



Steve Rogers Acoustics

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Subject: **Revello Drive & Tramonto Drive Residential Project
Review of Noise & Vibration Impact Analyses in the Initial Study**

Dear Kristina:

We have reviewed the Initial Study for the Revello Drive & Tramonto Drive Residential Project (July 2021) prepared by Dudek for The City of Los Angeles Department of City Planning and provide here our comments on the noise and vibration sections.

1. BACKGROUND

The Project is construction of four new single-family houses on a 1.35-acre site in the Pacific Palisades area of the City of Los Angeles, CA, surrounded by existing single-family homes – including some that are immediately adjacent to the Project site. According to the Project description in the Initial Study, construction would last for approximately three years, with up to 80 construction workers accessing the site per workday throughout that period. And according to the Noise section (XIII) of the Environmental Impacts Analysis in the Initial Study, construction hours would be 7:00 AM – 9:00 PM, Monday through Friday and 8:00 AM – 6:00 PM on Saturdays. Construction activities would be prohibited on Sundays and Federal holidays.

The analysis presented in the Initial Study concludes that impacts of noise and vibration associated with the Project are less than significant, with no need for mitigation. The purpose of our review is to confirm the accuracy of the analysis and validity of the preparers' less-than-significant finding for noise and vibration impacts.

2. THRESHOLDS OF SIGNIFICANCE

a) Department of City Planning CEQA Thresholds Guide

According to the City's current Thresholds Guide for analysis of construction noise and vibration in the preparation of CEQA clearances, a significant impact would occur if:

Daytime Construction Noise

The noise of construction activities lasting more than one day would exceed ambient exterior noise levels by 10 dBA or more at noise-sensitive uses.

The noise of construction activities lasting more than 10 days in a three-month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise-sensitive use.

Construction Vibration – Building Damage

Project construction activities cause ground-borne vibration levels to exceed:

- 0.5 peak particle velocity (PPV) at the nearest off-site reinforced concrete, steel, or timber building.



- Exceed 0.3 PPV at the nearest off-site engineered concrete and masonry building
- Exceed 0.2 PPV at the nearest off-site non-engineered timber and masonry building
- Exceed 0.12 PPV at buildings extremely susceptible to vibration damage, such as historic buildings.

Construction Vibration – Human Annoyance

Project construction activities cause ground-borne vibration levels to exceed 72 VdB at off-site sensitive uses, including residential uses.

b) Los Angeles Municipal Code

Section 41.40 of the Los Angeles Municipal Code (LAMC) prohibits construction activities that could disturb persons sleeping in a residential use between the hours of 9:00 PM and 7:00AM.

In addition, Section 112.05 of the LAMC prescribes the following noise limits at a distance of 50-feet for power tools/equipment operated between the hours of 7:00 AM and 10:00 PM:

- 75 dBA for construction, industrial, and agricultural machinery including crawler-tractors, dozers, rotary drills and augers, loaders, power shovels, cranes, derricks, motor graders, paving machines, off-highway trucks, ditchers, trenchers, compactors, scrapers, wagons, pavement breakers, compressors and pneumatic or other powered equipment;
- 75 dBA for powered equipment of 20 HP or less intended for infrequent use in residential areas, including chain saws, log chippers and powered hand tools;
- 65 dBA for powered equipment intended for repetitive use in residential areas, including lawn mowers, backpack blowers, small lawn and garden tools and riding tractors.

These limits apply to the extent that achieving them is technically feasible through the use of mufflers, shields, sound barriers and/or other noise reduction techniques.

3. PROJECT NOISE IMPACTS ARE UNDERSTATED IN THE INITIAL STUDY

We have identified several areas where the analysis in the Initial Study downplays the significance of noise impact during the construction phase of the project. In some cases, this is because the analysis has relied on incorrect source noise data and/or metrics that make construction equipment noise levels appear lower than they should be. In other instances, a relevant significance threshold has been overlooked and a significant source of off-site noise generated by the Project has been omitted.

The net result is that the less-than-significant finding for noise in the Initial Study is not justified, for the reasons detailed in the following paragraphs:

a) Auger Drill Rig is Not Included in Construction Noise Analysis

According to the Project Description in the Initial Study, construction of the Project will require a total of approximately 300 piles. As described in the Noise section (XIII) of the Environmental Impacts Analysis, these would be bored (rather than driven) piles, formed by placing concrete and steel in large cylindrical holes drilled using an auger.

Because of the large number of bored piles in the Project, use of an auger drill should be a key component of the construction noise analysis. But the calculations presented in Appendix A of the Initial Study do not include auger drill rig noise, substituting a generic “drill rig” noise source in its place.



According to the noise emission table in Appendix A (which is taken from the FHWA Roadway Construction Noise Model) the noise of an auger drill rig is 84 dBA at 50-feet, which makes this piece of equipment the loudest single construction noise source in the Project. The reference noise level of a drill rig truck is significantly lower, at 79 dBA.

b) Incorrect Noise Metric Used for Comparison with LAMC Noise Limits

The noise limit of 75 dBA at 50-feet for construction equipment in Section 112.05 of the LAMC is a maximum noise level – often denoted as “Lmax”. The reference noise levels from the FHWA Roadway Construction Noise Model are Lmax values at 50-feet, so it follows that these should be compared (either directly, or after application of an appropriate noise control adjustment) to the 75 dBA LAMC noise limit.

However, the noise analysis presented in the Initial Study (Section XIII, Table 10) compares the “equivalent” noise level of each piece of equipment to the LAMC noise limit. Equivalent noise level – often denoted as “Leq” – is an averaging metric, calculated for construction projects by applying a “usage factor” to the Lmax reference value.

Usage factor is the percentage of time during the work period that the equipment is operating under full load or near full power. In this Project, usage factors in the noise analysis range from 16% to 50%, which translates to Leq values that are between 3 and 8 dBA lower than the Lmax reference values.

Using the correct Lmax noise data, with a 5 dBA noise control reduction applied (as appropriate, for use of mufflers), we find that there are a total of seven construction noise sources in the Project that do not meet the LAMC 75 dBA noise limit at 50-feet, as follows:

Equipment Type	Lmax @ 50-ft (dBA)*	Noise Control (dBA)	Net Lmax @ 50-ft (dBA)	Exceeds 75 dBA @ 50-ft?
Grader	82	-5	77	YES
Excavator	81	-5	76	YES
Auger Drill Rig	84	-5	79	YES
Generator Set	81	-5	76	YES
Crane	81	-5	76	YES
Concrete Pump Truck	81	-5	76	YES
Cement & Mortar Mixer	79	0	79	YES
* Lmax equipment noise levels are the "actual measured Lmax" from FHWA Roadway Construction Noise Model reference document. No "actual measured Lmax" data is available for the grader; data for a dozer is used in its place.				

So, the conclusion on page 107 of the Initial Study that “the Project would not exceed thresholds set forth in LAMC Section 112.05” is incorrect. In fact, without additional mitigation measures (such as sound barriers) the noise impact of the construction equipment listed above would exceed the LAMC significance threshold and should therefore be considered significant.

c) City CEQA Thresholds are not Considered

The City’s current CEQA Thresholds state that the noise received at sensitive uses as a result of construction lasting more than 10 days in any three-month period should not exceed existing



ambient noise levels by more than 5 dBA. And according to Appendix A of the Initial Study, the existing ambient noise level in the vicinity of the project site is 54.7 dBA (Leq), which means that the City's CEQA threshold (rounded to the nearest decibel for convenience) is 60 dBA.

With usage factors (default values from the FHWA Roadway Construction Noise Model) and noise controls taken into account – and including the auger drill rig reference noise level in place of the generic “drill rig” data – we calculate the following noise levels at various distances for each phase of the Project:

Construction Phase	Received Noise Level (Leq, dBA)				
	@ 50-ft	@ 100-ft	@ 150-ft	@200-ft	300-ft
Site Preparation	72	66	62	60	56
Grading/Excavation	78	72	68	66	62
Building Construction	79	73	69	67	63
Paving	79	73	69	67	63
Architectural Coating	71	65	61	59	55

As the table above shows, any home within 150-feet of construction activity on the Project site should be expected to receive a level of construction noise that exceeds the 60 dBA threshold during all phases of construction. Even at 300-feet away, the 60 dBA threshold would be exceeded as a result of construction activity during the lengthy Grading/Excavation, Building Construction and Paving phases.

Given the close proximity of homes to the Project site, we conclude that construction noise impact would be significant when gauged against the City's current CEQA Thresholds.

d) “No Mitigation Required” Conclusion is Inaccurate

Section 6 “Mitigations” of Appendix A states that:

“All construction air quality and noise impacts are less than significant without mitigation. Therefore, no mitigation is required.”

For the reasons outlined in the preceding paragraphs, we believe this statement is inaccurate as it applies to noise. Our analysis shows that mitigation would be required to reduce noise from construction of the Project to less-than-significant levels. In some cases, it may be feasible to achieve the necessary degree of mitigation; in others, it may not.

e) Noise of Off-Site Construction Traffic is Not Evaluated

According to the Project Description, the project would include approximately 33,794 cubic yards (CY) of export earth material and the only types of trucks permitted for hauling earth in a hillside development project are 10-wheeler dump trucks with a capacity of 10 CY.

This means that removal of earth material from the site would require almost 6,800 truck trips (total of inbound and outbound) along the haul route, in addition to everyday construction traffic generated by the Project (material delivery, workers' vehicles, etc.).

And yet the noise analysis in the Initial Report does not address the impact of off-site construction-related traffic, which is a significant omission given the thousands of additional trips expected to be generated by the Project during the construction phases.



4. PROJECT VIBRATION IMPACTS ARE NOT PROPERLY ANALYZED

a) Absence of Quantitative Analysis

There is no quantitative analysis in the Initial Study of vibration generated by construction of the Project. Instead, the Noise section (XIII) of the Environmental Impact Analysis addresses this aspect of the Project as follows:

"...it is anticipated that vibration generated during construction of the Project would not cause damage to buildings nor affect sensitive receptors. Therefore, construction impacts associated with vibration would be less than significant."

This statement is not supported by any calculations or published references and falls short of the standard required for a CEQA evaluation.

b) Potentially Significant Vibration Impacts Overlooked

We believe that the Project has the potential for significant vibration impacts during construction, particularly with regard to human annoyance caused by groundborne vibration, that are not identified in the Initial Study. This is a significant oversight for a project in which heavy construction could occur very close (within 50-feet) of adjacent homes.

Using the reference data and methodology prescribed by the FTA Transit Noise and Vibration Impact Assessment Manual, we have calculated the following groundborne vibration levels at various distances from typical construction equipment and activities expected to be included the Project as follows:

Equipment Type	Lv @ 25-ft (VdB)*	Lv @ 50-ft (VdB)	Lv @ 75-ft (VdB)
Vibratory Roller	94	85	80
Caisson Drilling (Similar to Auger)	87	78	73
Loaded Truck	86	77	72
* Source: FTA Transit Noise and Vibration Impact Assessment Manual, September 2018			

The vibration level estimates at distances of 25- and 50-feet exceed the City's 72 VdB CEQA threshold for residential uses, indicating that vibration impact at those homes closest to the construction activity on the Project site would be significant.

Even for residential uses at a distance of 75-feet, certain construction activities (use of a vibratory roller during the Paving phase and auger drilling during the Grading/Excavation and Building Construction phases) would have the potential to generate significant vibration impact.

5. CONCLUSIONS

We find that the noise and vibration analysis presented in the Initial Study for the Revello Drive and Tramonto Drive Residential Project does not adequately support the preparer's finding that noise and vibration impacts will be less than significant, with no need for mitigation.

Our own evaluation leads us to the opposite conclusion – that construction of the Project (as described in the Initial Study, with no noise mitigation) would result in significant noise and vibration impacts, including:



- 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.
- Generation of excessive groundborne vibration or groundborne noise levels.

Yours sincerely,

Steve Rogers Acoustics, LLC



Steve Rogers
Principal