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February 27, 2024
Rincon Project No. 22-13727

Cindy Lemaire, AICP, CNU-A, Senior Planner
City of San Leandro
Community Development Department
835 East 14th Street
San Leandro, California 94577
Via email: clemaire@sanleandro.org

Subject: Noise Letter Report for the 880 Doolittle Drive Warehouse Project

Dear Justin:

Rincon Consultants, Inc. (Rincon) is pleased to provide this Noise Letter Report prepared for the 880 Doolittle Drive Warehouse Project (project) to ensure that it is designed by the applicant and conditioned by the City of San Leandro (City) to comply with the City's exterior and interior noise standards. The project would involve consolidating the two parcels comprising the project site into a single parcel, demolishing existing vacant structures, and developing a new industrial shell building on site. The proposed project also includes a new surface parking lot, internal circulation roadways, new utility connections, and landscaping. Nearby noise-sensitive receptors (single-family residences) would temporarily be exposed to project construction noise. This acoustical analysis reviews detailed architectural plans provided by HPA Architecture, dated September 20, 2022. Fundamentals of noise and acoustics are included in the EIR.

Regulatory Setting

City of San Leandro Noise and Land Use Compatibility

The City of San Leandro adopted the 2035 General Plan in 2016 (City of San Leandro 2016a). The City of San Leandro General Plan establishes the following goals and policies that would apply to the project:

Goal EH-7 Ensure that noise associated with the day-to-day activities of San Leandro residents and businesses does not impede the peace and quiet of the community.

Policy EH-7.3 **Residential Exterior Noise Standard.** Strive to maintain an exterior noise level of no more than 60 dB Ldn in residential areas. Recognizing that some San Leandro neighborhoods already exceed the noise level, encourage a variety of noise abatement measures that benefit these areas.

Policy EH-7.7 **Noise Reduction Measures.** Encourage local businesses to reduce noise impacts on the community by replacing excessively noisy equipment and machinery, applying noise-reduction technology, and following operating procedures that limit the potential for conflicts.

Policy EH-7.9 **Vibration Impacts.** Limit the potential for vibration impacts from construction and ongoing operations to disturb sensitive uses such as housing and schools.

City of San Leandro Municipal Code

The City of San Leandro Municipal Code (City of San Leandro 2023) includes noise standards and regulations. The following sections of the Noise Ordinance are relevant to the analysis:

Section 4-1-115 of the San Leandro Municipal Code prohibits certain acts related to noise, such as construction-related noise near residential uses outside of the hours of 7 a.m. and 7 p.m. on weekdays and 8 a.m. and 7 p.m. on weekends. Noise within public parks and noise that conflicts with residential uses is also prohibited.

Neither the City of San Leandro nor the County of Alameda has specific and/or quantitative regulatory standards for construction or operational vibration sources. San Leandro Zoning Code Part IV, Article 16, Division 3, Provision 4-1670B, Vibration, requires that no use, activity, or process produce vibrations that are perceptible without instruments by a reasonable person at the property lines of a site. This performance standard applies to all land use classifications in all zoning districts.

Construction Noise Standards

While the City does not have specific noise level criteria for assessing construction noise impact, the Federal Transit Administration (FTA) has developed guidance for determining if construction of a project would expose various land uses to significant noise levels or if a project would result in a substantial temporary increase in noise levels (FTA 2018). Based on FTA guidance, a significant impact would occur if project-generated construction noise exceeds the 8-hour 80 dBA L_{eq} noise limit at nearby residences.

Groundborne Vibration Standards

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent structures. While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings, such as from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle.

Vibration sensitive receptors are similar to noise sensitive receptors, including residences and institutional uses such as schools, churches, and hospitals. However, vibration sensitive receptors also include buildings where vibrations may interfere with vibration-sensitive equipment. Vibration sensitive receptors near the site include industrial buildings adjacent to the project boundary to the north and west; industrial buildings 35 feet to the south and an industrial building 95 feet to the east; and single-family residential building 510 feet to the northeast of the project site.

Vibration limits used in this analysis to determine a potential impact to local land uses from construction activities, such as, vibratory compaction or excavation, are based on information contained in the 2018 FTA *Transit Noise and Vibration Impact Assessment Manual*. Groundborne vibration levels that could induce potential architectural damage to buildings are identified in Table 1. Based on FTA recommendations, limiting vibration levels to below 0.5 in/sec peak particle velocity (PPV) at Reinforced concrete, steel, or timber (no plaster) (which would apply to the nearby industrial building structures) would prevent architectural damage.

Table 1 Groundborne Vibration Architectural Damage Criteria

Building Category	PPV (in/sec)
I. Reinforced concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

in/sec = inches per second; PPV = peak particle velocity

Source: FTA 2018

Project Impacts

Construction Noise

To determine construction noise impacts, noise was estimated using the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) Version 1.1. Shown in Table 2, noise was modeled at the property line of the nearest residential noise-sensitive receivers from the closest property line of on-site construction activity.

Table 2 Estimated Noise Levels by Construction Phase

Construction Phase	L_{eq} dBA: RCNM Reference Noise Level[1] 50 feet	L_{eq} dBA: Residences to the Northeast (510 feet)
Demolition	82	62
Site Preparation	83	63
Grading	84	64
Building Construction	78	58
Paving	78	58

[1] RCNM reference noise levels are noise levels generated during each construction phase measured from a point 50 feet from the location of the construction phase.

Source: Roadway Construction Noise Model. See Attachment A for modeling outputs.

From the eastern boundary of the project site, the nearest noise-sensitive receivers include a single-family residence located approximately 510 feet northeast. As shown in Table 2, construction noise levels of up to 64 dBA L_{eq} during grading would not exceed the FTA residential daytime standard of 80 dBA $L_{eq\ (8\text{-hour})}$. Therefore, construction noise impacts would be less than significant.

Groundborne Vibration

Construction activities have the greatest potential to generate ground-borne vibration affecting nearby receptors, especially during paving of the project site. Construction activities known to generate excessive groundborne vibration, such as pile driving and blasting, would not be needed to construct the proposed project. The greatest vibratory source during construction in the project vicinity would be a roller used during paving. Construction vibration estimates are based on vibration levels reported by the FTA. Table 3 shows typical vibration levels for various pieces of construction equipment used in the assessment of construction vibration.

Table 3 Construction Vibration Levels

Equipment	in/sec PPV			
	Reference Level 25 feet	Industrial Buildings to the North and West 10 feet	Industrial Building to the South 35 feet	Industrial Building to the East 95 feet
Vibratory Roller	0.210	0.830	0.127	0.028
Large Bulldozer	0.089	0.352	0.054	0.012
Loaded Trucks	0.076	0.300	0.046	0.010
Small Bulldozer	0.003	0.198	0.030	0.007
Static Roller	0.050	0.012	0.002	<0.001
Threshold for Structural Damage to Building		0.5	0.5	0.5
Threshold Exceeded?		Yes	No	No

in/sec = inches per second; PPV = peak particle velocity

Notes: Vibration analysis worksheets are included in the Appendix to this report.

Source: FTA 2018

Based on the recommendations of the FTA, shown in Table 1, limiting vibration levels to below 0.5 in/sec PPV at industrial structures would prevent architectural damage regardless of building construction type. As provided by the client, the greatest anticipated source of vibration during project construction activities would be from a vibratory roller, which would be used during paving. Based on the project site plan, it is assumed the vibratory roller may be used within 10 feet of the nearest off-site industrial structures to the north and west of the project site during paving activities. A vibratory roller generates approximately 0.830 in/sec PPV at 10 feet, which would exceed the significance threshold of 0.5 inches per second (in/sec) PPV. Therefore, if uncontrolled, proposed project construction activities would have a significant impact on the generation or exposure of persons to excessive groundborne vibration. Other construction equipment would not exceed the threshold.

Operation of the proposed project would not include substantial sources of vibration. Therefore, the operation of the proposed project would have no impact on exposure to excessive groundborne vibration or groundborne noise levels.

Mitigation Measures

The following mitigation measure is recommended:

N-1 Construction Vibration Control Plan

For paving activities within 15 feet of the sensitive receptors to the north and west, use of a static roller in lieu of a vibratory roller shall be implemented. City staff shall verify that this requirement is incorporated into construction plans prior to issuance of a building permit.

Significance after Mitigation

Mitigation N-1 would require that use of a static roller in lieu of a vibratory roller is used within 15 feet of off-site receptors to reduce construction-related vibration. Specifically, use of a static roller would generate vibration levels of approximately 0.05 in/sec PPV at a distance of 25 feet (McIver 2012). A static roller would generate approximately 0.198 in/sec PPV within 10 feet of sensitive receptors to the north and west. With implementation of Mitigation measure N-1, project groundborne vibration would be less than the significance threshold of 0.5 in/sec PPV at off-site sensitive receptors to the north and west. Therefore, with mitigation, project construction vibration impacts would be less than significant.

Traffic Noise

A project normally has a significant effect on the environment related to noise if it substantially increases the ambient noise levels for adjoining areas. Changes of less than 1 dBA are usually indiscernible. Changes of 1 to 3 dBA are detectable under quiet, controlled conditions. Most people can detect changes in sound levels of approximately 3 dBA under normal, quiet conditions. A change of 5 dBA is readily discernible to most people in an exterior environment. Therefore, less of an increase from roadway noise is allowed. Based on similar criteria from the Federal Aviation Administration (FAA), the following thresholds of significance are used to assess roadway vehicle noise impacts at sensitive receiver locations:

- Greater than 1.5 dBA CNEL increase for ambient noise environments of 65 dBA CNEL and higher;
- Greater than 3 dBA CNEL increase for ambient noise environments of 60-64 dBA CNEL;
- Greater than 5 dBA CNEL increase for ambient noise environments of less than 60 dBA CNEL and where the resulting future noise level would exceed 60 dBA CNEL.

Using information provided by Kimley Horn (Kimley Horn 2024), the proposed project would generate up to 1,543 new daily peak vehicle trips that would increase noise levels on nearby roadways. The proposed project would not make substantial alterations to roadway alignments or substantially change the vehicle classifications mix on local roadways. Therefore, the primary factor affecting off-site noise levels would be increased traffic volumes. The project's increase in traffic noise was estimated by adding the project daily trip generation to the existing average daily traffic (ADT) volume on the surrounding roadways analyzed in the City of San Leandro General Plan Update Draft EIR (City of San Leandro 2016b).

The existing ADT on Doolittle Road, between Adams Avenue to Davis Street, is 29,400. This addition of 1,543 daily vehicle trips would result in an increase in traffic noise that would be approximately 0.2 dBA CNEL. As stated in the City of San Leandro General Plan Update Draft EIR (City of San Leandro 2016b), the existing ambient noise level for Doolittle Drive, between Adams Avenue to Davis Street, is 71.8 dBA at 50 feet. A significant impact would occur if project-related traffic increases the 71.8 dBA ambient noise environment of noise-sensitive locations by 1.5 dBA or more. As the project would result in a traffic noise increase 0.2 dBA, the project's traffic noise increase would not exceed 1.5 dBA or more, and impacts would be less than significant.

This concludes the acoustical analysis and construction noise assessment for the subject project. If there are questions regarding the content of this letter report, please feel free to contact me.

Sincerely,

Rincon Consultants, Inc.

Jesse McCandless Noise Specialist	Bill Vosti Senior Environmental Planner

References

Federal Highway Administration (FHWA). 2006. FHWA Highway Construction Noise Handbook. (FHWAHEP-06-015; DOT-VNTSC-FHWA-06-02). Available at: http://www.fhwa.dot.gov/environment/construction_noise/handbook.

_____. 2011. *Highway Traffic Noise: Analysis and Abatement Guidance.* December 2011. https://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/analysis_and_abatement_guidance/revguidance.pdf (accessed February 2024).

Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf (accessed February 2024).

Kimley Horn. 2024. Transportation Impact Analysis – 880 Doolittle Drive. January 2024.

McIver, IR. 2012. Ground Vibration from Road Construction. https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000005/Hearings/f73d4769a3/APSOC-Closing-Subs-Attachment-report.pdf (accessed February 2024).

San Leandro, City of. 2016a. *San Leandro 2035 General Plan – Environmental Hazards Element.* September 19, 2016 (accessed February 2024).

San Leandro, City of. 2016b. *General Plan Update Draft Environmental Impact Report,* June 1, 2016 (accessed February 2024).

San Leandro, City of. 2023. *San Leandro Municipal Code,* June 2023 (accessed February 2024).

Appendix

Noise

Construction Noise

	Noise Level @ 50 ft	Single Family Residential to NE
Distance		510
Demolition	**82**	**61.828**
Site Preparation	**83**	**62.828**
Grading	**84**	**63.828**
Building Construction	**78**	**57.828**
Paving	**78**	**57.828**

Construction Vibration

	Vibration @ 25 ft	Industrial to the N & W	Industrial to the South	Industrial to the East
Distance		10	35	95
Vibratory Roller	**0.21**	**0.830**	**0.127**	**0.028**
Large Bulldozer	**0.089**	**0.352**	**0.054**	**0.012**
Loaded Trucks	**0.076**	**0.300**	**0.046**	**0.010**
Static Roller	**0.05**	**0.198**	**0.030**	**0.007**
Small Bulldozer	**0.003**	**0.012**	**0.002**	**0.000**