational facilities, as discussed above. It is anticipated that these existing recreational facilities would be able to accommodate the increase in demand for recreational resources generated by the project residents. For these reasons, the construction of new or the expansion of existing recreational facilities, both of which might have an adverse physical effect on the environment, would not be required. This impact would be less than significant, and no mitigation measures are necessary.

Impact C-RE-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative impact on recreational facilities or resources. (*Less than Significant*)

Implementation of the proposed project, in combination with cumulative development in the project vicinity, would result in the construction of 10 (seven net new) dwelling units and an incremental increase in population and demand for recreational facilities and resources. The City has accounted for such growth as part of the Recreation and Open Space Element of the general plan.¹⁰⁴ In addition, San Francisco voters passed two bond measures, in 2008 and 2012, to fund the acquisition, planning, and renovation of the City’s network of recreational resources. As discussed above, there are seven parks, open spaces, or other recreational facilities within 0.3 mile of the project site. It is expected that these existing recreational facilities would be able to accommodate the increase in demand for recreational resources generated by nearby cumulative development projects. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the project vicinity to create a significant cumulative impact on recreational facilities or resources.

<u>Topics:</u>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
10. UTILITIES AND SERVICE SYSTEMS. Would the project:					
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

¹⁰⁴ San Francisco Planning Department, *San Francisco General Plan*, Recreation and Open Space Element, April 2014, pp. 20-36. Available online at http://www.sf-planning.org/ftp/General_Plan/Recreation_OpenSpace_Element_ADOPTED.pdf, accessed June 24, 2015.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
d) Have sufficient water supply available to serve the project from existing entitlements and resources, or are new or expanded entitlements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact UT-1: Implementation of the proposed project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board, would not exceed the capacity of the wastewater treatment provider that would serve the project, and would not require the construction of new or expansion of existing wastewater treatment or stormwater drainage facilities. (*Less than Significant*)

The project site currently contains two structures; a single-family home and a duplex. The project would demolish the existing single-family home, renovate the existing duplex, and construct four new duplexes. Streetscape improvements would include relocating a stormdrain on Roosevelt Way to the northeast to allow for a new curb ramp.

Project-related wastewater and stormwater would flow to the City's combined stormwater/sewer system and would be treated to standards contained in the City's National Pollutant Discharge Elimination System (NPDES) permit for the Southeast Water Pollution Control Plant prior to discharge into San Francisco Bay. The NPDES standards are set and regulated by the San Francisco Bay Area Regional Water Quality Control Board. Therefore, the proposed project would not conflict with regional water control board requirements.

Implementation of the proposed project would incrementally increase wastewater flows from the project site due to the introduction of approximately 23 new residents. The proposed project would incorporate water-efficient fixtures, as required by title 24 of the California Code of Regulations and the San Francisco Green Building Ordinance. Compliance with these regulations would reduce wastewater flows and the amount of potable water used for building functions. The SFPUC's infrastructure capacity plans account for projected population growth. The incorporation of water-efficient fixtures into new development is also accounted for by the SFPUC, because widespread adoption can lead to more efficient use of existing capacity. The project sponsor will be required to design all applicable water facilities, including potable and fire-suppression water systems, to conform to the current SFPUC City Distribution Division (CDD) and San Francisco Fire Department standards and practices. These include, but are not limited to, the following:

- SFPUC- CDD Protection of Existing Water and Auxiliary Water Supply System Facilities;

- SFPUC Standards for the Protection of Water and Wastewater Assets;
- Rules and Regulations Governing Water Service to Customers;
- SFPUC- CDD Design Criteria for Potable Water Systems;
- Application for Water Supply and Responsibility of Applicants;
- San Francisco Fire Code and Reliability;
- California Waterworks Standards; California Code of Regulations titles 17 and 22; and
- Water and Auxiliary Water Supply System Distribution Piping.

Additionally, SFPUC requires the project sponsor complete a hydraulic analysis to confirm the adequacy of the water distribution system for proposed new potable and fire water services.

For these reasons, the population increase associated with the proposed project would not require the construction of new or expansion of existing wastewater treatment facilities. This impact would be less than significant, and no mitigation measures are necessary.

Impact UT-2: The SFPUC has sufficient water supply available to serve the proposed project from existing entitlements and resources and would not require new or expanded water supply resources or entitlements. (*Less than Significant*)

Implementation of the proposed project, which consists of 10 dwelling units (demolition of a single-family dwelling, renovation of a two-family dwelling, and construction of four two-family dwelling unit), would add approximately 23 residents to the project site and incrementally increase the demand for water in San Francisco. However, the proposed project would not result in a population increase and corresponding water demand beyond that assumed for planning purposes by the SFPUC's *2015 Urban Water Management Plan* (2015 UWMP).¹⁰⁵ Furthermore, as noted under Impact UT-1, the SFPUC would review the sponsor's hydraulic analysis.

All large-scale projects in California subject to CEQA are required to obtain an assessment from a regional or local jurisdiction water agency to determine the availability of a long-term water supply sufficient to satisfy project-generated water demand under Senate Bill 610 and Senate Bill 221.45. Under Senate Bill 610, a water assessment is required if a proposed project is subject to CEQA in an EIR or negative declaration and falls within any of the following categories: (1) a residential development of more than 500 dwelling units; (2) a shopping center or business employing more than 1,000 persons or having more than 500,000 square feet of floor space; (3) a commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space; (4) a hotel or motel with more than 500 rooms; (5) an industrial or manufacturing establishment housing more than 1,000 persons or having more than 650,000 square feet or 40 acres; (6) a mixed-use project containing any of the foregoing; or (7) any other project that would

¹⁰⁵ San Francisco Public Utilities Commission, *2015 Urban Water Management Plan for the City and County of San Francisco*, June 2016.

have water demand at least equal to a 500-dwelling-unit project. The proposed project would not exceed any of these thresholds and, therefore, is not required to prepare a water assessment.

The 2015 UWMP uses year 2040 growth projections prepared by the planning department and the Association of Bay Area Governments to estimate future water demand. The proposed project is within the demand projections of the 2015 UWMP and would not exceed the water supply projections.

Although the total amount of water demand would increase at the project site, the proposed building would be designed to incorporate water-efficient fixtures as required by title 24 of the California Code of Regulations and the City's Green Building Ordinance. Because the proposed water demand could be accommodated by existing and planned water supply anticipated under the 2015 UWMP, the proposed project would not result in a substantial increase in water use and would be served from existing water supply entitlements and resources. In addition, the proposed project would include water conservation devices such as low-flow showerheads and low-flush toilets. For these reasons, there would be sufficient water supply available to serve the proposed project from existing water supply entitlements and resources, and new or expanded resources or entitlements would not be required. This impact would be less than significant, and no mitigation measures are necessary.

Impact UT-3: The proposed project would be served by a landfill with sufficient permitted capacity and would comply with federal, state, and local statutes and regulations related to solid waste. (*Less than Significant*)

In September 2015, the City approved an agreement with Recology, Inc., for the transport and disposal of the City's municipal solid waste at the Recology Hay Road Landfill in Solano County. The City began disposing its municipal solid waste at Recology Hay Road Landfill in January 2016, and that practice is anticipated to continue for approximately nine years, with an option to renew the agreement thereafter for an additional six years. San Francisco had a goal of 75 percent solid waste diversion by 2010, which it exceeded at 80 percent diversion, and has a goal of 100 percent solid waste diversion or "zero waste" to landfill or incineration by 2020. The San Francisco Construction and Demolition Debris Recovery Ordinance requires mixed construction and demolition debris to be transported by a registered transporter and taken to a registered facility that must recover for reuse or recycling and divert from landfill at least 65 percent of all received construction and demolition debris. The San Francisco Green Building Code also requires certain projects to submit a recovery plan to the San Francisco Department of the Environment demonstrating recovery or diversion of at least 75 percent of all demolition debris. The San Francisco Mandatory Recycling and Composting Ordinance requires all properties and everyone in San Francisco to separate solid waste into recyclables, compostables, and landfill trash. The proposed project would be subject to and would comply with these ordinances and all other applicable statutes and regulations related to solid waste. This impact would be less than significant, and no mitigation measures are necessary.

Impact C-UT-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative impact on utilities and service systems. (*Less than Significant*)

Implementation of the proposed project, in combination with cumulative development in the project vicinity, would result in the construction of ten dwelling units and an incremental increase in population, water consumption, and wastewater and solid waste generation. The SFPUC has accounted for such growth in its water demand and wastewater service projections, and the City has implemented various programs to divert 80 percent of its solid waste from landfills. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the project vicinity to create a significant cumulative impact on utilities and service systems.

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
11. PUBLIC SERVICES.					
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services such as fire protection, police protection, schools, parks, or other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The proposed project’s impacts on parks are discussed under section E.9, Recreation. Impacts on other public services are discussed below.

Impact PS-1: The proposed project would increase demand for fire protection and police protection, but not to the extent that would require new or physically altered fire or police facilities, the construction of which could result in significant environmental impacts. (*Less than Significant*)

The project site receives fire protection and emergency medical services from the San Francisco Fire Department’s Battalion 5, which includes Fire Station No. 12 at 1145 Stanyan Street (approximately 0.4 mile west of the project site).¹⁰⁶ The project site receives police protection services from the San Francisco Police Department’s Park Station at 1899 Waller Street, approximately 0.65 mile northwest of the project site.¹⁰⁷ Implementation of the proposed project would add about 23 residents on the project site, which would increase the demand for fire protection, emergency medical, and police protection services. This increase in demand would be marginal given the overall demand for such services on a citywide basis. Fire protection, emergency medical, and police protection resources are regularly redeployed based on need in

¹⁰⁶ San Francisco Fire Department website, <http://sf-fire.org/fire-station-locations>, accessed May 8, 2017.

¹⁰⁷ San Francisco Police Department website, <http://sanfranciscopolice.org/police-district-maps>, accessed May 8, 2017.

order to maintain acceptable service ratios. Moreover, the proximity of the project site to Fire Station No. 12 and Park Station would help minimize fire department and police department response times should incidents occur at the project site. For these reasons, implementation of the proposed project would not require the construction of new or alteration of existing fire and police facilities. This impact would be less than significant, and no mitigation measures are necessary.

Impact PS-2: The proposed project could increase the population of school-aged children and the demand for school services, but not to the extent that would require new or physically altered school facilities, the construction of which could result in significant environmental impacts. (*Less than Significant*)

Implementation of the proposed project would result in the demolition of a signal-family unit, construction of eight new dwelling units, and the renovation of a two family dwelling, resulting in an anticipated population increase of about 23 residents. Some of the new residents of the 10 households could consist of families with school-aged children who might attend schools operated by the San Francisco Unified School District, while other children might attend private schools. It is anticipated that existing public schools would be able to accommodate this minor increase in demand. Furthermore, the proposed project would be required to pay a school impact fee based on the construction of net new residential square footage to fund district facilities and operations. For these reasons, implementation of the proposed project would not result in a substantial unmet demand for school facilities and would not require the construction of new or alteration of existing school facilities. This impact would be less than significant, and no mitigation measures are necessary.

Impact PS-3: The proposed project would increase demand for other public services, but not to the extent that would require new or physically altered governmental facilities, the construction of which could result in significant environmental impacts. (*Less than Significant*)

Implementation of the proposed project would add about 23 residents on the project site, which would increase the demand for other public services such as libraries. This increase in demand would not be substantial given the overall demand for library services on a citywide basis. The San Francisco Public Library operates the main library and 27 branches throughout San Francisco.¹⁰⁸ It is anticipated that the Park Branch, which is 0.6 mile northwest of the project site, would be able to accommodate the minor increase in demand for library services generated by the proposed project. For these reasons, implementation of the proposed project would not require the construction of new or alteration of existing governmental facilities. This impact would be less than significant, and no mitigation measures are necessary.

Impact C-PS-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative impact on public services. (*Less than Significant*)

Implementation of the proposed project, in combination with cumulative development in the project vicinity, would result in the construction of 12 dwelling units and an incremental increase in population and demand for fire protection, police protection, school services, and other public

¹⁰⁸ San Francisco Public Library website, <http://sfpl.org/pdf/libraries/sfpl421.pdf>, accessed May 8, 2017.

services. The fire department, the police department, the school district, and other City agencies have accounted for such growth in providing public services to the residents of San Francisco. Nearby cumulative development projects would be subject to many of the same development impact fees applicable to the proposed project. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the project vicinity to create a significant cumulative impact on public services.

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
12. BIOLOGICAL RESOURCES. Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project area does not contain wetlands as defined by section 404 of the Clean Water Act; therefore, Topic 12c is also not applicable. There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, state, or regional habitat conservation plans applicable to the project site. Therefore, implementation of the proposed project

would not conflict with the provisions of any such plan and Topic 12f is not applicable to the proposed project.

Impact BI-1: The proposed project would not 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 and would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Less than Significant)

The northern portion of the project site has been developed since 1945. The southern, undeveloped portion of the project site is a steeply sloping hillside with trees and other vegetation. This area is characterized by dense, non-native or weedy species that appear to be a mix of remnant landscaping plants and volunteers. The overstory is primarily a mix of blue gum eucalyptus (*Eucalyptus globulus*) and Monterey cypress (*Hesperocyparis macrocarpa*), with occasional other species such as silver wattle (*Acacia dealbata*), blackwood acacia (*A. melanoxylon*), Monterey pine (*Pinus radiata*), and Canary Island pine (*P. canariensis*). The understory is a dense mix of several species, primarily jade plant (*Crassula ovata*), ivy (*Hedera* spp.), pride of Madeira (*Echium candicans*), green cockscomb (*Sedum praealtum*), Cape Province pygmyweed (*Crassula multicava*), and veldtgrass (*Ehrharta erecta*). The area immediately below the residential building is outside of the tree canopy and is a dense mix of non-native shrubs including French broom (*Genista monspessulana*) and cotoneaster (*Cotoneaster* sp.).¹⁰⁹

The site does not include any candidate, sensitive, or special-status species, any riparian habitat, or other sensitive natural community identified in regional plans,¹¹⁰ policies, or regulations or by the California Department of Fish and Wildlife,¹¹¹ or U.S. Fish and Wildlife Service.¹¹² Although birds and other small animals (e.g., squirrels) may be present, the project site does not include any candidate, sensitive, or special-status species, any riparian habitat, or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.¹¹³ Implementation of the proposed project would remove the existing trees and vegetation but would not have a substantial adverse effect on any candidate, sensitive, or special-status species, any riparian habitat, or other sensitive natural community.

For these reasons, the proposed project would not have a substantial adverse effect on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations and would not have a substantial adverse effect on any riparian habitat or other

¹⁰⁹ Mount Olympus Biological Resources Letter Report. WRA Environmental Consultants. July 10, 2017.

¹¹⁰ San Francisco Recreation & Parks, *Significant Natural Resource Areas Management Plan*, December 2016.

¹¹¹ California Department of Fish and Wildlife Bios Map, <https://map.dfg.ca.gov/bios/?bookmark=940>, June 7, 2017.

¹¹² U.S. Fish and Wildlife Service Environmental Conservation Online System (ECOS), https://www.arcgis.com/home/webmap/viewer.html?basemapUrl=https://tiles.arcgis.com/tiles/QVENGdaPbd4LUkLV/arcgis/rest/services/usfws_critical_habitat_final/MapServer, June 7, 2017.

¹¹³ Mount Olympus Biological Resources Letter Report. WRA Environmental Consultants. July 10, 2017.

sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. This impact would be less than significant, and no mitigation measures are necessary.

Impact BI-2: The proposed project would not 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 Wildlife or U.S. Fish and Wildlife Service? (No impact)

As noted in the Mount Olympus Biological Resources Letter Report, there are no candidate, sensitive, or special-status species; any riparian habitat; or other sensitive natural community in the project vicinity. The project site is not within an area identified in local¹¹⁴ or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. For these reasons the proposed project would have no impact on riparian habitat or other sensitive natural community identified in a local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

Impact BI-3: The proposed project would not 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. (Not applicable)

The project site does not include any federally protected wetlands, as defined by section 404 of the Clean Water Act. Therefore, significance criterion 13c is not applicable to the proposed project.

Impact BI-4: The proposed project would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Less than Significant)

San Francisco is within the Pacific Flyway, a major north-south route of travel for migratory birds along the western portion of the Americas. The project site is not considered an *urban bird refuge*; ¹¹⁵ however it is located between urban bird refuges at Tank Hill, Corona Heights Park, Kite Hill, and the Forest Knolls Area.¹¹⁶

Multi-story buildings are potential obstacles that can injure or kill birds in the event of a collision, and bird strikes are a leading cause of worldwide declines in bird populations. Planning Code section 139, Standards for Bird-Safe Buildings, establishes building design standards to reduce

¹¹⁴ San Francisco Recreation & Parks, *Significant Natural Resource Areas Management Plan*, December 2016.

¹¹⁵ An *urban bird refuge* is defined by San Francisco Planning Code section 139(c)(1) as “open spaces two acres and larger dominated by vegetation, including vegetated landscaping, forest, meadows, grassland, or wetlands, or open water”

¹¹⁶ San Francisco Planning Department http://sf-planning.org/ftp/files/publications_reports/library_of_cartography/Urban_Bird_Refuge_Poster.pdf Urban Bird Refuge Poster, October 20, 2017.

avian mortality rates associated with bird strikes. This ordinance focuses on location-specific hazards and building feature-related hazards. Location-specific hazards apply to buildings in, or within 300 feet of and having a direct line of sight to, an urban bird refuge. The project site is not in or within 300 feet of an urban bird refuge, so the standards related to location-specific hazards are not applicable to the proposed project. Feature-related hazards, which can occur on buildings anywhere in San Francisco, are defined as freestanding glass walls, wind barriers, skywalks, balconies, and greenhouses on rooftops that have unbroken glazed segments of 24 square feet or larger. The proposed project would comply with the feature-related standards of Planning Code section 139 by using bird-safe glazing treatment on 100 percent of any feature-related hazards.

The project site includes trees and other vegetation that could provide habitat for migratory birds passing through San Francisco. The project would be required to comply with California Fish and Game Code (section 3500 et al.), including sections 3503, 3503.5, 3511, and 3513, which provides that it is unlawful to take or possess any migratory nongame bird, or needlessly destroy nests of birds except as otherwise outlined in the code. In practice, staff at the California Department of Fish and Wildlife (CDFW) enforces the code by requiring that projects incorporate measures to avoid and minimize impacts to nesting birds if any tree removal would occur during the nesting or breeding season. For example, a qualified biologist would conduct a tree survey within 15 days before the start of construction occurring in March through May; or 30 days before the start of construction occurring in June through August. These surveys would help to establish the presence of any nesting birds that would need to be protected through avoidance and minimization measures. Additionally, CDFW staff may require notifications if any active nests are identified, including consultation with CDFW and establishment of construction-free buffer zones. Compliance with existing regulations would ensure that project impacts relating to nesting birds would be less-than-significant.

Impact BI-5: The proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (*Less than Significant*)

The project site contains existing trees and other vegetation that would need to be removed as part of the proposed project. The removal of street trees or significant trees, as well as the planting of new street trees, is subject to the provisions of the San Francisco Urban Forestry Ordinance, which is codified as article 16 of the San Francisco Public Works Code.¹¹⁷ Implementation of the proposed project would include the planting of street trees along Upper Terrace, 17th Street, and Roosevelt Way, upon approval by the San Francisco Public Works. The proposed project would not conflict with any local policies or ordinances that protect biological resources. This impact would be less than significant, and no mitigation measures are necessary.

¹¹⁷ Street trees and significant trees are defined in article 16, sections 802 and 810A, respectively, of the San Francisco Public Works Code.

Impact BI-6: The proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. (Not Applicable)

The project site is not within an area covered by an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, state, or regional habitat conservation plan.¹¹⁸ Therefore, Topic 12f is not applicable to the proposed project.

Impact C-BI-6: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative impact related to biological resources. (Less than Significant)

Cumulative development in the project vicinity would result in the construction of structures that can injure or kill birds in the event of a collision, interfere with the movement of bird species covered by the MBTA, and would result in the removal of vegetation and trees on the project site and existing street trees. Nearby cumulative development projects would be subject to the same bird-safe building and urban forestry ordinances applicable to the proposed project. Moreover, there are no candidate, sensitive, or special-status species, any riparian habitat, or other sensitive natural community in the project vicinity. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the project vicinity to create a significant cumulative impact on biological resources.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
13. GEOLOGY AND SOILS. Would the project:					
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

¹¹⁸ San Francisco Recreation & Parks, *Significant Natural Resource Areas Management Plan*, December 2016.

<u>Topics:</u>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
c) Be located on 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The proposed project would connect to San Francisco’s sewer and stormwater collection and treatment system. It would not use a septic water disposal system. Therefore, Topic 14e is not applicable to the project.

In the *California Building Industry Association v. Bay Area Air Quality Management District* case decided in 2015,¹¹⁹ the California Supreme Court held that CEQA does not generally require lead agencies to consider how existing hazards or conditions might impact a project’s users or residents, except where the project would significantly exacerbate an existing environmental hazard. Accordingly, hazards resulting from a project that places development in an existing or future seismic hazard area or an area with unstable soils are not considered impacts under CEQA, unless the project would significantly exacerbate the seismic hazard or unstable soil conditions. Thus, the analysis below evaluates whether the proposed project would exacerbate future seismic hazards or unstable soils at the project site and result in a substantial risk of loss, injury, or death. The impact is considered significant if the proposed project would exacerbate existing or future seismic hazards or unstable soils by increasing the severity of these hazards that would occur or be present without the project.

Geology of the Site

The project site is steep, with exposures of Franciscan Complex rock outcropping through a thin layer of colluvium and vegetation. The site is located in the Coast Ranges Geomorphic Province of California, which is characterized by a series of northwest-trending, folded and faulted mountain chains and intervening valleys. Within this portion of the province, the site is situated within a knob of Franciscan Complex bedrock surrounded by slope wash and ravine fill. The Franciscan Complex was deposited during the Cretaceous Period (roughly 65 to 205 million years ago) when the area was covered by a previously existing deep sea. Tectonic forces have folded the Franciscan

¹¹⁹ *California Building Industry Association v. Bay Area Air Quality Management District*, 62 Cal.4th 369. Opinion Filed December 17, 2015.

rocks into several folds, slivers, and blocks. Hard blocks of Franciscan rocks are relatively resistant to weathering and form the hills throughout the City.

The elevations at the project site vary from 528 feet above mean sea level in the northwestern corner to 420 feet along 17th Street and Roosevelt Way at the toe of the slope; the land rises 108 feet in height over the longest lot length of 135 feet. The toe of the slope has an 8- to 15-foot high, near-vertical cut bank along the edge of the curb. A discussion of local landslides is included in the impact discussion for Impact GE-1.

Regulatory Setting

Existing laws and regulations that stipulate a regulatory process to address seismic and geologic safety of new construction are described below.

Federal Regulations to Address Seismic Hazards

Earthquake Hazard Reduction Act of 1977. Federal laws codified in U.S. Code title 42, chapter 86, were enacted to reduce risks to life and property from earthquakes in the U.S. through the establishment and maintenance of an effective earthquake hazards reduction program. Implementation of these requirements are regulated, monitored, and enforced at the state and local levels.

California Regulations to Address Seismic Hazards

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (Alquist-Priolo Act). The Alquist-Priolo Act (Public Resources Code section 2621 et seq.) is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location and construction of most types of structures intended for human occupancy¹²⁰ over active fault traces and strictly regulates construction in the corridors along active faults (i.e., earthquake fault zones).

The Seismic Hazards Mapping Act of 1990. Similar to the Alquist-Priolo Act, the Seismic Hazards Mapping Act (seismic hazards act, located in Public Resources Code 2690 et seq), enacted in 1990, is intended to reduce damage resulting from earthquakes. Although the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act (i.e., the state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped seismic hazard zones).

A primary purpose of the Seismic Hazards Mapping Act is to assist cities and counties in preparing the safety elements of their general plans and encourage land use management policies and regulations that reduce seismic hazards. The intent of this act is to protect the public from the effects of strong ground shaking, liquefaction, landslides, ground failure, or other hazards caused by

¹²⁰ With reference to the Alquist-Priolo Act, a *structure for human occupancy* is defined as one “used or intended for supporting or sheltering any use or occupancy, which is expected to have a human occupancy rate of more than 2,000 person-hours per year” (California Code of Regulations, title 14, division 2, section 3601[e]).

earthquakes. Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within seismic hazard zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans. In addition, the California Geologic Survey's Special Publication 117A, *Guidelines for Evaluating and Mitigating Seismic Hazards in California*, provides guidance for evaluating earthquake-related hazards for projects in designated zones with required investigations and recommending mitigation measures, as required by Public Resources Code section 2695(a).

The California Geological Survey designates the project site as within an area that may be prone to earthquake-induced ground failure during a major earthquake due to landslide hazard. Because of this, site design and construction must comply with the seismic hazards act, its implementing regulations, and the California Department of Conservation's guidelines for evaluating and mitigating seismic hazards.

California Building Standards Code. The California Building Standards Code, or state building code, is codified in title 24 of the California Code of Regulations. The state building code provides standards that must be met to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures within the state. The state building code generally applies to all occupancies in California, with modifications adopted in some instances by state agencies or local governing bodies. The current state building code incorporates, by adoption, the 2016 edition of the International Building Code of the International Code Council with the California amendments. These amendments include significant building design and construction criteria that have been tailored for California earthquake conditions.

Chapter 16 of the state building code deals with structural design requirements governing seismically resistant construction (section 1604), including, but not limited to, factors and coefficients used to establish a seismic site class and seismic occupancy category for the soil/rock at the building location and the proposed building design (sections 1613.5 through 1613.7). Chapter 18 includes, but is not limited to, the requirements for foundation and soil investigations (section 1803); excavation, grading, and fill (section 1804); allowable load-bearing values of soils (section 1806); and the design of footings, foundations, slope clearances (sections 1808 and 1809), retaining walls (section 1807), and pier, pile, driven, and cast-in-place foundation support systems (section 1810). Chapter 33 includes, but is not limited to, requirements for safeguards at work sites to ensure stable excavations and cut-or-fill slopes (section 3304). Appendix J of the state building code includes, but is not limited to, grading requirements for the design of excavations and fills (sections J106 and J107) and erosion control (sections J109 and J110).

California Division of Occupational Safety and Health Regulations. Construction activities are subject to occupational safety standards for excavation, shoring, and trenching, as specified in California Division of Occupational Safety and Health (Cal/OSHA) regulations (title 8).

San Francisco Building Ordinances and Review

San Francisco Building Code. The City's building construction standards are based on the state building code, and include local amendments to reflect local conditions. These amendments are found in the Appendices to the Building Inspection Commission Codes of the San Francisco Municipal Code. Local procedures may also be included in local building codes to address local conditions and issues. Applicable local procedures required by the local building code explained below.

The Slope Protection Act. The Slope Protection Act (San Francisco Building Code section 106A.4.1.4) requires rigorous review of projects on steeply sloped areas in order to avoid geologic hazards associated with slope stability. The Slope Protection Act applies to properties within certain mapped geologic hazard areas. Under the Slope Protection Act all permit applications submitted to the building department for construction and subject to the Slope Protection Act must include reports prepared and signed by both a licensed geologist and a licensed geotechnical engineer identifying areas of potential slope instability, defining potential risks of development due to geological and geotechnical factors, and drawing conclusions and making recommendations regarding the proposed development. These reports then undergo design review by a licensed geotechnical or civil engineer to verify that appropriate geological and geotechnical issues have been considered and that appropriate slope instability mitigation strategies, including drainage plans if required, are proposed. Based on the review of the geotechnical submittal the building department director may request Structural Advisory Committee review. If a project is subject to Structural Advisory Committee review, no permits will be issued unless the building official has consulted with and received written communication from representatives of the planning department, public works, and fire department, each of whom has made a visit to the site for which the project is proposed, and the building official has received a written report from the Structural Advisory Committee concerning the safety and integrity of the proposed design and construction.¹²¹

In addition to the local building code, San Francisco has ordinances aimed at mitigating seismic and other geologic and soils hazards relevant to the project as described below.

San Francisco Subdivision Code. Section 1358, Preliminary Soils Report, of the City's subdivision ordinance requires that developers file soil reports indicating any soil characteristics which may create hazards, and identifying measures to avoid soil hazards and prevent grading from creating unstable slopes. The ordinance requires that a state-registered civil engineer prepare the soils report.

San Francisco Public Works Code. Section 146, Construction Site Runoff Control, requires that all construction sites must implement best management practices to minimize surface runoff erosion and sedimentation. In addition, pursuant to section 146.7 if construction activities would disturb 5,000 square feet or more of ground surface, then the project sponsor must have an erosion and sediment control plan developed and submit a project application to SFPUC prior to commencing

¹²¹ DBI Information Sheet S-05 (January 1, 2017). Accessed August 9, 2017.
<http://sfdbi.org/sites/default/files/IS%20S-05.pdf>

construction related activities. An erosion and sediment control plan is a site specific plan that details the use, location and emplacement of sediment and erosion control devices.

Implementation of Regulatory Requirements and Responsibilities

The preceding Regulatory Setting section presented the state and local laws that currently ensure that proposed development sites are adequately investigated and that earthquake effects are evaluated and mitigated during the project design and construction. This section discusses the roles and responsibilities of the engineers and building officials, and processes that ensure site investigations, grading, and construction is completed in accordance with the state and local laws developed to protect the public and property from adverse effects of earthquake-induced ground shaking and ground failure.

In San Francisco, the building department implements and enforces the regulatory requirements of the state and local building code described above, and the project engineer as the registered design professional for the project is responsible for ensuring that a building is constructed in compliance with these standards.

The geotechnical engineer¹²² is responsible for investigating the underlying soils and bedrock on a site and, if necessary, developing remedies to improve soil conditions based on standard, accepted, and proven engineering practices. The geotechnical investigation must characterize, log, and test soils and bedrock conditions, and determine the anticipated response of those underlying materials to ground shaking generated during an earthquake. Further, the geotechnical investigation will result in a report that may include recommended methods and materials for all aspects of the site development, including the site preparation, building foundations, structural design, utilities, sidewalks and roadways, to remedy any geotechnical conditions related to potential seismic impacts. The geotechnical engineer (and geologist if in Slope Protection Act area) stamps and signs the report. Then the geotechnical engineer reviews the foundation/excavation plans and provides the building department a compliance with report letter.

Once finalized, the geotechnical report is submitted to building department for review and comment. The building department works with the applicant and the geotechnical engineer to resolve inconsistencies and ensure that the investigation complies with the California Building Standards Commission and local ordinances. The building department reviews geotechnical report and recommendations imposes permit requirements for grading, foundation, building, and other site development permits based on the geotechnical report and state building code provisions. On large scale developments, the City may rely on expertise of outside professionals to peer review geotechnical studies, conclusions, and recommendations.

The following list outlines the typical geotechnical investigation and review process in the City.

¹²² The geotechnical engineer, as a registered professional with the state, is required to comply with the California Building Standards Commission and local codes while applying standard engineering practice and the appropriate standard of care for the particular region in California. The California Professional Engineers Act (Business and Professions Code sections 6700-6799), and the Codes of Professional Conduct, as administered by the California Board of Professional Engineers and Land Surveyors, provide the basis for regulating and enforcing engineering practice in California.

1. Applicant prepares a *preliminary geotechnical investigation* (or a master plan geotechnical investigation for larger project sites).
2. The City fulfills environmental review requirements under CEQA, including approval of any relevant mitigation measures.
3. The City approves project entitlements.
4. Applicant prepares site-specific geotechnical investigations, which entail the following:
 - a. Conduct subsurface exploration of project site;
 - b. Submit soil samples for laboratory analysis;
 - c. Review results of soil sample engineering properties;
 - d. Conduct seismic hazards evaluation based on site location and engineering properties of site soils;
 - e. Assess effects of seismic hazards; and
 - f. Identify appropriate strategies to address seismic hazards.
5. Applicant submits site-specific, design-level geotechnical investigation report and plans to the building department.
6. The building department reviews site-specific, design-level geotechnical investigation report and plans and recommendations for adherence to the local and state building code requirements.
7. Applicant addresses the building department's comments.
8. Applicant resubmits modified construction plans based on the building department's comments.
9. The building department approves grading and foundation permit.

Geologic/Geotechnical Investigations (General)

In most cases, a preliminary geotechnical investigation is adequate to complete necessary CEQA analyses because the level of detail and information obtained allow for an effective evaluation regarding whether geologic or seismic impacts exist and whether mitigation would be required. Remedial measures developed by the geotechnical engineers in the preliminary geotechnical investigation may be identified as mitigation measures for the project.

Geotechnical Investigation for 271 Upper Terrace Project

The geology and soils analysis provided below relies upon the preliminary geotechnical investigation prepared for the 271 Upper Terrace Project in 2016 by Ryan Geological Consulting, Inc.¹²³ The preliminary geotechnical investigation evaluated project feasibility in light of the site geotechnical conditions. A final site-specific, design-level geotechnical study will be prepared and provided to the building department with the building permit application. The site-specific,

¹²³ Ryan Geological Consulting, Inc. Geotechnical Investigation Report: Proposed 5-Lot Subdivision Mount Olympus, Upper Terrace Above 17th Street and Roosevelt Way, San Francisco, CA. January 25, 2016.

design-level geotechnical report will include recommendations and mitigation measures for site preparation and grading, foundation recommendations and drainage recommendations.

The preliminary geotechnical investigation was significantly constrained due to limited access to the project site for conventional equipment. Two borings were taken along the edge of Upper Terrace: one reached a depth of 10 feet, the other 82 feet. Therefore, the geotechnical analysis is largely based on projections from the data that was collected together with site observations. Chert was found throughout the borings; the site is expected to be consistently underlain by hard beds of Franciscan chert with structures that promote adverse orientations in planned cuts. Due to the addition of drilling fluids, groundwater levels were obscured. While significant groundwater aquifers are not expected, isolated pockets of groundwater seepage may be found in isolated fracture zones and should be expected in deep cuts into the bedrock. Groundwater levels are expected to undergo significant fluctuation throughout the year depending on local irrigation and seasonal rainfall.

Ryan Geological Consulting determined the proposed project is feasible provided that the recommendations within the preliminary geotechnical investigation are incorporated into the project design and construction. These specific recommendations are included below.

The project proposes vertical cuts along the southwestern, northwestern, and northeastern property boundaries. Cuts below Upper Terrace would be at depths up to 55 feet; a roughly 75-foot-wide, level bench would be constructed in the middle of the site. A lower cut, roughly parallel to Roosevelt Way, of up to 45 feet would be made on the downslope side of the bench. Additionally, the project proposes retaining walls up to 55 feet in height along the property boundaries and between lots.

The primary geotechnical factors impacting development of the site are: interim construction conditions of the planned vertical cuts adjacent to property boundaries; hard rock conditions during grading; providing lateral, and, if needed, vertical support to adjacent buildings during excavation; and proper structural design for seismic conditions.

Paleontological Resources

The potential for an area to contain significant paleontological resources is determined by its geology.

The Society of Vertebrate Paleontology (SVP) developed the Conformable Impact Mitigation Guidelines (SVP Guidelines; SVP 1995). The guidelines outline criteria to assess paleontological sensitivity based on the potential of a geologic unit to contain significant paleontological resources. Based on these guidelines, a vertebrate fossil is considered significant unless otherwise demonstrated, due to the relative rarity of vertebrate fossils. Vertebrate fossils are so uncommon that, in many cases, each recovered specimen will provide additional important information about the morphological variation or the geographic distribution of its species. Additionally, certain invertebrate or botanical fossils are considered significant paleontological resources if they provide new and substantial taxonomic, phylogenetic, ecologic, or stratigraphic data.

The SVP defines paleontological resources to be significant fossils or assemblages of fossils if they are unique, unusual, rare, uncommon, and diagnostically or stratigraphically¹²⁴ important or add to an existing body of knowledge in specific areas—stratigraphically, taxonomically, or regionally.

A rock unit is considered to be sensitive to adverse impacts if there is a high probability that grading, excavation, or other earth-moving will jeopardize significant fossil remains. The paleontological sensitivity of a stratigraphic unit reflects its potential paleontological productivity, as well as the scientific significance of the fossils it has produced.

The SVP Guidelines establish three categories of sensitivity for paleontological resources: low, high, and undetermined. Each is described below.

- **Low Sensitivity.** Rock units that are not sedimentary in origin (e.g., most igneous and metamorphic rocks) are categorized as low-sensitivity paleontological resources. However, sedimentary rock units may also be categorized as low-sensitivity resources if they have been well examined and have not produced paleontological resources. Monitoring is not usually recommended or needed during excavation in a rock unit with low sensitivity.
- **High Sensitivity.** High-sensitivity paleontological resources are categorized as rock units older than Holocene (recent)¹²⁵ from which vertebrate, significant invertebrate, or a suite of plant fossils have been recovered.
- **Undetermined Potential.** Paleontological resources in sedimentary rock units for which little information is available are categorized as undetermined paleontological sensitivity. It is often possible for an experienced paleontologist to determine whether such a rock unit should be assigned a high or low sensitivity categorization after a pedestrian survey is performed and detailed observations of both natural and artificial exposures of the rock unit are made.

Paleontological Sensitivity at 271 Upper Terrace Project Site

The project site is underlain with a rock formation of the Franciscan Complex. This geologic unit has the potential to contain previously undiscovered fossil specimens, and therefore is considered to have high paleontological sensitivity.

The Franciscan Complex is heavily deformed and metamorphosed in many locations, and whatever fossils existed in these strata have been destroyed. Fossils from the Franciscan Complex are therefore generally rare. From records search results, it appears that within San Francisco there have been no discoveries of vertebrate fossils from the Franciscan Complex formation near the

¹²⁴pertaining to the layers of the earth's surface.

¹²⁵ Holocene or recent age sediments (less than 10,000 years old) are generally considered to be too young to preserve significant fossils.

project site.^{126,127} The bedrock on the portion of the project site adjacent to the Roosevelt Way sidewalk is exposed. However, bedrock is generally covered with dense vegetation and colluvium at other locations on the project site.¹²⁸

While most of the bedrock on the project site is covered, based on the rarity of recorded vertebrate localities in the vicinity of the project site, the site's Franciscan Complex is considered to have low potential to contain significant fossils.

Impact GE-1: The proposed project would exacerbate the potential to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, seismic groundshaking, liquefaction, lateral spreading, or landslides. (*Less Than Significant with Mitigation*)

The project site does not lie within an Alquist-Priolo Earthquake Fault Zone, and no active or potentially active faults exist on or in the immediate vicinity of the site. The nearest mapped active fault is the San Andreas Peninsula Fault, which is located approximately 5.5 miles to the west.

The project site is not located in a liquefaction hazard zone. Therefore, the proposed project would not result in exposure of people and/or structures to potential substantial adverse effects from liquefaction potential.

Ground Shaking

During a major earthquake located on a nearby fault, strong to very strong groundshaking is expected to occur at the project site. However, the project would neither expose people nor structures to substantial adverse effects due to this groundshaking because the project would be designed and constructed in accordance with the current state and local building code. The preliminary geotechnical investigation for the site concluded that "strong groundshaking from a major earthquake is a hazard that cannot be eliminated but the effects can be reduced by observation of sound construction practices and observance of current seismic design codes."¹²⁹ The preliminary geotechnical investigation recommended that for seismic design Site Class B (rock) be used in accordance with the building code.

The proposed project's potential to exacerbate a hazard to people or structures due to groundshaking would be a significant impact. Implementation of Mitigation Measure M-GE-1a: Detailed Design Plans would reduce this impact to less than significant.

Mitigation Measure M-GE-1a, Detailed Design Plans

¹²⁶ California Academy of Sciences Invertebrate, Zoology, and Geology Fossil Collection Database, <http://researcharchive.calacademy.org/research/izglfossil/index.asp?xAction=ShowForm&PageStyle=Single&PageSize=0&OrderBy=AccessionNo&County=san+francisco&RecStyle=Full>, accessed November 7, 2017.

¹²⁷ University of California Museum of Paleontology Specimen

¹²⁸ Ryan Geological Consulting Inc., *Geotechnical Investigation Report Proposed 5-Lot Subdivision, Mount Olympus Upper Terrace Above 17th Street and Roosevelt Way, San Francisco, California*, January 25, 2016.

¹²⁹ Ryan Geological Consulting, Inc. *Geotechnical Investigation Report: Proposed 5-Lot Subdivision Mount Olympus, Upper Terrace Above 17th Street and Roosevelt Way, San Francisco, CA*. January 25, 2016, p. 11.

The design and construction of the project shall incorporate all design, construction, and maintenance recommendations of the project's preliminary geotechnical investigation. Prior to the issuance of a building permit for the project site, the project sponsor shall:

1. Submit to the Department of Building Inspection a site-specific, design-level geotechnical investigation prepared and signed by both a licensed geologist and a licensed geotechnical engineer, which in turn undergo design review by a licensed geotechnical engineer. The investigation shall comply with all applicable state and local code requirements and:
 - a) Include an analysis of the expected ground motions at the site from known active faults using accepted methodologies;
 - b) Determine structural design requirements as prescribed by the most current version of the California Building Code, including applicable City amendments, to ensure that structures can withstand ground accelerations expected from known active faults; and
 - c) Determine the final design parameters for walls, foundations, foundation slabs, utilities, roadways, parking lots, sidewalks, and other surrounding related improvements.
2. Project plans for foundation design, earthwork, and site preparation shall incorporate all of the mitigations in the site-specific investigation(s), including shoring of the steep cuts and excavating permanent cut slopes to inclinations that will be stable during a major earthquake, or stabilizing the cuts with rock bolts and/or permanent concrete retaining walls.
3. The project structural engineer shall review the site-specific investigations, provide any additional necessary mitigation to meet building code requirements, incorporate all applicable mitigations from the investigation in the structural design plans, and ensure that all structural plans for the project meet current building code requirements.
4. The Department of Building Inspection plan reviewer shall review each site-specific geotechnical investigation and require compliance with all geotechnical mitigations contained in the investigation and in the plans submitted for the grading, foundation, structural, infrastructure and all other relevant construction permits. If determined necessary, the Structural Advisory Committee shall also review.
5. The Department of Building Inspection shall review all project plans for grading, foundations, structural, infrastructure, and all other relevant construction permits to ensure consistency with the applicable geotechnical investigation and compliance with all applicable code requirements.

Landslides

As noted in the preliminary geotechnical investigation, the site is within a state-designated Seismic Hazard Zone for earthquake-induced landslide potential and within the City's Slope Protection Act area.¹³⁰ Two rock slides occurred on the site deeming the existing building unsafe in February

¹³⁰ Ibid, p. 11.

2017 (271 Upper Terrace; case open) and in January 2005 (271 and 301 Upper Terrace and 4500 17th Street; case abated in August 2012).¹³¹ A mud and rock slide was also reported at 4500 17th Street in December 2014, resulting in the public works department clearing the sidewalk, inserting pylons and placing a road barrier along the intersection of 17th Street and Roosevelt Way.¹³²

The site is underlain by hard competent bedrock; however, the proposed project would cut into bedrock, which is vulnerable to earthquake-induced landslides, posing a significant hazard. According to the Association of Bay Area Governments Resilience Program¹³³, the site is subject to rainfall-induced landslides, earthquake-induced landslides, and has had many previous landslides. The highest hazard risk would occur during site excavation and construction. This is considered a significant impact. Implementation of Mitigation Measure M-GE-1a: Detailed Design Plans, above, and Mitigation Measures M-GE-1b: Protection of Subject Property and Adjacent Properties from Potential Landslides, M-GE-1c: Drainage and Erosion Control, and M-GE-1d: Stabilization of Project Site for Construction Phase, below, would reduce this impact to less than significant.

Mitigation Measure M-GE-1b, Protection of Subject Property and Adjacent Properties from Potential Landslides

To protect the subject property, adjacent neighboring properties, and 17th Street and Roosevelt Way public right-of-way, the project sponsor shall engage a qualified geotechnical engineer to confirm the findings and interpretations within the preliminary geotechnical investigation by conducting additional geotechnical investigation (e.g., boring once the Upper Terrace residence is demolished).

The project sponsor shall have a qualified engineering geologist inspect all excavations along property boundaries during excavation to evaluate rock structure and quality and to confirm the preliminary geotechnical investigation findings.

Project construction shall include the following measures:

- Shoring of the steep cuts during construction.
- Shotcrete shall be available and on standby, and application shall be required for temporary shoring during all vertical cuts made near property boundaries should over-break or wedge-failures occur.
- If there is insufficient room for temporary construction slopes, temporary vertical cuts may be retained using soil nails. Should soil nails extend beyond property lines, permission shall be required from the adjacent property owner. Soil nails shall be spaced about eight feet, center to center, with a length approximately equal to the height of the cut and the soil nail wall shall be properly backdrained and wire mesh and shotcrete should be applied to the exposed soil face within eight hours of excavation.
- Minimize unsupported cut heights during excavation.
- Installation of rock bolts to maintain integrity of the rock mass.

¹³¹ Department of Building Inspection (DBI), Complaint Numbers 200556964 and 201761992.

¹³² Department of Building Inspection (DBI), Complaint Number 201414611.

¹³³ Association of Bay Area Governments Resilience Program. <http://gis.abag.ca.gov/website/Hazards/> Accessed February 16, 2018.

- Excavation shoring and rock bolts shall be installed as the cuts deepen.

In addition, a qualified geotechnical engineer shall determine and design appropriate protective measures and remain onsite during the demolition of the existing residence on Upper Terrace, site preparation, placement and compaction of fill, and installation of building foundations, underpinning, and shoring and ensure those measures are properly implemented.

Mitigation Measure M-GE-1c, Drainage and Erosion Control

The project shall include the following drainage and erosion control measures to maintain slope stability and to reduce the risk of downslope migration of slope debris:

- Placement of concrete v-ditches (v-shaped ditch) for the collection and routing of surface water flows.
- Placement of swales and catch basins for the collection and direction of the flow of surface water.
- Collection of water on roofs using downspout connected to a system of pipes that would extend into a drainage system as required by the San Francisco Public Utilities Commission..
- Locate subdrains uphill from and behind proposed retaining walls and debris walls.
- Should a soil-nail wall be constructed, it shall be properly backdrained using two-foot-wide prefabricated drainage panels behind the shotcrete facing at the same spacing as the nails. Wire mesh and shotcrete shall be applied to the exposed soil face within eight hours of excavation.
- Plant fill slopes with fast-growing, deep-rooted vegetation or cover fill slopes with erosion control materials prior to the first rainy season.
- Erosion-resistant vegetation shall be planted on the finished slopes and, if the construction period spans the rainy season, the vegetation shall also be planted on temporary slopes.
- Erosion control for temporary slopes shall include, as determined to be appropriate by a qualified geotechnical engineer:
 - Grading to prevent water from flowing over the top of any slope;
 - Planting vegetation, including quick-growing native grasses and plants; and
 - Installing netting, hay wattles, and silt fences.

Mitigation Measure M-GE-1d, Stabilization of Project Site for Construction Phase

The soil engineer shall observe the exposed conditions to ensure that all geotechnically unsuitable materials are removed. Holes resulting from the removal of any obstructions that extend below the proposed finished grade shall be cleared and backfilled with suitable materials compacted.

The project shall observe the following fill measures:

- Materials to be reused as engineered fill shall be evaluated by the soil engineer and free of rocks larger than four inches in greatest dimension and any wood debris, deleterious materials, or any other geotechnically unsuitable materials.
- Imported soil for fill shall be free of organic matter, contain no rocks or lumps larger than four inches, have a liquid limit less than 40 and a plasticity index less than 12, and approved by the geotechnical engineer.

The project shall observe the following excavation, earthwork, and stabilization measures:

- Areas of over-break and wedge failure shall be stabilized and backfilled with shotcrete immediately to prevent regressive failure and damage to adjacent improvements.

Methods of controlling the potential for wedge failure and over-break include:

- Minimize the height of unsupported cuts.
- Cut the slope fat and then trimming to grade with a road header.
- Install drilled piers for shoring prior to excavation.
- Install vertical rock dowels behind the cut prior to excavation.
- Support cuts within 24 hours of excavation prior to progressing with the next cut.
- Support raveling bedrock conditions immediately.
- Cover areas of raveling bedrock with shotcrete .
- Remove or break large blocks of bedrock into smaller pieces for use as engineered fill.
- Remove tree roots with a diameter greater than 1/2 inch within three feet of subgrade.
- Place fill in thin lifts, moisture-conditioned to above optimum, and compacted to no less than 90 percent relative compaction. Fill thicker than five feet and fill with less than 10 percent fines shall be compacted to at least 95 percent relative compaction.

The project shall observe the following graded slope measures:

- Construct permanent cut and fill slopes with native bedrock-derived fill materials at gradients no steeper than 2H:1V.
- Construct fill slopes with a 15-foot-wide (minimum) keyway extending two feet into competent bedrock on the downslope side of the keyway excavation.
- The keyway should slope back into the hill a minimum of five percent with a subdrain constructed in according to the preliminary geotechnical investigation.
- A licensed geotechnical engineer or engineering geologist shall evaluate all keyway excavations.
- Overbuild fill slopes two feet (horizontally), and then trim back to expose firm compacted fill or track-walked.
- Cut slopes in bedrock up to 10 feet shall be no steeper than 1H:1V.
- Cut slopes in bedrock greater than 10 feet shall be no steeper than 1.H:1V.
- An engineering geologist shall evaluate cut slope exposures for adverse conditions.

The project shall observe the following subgrade measures:

- The upper 12 inches of pavement subgrade shall be moisture-conditioned above optimum moisture content and compacted to at least 95 percent.
- Garage floor slab and exterior flatwork subgrade shall have at least four and six inches of Class 2 aggregate base placed beneath exterior concrete flatwork and the garage floor slab, respectively.
- The geotechnical engineer shall evaluate the subgrade during preparation.

Impact GE-2: The proposed project would not result in substantial loss of topsoil or erosion. (No Impact)

The site contains exposures of Franciscan Complex rock outcropping through a thin layer of colluvium and vegetation. There is relatively little visible bare soil on the site. Therefore, the proposed project would not result in the substantial loss of topsoil, and no mitigation is required.

Impact GE-3: The proposed project would be located on a geologic unit that is unstable, or that could become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. (*Less than Significant with Mitigation*)

The proposed project site is located on a geologic unit that may be unstable during the construction of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, or collapse. The hazard potential would be highest during site excavation and construction, as addressed under Impact GE-1, above. Excavation of the Franciscan Complex chert formation would require hard rock excavation techniques such as a hoe ram or a road header. The thick chert beds encountered are typically difficult to excavate for slopes, basements, foundations and utility trenches. The preliminary geotechnical investigation provided recommendations for stabilization of the site during construction, including the specifications for permanent cut and fill slopes and drainage control measures. Implementation of Mitigation Measures M-GE-1a: Detailed Design Plans, M-GE-1b: Protection of Subject Property and Adjacent Properties from Potential Landslides, M-GE-1c: Drainage and Erosion Control, and M-GE-1d: Stabilization of Project Site addressed under Impact GE-1, above, would reduce this impact level to less than significant.

Impact GE-4: The proposed project would not create substantial risks to life or property as a result of being located on expansive soil. (*Less than Significant*)

Soils located beneath fully developed urban areas are generally not highly susceptible to the effects of expansive soils. Bedrock was encountered at shallow depths at the edge of Upper Terrace. As noted in the preliminary geotechnical investigation, the site has exposures of Franciscan Complex rock outcroppings through a thin layer of colluvium and vegetation. Portions of the site are covered with overburden soils¹³⁴ and forest litter from the eucalyptus trees onsite. Due to past terracing of the site, the overburden soils are likely relatively thin, but cover the rock surface on the majority of the site. According to a regional geologic map in the preliminary geotechnical investigation, the site does not contain expansive soil. Impacts related to unstable soils at the project site would be less than significant, and the project would not create substantial risks to life or property, and no mitigation measures are necessary.

Impact GE-5: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (*Less than Significant*)

Paleontological resources, or fossils, are the remains, imprints, or traces of animals, plants, and invertebrates, including their imprints, from a previous geological period. Collecting localities and the geologic formations containing those localities are also considered paleontological resources, representing a limited, nonrenewable resource. Once destroyed, they cannot be replaced.

¹³⁴ Overburden soils encompass the loose *soil*, sand, silt, or clay that overlies bedrock

As discussed above, the Franciscan Complex, which underlies the project site, has high paleontological sensitivity, but a low potential to contain significant fossils due to the rarity of recorded vertebrate localities in the vicinity of the project site. Therefore, the proposed project would not result in significant impacts to a unique paleontological resource or site or unique geologic feature.

Impact C-GE-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative impact related to geology and soils. (Less than Significant)

The proposed project would result in less-than-significant impacts related to topographical features and risk of injury or death involving landslides. Impacts related to rupture of an earthquake fault, seismic ground shaking or ground failure, unstable soil, or the loss of top soil would be less than significant with mitigation. Impacts to paleontological resources and geologic features would also be less than significant. Geology and soils impacts are generally site-specific and localized and do not have cumulative effects with other projects. These impacts are specific to the project and would not combine with similar impacts associated with past, present, and reasonably foreseeable future projects in the site vicinity.

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
14. HYDROLOGY AND WATER QUALITY. Would the project:					
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The project site is not located within a 100-year flood hazard area designated on the City's interim floodplain map, and would not place housing or structures within a 100-year flood hazard area that would impede or redirect flood flows.¹³⁵ Therefore, Topics 14g and 14h are not applicable.

Impact HY-1: The proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality. (Less than Significant)

Project-related wastewater and stormwater would flow to the City's combined stormwater/sewer system and would be treated to standards contained in the City's NPDES Permit for the Southeast Water Pollution Control Plant prior to discharge into San Francisco Bay. The NPDES standards are set and regulated by the San Francisco Bay Area Regional Water Quality Control Board. Therefore, the proposed project would not conflict with regional water control board requirements.

Construction activities such as excavation, earthmoving, and grading would expose soil and could result in erosion and excess sediments being carried in stormwater runoff to the combined stormwater/sewer system. In addition, stormwater runoff from temporary on-site use and storage of vehicles, fuels, waste, and other hazardous materials could carry pollutants to the combined

¹³⁵ San Francisco Interim Floodplain Map, Citywide. Final Draft, July 2008.
http://sfgov.org/sfc/riskmanagement/Modules/Citywide__3d9c.pdf?documentid=1761

stormwater/sewer system if proper handling methods are not employed. Runoff from the project site would drain into the City's combined stormwater/sewer system, ensuring that such runoff is properly treated at the Southeast Water Pollution Control Plant before being discharged into San Francisco Bay.

The proposed project would disturb more than 5,000 square feet of ground surface and is, therefore, subject to the San Francisco Construction Site Runoff Ordinance. Accordingly, the project sponsor must prepare and implement an erosion and sediment control plan during project construction. Compliance with the ordinance would reduce the potential for sediments and other pollutants to enter the combined system. The erosion and sediment control plan must include best management practices designed to prevent discharge of sediment and other pollutants from the site, and is subject to review and approval by the SFPUC.

As discussed under Topic 14, Geology and Soils, the project site is underlain by bedrock, and significant groundwater aquifers are not expected. Groundwater could be perched in isolated fracture zones at varying depths within the bedrock. The proposed project's excavation and permanent structures have the potential to encounter groundwater, which could impact water quality. Any groundwater encountered during construction or operation of the proposed project would be subject to the requirements of the San Francisco Sewer Use Ordinance, as supplemented by San Francisco Public Works Order No. 158170, requiring a permit from the Wastewater Enterprise Collection System Division of the San Francisco Public Utilities Commission. A permit may be issued only if an effective pretreatment system is maintained and operated. Each permit for such discharge shall contain specified water quality standards and may require the project sponsor to install and maintain meters to measure the volume of the discharge to the combined sewer system. If wells are used for groundwater dewatering, the project would comply with San Francisco's Soil Boring and Well Regulation Ordinance, adopted as article 12B of the San Francisco Health Code, requiring a permit from the Department of Public Health for operation of a well and from the SFPUC for use of wellwater.

For these reasons, the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality. This impact would be less than significant, and no mitigation measures are necessary.

Impact HY-2: The proposed project would not 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. (*Less than Significant*)

As discussed under Impact HY-1, the project site is underlain by bedrock, and significant groundwater aquifers are not expected. Groundwater could be perched in isolated fracture zones at varying depths within the bedrock. The proposed project's excavation has the potential to encounter groundwater, which could affect groundwater supplies. Although dewatering would be required during construction, any effects related to lowering the water table would be temporary and would not be expected to substantially deplete groundwater resources. This impact would be less than significant, and no mitigation measures are necessary.

Impact HY-3: The proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, would not substantially increase the rate or amount of surface runoff in a manner that would result in

substantial erosion, siltation, or flooding on- or off-site, and would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. (*Less than Significant*)

No streams or rivers are present on the project site; therefore, the proposed project would not alter the route of a stream or river. The proposed project would alter the project site but the project includes drainage elements that would control stormwater runoff and direct it into the City's combined stormwater/sewer system.

Across the street from the project site, south of 17th Street, Blocks 2654 and 2655 have been identified by the SFPUC as "blocks of interest" with potential to flood.¹³⁶ As identified above under Impact HYD-1, the project is required to comply with the stormwater management ordinance, which would reduce the potential for sediments and other pollutants to enter the combined system, and would require implementation and installation of appropriate stormwater management systems, all of which would be reviewed and approved by SFPUC. Therefore, the proposed project would not result in substantial erosion or flooding associated with changes in drainage patterns.

This impact would be less than significant, and no mitigation measures are necessary.

Impact HY-4: The proposed project would not place housing within a 100-year flood hazard area and would not place structures that would impede or redirect flood flows within a 100-year flood hazard area. (*No Impact*)

The project site is not located within a flood zone designated on the City's interim floodplain map.¹³⁷ The proposed project would not place housing within a 100-year flood hazard area and would not place structures that would impede or redirect flood flows within a 100-year flood hazard area. . No impact would occur.

Impact HY-5: The proposed project would not 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, or involving inundation by seiche, tsunami, or mudflow. (*Less than Significant*)

As shown on Map 5, Tsunami Hazard Zones, San Francisco, 2012, in the Community Safety Element of the general plan, the project site is not in a tsunami hazard zone, so the proposed project would not be at risk of inundation by tsunami.¹³⁸ A seiche is a periodic oscillation (rise and fall) of the surface of an enclosed or semi-enclosed body of water that can be caused by atmospheric or seismic disturbances. Tidal records for San Francisco Bay show that the 1906 earthquake caused a seiche of approximately four inches. A temporary four-inch rise in the water level of San Francisco Bay would not reach the project site, which is at least three miles from San Francisco's western,

¹³⁶ San Francisco Planning Department, *Planning Director Bulletin No. 4: Review of Projects in Areas Prone to Flooding*, April 2007. Available online at http://www.sf-planning.org/ftp/files/publications_reports/DB_04_Flood_Zones.pdf, accessed June 17, 2015.

¹³⁷ City and County of San Francisco, General Services Agency, Risk Management Program, *San Francisco's Interim Floodplain Map, Northeast, Final Draft*, July 2008. Available online at <http://www.sfgsa.org/Modules/ShowDocument.aspx?documentid=1785>, accessed August 6, 2015.

¹³⁸ San Francisco Planning Department, *San Francisco General Plan*, Community Safety Element, p. 15. Available online at http://www.sf-planning.org/ftp/General_Plan/Community_Safety_Element_2012.pdf, accessed May 10, 2017.

northern, and eastern shorelines. For these reasons, the proposed project would not be at risk of inundation by seiche.

The project site is in a landslide hazard zone and has a slope exceeding 20 percent.¹³⁹ However, as detailed in Impact GE-2: The proposed project would not result in substantial loss of topsoil or erosion, the site contains exposures of Franciscan Complex rock outcropping through a thin layer of colluvium and vegetation with relatively little visible bare soil on the site. Furthermore, as identified under Impacts G-1 and G-3, the project would be constructed to minimize risk and would apply Mitigation Measures M-GE-1b: Protection of Subject Property and Adjacent Properties from Potential Landslides and M-GE-1d: Stabilization of Project Site for Construction Phase to reduce the potential impact from landslide.

Therefore, with implementation of these mitigation measures the project would not 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, or involving inundation by seiche, tsunami, or mudflow. This impact would be less than significant, and no additional mitigation measures beyond M-GE-1b and 1d are necessary.

Impact C-HY-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative impact related to hydrology and water quality. (*Less than Significant*)

Implementation of the proposed project, in combination with cumulative development in the project vicinity, would result in the construction of 12 dwelling units and an incremental increase in water consumption and wastewater generation. The SFPUC has accounted for such growth in its service projections. Nearby cumulative development projects would be subject to the same water conservation, stormwater management, and wastewater discharge ordinances applicable to the proposed project. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the project vicinity to create a significant cumulative impact related to hydrology and water quality.

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
15. HAZARDS AND HAZARDOUS MATERIALS.					
Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

¹³⁹ San Francisco Planning Department, GIS database geology layer, accessed May 10, 2017.

<u>Topics:</u>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The project site is not located within an area covered by an airport land use plan, within two miles of a public airport or a public use airport, or within the vicinity of a private airstrip. Therefore, Topics 15e and 15f are not applicable to the proposed project.

Impact HZ-1: The proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. (*Less than Significant*)

The proposed project’s residential uses would involve the use of relatively small quantities of hazardous materials such as cleaners and disinfectants for routine purposes. These products are labeled to inform users of potential risks and to instruct them in appropriate handling procedures. Most of these materials are consumed through use, resulting in relatively little waste. For these reasons, the proposed project would not create a significant hazard to the public or the

environment through the routine transport, use, or disposal of hazardous materials. This impact would be less than significant, and no mitigation measures are necessary.

Impact HZ-2: The proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. (*Less than Significant*)

The project site is occupied by two buildings that were constructed in 1945 and 1954. Due to the age of the buildings, it is possible that asbestos-containing material and lead-based paint are present. Demolition of the single family unit and renovation of the two-family unit could release asbestos-containing material, lead, or other hazardous materials into the environment.

Demolition and construction activities would follow all appropriate standards and regulations for hazardous materials, including the California Health and Safety code. Currently, section 19827.5 of the California Health and Safety code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos.

BAAQMD is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement and is to be notified 10 days in advance of any proposed demolition or asbestos abatement work. The notification must include (1) the address of the operation; (2) the names and addresses of those who are responsible; (3) the location and description of the structure to be altered, including size, age, prior use, and the approximate amount of friable asbestos; (4) scheduled start and completion dates for the asbestos abatement work; (5) nature of the planned work and methods to be employed; (6) procedures to be employed to meet BAAQMD requirements; (7) and the name and location of the waste disposal site to be used. BAAQMD randomly inspects asbestos removal operations. BAAQMD will inspect any removal operation about which a complaint has been received. Any asbestos-containing building material disturbance at the project site would be subject to the requirements of BAAQMD regulation 11, rule 2: Hazardous Materials; Asbestos Demolition, Renovation, and Manufacturing.

The local office of Cal/OSHA must also be notified of any asbestos abatement that is to be carried out. Asbestos abatement contractors must follow state regulations contained in the California Code of Regulations, title 8, section 1529 and sections 341.6 through 341.14, where there is asbestos-related work involving 100 square feet or more of asbestos-containing building material. Asbestos removal contractors must be certified as such by the Contractors Licensing Board of the State of California. The owner of the property where abatement is to occur must have a Hazardous Waste Generator Number assigned by and registered with the Office of the California Department of Health Services in Sacramento. The contractor and hauler of the material are required to file a *hazardous waste manifest* that details the hauling of the material from the site and the disposal of it. Pursuant to law, the building department will not issue the required permit until the project sponsor has complied with the notice requirements described above.

If lead-based paint is present, demolition of the current building on the project site would be subject to the Cal/OSHA Lead in Construction Standard (8 California Code of Regulations section 1532.1), which requires development and implementation of a lead compliance plan when materials that contain lead would be disturbed during construction. The plan must describe activities that could emit lead, methods that will be used to comply with the standard, safe work practices, and a plan

to protect workers from exposure to lead during construction activities. Cal/OSHA would require 24-hour notification if more than 100 square feet of materials that contain lead would be disturbed. Any other hazardous building materials identified either before or during demolition or renovation shall be abated according to federal, state, and local laws and regulations.

Therefore, through compliance with existing laws and regulations, impacts related to exposure to hazardous building materials during demolition would be less than significant, and no mitigation measures are necessary.

Impact HZ-3: The proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (*Less than Significant*)

There is one school within one-quarter mile of the project site: Grattan Elementary/Early Education School at 165 Grattan Street (0.25 mile northwest). As discussed under Impact HZ-1, the proposed project would include the use of common household items in quantities too small to create a significant hazard to the public or the environment. The proposed residential uses would not produce hazardous emissions and would not involve the handling of hazardous or acutely hazardous materials, substances, or waste. This impact would be less than significant, and no mitigation measures are necessary.

Impact HZ-4: The project site is not included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5. (*Less than Significant*)

The project site is not listed on the Maher ordinance map.¹⁴⁰ The project site is not located on a list of hazardous materials sites. There are three sites¹⁴¹ located within 1,000 feet of the project site which are listed as having leaking underground storage tanks.

- 370 Upper Terrace, residence located 165 feet northwest of the project site with an underground heating oil tank which resulted in soil contamination. The clean-up was completed and the case was closed on October 30, 1996.
- 1198 Clayton Street, a commercial property located 350 feet west of the project site with potential contaminants consisting of gasoline, waste oil, motor oil, hydraulic oil, and lubricants which resulted in soil contamination. The clean-up was completed and the case was closed on July 13, 2004.

¹⁴⁰ Article 22A of the San Francisco Health Code, commonly called the Maher ordinance, has been in place since the 1990s and was expanded in 2013 to apply to projects throughout the City that involve more than 50 cubic yards of soil disturbance on sites of known site contamination.

¹⁴¹ Information found on both websites from the San Francisco Regional Water Quality Control Boards' GeoTracker page: http://geotracker.waterboards.ca.gov/map/?global_id=T0607500727 and the Department of Toxic Substance Control's EnviroStor webpage: <http://www.envirostor.dtsc.ca.gov/public/> both accessed on July 6, 2017.

- 153 Upper Terrace, a residence located 900 feet northwest of the project site with an underground heating oil tank which resulted in soil contamination. The clean-up was completed and the case was closed on August 16, 2001.

All of these cases were cleaned up and closed a minimum of thirteen years ago. None of these properties have contaminated groundwater, which would have the potential to contaminate properties off-site.

Therefore, the project would not result in a significant hazard to the public or environment from contaminated soil and groundwater, and this impact would be less than significant and no mitigation required.

Impact HZ-5: The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan and would not expose people or structures to a significant risk of loss, injury, or death involving fires. (*Less than Significant*)

In San Francisco, fire safety is ensured through the provisions of the building code and the fire code. During the review of the building permit application, the building department and the fire department will review the project plans for compliance with all regulations related to fire safety, which may include the development of an emergency procedure manual or an exit drill plan for the residents of the proposed project. Compliance with fire safety regulations would ensure that the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan or expose people or structures to a significant risk of loss, injury, or death involving fires. This impact would be less than significant, and no mitigation measures are necessary.

Impact C-HZ-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative impact related to hazards and hazardous materials. (*Less than Significant*)

Impacts associated with hazards are generally site specific and typically do not result in cumulative impacts. The project would not have a significant impact due to hazardous material conditions on the project site or in the vicinity with implementation of mitigation. The proposed project could result in potential impacts related to hazardous materials, conducting construction activities within potentially contaminated soil, and demolition of structures that contain hazardous building materials; however, conformance with applicable regulatory requirements would reduce those impacts to less-than-significant levels. Furthermore, any potential impacts would be primarily restricted to the project site and the immediate vicinity. No other existing, proposed, or foreseeable developments in the project vicinity would contribute considerably to cumulative effects. Any such cumulative project would be subject to the same regulatory requirements and would not combine to create a significant cumulative impact. For these reasons, the project, in combination with other past, present, and reasonably foreseeable future projects, would not contribute considerably to a significant cumulative hazardous materials impact.

<u>Topics:</u>	<u>Potentially Significant Impact</u>	<u>Less Than Significant with Mitigation Incorporated</u>	<u>Less Than Significant Impact</u>	<u>No Impact</u>	<u>Not Applicable</u>
16. MINERAL AND ENERGY RESOURCES. Would the project:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact ME-1: The proposed project would not result in the loss of availability of a known mineral resource or a locally-important mineral resource recovery site. (Not Applicable)

All land in San Francisco, including the project site, is designated Mineral Resource Zone 4 (MRZ-4) by the California Division of Mines and Geology under the Surface Mining and Reclamation Act of 1975.¹⁴² This designation indicates that there is inadequate information available for assignment to any other mineral resource zone. Thus, the project site is not a designated area of significant mineral deposits or a locally important mineral resource recovery site. Therefore, Topics 16a and 16b are not applicable to the proposed project.

Impact ME-2: The proposed project would not encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner. (Less than Significant)

In California, energy consumption in buildings is regulated by title 24 of the California Code of Regulations. Title 24 includes standards that regulate energy consumption for the heating, cooling, ventilation, and lighting of residential and nonresidential buildings. In San Francisco, documentation demonstrating compliance with title 24 standards is required to be submitted with a building permit application. Compliance with title 24 standards is enforced by the building department. The proposed project would comply with the standards of title 24 and the requirements of the San Francisco Green Building ordinance and would be built to GreenPoint Rated standards, thus minimizing the amount of fuel, water, or energy used during its construction and operational phases. The proposed project would not encourage activities that result in the use of large amounts of fuel, water, or energy, or use them in a wasteful manner. This impact would be less than significant, and no mitigation measures are necessary.

Impact C-ME-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative impact on mineral and energy resources. (Less than Significant)

¹⁴² California Division of Mines and Geology, Open File Report 96-03, 1996, and Special Report 146 Parts I and II, 1986.

As discussed above, San Francisco is not a designated area of significant mineral deposits and does not have locally important mineral resource recovery sites. Implementation of nearby cumulative development projects would not affect any operational mineral resource recovery sites. In addition, nearby cumulative development projects would be subject to the same energy conservation, water conservation, recycling and composting, and construction and demolition debris ordinances applicable to the proposed project. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the project vicinity to create a significant cumulative impact on mineral and energy resources.

<u>Topics:</u>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
17. AGRICULTURE AND FORESTRY RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:					
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact AF-1: The proposed project would not convert farmland to non-agricultural use, would not conflict with existing zoning for agricultural use or a Williamson Act contract, would not conflict with existing zoning for forest land or timberland, would not result in the loss of forest land or conversion of forest land to non-forest use, and would not involve other changes in the existing environment which could result in conversion of farmland to non-agricultural use or forest land to non-forest use. (Not Applicable)

The project site does not contain agricultural uses, is not zoned for agricultural use, and is not subject to a Williamson Act contract.¹⁴³ The project site does not contain forest land or timberland as defined in Public Resources Code sections 12220(g) and 4526, respectively. Therefore, Topics 17a through 17e are not applicable to the proposed project.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
18. MANDATORY FINDINGS OF SIGNIFICANCE.					
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will would cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The proposed project would not 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, or reduce the number or restrict the range of a rare or endangered plant or animal. As discussed in Section E.3, Cultural Resources, implementation of the proposed project would not result in a substantial adverse change in the significance of an archeological resource or a tribal cultural resource and would not disturb human remains. As discussed in Section E.13, Geology and Soils, implementation of the proposed project would not directly or indirectly destroy a unique paleontological resource or site. For these reasons, the proposed project would not result in the elimination of important examples of major periods of California history or prehistory.

¹⁴³ California Department of Conservation, *San Francisco Bay Area Important Farmland 2012*. Available online at ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/regional/2012/bay_area_2012_fmmp_base.pdf, accessed May 8, 2017.

The proposed project would not combine with past, present, or reasonably foreseeable future projects to create significant cumulative impacts related to any of the topics discussed in section E, Evaluation of Environmental Effects. There would be no significant cumulative impacts to which the proposed project would make cumulatively considerable contributions.

As discussed in the previous sections, the proposed project is anticipated to have only less-than-significant impacts in the areas discussed. The foregoing analysis identifies potentially significant impacts related to cultural resources, noise, and geology and soils, which would be mitigated through implementation of mitigation measures, as described in the following paragraphs and in more detail in Section F, Mitigation Measures and Improvement Measures.

As described in Section E.3, Cultural Resources, construction of the proposed project could disturb human remains. Implementation of Mitigation Measure M-CR-2: Accidental Discovery, would reduce the impacts to less than significant. As described in Section E.5 Noise M-NO-1: Prepare and Implement a Noise Control Plan to Reduce Construction Noise at Nearby Residences, would the impacts on sensitive receptors to less than significant. As described in Section E.13, Geology and Soils, the proposed project's construction activities would pose a significant hazard due to earthquake-induced landslides. Implementation of Mitigation Measures M-GE-1a through M-GE-1d, which would require measures to protect and stabilize the site and protect neighboring properties, would reduce the impacts to less than significant. Implementation of these measures would ensure the proposed project would not result in a significant geology and soils impact. For these reasons, the proposed project would not result in environmental effects that would cause substantial adverse effects on human beings.

F. MITIGATION MEASURES AND IMPROVEMENT MEASURES

The following mitigation measures have been identified to reduce potentially significant environmental impacts resulting from the proposed project to less-than-significant levels. One improvement measure was identified

Mitigation Measures

Mitigation Measure M-CR-2: Accidental Discovery

The following mitigation measure is required to avoid any potential adverse effect from the proposed project on accidentally discovered buried or submerged historical resources as defined in *CEQA Guidelines* Section 15064.5(a) and (c). The project sponsor shall distribute the Planning Department archeological resource "ALERT" sheet to the project prime contractor; to any project subcontractor (including demolition, excavation, grading, foundation, pile driving, etc. firms); or utilities firm involved in soils disturbing activities within the project site. Prior to any soils disturbing activities being undertaken each contractor is responsible for ensuring that the "ALERT" sheet is circulated to all field personnel including, machine operators, field crew, pile drivers, supervisory personnel, etc. The project sponsor shall provide the Environmental Review Officer (ERO) with a signed affidavit from the responsible parties (prime contractor,

subcontractor(s), and utilities firm) to the ERO confirming that all field personnel have received copies of the Alert Sheet.

Should any indication of an archeological resource be encountered during any soils disturbing activity of the project, the project Head Foreman and/or project sponsor shall immediately notify the ERO and shall immediately suspend any soils disturbing activities in the vicinity of the discovery until the ERO has determined what additional measures should be undertaken.

If the ERO determines that an archeological resource may be present within the project site, the project sponsor shall retain the services of an archaeological consultant from the pool of qualified archaeological consultants maintained by the Planning Department archaeologist. The archeological consultant shall advise the ERO as to whether the discovery is an archeological resource, retains sufficient integrity, and is of potential scientific/historical/cultural significance. If an archeological resource is present, the archeological consultant shall identify and evaluate the archeological resource. The archeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the ERO may require, if warranted, specific additional measures to be implemented by the project sponsor.

Measures might include: preservation in situ of the archeological resource; an archaeological monitoring program; or an archeological testing program. If an archeological monitoring program or archeological testing program is required, it shall be consistent with the Environmental Planning (EP) division guidelines for such programs. The ERO may also require that the project sponsor immediately implement a site security program if the archeological resource is at risk from vandalism, looting, or other damaging actions.

The project archeological consultant shall submit a Final Archeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archeological resource and describing the archeological and historical research methods employed in the archeological monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report.

Copies of the Draft FARR shall be sent to the ERO for review and approval. Once approved by the ERO, copies of the FARR shall be distributed as follows: California Archaeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Environmental Planning division of the Planning Department shall receive one bound copy, one unbound copy and one unlocked, searchable PDF copy on CD of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.

Mitigation Measure M-NO-1: Prepare and Implement a Noise Control Plan to Reduce Construction Noise at Nearby Residences.

The project sponsor shall develop a noise control plan that specifies noise-reducing measures to be applied during the construction period. The noise control plan shall be reviewed and approved by the planning department and the building department prior to the issuance of building permits. Measures that can be used to limit noise include, but are not limited to, those listed below.

- The contractor shall deploy temporary barriers, barrier-backed sound curtains and/or acoustical panels around working impact equipment and, if necessary, around the project site perimeter that would limit noise at the project site boundary to no more than 80 dBA.
- Impact tools (e.g., jackhammer, hoe ram) shall use an exhaust muffler on the compressed air exhaust which can lower noise levels by up to about 10 dBA. Use external jackets on jackhammers, which could achieve a reduction of 5 dBA. Equip power construction equipment with best available state-of-the-art noise-shielding and muffling devices. Properly maintain all equipment to prevent the generation of additional noise attributable to worn or improperly maintained parts.
- Select the smallest hoe ram necessary to perform the task, as smaller devices tend to produce less noise. Use quieter makes and models of hoe rams whenever feasible. Wrap a noise shroud enclosure around the head (i.e., chisel) of the hoe ram.
- Place stationary-source construction equipment that may have a flexible location onsite (e.g., generators and compressors) to maintain the greatest feasible distance from sensitive land uses.
- Prohibit the idling of inactive construction equipment for prolonged periods (i.e., more than five minutes).
- Take and submit noise measurements to the planning department and the building department for review of the effectiveness of noise attenuation measures. A plan for noise monitoring shall be included in the noise control plan to be provided to the planning department and the building department for review prior to the commencement of construction.
- Include a list of measures for responding to and tracking complaints pertaining to construction noise in the noise control plan to be provided to the planning department and the building department for review prior to the commencement of construction. These measures shall include:
 - Identification of measures that shall be implemented to control construction noise.
 - A procedure and phone numbers for notifying the building department, the Department of Public Health, or the Police Department of complaints (during regular construction hours and off-hours).
 - A sign posted onsite describing noise complaint procedures and complaint hotline number that shall be answered at all times during construction.
 - Designation of an onsite construction complaint and enforcement manager for the project.
 - A plan for notification of neighboring residents and nonresidential building managers within 300 feet of the project construction area at least 30 days in advance of extreme noise-generating activities (defined as activities that generate noise levels of 90 dBA or greater) about the estimated duration of the activity and the associated control measures that shall be implemented to reduce noise levels.

Mitigation Measure GE-1a: Detailed Design Plans

The design and construction of the project shall incorporate all design, construction, and maintenance recommendations of the project’s preliminary geotechnical investigation. Prior to the issuance of a building permit for the project site, the project sponsor shall:

1. Submit to the Department of Building Inspection a site-specific, design-level geotechnical investigation prepared and signed by both a licensed geologist and a licensed geotechnical engineer, which in turn undergo design review by a licensed geotechnical engineer. The investigation shall comply with all applicable state and local code requirements and:

a) Include an analysis of the expected ground motions at the site from known active faults using accepted methodologies;

b) Determine structural design requirements as prescribed by the most current version of the California Building Code, including applicable City amendments, to ensure that structures can withstand ground accelerations expected from known active faults; and

c) Determine the final design parameters for walls, foundations, foundation slabs, utilities, roadways, parking lots, sidewalks, and other surrounding related improvements.

2. Project plans for foundation design, earthwork, and site preparation shall incorporate all of the mitigations in the site-specific investigation(s), including shoring of the steep cuts and excavating permanent cut slopes to inclinations to be stable during a major earthquake, or stabilizing the cuts with rock bolts and/or permanent concrete retaining walls.

3. The project structural engineer shall review the site-specific investigations, provide any additional necessary mitigation to meet building code requirements, incorporate all applicable mitigations from the investigation in the structural design plans, and ensure that all structural plans for the project meet current building code requirements.

4. The Department of Building Inspection -plan reviewer shall review each site-specific geotechnical investigation and require compliance with all geotechnical mitigations contained in the investigation and in the plans submitted for the grading, foundation, structural, infrastructure and all other relevant construction permits. If determined necessary, the Structural Advisory Committee shall also review.

5. The Department of Building Inspection shall review all project plans for grading, foundations, structural, infrastructure, and all other relevant construction permits to ensure consistency with the applicable geotechnical investigation and compliance with all applicable code requirements.

Mitigation Measure M-GE-1b: Protection of Subject Property and Adjacent Properties from Potential Landslides

To protect the subject property, adjacent neighboring properties, and 17th Street and Roosevelt Way public right-of-way, the project sponsor shall engage a qualified geotechnical engineer to confirm the findings and interpretations within the preliminary geotechnical investigation by conducting additional geotechnical investigation (e.g., boring once the Upper Terrace residence is demolished).

The project sponsor shall have a qualified engineering geologist inspect all excavations along property boundaries during excavation to evaluate rock structure and quality and to confirm the preliminary geotechnical investigation findings.

Project construction shall include the following measures:

- Shoring of the steep cuts during construction.

- Shotcrete shall be available and on standby, and application shall be required for temporary shoring during all vertical cuts made near property boundaries should over-break or wedge-failures occur.
- If there is insufficient room for temporary construction slopes, temporary vertical cuts may be retained using soil nails. Should soil nails extend beyond property lines, permission shall be required from the adjacent property owner. Soil nails shall be spaced about eight feet, center to center, with a length approximately equal to the height of the cut and the soil nail wall shall be properly backdrained and wire mesh and shotcrete should be applied to the exposed soil face within eight hours of excavation.
- Minimize unsupported cut heights during excavation.
- Installation of rock bolts to maintain integrity of the rock mass.
- Excavation shoring and rock bolts shall be installed as the cuts deepen.

In addition, a qualified geotechnical engineer shall determine and design appropriate protective measures and remain onsite during the demolition of the residence on Upper Terrace, site preparation, placement and compaction of fill, and installation of building foundations, underpinning, and shoring and ensure those measures are properly implemented.

Mitigation Measure M-GE-1c: Drainage and Erosion Control

The project shall include the following drainage and erosion control measures to maintain slope stability and to reduce the risk of downslope migration of slope debris:

- Placement of concrete v-ditches (v-shaped ditch) for the collection and routing of surface water flows.
- Placement of swales and catch basins for the collection and direction of the flow of surface water.
- Collection of water on roofs using downspout connected to a system of pipes that would extend into a drainage system as required by the San Francisco Public Utilities Commission.
- Locate subdrains uphill from and behind proposed retaining walls and debris walls.
- Should a soil-nail wall be constructed, it shall be properly backdrained using two-foot-wide prefabricated drainage panels behind the shotcrete facing at the same spacing as the nails. Wire mesh and shotcrete shall be applied to the exposed soil face within eight hours of excavation.
- Plant fill slopes with fast-growing, deep-rooted vegetation or cover fill slopes with erosion control materials prior to the first rainy season.
- Erosion-resistant vegetation shall be planted on the finished slopes and, if the construction period spans the rainy season, the vegetation shall also be planted on temporary slopes.
- Erosion control for temporary slopes shall include, as determined to be appropriate by a qualified geotechnical engineer:
 - Grading to prevent water from flowing over the top of any slope;
 - Planting vegetation, including quick-growing native grasses and plants; and
 - Installing netting, hay wattles, and silt fences.

Mitigation Measure M-GE-1d: Stabilization of Project Site for Construction Phase

The soil engineer shall observe the exposed conditions to ensure that all geotechnically unsuitable materials are removed. Holes resulting from the removal of any obstructions that extend below the proposed finished grade shall be cleared and backfilled with suitable materials compacted.

The project shall observe the following fill measures:

- Materials to be reused as engineered fill shall be evaluated by the soil engineer and free of rocks larger than four inches in greatest dimension and any wood debris, deleterious materials, or any other geotechnically unsuitable materials.
- Imported soil for fill shall be free of organic matter, contain no rocks or lumps larger than four inches, have a liquid limit less than 40 and a plasticity index less than 12, and approved by the geotechnical engineer.

The project shall observe the following excavation, earthwork, and stabilization measures:

- Areas of over-break and wedge failure shall be stabilized and backfilled with shotcrete immediately to prevent regressive failure and damage to adjacent improvements.

Methods of controlling the potential for wedge failure and over-break include:

- Minimize the height of unsupported cuts.
- Cut the slope fat and then trimming to grade with a road header.
- Install drilled piers for shoring prior to excavation.
- Install vertical rock dowels behind the cut prior to excavation.
- Support cuts within 24 hours of excavation prior to progressing with the next cut.
- Support raveling bedrock conditions immediately.
- Cover areas of raveling bedrock with shotcrete .
- Remove or break large blocks of bedrock into smaller pieces for use as engineered fill.
- Remove tree roots with a diameter greater than 1/2 inch within three feet of subgrade.
- Place fill in thin lifts, moisture-conditioned to above optimum, and compacted to no less than 90 percent relative compaction. Fill thicker than five feet and fill with less than 10 percent fines shall be compacted to at least 95 percent relative compaction.

The project shall observe the following graded slope measures:

- Construct permanent cut and fill slopes with native bedrock-derived fill materials at gradients no steeper than 2H:1V.
- Construct fill slopes with a 15-foot-wide (minimum) keyway extending two feet into competent bedrock on the downslope side of the keyway excavation.
- The keyway should slope back into the hill a minimum of five percent with a subdrain constructed in according to the preliminary geotechnical investigation.
- A licensed geotechnical engineer or engineering geologist shall evaluate all keyway excavations.
- Overbuild fill slopes two feet (horizontally), and then trim back to expose firm compacted fill or track-walked.
- Cut slopes in bedrock up to 10 feet shall be no steeper than 1H:1V.
- Cut slopes in bedrock greater than 10 feet shall be no steeper than 1.H:1V.
- An engineering geologist shall evaluate cut slope exposures for adverse conditions.

The project shall observe the following subgrade measures:

- The upper 12 inches of pavement subgrade shall be moisture-conditioned above optimum moisture content and compacted to at least 95 percent.
- Garage floor slab and exterior flatwork subgrade shall have at least four and six inches of Class 2 aggregate based placed beneath exterior concrete flatwork and the garage floor slab, respectively.
- The geotechnical engineer shall evaluate the subgrade during preparation.

Improvement Measures

Improvement Measure I-TR-1

The project sponsor should require the construction contractor to limit truck movements to the hours between 9 a.m. and 3:30 p.m., or other times if approved by the San Francisco Municipal Transportation Agency (SFMTA), in order to minimize the disruption of the general traffic flow on adjacent streets during the a.m. and p.m. peak periods. The project sponsor and construction contractor should meet with the Traffic Engineering Division of the SFMTA, the fire department, the San Francisco Municipal Railway (Muni), the planning department, and other City agencies to determine feasible measures to reduce traffic congestion and other potential transit and pedestrian circulation effects during the construction period. In addition, the construction contractor should make arrangements for off-site parking for construction workers during the construction period.

G. PUBLIC NOTICE AND COMMENT

On May 22, 2017, the Planning Department mailed a Notification of Project Receiving Environmental Review to owners of properties within 300 feet of the project site, adjacent occupants, and neighborhood groups. Overall, concerns and issues raised by the public in response to the notice were taken into consideration and incorporated in the environmental review as appropriate.

The Planning Department received emails expressing concerns about the density/scale and design of the proposed project, traffic, transit access, and pedestrian safety during construction; construction noise and vibration; air quality due to release of silica dust from the Franciscan chert during construction; the loss of open space and vegetation and wildlife habitat; the stability of the project site and risk due to landslide and seismic hazards; changes to water patterns and drainage due to construction activities.

As discussed in Section C, Compatibility with Existing Zoning and Plans, the proposed project would not substantially conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The density of the project is consistent with the zoning district.

Transportation-related impacts are addressed in Section E.4, Transportation. Analysis found that due to the temporary nature of construction activities, construction-related impacts on transportation and circulation would be less than significant and that those less-than-significant impacts would be further reduced through the implementation of Improvement Measure I-TR-1, which includes measures to limit truck movements to certain times and encourages the project sponsor to meet with city agencies to determine feasible measures to reduce traffic congestion and other potential transit and pedestrian circulation effects.

Construction noise and vibration impacts were evaluated in Section E.5, Noise. The analysis found that construction noise could result in a substantial (more than 10 dB) temporary increase in ambient noise levels at nearby receptors and that Mitigation Measure M-NO-4, which requires the preparation and implementation of a noise control plan, would reduce impacts to less than significant. Section E.5, Noise identified that San Francisco does not have regulations that define acceptable levels of vibration but a conservative analysis was completed for the three closest structures using the Federal Transit Administration and other relevant sources and methods to evaluate potential impacts. The analysis found that the potential for project construction to result in a vibration-related impact to either neighboring structures or residents would be less than significant, and no mitigation measures are necessary. Further the analysis determined that vibration from use of a hoe ram would not be expected to disturb the sleep of nearby residents because it would occur intermittently during daylight hours during the excavation and shoring phase of project construction.

Section E.6, Air Quality, identified potential impacts associated with fugitive dust emissions during construction and determined that compliance with the regulations and procedures set forth by the Dust Control Ordinance would ensure that potential dust-related air quality impacts would be reduced to a less-than-significant level.

Section E.12, Biological Resources, addressed potential effects on biological resources. Section E.12 notes that the Mount Olympus Biological Resources Letter Report characterized the northern portion of the project site as developed and the southern portion as undeveloped and steeply sloping with dense, non-native or weedy species that appear to be a mix of remnant landscaping plants and volunteers. The report stated that no candidate, sensitive, or special-status species; any riparian habitat; or other sensitive natural community in the project vicinity. However, the analysis contained in this document identifies that the project would have potential to interfere with the movement of bird species protected under the California Fish and Game Code (Section 3500 et al.) but with compliance with the code the impact would be less than significant.

Section E3, Geology/Soils, addressed potential impacts associated with construction and operation of the project. As noted in the section, in San Francisco the building department implements and enforces the regulatory requirements of the state and local building code, and the project engineer as the registered design professional for the project is responsible for ensuring that a building is constructed in compliance with these standards. A preliminary geotechnical investigation is considered adequate to complete CEQA analyses because the level of detail and information obtained allows for an effective evaluation regarding whether geologic or seismic impacts exist and whether mitigation would be required. The preliminary geotechnical investigation found additional investigation necessary. Mitigation Measures M-GE-1a through 1d were identified to reduce the potential impact to people and structures from the landslides and other geotechnical hazards associated with construction and operation of the project.

Section E.14, Hydrology/Water Quality addresses laws and ordinances that reduce the potential hydrology impacts associated with the project to less than significant. The analysis found that impacts would be less than significant and no additional measures necessary.

In addition, the Planning Department received comments from nearby residents expressing concern regarding the height of the proposed project due to the potential impacts on their private views. As discussed in Section D, Summary of Environmental Effects, the proposed project qualifies as an urban infill project in a transit priority area under Senate Bill 743. For this reason, the aesthetic impacts of the proposed project are not considered in determining if the proposed project has the potential to result in significant environmental effects.

Comments related to topics outside the scope of CEQA were also received. Comments were received regarding on street parking. As noted in Section D, the proposed project meets each of the criteria of CEQA section 21099: Modernization of Transportation Analysis for Transit-Oriented Projects, and, therefore, aesthetics and parking were not considered in determining if a project has the potential to result in significant environmental effects.

On May 9, 2018, the Planning Department issued a "Notice of Availability of and Intent to Adopt a Negative Declaration" in accordance with CEQA Guidelines section 15072. On May 25, 2018, an appeal of the Preliminary Mitigated Negative Declaration was filed. On November 28, 2018 the appeal was withdrawn. No other comments were received.

H. DETERMINATION

On the basis of this Initial Study:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.



Lisa Gibson
Environmental Review Officer
for
John Rahaim
Director of Planning

DATE 11/28/18

I. Initial Study Preparers

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