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January 23, 2019

Planning and Land Use Management Committee
Los Angeles City Council
City of Los Angeles
200 N. Spring St.
Los Angeles, CA 90012

**REPORT ON CONSTRUCTION NOISE IMPACTS FOR NEW HOMES AT
1888 NORTH LUCILE AVENUE AND 3627 WEST LANDA STREET**

Re: Council File 18-1156-S1 (3627 W. Landa St.) PLUM hearing date February 12, 2019

Honorable Councilmembers:

For the appeals of two Project approvals and their CEQA documents, I have been asked by John Henning to review the potential noise impacts that could result from construction activities in the proposed building of two homes and related structures at 3627 W. Landa Street and 1888 N. Lucile Avenue.

I have reviewed relevant documents from these Projects' application documents, the Mitigated Negative Declaration ("MND"), *Appellant Neighbor's Grounds for Appeal* letters dated October 1, 2018, and *Responses to Appellant's Grounds for Appeal, Re: 1888 Lucile*, "Exhibit 5," *Memorandum* dated October 8, 2018 from Dudek's noise consultants.

I have been designing hundreds of homes in California as an architectural designer for 43 years since 1975. I have also worked as an acoustical consultant reviewing and preparing environmental noise studies and CEQA project studies since 1985. I've included my professional resume as an attachment to this letter.

I. EXECUTIVE SUMMARY

As explained herein in this letter, I have made the following conclusions about these homes' construction noise impacts. (Section references are to my narrative discussion *infra* in this letter):

Section II.A (p. 2 below):¹ The MND fails to provide sufficient information to assess Project's noise impacts. The Project's noise discussion is incomplete, inaccurate, and entirely conclusory.

¹ Herein, page citations are either to the document's stated pagination (referenced by "p. ##") or to the pages' location within the referenced PDF document (referenced by "PDF p. ##"). Websites and documents cited herein were accessed in Nov. 2018 and copies of which will be made available to City officials if requested.

The noise discussion utterly fails to meet the evaluation standards set by the City's CEQA Thresholds Guide or other public agencies, nor is consistent with other noise studies conducted within the City.

Section II.B (p. 5 below): The MND does not describe applicable thresholds of significance for maximum construction noise levels.

Section II.C (p. 6 below): As many as 24 homes near the project site could be subjected to excessive construction noise levels from operation of heavy equipment that cause a substantial increase in excess of the City's threshold of existing ambient noise levels by more than 5 or 10 dBA L_{eq} (p. 10 below) (LAMC § 111.02), and also exceed the City's maximum threshold of significance limit of a noise level of 75 dBA L_{max} at 50 feet from the source. (p. 19 below) (LAMC § 112.05)

Section II.D (p. 23 below): Construction noise from pneumatic nail guns will exceed City's threshold for maximum noise limits of 75 dBA at 50 feet from the source and cause significant noise impacts at nearby homes. (LAMC § 112.05)

Section II.E (p. 23 below): The MND fails to consider significant noise impacts of heavy construction equipment warning beepers or backup alarms that could exceed City's maximum noise level limitation of 75 dBA L_{max} at 50 feet or City's limit of 10 dBA in excess of ambient noise levels. (LAMC § 112.05)

Section II.F (p. 24 below): This Project's likely construction activities will increase the ambient noise levels in neighboring homes' outdoor yards by much more than 5 dBA CNEL, and is therefore in excess of the City's threshold of significance for noise level increases greater than the ambient day-night averages measured in CNEL.

Section II.G (p. 28 below): Project construction will expose neighboring homes to significant and excessive interior noise levels during drilling or other operations of greater than City's maximum limit of 45 dBA L_{dn} at distances up to 200 feet from Project construction activities.

Section II.H (p. 29 below): Vibration impacts may be significant to immediate neighbors during retaining wall construction or site excavation, and 14 to 19 VdB in excess of applicable vibration limits of 80 VdB.

Section II.I (p.35 below): Project applicant misrepresents City's noise standards by seeking to use less protective average noise levels instead complying with City's mandatory maximum noise limit.

Section II.J (p. 37 below): Project mitigation measures for noise impacts are inadequate. Environmental review fails to consider standard mitigation measures and conditions of approval pursuant to an CEQA-compliant MND or EIR.

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II. CONSTRUCTION NOISE IMPACTS WILL BE SIGNIFICANT

A. The MND Fails To Provide Sufficient Information to Assess Project's Noise Impacts

The L.A. CEQA Threshold Guide (p. I.1:2-3) provides clear construction-related screening thresholds that require “further study” in an expanded Initial Study (“IS”), Negative Declaration (“ND”), MND, or EIR if construction activities are within 500 feet of noise sensitive uses, such as residential uses. In evaluating this screening threshold, applicants are to provide “information on construction activities” (*id.*), yet none is provided in the MND’s scant noise discussion.

These screening thresholds assist the City and DCP in responding to the questions in the State’s Initial Study Checklist² and to determine the appropriate environmental document (e.g., ND, MND, EIR) (*id.* at p. vii). These are less demanding than the City’s significance thresholds that assist the City and DCP to determine “whether a project’s impacts would be presumed significant under normal circumstances and, therefore, require mitigation to be identified” (*id.*). Here, the MND’s one-half page noise discussion on p. 22 lacks basic information and analysis required to satisfy even the minimal standards for screening evaluations under the L.A. CEQA Thresholds Guide—much less satisfy the more demanding requirements for significance determinations (discussed below).

When determining if construction noise impacts are significant under the L.A. CEQA Thresholds Guide (pp. I.1:4, I.2:5), applicants are required to establish ambient noise levels by either taking field measurements, by implementing a noise-monitoring program consistent with the City Code, or by using the “presumed Ambient Noise Levels” (LAMC § 111.03) The applicant did not submit any field measurements of ambient noise levels near the Project site. Without such information, and pursuant to the L.A. CEQA Thresholds Guide, the presumed Ambient Noise Levels set forth in LAMC § 111.03 should apply, which provides a 50-dBA daytime (7 a.m. – 10 p.m.) and 40-dBA nighttime (10 p.m. – 7 a.m.) baseline.³ Under the L.A. CEQA Thresholds Guide (pp. I.1:3-5), applicants are required to provide specific facts and analysis when making significance determinations, which the MND’s noise discussion fails to satisfy as demonstrated below:

Environmental Setting Requirements: *including the identification of noise sensitive land uses within 500 feet of the project site, and quantification of ambient noise levels (existing and projected at the time of construction) measured in CNEL.*⁴

The Project applicant did not submit any ambient noise level measurements and the MND does not contain such measurements obtained from other sources.

² CEQA Guidelines, Appendix G: Environmental Checklist Form, http://resources.ca.gov/ceqa/guidelines/Appendix_G.html.

³ A-weighted Sound Level (“dBA”): The sound pressure measured using the A-weighting filter network that de-emphasizes the very low and very high frequency components of the sound spectrum in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.

⁴ Community Noise Equivalent Level (“CNEL”): The average A-weighted noise level in a 24-hour day, obtained after adding 5 dB to evening hours (7:00 p.m. to 10:00 p.m.) and 10 dB to sound levels measured in the night (between 10:00 p.m. and 7:00 a.m.).

Project Impact Requirements: including the duration of construction activities, identify the type, amount, and scheduling of construction equipment to be used during each construction phase, and the distance from construction activities to noise sensitive uses.

Here, the Project's noise discussion fails to provide the type and amount of equipment, description of construction phasing or scheduling of equipment, or the location of equipment in relation to the residential uses adjacent to the Project site. Because the applicant has failed to provide any information regarding equipment phasing and equipment usage, it is impossible for the applicant or public to assess the collective noise impacts from numerous construction equipment and activities operating during any phase of the 16-month construction period—much less demonstrate with substantial evidence that said impacts would be less than significant under applicable thresholds and standards.

Calculation of Noise Emissions Requirements: including the noise levels provided in the L.A. CEQA Threshold Guide or other applicable references, or other noise models if appropriate, and determine the combined noise levels from equipment that will be operated simultaneously.

Here, the Project's noise discussion fails to mention the typical heavy equipment noise levels included in the L.A. CEQA Threshold Guide, much less determine or calculate the combined noise levels from equipment operating simultaneously. The MND's mitigation measure XII-20 asking for demolition and construction activities to be scheduled so as to avoid operating several pieces of equipment simultaneously is too vague. It merely requires the scheduling, not an actual prohibition of simultaneous usage, to effectively prevent different builders from simultaneously building both homes at one time. This Project consists of the construction of two separate homes, both of which may have construction occurring at the same time with cumulative noise impacts louder than for just one home's construction.

Comparison to Ambient Noise Levels/Significance Threshold Requirements: in establishing the change in noise level from construction activities at the location of sensitive receptors, applicants are to subtract the projected noise level without construction equipment from the projected noise level during construction activities. Considering the number of days various noise levels are projected, the applicant shall determine whether construction activities would exceed both the number of days, times of day, and dBA increases in the significance threshold.

Here, the MND's noise discussion fails to identify the applicable thresholds under the L.A. CEQA Threshold Guide, fails to quantify and determine the significance of the temporary increases in ambient noise during construction, and does not mention the City's General Plan Noise Element that sets permissible interior noise level limit of 45 CNEL,⁵ much less demonstrate that the Project's construction noise will not exceed this 45 CNEL limit at neighboring homes.

⁵ See City (2/3/99) General Plan Noise Element, p. 2:13 (stating the California Noise Standard for "addressing noise problems and define incompatible noise sensitive uses," including residential dwellings, is set at an interior noise level of a CNEL of 45 dB), <https://planning.lacity.org/cwd/gnlpln/noiseElt.pdf>. As discussed herein this comment letter, the Project's construction noise will exceed this limit of 45 CNEL.

Cumulative Impacts: including the identification of construction activities for related projects that would coincide with the project's construction operations; calculate noise levels using the same above-listed methodology and logarithmically add the noise from these construction activities to the project-related construction noise to determine the cumulative effect of the construction activities.

Here, the MND's noise section fails to consider, calculate and mitigate for the cumulative and thus potentially louder noise impacts of building two homes at one time.

To summarize, the Project's noise discussion is fundamentally flawed because it lacks any meaningful information, much less analysis supported by substantial evidence, that informs the City and the public of the potentially significant construction noise impacts. Moreover, the omission of the City's applicable thresholds conceals the true noise impacts of this Project. Based on my review and the facts/analysis discussed herein, there is a fair argument that construction noise will exceed the City's thresholds and, therefore, be significant. As such, the MND is inadequate, and a more thorough noise analysis is warranted in accordance with the City's L.A. CEQA Thresholds Guide and best practices exercised by other public agencies. Critically, this review should be pursuant to an EIR, where specific mitigation measures can be considered and made enforceable.

To demonstrate the various ways the Project's construction noise impacts will be significant, one must first recognize the applicable noise standards pertinent to this Project, which in some cases the noise discussion fails to do, and includes the following:

B. The MND Does Not Describe Applicable Thresholds of Significance for Maximum Construction Noise Levels.

One standard the City must consider is if these two homes' construction would result in a substantial temporary increase in ambient noise levels in the Project vicinity above levels existing without the project?⁶ The Project applicants have not submitted any ambient noise level testing to determine the existing ambient noise levels in this Project's neighborhood. But the City in that case presumes that the daytime ambient noise level in this residential area is 50 dBA L_{eq} .⁷ It is this ambient noise level of 50 dBA L_{eq} against which this Project's construction noise level increases are evaluated.

The City defines⁸ that a project would normally have a significant impact on noise levels from construction if:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise sensitive use. (L.A. CEQA Thresholds Guide, p.

⁶ See L.A. CEQA Thresholds Guide (2006) Page I.1-1, A. Initial Study Checklist Question XI.(d).

⁷ See L.A. Municipal Code, SEC. 111.03. MINIMUM AMBIENT NOISE LEVEL. Where the ambient noise level is less than the presumed ambient noise level designated in this section, the presumed ambient noise level in this section shall be deemed to be the minimum ambient noise level for purposes of this chapter. (For this residential zone, the ambient noise level is presumed to be 50 dBA daytime and 40 dBA nighttime. Also see L.A. CEQA Thresholds Guide (2006) Page I.1-9, Exhibit I.1-3, "Presumed Ambient Noise Levels")

⁸ See L.A. CEQA Thresholds Guide (2006) Page I.1-3, Section 2(A) Significance Threshold.

I.1:3) (In this case, Project noise levels would be significant if they exceed **60 dBA L_{eq}** at homes in the neighborhood. (50 dBA presumed daytime ambient level + 10 = 60 dBA))

- 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.⁹ (In this case if construction lasts more than 10 days, the Project noise levels would be significant if they exceed **55 dBA L_{eq}** at homes in the neighborhood. (50 + 5 = 55 dBA))
- Construction noise levels cause the 24-hour weighted average noise level at any neighbor's property line to increase by 5 dBA CNEL or more, that increase would be significant.¹⁰ (In this case, if those noise levels exceed **56 dBA CNEL** at residential property lines, that increase would be significant. See p. 24 for explanation of this threshold of significance.)
- Another standard is that the City's Municipal Code § 112.05(a) defines that a project's maximum allowed noise level resulting from use of construction equipment like an auger drill rig or a crane is **75 dBA L_{max}** as measured at a distance of 50 feet from that equipment.¹¹
- One other standard to be considered is the California Noise Insulation Standards (Building Code Title 24, Section 3501 et seq.). This standard for residential land uses sets a maximum interior noise level of **45 dBA L_{dn}** in any habitable room, averaged over a 24-hour period. The City's General Plan Noise Element also sets that permissible interior noise level limit of **45 dBA L_{DN}** or **45 CNEL**.¹² This standard protects against sleep disturbance impacts at

⁹ The noise impacts on neighboring residents would extend over the entire construction phase of the Project, which is estimated to be 16 months including grading, foundation and construction. (October 1, 2018 *Appellant Neighbor's Grounds For Appeal, Re: 1888 Lucile Ave.*; p. 16.)

¹⁰ See 2006 L.A. *CEQA Thresholds Guide*, p. I.2-3, "A. Significance Threshold. A project would normally have a significant impact on noise levels from project operations if the project causes the ambient noise level measured at the property line of affected uses to increase by 3 dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" category, **or any 5 dBA or greater noise increase** (. . .)." (*emphasis added*)

¹¹ See L.A. Municipal Code SEC. 112.05. MAXIMUM NOISE LEVEL OF POWERED EQUIPMENT OR POWERED HAND TOOLS:
Between the hours of 7:00 a.m. and 10:00p.m., in any residential zone of the City or within 500 feet thereof, no person shall operate or cause to be operated any powered equipment or powered hand tool that produces a maximum noise level exceeding the following noise limits at a distance of 50 feet there from:
(a) 75dB(A) 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**. (*emphasis added*)

Note (by author of this review): This code section 112.05 also states: "*Said noise limitations shall not apply where compliance therewith is technically infeasible. . . . Technical infeasibility shall mean that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers and/or any other noise reduction device or techniques during the operation of the equipment.*" However, for purposes of determining whether or not such construction noise is significant, technical infeasibility for compliance is of no consequence.

¹² See: City (2/3/99) General Plan Noise Element, p. 2:13 (stating the California Noise Standard for "addressing noise problems and define incompatible noise sensitive uses," including residential dwellings, is set at an interior noise level of a CNEL of 45 dB), <https://planning.lacity.org/cwd/gnlpln/noiseElt.pdf>. As discussed here in this comment letter, the Project's construction noise will exceed this limit of 45 dBA CNEL.

nighttime, and more pertinent here to actual construction noise, against unreasonable annoyance impacts during the daytime.

- The Project construction vibration impact would be significant if it exceeded the Federal Transit Administration (“FTA”) vibration threshold of significance of 80 VdB at residences, or exceeded the Caltrans' recommended level of 0.2 in/sec PPV.¹³

C. As Many as 24 Homes near the Project Site Could be Subjected to Excessive Construction Noise Levels from Operation of Heavy Equipment that Exceed the City's Maximum Limit of a Noise Level of 75 dBA L_{max} at 50 Feet from the Source, and also Exceed the City's Threshold of Significance of Existing Ambient Noise Levels by More than 5 or 10 dBA L_{eq} .

Based on the acoustical principles and math discussed below, it is apparent that this Project will generate and expose persons to noise levels in excess of the above-listed thresholds and standards.

Predictable Construction Noise Levels for Proposed Foundation Construction

To evaluate the significance of this Project's construction noise impacts, the first step is to review these standards listed above, including those in the City of L.A.'s CEQA Threshold Guide for its definition of applicable thresholds of significance for noise impacts.

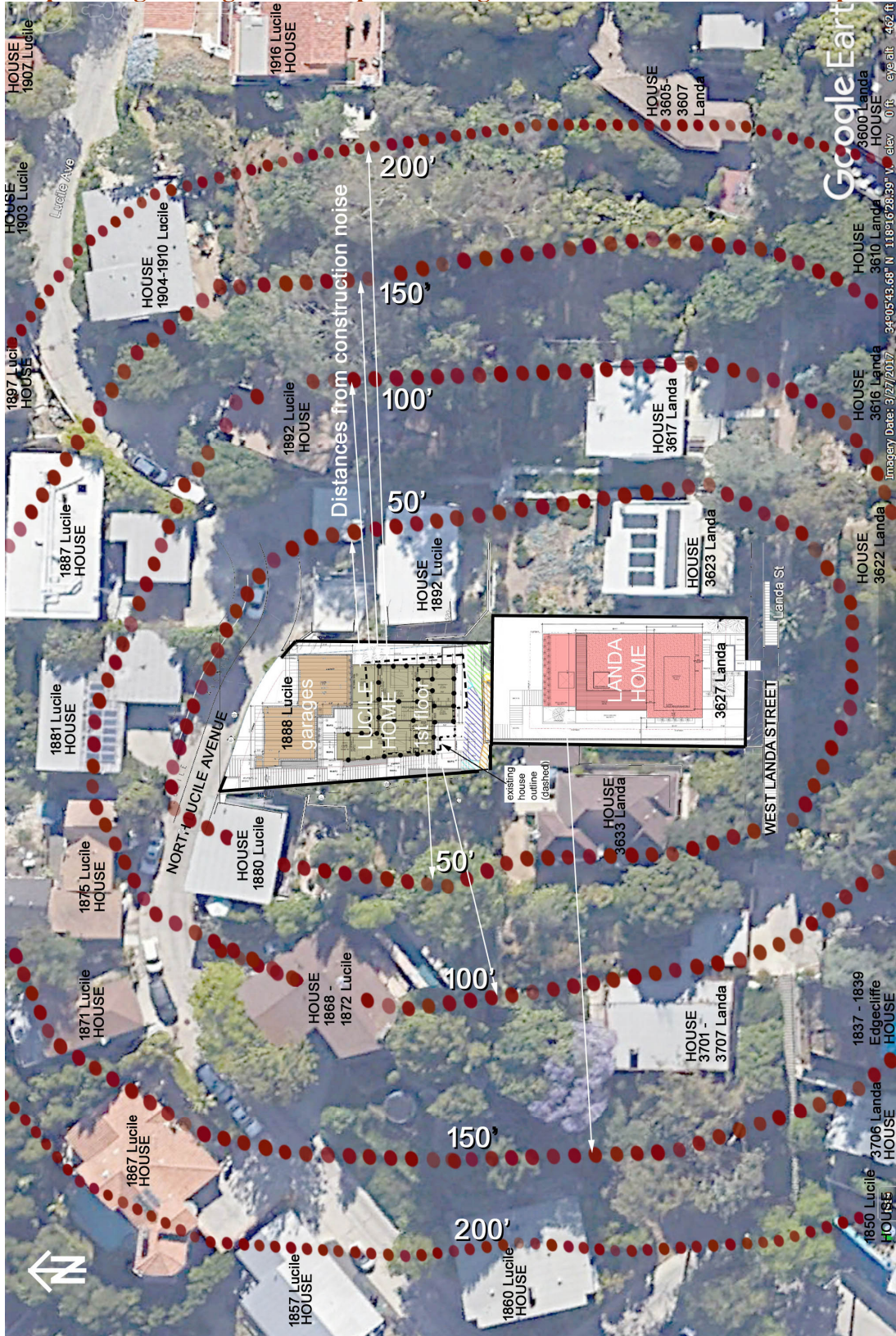
The Project's likely noise levels to be generated during foundation construction activities should be compared to all of those above listed thresholds of significance. This Project's Lucile/Landa homes construction will generate loud noise levels during pile or caisson drilling operations. The Project's "Geology and Soils Report Approval Letter" dated January 7, 2015 identifies that these will be "two new pile-supported single family residences." These two homes are recommended to have conventional and/or drilled-pile foundations bearing on competent bedrock. Those piles or caissons may extend 10 feet or more into bedrock, likely similar to foundations of adjacent homes.

As will be demonstrated, this Project's foundation construction activities with noisy caisson drilling operations will generate noise levels in excess of at least some of the noise standards identified above. As such, this Project will create significant noise impacts in its neighborhood. As shown below in **Figure A**, dozens of homes exist within a few hundred feet of this Project site.

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¹³ See FTA (May 2006) Transit Noise and Vibration Impact Assessment, pp. 12:10-14, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf.

FIGURE A
Map of Neighboring Homes Exposed to Significant Construction Noise Impacts



The noise generated during caisson drilling will likely be the most significant noise source during the Project's foundation construction. To drill a possible 12 or more caisson holes, an auger drill rig and crane will likely be used near constantly for more than one day. The City needs to know how many hours per day such drilling will occur, and also how many days such construction activities will last. The more hours a day that drilling occurs, the greater the Project's averaged noise levels will be. The more days that construction goes on, the less tolerant neighbors will become of continuing noise. To address such reduced tolerance for persistent construction noise, the City's standards even compel a reduction in a project's allowable noise levels when such noisy construction takes longer than 10 days within a three-month period.

Duration of Construction Activities for Foundation Caisson Drilling

On February 9, 2018, I personally spoke to Mr. Darnell Tapia, a construction estimator with Leon Kraus Drilling¹⁴, about his experience drilling in Los Angeles' hillsides. He estimated that drilling for caisson installations would proceed at a rate of about 125 linear feet to 150 linear feet of depth per day with unknown soil conditions, and a maximum of 200 linear feet per day under the best of conditions. He also estimated from his experience that auger drill rigs are used nearly full time during such deep drilling operations.¹⁵

The Project documents that have been made available do not reveal how many caissons and piles will be drilled for these two homes' foundations. To roughly estimate how many caissons might be drilled, we contacted a local architect with experience with such foundations, Michael Mekeel of Offenhauser/Mekeel Architects. He obtained a site plan and cross-sections of foundation details and needed retaining walls for the 1888 Lucile Avenue home.¹⁶ He estimated that at least 12 piles would be needed below two retaining walls along the home site's east and west side property lines. There may more piles for as many as four to seven retaining walls needed.¹⁷

To estimate the depth of these new caisson holes, the least amount of drilling would require about 15 feet of depth per caisson. This depth is approximated from the caisson depths shown in Project documents for the two neighboring homes which scale to about 15 feet each.¹⁸

For the two Lucile/Landa homes, assuming 12 caissons at 15 feet of depth each, approximately **180 linear feet** of caisson holes would need to be drilled. (12 x 15 = 180). It will likely take

¹⁴ For reference: Leon Kraus Drilling: 13753 Gladstone Ave; Sylmar, CA 91342, Phone (818) 367-4237

¹⁵ Therefore with nearly full time use during caisson drilling, the applicant would not be able to relax his noise compliance obligation pursuant to City laws, but may have to adhere to stricter standards if drilling results in high-pitched noise or repeated impulsive noises: "To account for people's increased tolerance for short-duration noise impacts, the Noise Regulation provides a 5 dBA allowance (increase) for noise sources occurring more than 5 minutes, but less than 15, in any 1-hour period, and an additional 5 dBA allowance for noise sources occurring 5 minutes or less in any 1-hour period. Additionally, the Noise Regulation provides a penalty of 5 dBA for steady highpitched noise or repeated impulsive noises." (Los Angeles Municipal Code, chapter XI, article I, section 111.02(b))

¹⁶ See Attachment B for Site Plan and Cross-sections with added notations in red ink.

¹⁷ See *Appellant Neighbor's Grounds For Appeal Re: 1888 Lucile Ave.*, October 1, 2018, p. 6: "As shown by the attached diagram, the Lucile project requires not 3 retaining walls, but rather, 7 retaining walls. (Tab C.)"

¹⁸ See: Exhibit 4, "Section A", showing a cross-section view of foundations for adjacent homes at 1892 N. Lucile Avenue and 3823 W. Landa Street.

more than one day to drill those caissons holes.¹⁹ Other construction noise sources such as bull dozers, excavation equipment, sawing, hammering, and nail gun use that exceed City standards at close by homes will also create significantly intrusive noise sources lasting for months.

The Project's Construction Noise Will Exceed Existing Ambient Exterior Noise Levels by 5 dBA for more than 10 Days in a Three-Month Period in its Neighborhood, and that is Considered a Significant Noise Impact.

Noise level increases during Project construction will exceed the City's thresholds of significance. With neighboring homes as close as 15 feet to this Project, and as close as 10 feet to the Project's retaining walls, significant levels of construction noise will likely exceed City thresholds at these homes for more than 10 days in a three-month period. Such longer construction periods occur for other similar Los Angeles home construction projects.²⁰ This Lucile/Landa Project may be noisier than ordinary single-family home projects because it consists of the demolition of one existing home, site excavation and grading, and the construction of two new homes and their garages. As demonstrated below, noise limit exceedances of City thresholds will occur regularly during Project site preparation, caisson drilling, and other construction equipment use.

Foundation Construction Noise will be Excessive

First, consider just the noise impacts in building these homes' foundations. Even if only the site work and foundation construction noise levels exceed City standards, and not other onsite construction noise, this Project will generate noise increases above ambient noise levels by more than 10 dBA, and that would be significant.²¹ If more caissons are required than roughly assumed or if greater depths of drilling are required, then the caisson construction period could increase to more than 10 days. Caisson construction activities exceeding 10 days would trigger

¹⁹ As estimated by Leon Kraus Drilling at a different location, the drilling for the Lucile/Landa homes' caisson installations would proceed at a rate of about 125 linear feet to 150 linear feet of depth per day with unknown soil conditions. (180 / 125 = approximately 1.4 days of drilling)

²⁰ See e.g., 3599 Lankershim Boulevard (DCP Case No. ENV-2014-4031-EIR, *Single-Family Residence in Studio City Project*; the proposed project was the development of a two-story single-family residence with basement) (from EIR, Section IV.E Noise, p. IV.E-14: "For the proposed project, the construction scenario is expected to last approximately 15 months, and noise levels are projected to periodically exceed the 5 dBA standard for construction lasting more than 10 days in a three month period by a maximum of 12.1 dBA at the closest sensitive receptor. Therefore, the proposed project would result in a potentially significant impact to noise relating to 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, and the consideration of mitigation measures and alternatives is required.")

<http://planning.lacity.org/eir/StudioCitySingleFam/DEIR/4E%20Noise.pdf>

²¹ See L.A. CEQA Thresholds Guide (2006) Page I.1-3, Section 2(A) Significance Threshold. The City defines that "a project would normally have a significant impact on noise levels from construction if construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise sensitive use."

the stricter 5 dBA increase standard.²² Or other excessively noisy construction lasting a total of more than 10 days within a 3-month period would invoke that stricter 5 dBA increase standard.

The exact locations for proposed caisson drilling were not made available, but this generalized diagram on the next page, Figure “B,” as based upon advice from a local architect, illustrates their approximate positions for this noise report’s impact analysis.

Many neighboring homes will be exposed to more than this significant noise level because of this Project’s steep hillside lots, the foundation work being proposed, and the close proximity of many neighboring homes. To calculate such noise levels, the following assumptions are made as to how loud the equipment is, how many hours per day it will be used, whether noise muffling will also occur, and the distances to neighboring homes in the vicinity.

Auger Drilling Equipment Operational Noise Levels

For this calculation, the caisson installation equipment or auger drill rig will generate about **85 dBA L_{max} at a 50-foot** distance.²³ Numerous equipment noise prediction reference sources identify auger drill rigs producing 85 dBA L_{max} at a 50-foot distance, as does the FHWA.²⁴

Equipment Noise Mitigation

The Project’s Mitigated Negative Declaration vaguely requires a mitigation measure for the use of state-of-the-art noise shielding and muffling devices to somewhat quiet the noise from the equipment during its operations.^{25, 26}

²² The City defines that “a project would normally have a significant impact on noise levels from construction if “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.” *Ibid.*

²³ See *Construction Noise Assessment* (2017) by Illingworth & Rodkin, Inc., page 6, Table 3, “Construction Equipment 50-foot Noise Emission Limits” - Auger Drill Rig: 85 dBA L_{max} Source: Federal Highway Administration Roadway Construction Noise Model.

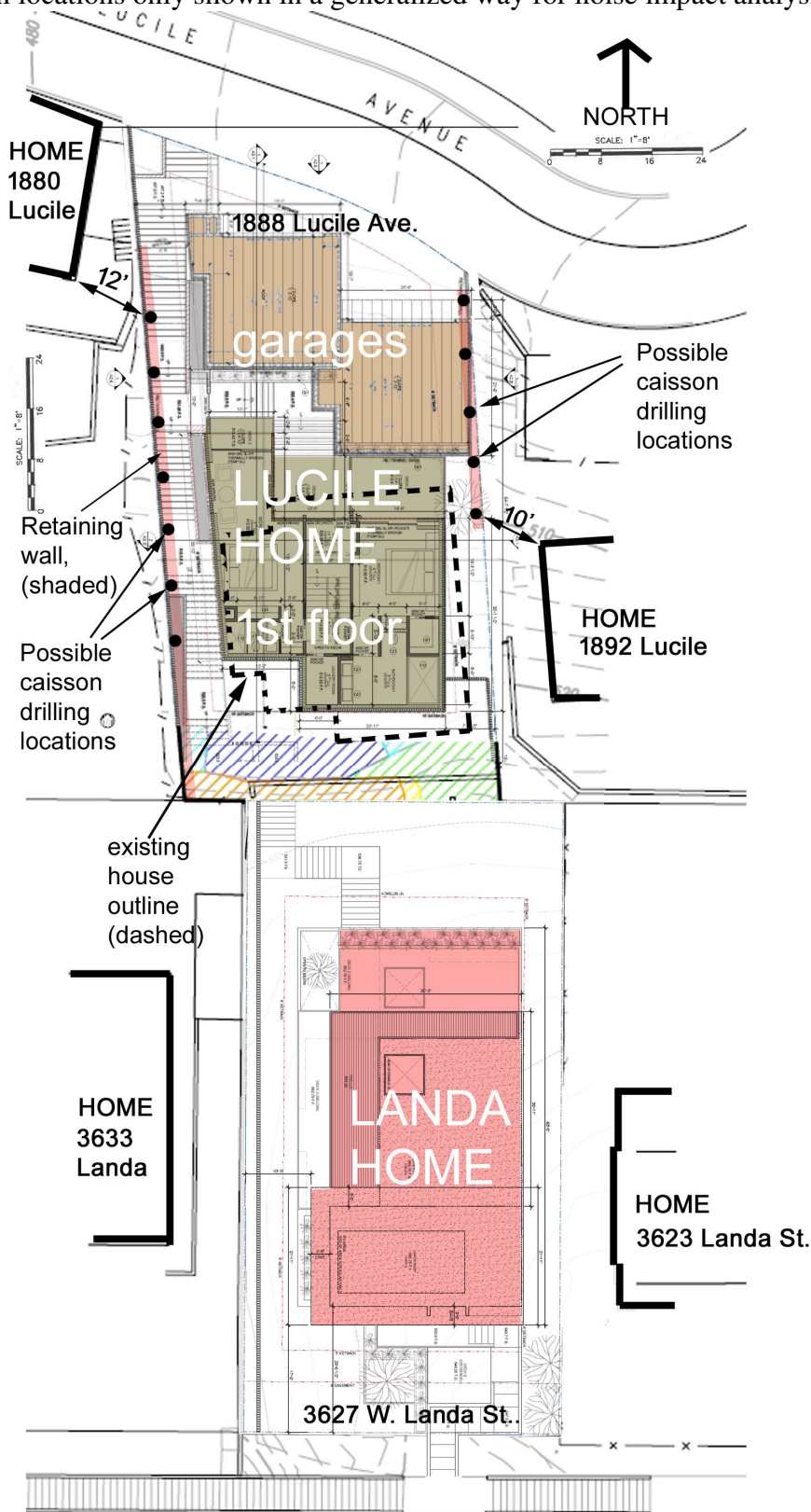
²⁴ See the 2006 FHWA Roadway Construction Noise Manual Users Guide, p. 3, Table IV.F-7; or p. 3, Table 1. Available online at: https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf The *L.A. CEQA Thresholds Guide*, p. I.1-9, Exhibit I.1-2, “Outdoor Construction Noise Levels”, identifies excavation and grading activities to produce noise levels slightly louder of 86 dBA at 50 feet with mufflers.

²⁵ See MND at p. 22, Mitigation Measure for category XII-20 (c): “The project contractor shall use power construction equipment with state-of-the-art noise shielding and muffling devices.”

²⁶ While the City’s CEQA Guide shows noise levels (Table 2) even greater than those cited by the EPA (Table 1), the City’s referenced noise levels do not account for equipment possible utilizing noise-muffling devices. Noise calculations herein utilize the lower noise levels in Table 1, which is more preferential for the Project applicant. Hence, any noise impact exceeding the L.A. CEQA Thresholds Guide’s or other applicable standards utilizing the lower noise levels (Table 1) would also exceed thresholds/standards under the stricter noise levels under the L.A. CEQA Thresholds Guide (Table 2)

Figure B
APPROXIMATE LOCATION FOR CAISSON DRILLING

(Caisson locations only shown in a generalized way for noise impact analysis purposes)



Calculation of Auger Drilling Equipment Noise Levels²⁷

To evaluate whether this Project's construction noise levels will be significant and will exceed City standards by exceeding ambient noise levels by more than 10 dBA, it is necessary to calculate how loud that construction noise will be at neighboring homes some distance from this Project's drilling operations.

In this Project's neighborhood, some homes are significantly lower in elevation compared to this Project's hillside site, and they will have direct line-of-sight exposure to such equipment activity. Accordingly some neighboring homes will not be shielded from direct noise paths during drilling. Calculations can provide relatively accurate estimations of noise exposure when such direct views exist unblocked by topography or intervening structures.

The distance from the noise source to a receptor is a primary consideration in determining the actual noise level experienced at the receptor. Most reference noise levels are specified at a distance of 50 feet from the source. The calculation of noise from a point source, such as construction equipment, at other distances uses the following "Equation 1" for noise attenuation over distance:

$$(1) \quad L_2 = L_1 - |20 \log_{10} \left(\frac{d_1}{d_2} \right) |,$$

Where:

L_1 = known sound level at d_1

L_2 = desired sound level at d_2

d_1 = distance of known sound level from the noise source

d_2 = distance of the sensitive receptor from the noise source

This equation is the mathematical expression for a noise level being reduced by 6 dBA for each doubling of distance from the source.²⁸

Typical noise levels for construction equipment are shown in Tables 1 and 2 below.

²⁷ Formulas for noise level calculation are from the Inglewood Oil Field Specific Plan Project Draft EIR, (2015), which was accessed online at <http://www.culvercity.org/home/showdocument?id=9697> on February 9, 2018, and alternatively a copy will be provided to the City if requested.

²⁸ U.S. Department of Transportation Federal Highway Administration ("FHWA") Website (8/24/17) Highway Traffic Noise Analysis and Abatement Policy and Guidance, https://www.fhwa.dot.gov/Environment/noise/regulations_and_guidance/polguide/polguide02.cfm; see also California Department of Transportation ("Caltrans") (Sep. 2013) Technical Noise Supplement, pp. 2:27-28 (stating for point sources, "sound level attenuates or drops off at a rate of 6 dBA for each doubling of the distance[;]"). Also see CalTrans *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, Oct. 1998; p. 25, Equation N-2141.1, or http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf

Table 1:
Typical Construction Noise Levels, Equipment Powered by Internal Combustion Engines
 (U.S. EPA, 1971, NTID300.1 Report)²⁹

Type	Noise Levels (dBA) at 50 Feet
Earth Moving	
Compactors (Rollers)	73 - 76
Front Loaders	73 - 84
Backhoes	73 - 92
Tractors	75 - 95
Scrapers, Graders	78 - 92
Pavers	85 - 87
Trucks	81 - 94
Materials Handling	
Concrete Mixers	72 - 87
Concrete Pumps	81 - 83
Cranes (Movable)	72 - 86
Cranes (Derrick)	85 - 87
Stationary	
Pumps	68 - 71
Generators	71 - 83
Compressors	75 - 86
Impact Equipment	
Type	Noise Levels (dBA) at 50 Feet
Saws	71 - 82
Vibrators	68 - 82
Notes: ¹ Referenced Noise Levels from the Environmental Protection Agency (EPA)	

²⁹ U.S. EPA (12/31/71) Noise from Construction Equipment and Operations Building Equipment, and Home Appliance, p. 11, <https://nepis.epa.gov/Exe/ZyPDF.cgi/9101NN3L.PDF?Dockkey=9101NN3L.PDF>; see also MD Acoustics (10/30/17) Noise Impact Study for Commonwealth Development, p. 31 (utilizing U.S. EPA Noise Levels for mixed-commercial development in the City of San Jacinto, CA), https://www.sanjacintoca.gov/UserFiles/Servers/Server_10384345/File/City%20Government/Community%20Development/Planning/CEQA/Commonwealth%20Crossings/07-NoiseStudy.pdf.

Table 2
NOISE LEVEL RANGES OF TYPICAL CONSTRUCTION EQUIPMENT
(L.A. CEQA Threshold Guide, p. I.1-8)

<u>Equipment</u>	<u>Levels in dBA at 50 feet^a</u>
Front Loader	73-86
Trucks	82-95
Cranes (moveable)	75-88
Cranes (derrick)	86-89
Vibrator	68-82
Saws	72-82
Pneumatic Impact Equipment	83-88
Jackhammers	81-98
Pumps	68-72
Generators	71-83
Compressors	75-87
Concrete Mixers	75-88
Concrete Pumps	81-85
Back Hoe	73-95
Pile Driving (peaks)	95-107
Tractor	77-98
Scraper/Grader	80-93
Paver	85-88

^a Machinery equipped with noise control devices or other noise-reducing design features does not generate the same level of emissions as that shown in this table.

Source: EPA, Noise from Construction Equipment and Operations, Building Equipment and Home Appliances, PB 206717, 1971.

Equipment Acoustic Utilization Factor

If heavy equipment is operated full time and at full power throughout a day, its noise impact in the neighborhood will be greater than if operated intermittently or for just a few hours of a day. Equipment noise levels are cumulative when averaged over hours, so they are higher when not interrupted by long, quiet periods. During drilling at this Project site, such an auger drill rig would be operated nearly constantly for much of the work day according to Mr. Tapia who was consulted about similar drilling. With the estimated number of caissons to be drilled, such construction would take at least one day even if operated full time. While continuous use of individual equipment may not be realistic, the applicant has failed to provide the City or the public any information regarding construction timing, associated equipment list, or likely concurrent equipment usage. Nevertheless, the construction impacts raised herein identify numerous construction equipment and activities that will be likely employed and that will generate significant noise levels on an ongoing basis that require adequate analysis and mitigation. This constitutes substantial evidence supporting a fair argument that the Project will have significant construction noise impacts that can be feasibly mitigated.

In the circumstance of this Project with its caisson hole drilling, the auger drill rig equipment will remain relatively stationary for long hours as deep holes are slowly drilled. For construction equipment, the average noise level, L_{eq} , is related to the maximum noise level, L_{max} , by the following equation:

$$L_{eq} = L_{max} + 10 \log (AUF), \text{ where,}$$

L_{eq} is the average noise level from a piece of construction equipment at 50 feet,

L_{max} is the maximum noise level from a piece of construction equipment at 50 feet, and

AUF is the acoustic utilization factor, which is the fraction of time that a piece of construction equipment is typically at full power.

The L_{max} and AUF data for construction equipment noise from operation of the auger drill rig are tabulated in the impact analysis calculations below in this Table 3:

**Table 3:
CALCULATION OF AUGER DRILL NOISE LEVELS AT DIFFERENT DISTANCES**

Max. Auger Noise Level: (dBA Lmax)	AUF% use factor (dBA Leq)	Average Auger Noise Level: (dBA Leq)	Distance in feet from noise source									
			25	50	100	150	200	250	300	350	400	
Loudness at specified distance in dBA Leq												
85	20%	78	84.0	78.0	72.0	68.5	66.0	64.0	62.4	61.1	59.9	20%
85	40%	81	87.0	81.0	75.0	71.5	69.0	67.0	65.5	64.1	63.0	40%
85	60%	82.8	88.8	82.8	76.8	73.2	70.7	68.8	67.2	65.9	64.7	60%
85	80%	84	90.0	84.0	78.0	74.5	72.0	70.1	68.5	67.1	66.0	80%
85	100%	85	91.0	85.0	79.0	75.5	73.0	71.0	69.4	68.1	66.9	100%
80	20%	73	79.0	73.0	67.0	63.5	61.0	59.0	57.4	56.1	54.9	20%
80	40%	76	82.0	76.0	70.0	66.5	64.0	62.0	60.5	59.1	58.0	40%
80	60%	77.8	83.8	77.8	71.8	68.2	65.7	63.8	62.2	60.9	59.7	60%
80	80%	79	85.0	79.0	73.0	69.5	67.0	65.1	63.5	62.1	61.0	80%
80	100%	80	86.0	80.0	74.0	70.5	68.0	66.0	64.4	63.1	61.9	100%
60 dBA Leq threshold of significance if drilling for more than 1 day												
55 dBA Leq threshold of significance if noise for more than 10 days												
where $L_d = L_{ref} - 20 \log (d/ref)$ and where $L_{eq} = L_{max} + 10 \log (AUF)$												
Note: these calculations show that Project drilling noise levels will exceed City standards of a 10 dB maximum increase above presumed ambient noise levels at all distances of up to 400 feet from source of drilling for a 80% or 100% use factor, not taking into account either decreases in loudness due to shielding of other structures or increases in loudness due to reflections of noise from steep hillside surfaces or other structures.												

The maximum standard or threshold of significance under the circumstance that the Project's foundation caisson construction occurs for more than one day is 60 dBA L_{eq} . This **Table 3** above shows that the City's maximum drilling noise standard is exceeded at distances up to about 400 feet from possible caisson drilling locations. That exceedance would occur even when a muffler is used on an auger drill rig to reduce its noise by 5 dBA.

Calculating Number of Days of Excessive Construction Noise to Determine Threshold of Significance for Noise Impacts above Existing Ambient Noise Level

Some assumptions must be made to determine which thresholds of significance for noise level increases should be used. As discussed above, there is good reason to predict this Project's excessively noisy construction phases will last for more than 10 days in a 3-month period. The Project application documents do not comply with the City's CEQA Thresholds Guide to contain required information about the type and amount of equipment, description of construction phasing or scheduling of equipment, or the location of equipment in relation to the residential uses adjacent to the Project site. Regardless of whether excessive construction noise levels occur for less than or for more than 10 days in a 3-month period, this Project's noise levels will exceed these City standards pertaining to excessive construction noise levels:

L.A.'s CEQA Threshold Guide (2006), page I-1.3, states that:

A project would normally have a significant impact on noise levels from construction if:

- *Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise sensitive use;*
- *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;...*

Drilling for the homes' foundation caissons will undoubtedly take more than one day. So at a minimum, the threshold of significance would be exceeded if construction noise levels at neighboring homes would exceed 10 dBA above the existing ambient exterior noise level. If drilling and other noisy construction lasts for more than 10 days, a 5 dBA threshold of exceedance would apply.

As mentioned above, in the absence of actual ambient noise level measurements, the City's Municipal Code § 112.03 presumes that daytime ambient noise levels are about 50 dBA L_{eq} . Therefore if this Project generates construction noise during foundation drilling of greater than **60 dBA L_{eq}** at neighboring homes, its noise impact will be considered to be significant. This threshold of significance of 60 dBA L_{eq} can be compared to **Table 3** above to evaluate at what distance the Project's noise impacts will be significant. Similarly, a **55 dBA L_{eq}** threshold can be compared if that drilling lasts for more than 10 days.

For example, the loudest phases of construction (excavation/grading and finishing) will potentially generate noise levels upwards of 99 dBA at the nearest homes located perhaps just 10

feet from the proposed Project site.³⁰ Such noise levels would exceed the City's presumed 50 dBA daytime ambient noise level by **49 dBA**.³¹ That noise level would be 39 dBA greater than the City's 10 dBA exceedance threshold of significance at the nearest residential property lines. (L.A. CEQA Thresholds Guide, p. I.1:3). This would be a significant noise impact.

Excavation Noise Levels will be Significant

Or for example, site excavation of at least 11 feet in depth for the Project's lower floors will also last more than one day. The center of these excavation areas would be about 25 feet from the Project's adjacent residential property lines. Excavation activities from just one heavy equipment type like a backhoe produce noise levels of up to 95 dBA at 50 feet. At 35 feet, such equipment noise is increased by the shorter distance to about 98 dBA.³² That noise level of 98 dBA or louder when excavation occurs in the center of the Project's site would exceed the presumed daytime ambient noise level of 50 dBA by about 48 dBA. Excavation activities closer than 35 feet would produce even louder noise, especially when more than a single piece of heavy equipment is operated simultaneously.³³ That noise level would greatly exceed the City's presumed daytime threshold of significance of 10 dBA and is considered significant. Therefore, the consideration of mitigation measures and alternatives is required.

From **Table 3** above, it can be seen that construction noise levels from auger drilling would exceed a 60 dBA L_{eq} threshold of significance up to 200 feet from the drilling locations for any *acoustic utilization factor*.³⁴ If auger drilling occurs for more than 40% of the time, that threshold would increase to 300 feet from the drilling location and would include another 35 homes.³⁵ This Table 3 also shows that if construction noise exceedances above City standards occur for more than 10 days in a 3-month period, and thus result in a 55 dBA L_{eq} threshold of significance, then homes within 400 feet of the Project could be exposed to significant noise impacts for all calculated acoustic utilization factors, or essentially any feasible drilling operations. Within 200 feet of this Project's construction, there are 24 homes. Within 300 feet of such construction, there are about 59 homes. **See Figure C below** on page 20.

³⁰ Calculation based upon a construction noise level of 86 dBA at 50 feet, but increased to 99 dBA as distance shrinks to 10 feet from property line for closest excavation and grading activities. The adjacent home at 1892 Lucile Avenue is approximately 10 feet from where this Project's caissons will be drilled along its eastern retaining wall (See Figure B).

³¹ Exceedance calculation: (99 dBA [at 10 feet] construction noise during excavation of) – (50 dBA presumed daytime ambient level) = (49 dBA exceedance above daytime ambient level). That increase would be 39 dBA greater than the City's 10 dBA threshold of significance (LAMC § 111.02).

³² Noise level increase due to shorter distance is calculated as increased by about 6 dB for each halving of distance.

³³ The MND does not contain a mitigation measure to prohibit multiple noise sources occurring at one time. This mitigation XII-20(b) only addresses the "scheduling" of activities, but is not enforceable as to their actual operation: "(b) "Demolition and construction activities shall be scheduled so as to avoid operating several pieces of equipment simultaneously, which causes high noise levels."

³⁴ Acoustic utilization factor: Defined as the fraction of time that a piece of construction equipment is typically at full power; herein considered for 20%, 40%, 60%, 80% or 100% of the time.

³⁵ See map on the next page for homes within 300 feet of Project construction locations.

Project Construction Noise will be Significant Because it will also Exceed City’s Noise Limit of 75 dBA L_{max} at Homes Within 500 feet.

Using these noise levels in the “Equation 1” formula on page 13 above,³⁶ and by assigning the highest potential noise level for muffled equipment during construction at 86 dBA (“L₁”) at a distance of 50 feet (“d₁”), the distance at which construction activities would reach a maximum of 75 dBA (“L₂”) under the City’s CEQA Guide’s significance threshold for construction activities is approximately 178 feet (“d₂”).³⁷ **Table 4** below shows various predicted distances at which the noise impacts will be below 75 dBA according to Equation 1 for each construction phase.

**Table 4:
Predicted Distance Noise Impact will be Below the Level of Significance of 75 dBA L_{max}**

Construction Phase	The Distance at Which Noise Impact will be below 75 dBA	Number of Receptors within this Distance
Ground clearing	112	9 homes
Excavation, grading	178	24 homes
Foundations	63	5 homes
Structural, paving	126	12 homes
Finishing	178	24 homes

Note: According to § 112.05 of the LAMC, construction activities may not exceed 75 dBA at a distance of 50 feet between the hours of 7:00 a.m. and 10:00 p.m. in any residential zone of the City or within 500 feet thereof.

³⁶ While the City’s CEQA Guide shows noise levels (Table 2) even greater than those cited by the EPA (Table 1), the City’s referenced noise levels do not account for equipment possible utilizing noise-muffling devices. Although the Conditions of Approval (“COAs”) for the Project do not require the applicant and future construction workers to use muffling devices, [a standard COA for other similar projects], noise calculations herein utilize the lower noise levels in Table 1, which is more preferential for the Project applicant. Hence, any noise impact exceeding the City CEQA Thresholds Guide thresholds or other applicable standards utilizing the lower noise levels (Table 1) would also exceed thresholds/standards under the stricter noise levels under the L.A. CEQA Thresholds Guide (Table 2).

³⁷ Given noise attenuation due to distance is reduced by about 6 dB for each doubling of distance from a point source, one can calculate a dB level at different distances when there is a known dB level for a known distance by the following equation: $dB_2 = dB_1 - 10 \times A \times \text{LOG}(d_2/d_1)$ where:

LOG = logarithm, base 10,

A = dB drop-off rate coefficient (in this Project's case, a = 2.0 for a 6 dB drop off rate (point source, no atmospheric absorption)).

dB₁ = dB level at know distance from source, d1

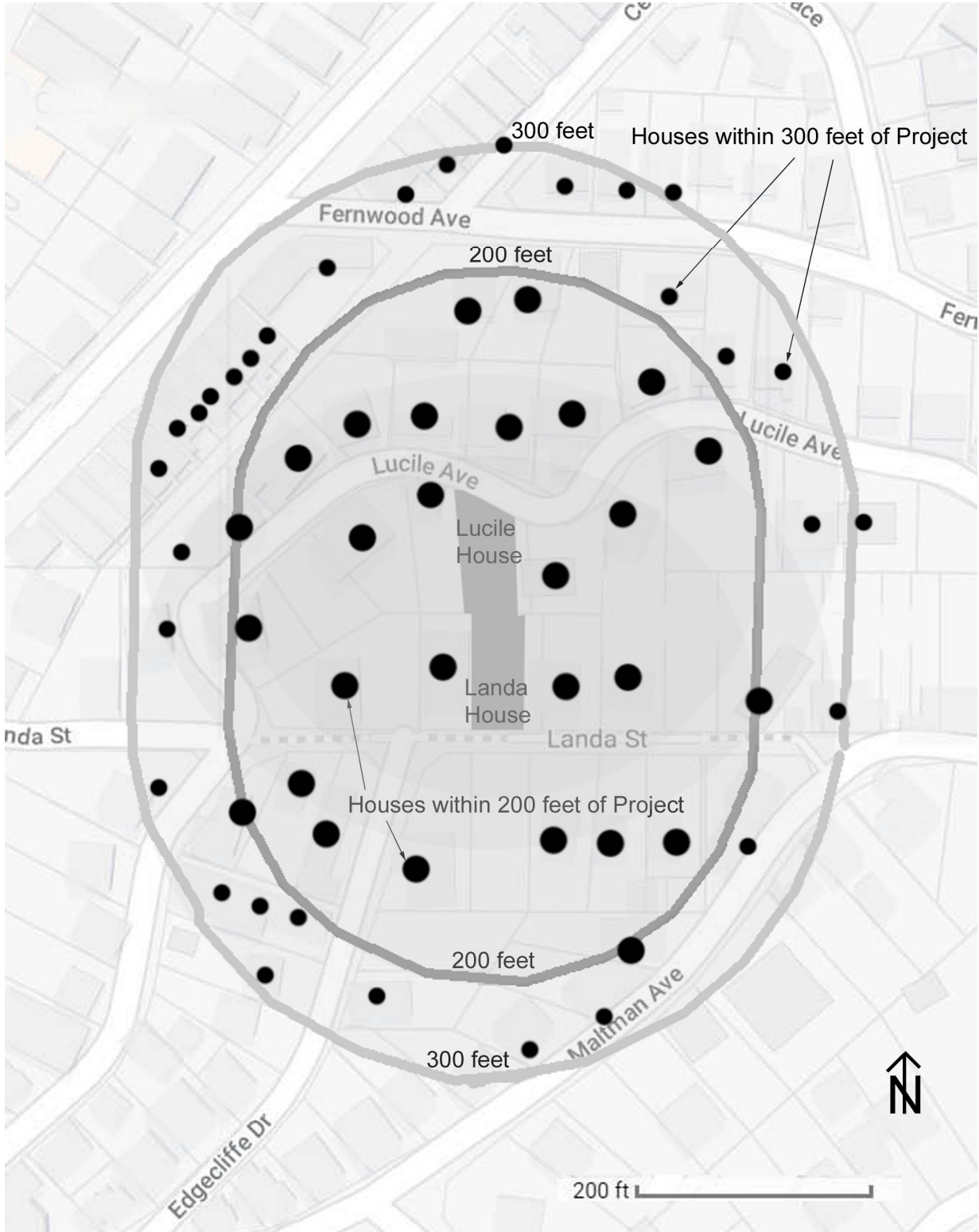
dB₂ = dB level at another distance from source, d2

d₁ = known distance from source for known decibel level dB1

d₂ = second distance from source for which known decibel level estimate (dB2) is desired

In this case, at a location 178' (d₂) from the Project site work, where dB₁ = 86 dB(A) at 50' (d₁) from the noise source, $dB_2 = dB_1 - 10 \times A \times \text{LOG}(d_2/d_1) = 86 - 10 \times 2.0 \times \text{LOG}(178/50) = 75 \text{ dB(A)}$.

Figure C
Homes within 200 or 300 feet of Project Construction of Lucile House or Landa House



The distance at which noise impacts would be below the threshold of significance of 75 dBA L_{max} for a residential zone for the different phases of construction ranges from 63 to 178 feet. As Table 3 indicates, there may be a significant impact to neighboring residents during all phases of construction, to varying degrees.

For example, the loudest phases of construction (caisson drilling/excavation/grading and finishing) will potentially generate noise levels upwards of 99 dBA at the nearest homes located just 10 feet from the proposed Project.³⁸ That noise exposure would greatly exceed the City's existing noise regulation by 24 dBA at the nearest home.³⁹

During the most noise intensive phases of construction, 24 sensitive receptors are within 178 feet of site activities and, therefore, potentially subject to a noise level in excess of 75 dBA.

During the least noise intensive phases, 5 sensitive receptors would be potentially subjected to a noise level in excess of 75 dBA.

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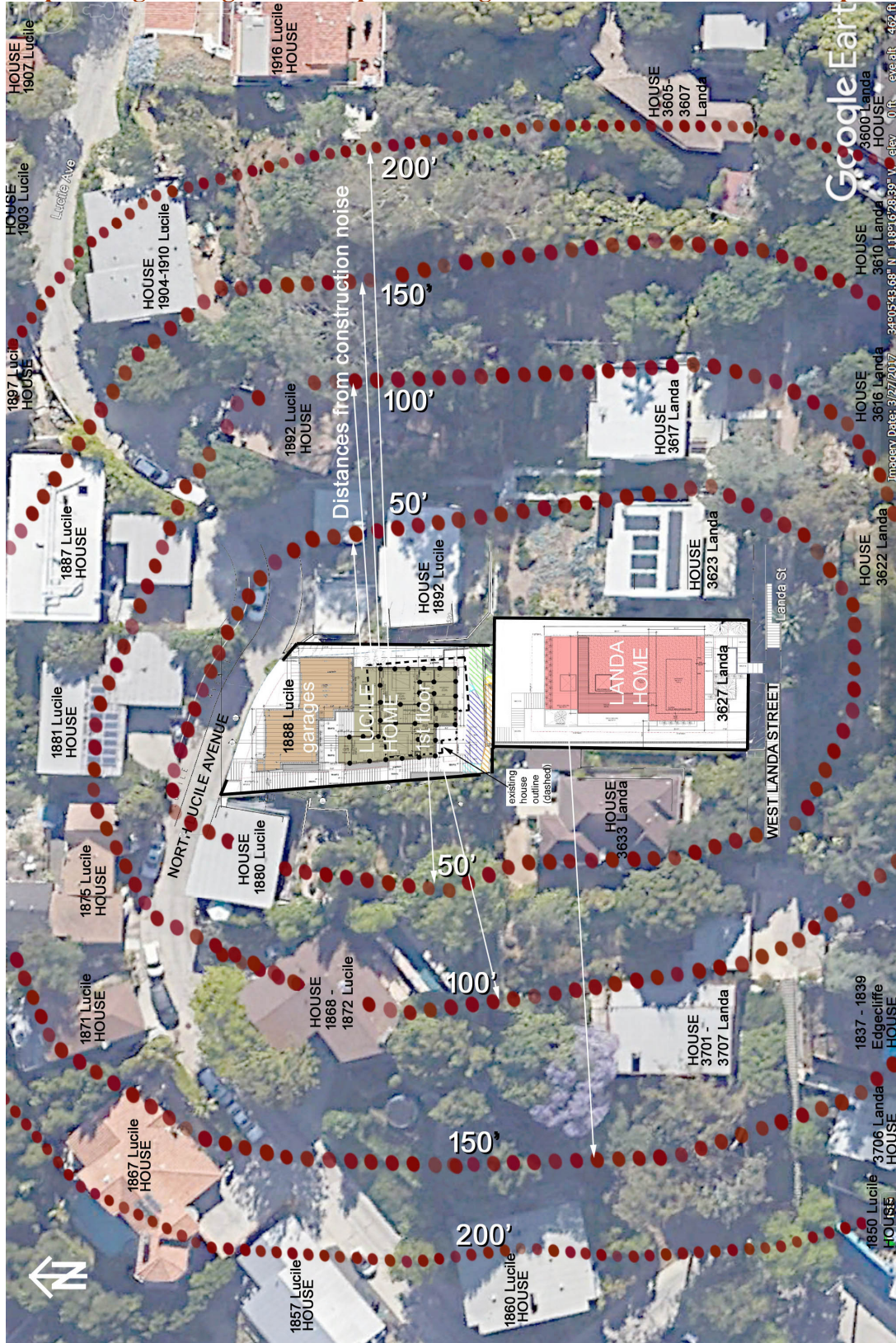
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³⁸ Calculation based upon construction noise level of 85 dBA at 50 feet, but increased to 99 dBA as distance shrinks to 10 feet from property line for closest excavation and grading activities.

³⁹ Calculation: (99 dBA at 10 feet from excavation) – (75 dBA limit) = (24 dBA exceedance over standards).

FIGURE A (REPEATED)

Map of Neighboring Homes Exposed to Significant Construction Noise Impacts



D. Construction Noise from Pneumatic Nail Guns will Exceed City’s Maximum Noise Limits of 75 dBA and Cause Significant Noise Impacts at Nearby Homes

Construction noise will be generated from typical wood-frame construction techniques including the builders’ use of pneumatic nail guns. Maximum noise levels from nail gun use have been measured at about 100 dBA at a distance of 3 feet.⁴⁰ For example, at several adjacent homes at a distance of 24 feet away from Project construction (or closer yet), that noise level would diminish to about 82 dBA L_{max} .⁴¹ At 50 feet away (capturing four homes), such nail gun noise levels would be about 75.6 dBA L_{max} .⁴² Even louder, the L.A. CEQA Threshold Guide identifies the noise level from pneumatic impact equipment being potentially at 83 – 88 dBA at 50 feet.⁴³

Maximum noise levels from nail gun use of 75.6 dBA, 82 dBA, or even higher at neighboring homes would exceed the significance thresholds under the City’s CEQA 2006 Threshold Guide and the 75-dBA limit under LAMC § 112.05. Thus, the Project’s construction noise levels just from nail gun use could be significant. Furthermore, it is technically feasible to reduce such nail gun noise levels by requiring contractors to utilize better-designed nail guns, retrofitting equipment with mufflers, or incorporating effective sound curtains during the construction of the Project.⁴⁴

E. MND Fails to Consider Significant Noise Impacts of Heavy Construction Equipment Warning BEEPERS or Backup Alarms that Could Exceed City’s Maximum Noise Level Limits.

The Mitigated Negative Declaration fails to disclose that noise from heavy equipment backup warning beepers would be very audible at some sensitive receptors near this Project site. Backup alarms or beepers are a frequent source of complaints from neighbors, even when used only during the daytime. Backup alarms must generate a noise level at least 5 to 10 dBA above the background noise in the vicinity of the rear of the machine where a person would be warned by the alarm. Thus, they are significantly louder than the drilling equipment and site grading equipment’s noise. Yet the MND fails to describe their decibel rating or suggest placing limits on

⁴⁰ See National Institute for Occupational Safety and Health (Jan. 2003) Study and Reduction of Noise from a Pneumatic Nail Gun, PDF p. 2, <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.561.7860&rep=rep1&type=pdf>.

⁴¹ L_{max} is defined as the highest value measured by the sound level meter over a given period of time. Noise level attenuation due to distance is calculated as a 6 dB reduction for each doubling of distance from a point source.

⁴² Utilizing 6 dB less for each doubling of distance.

⁴³ L.A. CEQA Thresholds Guide, p. I.1:8, Exhibit I.1-1.

⁴⁴ See National Institute for Occupational Safety and Health (Jan. 2003) Study and Reduction of Noise from a Pneumatic Nail Gun, PDF p. 3 (utilizing nail guns with energy absorbent piston bumper and/or equipped with muffler device “significantly reduced the overall sound pressure levels for all frequencies ...”), <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.561.7860&rep=rep1&type=pdf>; see also Noise Control Engr. Journal (2015) “Identification of Noise Sources and Design of Noise Reduction Measures for a Pneumatic Nail Gun,” (recommending noise reduction measures such as small volume mufflers, applying noise absorbing foam on the outside of the nail gun body), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4562896/>.

their loudness. Backup alarms typically produce from 97 to 112 decibels at four feet,⁴⁵ which attenuates to about 75 to 91 dBA at 50 feet,⁴⁶ and can even be heard at the distances where the nearest neighbors live. At those noise levels, their use would exceed the City's maximum limit of 75 dBA L_{max} at 50 feet.⁴⁷ These backup alarms beep about once per second at a penetrating frequency of about 1,100 Hertz designed to be easily heard by most people.

A single backup warning beeper emitting 91 dBA at 50 feet could be as loud as 72 dBA at homes 400 feet away. (Calculated being 6 dB quieter for each doubling of distance.) Noise levels of 72 dBA L_{max} which could be 22 dBA greater than ambient noise levels would exceed the City's maximum 5 or 10 dB increase standard in its CEQA Thresholds Guide as discussed above.

F. Project Construction will Expose Neighbors' Outdoor Yards to Significant and Excessive Increases in Exterior Noise Levels of More than 5 dBA CNEL Above Existing Ambient Noise Levels Measured in CNEL.

Los Angeles additionally evaluates the significance of this Project's noise impact by examining how much louder construction noise will be than the average ambient noise level that exists at a neighbor's property lines during a 24-hour day. If the Project causes the average daily noise level there at any neighbor's property line to increase by 5 dBA CNEL⁴⁸ or more, that increase would be significant.⁴⁹ This threshold is important to protect neighbors' use of their outdoor yards from nearby excessive construction noise.

At this Lucile Avenue Project site, with a presumed existing ambient noise level during the day of 50 dBA L_{eq} and at night of 40 dBA L_{eq} , the day-night average CNEL noise level is currently about **51.0 dBA CNEL**.⁵⁰ (See below footnote for both the calculation and the formula used on the next page.) As will be shown, this Project will generate noise levels that greatly exceed this City threshold of significance of an additional 5 dBA CNEL at not only adjacent properties, but also many other residential outdoor yards in the neighborhood.

⁴⁵ Source of back-up alarm noise levels from alarm manufactured by Pollak, #41-761, "Manually adjustable Back-up Alarm," rated at 112, 107, 97 dB.

⁴⁶ Noise level attenuation due to distance is calculated as reduced by about 6 dB for each doubling of distance.

⁴⁷ See LAMC section 112.05(a).

⁴⁸ Community Noise Equivalent Level ("CNEL"): The average A-weighted noise level in a 24-hour day, obtained after adding 5 dB to evening hours (7:00 p.m. to 10:00 p.m.) and 10 dB to sound levels measured in the night (between 10:00 p.m. and 7:00 a.m.).

⁴⁹ See 2006 L.A. CEQA Thresholds Guide, p. I.2-3, "A. Significance Threshold. A project would normally have a significant impact on noise levels from project operations if the project causes the ambient noise level measured at the property line of affected uses to increase by 3 dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" category, **or any 5 dBA or greater noise increase** (. . .)." (*emphasis added*)

⁵⁰ Calculation of CNEL: Assign **50 dBA L_{eq}** to each daytime hour from 7 a.m. – 7 p.m., and **55 dBA L_{eq}** for each evening hour from 7 p.m. – 10 p.m., (i.e. add 5 dB to each hour presumed at 50 dB), and **50 dBA L_{eq}** for each hour from 10p.m. – 7 a.m. (i.e. add 10 dB to each nighttime hour presumed at 40 dB. Then calculate the logarithmic average of these noise levels for all 24 hours in a day with this formula:

$$CNEL=10\log_{10}[(1/24)\times\{(10^{(40+10)/10}\times 7\text{ hrs})+(10^{(50)/10}\times 12\text{ hrs})+(10^{(50+5)/10}\times 3\text{ hrs})+(10^{(40+10)/10}\times 2\text{ hrs})\}]$$

First though, here is how the CNEL for the existing ambient day/night averaged noise level is calculated:

Community Noise Equivalent Level

CNEL is the same as L_{dn} except for an additional weighting of almost 5 dBA for the evening hours between 7 p.m. and 10 p.m. The equation is essentially the same as Equation 2-23, with an additional definition of $W_i = 10\log_{10}(3)$, which is 4.77. Calculations for CNEL are similar to L_{dn} . The result is normally about 0.5 dBA higher than L_{dn} using the same 24-hour data. The equation for the CNEL is as follows:

$$CNEL = 10\log_{10}\left[\left(\frac{1}{24}\right)\sum_{i=1}^{24} 10^{L_{eq(h)_i} + W_i/10}\right] \quad (2-24)$$

Where:

$W_i = 0$ for day hours (7 a.m. to 7 p.m.)

$W_i = 10\log_{10}(3) = 4.77$ for evening hours (7 p.m. to 10 p.m.)

$W_i = 10$ for night hours (10 p.m. to 7 a.m.)

$L_{eq(h)_i} = L_{eq}$ for the i th hour

Source: Cal. Dept of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, Sept. 2013; p. 2-53

http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf

Or the above CNEL formula (#2-24) can be formatted slightly differently but with the same result:

$$CNEL = 10\log_{10}\left\{\frac{1}{24}\left[\sum_{0000}^{0700} 10^{(L_i + 10)/10} + \sum_{0700}^{1900} 10^{L_i/10} + \sum_{1900}^{2200} 10^{(L_i + 5)/10} + \sum_{2200}^{2400} 10^{(L_i + 10)/10}\right]\right\}$$

Source: <http://www.modalshop.com/filelibrary/831-Appendix%20C.pdf>

With this formula, one can calculate what the City would consider to be the existing ambient noise level in this Project's vicinity, which on a day-night averaged basis, is **51 dBA CNEL**:

Calculation:

$$\begin{aligned} CNEL &= 10\log_{10}[(1/24)\times\{(10^{(40+10)/10}\times 7 \text{ hrs})+(10^{(50)/10}\times 12 \text{ hrs})+(10^{(50+5)/10}\times 3 \text{ hrs})+(10^{(40+10)/10}\times 2 \text{ hrs})\}] = \\ &= 10\log_{10}[(1/24)\times\{700,000 + 1,200,000 + 948,683 + 200,000\}] \\ &= 10\log_{10}[(1/24)\times 3,048,683] = 10 \times \log_{10}[127,028] = 10 \times 5.1 = \mathbf{51.0 \text{ CNEL}} \end{aligned}$$

Thus the calculated ambient noise level at the Project site is 51.0 CNEL. This is one of several baselines for measuring the Project's noise impacts. Also the City considers a project's construction increase of 5 dB greater than this ambient noise level to be significant. Therefore the threshold of significance for Project construction noise increases at nearby residential property lines is **56.0 dBA CNEL**. (51 + 5 = 56) Any construction noise exceedance of this 56.0 dBA CNEL threshold at neighboring property lines (i.e. their outdoor yards) would be considered a significant noise impact. Next, several examples are presented showing such excessive construction noise levels:

**(1). NOISE LEVEL FROM CAISSON DRILLING FOR EVEN 6 HOURS PER DAY
WOULD GREATLY EXCEED CITY'S THRESHOLD OF SIGNIFICANCE.**

If heavy construction noise during caisson drilling occurs, for example, **for six hours in a work day** (where the allowable construction workday is 7 a.m. – 6 p.m.), and if the drilling auger generates 85 dBA L_{eq} at a 50 foot distance, and the drill rig or auger's source of the noise is located 10 feet from a neighboring property line near where piles for retaining walls are likely, and the job site is relatively quiet for the five hours of that permissible work day, the CNEL calculation for the noise level the closest neighbors would be exposed to is as follows:

Because an auger drill rig produces a noise level of 85 dBA L_{eq} at 50 feet,⁵¹ then at a property line 10 feet away from auger equipment, the construction noise level would be **99.0 dBA L_{eq}** . (This calculation is based upon noise increasing by 6 dB for each halving of distance between source and receiver, and the standard formula.)⁵²

Then, assuming the other Project construction noise levels during all the other hours during that workday are no higher than the existing ambient noise level, calculations show that the neighboring property line would be exposed to a day-night average noise level of about **93.0 dBA CNEL**:

Calculation:

$$\begin{aligned} \text{CNEL} &= 10 \log_{10} \left[\left(\frac{1}{24} \right) \times \left\{ \left(10^{(40+10)/10} \times 7 \text{ hrs} \right) + \left(10^{(99)/10} \times 6 \text{ hrs} \right) + \left(10^{(50)/10} \times 6 \text{ hrs} \right) + \left(10^{(50+5)/10} \times 3 \text{ hrs} \right) + \left(10^{(40+10)/10} \times 2 \text{ hrs} \right) \right\} \right] \\ &= 10 \log_{10} \left[\left(\frac{1}{24} \right) \times \{ 700,000 + 47,659,694,000 + 600,000 + 948,683 + 200,000 \} \right] \\ &= 10 \log_{10} \left[\left(\frac{1}{24} \right) \times 47,674,742,000 \right] = 10 \times \log_{10} [1986447583] = 10 \times 9.30 = \mathbf{93.0 \text{ dBA CNEL}} \end{aligned}$$

(This formula is similar to the previous one above that calculated ambient noise level except that 6 hours of drilling auger noise of 99 dBA L_{eq} at 10 feet is increased during the daytime, representing how loud drilling activity will be 10 feet from the Project site's side property lines.)

The City's threshold of significance is any construction noise level increase of more than 5 dB greater than the presumed 51 dBA CNEL ambient level here, which then is 56 dBA CNEL. But, for example, with six hours of drilling producing 93.0 dBA CNEL at a property line 10 feet away, drilling noise **would exceed this threshold of significance by 37 dBA CNEL**. (93.0 – 56.0 = 37.0 dB) This exceedance would be an extremely significant noise impact that requires analysis and effective mitigations. This impact would be greater yet if during the permissible 11 hour work-day more than 6 hours of drilling occurred. Caisson drilling for longer than 6 hours a day is common in order to efficiently use the heavy equipment. Or this type of noise impact would more significant yet if the drilling occurs even closer to the property line where the applicant's architectural drawings indicate retaining walls will be constructed, and will likely need pile foundations. (See **Figure B** above for approximate location for caisson drilling.)

**(2). NOISE LEVEL FROM CAISSON DRILLING FOR EVEN ONE HOUR PER DAY
WOULD GREATLY EXCEED CITY'S THRESHOLD OF SIGNIFICANCE.**

⁵¹ See *Construction Noise Assessment* (2017) by Illingworth & Rodkin, Inc., page 6, Table 3, “Construction Equipment 50-foot Noise Emission Limits” - Auger Drill Rig: **85 dBA L_{max}** Source: Federal Highway Administration Roadway Construction Noise Model.

⁵² Calculation: Here, $L_v(\text{at } 10 \text{ feet}) = [85 \text{ dB} - 20 \times \text{Log}(10/50)] = [85 \text{ dB} - 20 \times -0.70] = [85 + 14] = \mathbf{99 \text{ dB}}$

With the same facts assumed in the above example, except with only **one hour per day** of caisson drilling, those noise levels would still significantly impact adjacent residences. It would produce **85.2 dBA CNEL** at adjacent property lines, much greater than the City's 56 dBA CNEL threshold identified above. (i.e. **29.2 dB** greater than threshold of significance)

Calculation:

$$\begin{aligned} \text{CNEL} &= 10 \log_{10} \left[(1/24) \times \{ (10^{(40+10)/10} \times 7 \text{ hrs}) + (10^{(99)/10} \times 1 \text{ hr}) + (10^{(50)/10} \times 11 \text{ hrs}) + (10^{(50+5)/10} \times 3 \text{ hrs}) + (10^{(40+10)/10} \times 2 \text{ hrs}) \} \right] = \\ &= 10 \log_{10} \left[(1/24) \times \{ 700,000 + 7,943,282,347 + 1,100,000 + 948,683 + 200,000 \} \right] = \\ &= 10 \log_{10} \left[(1/24) \times 7,947,131,030 \right] = 10 \times \log_{10} [331,130,460] = 10 \times 8.52 = \mathbf{85.2 \text{ dBA CNEL}} \end{aligned}$$

(3). NOISE LEVEL FROM CAISSON DRILLING FOR SIX HOURS PER DAY WOULD EXCEED CITY'S THRESHOLD OF SIGNIFICANCE EVEN 400 FEET AWAY.

Apprehensive residents in the Project's neighborhood might want to know if the Project would significantly impact their property with construction noise even if they are more distant than those who have adjacent parcels. Calculations provided below demonstrate that auger drilling without better noise mitigations lasting 6 hours per day, without other Project construction noise during those hours or other work hours, would exceed the City's threshold of significance even 400 feet away.

The noise level from just the auger drilling at 400 feet away from equipment would be about **67 dBA L_{eq}** if the auger produces 85 dBA L_{eq} at 50 feet.⁵³ Then with that construction noise level continuing for six hours at a measurable level of 67 dBA L_{eq} at 400 feet away, and with existing presumed ambient noise levels for the other 18 hours of a day, more distant residential lots could be exposed to Project noise level increases of a day-night averaged noise level of **61.3 dBA CNEL**:

Calculation:

$$\begin{aligned} \text{CNEL} &= 10 \log_{10} \left[(1/24) \times \{ (10^{(40+10)/10} \times 7 \text{ hrs}) + (10^{(67)/10} \times 6 \text{ hrs}) + (10^{(50)/10} \times 6 \text{ hrs}) + (10^{(50+5)/10} \times 3 \text{ hrs}) + (10^{(40+10)/10} \times 2 \text{ hrs}) \} \right] = \\ &= 10 \log_{10} \left[(1/24) \times \{ 700,000 + 30,071,234 + 600,000 + 948,683 + 200,000 \} \right] = \\ &= 10 \log_{10} \left[(1/24) \times 32,519,917 \right] = 10 \times \log_{10} [1,354,996] = 10 \times 6.13 = \mathbf{61.3 \text{ dBA CNEL}} \end{aligned}$$

That noise level of 61.3 dBA CNEL would create a significant noise impact even 400 feet away because it would exceed the City's threshold of significance of 56 dBA CNEL by more than 5 dBA. There are many dozens of homes within 400 feet of where this Project's drilling would occur. While some of them are partially shielded to some extent by intervening homes from such noise, many of the neighborhood homes in direct line-of-sight on this 1888 Lucile Avenue hillside lot or will be closer and thus will not be adequately buffered. This too demonstrates that heavy construction noise on this Project site will generate a significant noise impact by increasing the 24-hour average noise level in many neighbors' yards by more than 5 dBA CNEL.

The Initial Study/MND, p. 12, Section XII(d) incorrectly evaluates this Project's temporary construction noise level causing an "increase in the project vicinity above levels existing without the project." The MND's finding is not supporting in claiming that such temporary noise would be *potentially significant unless mitigation is incorporated*. With the few noise mitigations as

⁵³ Calculation is based upon noise decreasing by 6 dB for each doubling of distance between source and receiver. The distance increase from 50 feet to 400 feet involves three doublings. (to 100', to 200', and to 400') At 400 feet away, the noise level would therefore be about 18 dB quieter (6 dB x 3 doublings = 18 dB). Thus 85 dBA L_{eq} – 18 dBA = **67 dBA L_{eq} at a distance of 400 feet.**

proposed, none of which effectively lessen caisson drilling noise at adjacent property lines, the Project's noise level increases will still be quite excessive as shown above in examples (1), (2), and (3). Therefore, the Project as proposed is not compliant with CEQA in protecting neighbors' outdoor yards (and homes) from excessive construction noise.

G. Project Construction will Expose Neighboring Homes to Significant and Excessive Interior Noise Levels During Drilling or Other Operations of Greater than City's Maximum Daily Noise Level Limit of 45 dBA L_{dn}.

The Los Angeles General Plan's Noise Element identifies a maximum residential noise standard of 45 dBA L_{dn} in any habitable room, averaged over a 24-hour period.⁵⁴ This standard protects against sleep disturbance impacts at nighttime, and more pertinent here to actual construction noise, against unreasonable annoyance impacts during the daytime. While the City does not enforce this 45 dBA L_{dn} standard for single-family homes during applications for a typical building permit, this standard nonetheless remains as an identified threshold of significance for purposes of determining significant impacts under CEQA when other factors present here require environmental review.

For example, if this Project's caisson drilling operations with a 60% *acoustic utilization factor* (AUF) generate muffled noise levels of 77.8 dBA L_{eq} at 50 feet, then at a 200-foot distance such noise levels would be about 65.7 dBA L_{eq}. (See tabular calculations above in Table 3.) There are about 24 homes within 200 feet of this Project's drilling locations that could be exposed to Project construction noise levels as high as this. (See Figure A, aerial photo map of neighboring homes with lines marking 200 foot distances from site drilling locations, or Figure C.) During a long work day between 7:30 a.m. to 5:30 p.m. with 10 hours of drilling, with drilling of that 60% use factor continuing for those 10 hours, one can calculate the day-night weighed average noise level heard 200 feet away. The use of the auger drill rig would generate a calculated "day-night average" noise level of 62.1 dBA L_{dn} at that 200-foot distance.⁵⁵

The formula for calculation of the L_{dn} noise level is (using CalTrans equation N-2223.3)⁵⁶

"The L_{dn} descriptor is actually a 24 hour L_{eq}, or the energy-averaged result of 24 1-hour L_{eq}'s, with the exception that the night-time hours (defined as 2200 - 0600 hours) are

⁵⁴ See e.g., General Plan Noise Element, p. 2:2; LAMC § 91.1207.14.2 ("Interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric shall be either the day-night average sound level (L_{dn}) or the community noise equivalent level (CNEL), consistent with the noise element of the local general plan."); L.A. CEQA Thresholds Guide, p. I.4:4 (screening threshold for airport noise impacts includes whether sensitive uses, including dwelling units and habitable rooms, have "adequate acoustic insulation to ensure an interior CNEL of 45 dB or less ...").

⁵⁵ This calculation of a day-night averaged noise level given an 'AUF' of 60% and the L_{eq} noise level of 65.7 dBA L_{eq} results from considering that noise levels for 10 daytime hours are 65.7 dBA L_{eq}, for another 5 daylight hours are presumed to be at least 50 dBA L_{eq}, and the remaining 9 nighttime hours in a 24-hour day are presumed to be at least 40 dBA L_{eq}. The logarithmic averaging of those 24 hours results in that 62.1 dBA L_{dn} day-night weighted average noise level.

⁵⁶ See Oct. 1998 CalTrans Technical Noise Supplement, p. 48, equation N-2223.3, for calculation of L_{dn}:
http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf

assessed a 10 dBA “penalty”. . . . Mathematically this “day-night” descriptor is expressed as:

$$L_{dn} = 10 \text{ Log}_{10} \left[\left(\frac{1}{24} \right) \sum_{i=1}^{24} 10^{L_{eq(h)i} + W_i/10} \right] \quad (\text{eq.N-2223.3})$$

where: $W_i = 0$ for day hours (0700 - 2200); $W_i = 10$ for night hours (2200 - 0700); $L_{eq(h)i} = L_{eq}$ (for the i^{th} hour)

Calculation:

$$\begin{aligned} L_{dn} &= 10 \log_{10} [(1/24) \times \{ (10^{65.7/10}) \times 10 \text{ hrs-drilling} \} + (10^{50/10}) \times 5 \text{ hrs-quiet} \} + (10^{(40+10)/10}) \times 9 \text{ hrs-night} \}] \\ &= 10 \log_{10} [(1/24) \times \{ 37,153,522 \times 10 + 100,000 \times 5 + 100,000 \times 9 \}] \\ &= 10 \log_{10} [(1/24) \times 38,553,523] = 10 \times \log_{10} [1,606,397] = 10 \times 6.21 = \mathbf{62.1 \text{ dBA } L_{dn}} \end{aligned}$$

For neighbors at that 200-foot distance from this Project’s foundation hole drilling locations who have their windows open on such days, their homes would attenuate (reduce) that exterior noise level by as much as 15 dBA.⁵⁷ Thus their homes’ interior noise levels in rooms facing this Project would be approximately 47 dBA L_{dn} . (62.1 – 15 = 47.1) That noise level would be greater than the City’s threshold of significance of 45 dBA L_{dn} even at that 200-foot distance.

Moreover, this Project location presents that unusual circumstance of being perched on a **steep** hillside. That steepness of slope necessitates additional noisy, time-consuming caisson foundation work. The steep hillside increases the construction work’s noise impacts as it reflects more noise towards homes that are at a lower elevation, unblocked by intervening homes, and situated to the north. Those homes to the north expose more of their roofs than walls to direct view from this Project site. Roofs do not block sound transmission as well as exterior walls because roofs have typically have some unblocked ventilation openings and roofs are often less dense than exterior walls. Such Project noise levels from auger drilling and even louder construction activities would exceed the City’s interior noise exposure standards of 45 dBA L_{dn} . That would create a significant noise impact, and would harm a substantial number of neighboring residents.

H. Vibration Impacts will be Significant to Immediate Neighbors During Foundation Construction.

This Project proposes demolition of an existing home, site grading, foundation excavation and drilling for installation of footing caissons and retaining walls. These construction activities will cause significant vibration impacts to neighboring homes. The Project’s MND however concludes without evidence that there will be no impact due to groundborne noise or vibration by claiming “[t]he project does not include any construction or a use which would generate groundborne noise or vibrations.” The MND is not factually accurate. Excavation operations, site grading and drilling for foundation pilings or caissons will cause serious groundborne vibrations.

Some homes in the immediate vicinity of the Project site would be exposed to construction-related vibration levels above acceptable thresholds of significance. These nearest neighboring

⁵⁷ Residential rooms with open windows typically attenuate exterior noise levels by between 10 to 15 dBA as most of the acoustic energy of exterior noise is blocked by the more solid wall and roof surfaces.

homes would be exposed to even greater vibration impacts than is often assumed because they are closer to proposed excavation activities than 25 feet, a distance often used for vibration discussion. Some homes are only about 10 to 15 feet away from Project construction locations.⁵⁸ At such close distances as 15 feet from where deep soil excavation is proposed for the Project's basement foundation, vibration impacts at least can significantly disturb neighbors and exceed applicable vibration safety standards. The vibration impacts from this construction work at this close distance can be shown to be severe. Construction vibration could even damage two of those adjacent older neighboring homes built in 1939 and 1948.⁵⁹ "Historic-period homes (i.e., constructed in 1969 or earlier)" are not generally built with current, more stringent seismic codes and construction practices, so they are less resistant to earth-borne movements such as vibration caused by pile-driving or excavation.⁶⁰

The outer limits for architectural damage to historical buildings from pile driving . . . is 50 feet to 100 feet, while the limit for structural damage to at risk buildings is within 25 feet of the vibration source. Project features such as retaining wall structures, drainage systems, . . . , etc., all have the potential to cause vibration impacts to adjacent receptor locations."⁶¹

A vibration level of 0.20 PPV in./sec. or greater is the threshold at which there is a risk of "architectural" damage to normal dwelling – houses with plastered walls and ceilings.⁶² This Project may exceed this vibration level at adjacent homes.

Ground-borne vibration would be generated during construction of the Project by various construction activities and equipment, such as the demolition of existing structures and pavement, site preparation work, excavation of below-grade levels, foundation work, and new building erection. The City has not adopted any quantitative thresholds for construction vibration. However, CEQA requires the City to consider whether the Project would result in the exposure of persons or their structures to excessive ground-borne vibration or ground-borne noise levels. As such, FTA policies and guidelines are often utilized to assess impacts due to ground-borne vibration for projects reviewed by the City.⁶³ To evaluate the Project's vibration

⁵⁸ See Responses to Appellant's Grounds for Appeal, Re: 1888 Lucile, Exhibit 4, "Plot Plan," submitted by Crest Real Estate. (PDF p. 17 of *LUC ELAAPC addtl doc packet.pdf*) indicating a 7-foot setback from the common property line to the home to the east at 3617 West Landa Street; see also the Architectural drawings for the *Landa Project Site Plan*, Sheet A1.0, indicating an 8-foot setback from that common property line to its east. (7 feet + 8 feet = 15 feet separation distance.); see also correspondence from Michael Mekeer, Architect, about placement of retaining wall caissons along east and west side yard property lines, which are within 10 to 12 feet of adjacent homes; see Figure 3 for location of pile drilling.

⁵⁹ The adjacent home at 1880 Lucile Avenue was built in 1948. Adjacent home at 3633 Landa St. was built in 1939. Both of these historic-period homes have stucco on their exterior walls; stucco is rigid and more likely to be damaged by severe construction vibration than most other building materials. (See: *Responses to Appellant's Grounds for Appeal, Re: 1888 Lucile*, "Exhibit 1")

⁶⁰ See South Coast 101 HOV Lanes Project, EIR/EIS, p. 16.
http://www.dot.ca.gov/dist05/projects/sb_101hov/final/tech_reports/vibration_report.pdf

⁶¹ *Ibid*, p. 12

⁶² See South Coast HOV Lane Project, p. 10, Table 1: "Vibration Level and Intensity"
<http://sbcountyplanning.org/PDF/boards/MPC/06-06-2012/SOUTH-COAST-LANES/Vibration%20Study.pdf>

⁶³ See FTA (May 2006) Transit Noise And Vibration Impact Assessment, pp. 8:3, 12:10-14,
https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf; See e.g.,
631 S. Spring St. (DCP Case No. ENV-2015-2356-EIR) DEIR Noise Section, PDF pp. 8-9, 13, 23, 28,
<https://planning.lacity.org/eir/SpringStHotel/Deir/DEIR%20Sections/Spring%20St%20Hotel%20IV.H%20>

impacts, one should use the FTA’s vibration impact thresholds for sensitive buildings to determine whether ground-borne vibration would be “excessive.” A vibration velocity level of 75 VdB⁶⁴ is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people.⁶⁵ Therefore, as shown in **Table 5** below, the FTA recommends an 80 VdB threshold of significance at residences and buildings where people typically sleep (e.g., nearby residences).

**Table 5:
Ground-Borne Vibration ("GBV") and Ground-Borne Noise ("GBN")
Impact Criteria for General Assessment (FTA)⁶⁶**

Land Use Category	GBV Impact Levels (VdB re 1 micro-inch /sec)			GBN Impact Levels (dB re 20 micro Pascals)		
	Frequent Events ¹	Occasional Events ²	Infrequent Events ³	Frequent Events ¹	Occasional Events ²	Infrequent Events ³
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB ⁴	65 VdB ⁴	65 VdB ⁴	N/A ⁴	N/A ⁴	N/A ⁴
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA
Notes: <ol style="list-style-type: none"> 1. "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category. 2. "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations. 3. "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines. 4. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors. 5. Vibration-sensitive equipment is generally not sensitive to ground-borne noise. 						

[Noise.pdf](#); 622 S. Lucas Ave. (DCP Case No. ENV-2015-3927-MND) MND, PDF pp. 195-197, http://cityplanning.lacity.org/staffrpt/mnd/Pub_102716/ENV-2015-3927.pdf; 1720 N. Vine St. (DCP Case No. ENV-2011-675-EIR) DEIR Vol. I, PDF pp. 79, 646-647, 658, 665-667, https://planning.lacity.org/eir/Millennium%20Hollywood%20Project/DEIR/DEIR%20Sections/Millennium%20Hollywood%20DEIR_Volume%201_COMPILED.pdf.

⁶⁴ Vibration velocity (“VdB”) is used to describe vibration because it corresponds well to human response to environmental vibration. Vibration is defined by the maximum vibration level during an event. Human sensitivity to vibration increases with increasing numbers of events during the day. The abbreviation “VdB” is used for vibration decibels to reduce the potential for confusion with sound decibels.

⁶⁵ See e.g., 631 S. Spring St. (DCP Case No. ENV-2015-2356-EIR) DEIR Appendix H-1, p. IV.H:3, <https://planning.lacity.org/eir/SpringStHotel/DEIR/DEIR%20Sections/Spring%20St%20Hotel%20IV.H%20Noise.pdf>.

⁶⁶ See FTA (May 2006) Transit Noise And Vibration Impact Assessment, p. 8:3 (Table 8-1), https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf.

Vibration impacts during some construction activities for this demolition/two house/two garage Project will significantly exceed that limit at neighboring homes. The Project applicant has not disclosed how the Project's foundation walls will be constructed.

If caisson drilling is used to support the foundation on the steep hillside, the vibration impacts would be significant at the closest neighboring homes. Table 6 below presents typical vibration levels that could be expected from construction equipment at a distance of 25 feet. The nearest homes are 10 to 15 feet to this Project's construction activities. Accordingly, the vibration levels associated with caisson drilling is 0.089 in/sec PPV and 87 VdB at 25 feet. But only 15 feet from caisson drilling, the vibration level is calculated to be about **94 VdB**.

At a distance of 10 feet from possible caisson drilling for a retaining wall on the property line between this 1888 Lucile Avenue Project site and the home adjacent to the east at 1892 Lucile Avenue, that vibration level is calculated to be about **99 VdB**.⁶⁷ The FTA's maximum acceptable level is 80 VdB for homes (See Table 5 above for "Category 2"). This Project's vibration levels could exceed this standard by 14 to 19 VdB.⁶⁸ Exposing this nearest neighboring home to a vibration level of **99 VdB** could cause structural damage to this home because 94 VdB is the threshold for such damage (see Table 7 on page 33 below). Accordingly, this Project's retaining wall drilling, foundation preparation and construction activities could result in significant vibration impacts.

If pile *driving* is used, the vibration impacts would be even worse. No condition of project approval nor mitigation prohibits the use of pile driving. Table 6 below presents typical vibration levels that could be expected from construction equipment at a distance of 25 feet. Accordingly, the upper range of vibration levels associated with pile driving is 1.518 in/sec PPV and 112 VdB at 25 feet. The FTA threshold of significance is CalTrans' recommended maximum vibration of 0.2 in/sec PPV with respect to the structural damage within 100 feet of pile driving activities (as shown in Table 7 below).⁶⁹ The FTA's other maximum acceptable level is 80 VdB with respect to human response within 300 feet of pile driving activities. Based on FTA's recommended procedure for applying a propagation adjustment to these reference levels, this Project's vibration levels from pile driving could exceed these thresholds.

⁶⁷ Calculation: $L_v(10 \text{ feet}) = 87 \text{ VdB} - 30 \times \text{Log}(10/25) = 87 \text{ VdB} - (30 \times -0.40) = 87 + 12 = \mathbf{99 \text{ VdB}}$.
See formula reference on following pages.

⁶⁸ Calculations: $94 - 80 = 14 \text{ VdB}$ exceedance; $99 - 80 = 19 \text{ VdB}$ exceedance.

⁶⁹ Table 7 describes that damage can occur to ordinary homes that are typically built with non-engineered wood framing and stucco wall surfaces when exposed to construction vibration levels exceeding 0.2 in./sec. PPV or 94 VdB.

**Table 6: Vibration Source Levels for Construction Equipment
(FTA, 2006, Report FTA-VA-90-1003-06)⁷⁰**

TABLE 5 Vibration Source Levels for Construction Equipment

Equipment		PPV at 25 ft. (in/sec)	Approximate L _v at 25 ft. (VdB)
Pile Driver (Impact)	upper range	1.158	112
	typical	0.644	104
Pile Driver (Sonic)	upper range	0.734	105
	typical	0.170	93
Clam shovel drop		0.202	94
Hydromill (slurry wall)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Source: United States Environmental Protection Agency, 1973, Legal Compilation on Noise, Vol. 1, p. 2-104.

**Table 7: Construction Vibration Damage Criteria
(FTA, Report FTA-VA-90-1003-06)⁷¹**

TABLE 14 VIBRATION CRITERIA TO PREVENT DAMAGE TO STRUCTURES

Building Category	PPV (in/sec)	RMS (VdB)
Reinforced-concrete, steel or timber (no plaster)	0.5	102
Engineered concrete and masonry (no plaster)	0.3	98
Non-engineered timber and masonry buildings	0.2	94
Buildings extremely susceptible to vibration damage	0.12	90

Source: Federal Transit Administration, 2006. *Transit Noise and Vibration Impact Assessment* (FTA-VA-90-1003-06).

Vibration levels at the nearest residences immediately adjacent to the Project site (one built in 1959 and another built 1948) would be substantially higher than 0.2 in/sec. PPV because they are closer than 25 feet to Project excavation activities. Construction vibration could cause a significant impact including potential structural damage to these homes. Neighboring homes are non-engineered timber buildings that could be damaged by vibration levels greater than 94 VdB, as reflected in **Table 7** above.

Construction activities would be located within 50 feet of four existing homes. Therefore, it is possible that excessive pile driving vibration impacts may occur within these distances. At that distance, vibration impacts would exceed the Caltrans recommended level of 0.2 in/sec PPV concerning structural damage and FTA’s maximum acceptable level of 80 VdB with respect to human response for residential uses (i.e., annoyance). Thus, potential pile driving or even caisson drilling during Project construction activities could result in the exposure of existing offsite sensitive receptors to excessive ground vibration and vibration noise levels. This impact would be potentially significant.

⁷⁰ FTA (May 2006) Transit Noise and Vibration Impact Assessment, p. 12:12 (Table 12-2),

https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf.

⁷¹ *Ibid.*, p. 12:13 (Table 12-3).

Even less intrusive equipment than pile drivers could create vibration levels that exceed the threshold of significance at some older adjacent homes. For example, a *vibratory roller* operating only about 15 feet from a neighboring home could have a vibratory level of 100 VdB, a level which would greatly exceed the 80 VdB limit.⁷² Alternatively, a *large bulldozer* or a *caisson drilling rig* operated that close during excavations might produce a vibration level of 94 VdB that also could greatly exceed that 80 VdB limit.⁷³ Alternatively, a *clam shell drop* producing about 94 VdB at 25 feet could still produce a significant vibration level of 80.6 VdB at a distance of 70 feet.⁷⁴ There are about 7 homes within 70 feet of this Project's ground level excavation area that could be significantly exposed to vibration levels greater than 80 VdB.⁷⁵

A vibration limit of 0.20 in/sec PPV should be used to minimize the potential for cosmetic damage at nearby buildings of standard conventional construction. Table 6 above indicates that the Project's foundation work would exceed that vibration limit at a distance of 25 feet for the equipment such as clam shovels, vibratory rollers, and pile drivers. If the City also accepts a vibration threshold for this Project of greater than 80 VdB, then the use of hoe rams, loaded trucks, caisson drilling, and large bulldozers would generate excessive and significant vibration impacts at that distance of 25 feet.

With Project vibration impacts being so significant to some neighboring residents and in excess of FTA impact thresholds, this Project's Mitigated Negative Declaration, Noise Section XII(b), p. 22, is not accurate in determining there will be "no impacts" due to construction vibration. Notably, the MND and Project application documents provide absolutely no evidence that there will be no construction vibration impacts to neighboring residences.

⁷² See Table 6 above, showing a *vibratory roller* with an approximate vibration level (L_v) of 94 VdB at 25 feet would be about 100 VdB at 15 feet. The Estimated L_v is calculated as: $L_v(D) = L_v(25 \text{ feet}) - 30\text{Log}(D/25)$ where:

$L_v(D)$ = estimated velocity level in decibels at distance.

$L_v(25 \text{ feet})$ = RMS velocity amplitude at 25 feet.

D= distance from equipment to receiver. (in this case, 15 feet.)

Here, $L_v(15 \text{ feet}) = 94 \text{ VdB} - 30 \times \text{Log}(15/25) = 94 \text{ VdB} - 30 \times -0.22 = 94 + 6.6 = \mathbf{100.6 \text{ VdB}}$.

For formula used here, see FTA (May 2006) Transit Noise And Vibration Impact Assessment, p. 12:11.

See also DEIR for Temple Israel of Hollywood Enhancement Project, p. IV.H:24 for formula, online at <https://planning.lacity.org/eir/TempleIsrael/DEIR/DEIR%20Sections/IV.H.%20Noise.pdf>

⁷³ *Ibid.*, a *large bulldozer* generates a vibration level (L_v) of 87 VdB at 25 feet which, closer at the nearest homes 15 feet away or closer, would be about 94 dBA at 15 feet. Here, $L_v(15 \text{ feet}) = 87 \text{ VdB} - 30 \times \text{Log}(15/25) = 87 \text{ VdB} - 30 \times -0.22 = 87 + 6.6 = 93.6 \text{ VdB} = \sim \mathbf{94 \text{ VdB}}$.

⁷⁴ *Ibid*, the impact from a *clam shell drop* generates a vibration level (L_v) of 94 VdB at 25 feet which, at homes 70 feet away, would be about 80.6 VdB. Here, $L_v(70 \text{ feet}) = 94 \text{ VdB} - 30 \times \text{Log}(70/25) = 94 \text{ VdB} - (30 \times 0.48) = 94 - 13.4 = \mathbf{80.6 \text{ VdB}}$.

⁷⁵ Homes within 70 feet of Project construction include those at 1880 Lucile, 1872 Lucile, 3633 Landa, 3623 Landa, 1892 Lucile, 1881 Lucile, and 1896 Lucile Avenue.

I. Project Applicant Misrepresents City’s Noise Standards by Seeking to use Less Protective Average Noise Levels Instead Complying with City’s Mandatory Maximum Noise Limit.

The Project applicant’s environmental consultant, Dudek, clearly misinterprets the City’s maximum noise significance standards.⁷⁶ In its October 8, 2018 Memorandum, Dudek responds to the Appellant’s point that the Los Angeles Municipal Code Section 112.05 establishes an “absolute” noise level threshold for construction noise of 75 dBA at 50 feet from the noise source, and any exceedance of this constitutes a significant impact.⁷⁷ Appellant contends:

“The City’s noise ordinance (LAMC section 112.05) states that an absolute noise level of 75 dBA at 50 feet from the noise source is a violation of the ordinance, which indicates that this level at a minimum would be a significant noise impact.”⁷⁸

But Dudek argues that the City’s maximum standards in § 112.05 should not be used because these standards:

“do not represent typical, “real world” construction noise scenarios because construction activities occur throughout a construction site, and do not take place just at the property boundary nearest a receptor. In order to provide a more realistic scenario for typical construction noise levels, the distance from the nearest noise-sensitive receiver to the approximate center of the construction site should be taken into account when analyzing the severity of construction noise impacts, given that majority construction activities would be concentrated towards the center of the construction site.”

Dudek’s consultants essentially argue that the City should ignore the explicit language of LAMC § 112.05 that sets a maximum noise level. They instead advocate the use of an average noise level measured at a greater distance, even though that method would understate the severity of noise impacts when construction activity occurs closer to residential neighbors. As demonstrated in Table 3 above, the average noise level during auger drilling activities is about 5 dBA less than the maximum noise level even at the same distances. Dudek states:

“Given the overall size of the Project site, and the relatively equal distribution of proposed development across the subject properties, noise levels derived from the center

⁷⁶ See Dudek’s October 8, 2018 Memorandum, pages 1 - 2, (PDF p. 18 of *LUC ELAAPC addtl doc packet.pdf*, Responses to Appellant’s Grounds for Appeal, Re: 1888 Lucile, Exhibit 5, submitted by Crest Real Estate)

⁷⁷ See L.A. Municipal Code SEC. 112.05. **MAXIMUM** NOISE LEVEL OF POWERED EQUIPMENT OR POWERED HAND TOOLS:
Between the hours of 7:00 a.m. and 10:00p.m., in any residential zone of the City or within 500 feet thereof, no person shall operate or cause to be operated any powered equipment or powered hand tool that produces a **maximum** noise level exceeding the following noise limits at a distance of 50 feet there from:
(b) 75dB(A) 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.

(Emphasis added)

⁷⁸ See *Appellant Neighbor’s Grounds for Appeal, Re: 1888 Lucile Ave.*, October 1, 2018, p. 16

of construction activities would provide a better representation of **average** noise level exposure across the entire construction phase for a given off-site receiver than using the minimum-distance, worst-case method.”⁷⁹

(Emphasis added)

The City of Los Angeles routinely interprets LAMC § 112.05 setting that maximum standard of 75 dBA at 50 feet for other project applicants.⁸⁰

Dudek’s interpretation of choosing a location farther from adjacent homes in the center of the site could lead to a serious but inadequately-mitigated noise impact if noisy, heavy equipment was operated for many days near a convenient-to-access driveway or property line just 10 feet from a neighboring home. Air compressors, generators, and other equipment types are sometimes stationary for long enough time periods to create noise impacts that exceed all of the City’s noise standards at nearby homes.

Dudek’s Memorandum, in spite of being co-authored by Mr. Mike Greene, a board-certified member of the INCE (“Institute of Noise Control Engineering”), offers absolutely no substantial evidence that this Project will not have any significant noise impacts after implementation of the few, proposed noise mitigations. This Memorandum offers only vague statements about imprecise variables, including specific equipment to be used, percentage of time each piece of equipment is operated, and number of simultaneous on-site heavy equipment operations. But these statements offer no evidence that neighboring homes will not be subjected to noise levels that exceed City standards greater than 75 dBA at a distance of 50 feet from the noise source. Dudek completely ignores the other City standards related to significant, temporary increases in noise levels during construction above existing ambient noise levels.

Nor does Dudek demonstrate that compliance with the City’s noise standards is infeasible such that LAMC § 112.05’s noise standard of 75 dBA at 50 feet becomes inapplicable or increases can be sufficiently limited. Dudek instead argues that the Project applicant should be allowed to later satisfy City planning officials that additional, but unstated “reasonable and feasible minimization measures” can reduce construction noise somewhat. And that because more noise mitigation than that would be infeasible, the City’s maximum 75 dBA at 50 feet noise standard

⁷⁹ See Dudek’s October 8, 2018 Memorandum, page 2, (PDF p. 18 of *LUC ELAAPC addtl doc packet.pdf*, Responses to Appellant’s Grounds for Appeal, Re: 1888 Lucile, Exhibit 5, submitted by Crest Real Estate)

⁸⁰ See e.g., 668 S. Alameda Street (DCP Case No. ENV-2016-3576-EIR) DEIR Noise Section, p. 4.9:13 (“Section 112.05 of the LAMC sets a **maximum** noise level for construction equipment of 75 dBA at a distance of 50 feet when operated within 500 feet of a residential zone.”), *(Emphasis added)*
<https://planning.lacity.org/eir/668SoAlamedaStreet/deir/4.9%20Noise.pdf>;
4020 W. Washington Blvd (DCP Case No. ENV- 2007-5046-EIR) DEIR Noise Section, p. IV.E:3 (“The City’s Noise Ordinance also limits noise from construction equipment within 500 feet of a residential zone to 75 dBA, measured at a distance of 50 feet from the source,”),
https://planning.lacity.org/eir/WashingtonSq/Deir/issues/IV.E_Noise.pdf;
3599 Lankershim Boulevard (DCP Case No. ENV-2014-4031-EIR, *Single-Family Residence in Studio City Project*), EIR Noise Section, p. IV.E-8 (“Section 112.05 of the City’s Noise Regulation sets a **maximum** noise level from construction equipment. . . .”); also see pp. IV.E-11, E-13. *(Emphasis added)*
<http://planning.lacity.org/eir/StudioCitySingleFam/DEIR/4E%20Noise.pdf>

can be set aside. But such belated, backroom discussions with City planning officials, if those occur after Project approval, would violate CEQA. That unlawful approach could deprive apprehensive neighbors of any chance to examine the effectiveness of such proposed noise mitigations before the Project approval and might not reflect the independent judgment of the City's decision makers.⁸¹

J. Environmental Review Fails to Consider Standard Mitigation Measures and Conditions of Approval Pursuant to an Adequate MND or EIR.

Critical to the MND/EIR review process is the consideration of mitigation measures and project design features to reduce a project's impact to less than significant, which can subsequently be made enforceable as mandatory conditions of approval. Here, because the Project application did not include an acoustical study, the few proposed mitigation measures were not analyzed or knowledgeably vetted by the agency or public. Therefore, the mitigation measures in XII-20 imposed under the City's final approval of the Project and MND are untethered to reasoned analysis:⁸²

XII-20. Increased Noise Levels (Demolition, Grading, and Construction Activities)

- Construction and demolition shall be restricted to the hours of 7:00 am to 6:00 pm Monday through Friday, and 8:00 am to 6:00 pm on Saturday.
- Demolition and construction activities shall be scheduled so as to avoid operating several pieces of equipment simultaneously, which causes high noise levels.
- The project contractor shall use power construction equipment with state-of-the-art noise shielding and muffling devices.

⁸¹ See: *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 307.

http://resources.ca.gov/ceqa/cases/1988/sunstrom_062288.html

"By deferring environmental assessment to a future date, the conditions run counter to that policy of CEQA which requires environmental review at the earliest feasible stage in the planning process. (See Pub. Resources Code, § 21003.1; *No Oil, Inc. v. City of Los Angeles*, *supra*, 13 Cal.3d 68, 84.) In *Bozung v. Local Agency Formation Com.*, *supra*, 13 Cal.3d 263, 282, the Supreme Court approved "the principle that the environmental impact should be assessed as early as possible in government planning." Environmental problems should be considered at a point in the planning process "where genuine flexibility remains." (*Mount Sutro Defense Committee v. Regents of University of California*, *supra*, 77 Cal. App.3d 20, 34.) A study conducted after approval of a project will inevitably have a diminished influence on decisionmaking. Even if the study is subject to administrative approval, it is analogous to the sort of post hoc rationalization of agency actions that has been repeatedly condemned in decisions construing CEQA. (*Id.* at p. 35; *No Oil, Inc. v. City of Los Angeles*, *supra*, 13 Cal.3d 68, 81; *Environmental Defense Fund, Inc. v. Coastside County Water Dist.* (1972) 27 Cal. App.3d 695, 706 [104 Cal. Rptr. 197].

It is also clear that the conditions improperly delegate the County's legal responsibility to assess environmental impact by directing the applicant himself to conduct the hydrological studies subject to the approval of the planning commission staff. Under CEQA, the EIR or negative declaration must be prepared "directly by, or under contract to" the lead agency. (Pub. Resources Code, § 21082.1.) The implementing regulations explicitly provide: "The draft EIR which is sent out for public review must reflect the independent judgment of the lead agency." (Cal. Code Regs., tit. 14, § 15084, subd. (e).)"

⁸² See Project's MND, p. 22, XXII(d) for mitigation measures "XII-20" found on the MND's p. 3 and listed above.

This lack of adequate mitigation is a sharp deviation of the City’s practice for similar projects, where it considers various standard mitigation measures and project design features that serve to directly or indirectly reduce a project’s noise impacts below the City’s thresholds of significance. Many of those standard measures are entirely missing from the Project’s mitigations. Among these measures considered for other projects within the City—but missing from the Project’s approval—include:

Construction-Related:

- Require construction activities to be placed as far as possible from the nearest off-site land uses.
- Require construction and demolition activities to be scheduled to avoid operating several loud pieces of equipment simultaneously; alternatively to reduce the overall length of the construction period, combine noisy operations to occur in the same time period if it will not be significantly greater than if operations were performed separately.
- Require the replacement of noisy equipment with quieter equipment, such as utilizing vibratory pile driver instead of conventional pile driver (or even prohibit the use of driven (impact) pile systems altogether), using rubber-tired equipment rather than track equipment, or using quieted and enclosed air compressors with properly working mufflers on all engines.
- Require construction contractor to avoid using vibratory rollers and packers near sensitive areas.
- Require construction staging areas to be as far from sensitive receptors as reasonably possible.
- Require all construction truck traffic to be restricted in hours and to truck routes approved by the Department of Building and Safety, which shall avoid residential areas and other noise-sensitive receptors.
- Require the construction of noise barriers, such as temporary walls or piles of excavated material, between noisy activities and noise-sensitive receivers.
- Require flexible sound control curtains to be placed around all drilling apparatuses, drill rigs, and jackhammers when in use and more extensive noise control barriers protecting adjacent residential structures.
- Require power construction equipment operated at the project site to be equipped with effective state-of-the-art noise control devices (e.g., equipment mufflers, enclosures, and barriers) with contractors maintaining all sound-reducing devices and restrictions throughout the construction period and keeping documentation showing compliance.
- Require contractors to use either plug-in electric or solar powered on-site generators to the extent feasible.
- Require grading and construction contractors to use equipment that generates lower vibration levels such as rubber-tired equipment rather than metal-tracked equipment, such as a combination loader/excavator for light-duty construction operations.
- Two weeks before the commencement of construction at the Project Site, require notification to be provided to the immediate surrounding off-site properties that disclose the construction schedule, including the various types of activities and equipment that would be occurring throughout the construction period. A noise disturbance coordinator

and hotline telephone number shall be provided to enable the public to call and address construction-related issues.

- Require all mitigation measures restricting construction activity to be posted at the Project Site and all construction personnel shall be instructed as to the nature of the noise and vibration mitigation measures.
- Require a noise monitoring/control plan that includes absolute noise limits for classes of equipment, noise limits at lot lines of specific noise sensitive properties, specific noise control treatments to be utilized (such as the above-mentioned measures), and a designated compliance officer to respond to promptly respond to complaints and take immediate correction action if limits/restrictions are not complied with.

Construction-Vibration Related:

- Require the heavily-loaded trucks to be routed away from residential streets, if possible. Select streets with fewest homes if no alternatives are available.
- Require the operation of earth-moving equipment on the construction site as far away from vibration-sensitive sites as possible.
- Require phase demolition, earth-moving, and ground-impacting operations so as not to occur in the same time period. Unlike noise, the total vibration level produced could be significantly less when each vibration source operates separately.
- Limit impact pile-driving in vibration-sensitive areas where possible. Drilled piles or the use of a sonic or vibratory pile driver causes lower vibration levels where the geological conditions permit their use.
- Require demolition methods not involving impact, such as sawing bridge decks into sections that can be loaded onto trucks results in lower vibration levels than impact demolition by pavement breakers, and milling generates lower vibration levels than excavation using clam shell or chisel drops.
- Limit vibratory rollers and packers near sensitive areas.

The above-listed measures include sample mitigation measures from the L.A. CEQA Threshold Guide (pp. I.1:5, I.2:7-8), control measures from the FTA’s Transit Noise And Vibration Impact Assessment (pp. 12:8-10),

[\[https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf\]](https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf) and mitigation measures, design features and conditions of approval compiled from a host of other projects within the City.

Unfortunately, none of the three mitigation measures the City adopted in mitigation measure “XII-20” were adequately considered by the City because of the Project’s conclusory noise discussion lacked any meaningful facts or analysis of the Project’s construction noise impacts — much less substantial evidence that the Project’s impacts would be less than significant per the L.A. CEQA Thresholds Guide.

III. CONCLUSION

As discussed above, the Project's Mitigated Negative Declaration's noise discussion fails to provide basic information required for the City to adequately assess the true noise impacts of this Project. As a result, likely construction and vibration noise impacts were overlooked. This Report presents fair arguments that the Project as mitigated will still create significant noise impacts. That evidence above demonstrates the current Mitigated Negative Declaration is inadequate for this Project's CEQA review. Moreover, feasible mitigation measures are available and need to be considered pursuant to a CEQA-compliant MND or EIR—just like similar projects reviewed by the City.

If further opportunities become available to review this Project or its environmental impacts, please notify me at that time.

Sincerely,



Dale La Forest
Professional Planner, Designer, INCE Associate (Institute of Noise Control Engineering)
Dale La Forest & Associates

Attachment A: RESUME

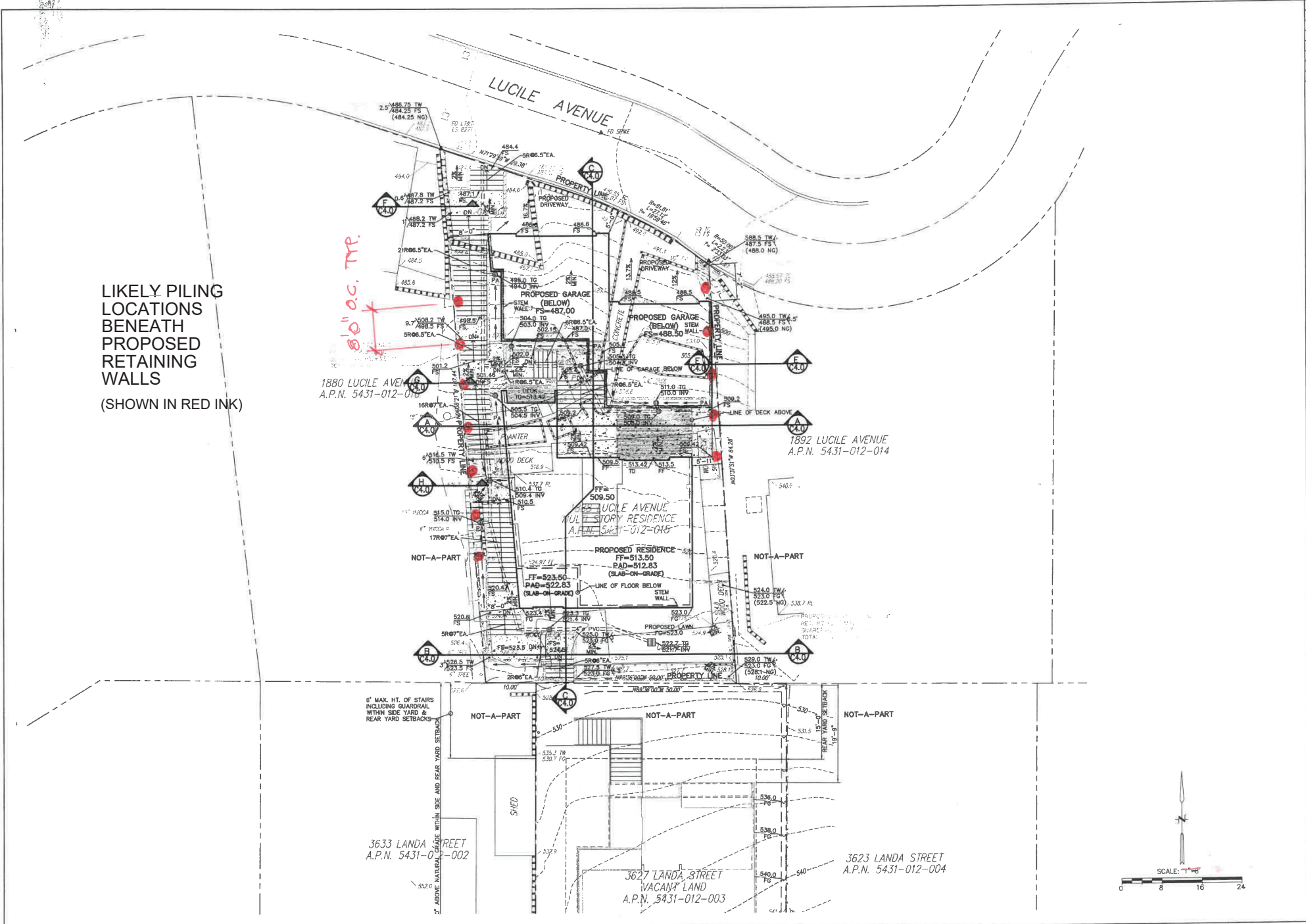
Attachment B: SITE PLAN and STRUCTURAL CROSS SECTIONS – for Proposed Residence at 1888 Lucile Avenue, with red highlighted review notes showing likely foundation pile locations by Architect Michael Mekeel of Offenhauser/Mekeel Architects, 8762 Holloway Drive, West Hollywood, CA 90069

Attachment A

EDUCATION AND EXPERIENCE

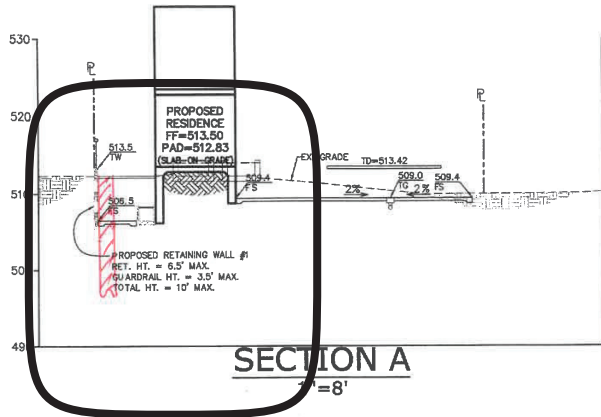
I received a Bachelor of Architecture Degree with Master of Architecture studies in architecture and planning from the University of Michigan (1966 – 1973). My university education included architectural acoustics and the math and physics related to analysis of sound transmission. In the last 43 years, I have designed hundreds of homes in California. During the last 20 years, I have also prepared expert acoustical studies for various development projects and reviewed and commented upon dozens of noise studies prepared by others. My expertise in environmental noise analysis comes from this formal educational training in architecture and planning, and from many years of evaluation of acoustics as relates to environmental analysis and challenging flawed project applications prepared by less-than-professional, industry-biased acousticians. I regularly measure and calculate noise propagation and the effects of noise barriers and building acoustics as they apply to single-family homes near projects and their vehicular travel routes. I have also prepared initial environmental studies for noise-sensitive development projects including hotel and campground projects along major highways. I have reviewed dozens of quarry project and batch plant project environmental documents. I have designed highway noise walls, recommended noise mitigations, and have designed residential and commercial structures to limit their occupants' exposure to excessive exterior noise levels throughout California.

Dale La Forest



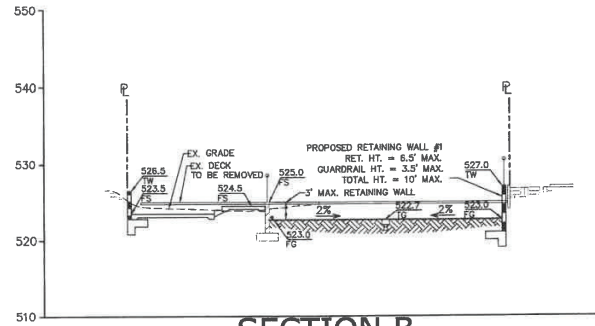
LIKELY PILING
LOCATIONS
BENEATH
PROPOSED
RETAINING
WALLS
(SHOWN IN RED INK)

80' ac. TR.

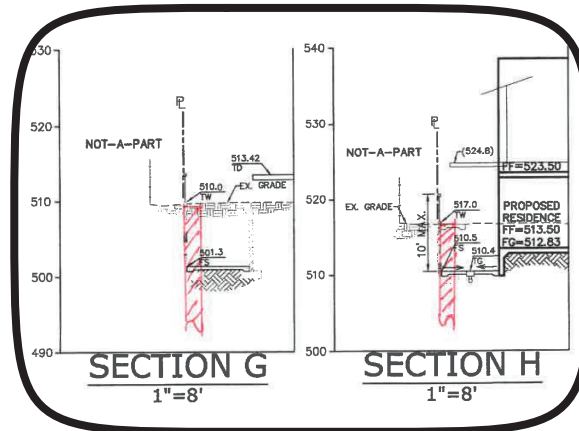


SECTION A
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PILE LOCATIONS NOTED
IN RED INK
BENEATH PROPOSED
RETAINING WALL

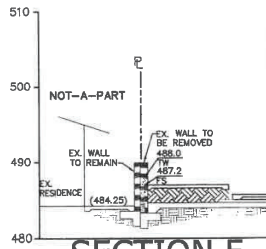


SECTION B
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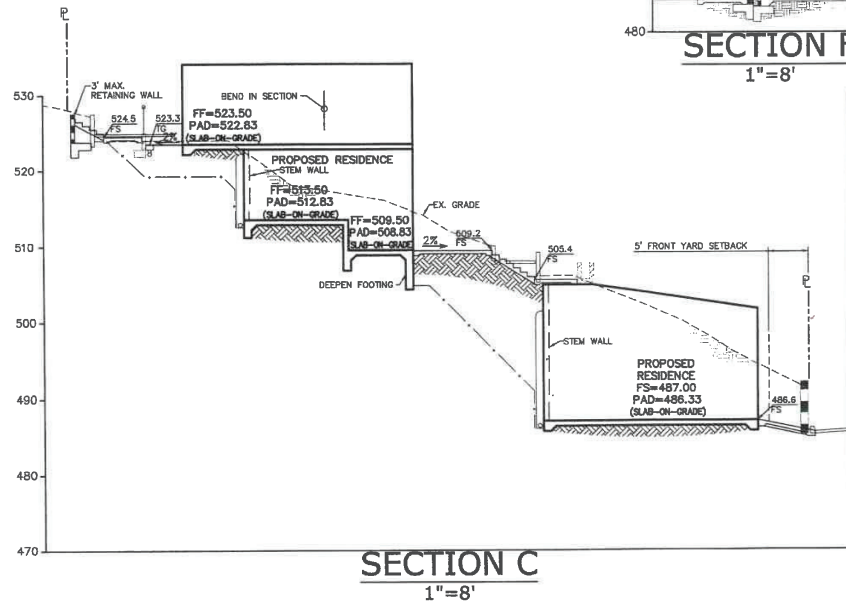


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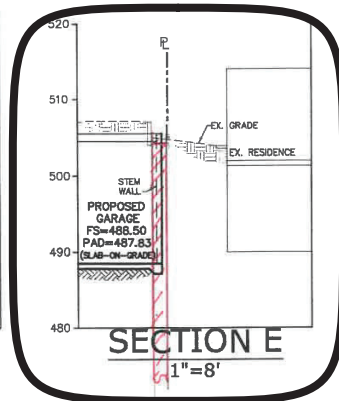
SECTION H
1"=8'



SECTION F
1"=8'

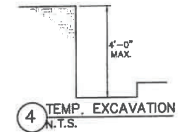


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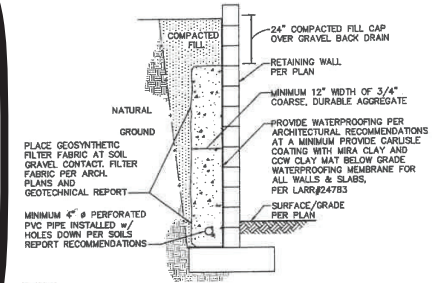


SECTION E
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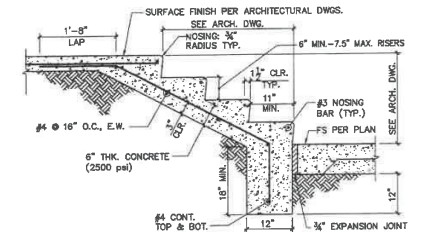
PILE LOCATIONS NOTED
IN RED INK
BENEATH PROPOSED
RETAINING WALL



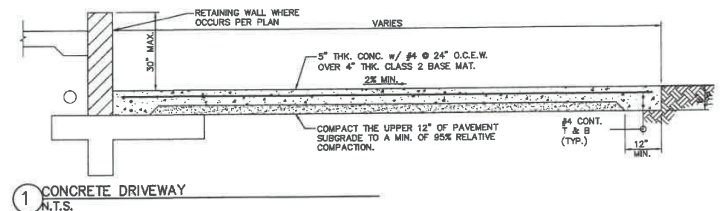
4 TEMP. EXCAVATION
N.T.S.



3 BACKFILL
N.T.S.



2 CONCRETE STAIRS ON GRADE
N.T.S.



1 CONCRETE DRIVEWAY
N.T.S.