38594 Cedar Boulevard

Newark, CA

ENVIRONMENTAL NOISE ASSESSMENT

1 July 2022

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Salter Project 19-0529

INTRODUCTION

This report summarizes our environmental noise assessment for the 38594 Cedar Boulevard project in Newark, California. The project consists of up to 130 residences over a 7.75-acre site.

The purpose of this study is to address compliance with CEQA and City of Newark requirements as well as potential impact of the construction of the project and its operation on property-line noise levels. Following is a summary of findings:

- Project traffic is not expected to significantly increase environmental noise to the surrounding residential and commercial properties.
- Noise and vibration impacts from construction and mechanical equipment will either have no impact or can be designed to provide a less-than-significant level as detailed in this report.

As part of the project development process, Salter has conducted various analyses for the project. This includes an environmental noise study addressing interior noise levels inside the proposed residences as well as inter-dwelling noise control for the duet product. Furthermore, the project will include a sound-rated barrier along Interstate 880 to reduce highway noise levels at the proposed residences as well as existing residences on the southwest side of Cedar Boulevard. A summary of on-site measurement locations and measured noise levels is also included in the Appendix.

ACOUSTICAL CRITERIA

The City of Newark and State of California establish guidelines and policies designed to limit noise exposure at noise-sensitive land uses. In addition, the California Environmental Quality Act (CEQA) provides guidelines used to determine whether a project will have a significant impact on the environment. Details of these guidelines and policies are as follows:

Newark General Plan

The Environmental Hazards section of the Newark General Plan provides noise and land use compatibility guidelines for proposed developments as summarized below from the General Plan document (Table EH-2).

TABLE EH-2 NOISE COMPATIBILITY GUIDELINES FOR NEWARK

Land Uses	Interior CNEL or L_{dn} (dBA)	Exterior Noise Exposure, CNEL or L_{dn} (dBA) 55 60 65 70 75 80
Residential-Low Density Single-Family, Duplex, Mobile Homes	45*	
Residential-Multiple Family	45*	
Transient Lodging, Motels, Hotels	45*	
Schools, Libraries, Churches, Hospitals, Nursing Homes	45*	
Auditoriums, Concert Halls, Amphitheaters	--	
Sports Arena, Outdoor Spectator Sports	--	
Playgrounds, Neighborhood Parks	--	
Golf Courses, Riding Stables, Water Recreation, Cemeteries	--	
Office Buildings, Businesses, Commercial and Professional	50	
Industrial, Manufacturing, Utilities, Agricultural	--	

Normally Acceptable:
Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Normally Unacceptable:
New construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Conditionally Acceptable:
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Clearly Unacceptable:
New construction or development generally should not be undertaken.

* Noise level requirement with closed windows, mechanical ventilation, or other means of ventilation shall be provided per Chapter 12 Section 1205 of the Building Code.
Source: State of California General Plan Guidelines, 2003.

In addition, the following policies and actions from the General Plan with regards to construction are included below.

Policy EH-6.6 **Construction Noise – Regulating Construction Hours.** Reduce noise associated with construction activities by prohibiting construction in residential neighborhoods between the hours of 7 PM and 7 AM Monday through Friday and at all times on Saturdays, Sundays, and State/federal holidays.

Policy EH-6.7 **Construction Noise – Addressing Sources of Construction Noise.** Reduce noise associated with construction activities by requiring properly maintained mufflers on construction vehicles, requiring the placement of stationary construction equipment as far as possible from developed areas, and requiring temporary acoustical barriers/ shielding to minimize construction noise impacts at adjacent receptors. Special attention should be paid to noise-sensitive receptors (including residential, hospital, school, and religious land uses).

Action EH-7.D **Vibration-Intensive Construction.** Implement a standard operating procedure that requires the evaluation of vibration impacts for individual projects which use vibration-intensive construction activities, such as pile drivers, jack hammers, and vibratory rollers, near sensitive receptors. If construction-related vibration is determined to be perceptible (i.e., in excess of Federal Transit Administrations vibration annoyance criterion) at vibration-sensitive uses, then additional requirements, such as the use of less-vibration-intensive equipment or construction techniques, shall be implemented during construction.

Newark Municipal Code

Section 17.24.100 of the Newark Municipal Code states the following.

17.24.100.A.2 Residential Property Noise Limits

> *No person shall produce or allow to be produced by human voice, machine, device, or any combination of same, on residential property, a noise level at any point outside of the property plane that exceeds 70 dBA between the hours of 7:00 a.m. and 9:00 p.m. or 60 dBA between the hours of 9:00 p.m. and 7:00 a.m.*

17.24.100.A.3 Construction and Landscaping Activities.

Unless otherwise provided pursuant to a duly-issued permit or a condition of approval of a land use entitlement, the construction, alteration, or repair of structures and any landscaping activities, occurring

between the hours of 10:00 a.m. and 6:00 p.m. on Sundays and holidays, and 7:00 a.m. and 7:00 p.m. on other days, shall be subject to the following

> *No individual device or piece of equipment shall produce a noise level exceeding 83 dBA at a distance of twenty-five feet from the source. If the device or equipment is housed within a structure on the property, the measurement shall be made outside the structure at a distance as close as possible to twenty-five feet from the equipment.*
>
> *The noise level at any point outside of the property plane shall not exceed 86 dBA. During all other times, the decibel levels set forth in Subsection 17.24.100.A.2, Noise Restriction by Decibel, control.*

State CEQA Guidelines

The California Environmental Quality Act (CEQA) contains guidelines to evaluate the significance of noise attributable to a proposed project. This would include (but is not limited to) added traffic noise, mechanical equipment noise, and construction noise. CEQA asks the following applicable questions. Would the project result in:

1. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
2. Generation of excessive groundborne vibration or groundborne noise levels?
3. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public-use airport, would the project expose people residing or working in the project area to excessive noise levels?

CEQA does not define the noise level increase that is considered substantial. Typically, the local general plan would establish limits with respect to allowable noise and vibration increases as discussed later in this report (See Policy SN-8.6).

IMPACT DISCUSSION

Impact 1: Implementation of the proposed project could result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Construction Noise

Construction activities would include use of heavy equipment for demolition and grading and other activities through completion of buildings and landscaping. Heavy trucks would travel to, from, and within the development areas to move soil, equipment, and building materials. Smaller equipment, such as jack hammers, pneumatic tools, and saws could also be used throughout each of the construction phases in various areas. The noise and vibration associated with these activities would be generated

within the entire project area and at off-site locations near any infrastructure improvements, or other offsite work associated with the project.

The Project site is across Cedar Boulevard from several blocks of single family homes to the south and west, with a church that also housed the Kings Kids preschool directly across Cedar Boulevard from the Project site and an elementary school approximately 1,700 feet to the southwest. The Project site is separated from residences to the north by I-880. The closest residential receptors are located across Cedar Boulevard, an arterial street, approximately 120 feet from the project site boundary to the south. Based on the construction phases and equipment list, estimated construction noise levels generated are expected to be as shown in Table 3. Some activities could be located closer for shorter periods of time, such as for site infrastructure.

The following construction equipment and phasing provided to us by Robson Homes is shown in Table 1. Noise levels generated by this equipment are also included in Table 2.

The demolition, site preparation, and grading phases are currently estimated to take place over the approximately 4 month period. Building construction, paving, and architectural coating will progress in phases and is estimated to take approximately 33 months. Therefore, the total construction is estimated to last approximately 780 working days.

Table 1 – Construction Phasing and Equipment List

Construction Phase	Equipment	Estimated Schedule Duration
Demolition	Concrete/Industrial saws Excavators Rubber-tired dozers	30 days
Grading/Excavation	Excavators Graders Rubber-tired dozers	30 days
Foundation and Building Structure	Forklift Pier Driller/Crane Concrete trucks/pump Generator Tractors Loaders Backhoes Welder Air compressor and tools	134 weeks
Paving	Pavers Rollers Tractors Loaders Backhoes	4 days

Table 2 – Typical Noise Levels Used for the Analysis[1]

Equipment	Noise Level (dBA) @ 50 Feet	Usage Factor (% time in use)
Backhoe	80	20
Front Loader	80	40
Drill Rig	85	20
Excavator	85	40
Dozer	85	40
Graders	85	40
Tractor/Trucks	84	40
Concrete Pump	82	20
Crane	85	16
Concrete Saw	90	20
Pneumatic Tools	85	50
Concrete Mixer	85	40
Air compressor	80	40
Paver	85	50
Roller	85	20
Generator (<25 kVA)	70	50
Welder	73	40
Jackhammer	85	20

Based on the noise levels and usage factors from the above table we have estimated construction noise levels at various distances in accordance with the Federal Highway Administration Traffic and Construction Noise Handbook as shown below in Table 3.

Table 3 – Estimated Construction Noise Levels

Phase	Estimated Maximum Instantaneous L_{max} Noise Level (dBA at 50-feet)	Estimated Maximum Hourly L_{eq} Noise Level (dBA at 50 feet)	Estimated Maximum Hourly L_{eq} Noise Level (dBA at 120 feet)
Demolition	90	83	75
Grading/Excavation	85	81	73
Foundation	85	81	73
Building Structure	85	82	74
Paving	85	82	74

[1] Construction noise levels are calculated using the equipment noise levels and acoustical usage factors from Section 9 of the Federal Highway Administration Highway Traffic Noise Construction Noise Handbook.

As indicated in Table 3 above, while it is possible that individual pieces of equipment could exceed 83 dBA at 25-ft, there are no noise-sensitive residential receivers located at this distance. The closest residential receivers are located approximately 120-ft outside the property plane across Cedar Boulevard. Additional residences are located even further across Interstate 880. Furthermore, construction noise levels are expected to be up to 75 dBA at residential receivers outside the property plane as indicated in Table 3, thereby satisfying the requirements of Municipal Code section 17.24.100.A.3 of not exceeding 86 dBA. It should be noted that the hourly L_{eq} noise levels in the table above assume construction activities would be located in the same location for the entire hour, which is a conservative estimate. Actual construction noise levels will vary based on distance from the receiver and shielding from adjacent buildings and construction elements. Quieter noise levels would be expected for activity interior to the site.

Following is a list of measures that will be adopted by the contractor to further reduce construction noise levels:

1. Limit construction hours to those identified in Municipal Code section 17.24.100.A.3.
2. If complaints arise, investigate whether construction noise barriers would provide benefit such as along Cedar Boulevard to shield noise-sensitive receptors south of the project site in accordance General Plan Policy EH-6.7. The construction barrier should be constructed with two layers of ½-inch thick plywood (joints staggered), and K-rail or other support; or a limp mass barrier material weighing two pounds per square foot such as Kinetics KNM 200B or equivalent attached to a chain link fence.
3. Contractors shall utilize 'quiet' models of air compressors and other stationary noise sources where technology exists.
4. Internal combustion engine-driven equipment shall be equipped with mufflers which are in good condition and appropriate for the equipment.
5. Stationary noise-generating equipment, such as air compressors and portable power generators, shall be located as far away as possible from adjacent residences.
6. Staging areas and construction material areas shall be located as far away as feasible from adjacent residences.
7. All unnecessary idling of internal combustion engines will be prohibited.
8. The contractor will designate a "noise disturbance coordinator/superintendent" who will be responsible for tracking and responding to any complaints about construction noise. The noise disturbance coordinator/superintendent will determine the cause of the noise complaint (e.g. starting too early, bad muffler, etc.) and will require that reasonable measures are implemented to correct the problem. The telephone number for the noise disturbance coordinator/superintendent will be posted at the construction site and included in any construction notices sent to neighbors.

Project Mechanical Equipment Noise

It is anticipated that the residences will be fully air-conditioned and that heating, ventilating, and air-conditioning units could be located in areas exposed to adjacent property lines. The following type of equipment may be included. Specific equipment will be confirmed during the design phase.

- Outdoor condensing/heat pump units for residences

Typical condensing/heat pump units have a sound power rating of approximately 75 dBA, which corresponds to a noise level of approximately 62 dBA at 5 feet. Therefore, the individual pieces of equipment would be expected to meet the City of Newark Noise Ordinance for nighttime operation (60 dBA) at a distance of 7-ft from the equipment. Therefore, no significant impact is anticipated.

Traffic Noise

A transportation impact analysis (TIA) dated 2 December 2021 was prepared by Hexagon Transportation Consultants, Inc. This document provides traffic counts at 4 study intersection surrounding the site along Cedar Boulevard as follows.

Intersection 1 – Central Avenue and Cedar Boulevard
Intersection 2 – Smith Avenue and Cedar Boulevard
Intersection 3 – Moores Avenue and Cedar Boulevard
Intersection 4 – Mowry Avenue and Cedar Boulevard

At each intersection traffic counts are provided for AM and PM peak hour conditions for existing, existing plus project, cumulative, and cumulative plus project conditions. As shown in Appendix A, noise levels as a result of the project would increase less than 1 dBA. Furthermore, the traffic noise calculations indicate less than a 3 dBA cumulative increase. Therefore, the project would not be expected to result in any cumulative traffic noise impacts and would be considered a less than significant impact. Please refer to the 2 December 2021 TIA for detailed information on cumulative assumptions.

Impact 2: Implementation of the proposed project could result in the generation of excessive groundborne vibration or groundborne noise levels.

Primary vibration producing construction activities are likely to occur during demolition and site preparation with the use of dozers and possibly hydraulic breakers to clear the site and prepare the foundation of the buildings. Pile driving is not expected, however pier drilling is expected. As indicated in the criteria section above, General Plan Action EH-7.D refers to the Federal Transit Administration (FTA) vibration criteria for evaluating impacts. The following table provides criteria for building damage taken from the FTA Transit Noise and Vibration Impact Assessment Manual (2018).

Table 7-5 Construction Vibration Damage Criteria

Building/ Structural Category	PPV, in/sec	Approximate L_v*
I. Reinforced-concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

*RMS velocity in decibels, VdB re 1 micro-in/sec

For the purposes of this analysis, we have considered the nearby sensitive receptors to be Category III structures where damage may begin to occur at a limit of 0.2 in/sec PPV or 92 VdB for transient vibration events. For continuous vibration, human annoyance may begin to occur at a limit of 78 VdB according to T

able 4.10-7 of the General Plan EIR. The nearest structures are located approximately 30-feet from the property line (adjacent storage facilities) with residences located approximately 120-ft away. The majority of the construction will occur setback from the property line. Table 4 below indicates potential construction vibration levels of various pieces of equipment. We have evaluated potential structural damage to industrial buildings immediately adjacent to the project as well as human annoyance at the sensitive receptors across Cedar Boulevard.

Table 4 – Estimated Construction Vibration Levels[2]

Equipment	Reference Vibration Level at 25-ft (in/sec PPV)		Vibration Level at 50-ft (in/sec PPV – Structural Damage)	Vibration Level at 120-ft (VdB - Human Annoyance)
Large Bulldozer	.089	87	.068	67
Loaded Trucks	.076	86	.058	66
Hoe Ram	.089	87	.068	67
Jackhammer	.035	79	.027	59
Caisson Drill Rig	.089	87	.068	67
Vibratory Roller	.210	94	.160	74

As indicated in Table 4, vibration levels are not expected to exceed the 78 VdB threshold for human annoyance, or the 0.2 in/sec PPV threshold for damage to category III buildings. At receptors further setback, vibration levels would be expected to be even lower. Groundborne noise would also not be expected to be significant at these vibration levels. Therefore, no additional mitigation measures are required.

Impact 3: Implementation of the proposed project could expose people residing or working in the project area to excessive noise levels within the vicinity of a private airstrip or 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.

The project site is not located in the vicinity of a private airstrip or airport land-use plan. Therefore, no additional mitigation measures are required.

[2] Calculated using distance adjustment equations 7-2 and 7-3 of the FTA Transit Noise and Vibration Impact Assessment Manual (2018)

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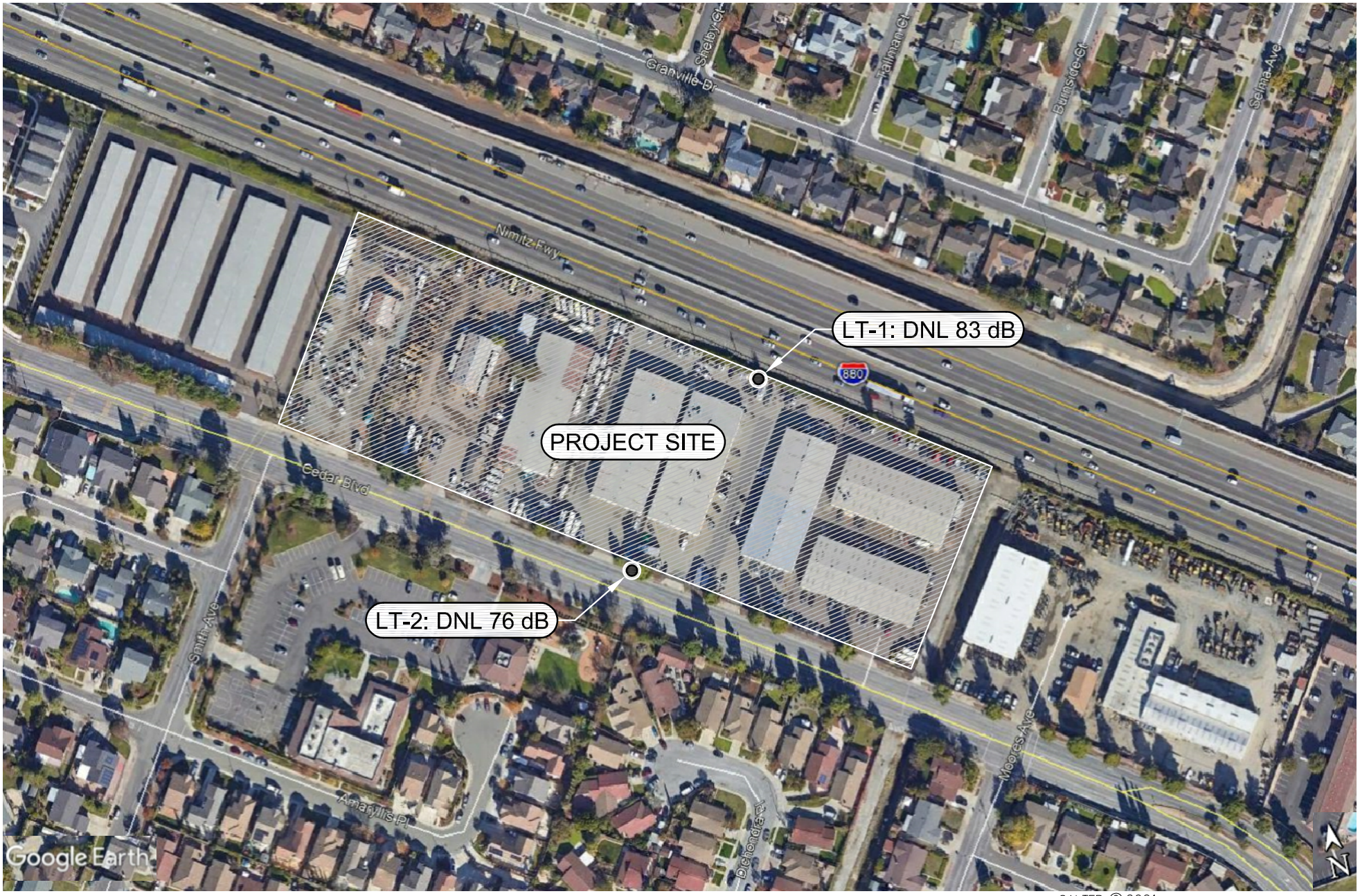

38594 CEDAR BOULEVARD
MEASUREMENT LOCATIONS AND MEASURED NOISE LEVELS

FIGURE 1

Salter #	NNS/AKS
19-0529	05.05.21

Appendix A – Traffic Noise Data

Existing vs Existing Plus Project

Intersection	Segment	Existing	Existing Plus Project	Change in Noise Level (L_{dn}, dBA)
1 – Central and Cedar	North AM	1513	1479	0
	South AM	1373	1396	<1
	East AM	1248	1198	0
	West AM	912	919	<1
2 – Smith and Cedar	North AM	1455	1478	<1
	South AM	1369	1392	<1
	East AM	0	0	0
	West AM	216	216	0
3 – Moores and Cedar	North AM	1415	1464	<1
	South AM	1354	1403	<1
	East AM	0	0	0
	West AM	83	83	0
4 – Mowry and Cedar	North AM	1668	1716	<1
	South AM	1658	1665	<1
	East AM	1721	1759	<1
	West AM	1519	1522	<1
1 – Central and Cedar	North PM	1388	1357	0
	South PM	1299	1280	0
	East PM	1489	1435	0
	West PM	1092	1062	0
2 – Smith and Cedar	North PM	1327	1289	0
	South PM	1224	1191	0
	East PM	0	0	0
	West PM	149	142	0
3 – Moores and Cedar	North PM	1327	1308	0
	South PM	1264	1249	0
	East PM	1	1	0
	West PM	76	70	0
4 – Mowry and Cedar	North PM	1499	1593	<1
	South PM	1638	1684	<1
	East PM	2230	2256	<1
	West PM	1683	1771	<1

Cumulative vs Cumulative Plus Project

Intersection	Segment	Cumulative	Cumulative Plus Project	Change in Noise Level (L_{dn}, dBA)
1 – Central and Cedar	North AM	1897	1913	<1
	South AM	2052	2075	<1
	East AM	2210	2210	0
	West AM	1755	1762	<1
2 – Smith and Cedar	North AM	2258	2281	<1
	South AM	2117	2140	<1
	East AM	0	0	0
	West AM	353	353	0
3 – Moores and Cedar	North AM	1927	1976	<1
	South AM	1844	1893	<1
	East AM	0	0	0
	West AM	113	113	0
4 – Mowry and Cedar	North AM	1933	1981	<1
	South AM	1819	1826	<1
	East AM	1809	1847	<1
	West AM	2107	2110	<1
1 – Central and Cedar	North PM	1785	1705	0
	South PM	2277	2306	<1
	East PM	2952	2952	0
	West PM	2392	2301	0
2 – Smith and Cedar	North PM	2177	2205	<1
	South PM	2063	2091	<1
	East PM	0	0	0
	West PM	170	170	0
3 – Moores and Cedar	North PM	1928	1988	<1
	South PM	1836	1896	<1
	East PM	2	2	0
	West PM	108	108	0
4 – Mowry and Cedar	North PM	2319	2378	<1
	South PM	2795	2804	<1
	East PM	1875	1921	<1
	West PM	2585	2589	<1

Existing vs Cumulative vs Cumulative + Project

Intersection	Segment	Existing	Cumulative	Cumulative with Project	Existing vs Cumulative Change in Noise Level (L_{dn}, dBA)	Cumulative vs Cumulative + Project Change in Noise Level ($_{Ldn}$, dBA)	Cumulative Change in Noise Level (L_{dn}, dBA)
1 – Central and Cedar	North AM	1513	1897	1913	<1	<1	1
	South AM	1373	2052	2075	2	<1	2
	East AM	1248	2210	2210	<3	0	<3
	West AM	912	1755	1762	<3	<1	<3
2 – Smith and Cedar	North AM	1455	2258	2281	2	<1	2
	South AM	1369	2117	2140	2	<1	2
	East AM	0	0	0	0	0	0
	West AM	216	353	353	<3	0	<3
3 – Moores and Cedar	North AM	1415	1927	1976	1	<1	1
	South AM	1354	1844	1893	1	<1	1
	East AM	0	0	0	0	0	0
	West AM	83	113	113	1	0	1
4 – Mowry and Cedar	North AM	1668	1933	1981	<1	<1	<1
	South AM	1658	1819	1826	<1	<1	<1
	East AM	1721	1809	1847	<1	<1	<1
	West AM	1519	2107	2110	1	<1	1
1 – Central and Cedar	North PM	1388	1785	1705	1	0	<1
	South PM	1299	2277	2306	<3	<1	<3
	East PM	1489	2952	2952	<3	0	<3
	West PM	1092	2392	2301	3	0	3
2 – Smith and Cedar	North PM	1327	2177	2205	<3	<1	<3
	South PM	1224	2063	2091	<3	<1	<3
	East PM	0	0	0	0	0	0
	West PM	149	170	170	<1	0	<1
3 – Moores and Cedar	North PM	1327	1928	1988	2	<1	2
	South PM	1264	1836	1896	2	<1	2
	East PM	1	2	2	0	0	0
	West PM	76	108	108	2	0	2
4 – Mowry and Cedar	North PM	1499	2319	2378	2	<1	<3
	South PM	1638	2795	2804	<3	<1	<3
	East PM	2230	1875	1921	0	<1	0
	West PM	1683	2585	2589	2	<1	2

MEMORANDUM

DATE: 16 September 2022

NAME:	COMPANY:	EMAIL:
Dominic Boitano	Robson Homes, LLC	dboitano@robsonhomes.com

FROM: Nathan Sistek and Alex Salter, PE

SUBJECT: 38594 Cedar Boulevard
Environmental Noise Assessment – Additional Comments

PROJECT: 19-0529

As requested, this memorandum provides additional comments and clarification on our 1 July 2022 Environmental Noise Assessment for the project. Our comments are as follows.

1. The Environmental Noise Assessment references traffic volumes from the transportation impact analysis (TIA) dated 2 December 2021 by Hexagon Transportation Consultants, Inc. The relevant traffic volumes from the final TIA dated 5 July 2022 did not change. Therefore, the conclusions in our Environmental Noise Assessment are still applicable.
2. For purposes of clarification, Table 3 in the Environmental Noise Assessment includes estimated construction noise levels at distances of 50-ft and 120-ft. As noted in the report, while it is possible that individual pieces of equipment could exceed 83 dBA at 25-ft, there are no noise-sensitive residential receivers located at this distance. The closest residential receivers are located approximately 120-ft from the property plane. At this distance, construction noise levels are expected to be no louder than 75 dBA, thereby satisfying the requirements of Municipal Code section 17.24.100.A.3.