

ISKCON OF ESCONDIDO NOISE IMPACT ANALYSIS

City of Escondido

September 20, 2024



Traffic Engineering • Transportation Planning • Parking • Noise & Vibration
Air Quality • Global Climate Change • Health Risk Assessment

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prepared by
Roma Stromberg, INCE, MS
Catherine Howe, MS



GANDDINI GROUP INC.
555 Parkcenter Drive, Suite 225
Santa Ana, CA 92705
(714) 795-3100 | ganddini.com

Project No. 19648

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EXECUTIVE SUMMARY

The project site is located at 1315 and 1356 Rincon Avenue in the City of Escondido, California.

The proposed project involves a subdivision of two existing parcels into 11 parcels, with ten lots for single-family dwelling units and one lot for an approximately 11,767 square foot temple.

Existing Noise Environment

Sensitive receptors that may be affected by project generated noise include the existing single-family residential uses located adjacent to the west, approximately 236 feet (~72 meters) to the northwest, and 31 feet (~9 meters) to the north of the project site boundaries. In addition, two existing single-family residences with associated agricultural uses are also located within the southern portion of the project boundaries but are not a part of the project.

Measured short-term ambient noise levels in the project vicinity ranged between 42.7 and 53.1 dBA L_{eq} . The dominant noise source in the project vicinity was residential activity including the use of gardening and power tool equipment and dogs barking.

Construction Noise Impacts

Modeled construction noise levels are expected to reach up to 71.8 dBA L_{eq} at the nearest residential receptor and 72.4 at the nearest agricultural/commercial receptor. Project construction will not occur outside of the hours outlined as “exempt” in City of Escondido Municipal Code Section 7-234 and will not exceed the City’s 75 dBA L_{eq} noise standard. Therefore, the project would not exceed City-established standards relating to construction noise. The project impact is less than significant; no mitigation is required.

Notwithstanding the above, best management practices (BMPs) are provided in the Project Description and should be added to project plans and in contract specifications to minimize construction noise emanating from the proposed project.

Operational Noise - Mobile Noise Sources

The addition of project trips is not expected to change noise levels more than the applicable threshold at any of the study roadway segments (see Table 11). The project impact is less than significant; no mitigation is required.

Operational Noise – Stationary Noise Sources

Existing measured noise levels near receptors that may be affected by project noise range between 43 and 53 dBA L_{eq} ; and project generated noise is expected to range between 0 and 32 dBA L_{eq} . Project generated noise would not cause a violation of the daytime standard of (50 dBA L_{eq}) or the nighttime noise standard (45 dBA L_{eq}) at the surrounding residential land uses. Furthermore, project operation would not noticeably increase ambient noise levels. This impact would be less than significant. No mitigation is required.

Impacts to the Project– Future Traffic

Future roadway noise levels are not anticipated to exceed 70 dB CNEL are at the nearest proposed residential property. The project impact is less than significant; no mitigation is required.

1. INTRODUCTION

This section describes the purpose of this study and the proposed project.

PURPOSE AND OBJECTIVES

The purpose of this report is to provide an assessment of the noise impacts resulting from development and operation of the proposed project and to identify mitigation measures that may be necessary to reduce potentially significant impacts. The noise issues related to the proposed land use and development have been evaluated in light of applicable federal, state, and local policies, including those of the City of Escondido, in the context of the California Environmental Quality Act (CEQA).

Although this is a technical report, effort has been made to write the report clearly and concisely. A list of acronyms and glossary are provided in Appendix A and Appendix B of this report to assist the reader with technical terms related to noise and vibration analysis.

PROJECT LOCATION

The project site is located at 1315 and 1356 Rincon Avenue in the City of Escondido, California. The project site is currently vacant. A vicinity map showing the project location is provided on Figure 1.

PROJECT DESCRIPTION

The proposed project involves a subdivision of two existing parcels into 11 parcels, with ten lots for single-family dwelling units and one lot for an approximately 11,767 square foot temple. Figure 2 illustrates the project site plan.

The following best management practices (BMPs) shall be provided on project plans and in contract specifications to minimize construction noise emanating from the proposed project:

1. All stationary construction equipment will be placed so that emitted noise is directed away from the noise sensitive receptors nearest the project site.
2. As applicable, all equipment shall be shut off when not in use.
3. To the degree possible, equipment staging will be located in areas that create the greatest distance between construction-related noise and vibration sources and existing sensitive receptors.
4. Jackhammers, pneumatic equipment, and all other portable stationary noise sources will be directed away and shielded from existing residences in the vicinity of the project site. Either one-inch plywood or sound blankets can be utilized for this purpose. They should reach up from the ground and block the line of sight between equipment and existing residences. The shielding should be without holes and cracks.
5. No amplified music and/or voice will be allowed on the project site.
6. Haul truck deliveries will not occur outside of the hours presented as exempt for construction per City of Escondido Municipal Code Section 7-234.

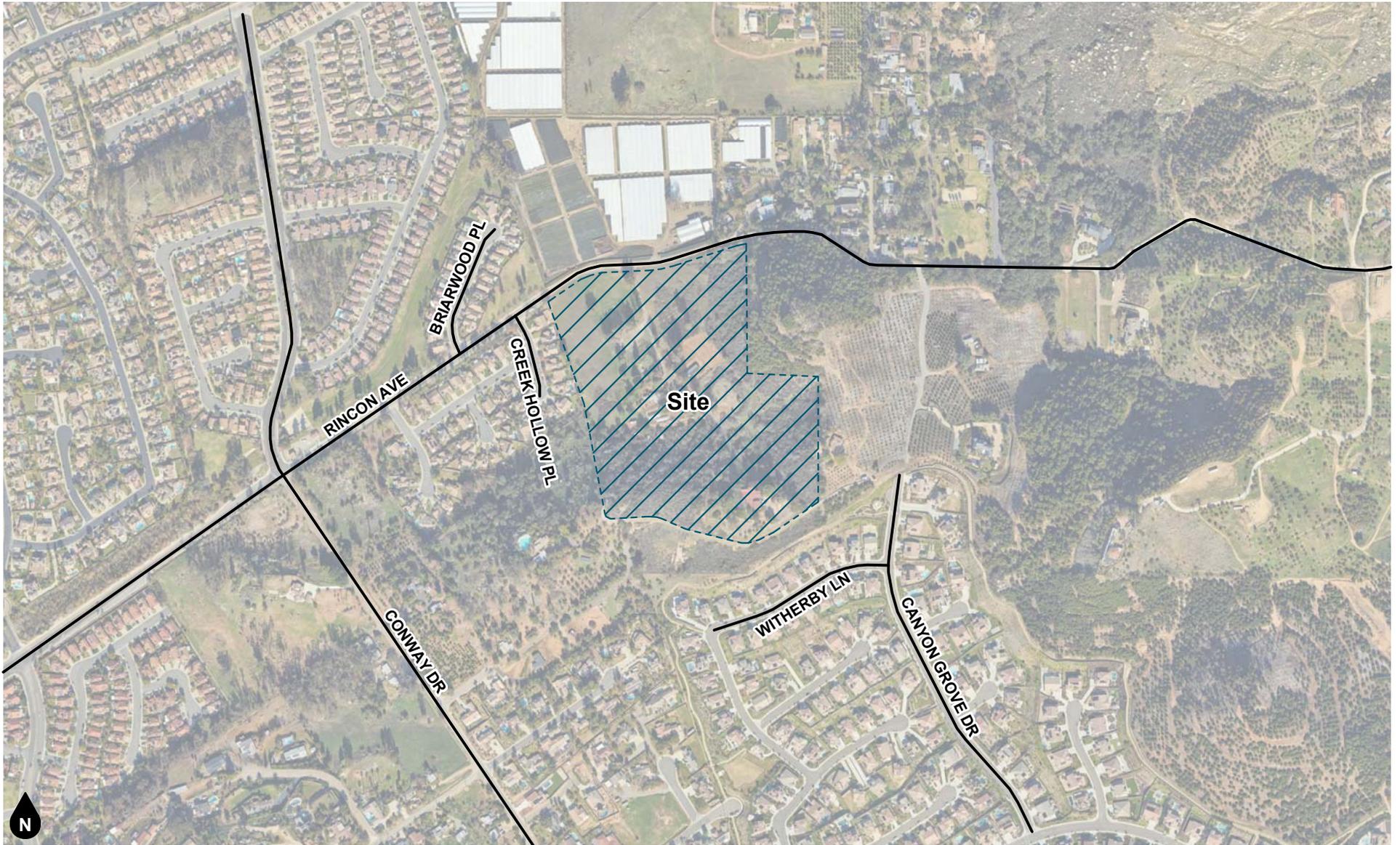
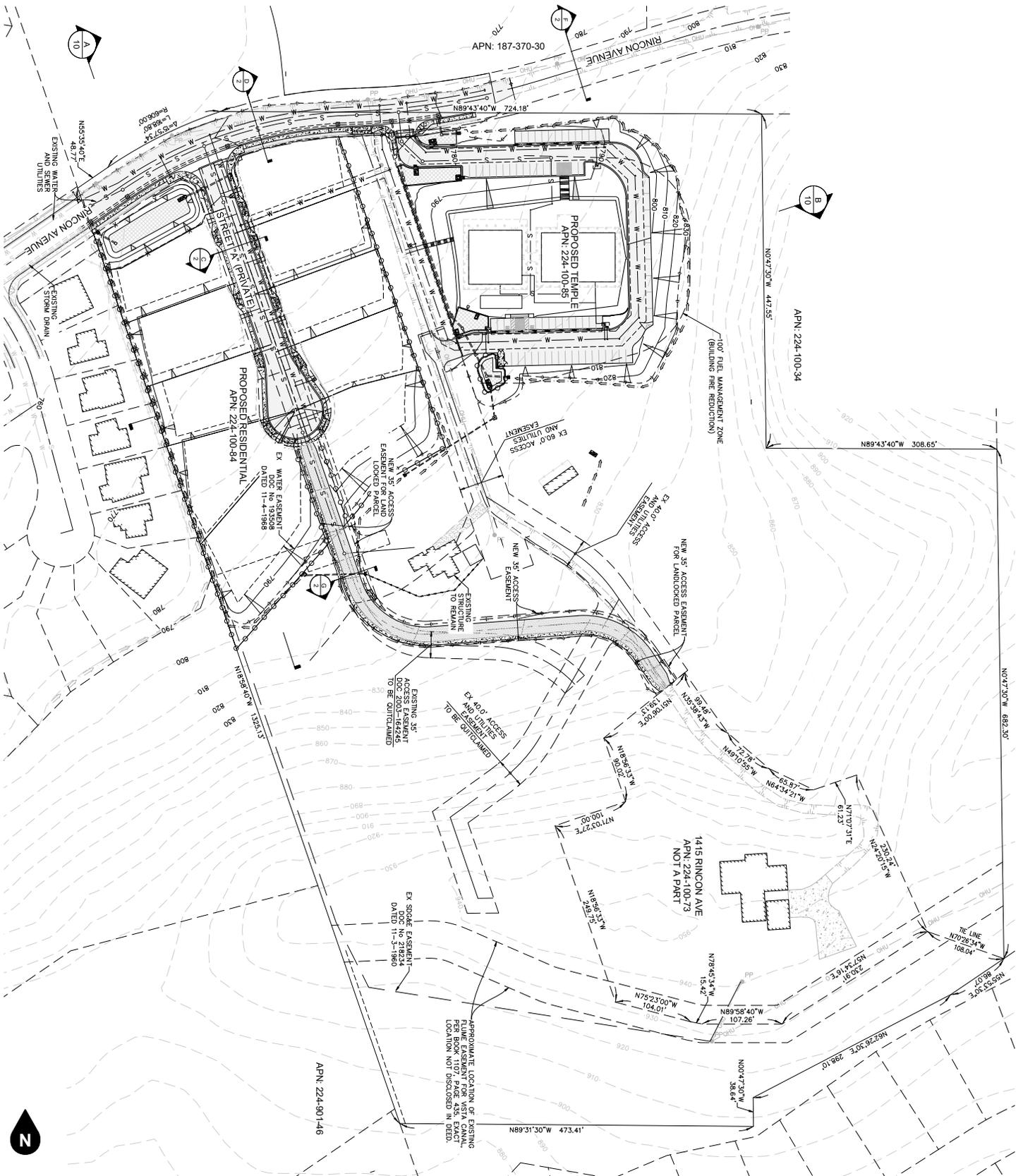


Figure 1
Project Location Map



**Figure 2
Site Plan**

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2. NOISE AND VIBRATION FUNDAMENTALS

This section provides an overview of key noise and vibration concepts.

NOISE FUNDAMENTALS

Sound is a pressure wave created by a moving or vibrating source that travels through an elastic medium such as air. Noise is defined as unwanted or objectionable sound. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and in extreme circumstances, hearing impairment.

Commonly used noise terms are presented in Appendix B. The unit of measurement used to describe a noise level is the decibel (dB). The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, the “A-weighted” noise scale, which weights the frequencies to which humans are sensitive, is used for measurements. Noise levels using A-weighted measurements are written dB(A) or dBA.

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects, and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiates uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

Decibels are measured on a logarithmic scale, which quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as a doubled traffic volume, would increase the noise levels by 3 dBA; halving of the energy would result in a 3 dBA decrease. Figure 3 shows the relationship of various noise levels to commonly experienced noise events.

Average noise levels over a period of minutes or hours are usually expressed as dBA L_{eq} , or the equivalent noise level for that period of time. For example, $L_{eq(3-hr)}$ would represent a 3-hour average. When no period is specified, a one-hour average is assumed.

Noise standards for land use compatibility are stated in terms of the Community Noise Equivalent Level (CNEL) and the Day-Night Average Noise Level (DNL). CNEL is a 24-hour weighted average measure of community noise. CNEL is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours. DNL is a very similar 24-hour average measure that weighs only the nighttime hours.

It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA; that a change of 5 dBA is readily perceptible, and that an increase (decrease) of 10 dBA sounds twice (half) as loud. This definition is recommended by the California Department of Transportation’s Technical Noise Supplement to the Traffic Noise Analysis Protocol (2013).

VIBRATION FUNDAMENTALS

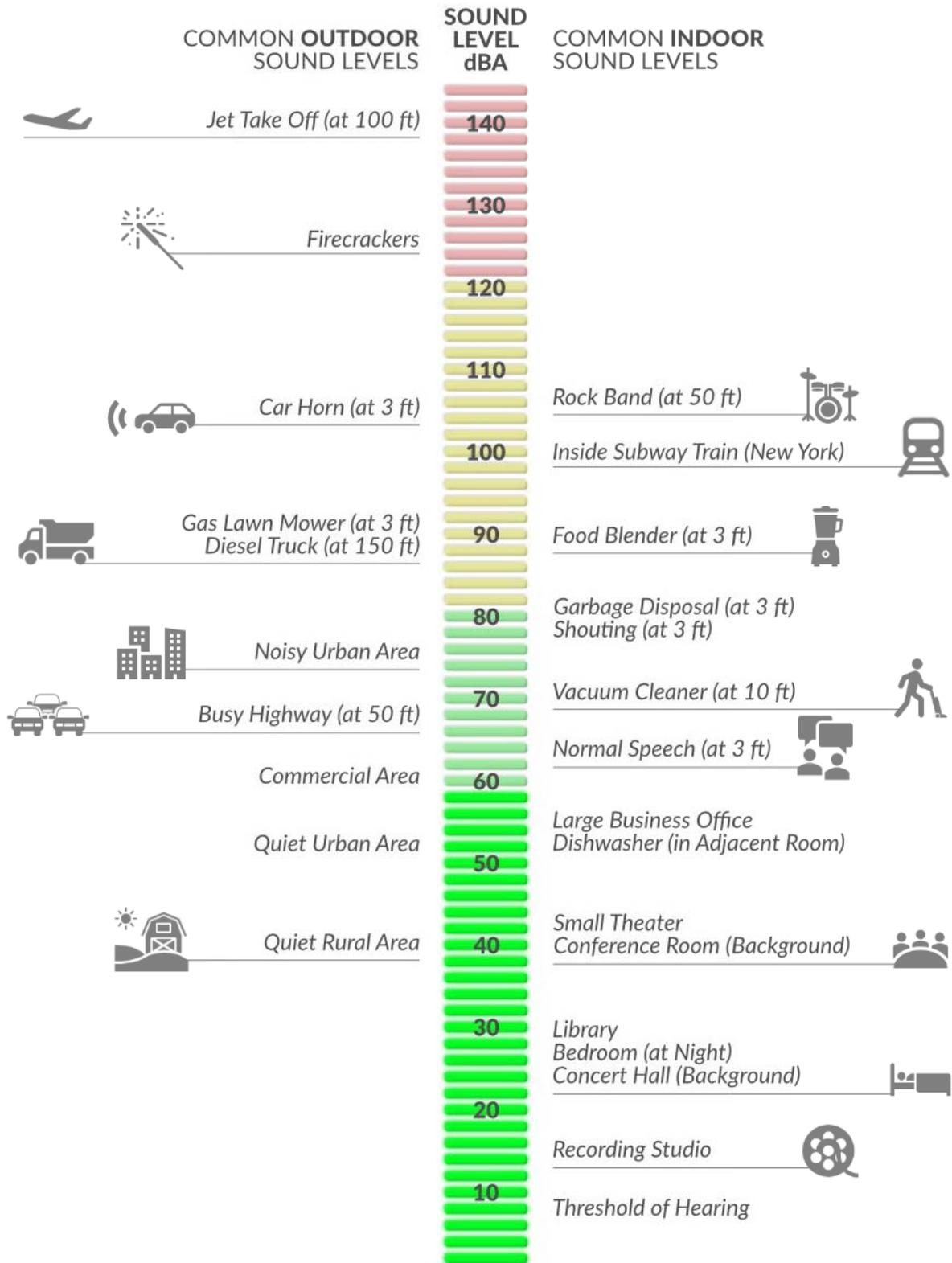
The way in which vibration is transmitted through the earth is called propagation. Propagation of earthborn vibrations is complicated and difficult to predict because of the endless variations in the soil through which

waves travel. There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Raleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. Compression waves, or P-waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. Shear waves, or S-waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation".

As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

Vibration amplitudes are usually expressed as either peak particle velocity (PPV) or the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous peak of the vibration signal in inches per second. The RMS of a signal is the average of the squared amplitude of the signal in vibration decibels (VdB), ref one micro-inch per second. The Federal Railroad Administration uses the abbreviation "VdB" for vibration decibels to reduce the potential for confusion with sound decibel.

PPV is appropriate for evaluating the potential of building damage and VdB is commonly used to evaluate human response. Decibel notation acts to compress the range of numbers required in measuring vibration. Similar to the noise descriptors, L_{eq} and L_{max} can be used to describe the average vibration and the maximum vibration level observed during a single vibration measurement interval. Figure 4 illustrates common vibration sources and the human and structural responses to ground-borne vibration. As shown in the figure, the threshold of perception for human response is approximately 65 VdB; however, human response to vibration is not usually substantial unless the vibration exceeds 70 VdB. Vibration tolerance limits for sensitive instruments such as magnetic resonance imaging (MRI) or electron microscopes could be much lower than the human vibration perception threshold.



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Based on Policy & Guidance from Federal Aviation Administration

Figure 3
A-Weighted Comparative Sound Levels

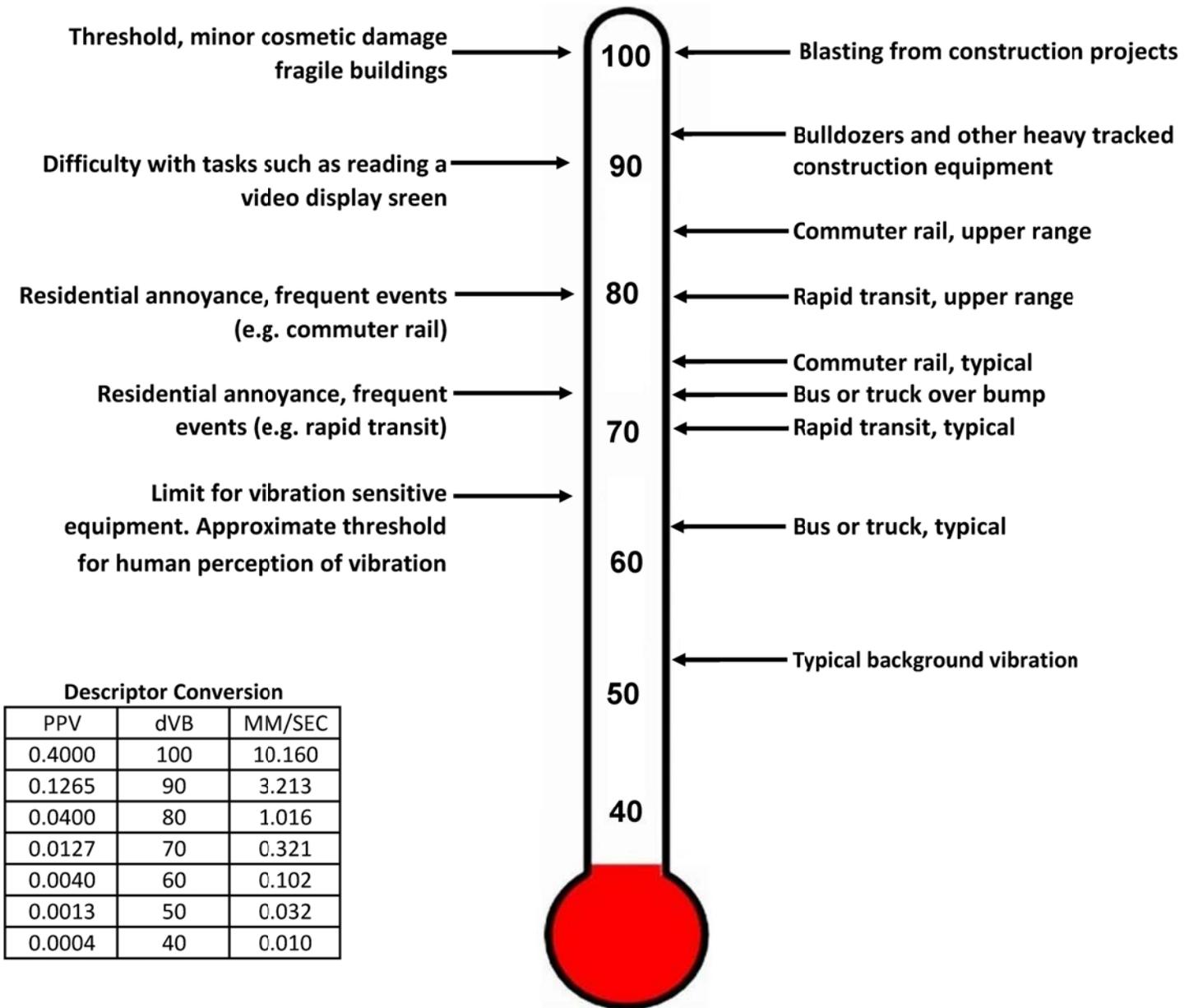


Figure 4
Typical Levels of Groundborne Vibration

Source: FRA, 2012. Federal Railroad Administration High-Speed Ground Transportation Noise and Vibration Impact Assessment. Office of Railroad Policy Development, Washington, D.C. DOT/FRA/ORD-12/15. September.

3. EXISTING NOISE ENVIRONMENT

This section describes the existing noise setting in the project vicinity.

EXISTING LAND USES AND SENSITIVE RECEPTORS

The project site is bordered by Rincon Avenue to the north, vacant land and a single-family residential use to the east, single-family residential uses to the west, and Vista Canal to the south of the project site.

The State of California defines sensitive receptors as those land uses that require serenity or are otherwise adversely affected by noise events or conditions. Schools, libraries, churches, hospitals, single and multiple-family residential, including transient lodging, motels and hotel uses make up the majority of these areas. Sensitive land uses that may be affected by project noise include the existing single-family residential uses located adjacent to the west, approximately 236 feet (~72 meters) to the northwest, and 31 feet (~9 meters) to the north of the project site boundaries. In addition, two existing single-family residences with associated agricultural uses are also located within the southern portion of the project boundaries but are not a part of the project.

AMBIENT NOISE MEASUREMENTS

An American National Standards Institute (ANSI Section S14 1979, Type 1) Larson Davis model LxT sound level meter was used to document existing ambient noise levels. In order to document existing ambient noise levels in the project area, seven (7) 15-minute daytime noise measurements were taken between 12:31 PM and 4:21 PM on September 14, 2023. Figure 5 shows the noise measurement location map. Field worksheets and noise measurement worksheets are provided in Appendix C.

As shown in Figure 5, the noise meter was placed at the following locations:

- NM1: represents the existing noise environment of the residential uses located to the west of the boundaries of the project site (2276 Creek Hollow Place, Escondido). The noise meter was placed just west of the residential use.
- NM2: represents the existing noise environment of the residential uses located to the northwest of the boundaries of the project site (2336 Briarwood Place, Escondido). The noise meter was placed just west of the residential use.
- NM3: represents the existing noise environment of the residential use located to the northeast of the boundaries of the project site (1448 Rincon Avenue, Escondido). The noise meter was placed just south of the residential use.
- NM4: represents the existing noise environment of the residential to the east of the project site boundaries (1643 Rincon Avenue, Escondido). The noise meter was placed south of Rincon Avenue along the access road to the residential use.
- NM5: represents the existing noise environment of the residential use located at the southeastern corner of the project site (1415 Rincon Avenue, Escondido). The noise meter was just south of the residential use along the access road.
- NM6: represents the existing noise environment of the residential uses located to the south of the boundaries of the project site (1149 Witherby Lane, Escondido). The noise meter was placed just south of the residential use.

- NM7: represents the existing noise environment of the residential use located to the southwest of the boundaries of the project site along Orange Blossom Way. The noise meter was placed just northeast of Orange Blossom Way and southeast of the residential dwelling unit.

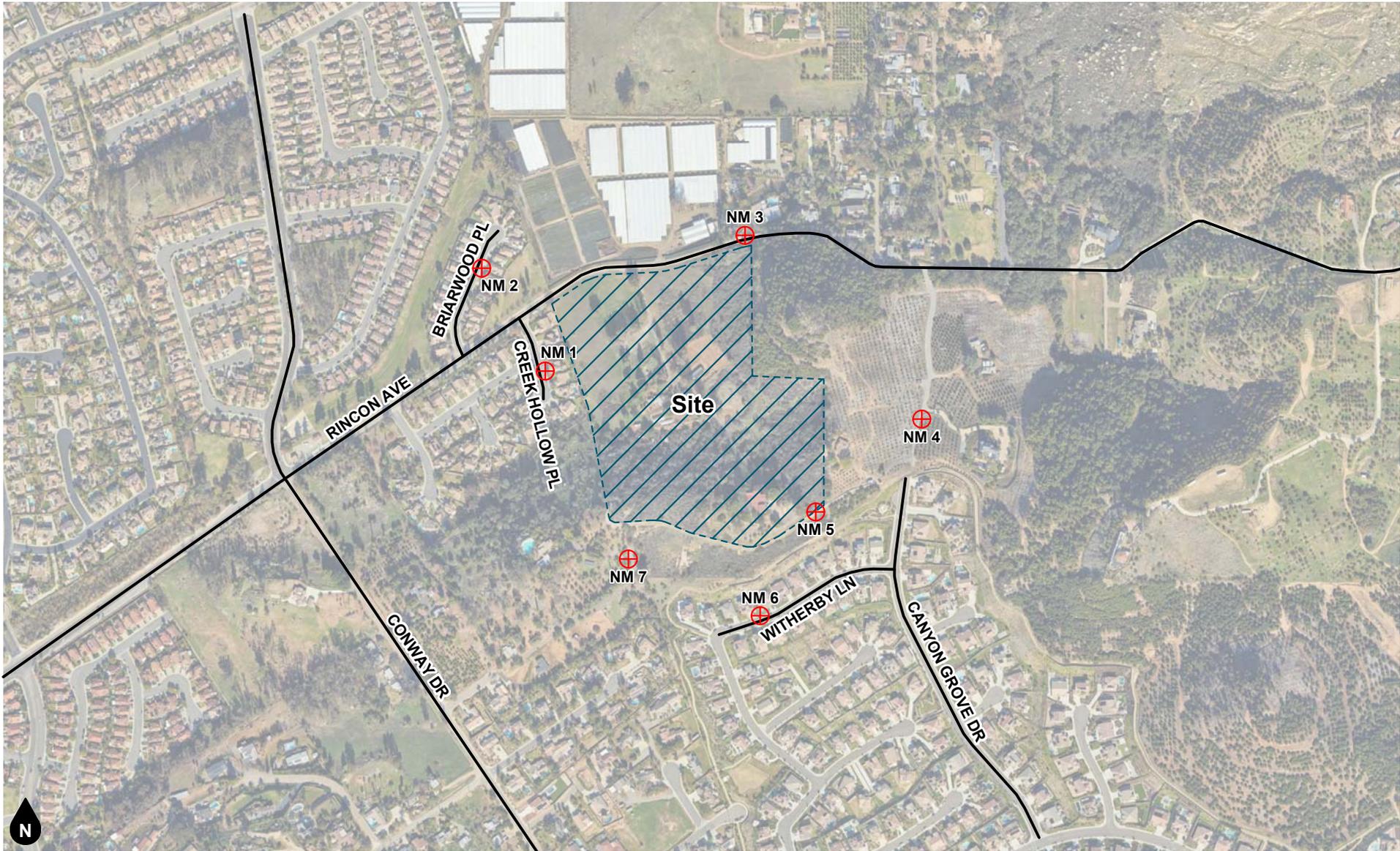
Table 1 provides a summary of the short-term ambient noise data. Ambient noise levels were measured between 42.7 and 53.1 dBA L_{eq} . The dominant noise source was residential activity including the use of gardening and power tool equipment and dogs barking.

Table 1
Short-Term Noise Measurement Summary (dBA)

Daytime Measurements ^{1,2}								
Site Location	Time Started	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
NM1	12:31 PM	51.2	63.3	38.3	58.6	55.7	51.8	48.5
NM2	1:01 PM	49.5	61.7	36.0	57.7	54.5	48.1	45.9
NM3	1:37 PM	53.1	73.7	35.7	62.6	52.4	46.8	42.6
NM4	2:09 PM	44.1	60.1	39.5	50.7	46.6	44.0	41.9
NM5	2:37 PM	42.9	54.7	35.6	51.4	46.6	42.7	40.0
NM6	4:06 PM	48.4	64.8	33.8	58.5	53.4	45.1	40.4
NM7	3:10 PM	42.7	53.7	37.4	48.4	45.9	43.0	41.3

Notes:

- (1) See Figure 5 for noise measurement locations. Each noise measurement was performed over a 15-minute duration.
- (2) Noise measurements performed on September 14, 2023.



Legend
 Noise Measurement Location
NM 1 Short-Term Noise Measurement
LT NM Long-Term Noise Measurement

Figure 5
Noise Measurement Location Map

4. REGULATORY SETTING

FEDERAL REGULATION

Federal Noise Control Act of 1972

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate federal noise control activities. After its inception, EPA's Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In response, the EPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (Levels of Environmental Noise). The Levels of Environmental Noise recommended that the Ldn should not exceed 55 dBA outdoors or 45 dBA indoors to prevent significant activity interference and annoyance in noise-sensitive areas.

In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to State and local governments. However, noise control guidelines and regulations contained in EPA rulings in prior years remain in place by designated Federal agencies, allowing more individualized control for specific issues by designated Federal, State, and local government agencies.

Federal Transit Administration (FTA)

Ground-borne noise refers to the noise generated by ground-borne vibration. Ground-borne noise that accompanies the building vibration is usually perceptible only inside buildings and typically is only an issue at locations with subway or tunnel operations where there is no airborne noise path or for buildings with substantial sound insulation such as a recording studio.¹ As such, available guidelines from the Federal Transit Administration (FTA) are utilized to assess impacts due to ground-borne vibration. The FTA has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities. As shown in Table 2, the threshold at which there is a risk to "architectural" damage to reinforced concrete, steel, or timber (no plaster) buildings is a peak particle velocity (PPV) of 0.5, at engineered concrete and masonry (no plaster) buildings a PPV of 0.3, at non-engineered timber and masonry buildings a PPV of 0.2 and at buildings extremely susceptible to vibration damage a PPV of 0.1.

The FTA has also adopted standards associated with human annoyance for groundborne vibration impacts for the following three land-use categories:

- (1) Vibration Category 1 – High Sensitivity,
- (2) Vibration Category 2 – Residential, and
- (3) Vibration Category 3 – Institutional.

The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference. The vibration criteria associated with human annoyance for these three land-use categories are shown in Table

¹ Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2018, pp 108, 112.

3. Table 3 shows that 80 VdB is the threshold for annoyance from groundborne vibration at sensitive receptors.

Therefore, impacts related to building damage would be significant if construction activities result in groundborne vibration of 0.2 PPV or higher at residential structures and/or a PPV of 0.3 or higher at commercial structures. Impacts related to human annoyance would be significant if they result in groundborne vibration levels that exceed 80 VdB at sensitive receptor locations.

STATE REGULATIONS

California Code of Regulations

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2 and the California Building Code. These noise standards are applied to new construction in California for the purpose of controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, including residential buildings, are developed near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dB CNEL or higher. Acoustical studies that accompany building plans for noise-sensitive land uses must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings the acceptable interior noise limit for new construction is 45 dB CNEL.

State of California General Plan Guidelines 2017

Though not adopted by law, the State of California General Plan Guidelines 2017, published by the California Governor's Office of Planning and Research (OPR) (OPR Guidelines), provides guidance for the compatibility of projects within areas of specific noise exposure. The OPR Guidelines identify the suitability of various types of construction relative to a range of outdoor noise levels and provide each local community some flexibility in setting local noise standards that allow for the variability in community preferences. Findings presented in the Levels of Environmental Noise Document (EPA 1974) influenced the recommendations of the OPR Guidelines, most importantly in the choice of noise exposure metrics (i.e., Ldn or CNEL) and in the upper limits for the normally acceptable outdoor exposure of noise-sensitive uses.

The OPR Guidelines include a Noise and Land Use Compatibility Matrix which identifies acceptable and unacceptable community noise exposure limits for various land use categories. Where the "normally acceptable" range is used, it is defined as the highest noise level that should be considered for the construction of the buildings which do not incorporate any special acoustical treatment or noise mitigation. The "conditionally acceptable" or "normally unacceptable" ranges include conditions calling for detailed acoustical study prior to the construction or operation of the proposed project.

LOCAL REGULATIONS

City of Escondido General Plan

The City of Escondido General Plan Community Protection Element contains goals and policies that address noise. The goals and policies from the City of Escondido General Plan Community Protection Element that are applicable to the proposed project are present below:

Goal 5 Protection of the community from excessive noise exposure.

Policy 5.1 Require development to meet acceptable exterior noise level standards as established in Table 4 and use the future noise contour map (Figure VI-17 of the City's General Plan) as a guide for evaluating the compatibility of new noise sensitive uses with projected noise levels. Noise shall be controlled at the source where possible.

- Policy 5.2* Apply a CNEL of 60 dB or less for single family and 65 dB or less for multi-family as goals where outdoor use is a major consideration (back yards and single-family housing developments, and recreation areas in multifamily housing developments) as discussed in Figure VI-13 of the City's General Plan and recognize that such levels may not necessarily be achievable in all residential areas.
- Policy 5.5* Require construction projects and new development to ensure acceptable vibration levels at nearby noise-sensitive uses based on Federal Transit Administrator criteria.
- Policy 5.6* Require the preparation of noise studies, as deemed necessary by the Planning Department, to analyze potential noise impacts associated with new development which could significantly alter existing noise levels in accordance with provisions outlined in Figure VI-14 of the City's General Plan.
- Policy 5.7* Encourage use of site and building design, noise barriers, and construction methods as outlined in Figure VI-15 of the City's General Plan to minimize impacts on and from new development.
- Policy 5.10* Require development projects that are subject to discretionary approval to assess potential construction noise impacts on nearby sensitive uses and to minimize impacts on these uses, to the extent feasible.
- Policy 5.11* Limit direct access from individual properties along Major Roads and Prime Arterials in residential areas in order to minimize gaps in noise barrier sound walls.

City of Escondido Municipal Code

The City addresses noise in Article 12 Noise Abatement and Control of its Municipal Code. These ordinances are summarized below.

Section 17-229. Sound level limits.

- a) Unless a variance has been applied for and granted pursuant to this article, it shall be unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level, at any point on or beyond the boundaries of the property on which the sound is produced, exceeds the applicable limits set forth in the Table 5, except that construction noise level limits shall be governed by Section 17-234 of this article.
- b) Maximum Permissible Sound Levels by Receiving Land Use.
 - 1) The noise standards for the various categories of land use as presented in subsection (a) of this section shall, unless otherwise specifically indicated, apply to each property or portion of property substantially used for a particular type of land use reasonably similar to the land use types shown in subsection (a) of this section. Where two (2) or more dissimilar land uses occur on a single property, the more restrictive noise limits shall apply.
 - 2) Additional land use classifications may be added by action of the city council to reflect both lower and higher existing ambient levels than those shown.
 - 3) Where doubt exists when making identification of receiving land use, the city manager shall make an interpretation.
 - 4) No person shall operate or cause to be operated, any source of sound at any location within the city or allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level to exceed the

environmental and/or nuisance interpretation of the applicable limits given in subsection (a) of this section.

- 5) Environmental noise shall be measured by the equivalent sound level (Leq) for such hours as are specified; Nuisance noise shall be measured as a sound level not to be exceeded at any time; Sound levels by receiving land use shall be measured at the boundary or at any point within the boundary of the property affected; Fixed location public utility distribution or fixed transmission facilities, located on or adjacent to a property line shall be subject to noise level limits of this section measured at or beyond six (6) feet from the boundary of the easement upon which the equipment is located.

c) Corrections to Exterior Noise Level Limits.

- 1) If the noise is continuous, the Leq for any hour will be represented by any lesser time period within that hour. Noise measurements of a few minutes only will thus suffice to define the noise level.
- 2) If the noise is intermittent, the Leq for any hour may be represented by a time period typical of the operating cycle. Measurement should be made of a representative number of noisy/quiet periods. A measurement period of not less than fifteen (15) minutes is, however, strongly recommended when dealing with intermittent noise.
- 3) In the event the alleged offensive noise, as judged by the enforcement officer, contains a steady, audible sound such as a whine, screech, or hum, or contains a repetitive impulsive noise such as hammering or riveting, the standard limits set forth in Table 17-229 shall be reduced by ten (10) dB or to the ambient noise level when such noises are not occurring.
- 4) If the measured ambient level exceeds that permissible in subsection (a) of this section, the allowable noise exposure standard shall be the ambient noise level. The ambient level shall be measured when the alleged noise violations source is not operating.
- 5) The sound level limit at a location on a boundary between two (2) land use classifications is the limit applicable to the receiving land use; provided, however, that the one-hour average sound level limit applicable to extractive industries including but not limited to borrow pits and mines, shall be seventy-five (75) decibels (dB) at the property line regardless of the zone where the extractive industry is actually located. Fixed-location public utility distribution or transmission facilities located on or adjacent to a property line shall be subject to the noise level limits of this section, measured at or beyond six (6) feet from the boundary of the easement upon which the equipment is located.

Section 17-232. Refuse vehicles and parking lot sweepers.

No person shall operate, or permit to be operated, a refuse compacting, processing, or collection vehicle or parking lot sweeper between the hours of ten (10) PM to six (6) AM in or adjacent to any residential zone unless a variance has been applied for and granted pursuant to this article.

Section 17-234. Construction equipment.

Except for emergency work, it shall be unlawful for any person, including the City of Escondido, to operate construction equipment as follows:

- a) It shall be unlawful for any person, including the City of Escondido, to operate construction equipment at any construction site, except on Monday through Friday during a week between the hours of seven 7:00 AM and 6:00 PM and on Saturdays between the hours of 9:00 AM and 5:00 PM, and provided that the operation of such construction equipment complies with the requirements of subsection (d) of this section.
- b) It shall be unlawful for any person, including the City of Escondido, to operate construction equipment at any construction site on Sundays and on days designated by the president, governor, or city council as public holidays.

- c) A person may operate construction equipment at his/her residence or for the purpose of constructing or modifying a residence for himself/herself on Monday through Friday of a week between the hours of 7:00 AM and 6:00 PM, and on Saturdays, Sundays, and holidays between the hours of 9:00 AM and 5:00 PM; provided, that such operation of construction equipment is not carried on for profit or livelihood and complies with the requirements of subsection (d) of this section.
- d) No construction equipment or combination of equipment, regardless of age or date of acquisition, shall be operated so as to cause noise in excess of a one-hour average sound level limit of seventy-five (75) dB at any time, unless a variance has been obtained in advance from the city manager.
- e) Persons engaged in construction for profit or as a business shall post signs at conspicuous places on a construction site, indicating hours of work as prescribed by this article or authorized by permit and the applicable noise level limits.

Section 17-237. Landscape equipment.

It shall be unlawful for any person, including the City of Escondido to use any motorized landscape equipment, including but not limited to power blowers and vacuums, which causes a disturbing, excessive, or offensive noise as defined under section 17-227 (k) of this article.

Section 17-238. Grading.

- a) It shall be unlawful for any person, including the City of Escondido, to do any authorized grading at any construction site, except on Mondays through Fridays during a week between the hours of 7:00 AM and 6:00 PM and, provided a variance has been obtained in advance from the city manager, on Saturdays from 10:00 AM to 5:00 PM.
- b) For the purpose of this section, “grading” shall include but not be limited to compacting, drilling, rock crushing or splitting, bulldozing, clearing, dredging, digging, filling, and blasting.
- c) In addition, any equipment used for grading shall not be operated so as to cause noise in excess of a one-hour sound level limit of seventy-five (75) dB at any time when measured at or within the property lines of any property which is developed and used in whole or in part for residential purposes, unless a variance has been obtained in advance from the city manager.

Section 17-240. General noise regulations.

- a) General Prohibitions. In the absence of objective measurement by use of a sound level meter, it additionally shall be unlawful for any person to make, continue or cause to be made or continued, within the limits of said city, any disturbing, excessive, or offensive noise which causes discomfort or annoyance to reasonable persons of normal sensitivity.

The characteristics and conditions which should be considered in determining whether a violation of the provisions of this section exists, include, but are not limited to, the following:

- 6) Schools, Courts, Churches, Hospitals. The creation of any *noise* on any street, sidewalk or public place adjacent to any school, institution of learning (except recreational areas of schools), church, court, library or other *noise*-sensitive zone, while the same are in use, or adjacent to a hospital, rest home, or long-term medical or mental care facility which *noise* interferes with the workings of such institution or which disturbs or annoys patients in the hospital, rest home, or long-term medical or mental care facility, provided conspicuous signs are displayed in such streets, sidewalks or public places indicating the presence of a school, institution of learning, church, court, library, rest home, long-term medical or mental care facility, or other *noise*-sensitive zones, is prohibited.

- 9) Loading, Unloading Vehicles—Opening, Destroying Bales, Boxes. The creation of a loud and excessive *noise* in connection with loading or unloading any vehicle or the opening and destruction of bales, boxes, crates, and containers is a violation of this article.

- 12) Pile Drivers, Pneumatic Hammers, etc. No person shall operate between the hours of 6:00 PM and 7:00 AM on weekdays, or on Saturdays, Sundays or any legal holidays, any pile driver, pneumatic hammer, derrick, or other similar appliance, the use of which is attended by loud or unusual *noise*, unless a variance has been obtained in advance from the city manager.

Table 2
Construction Vibration Damage Criteria

Building/Structural Category	PPV, in/sec	Approximate Lv*
I. Reinforced-concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.1	90

Notes:

Source: Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment Manual (September 2018).

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

Table 3
Ground-Borne Vibration (GBV) Impact Criteria for General Vibration Assessment

Land Use Category	GBV Impact Levels (VdB re 1 micro-inch/sec)		
	Frequent Events	Occasional Events	Infrequent Events
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB*	65 VdB*	65 VdB*
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

Notes:

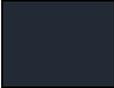
Source: Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment Manual (September 2018).

*This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical

**Table 4
Land Use Noise Exposure Levels**

Land Use Category	Community Noise Exposure					
	Ldn or CNEL, dBA					
	55	60	65	70	75	80
Residential-Single Family, Duplex, Mobile Home	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue
Residential-Multi-Family, Residential Mixed Use	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue
Transient Lodging, Motels, Hotels	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue
Schools, Libraries, Churches, Hospitals, Nursing Homes	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue
Auditoriums, Concert Halls, Amphitheaters	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue
Sports Arena, Outdoor Spectator Sports	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue
Playgrounds, Parks	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue
Office Buildings, Businesses, Commercial and Professional	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue
Industrial, Manufacturing, Utilities, Agriculture	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue

Source: City of Escondido General Plan Community Protection Element Figure VI-12 (May 2012).

-  Normally Acceptable: Specified land use is satisfactory based upon the assumption that buildings involved are of normal conventional construction, without any special noise insulation or requirements.
-  Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
-  Normally Unacceptable: New construction and development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with noise insulation features included in the design.
-  Clearly Unacceptable: New construction or development should generally not be undertaken.

**Table 5
City of Escondido Sound Level Limits**

Zone	Time	Applicable Limit One-hour Average Sound Level (Decibels)
Residential Zones	7:00 AM to 10:00 PM	50
	10:00 PM to 7:00 AM	45
Multi-Residential Zones	7:00 AM to 10:00 PM; 10:00 PM to 7:00 AM	55, 50
Commercial Zones	7:00 AM to 10:00 PM	60
	10:00 PM to 7:00 AM	55
Light Industrial/ Industrial Park Zones	Anytime	70*
General Industrial Zones	Anytime	75*

Notes:

(1) Source: City of Escondido Municipal Code Section 17-229.

*Subject to provisions of Ection 17-229(c)(5)

5. ANALYTICAL METHODOLOGY AND MODEL PARAMETERS

This section discusses the analysis methodologies used to assess noise impacts.

CONSTRUCTION NOISE MODELING

Construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work.

Construction noise associated with the proposed project was calculated at the sensitive receptor locations, utilizing methodology presented in the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (2018) together with several key construction parameters, including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site. Distances to receptors were based on the acoustical center of the project site.

The equipment used to calculate the construction noise levels for each phase were based on the assumptions provided in the California Emissions Estimator Model (CalEEMod) modeling provided in the Air Quality, Global Climate Change, and Energy Impact Analysis prepared for the proposed project (Ganddini Group, Inc., 2023). For analysis purposes, the distance measured from the project site to sensitive receptors was assumed to be the acoustical center of the project site to the property line of residential properties with existing residential buildings. Sound emission levels associated with typical construction equipment as well as typical usage factors are provided in Table 6. Construction noise worksheets are provided in Appendix D.

SOUNDPLAN NOISE MODEL

The SoundPLAN acoustical modeling software was utilized to model project operational worst-case stationary noise impacts from the proposed project to adjacent sensitive uses (e.g., residences) as well as to estimate future traffic generated noise at the proposed sensitive receptors. SoundPLAN is capable of evaluating stationary noise sources (e.g., parking lots, heating, and ventilation systems (HVAC) drive-thru menus, car wash equipment, vacuums, etc.). The SoundPLAN software utilizes algorithms (based on the inverse square law) to calculate noise level projections. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations. In addition to the information provided below, noise modeling input and outputs assumptions are provided in Appendix E.

Transportation Noise Impacts to Proposed Residential Land Uses

Anticipated future noise associated with Rincon Avenue was modeled considering that the City of Escondido General Plan Mobility and Infrastructure Element has identified it as a local collector that has the capacity to handle 15,000 average daily trips. The Riverside County General Plan vehicle mix of 97.4, 1.85, and 0.75 was utilized along with a speed of 40 mph (as posted). These are worst-case conditions.

On-Site Operational Noise

Peak hour operational noise levels were modeled utilizing representative sound levels in the SoundPLAN model. Modeled noise sources include parking lot noise and HVAC equipment noise. All noise sources were modeled to be in full operation for an entire hour.

Parking Lot Noise

Parking lot noise was calculated using SoundPLAN methodology. Specifically, the traffic volume of the parking lot is entered with the number of moves per parking space, the hour, and the number of parking

bays. The user defines whether the parking lots are for automobiles, motorcycles, or trucks, and the emission level of a parking lot is automatically adjusted accordingly. The values for the number of parking moves for each time slice is the number of parking moves per reference unit (most often per parking bay), averaged for the hour².

SoundPLAN utilizes parking lot noise emission levels from the 6th revised edition of the parking lot study “Recommendations for the Calculation of Sound Emissions of Parking Areas, Motorcar Centers and Bus Stations as well as of Multi-Story Car Parks and Underground Car Parks” published by the Bavarian Landesamt für Umwelt provides calculation methods to determine the emissions of parking lots.

The parking lot emission table documents the reference level (Lw, ref) from the parking lot study.

$$Lw, \text{ ref} = Lw0 + KPA + KI + KD + KStrO + 10 \log(B) \text{ [dB(A)]}$$

With the following parameters:

Lw0 = Basic sound power, sound power level of one motion / per hour on P+R areas = 63 dB(A)

KPA = Surcharge parking lot type

KI = Surcharge for impulse character

KD = Surcharge for the traffic passaging and searching for parking bays in the driving lanes $2,5 * \lg(f * B - 9)$

f = Parking bays per unit of the reference value

B = Reference value

KStrO = Surcharge for the road surface

B = Reference value

Mechanical Equipment (HVAC Units) Noise

A noise reference level of 67.7 dBA at 3 feet (sound power level of 78.7 dB) was utilized to represent rooftop 5 Ton Carrier HVAC units³. A rooftop HVAC plan is not available at the time of this analysis so the exact location and number of units per building were estimated. A total of 8 rooftop units were modeled on the proposed rooftops.

OFFSITE MOBILE SOURCE NOISE MODELING

Noise from vehicular traffic was projected using a computer program that replicates the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). The FHWA model arrives at the predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Project average daily traffic volumes for all roadway segments obtained from the Project Specific Scoping Plan prepared by LOS Engineering, Inc (September 20, 2023). Existing average daily traffic volumes obtained from the SANDAG Transportation Forecast Center.⁴ Key model parameters and REMEL adjustments are presented below:

- Roadway classification (e.g., freeway, major arterial, arterial, secondary, collector, etc.)
- Roadway active width (distance between the center of the outer most travel lanes on each side of the roadway)
- Average Daily Traffic (ADT) Volumes, Travel Speeds, Percentages of automobiles, medium trucks and heavy trucks
- Roadway grade and angle of view
- Site conditions (e.g., soft vs. hard)
- Percentage of total ADT which flows each hour throughout a 24-hour period.

² SoundPLAN Essential 4.0 Manual. SoundPLAN International, LLC. May 2016.

³ MD Acoustics, LLC Noise Measurement Data for RTU -Carrier 50TFQ0006.

⁴ SANDAG Transportation Forecast Center. Version ABM2+/2021RP and year 2016 obtained at <https://experience.arcgis.com/experience/81b2daca1827470ca8beeb4708139f79/>.

Table 7 shows the roadway volumes, speeds, and site conditions used in the analysis. The following outlines key adjustments made to the REMEL for project site parameter inputs:

- Vertical and horizontal distances (sensitive receptor distance from noise source)
- Noise barrier vertical and horizontal distances (noise barrier distance from sound source and receptor).
- Traffic noise source spectra
- Topography

Traffic noise levels were calculated at the right-of-way based on distance from the centerline of the analyzed roadway. The modeling is theoretical and does not take into account any existing barriers, structures, and/or topographical features that may further reduce noise levels. Therefore, the modeled noise levels are shown for comparative purposes only to show the difference between with and without project conditions. The traffic noise calculation worksheets are included in Appendix F.

GROUNDBORNE VIBRATION MODELING

Groundborne vibration modeling was performed using vibration propagation equations and construction equipment source levels obtained from the FTA *Transit Noise and Vibration Impact Assessment Manual* (2018). Table 8 shows typical vibration levels associated with commonly used construction equipment based on data from the FTA.

There are several types of construction equipment that can cause vibration levels high enough to annoy persons in the vicinity and/or result in architectural or structural damage to nearby structures and improvements. For example, as shown in Table 8, a vibratory roller could generate up to 0.21 in/sec PPV at and operation of a large bulldozer could generate up to 0.089 PPV at a distance of 25 feet (two of the most vibratory pieces of construction equipment). Groundborne vibration at sensitive receptors associated with this equipment would drop off as the equipment moves away. For example, as the vibratory roller moves further than 100 feet from the sensitive receptors, the vibration associated with it would drop below 0.0026 in/sec PPV. It should be noted that these vibration levels are reference levels and may vary slightly depending upon soil type and specific usage of each piece of equipment.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{\text{equipment}} = PPV_{\text{ref}} (25/D_{\text{rec}})^n$$

Where: PPV_{ref} = reference PPV at 25ft.

D_{rec} = distance from equipment to receiver in ft.

n = 1.5 (the value related to the attenuation rate through ground)

Groundborne vibration calculations are provided in Appendix G.

Table 6 (1 of 2)
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec. Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50ft (dBA, slow)	No. of Actual Data Samples (Count)
All Other Equipment > 5 HP	No	50	85	-N/A-	0
Auger Drill Rig	No	20	85	84	36
Backhoe	No	40	80	78	372
Bar Bender	No	20	80	-N/A-	0
Blasting	Yes	-N/A-	94	-N/A-	0
Boring Jack Power Unit	No	50	80	83	1
Chain Saw	No	20	85	84	46
Clam Shovel (dropping)	Yes	20	93	87	4
Compactor (ground)	No	20	80	83	57
Compressor (air)	No	40	80	78	18
Concrete Batch Plant	No	15	83	-N/A-	0
Concrete Mixer Truck	No	40	85	79	40
Concrete Pump Truck	No	20	82	81	30
Concrete Saw	No	20	90	90	55
Crane	No	16	85	81	405
Dozer	No	40	85	82	55
Drill Rig Truck	No	20	84	79	22
Drum Mixer	No	50	80	80	1
Dump Truck	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Forklift ^{2,3}	No	50	n/a	61	n/a
Front End Loader	No	40	80	79	96
Generator	No	50	82	81	19
Generator (<25KVA, VMS signs)	No	50	70	73	74
Gradall	No	40	85	83	70
Grader	No	40	85	-N/A-	0
Grapple (on backhoe)	No	40	85	87	1
Horizontal Boring Hydr. Jack	No	25	80	82	6
Hydra Break Ram	Yes	10	90	-N/A-	0
Impact Pile Driver	Yes	20	95	101	11
Jackhammer	Yes	20	85	89	133
Man Lift	No	20	85	75	23
Mounted Impact hammer (hoe ram)	Yes	20	90	90	212
Pavement Scarafier	No	20	85	90	2
Paver	No	50	85	77	9
Pickup Truck	No	50	85	77	9
Paving Equipment	No	50	85	77	9
Pneumatic Tools	No	50	85	85	90

Table 6 (2 of 2)
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec. Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50ft (dBA, slow)	No. of Actual Data Samples (Count)
Pumps	No	50	77	81	17
Refrigerator Unit	No	100	82	73	3
Rivit Buster/chipping gun	Yes	20	85	79	19
Rock Drill	No	20	85	81	3
Roller	No	20	85	80	16
Sand Blasting (Single Nozzle)	No	20	85	96	9
Scraper	No	40	85	84	12
Shears (on backhoe)	No	40	85	96	5
Slurry Plant	No	100	78	78	1
Slurry Trenching Machine	No	50	82	80	75
Soil Mix Drill Rig	No	50	80	-N/A-	0
Tractor	No	40	84	-N/A-	0
Vacuum Excavator (Vac-truck)	No	40	85	85	149
Vacuum Street Sweeper	No	10	80	82	19
Ventilation Fan	No	100	85	79	13
Vibrating Hopper	No	50	85	87	1
Vibratory Concrete Mixer	No	20	80	80	1
Vibratory Pile Driver	No	20	95	101	44
Warning Horn	No	5	85	83	12
Welder/Torch	No	40	73	74	5

Notes:

- (1) Source: FHWA Roadway Construction Noise Model User's Guide January 2006.
- (2) Warehouse & Forklift Noise Exposure - NoiseTesting.info Carl Stautins, November 4, 2014
<http://www.noisetesting.info/blog/carl-strautins/page-3/>
- (3) Data provided Leq as measured at the operator. Sound Level at 50 feet is calculated using Inverse Square Law.

**Table 7
Project Average Daily Traffic Volumes and Roadway Parameters**

Roadway	Segment	Average Daily Traffic Volume ¹		Posted Travel Speeds (MPH)	Site Conditions
		Existing	Existing Plus Project		
North Broadway	North of Rincon Avenue	6,900	6,909	40	Hard
	South of Rincon Avenue	4,200	4,245	40	Hard
North Ash Street	South of Rincon Avenue	3,900	3,909	35	Hard
Conway Drive	South of Rincon Avenue	1,200	1,209	35	Hard
Rincon Avenue	West of North Broadway	8,400	8,507	40	Hard
	North Broadway to North Ash Street	6,300	6,461	40	Hard
	North Ash Street to Conway Drive	5,000	5,170	40	Hard
	East of Conway Drive	3,000	3,179	40	Hard

Vehicle Distribution (Light Mix) ²			
Motor-Vehicle Type	Daytime % (7 AM-7 PM)	Evening % (7 PM-10 PM)	Night % (10 PM-7 AM)
Automobiles	75.56	13.96	10.49
Medium Trucks	48.91	2.17	48.91
Heavy Trucks	47.30	5.41	47.30

Notes:

(1) Project average daily traffic volumes for all roadway segments obtained from the Project Specific Scoping Plan prepared by LOS Engineering, Inc (September 20, 2023). Existing average daily traffic volumes obtained from the SANDAG Transportation Forecast Center at <https://experience.arcgis.com/experience/81b2daca1827470ca8beeb4708139f79/>. Utilized Version ABM2+/2021RP and year 2016 for existing average daily traffic volumes in the SANDAG Transportation Forecast Center.

(2) As no vehicle mix data for San Diego County is available, the existing and project vehicle percentages are based on the Riverside County Industrial Hygiene Letter for Traffic Noise.

**Table 8
Construction Equipment Vibration Source Levels**

Equipment		PPV at 25 ft, in/sec	Approximate Lv* at 25 ft
Pile Driver (impact)	upper range	1.518	112
	typical	0.644	104
Pile Driver (sonic)	upper range	0.734	105
	typical	0.170	93
clam shovel drop (slurry wall)		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: Federal Transit Administration: Transit Noise and Vibration Impact Assessment Manual, 2018.

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

6. NOISE AND VIBRATION IMPACTS

This section analyzes the significance of project-related noise and groundborne vibration impacts relative to standards established by the City of Escondido and other applicable agencies in the context of CEQA. Appendix G of the California Environmental Quality Act Guidelines (Title 14, Division 6, Chapter 3 of the California Code of Regulations) includes an environmental checklist that identifies issues upon which findings of significance should be made. The CEQA Environmental Checklist Appendix G, XIII. Noise, requires determination if the project would result in:

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

NOISE IMPACTS

Would the project result in:

- a) *Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Finding: Less Than Significant

In relation to the Environmental Checklist noise issue “a”, applicable standards established by the City of Riverside can be categorized into the following areas:

- Construction Noise
- Mobile Source Noise
- Operational Noise

Construction Noise

Construction noise is regulated within City of Escondido Municipal Code Section 17-234 (see Regulatory Setting section of this report). Accordingly, the project would result in a significant impact if:

- Project construction occurs outside the hours of 7:00 AM to 6:00 PM on Monday through Friday; 9:00 AM and 5:00 PM on Saturdays; or at any time on Sundays and days designated as a public holiday; or,
- Project construction equipment or combination of equipment exceeds a one-hour average sound level limit of seventy-five (75) dB at any time (unless a variance has been obtained in advance from the city manager).

Project construction noise levels at nearby sensitive receptors were calculated using the FTA methodology. Construction noise modeling worksheets for each phase are provided in Appendix D. Anticipated noise levels during each construction phase are presented in Table 9. Project construction will not occur outside of the hours outlined in Section 17-234 of the City’s Municipal Code. Based on the modeled construction noise levels, construction noise levels are estimated to reach 71.8 dBA L_{eq} at the nearest residential property line and 72.4 at the nearest agricultural/commercial property line. Therefore, the project would not exceed

City-established standards relating to construction noise. The project impact is less than significant; no mitigation is required.

Notwithstanding the above, best management practices (BMPs) are provided in the Project Description and should be added to project plans and in contract specifications to minimize construction noise emanating from the proposed project.

Mobile Source Noise

California courts have rejected use of what is effectively a single “absolute noise level” threshold of significance (e.g., exceed 65 dBA CNEL) on the grounds that the use of such a threshold fails to consider the magnitude or severity of increases in noise levels attributable to the project in different environments (see *King and Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814). California courts have also upheld the use of “ambient plus increment” thresholds for assessing project noise impacts as consistent with CEQA, noting however, that the severity of existing noise levels should not be ignored by incorporating a smaller incremental threshold for areas where existing ambient noise levels were already high (see *Mission Bay Alliance v. Office of Community Investment and Infrastructure* (2016) 6 Cal.App.5th 160).

Project Generated Mobile Source Noise

As stated in the City of Escondido General Plan, Downtown Specific Plan and Climate Action Plan Environmental Impact Report (EIR) (April 2012), the city considers an increase in noise levels of 5 dB or greater as generating a significant impact.

Project Operational Mobile Source Noise

Roadway noise levels were calculated at roadways included in the project specific traffic scoping agreement (LOS Engineering, Inc., August 30, 2024) based on the FHWA Traffic Noise Prediction Model methodology. The Traffic Scoping found that the proposed project would create approximately 173 vehicle trips per day on weekdays, 167 vehicle trips per day on Saturdays, and 346 vehicle trips per day on Sundays. The Scoping Agreement included trip generation rates of 10 trips per dwelling unit per weekday, 9.48 trips per dwelling unit per Saturday, and 8.48 trips per dwelling unit per Sunday for the single-family residential uses and 9 trips per thousand square foot per weekday, 9 trips per thousand square foot per Saturday, and 36 trips per thousand square foot per Sunday for the temple.

- *Existing (without Project)*: This scenario refers to existing year traffic noise conditions.
- *Existing Plus Project*: This scenario refers to existing year plus project traffic noise conditions.

Table 10 shows the change in existing roadway noise levels with the addition of project-generated operational trips. FHWA Traffic Noise Prediction Model calculation worksheets are provided in Appendix F.

As shown in Table 10, modeled existing traffic noise levels range between 60-69 dBA CNEL and the modeled Existing Plus Project traffic noise levels range between 60-69 dBA CNEL at the right-of-way of each study roadway segment. The addition of project trips is not expected to change noise levels in excess of the applicable threshold at any of the study roadway segments (see Table 10). The project impact is less than significant; no mitigation is required.

Construction Mobile Source Noise

Construction truck trips would occur throughout the construction period. Given the project site’s proximity to Interstate 15 Freeway, it is anticipated that vendor and/or haul truck traffic would take the most direct route to the appropriate freeway ramps.

Rincon Avenue currently handles between approximately 3,000 to 8,400 average daily vehicle trips in the vicinity of the project site.⁵ According to the *ISKCON of Escondido Air Quality, Global Climate Change, and Energy Impact Analysis* (Ganddini Group, Inc., 2023-Rev. 1), the greatest number of construction-related vehicle trips per day would be during grading and paving at up to 15 vehicle trips per day (for worker trips). Therefore, vehicle traffic generated during project construction is nominal relative to existing roadway volumes and would not result in the doubling of traffic volume necessary to increase noise levels by 5 dBA. The project impact is less than significant; no mitigation is required.

Future Roadway Mobile Source Noise

The City of Escondido General Plan Mobility and Infrastructure Element has designated Rincon Avenue as a two-lane local collector in the vicinity of the project. The Mobility and Infrastructure that a Local Collector could handle up to 15,000 average daily trips.

As shown in Table 4, per the City of Escondido General Plan, noise levels of up to 60 dBA CNEL are considered “normally acceptable” and up to 70 dBA CNEL are considered “conditionally acceptable” for single-family residential uses. In addition, noise levels of up to 65 dBA CNEL are considered “normally acceptable” and up to 70 dBA CNEL are considered “conditionally acceptable” for church uses. Facades with anticipated noise levels of 65 dBA CNEL are expected to have interior noise levels that do not exceed 45 dBA CNEL. This is based on the assumption that heating and ventilation systems will be provided in order to allow for a windows-closed condition.

Figure 6 and Figure 7 display transportation noise modeling results. The white boxes with numbers in them represent anticipated noise at proposed residential locations. As shown in Figure 6, transportation related noise is expected to range between 63 and 68 dBA CNEL. As shown in Table 4, development of residential land uses are considered to be “conditionally acceptable” in areas where noise levels reach up to 70 dBA CNEL as long as air conditioning is provided to allow windows to be in a closed condition. This impact would be less than significant. No mitigation is required.

Operational Noise

Article 12 *Section 17-229. Sound level limits*, sets forth noise level limits for noise generated from one property to another. These land use-based noise level limits are shown in Table 5. Unless a variance has been applied for and granted pursuant to this article, it is unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level, at any point on or beyond the boundaries of the property on which the sound is produced, exceeds the applicable limits set forth in the Table 5, except that construction noise level limits shall be governed by Section 17-234 of Article 12.

Sensitive land uses that may be affected by project operational noise include single family residential land uses to the north, south, east, and west. Ambient noise levels were conducted to establish existing noise levels in the vicinity of these land uses (see Table 1). Subsequently, the SoundPLAN noise model was used to model operational noise (discussed in Section 4 of this report). SoundPLAN modeling results are shown on Figure 8 and in Table 11. Existing measured noise levels near receptors that may be affected by project noise range between 43 and 53 dBA L_{eq} ; and project generated noise is expected to range between 0 and 32 dBA L_{eq} . Project generated noise would not cause a violation of the daytime standard of (50 dBA L_{eq}) or the nighttime noise standard (45 dBA L_{eq}) at the surrounding residential land uses. Furthermore, project operation would not noticeably increase ambient noise levels. This impact would be less than significant. No mitigation is required.

⁵ Existing average daily traffic volumes obtained from SANDAG Transportation Forecast Center. Version ABM2+/2021RP and year 2016 obtained at <https://experience.arcgis.com/experience/81b2daca1827470ca8beeb4708139f79/>.

GROUNDBORNE VIBRATION IMPACTS

Would the project result in:

b) Generation of excessive groundborne vibration or groundborne noise levels?

Finding: Less Than Significant

In relation to the Environmental Checklist noise issue “b”, the City of Escondido has not established thresholds of significance concerning groundborne vibration. In the absence of City-established thresholds, groundborne vibration impacts are based on guidance from the *Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual* (FTA, September 2018) (see Regulatory Setting section). Accordingly, the project would result in a significant impact if:

- Groundborne vibration levels generated by the project have the potential to cause architectural damage at nearby buildings by exceeding the following PPV:
 - 0.10 in/sec at buildings extremely susceptible to vibration damage
 - 0.20 in/sec at non-engineered timber and masonry buildings
 - 0.30 in/sec at engineered concrete and masonry (no plaster) buildings
 - 0.50 in/sec at reinforced-concrete, steel or timber (no plaster) buildings
- Groundborne vibration levels generated by the project have the potential to cause annoyance at sensitive receptors by exceeding 72 VdB.

Groundborne vibration modeling worksheets are provided in Appendix G.

Construction-Related Vibration Impacts

Existing structures in the immediate vicinity of the project site include the residential buildings located as close as approximately 21 feet to the west of the project site, the residential buildings located as close as approximately 249 feet to the northwest of the project site, the commercial building located as close as approximately 80 feet north of the project site, the residential buildings located as close as approximately 70 feet to the northeast of the project site and the residential building located within the project site boundaries but approximately 75 feet to the south of the disturbance area of the project site.

Groundborne vibration levels associated with project construction are provided in Table 12. As shown in Table 12, the residential threshold of 0.2 PPV in/sec will be exceeded at the residential uses to the west. Best management practices prohibiting the use of vibratory rollers, or other similar vibratory equipment, within 26 feet of residential structures to the west will reduce potential architectural damage impacts. Furthermore, potential annoyance at the nearest residential uses is expected to be temporary, occurring only when vibratory equipment such as vibratory rollers are within 136 feet and large bulldozers are within 80 feet of residential structures, and during daytime hours.

Therefore, project construction would not result in the exposure of persons to excessive groundborne vibration and impacts would be less than significant with incorporation of best management practices.

The most substantial sources of groundborne vibration during post-construction project operations will include the movement of passenger vehicles and trucks on paved and generally smooth surfaces. Loaded trucks generally have a PPV of 0.076 at a distance of 25 feet (Caltrans 2020), which is a substantially lower PPV than that of a vibratory roller (0.210 in/sec PPV at 25 feet). Therefore, groundborne vibration levels generated by project operation would not exceed those modeled for project construction.

AIR TRAFFIC IMPACTS

Would the project result in:

- c) *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?*

Finding: No Impact

The closest airport to the project site is the McClellan-Palomar Airport, with associated airport runways located as close as approximately 11.4 miles southwest of the project site. As stated in the City of Escondido General Plan Community Protection Element (May 2012), the project site is not located within the 60 dBA CNEL noise contour of McClellan-Palomar Airport. Therefore, the proposed project would not expose people residing or working in the area to excessive noise levels. There is no impact, and no mitigation is required.

Table 9 (1 of 2)
Construction Noise Levels (dBA L_{eq})

Receptor Location	Representative Noise Measurement ¹	Existing Ambient Noise Levels (dBA Leq)	Construction Noise Levels (dBA Leq) ²	Exceeds 75 dBA Leq (Yes/No)
Phase: Site Preparation				
Residential to West (2281 Creek Hollow Place, Escondido)	NM1	51.2	65.7	No
Residential to Northwest (2352 Briarwood Place, Escondido)	NM2	49.5	60.4	No
Agricultural/Commercial to North (1430 Rincon Avenue, Escondido)	NM3	53.1	66.6	No
Residential to Northeast (1448 Rincon Avenue, Escondido)	NM3	53.1	61.7	No
Residential/Agricultural to East/Southeast (1643 Rincon Avenue, Escondido)	NM5	42.9	57.8	No
Residential to South (1165 Witherby Lane, Escondido)	NM6	48.4	54.9	No
Phase: Grading				
Residential to West (2281 Creek Hollow Place, Escondido)	NM1	51.2	70.9	No
Residential to Northwest (2352 Briarwood Place, Escondido)	NM2	49.5	65.6	No
Agricultural/Commercial to North (1430 Rincon Avenue, Escondido)	NM3	53.1	71.8	No
Residential to Northeast (1448 Rincon Avenue, Escondido)	NM3	53.1	66.9	No
Residential/Agricultural to East/Southeast (1643 Rincon Avenue, Escondido)	NM5	42.9	63.0	No
Residential to South (1165 Witherby Lane, Escondido)	NM6	48.4	60.1	No
Phase: Building Construction				
Residential to West (2281 Creek Hollow Place, Escondido)	NM1	51.2	71.5	No
Residential to Northwest (2352 Briarwood Place, Escondido)	NM2	49.5	66.2	No
Agricultural/Commercial to North (1430 Rincon Avenue, Escondido)	NM3	53.1	72.4	No
Residential to Northeast (1448 Rincon Avenue, Escondido)	NM3	53.1	67.5	No
Residential/Agricultural to East/Southeast (1643 Rincon Avenue, Escondido)	NM5	42.9	63.7	No
Residential to South (1165 Witherby Lane, Escondido)	NM6	48.4	60.7	No

Table 9 (2 of 2)
Construction Noise Levels (dBA L_{eq})

Receptor Location	Representative Noise Measurement ¹	Existing Ambient Noise Levels (dBA Leq)	Construction Noise Levels (dBA Leq) ²	Exceeds 75 dBA Leq (Yes/No)
Phase: Paving				
Residential to West (2281 Creek Hollow Place, Escondido)	NM1	51.2	65.1	No
Residential to Northwest (2352 Briarwood Place, Escondido)	NM2	49.5	59.7	No
Agricultural/Commercial to North (1430 Rincon Avenue, Escondido)	NM3	53.1	65.9	No
Residential to Northeast (1448 Rincon Avenue, Escondido)	NM3	53.1	61.0	No
Residential/Agricultural to East/Southeast (1643 Rincon Avenue, Escondido)	NM5	42.9	57.2	No
Residential to South (1165 Witherby Lane, Escondido)	NM6	48.4	54.2	No
Phase: Architectural Coating				
Residential to West (2281 Creek Hollow Place, Escondido)	NM1	51.2	57.6	No
Residential to Northwest (2352 Briarwood Place, Escondido)	NM2	49.5	52.2	No
Agricultural/Commercial to North (1430 Rincon Avenue, Escondido)	NM3	53.1	58.5	No
Residential to Northeast (1448 Rincon Avenue, Escondido)	NM3	53.1	53.6	No
Residential/Agricultural to East/Southeast (1643 Rincon Avenue, Escondido)	NM5	42.9	49.7	No
Residential to South (1165 Witherby Lane, Escondido)	NM6	48.4	46.7	No

Notes:

- (1) Per measured existing ambient noise levels. See Figure 5 for noise measurement locations.
- (2) Construction noise worksheets are provided in Appendix D.

Table 10
Increase in Existing Noise Levels Along Roadways as a Result of Project (dBA CNEL)

Roadway	Segment	Distance from roadway centerline to right-of-way (feet) ²	Modeled Noise Levels (dBA CNEL) ¹				
			Existing Without Project at right-of-way	Existing Plus Project at right-of-way	Change in Noise Level	Exceeds Standards ³	Increase of 5 dB or More?
North Broadway	North of Rincon Ave	31	68.57	68.57	0.00	Yes	No
	South of Rincon Ave	31	66.41	66.46	0.05	Yes	No
North Ash St	South of Rincon Ave	31	64.88	64.89	0.01	Yes	No
Conway Dr	South of Rincon Ave	31	59.76	59.79	0.03	No	No
Rincon Ave	West of North Broadway	40	68.32	68.37	0.05	Yes	No
	North Broadway to North Ash St	40	67.10	67.20	0.10	Yes	No
	North Ash St to Conway Dr	40	65.00	65.10	0.10	Yes	No
	East of Conway Dr	31	64.95	65.20	0.25	Yes	No

Notes:

- (1) Exterior noise levels calculated 5 feet above pad elevation, perpendicular to subject roadway.
- (2) Right of way per the City of Escondido General Plan Mobility and Infrastructure Element.
- (3) Per the City of Escondido normally acceptable standard for single-family detached residential dwelling units of 60 dBA CNEL (see Table 5).

Table 11
On-Site Operational Noise (dBA Leq)

dBA, Leq				
Site Location	Measured Noise Level	Project Operational Noise	Combined Existing and Project Noise	Increase Due to Project
NM1	51	30	51	0
NM2	50	25	50	0
NM3	53	32	53	0
NM4	44	0	44	0
NM5	43	22	43	0
NM6	48	11	48	0
NM7	43	18	43	0

Notes:

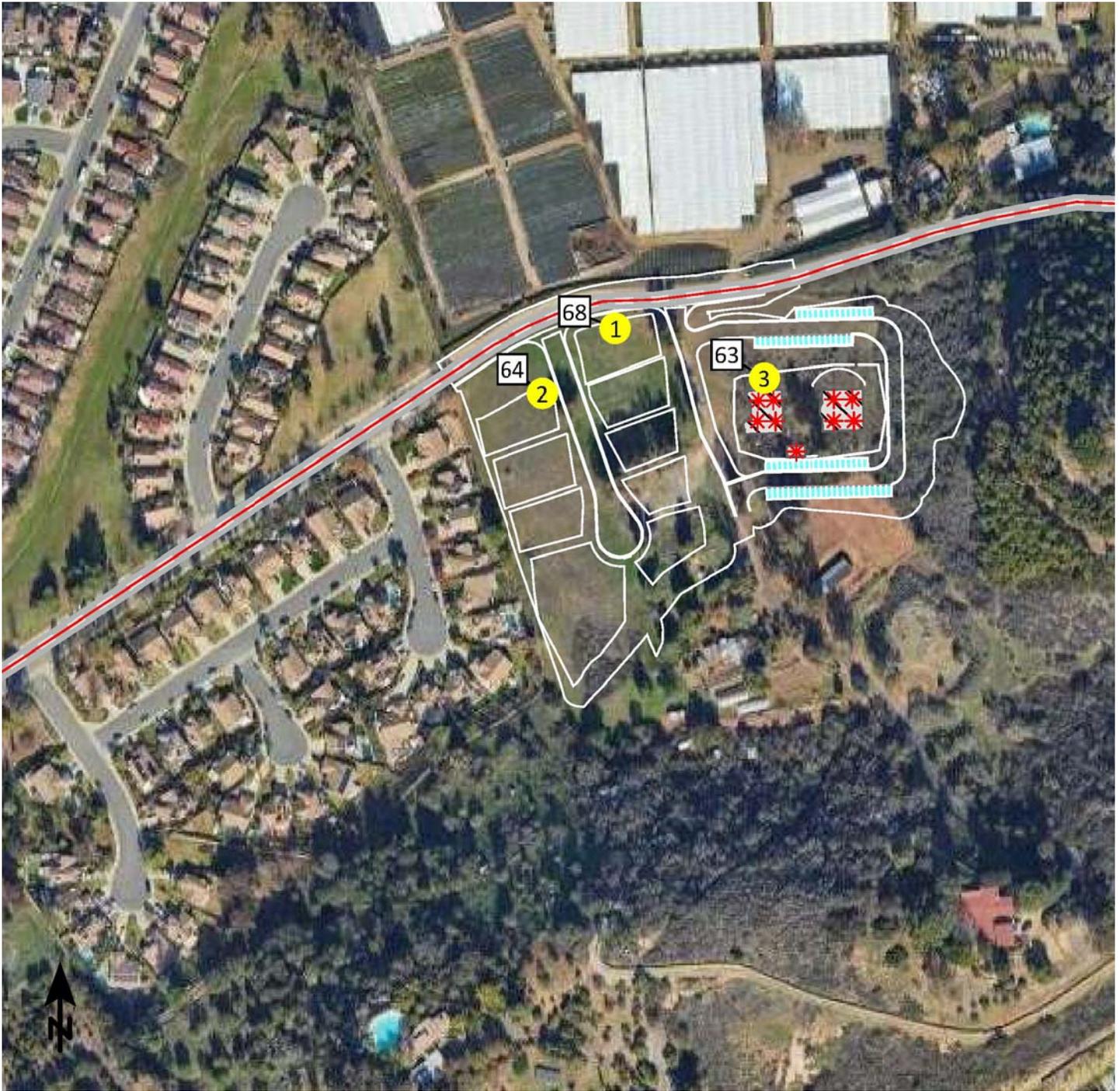
(1) See Figure 5 for noise measurement locations and Figure 8 for Modeled Operational Noise Levels. Each noise measurement was performed over a 15-minute duration.

Table 12
Construction Vibration Levels at the Nearest Receptors

Receptor Location	Distance from Property Line to Nearest Structure (feet)	Equipment	Vibration Level ¹	Threshold Exceeded? ²	Vibration Level with BMPs?	Threshold Exceeded?
<i>Architectural Damage Analysis in (PPV)</i>						
Residential to West (2292 Creek Hollow Place, Escondido)	21	Vibratory Roller	0.273	Yes	0.198	No
	21	Large Bulldozer	0.116	No	-	-
Residential to Northwest (2332 Briarwood Place, Escondido)	249	Vibratory Roller	0.007	No	-	-
	249	Large Bulldozer	0.003	No	-	-
Commercial to North (1501 Rincon Avenue, Escondido)	80	Vibratory Roller	0.037	No	-	-
	80	Large Bulldozer	0.016	No	-	-
Residential to Northeast (1448 Rincon Avenue, Escondido)	70	Vibratory Roller	0.045	No	-	-
	70	Large Bulldozer	0.019	No	-	-
Residential to South (Krishna Farm, 1365 Rincon Avenue, Escondido, located within southern portion of project site)	75	Vibratory Roller	0.040	No	-	-
	75	Large Bulldozer	0.017	No	-	-
<i>Annoyance Analysis (in dVB)</i>						
Residential to West (2292 Creek Hollow Place, Escondido)	21	Vibratory Roller	96	Yes	-	-
	21	Large Bulldozer	89	Yes	-	-
Residential to Northwest (2332 Briarwood Place, Escondido)	249	Vibratory Roller	64	No	-	-
	249	Large Bulldozer	57	No	-	-
Residential to Northeast (1448 Rincon Avenue, Escondido)	70	Vibratory Roller	81	Yes	-	-
	70	Large Bulldozer	74	Yes	-	-
Residential to South (Krishna Farm, 1365 Rincon Avenue, Escondido, located within southern portion of project site)	75	Vibratory Roller	80	Yes	-	-
	75	Large Bulldozer	73	Yes	-	-

Notes:

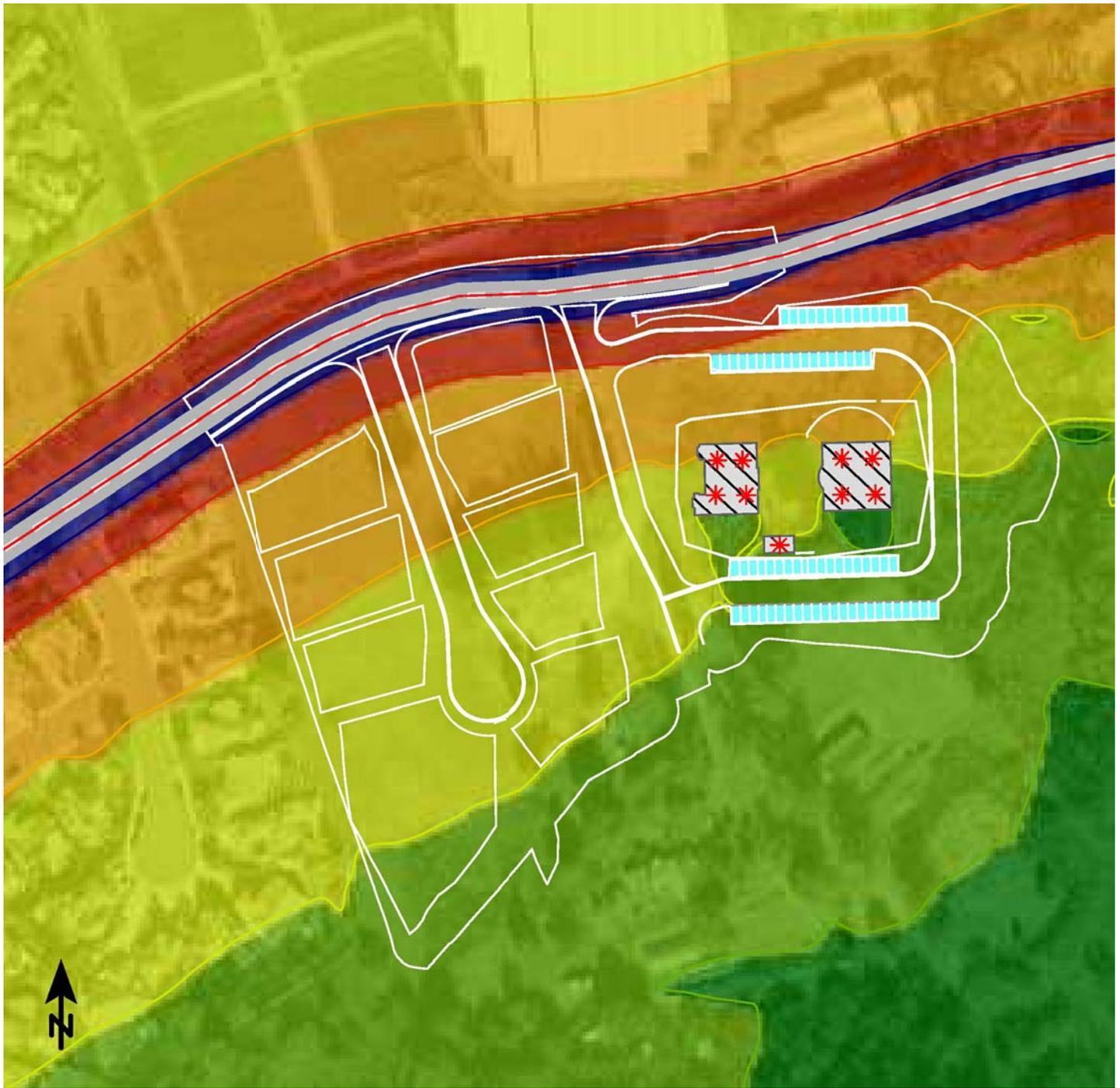
- (1) Vibration levels are provided in PPV in/sec for architectural damage and VdB for annoyance.
- (2) The FTA identifies the threshold at which there is a risk to “architectural” damage to non-engineered timber and masonry buildings as a PPV of 0.2 in/sec (see Table 2). In addition, the FTA identifies a vibration annoyance threshold of 72 VdB for residential uses (see Table 3). Per the FTA Transit Noise and Vibration Impact Assessment Manual (September 2018), commercial uses are not considered vibration-sensitive land uses; therefore, the annoyance threshold does not apply to commercial uses.
- (3) Needed Best Management Practices (BMPs) for architectural damage would include prohibiting the use of vibratory rollers, or other similar vibratory equipment, within 26 feet of residential structures to the west of the project site.



Signs and symbols

- Proposed Project
- ▨ Proposed Temple Buildings
- Receiver
- ▬ Road
- * Point source (Rooftop HVAC)
- ▭ Parking lot

Figure 6
Future Traffic Noise Levels



Signs and symbols

- Proposed Project
- ▨ Proposed Temple Buildings
- Road
- * Point source (Rooftop HVAC)
- ▨ Parking lot

Levels in dB(A) CNEL

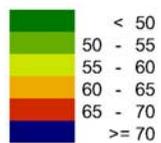


Figure 7
Future Traffic Noise Contours



Signs and symbols

-  Proposed Project
-  Proposed Temple Buildings
-  Receiver
-  Point source (Rooftop HVAC)
-  Parking lot

Figure 8
Operational Noise Levels



Signs and symbols

- Proposed Project
- ▧ Proposed Temple Buildings
- * Point source (Rooftop HVAC)
- Parking lot

Levels in dB(A)

	< 30
	30 - 35
	35 - 40
	40 - 45
	45 - 50
	>= 50

Figure 9
Operational Noise Level Contours

7. REFERENCES

California Department of Transportation

2002 Transportation Related Earthborne Vibrations (California Department of Transportation Experiences), Technical Advisory, Vibration TAV-02-01-R9601. February 20.

2020 Transportation and Construction Vibration Guidance Manual. April.

Environmental Protection Agency

1974 "Information on Levels of Environmental Noise Requisite to Protect Public Health And Welfare with an Adequate Margin of Safety," EPA/ONAC 550/9-74-004, March 1974.

Federal Transit Administration

2006 Transit Noise and Vibration Impact Assessment. Typical Construction Equipment Vibration Emissions. FTAVA-90-1003-06.

2018 Transit Noise and Vibration Impact Assessment Manual. Typical Construction Equipment Vibration Emissions.

Harris, Cyril M.

1991 Handbook of Acoustical Measurement and Noise Control. Acoustical Society of America. Woodbury, N.Y.

Escondido, City of

2012 General Plan. May.

2022 Municipal Code. June.

LOS Engineering, Inc.

2023 ISKCON Escondido Traffic Scoping Agreement. September 20.

Office of Planning and Research

2017 State of California General Plan Guidelines

Riverside, County of

2001 General Plan, Chapter 4, Figure C-3 "Link Volume Capacities/Level of Service for Riverside County Roadways".

2009 County of Riverside Industrial Hygiene Guidelines for Determining and Mitigating Traffic Noise Impacts to Residential Structures and County.

Stautins, Carl

2014 Warehouse & Forklift Noise Exposure - NoiseTesting.info Carl Stautins, November 4. <http://www.noisetesting.info/blog/carl-stautins/page-3/>

U.S. Department of Transportation

2006 FHWA Roadway Construction Noise Model User's Guide. January.

APPENDICES

- Appendix A List of Acronyms
- Appendix B Glossary
- Appendix C Noise Measurement Field Worksheets
- Appendix D Construction Noise Model Worksheets
- Appendix E SoundPLAN Worksheets
- Appendix F FHWA Traffic Noise Model Worksheets
- Appendix G Groundborne Vibration Worksheets

APPENDIX A
LIST OF ACRONYMS

Term	Definition
ADT	Average Daily Traffic
ANSI	American National Standard Institute
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
D/E/N	Day / Evening / Night
dB	Decibel
dBA or dB(A)	Decibel "A-Weighted"
dBA/DD	Decibel per Double Distance
dBA Leq	Average Noise Level over a Period of Time
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
L ₀₂ ,L ₀₈ ,L ₅₀ ,L ₉₀	A-weighted Noise Levels at 2 percent, 8 percent, 50 percent, and 90 percent, respectively, of the time period
DNL	Day-Night Average Noise Level
Leq(x)	Equivalent Noise Level for "x" period of time
Leq	Equivalent Noise Level
L _{max}	Maximum Level of Noise (measured using a sound level meter)
L _{min}	Minimum Level of Noise (measured using a sound level meter)
LOS C	Level of Service C
OPR	California Governor's Office of Planning and Research
PPV	Peak Particle Velocities
RCNM	Road Construction Noise Model
REMEL	Reference Energy Mean Emission Level
RMS	Root Mean Square

APPENDIX B

GLOSSARY

Term	Definition
Ambient Noise Level	The all-encompassing noise environment associated with a given environment, at a specified time, usually a composite of sound from many sources, at many directions, near and far, in which usually no particular sound is dominant.
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear.
CNEL	Community Noise Equivalent Level. CNEL is a weighted 24-hour noise level that is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours.
Decibel, dB	A logarithmic unit of noise level measurement that relates the energy of a noise source to that of a constant reference level; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
DNL, Ldn	Day Night Level. The DNL, or Ldn is a weighted 24-hour noise level that is obtained by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the nighttime hours.
Equivalent Continuous Noise Level, L_{eq}	A level of steady state sound that in a stated time period, and a stated location, has the same A-weighted sound energy as the time-varying sound.
Fast/Slow Meter Response	The fast and slow meter responses are different settings on a sound level meter. The fast response setting takes a measurement every 100 milliseconds, while a slow setting takes one every second.
Frequency, Hertz	In a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., the number of cycles per second).
L_{02} , L_{08} , L_{50} , L_{90}	The A-weighted noise levels that are equaled or exceeded by a fluctuating sound level, 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period, respectively.
L_{max} , L_{min}	L_{max} is the RMS (root mean squared) maximum level of a noise source or environment measured on a sound level meter, during a designated time interval, using fast meter response. L_{min} is the minimum level.
Offensive/ Offending/Intrusive Noise	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of sound depends on its amplitude, duration, frequency, and time of occurrence, and tonal information content as well as the prevailing ambient noise level.
Root Mean Square (RMS)	A measure of the magnitude of a varying noise source quantity. The name derives from the calculation of the square root of the mean of the squares of the values. It can be calculated from either a series of lone values or a continuous varying function.

APPENDIX C

NOISE MEASUREMENT FIELD WORKSHEETS

**Noise Measurement
Field Data**

Project Name: ISKCON of Escondido, City of Escondido **Date:** September 14, 2023
Project #: 19648
Noise Measurement #: NM1 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher
Nearest Address or Cross Street: 2276 Creek Hollow Pl, Escondido, CA 92026

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just west of frontyard to residence 2276 Creek Hollow Pl.
Adjacent: Rincon Ave (running NE-SW0 ~240' NW of NM1. Residential neighborhood surrounding site, with project site just past neighborhood to east with farmland & plant nursery (~200' E).

Weather: Clear skies, sunshine. Sunset 6:59 PM **Settings:** SLOW FAST
Temperature: 70 deg F **Wind:** 8 mph **Humidity:** 64% **Terrain:** Flat
Start Time: 12:31 PM **End Time:** 12:46 PM **Run Time:** _____
Leq: 51.2 dB **Primary Noise Source:** Residential ambiance, gardening power tools in operation within neighborhood,
Lmax 63.3 dB lawn mowers, weed wackers, leaf blowers, other power tools.
L2 58.6 dB **Secondary Noise Sources:** Leaf rustle from 8mph breeze through trees. Bird song. Distant dogs barking.
L8 55.7 dB Some overhad air traffic, choppers & propeller planes.
L25 51.8 dB
L50 48.5 dB

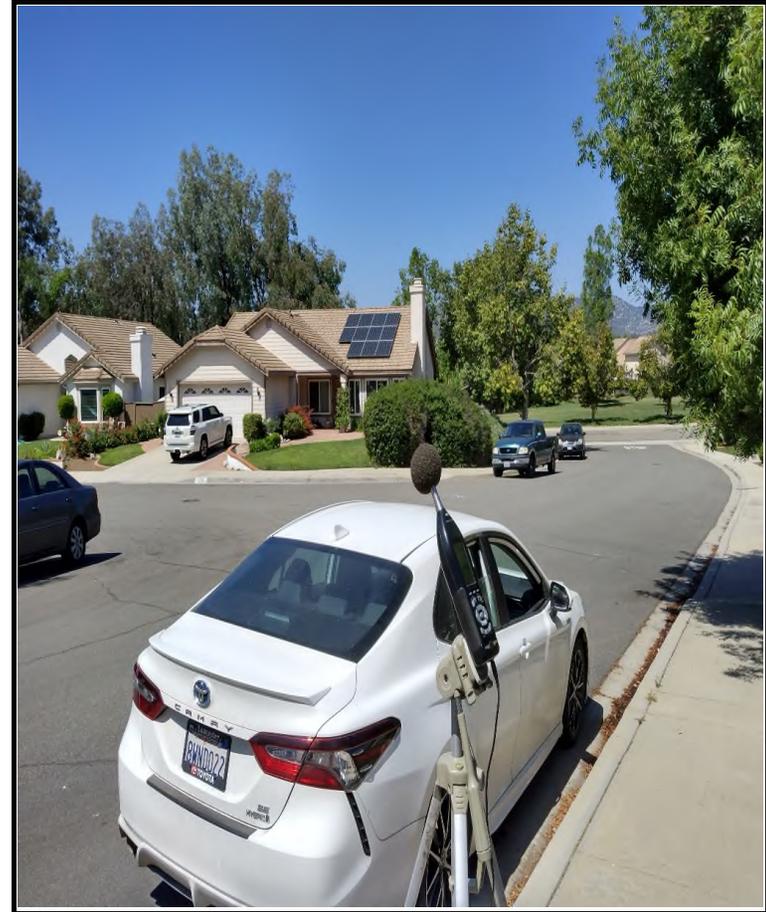
NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 250
MAKE: Larson Davis **MAKE:** Larson Davis
MODEL: LXT1 **MODEL:** CA 250
SERIAL NUMBER: 3099 **SERIAL NUMBER:** 2723
FACTORY CALIBRATION DATE: 11/17/2021 **FACTORY CALIBRATION DATE:** 11/18/2021
FIELD CALIBRATION DATE: 9/14/2023

Noise Measurement
Field Data

PHOTOS:



NM1 looking ENW across frontyard to residence 2276 Creek Hollow Pl, Escondido.



NM1 looking NW towards Creek Hollow Pl & Rocky Point Way intersection.

Summary

File Name on Meter	LxT_Data.328.s
File Name on PC	LxT_0003099-20230914 123108-LxT_Data.328.lbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM1 33° 9'57.54"N 117° 4'48.82"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project # 19648 ISKCON of Escondido (City of Escondido)

Measurement

Start	2023-09-14 12:31:08
Stop	2023-09-14 12:46:08
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-09-14 12:30:13
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	122.9 dB

Results

LAeq	51.2
LAE	80.7
EA	13.16946 µPa²h
EA8	421.4226 µPa²h
EA40	2.107113 mPa²h
LApeak (max)	2023-09-14 12:34:39 86.6 dB
LASmax	2023-09-14 12:32:33 63.3 dB
LASmin	2023-09-14 12:31:08 38.3 dB

Statistics

LCeq	61.3 dB	LA2.00	58.6 dB
LAeq	51.2 dB	LA8.00	55.7 dB
LCeq - LAeq	10.1 dB	LA25.00	51.8 dB
LALeq	54.9 dB	LA50.00	48.5 dB
LAeq	51.2 dB	LA66.60	45.4 dB
LALeq - LAeq	3.7 dB	LA90.00	40.7 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.328.s	Computer's File Name	LxT_0003099-20230914 123108-LxT_Data.328.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM1 33° 9'57.54"N 117° 4'48.82"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project # 19648 ISKCON of Escondido (City of Escondido)		
Start Time	2023-09-14 12:31:08	Duration	0:15:00.0
End Time	2023-09-14 12:46:08	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

L _{Aeq}	51.2 dB		
L _{AE}	80.7 dB	SEA	--- dB
EA	13.2 µPa²h	LAFTM5	56.5 dB
EA8	421.4 µPa²h		
EA40	2.1 mPa²h		
L _{Apeak}	86.6 dB	2023-09-14 12:34:39	
L _{ASmax}	63.3 dB	2023-09-14 12:32:33	
L _{ASmin}	38.3 dB	2023-09-14 12:31:08	
L _{Aeq}	51.2 dB		
L _{Ceq}	61.3 dB	L _{Ceq} - L _{Aeq}	10.1 dB
L _{AIeq}	54.9 dB	L _{AIeq} - L _{Aeq}	3.7 dB

Exceedances

	Count	Duration
L _{AS} > 65.0 dB	0	0:00:00.0
L _{AS} > 85.0 dB	0	0:00:00.0
L _{Apeak} > 135.0 dB	0	0:00:00.0
L _{Apeak} > 137.0 dB	0	0:00:00.0
L _{Apeak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
--- dB	--- dB	0.0 dB	
LDEN	LDay	LEve	LNight
--- dB	--- dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	51.2 dB		61.3 dB		--- dB	
L _{S(max)}	63.3 dB	2023-09-14 12:32:33	--- dB		--- dB	
L _{S(min)}	38.3 dB	2023-09-14 12:31:08	--- dB		--- dB	
L _{Peak(max)}	86.6 dB	2023-09-14 12:34:39	--- dB		--- dB	

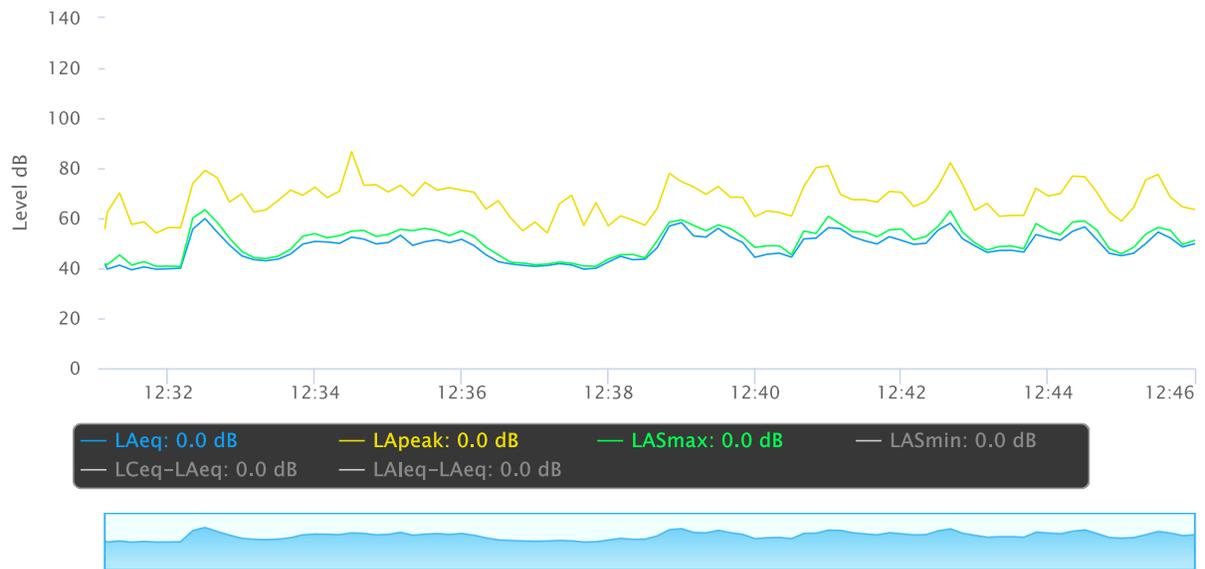
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

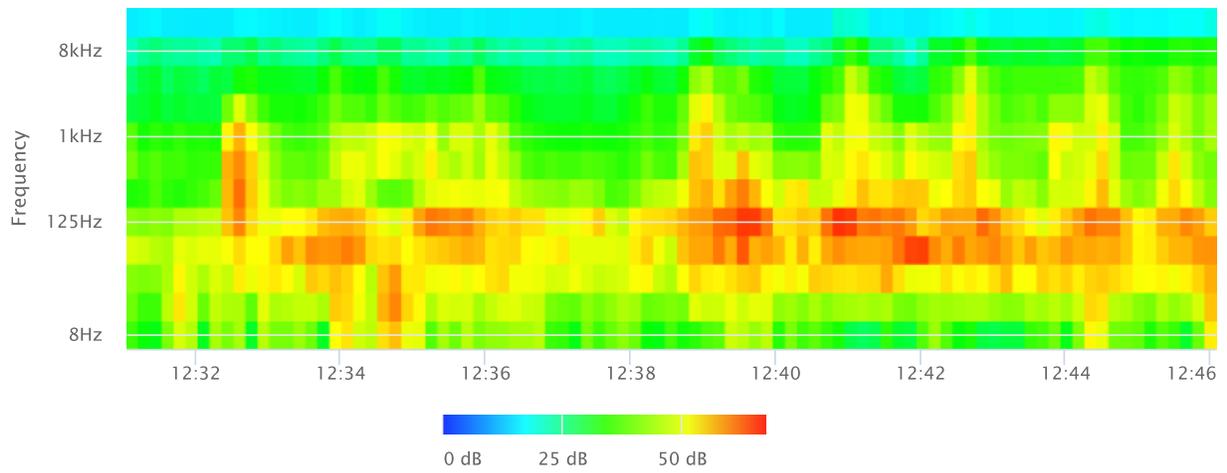
Statistics

L _{AS} 2.0	58.6 dB
L _{AS} 8.0	55.7 dB
L _{AS} 25.0	51.8 dB
L _{AS} 50.0	48.5 dB
L _{AS} 66.6	45.4 dB
L _{AS} 90.0	40.7 dB

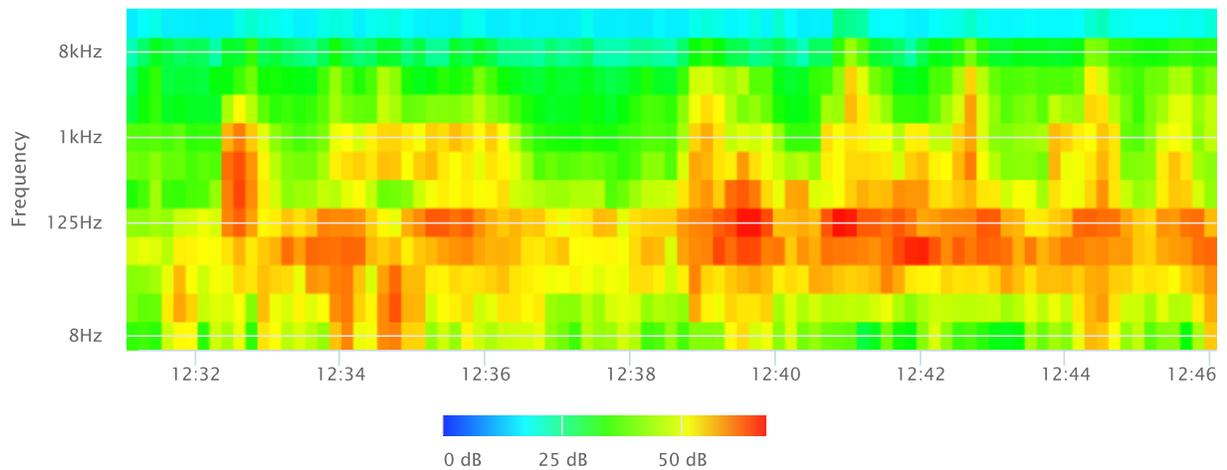
Time History



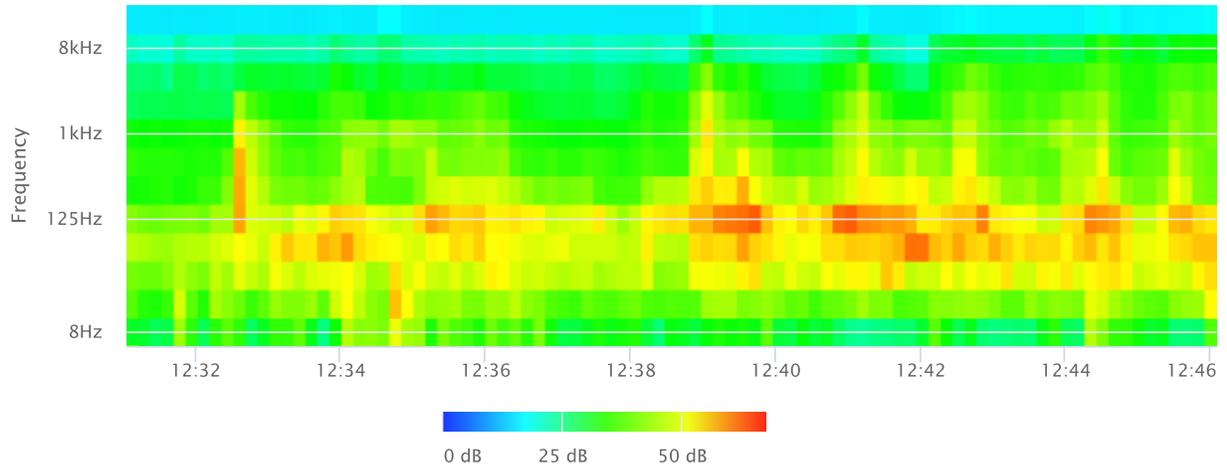
OBA 1/1 Leq



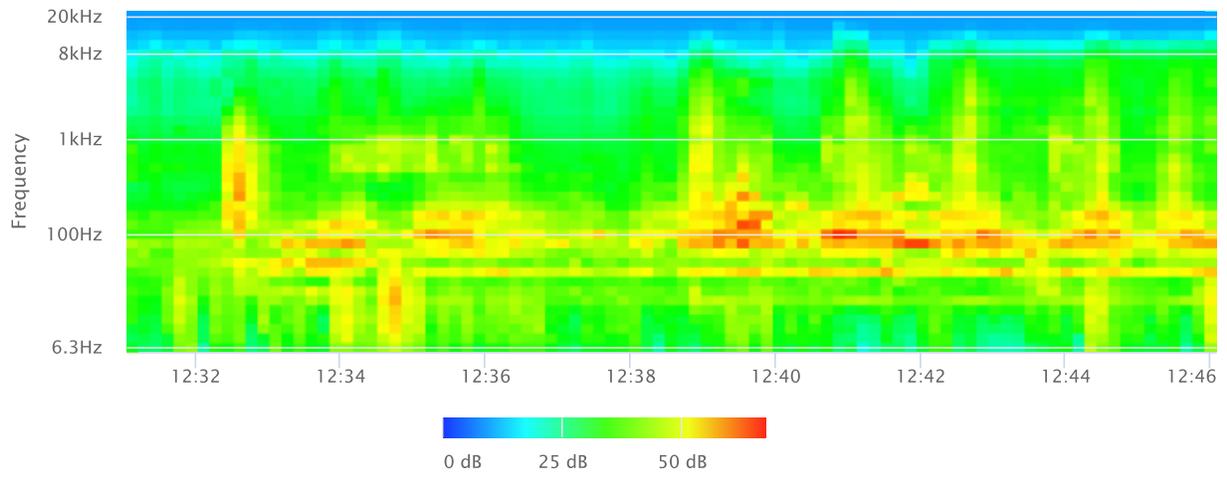
OBA 1/1 Lmax



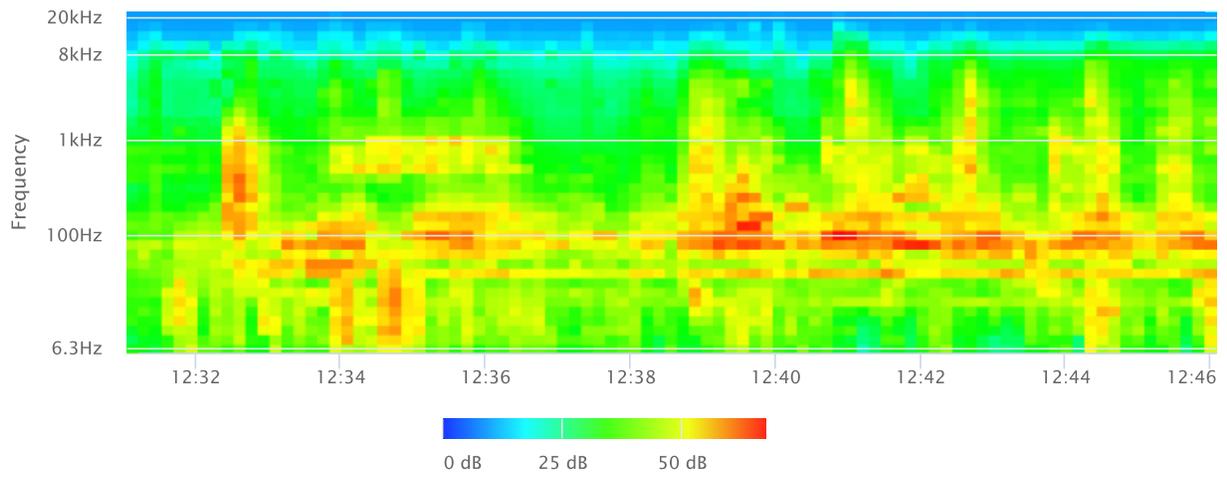
OBA 1/1 Lmin



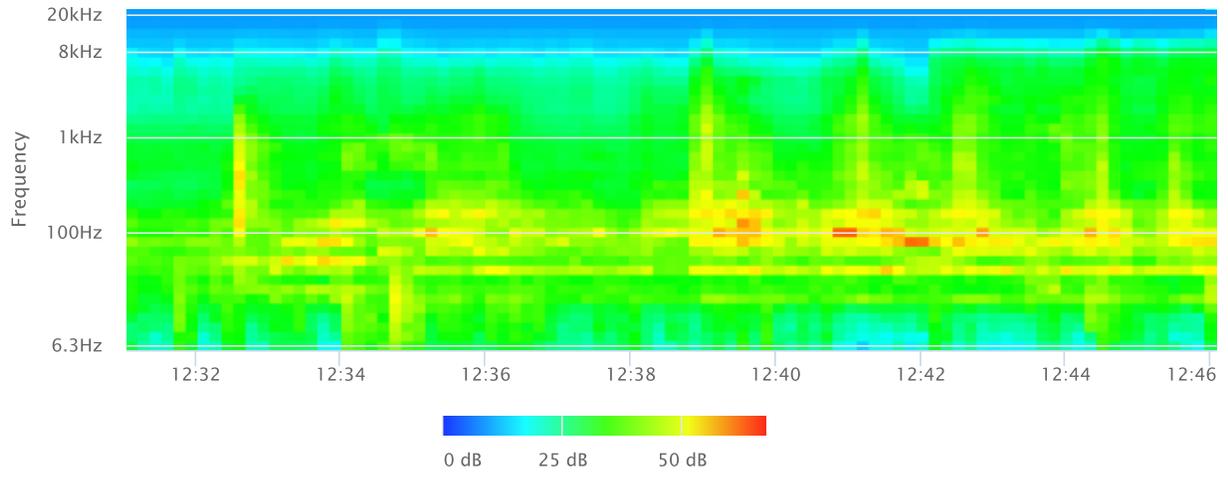
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: ISKCON of Escondido, City of Escondido **Date:** September 14, 2023

Project #: 19648

Noise Measurement #: NM2 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 2336 Briarwood Pl, Escondido, CA 92026

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just west of frontyard to residence 2336 Briarwood Pl.

Adjacent: Rincon Ave (running NE-SW) ~300' SW of NM2. Residential neighborhood surrounding.

Weather: Clear skies, sunshine. Sunset 6:59 PM **Settings:** SLOW FAST

Temperature: 70 deg F **Wind:** 8 mph **Humidity:** 64% **Terrain:** Flat

Start Time: 1:01 PM **End Time:** 1:16 PM **Run Time:** _____

Leq: 49.5 dB **Primary Noise Source:** Residential ambiance, gardening power tools in operation within neighborhood,

Lmax 61.7 dB lawn mowers, weed wackers, leaf blowers, other power tools.

L2 57.7 dB **Secondary Noise Sources:** Leaf rustle from 8mph breeze. Bird song. Distant dogs barking. Some overhead

L8 54.5 dB air traffic, choppers& propeller planes. 2 vehicles passed NM2 during measurement.

L25 48.1 dB

L50 45.9 dB

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 250

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 250

SERIAL NUMBER: 3099 **SERIAL NUMBER:** 2723

FACTORY CALIBRATION DATE: 11/17/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

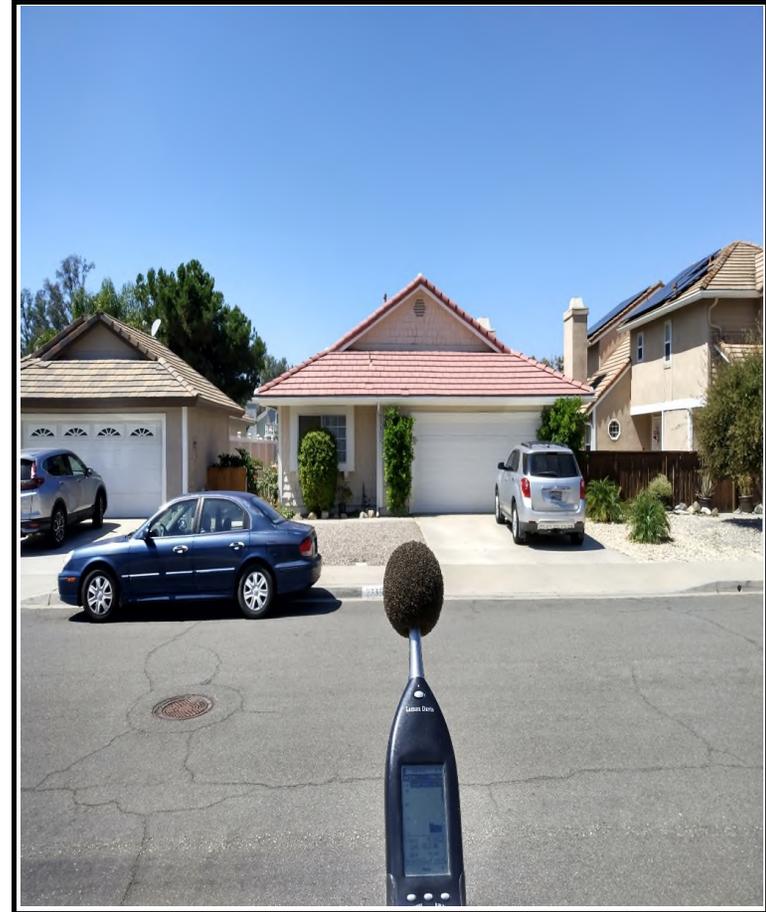
FIELD CALIBRATION DATE: 9/14/2023

Noise Measurement
Field Data

PHOTOS:



NM2 looking ENE across frontyard of residence 2336 Briarwood Pl, Escondido.



NM2 looking WNW across Briarwood Pl towards residence 2335 Briarwood Pl, Escondido.

Summary

File Name on Meter	LxT_Data.329.s
File Name on PC	LxT_0003099-20230914 130133-LxT_Data.329.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM2 33°10'1.94"N 117° 4'52.12"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project # 19648 ISKCON of Escondido (City of Escondido)

Measurement

Start	2023-09-14 13:01:33
Stop	2023-09-14 13:16:33
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-09-14 13:01:04
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	123.0 dB

Results

LAeq	49.5
LAE	79.0
EA	8.821952 $\mu\text{Pa}^2\text{h}$
EA8	282.3025 $\mu\text{Pa}^2\text{h}$
EA40	1.411512 mPa^2h
LApeak (max)	2023-09-14 13:13:02 82.6 dB
LASmax	2023-09-14 13:03:30 61.7 dB
LASmin	2023-09-14 13:04:05 36.0 dB

Statistics

LCeq	61.1 dB	LA2.00	57.7 dB
LAeq	49.5 dB	LA8.00	54.5 dB
LCeq - LAeq	11.6 dB	LA25.00	48.1 dB
LALeq	54.1 dB	LA50.00	45.9 dB
LAeq	49.5 dB	LA66.60	44.3 dB
LALeq - LAeq	4.7 dB	LA90.00	40.5 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.329.s	Computer's File Name	LxT_0003099-20230914 130133-LxT_Data.329.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM2 33°10'1.94"N 117° 4'52.12"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project # 19648 ISKCON of Escondido (City of Escondido)		
Start Time	2023-09-14 13:01:33	Duration	0:15:00.0
End Time	2023-09-14 13:16:33	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	49.5 dB		
LAE	79.0 dB	SEA	--- dB
EA	8.8 µPa²h	LAFTM5	55.5 dB
EA8	282.3 µPa²h		
EA40	1.4 mPa²h		
LA _{peak}	82.6 dB	2023-09-14 13:13:02	
LAS _{max}	61.7 dB	2023-09-14 13:03:30	
LAS _{min}	36.0 dB	2023-09-14 13:04:05	
LA _{eq}	49.5 dB		
LC _{eq}	61.1 dB	LC _{eq} - LA _{eq}	11.6 dB
LAI _{eq}	54.1 dB	LAI _{eq} - LA _{eq}	4.7 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	0	0:00:00.0
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
--- dB	--- dB	0.0 dB	
LDEN	LDay	LEve	LNight
--- dB	--- dB	--- dB	--- dB

Any Data

	Level	A Time Stamp	Level	C Time Stamp	Level	Z Time Stamp
L _{eq}	49.5 dB		61.1 dB		--- dB	
LS _(max)	61.7 dB	2023-09-14 13:03:30	--- dB		--- dB	
LS _(min)	36.0 dB	2023-09-14 13:04:05	--- dB		--- dB	
L _{Peak(max)}	82.6 dB	2023-09-14 13:13:02	--- dB		--- dB	

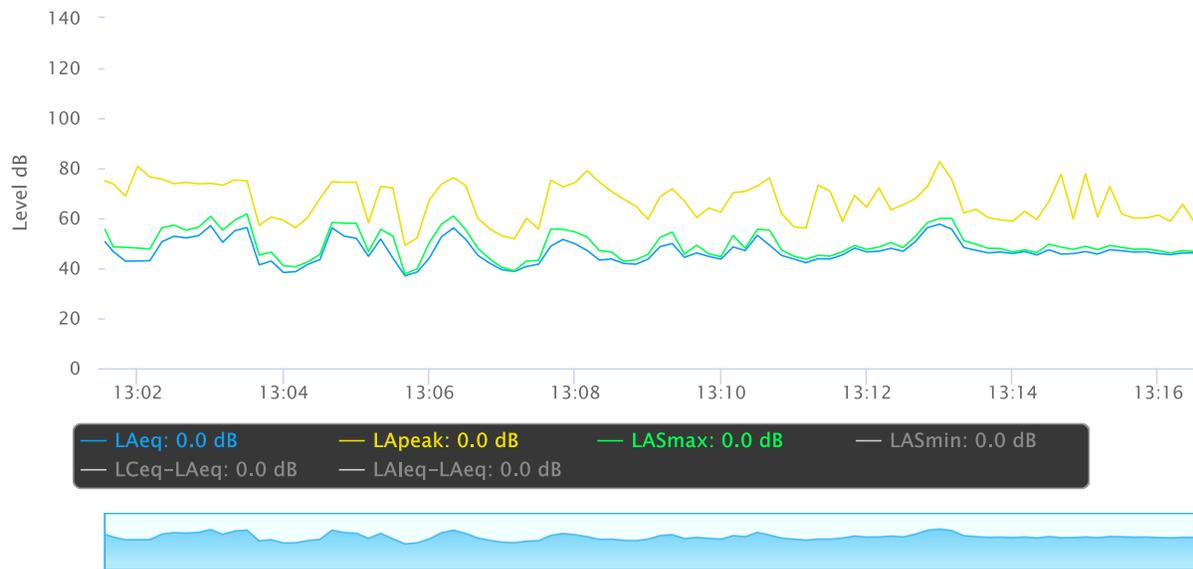
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

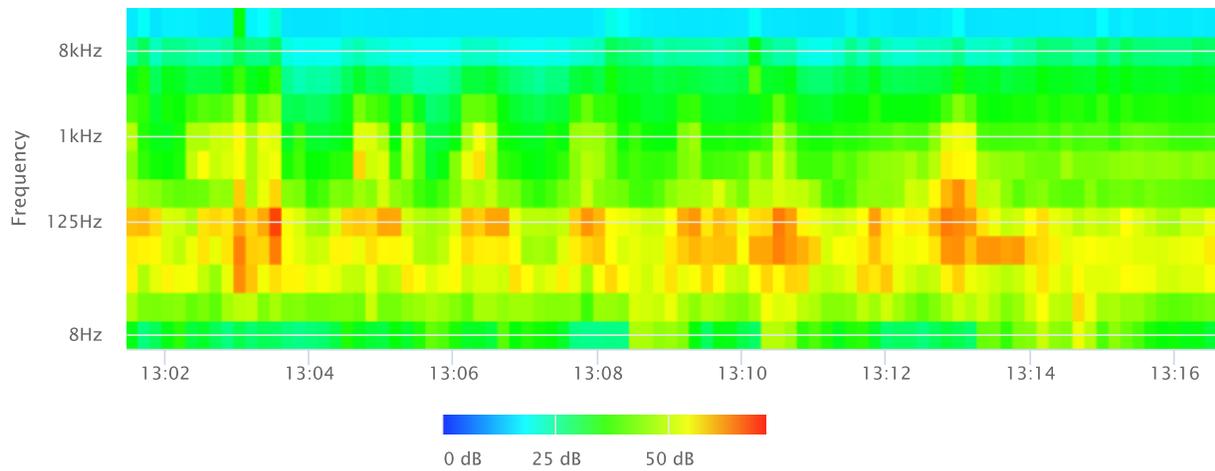
Statistics

LAS 2.0	57.7 dB
LAS 8.0	54.5 dB
LAS 25.0	48.1 dB
LAS 50.0	45.9 dB
LAS 66.6	44.3 dB
LAS 90.0	40.5 dB

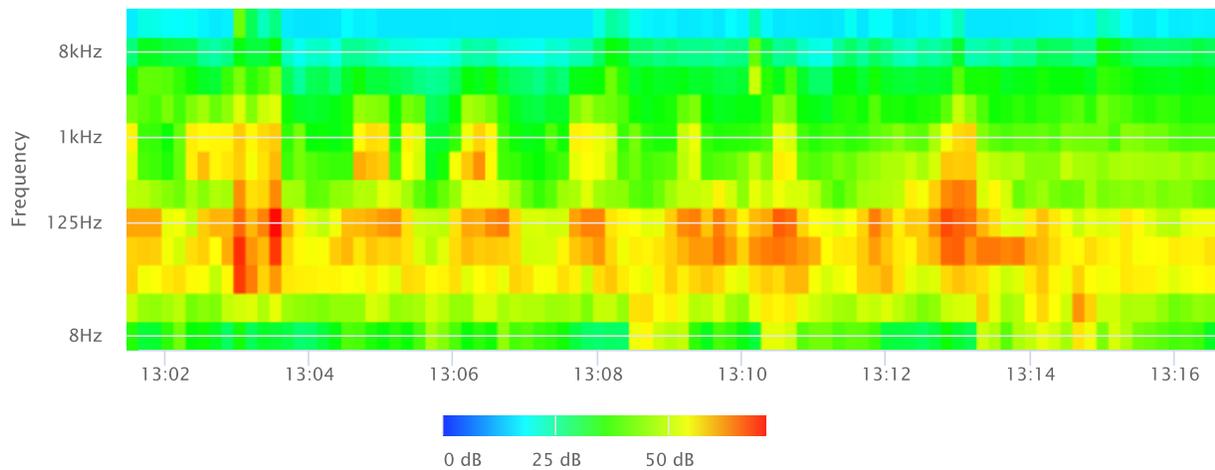
Time History



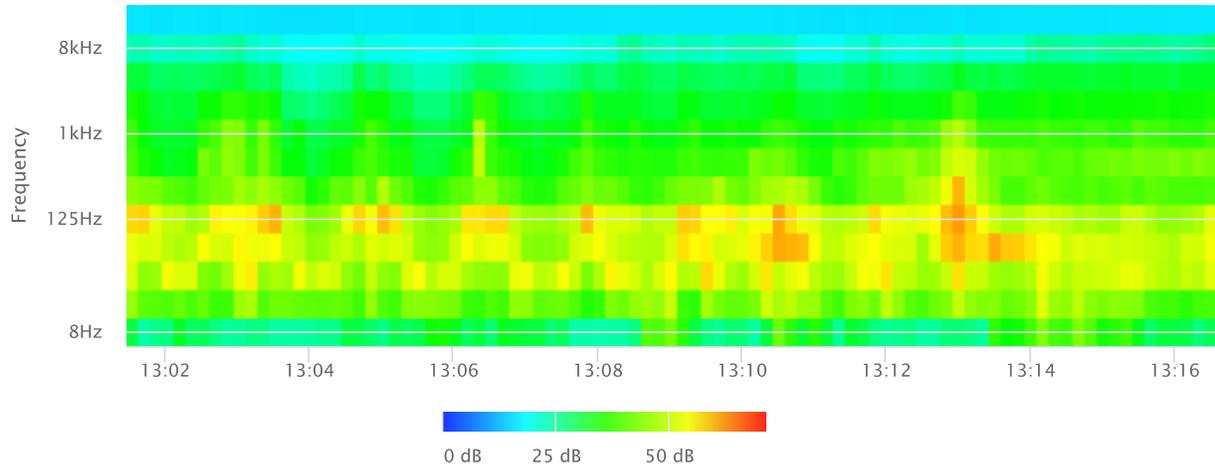
OBA 1/1 Leq



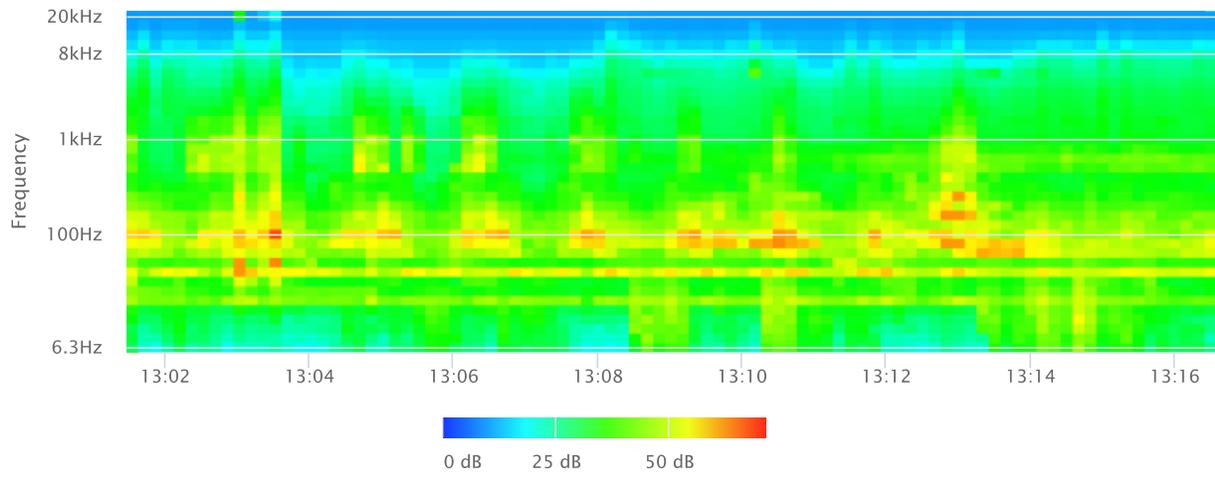
OBA 1/1 Lmax



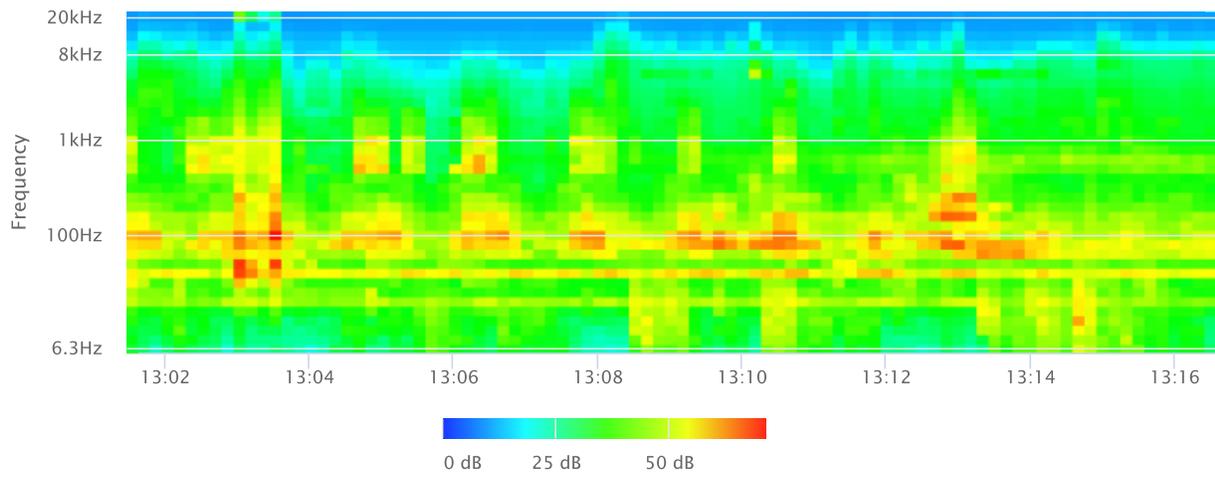
OBA 1/1 Lmin



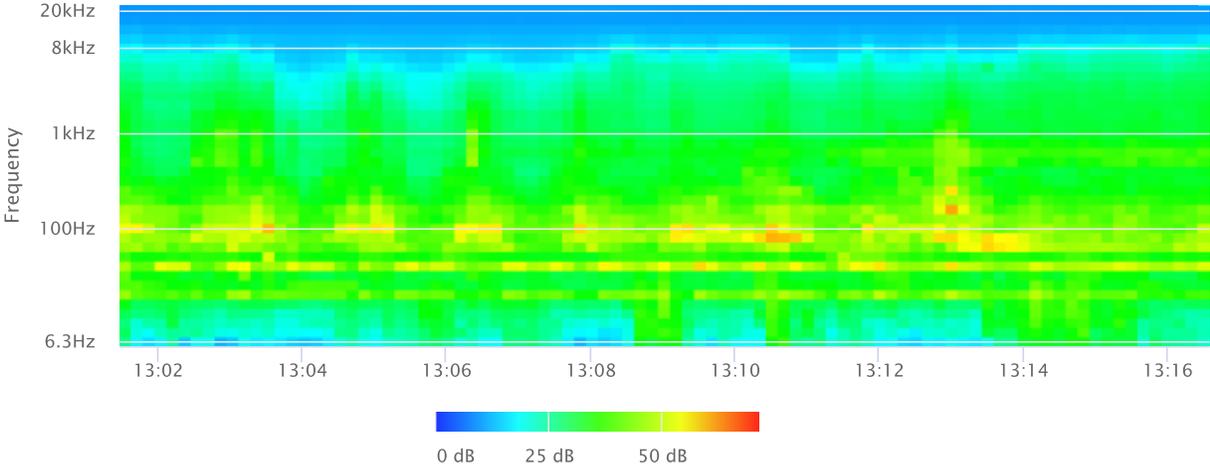
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: ISKCON of Escondido, City of Escondido **Date:** September 14, 2023

Project #: 19648

Noise Measurement #: NM3 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 1448 Rincon Avenue, Escondido, CA 92026

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just outside frontyard to residence 1448 Rincon Ave.

Adjacent: Rincon Ave (running E-W) just south of NM3. Residence to the N, steep wooded grade to the S, plant nursery to the NW.

Weather: Clear skies, sunshine. Sunset 6:59 PM **Settings:** SLOW FAST

Temperature: 70 deg F **Wind:** 8 mph **Humidity:** 64% **Terrain:** Flat

Start Time: 1:37 PM **End Time:** 1:52 PM **Run Time:** _____

Leq: 53.1 dB **Primary Noise Source:** Residential ambiance, gardening power tools in operation within neighborhood,

Lmax 73.7 dB lawn mowers, weed wackers, leaf blowers, other power tools.

L2 62.6 dB **Secondary Noise Sources:** Leaf rustle from 8mph breeze. Bird song. Distant dogs barking. Some overhead

L8 52.4 dB air traffic. 5 vehicles passed NM3 microphone during measurement.

L25 46.8 dB

L50 42.6 dB

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 250

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 250

SERIAL NUMBER: 3099 **SERIAL NUMBER:** 2723

FACTORY CALIBRATION DATE: 11/17/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

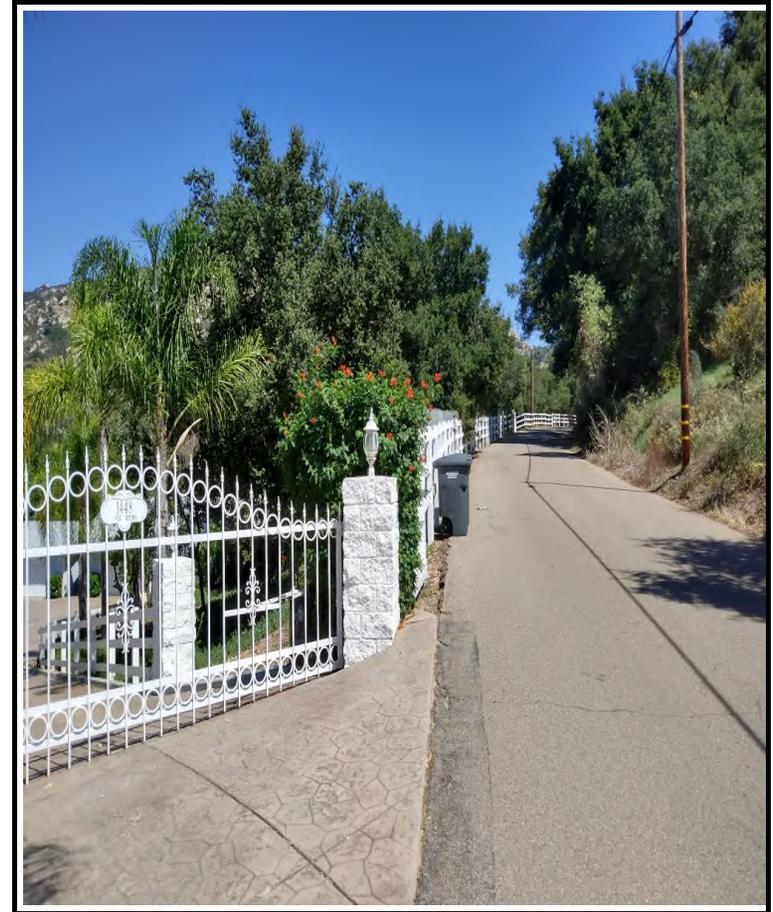
FIELD CALIBRATION DATE: 9/14/2023

Noise Measurement
Field Data

PHOTOS:



NM3 looking NW across driveway & frontyard to residence 1448 Rincon Ave, Escondido (driveway intersects Rincon Ave on the left).



NM3 looking E up Rincon Ave. Driveway to residence 1448 Rincon Ave on the left. NM3 microphone set up behind dark green, trash can in avenue straight ahead.

Summary

File Name on Meter	LxT_Data.330.s
File Name on PC	LxT_0003099-20230914 133713-LxT_Data.330.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM3 33°10'3.34"N 117° 4'38.37"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project # 19648 ISKCON of Escondido (City of Escondido)

Measurement

Start	2023-09-14 13:37:13
Stop	2023-09-14 13:52:13
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-09-14 13:36:46
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	123.0 dB

Results

LAeq	53.1
LAE	82.7
EA	20.54192 $\mu\text{Pa}^2\text{h}$
EA8	657.3416 $\mu\text{Pa}^2\text{h}$
EA40	3.286708 mPa^2h
LApeak (max)	2023-09-14 13:49:24 92.7 dB
LASmax	2023-09-14 13:41:51 73.7 dB
LASmin	2023-09-14 13:50:44 35.7 dB

Statistics

LCeq	61.3 dB	LA2.00	62.6 dB
LAeq	53.1 dB	LA8.00	52.4 dB
LCeq - LAeq	8.2 dB	LA25.00	46.8 dB
LAleq	55.8 dB	LA50.00	42.6 dB
LAeq	53.1 dB	LA66.60	40.9 dB
LAleq - LAeq	2.7 dB	LA90.00	38.8 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.330.s	Computer's File Name	LxT_0003099-20230914 133713-LxT_Data.330.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM3 33°10'3.34"N 117° 4'38.37"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project # 19648 ISKCON of Escondido (City of Escondido)		
Start Time	2023-09-14 13:37:13	Duration	0:15:00.0
End Time	2023-09-14 13:52:13	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	53.1 dB		
LAE	82.7 dB	SEA	--- dB
EA	20.5 µPa ² h	LAFTM5	59.1 dB
EA8	657.3 µPa ² h		
EA40	3.3 mPa ² h		
LA _{peak}	92.7 dB	2023-09-14 13:49:24	
LAS _{max}	73.7 dB	2023-09-14 13:41:51	
LAS _{min}	35.7 dB	2023-09-14 13:50:44	
LA _{eq}	53.1 dB		
LC _{eq}	61.3 dB	LC _{eq} - LA _{eq}	8.2 dB
LAI _{eq}	55.8 dB	LAI _{eq} - LA _{eq}	2.7 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	5	0:00:16.0
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
--- dB	--- dB	0.0 dB	
LDEN	LDay	LEve	LNight
--- dB	--- dB	--- dB	--- dB

Any Data

	Level	A Time Stamp	Level	C Time Stamp	Level	Z Time Stamp
L _{eq}	53.1 dB		61.3 dB		--- dB	
LS _(max)	73.7 dB	2023-09-14 13:41:51	--- dB		--- dB	
LS _(min)	35.7 dB	2023-09-14 13:50:44	--- dB		--- dB	
L _{Peak(max)}	92.7 dB	2023-09-14 13:49:24	--- dB		--- dB	

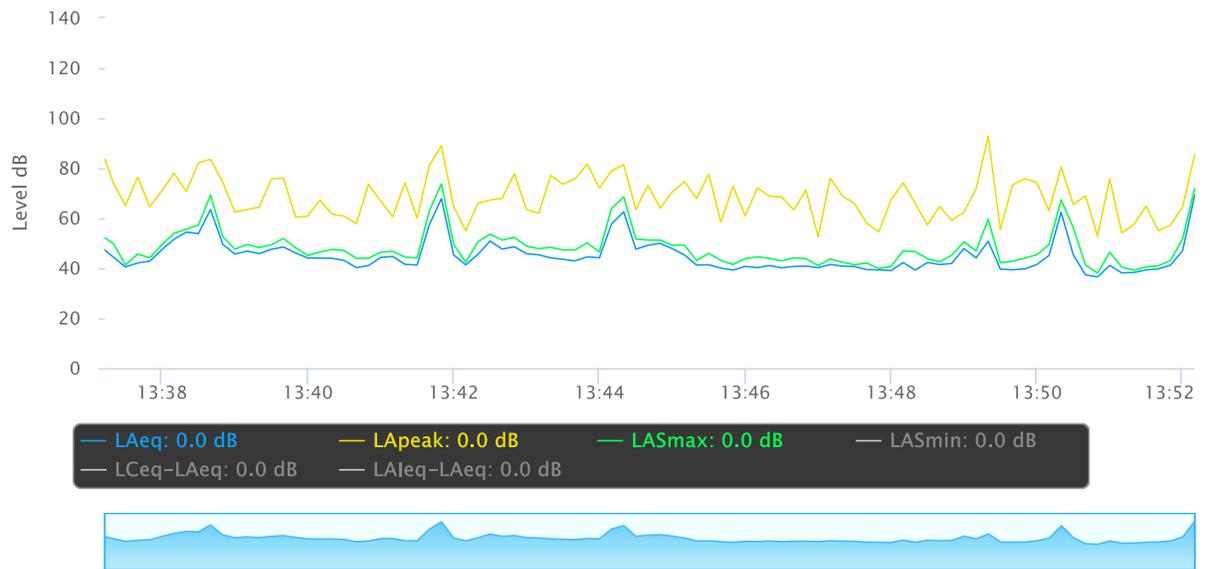
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

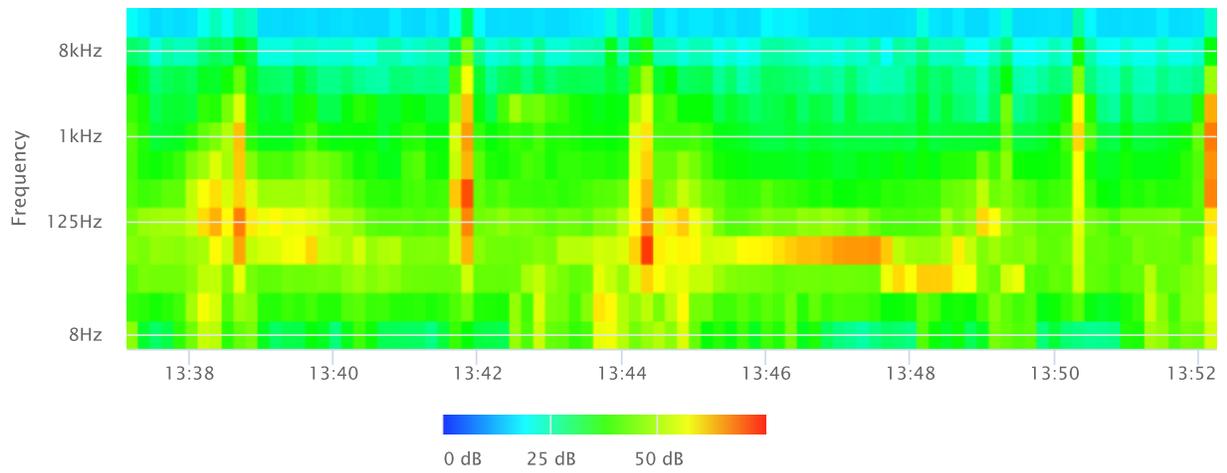
Statistics

LAS 2.0	62.6 dB
LAS 8.0	52.4 dB
LAS 25.0	46.8 dB
LAS 50.0	42.6 dB
LAS 66.6	40.9 dB
LAS 90.0	38.8 dB

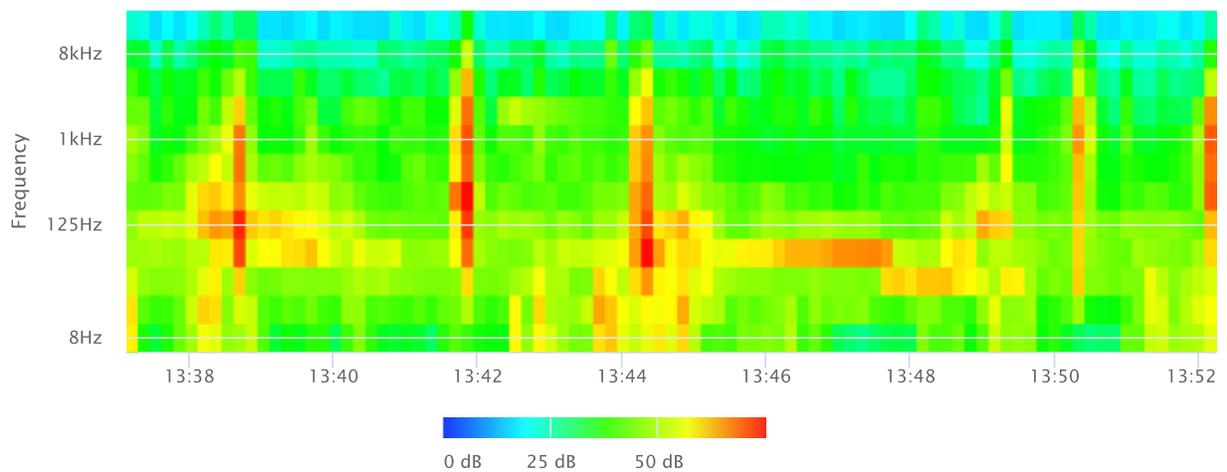
Time History



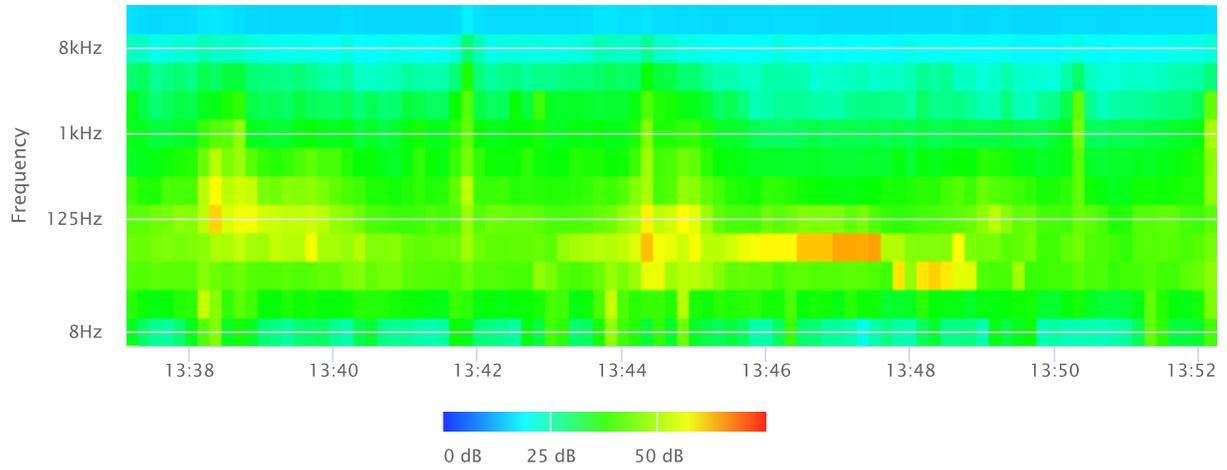
OBA 1/1 Leq



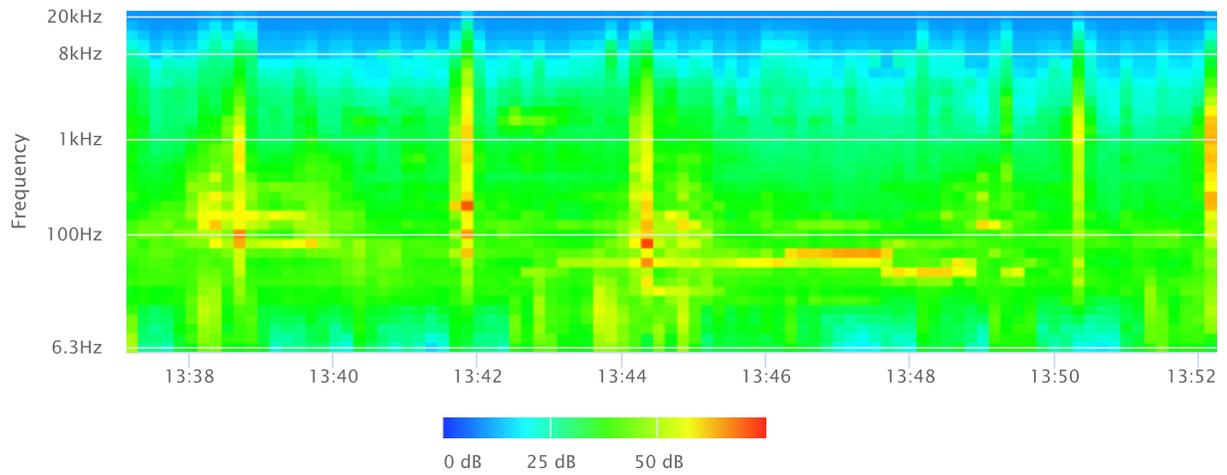
OBA 1/1 Lmax



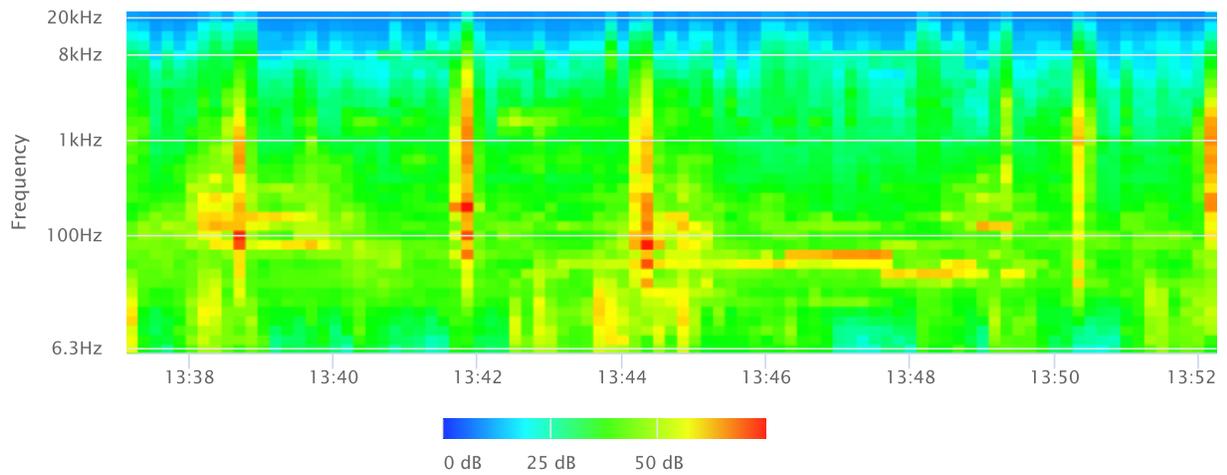
OBA 1/1 Lmin



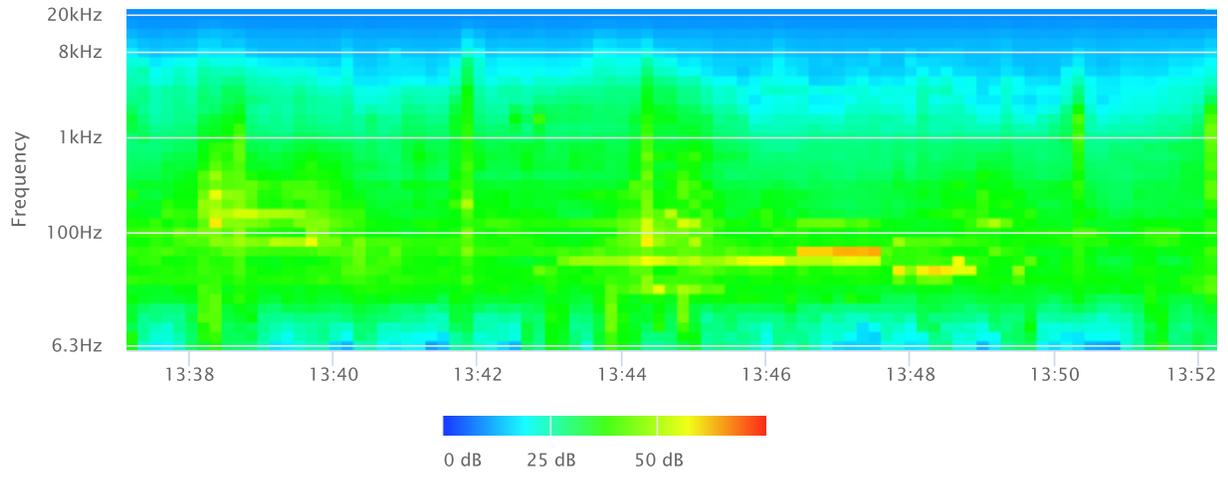
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: ISKCON of Escondido, City of Escondido **Date:** September 14, 2023
Project #: 19648
Noise Measurement #: NM4 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher
Nearest Address or Cross Street: 1643 Rincon Avenue, Escondido, CA 92026

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just S of driveway to residence 1653 Rincon Ave.
Adjacent: Access road to Rincon Ave (running N-S) to west with intersection to Rincon Ave (running E-W) ~650' N of NM4. Avocado trees with sparse residential uses throughout surrounding area.

Weather: Clear skies, sunshine. Sunset 6:59 PM **Settings:** SLOW FAST
Temperature: 70 deg F **Wind:** 8 mph **Humidity:** 64% **Terrain:** Flat
Start Time: 2:09 PM **End Time:** 2:24 PM **Run Time:** _____
Leq: 44.1 dB **Primary Noise Source:** Leaf rustle from 8mph breeze. Bird song. Distant dogs barking. Some overhead
Lmax 60.1 dB air traffic.
L2 50.7 dB **Secondary Noise Sources:** Distant 15 Freeway and other traffic ambiance.
L8 46.6 dB _____
L25 44.0 dB _____
L50 41.9 dB _____

NOISE METER: <u>SoundTrack LXT Class 1</u>	CALIBRATOR: <u>Larson Davis CA 250</u>
MAKE: <u>Larson Davis</u>	MAKE: <u>Larson Davis</u>
MODEL: <u>LXT1</u>	MODEL: <u>CA 250</u>
SERIAL NUMBER: <u>3099</u>	SERIAL NUMBER: <u>2723</u>
FACTORY CALIBRATION DATE: <u>11/17/2021</u>	FACTORY CALIBRATION DATE: <u>11/18/2021</u>
FIELD CALIBRATION DATE: <u>9/14/2023</u>	

Noise Measurement
Field Data

PHOTOS:



NM4 looking N down access road through fruit trees towards Rincon Avenue intersection (~650' N).



NM4 looking WSW across field towards residence 1415 Rincon Avenue, Escondido.

Summary

File Name on Meter	LxT_Data.331.s
File Name on PC	LxT_0003099-20230914 140917-LxT_Data.331.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM4 33° 9'55.27"N 117° 4'29.54"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project # 19648 ISKCON of Escondido (City of Escondido)

Measurement

Start	2023-09-14 14:09:17
Stop	2023-09-14 14:24:17
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-09-14 14:08:55
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	123.0 dB

Results

LAeq	44.1
LAE	73.7
EA	2.583064 $\mu\text{Pa}^2\text{h}$
EA8	82.65804 $\mu\text{Pa}^2\text{h}$
EA40	413.2902 $\mu\text{Pa}^2\text{h}$
LApeak (max)	2023-09-14 14:11:28 85.2 dB
LASmax	2023-09-14 14:20:02 60.1 dB
LASmin	2023-09-14 14:12:13 39.5 dB

Statistics

LCeq	62.3 dB	LA2.00	50.7 dB
LAeq	44.1 dB	LA8.00	46.6 dB
LCeq - LAeq	18.2 dB	LA25.00	44.0 dB
LALeq	49.6 dB	LA50.00	41.9 dB
LAeq	44.1 dB	LA66.60	41.2 dB
LALeq - LAeq	5.4 dB	LA90.00	40.3 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.331.s	Computer's File Name	LxT_0003099-20230914 140917-LxT_Data.331.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM4 33° 9'55.27"N 117° 4'29.54"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project # 19648 ISKCON of Escondido (City of Escondido)		
Start Time	2023-09-14 14:09:17	Duration	0:15:00.0
End Time	2023-09-14 14:24:17	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	44.1 dB		
LAE	73.7 dB	SEA	--- dB
EA	2.6 µPa²h	LAFTM5	50.6 dB
EA8	82.7 µPa²h		
EA40	413.3 µPa²h		
LA _{peak}	85.2 dB	2023-09-14 14:11:28	
LAS _{max}	60.1 dB	2023-09-14 14:20:02	
LAS _{min}	39.5 dB	2023-09-14 14:12:13	
LA _{eq}	44.1 dB		
LC _{eq}	62.3 dB	LC _{eq} - LA _{eq}	18.2 dB
LAI _{eq}	49.6 dB	LAI _{eq} - LA _{eq}	5.4 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	0	0:00:00.0
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
--- dB	--- dB	0.0 dB	
LDEN	LDay	LEve	LNight
--- dB	--- dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	44.1 dB		62.3 dB		--- dB	
LS _(max)	60.1 dB	2023-09-14 14:20:02	--- dB		--- dB	
LS _(min)	39.5 dB	2023-09-14 14:12:13	--- dB		--- dB	
L _{Peak(max)}	85.2 dB	2023-09-14 14:11:28	--- dB		--- dB	

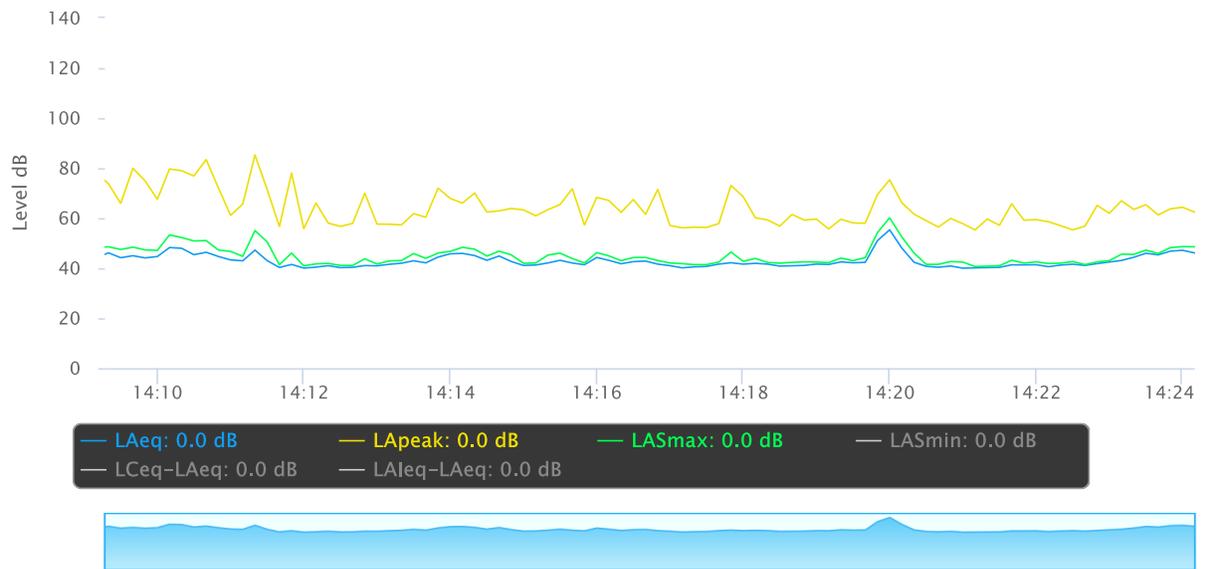
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

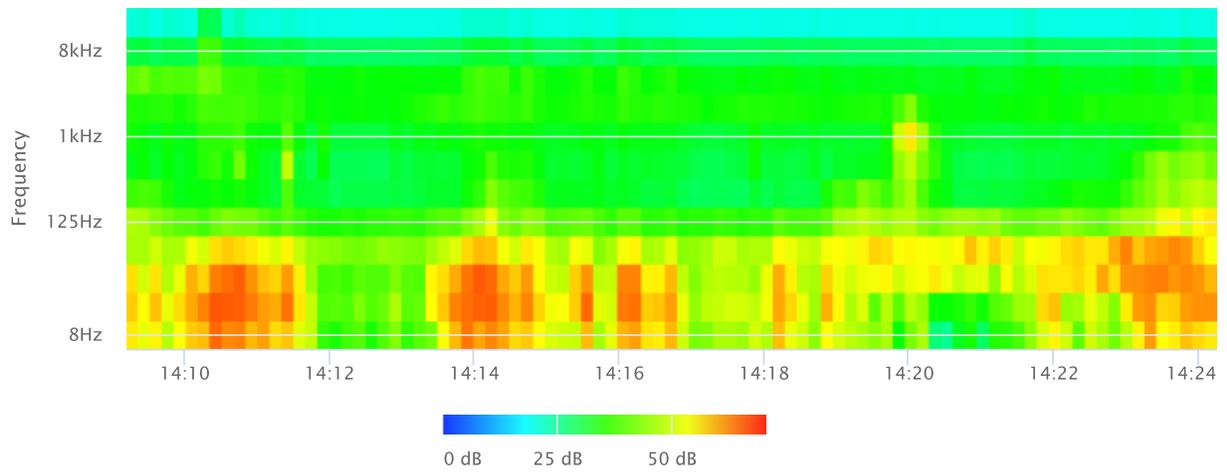
Statistics

LAS 2.0	50.7 dB
LAS 8.0	46.6 dB
LAS 25.0	44.0 dB
LAS 50.0	41.9 dB
LAS 66.6	41.2 dB
LAS 90.0	40.3 dB

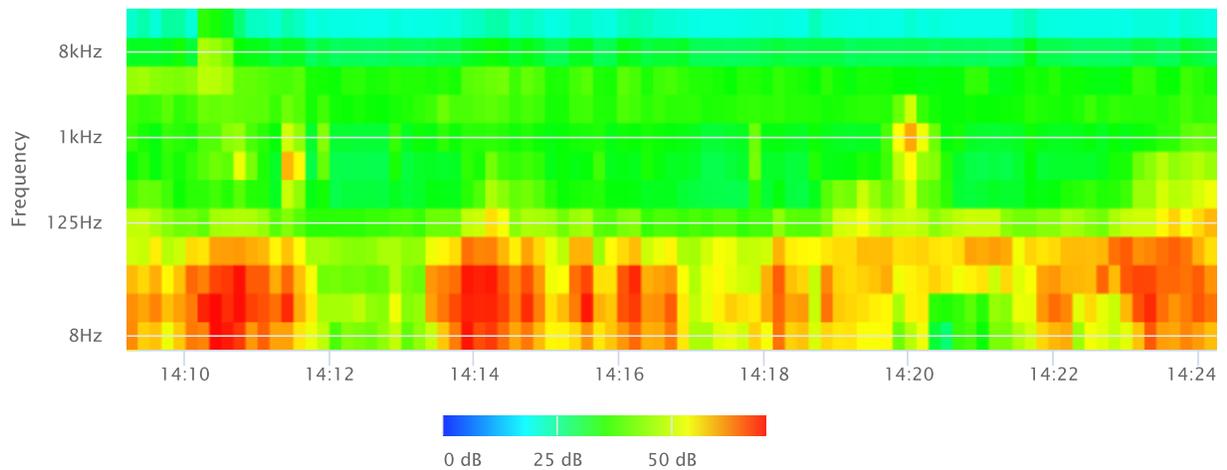
Time History



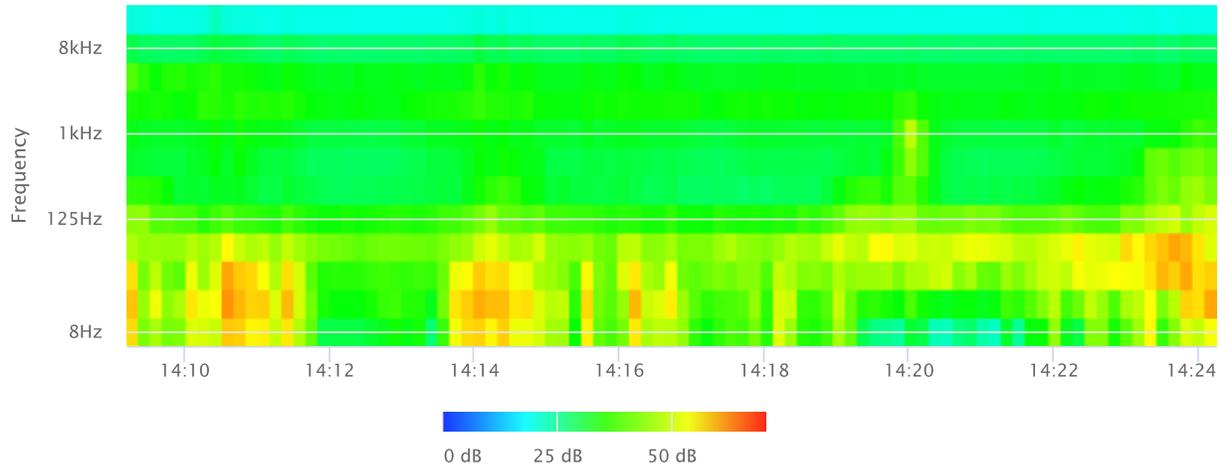
OBA 1/1 Leq



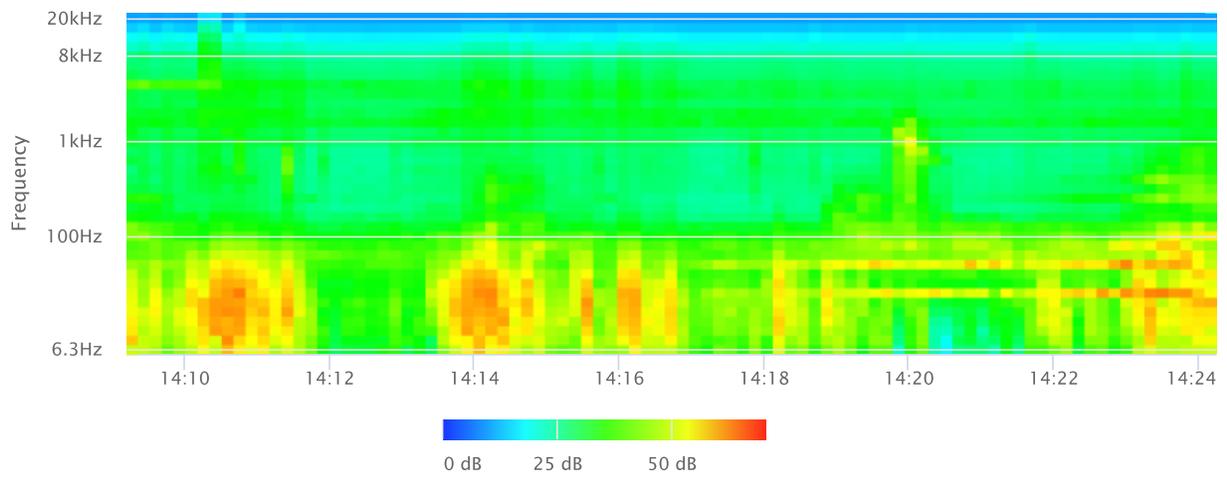
OBA 1/1 Lmax



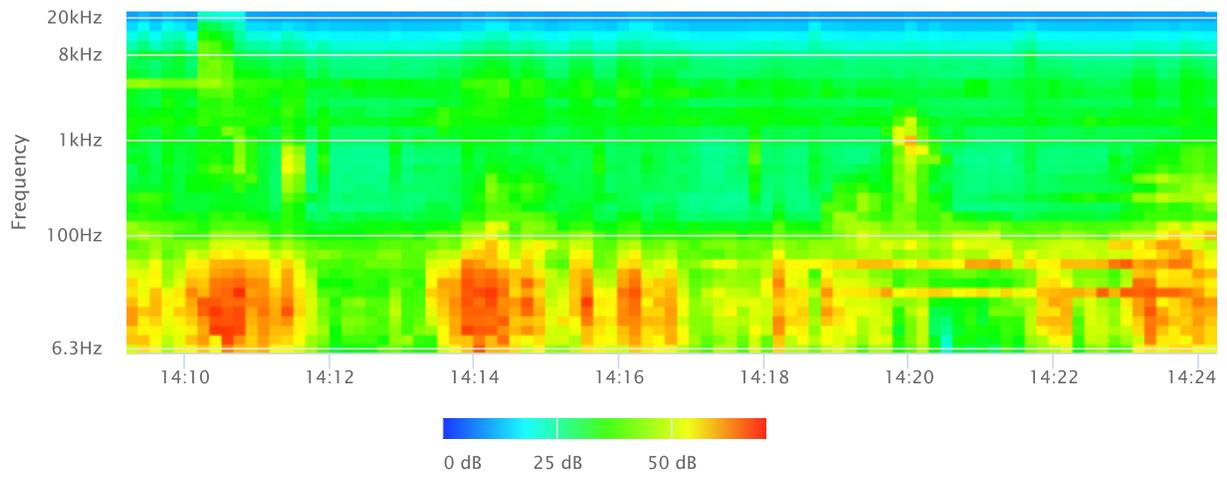
OBA 1/1 Lmin



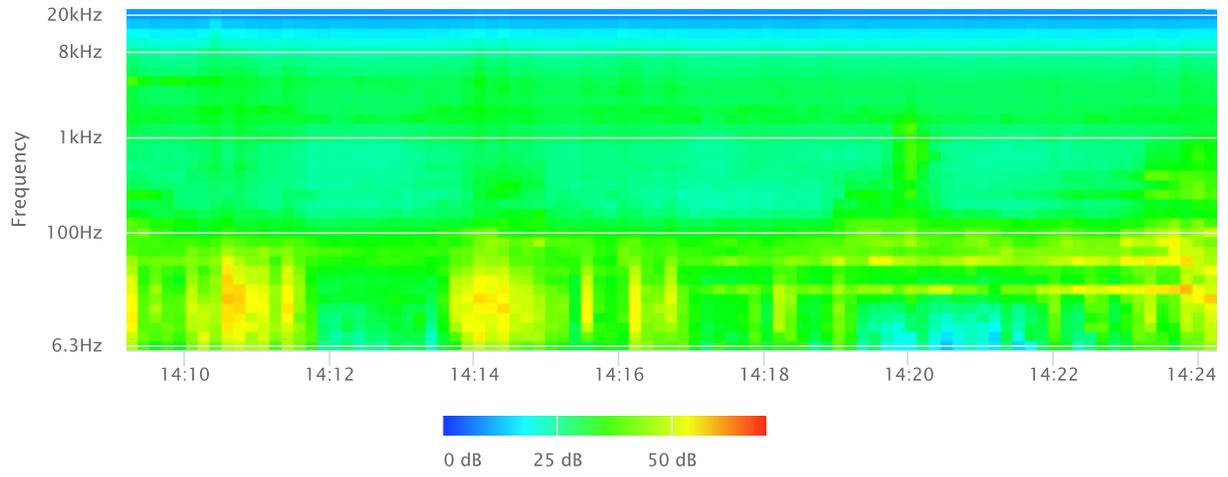
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: ISKCON of Escondido, City of Escondido **Date:** September 14, 2023

Project #: 19648

Noise Measurement #: NM5 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 1415 Rincon Avenue, Escondido, CA 92026

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: On dirt access road with parallel irrigation pipeline.

Adjacent: Avocado trees in all directions. Residence 1415 Rincon Ave, Escondido ~200' NE of NM5.

Weather: Clear skies, sunshine. Sunset 6:59 PM **Settings:** SLOW FAST

Temperature: 70 deg F **Wind:** 8 mph **Humidity:** 64% **Terrain:** Flat

Start Time: 2:37 PM **End Time:** 2:52 PM **Run Time:** _____

Leq: 42.9 dB **Primary Noise Source:** Leaf rustle from 8mph breeze. Bird song. Distant dogs barking. Some overhead

Lmax 54.7 dB air traffic.

L2 51.4 dB **Secondary Noise Sources:** Distant 15 Freeway and other traffic ambiance.

L8 46.6 dB _____

L25 42.7 dB _____

L50 40.0 dB _____

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 250

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 250

SERIAL NUMBER: 3099 **SERIAL NUMBER:** 2723

FACTORY CALIBRATION DATE: 11/17/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

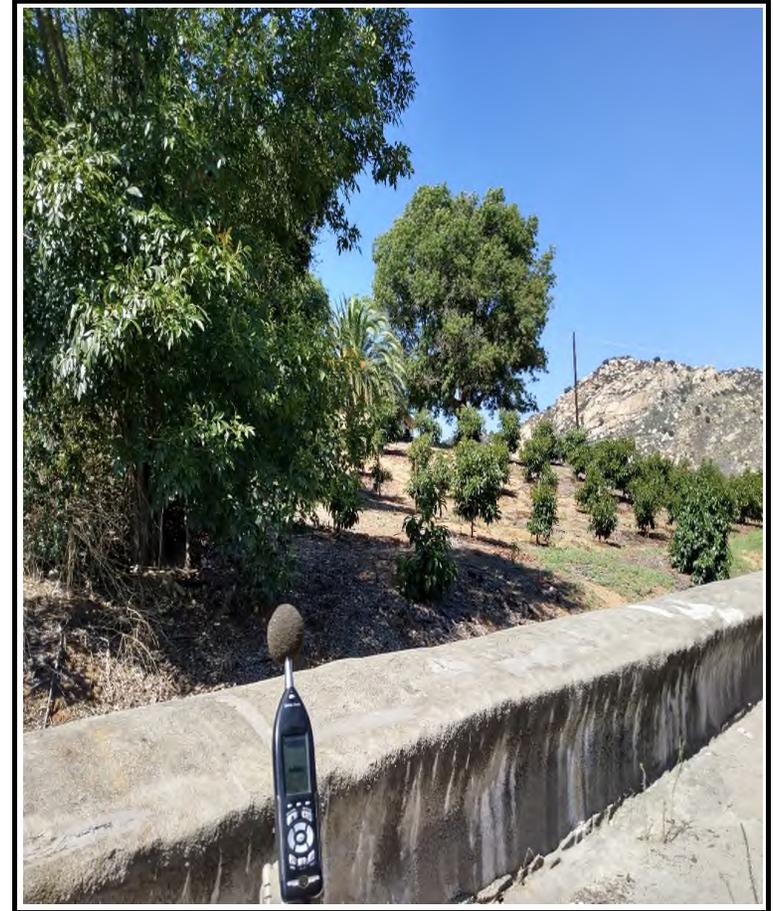
FIELD CALIBRATION DATE: 9/14/2023

Noise Measurement
Field Data

PHOTOS:



NM5 looking ENE along dirt access road. Irrigation pipeline running along access road on the left.



NM5 looking NNE across field towards residence 1415 Rincon Ave, Escondido.

Summary

File Name on Meter	LxT_Data.332.s
File Name on PC	LxT_0003099-20230914 143745-LxT_Data.332.lbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM5 33° 9'51.69"N 117° 4'34.34"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project # 19648 ISKCON of Escondido (City of Escondido)

Measurement

Start	2023-09-14 14:37:45
Stop	2023-09-14 14:52:45
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-09-14 14:37:22
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	123.0 dB

Results

LAeq	42.9
LAE	72.5
EA	1.95978 $\mu\text{Pa}^2\text{h}$
EA8	62.71295 $\mu\text{Pa}^2\text{h}$
EA40	313.5647 $\mu\text{Pa}^2\text{h}$
LApeak (max)	2023-09-14 14:52:12 83.4 dB
LASmax	2023-09-14 14:42:17 54.7 dB
LASmin	2023-09-14 14:51:53 35.6 dB

Statistics

LCeq	60.8 dB	LA2.00	51.4 dB
LAeq	42.9 dB	LA8.00	46.6 dB
LCeq - LAeq	17.9 dB	LA25.00	42.7 dB
LAlaq	47.9 dB	LA50.00	40.0 dB
LAeq	42.9 dB	LA66.60	38.6 dB
LAlaq - LAeq	4.9 dB	LA90.00	37.0 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.332.s	Computer's File Name	LxT_0003099-20230914 143745-LxT_Data.332.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM5 33° 9'51.69"N 117° 4'34.34"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project # 19648 ISKCON of Escondido (City of Escondido)		
Start Time	2023-09-14 14:37:45	Duration	0:15:00.0
End Time	2023-09-14 14:52:45	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	42.9 dB		
LAE	72.5 dB	SEA	--- dB
EA	2.0 µPa²h	LAFTM5	49.1 dB
EA8	62.7 µPa²h		
EA40	313.6 µPa²h		
LA _{peak}	83.4 dB	2023-09-14 14:52:12	
LAS _{max}	54.7 dB	2023-09-14 14:42:17	
LAS _{min}	35.6 dB	2023-09-14 14:51:53	
LA _{eq}	42.9 dB		
LC _{eq}	60.8 dB	LC _{eq} - LA _{eq}	17.9 dB
LAI _{eq}	47.9 dB	LAI _{eq} - LA _{eq}	4.9 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	0	0:00:00.0
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
--- dB	--- dB	0.0 dB	
LDEN	LDay	LEve	LNight
--- dB	--- dB	--- dB	--- dB

Any Data

	Level	A Time Stamp	Level	C Time Stamp	Level	Z Time Stamp
L _{eq}	42.9 dB		60.8 dB		--- dB	
LS _(max)	54.7 dB	2023-09-14 14:42:17	--- dB		--- dB	
LS _(min)	35.6 dB	2023-09-14 14:51:53	--- dB		--- dB	
L _{Peak(max)}	83.4 dB	2023-09-14 14:52:12	--- dB		--- dB	

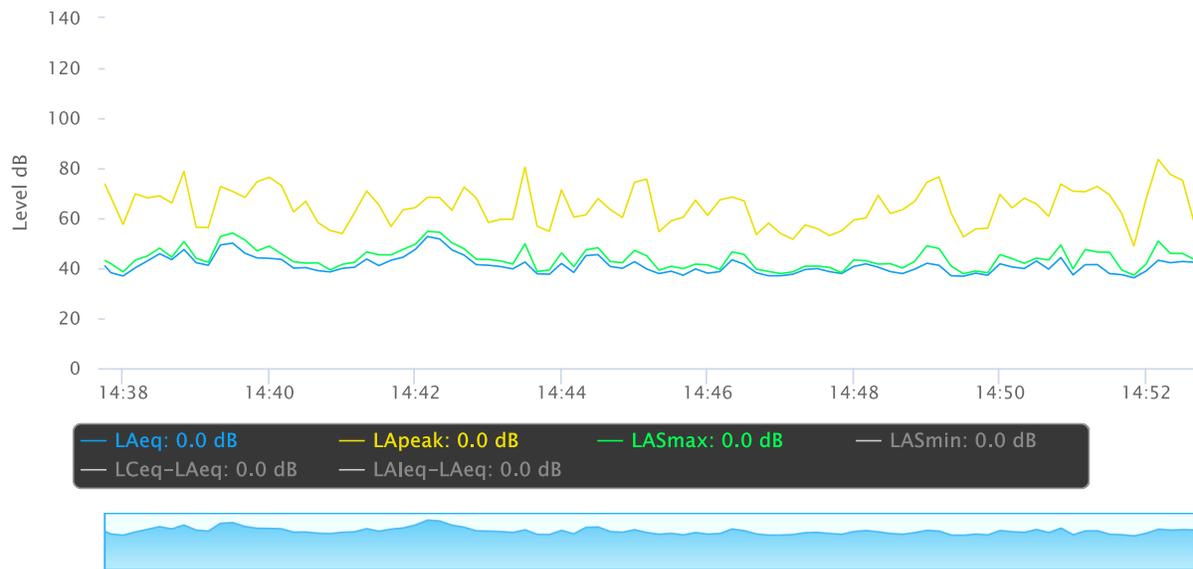
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

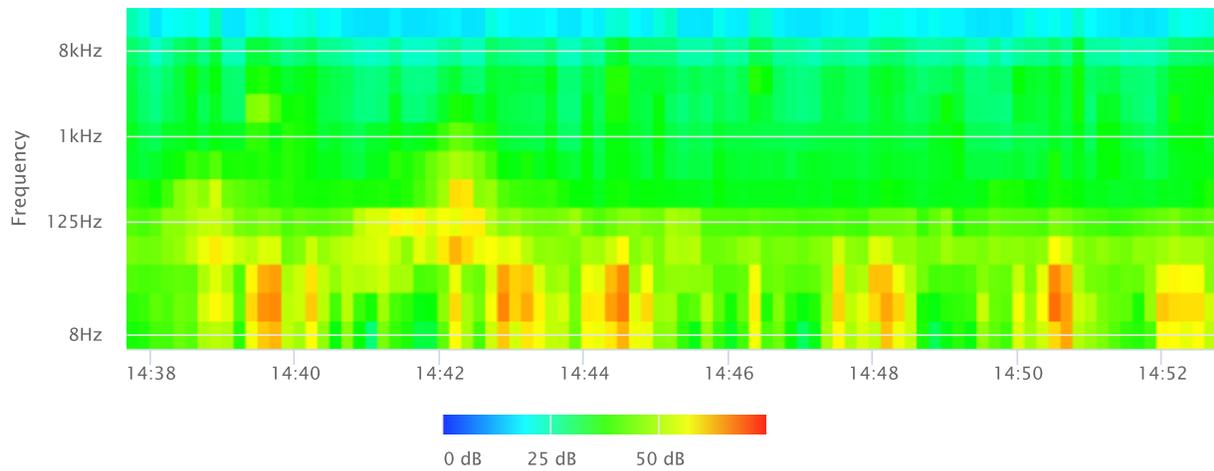
Statistics

LAS 2.0	51.4 dB
LAS 8.0	46.6 dB
LAS 25.0	42.7 dB
LAS 50.0	40.0 dB
LAS 66.6	38.6 dB
LAS 90.0	37.0 dB

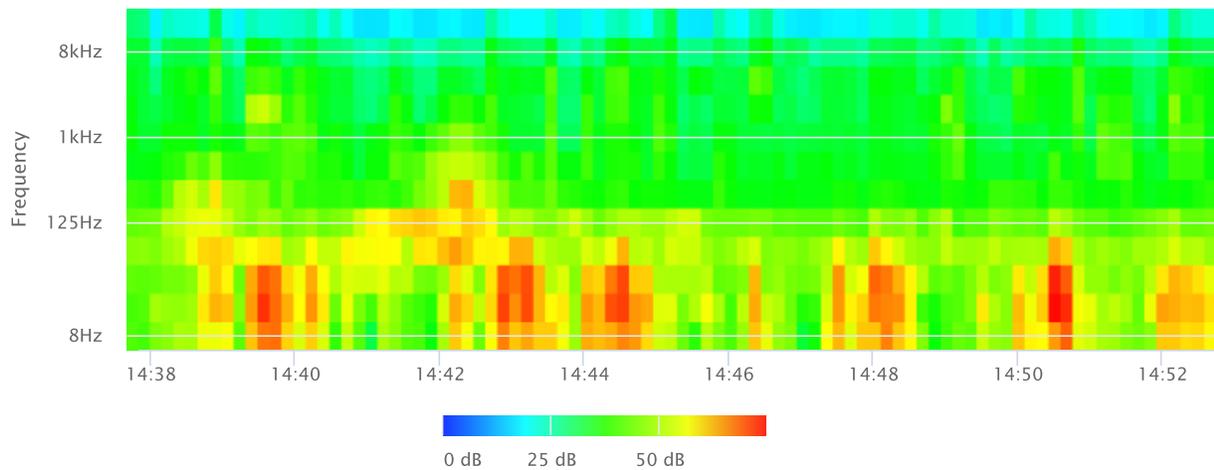
Time History



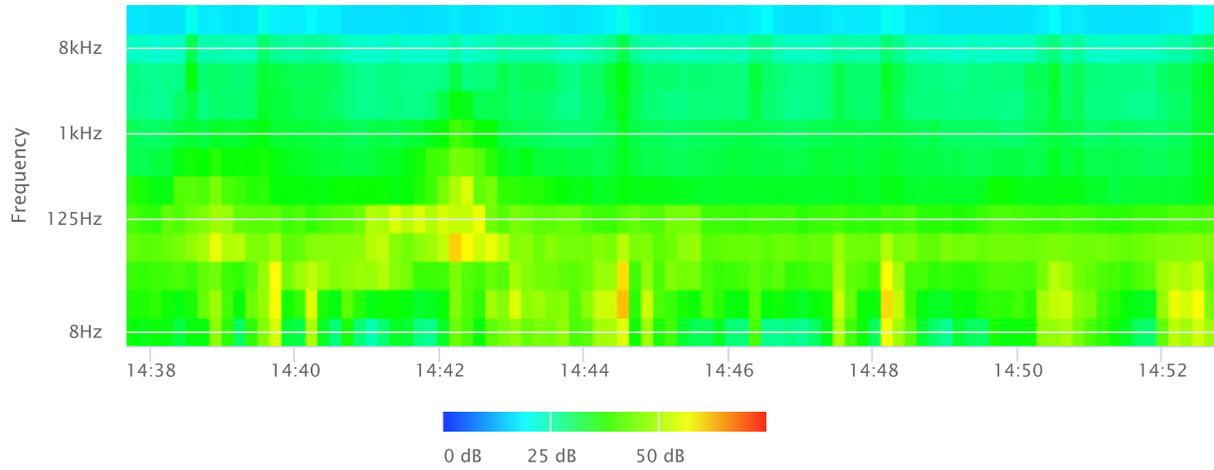
OBA 1/1 Leq



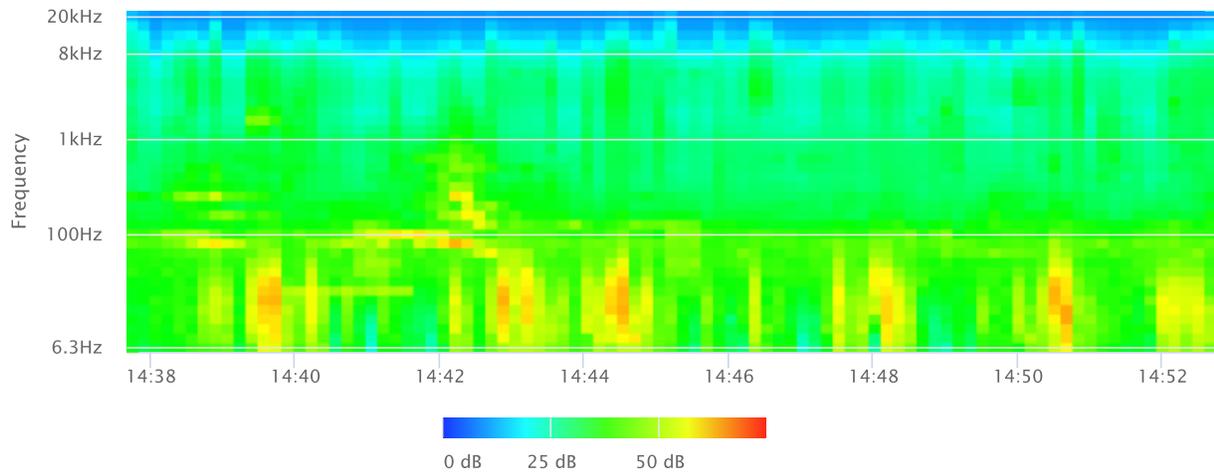
OBA 1/1 Lmax



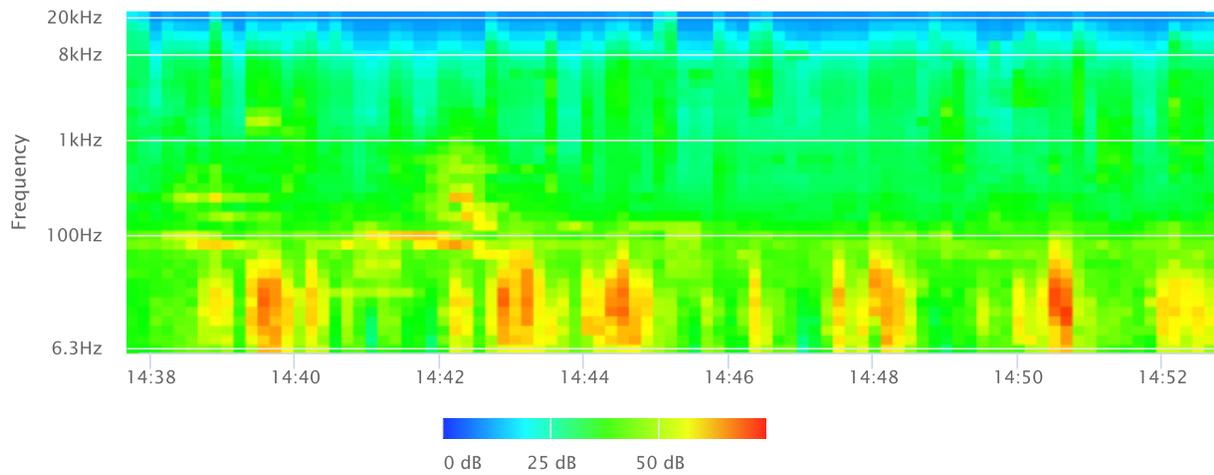
OBA 1/1 Lmin



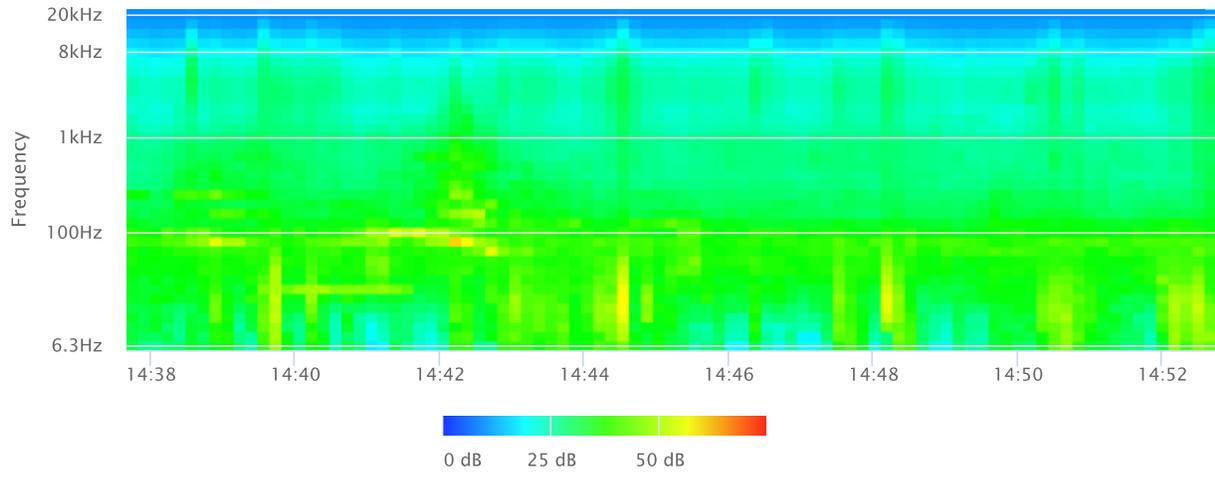
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: ISKCON of Escondido, City of Escondido **Date:** September 14, 2023

Project #: 19648

Noise Measurement #: NM6 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 1149 Witherby Lane, Escondido, CA 92026

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: On sidewalk just outside front yard to residence 1149

Witherby Ln. Adjacent: Residential neighborhood surrounding. Witherby Lane to south with project site area ~320' N of NM6.

Weather: Clear skies, sunshine. Sunset 6:59 PM **Settings:** SLOW FAST

Temperature: 70 deg F **Wind:** 8 mph **Humidity:** 64% **Terrain:** Flat

Start Time: 4:06 PM **End Time:** 4:21 PM **Run Time:** _____

Leq: 48.4 dB **Primary Noise Source:** Leaf rustle from 8mph breeze. Bird song. Distant dogs barking. Some overhead

Lmax 64.8 dB air traffic.

L2 58.5 dB **Secondary Noise Sources:** Distant 15 Freeway and other traffic ambiance. 4 vehicles passed NM6

L8 53.4 dB microphone traveling along Witherby Lane during 15 minute measurement.

L25 45.1 dB

L50 40.4 dB

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 250

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 250

SERIAL NUMBER: 3099 **SERIAL NUMBER:** 2723

FACTORY CALIBRATION DATE: 11/17/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

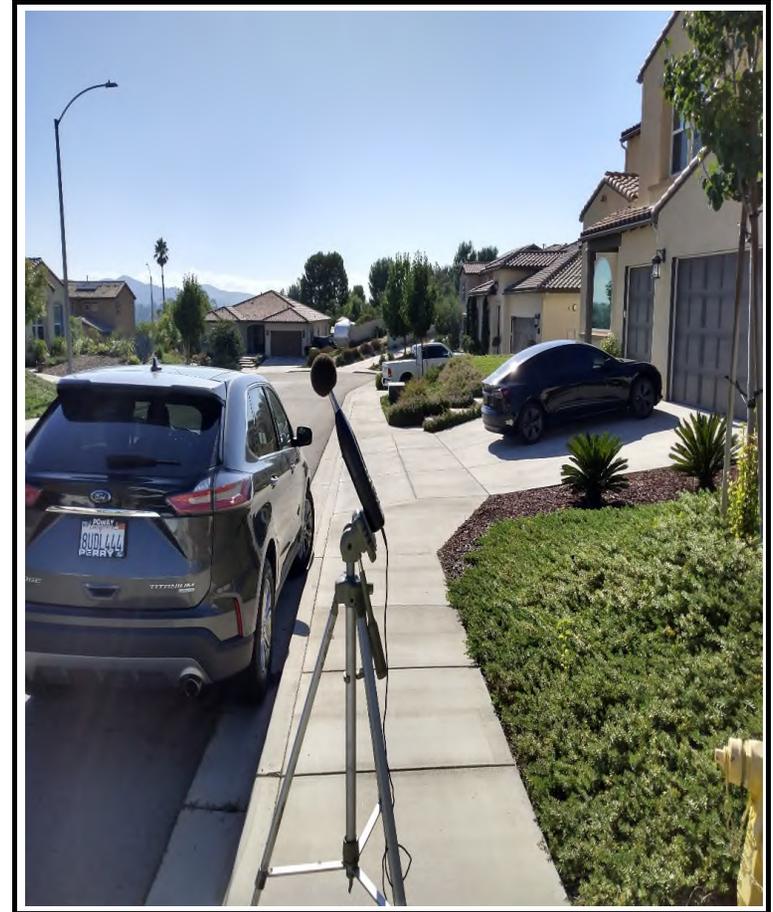
FIELD CALIBRATION DATE: 9/14/2023

Noise Measurement
Field Data

PHOTOS:



NM6 looking NE from sidewalk of Witherby Lane towards frontyard of residence 1149 Witherby Lane, Escondido.



NM6 looking W down Witherby Lane toward where the street turns to the left (~270').

Summary

File Name on Meter	LxT_Data.334.s
File Name on PC	LxT_0003099-20230914 160624-LxT_Data.334.ldbin
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM6 33° 9'47.01"N 117° 4'37.64"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project # 19648 ISKCON of Escondido (City of Escondido)

Measurement

Start	2023-09-14 16:06:24
Stop	2023-09-14 16:21:24
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-09-14 16:06:01
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	122.9 dB

Results

LAeq	48.4
LAE	77.9
EA	6.888 $\mu\text{Pa}^2\text{h}$
EA8	220.422 $\mu\text{Pa}^2\text{h}$
EA40	1.102 mPa^2h
LApeak (max)	2023-09-14 16:17:58 81.8 dB
LASmax	2023-09-14 16:17:58 64.8 dB
LASmin	2023-09-14 16:12:08 33.8 dB

Statistics

LCeq	63.9 dB	LA2.00	58.5 dB
LAeq	48.4 dB	LA8.00	53.4 dB
LCeq - LAeq	15.5 dB	LA25.00	45.1 dB
LALeq	52.1 dB	LA50.00	40.4 dB
LAeq	48.4 dB	LA66.60	38.4 dB
LALeq - LAeq	3.7 dB	LA90.00	35.8 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.334.s	Computer's File Name	LxT_0003099-20230914 160624-LxT_Data.334.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM6 33° 9'47.01"N 117° 4'37.64"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project # 19648 ISKCON of Escondido (City of Escondido)		
Start Time	2023-09-14 16:06:24	Duration	0:15:00.0
End Time	2023-09-14 16:21:24	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

L _{Aeq}	48.4 dB		
L _{AE}	77.9 dB	SEA	--- dB
EA	6.9 µPa ² h	LAFTM5	54.1 dB
EA8	220.4 µPa ² h		
EA40	1.1 mPa ² h		
L _{Apeak}	81.8 dB	2023-09-14 16:17:58	
L _{ASmax}	64.8 dB	2023-09-14 16:17:58	
L _{ASmin}	33.8 dB	2023-09-14 16:12:08	
L _{Aeq}	48.4 dB		
L _{Ceq}	63.9 dB	L _{Ceq} - L _{Aeq}	15.5 dB
L _{A1eq}	52.1 dB	L _{A1eq} - L _{Aeq}	3.7 dB

Exceedances

	Count	Duration
L _{AS} > 65.0 dB	0	0:00:00.0
L _{AS} > 85.0 dB	0	0:00:00.0
L _{Apeak} > 135.0 dB	0	0:00:00.0
L _{Apeak} > 137.0 dB	0	0:00:00.0
L _{Apeak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
--- dB	--- dB	0.0 dB	
LDEN	LDay	LEve	LNight
--- dB	--- dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	48.4 dB		63.9 dB		--- dB	
L _{S(max)}	64.8 dB	2023-09-14 16:17:58	--- dB		--- dB	
L _{S(min)}	33.8 dB	2023-09-14 16:12:08	--- dB		--- dB	
L _{Peak(max)}	81.8 dB	2023-09-14 16:17:58	--- dB		--- dB	

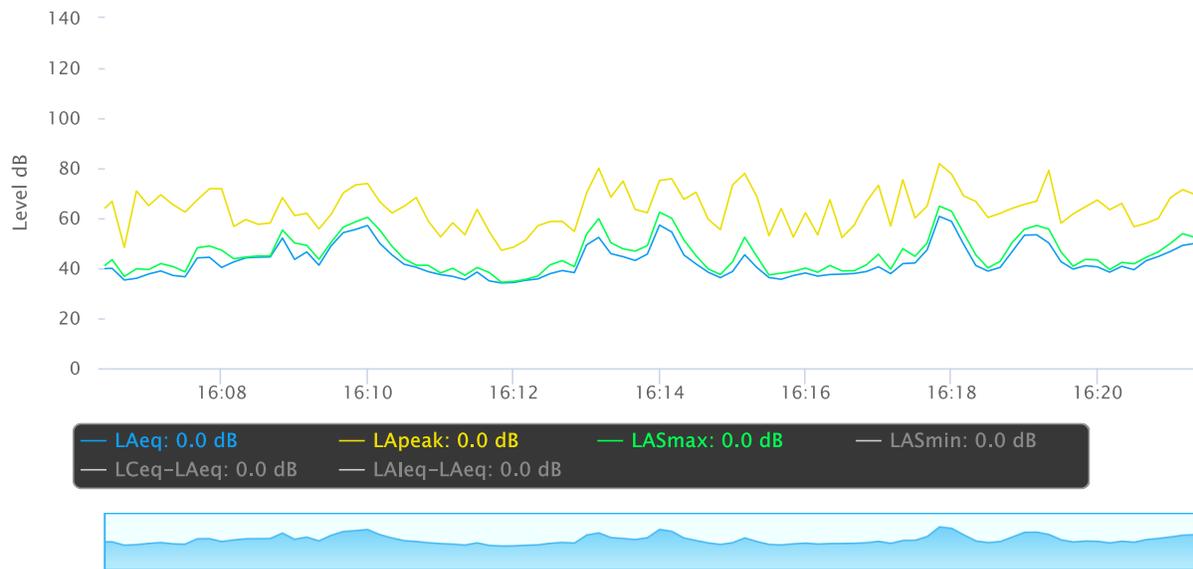
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

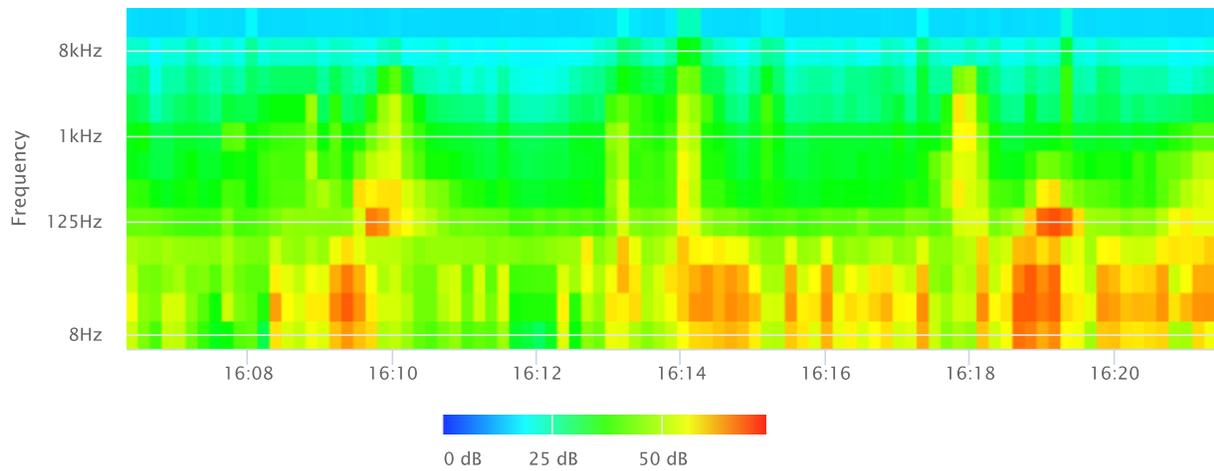
Statistics

L _{AS} 2.0	58.5 dB
L _{AS} 8.0	53.4 dB
L _{AS} 25.0	45.1 dB
L _{AS} 50.0	40.4 dB
L _{AS} 66.6	38.4 dB
L _{AS} 90.0	35.8 dB

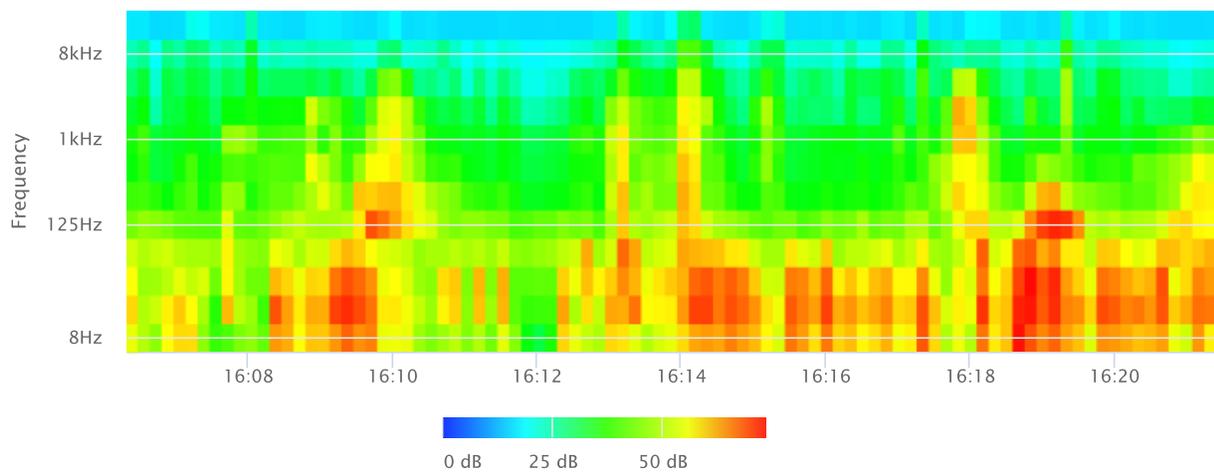
Time History



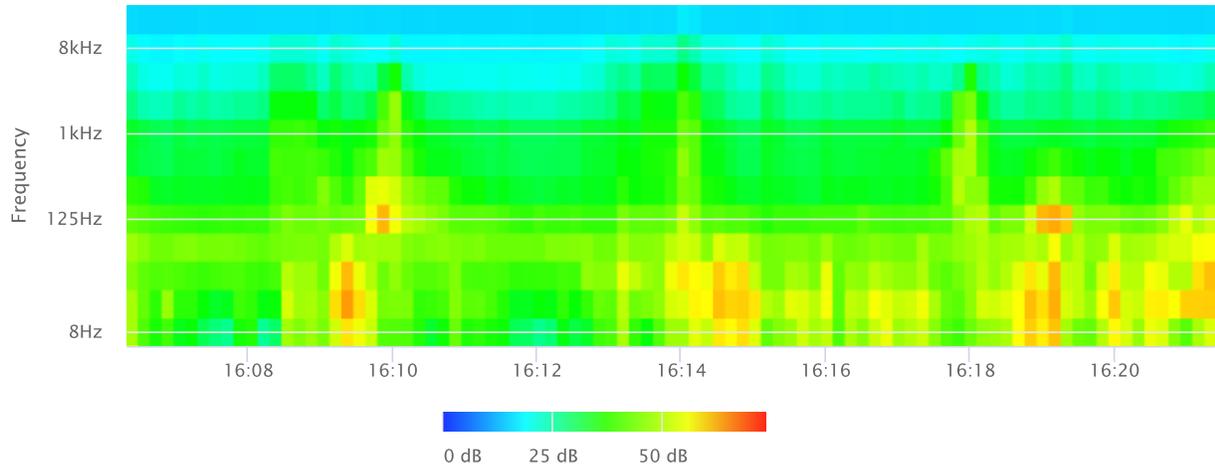
OBA 1/1 Leq



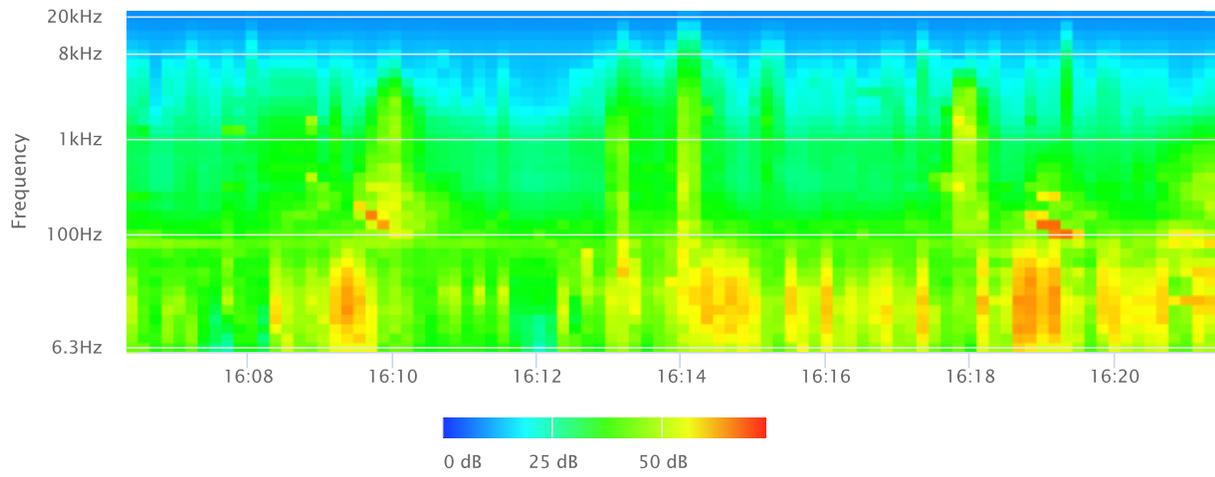
OBA 1/1 Lmax



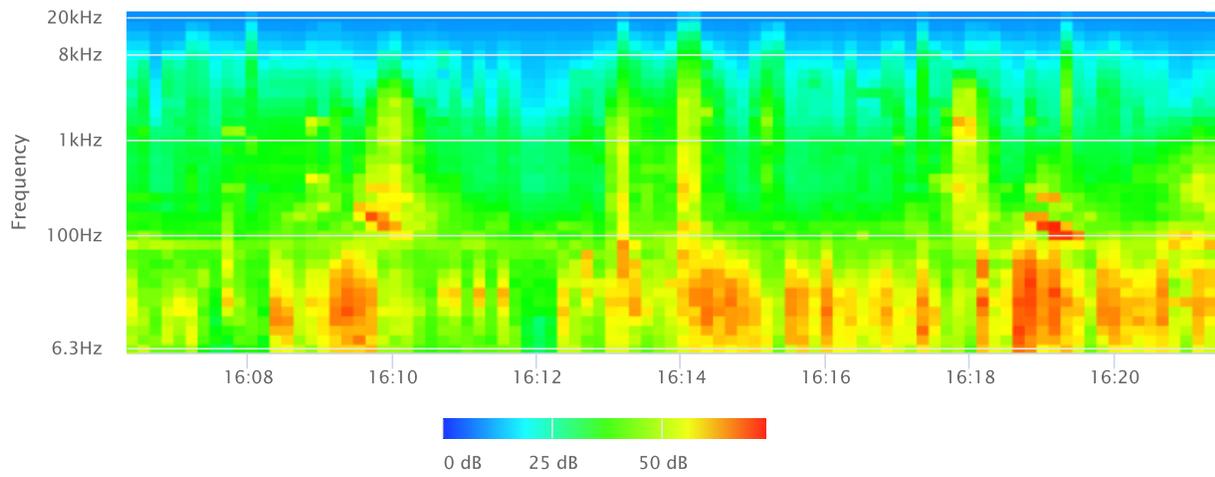
OBA 1/1 Lmin



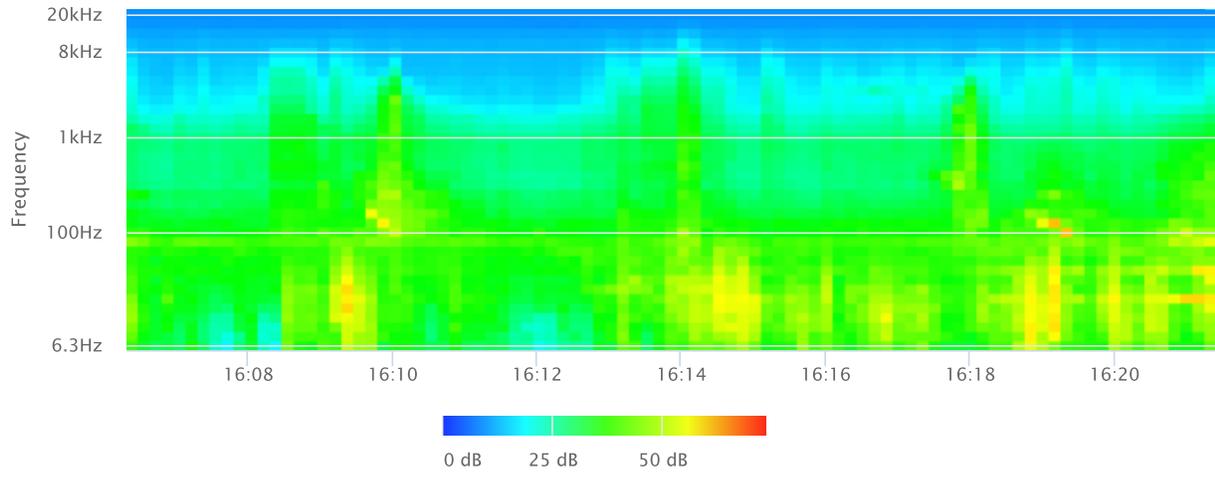
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: ISKCON of Escondido, City of Escondido **Date:** September 14, 2023

Project #: 19648

Noise Measurement #: NM7 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: At bend in Orange Blossom Way, Escondido, CA 92026

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: At bend in road, Orange Blossom Way, Escondido.

Adjacent: Citrus and various other trees in all directions with Orange Blossom Way to south. Project site area ~320' N of NM6.

Weather: Clear skies, sunshine. Sunset 6:59 PM **Settings:** SLOW FAST

Temperature: 70 deg F **Wind:** 8 mph **Humidity:** 64% **Terrain:** Flat

Start Time: 3:10 PM **End Time:** 3:25 PM **Run Time:** _____

Leq: 42.7 dB **Primary Noise Source:** Leaf rustle from 8mph breeze. Bird song. Distant dogs barking. Some overhead

Lmax 53.7 dB air traffic.

L2 48.4 dB **Secondary Noise Sources:** Distant 15 Freeway and other traffic ambiance. 1 vehicle passed NM6 micro

L8 45.9 dB -phone traveling along Orange Blossom Way during 15 minute measurement.

L25 43.0 dB

L50 41.3 dB

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 250

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 250

SERIAL NUMBER: 3099 **SERIAL NUMBER:** 2723

FACTORY CALIBRATION DATE: 11/17/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

FIELD CALIBRATION DATE: 9/14/2023

Noise Measurement
Field Data

PHOTOS:



NM7 looking S across Orange Blossom way towards citrus trees.



NM7 looking SE past bend in Orange Blossom way, towards wood pile.

Summary

File Name on Meter	LxT_Data.333.s
File Name on PC	LxT_0003099-20230914 151024-LxT_Data.333.lbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM7 33° 9'49.62"N 117° 4'44.56"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project # 19648 ISKCON of Escondido (City of Escondido)

Measurement

Start	2023-09-14 15:10:24
Stop	2023-09-14 15:25:24
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-09-14 15:10:01
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	123.0 dB

Results

LAeq	42.7
LAE	72.2
EA	1.840943 $\mu\text{Pa}^2\text{h}$
EA8	58.91018 $\mu\text{Pa}^2\text{h}$
EA40	294.5509 $\mu\text{Pa}^2\text{h}$
LApeak (max)	2023-09-14 15:11:41 86.2 dB
LASmax	2023-09-14 15:10:28 53.7 dB
LASmin	2023-09-14 15:14:56 37.4 dB

Statistics

LCeq	55.4 dB	LA2.00	48.4 dB
LAeq	42.7 dB	LA8.00	45.9 dB
LCeq - LAeq	12.7 dB	LA25.00	43.0 dB
LAlaq	46.9 dB	LA50.00	41.3 dB
LAeq	42.7 dB	LA66.60	40.4 dB
LAlaq - LAeq	4.3 dB	LA90.00	39.1 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.333.s	Computer's File Name	LxT_0003099-20230914 151024-LxT_Data.333.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM7 33° 9'49.62"N 117° 4'44.56"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project # 19648 ISKCON of Escondido (City of Escondido)		
Start Time	2023-09-14 15:10:24	Duration	0:15:00.0
End Time	2023-09-14 15:25:24	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	42.7 dB		
LAE	72.2 dB	SEA	--- dB
EA	1.8 µPa ² h	LAFTM5	47.7 dB
EA8	58.9 µPa ² h		
EA40	294.6 µPa ² h		
LA _{peak}	86.2 dB	2023-09-14 15:11:41	
LAS _{max}	53.7 dB	2023-09-14 15:10:28	
LAS _{min}	37.4 dB	2023-09-14 15:14:56	
LA _{eq}	42.7 dB		
LC _{eq}	55.4 dB	LC _{eq} - LA _{eq}	12.7 dB
LAI _{eq}	46.9 dB	LAI _{eq} - LA _{eq}	4.3 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	0	0:00:00.0
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
--- dB	--- dB	0.0 dB	
LDEN	LDay	LEve	LNight
--- dB	--- dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	42.7 dB		55.4 dB		--- dB	
LS _(max)	53.7 dB	2023-09-14 15:10:28	--- dB		--- dB	
LS _(min)	37.4 dB	2023-09-14 15:14:56	--- dB		--- dB	
L _{Peak(max)}	86.2 dB	2023-09-14 15:11:41	--- dB		--- dB	

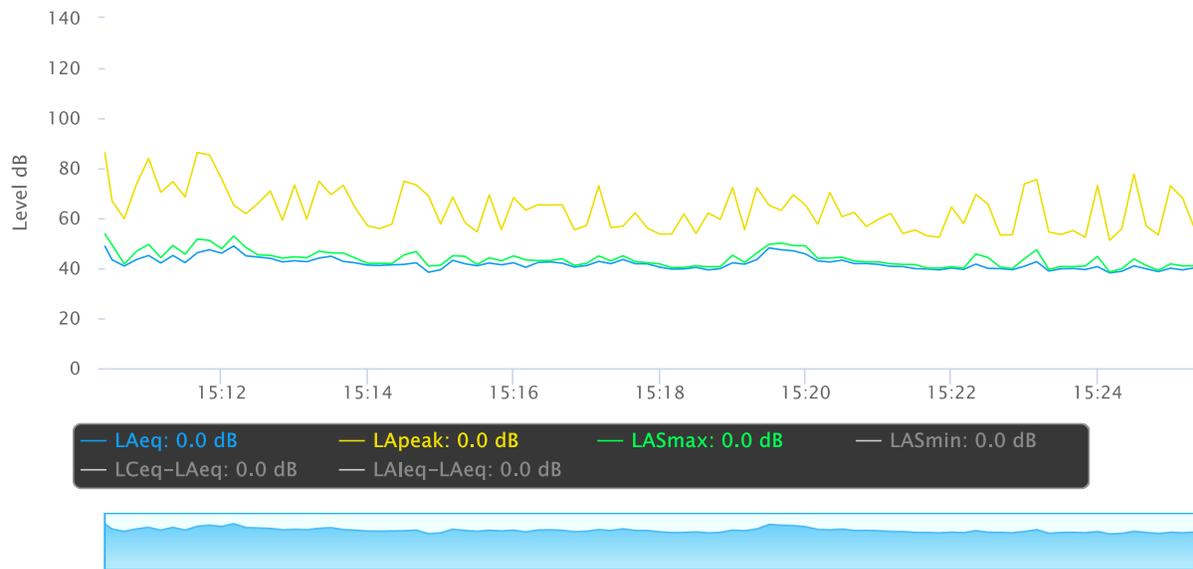
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

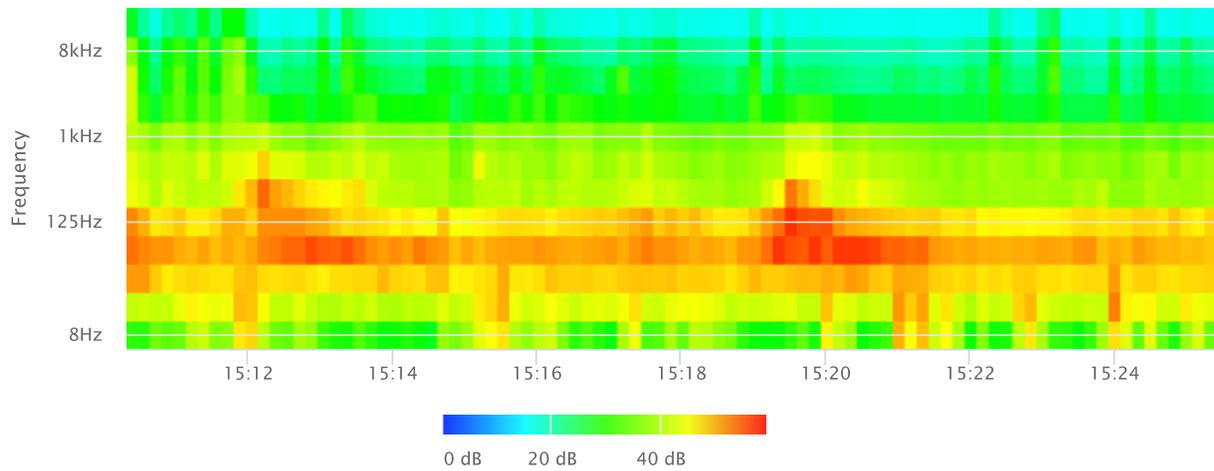
Statistics

LAS 2.0	48.4 dB
LAS 8.0	45.9 dB
LAS 25.0	43.0 dB
LAS 50.0	41.3 dB
LAS 66.6	40.4 dB
LAS 90.0	39.1 dB

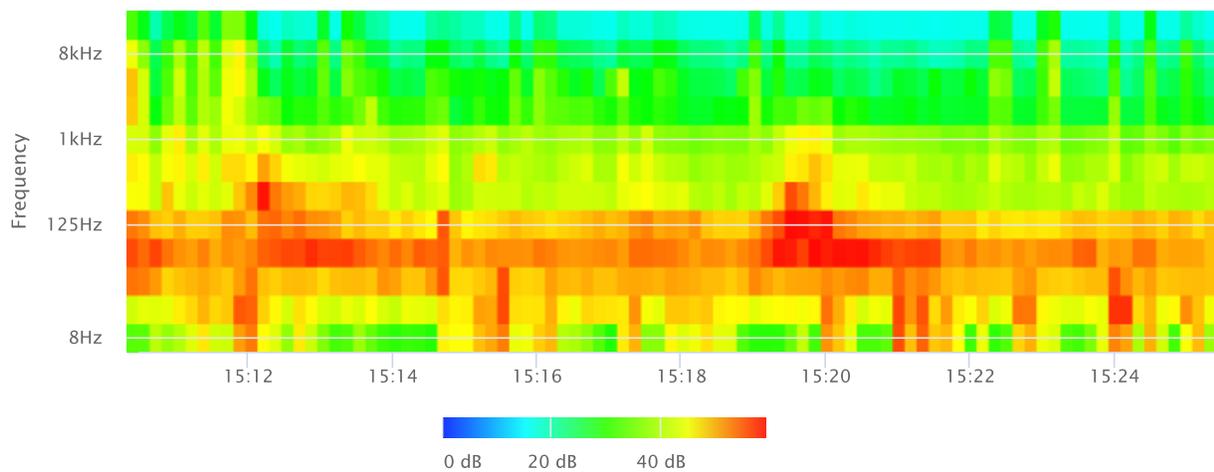
Time History



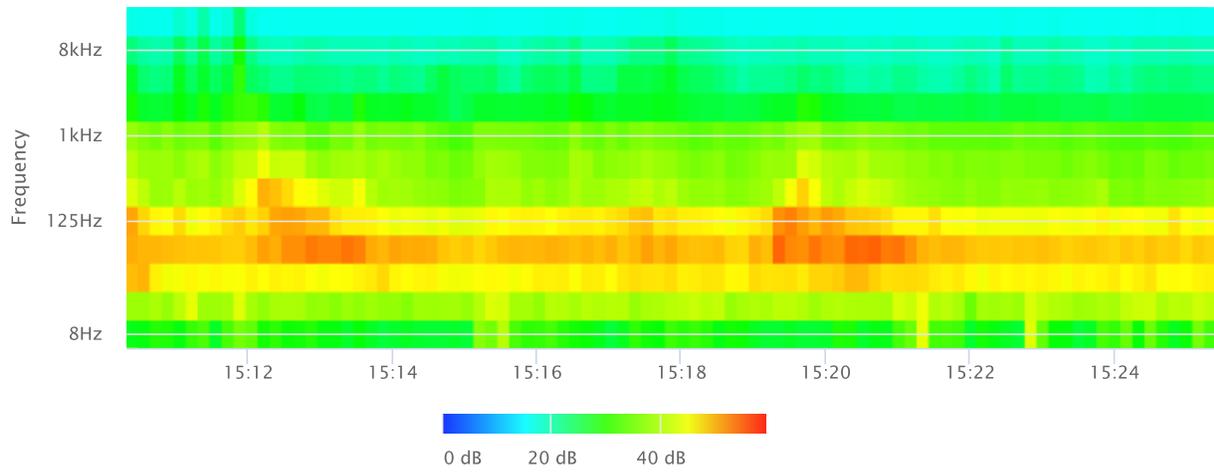
OBA 1/1 Leq



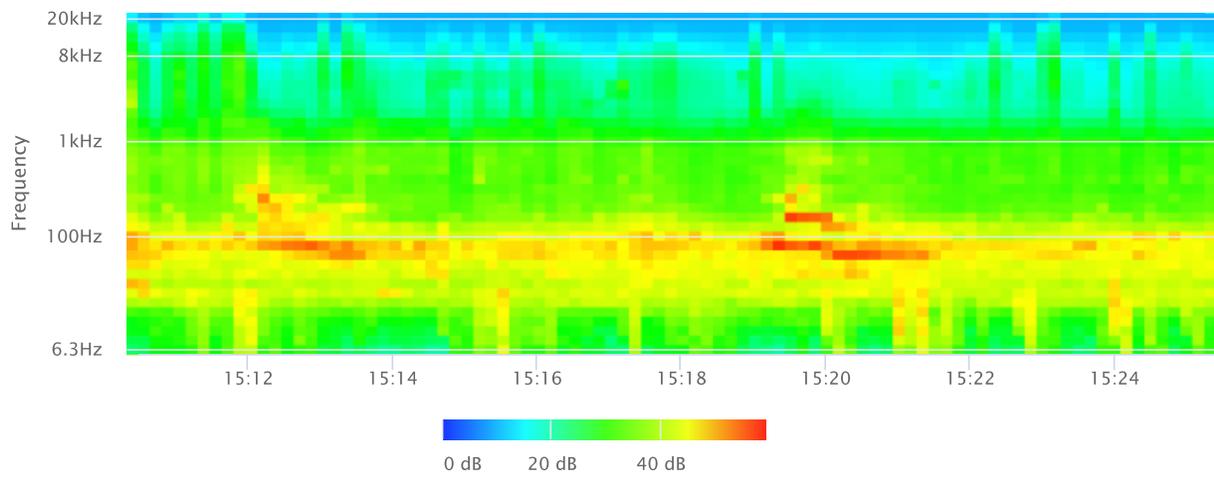
OBA 1/1 Lmax



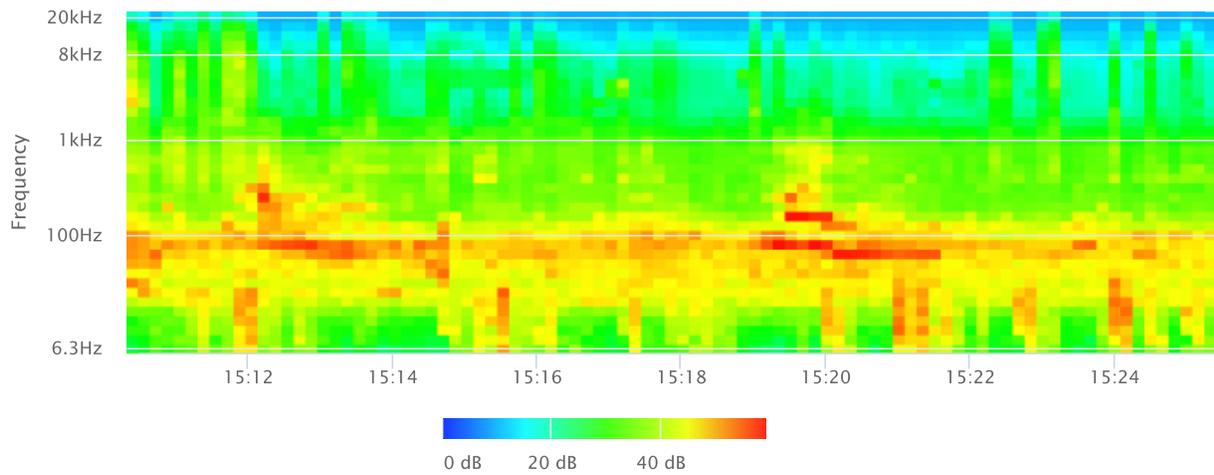
OBA 1/1 Lmin



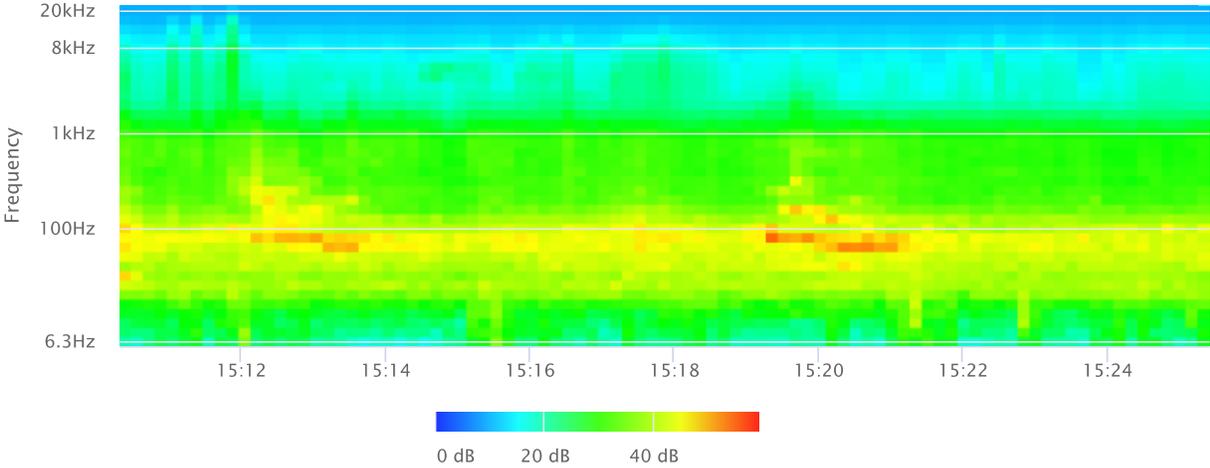
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



APPENDIX D
CONSTRUCTION NOISE MODEL WORKSHEETS

Receptor - Residential to West (2281 Creek Hollow Place, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation									
Rubber Tired Dozers	1	82	331	40	0.40	-16.4	-4.0	65.6	61.6
Tractors/Loaders/Backhoes	1	84	331	40	0.40	-16.4	-4.0	67.6	63.6
								Log Sum	65.7
Grading									
Rubber Tired Dozers	1	82	331	40	0.40	-16.4	-4.0	65.6	61.6
Tractors/Loaders/Backhoes	3	84	331	40	1.20	-16.4	0.8	67.6	68.4
Excavators	1	81	331	40	0.40	-16.4	-4.0	64.6	60.6
Graders	1	85	331	40	0.40	-16.4	-4.0	68.6	64.6
								Log Sum	70.9
Building Construction									
Cranes	2	81	331	16	0.32	-16.4	-4.9	64.6	59.6
Forklifts ⁴	4	48	331	40	1.60	-16.4	2.0	31.6	33.6
Generator Sets	1	81	331	50	0.50	-16.4	-3.0	64.6	61.6
Welders	2	74	331	40	0.80	-16.4	-1.0	57.6	56.6
Tractors/Loaders/Backhoes	5	84	331	40	2.00	-16.4	3.0	67.6	70.6
								Log Sum	71.5
Paving									
Pavers	2	77	331	50	1.00	-16.4	0.0	60.6	60.6
Paving Equipment	2	77	331	50	1.00	-16.4	0.0	60.6	60.6
Rollers	2	80	331	20	0.40	-16.4	-4.0	63.6	59.6
								Log Sum	65.1
Architectural Coating									
Air Compressors	1	78	331	40	0.40	-16.4	-4.0	61.6	57.6
								Log Sum	57.6

Notes:

- (1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
- (2) Source: SoundPLAN reference list.
- (3) Distance to receptor calculated from center of site. Construction noise projected from the center of the disturbed area of the project site to nearest sensitive use (property line).

Receptor - Residential to Northwest (2352 Briarwood Place, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation									
Rubber Tired Dozers	1	82	614	40	0.40	-21.8	-4.0	60.2	56.2
Tractors/Loaders/Backhoes	1	84	614	40	0.40	-21.8	-4.0	62.2	58.2
								Log Sum	60.4
Grading									
Rubber Tired Dozers	1	82	614	40	0.40	-21.8	-4.0	60.2	56.2
Tractors/Loaders/Backhoes	3	84	614	40	1.20	-21.8	0.8	62.2	63.0
Excavators	1	81	614	40	0.40	-21.8	-4.0	59.2	55.2
Graders	1	85	614	40	0.40	-21.8	-4.0	63.2	59.2
								Log Sum	65.6
Building Construction									
Cranes	2	81	614	16	0.32	-21.8	-4.9	59.2	54.3
Forklifts ⁴	4	48	614	40	1.60	-21.8	2.0	26.2	28.3
Generator Sets	1	81	614	50	0.50	-21.8	-3.0	59.2	56.2
Welders	2	74	614	40	0.80	-21.8	-1.0	52.2	51.2
Tractors/Loaders/Backhoes	5	84	614	40	2.00	-21.8	3.0	62.2	65.2
								Log Sum	66.2
Paving									
Pavers	2	77	614	50	1.00	-21.8	0.0	55.2	55.2
Paving Equipment	2	77	614	50	1.00	-21.8	0.0	55.2	55.2
Rollers	2	80	614	20	0.40	-21.8	-4.0	58.2	54.2
								Log Sum	59.7
Architectural Coating									
Air Compressors	1	78	614	40	0.40	-21.8	-4.0	56.2	52.2
								Log Sum	52.2

Notes:

- (1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
- (2) Source: SoundPLAN reference list.
- (3) Distance to receptor calculated from center of site. Construction noise projected from the center of the disturbed area of the project site to nearest sensitive use (property line).

Receptor - Agricultural/Commercial to North (1430 Rincon Avenue, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation									
Rubber Tired Dozers	1	82	299	40	0.40	-15.5	-4.0	66.5	62.5
Tractors/Loaders/Backhoes	1	84	299	40	0.40	-15.5	-4.0	68.5	64.5
								Log Sum	66.6
Grading									
Rubber Tired Dozers	1	82	299	40	0.40	-15.5	-4.0	66.5	62.5
Tractors/Loaders/Backhoes	3	84	299	40	1.20	-15.5	0.8	68.5	69.3
Excavators	1	81	299	40	0.40	-15.5	-4.0	65.5	61.5
Graders	1	85	299	40	0.40	-15.5	-4.0	69.5	65.5
								Log Sum	71.8
Building Construction									
Cranes	2	81	299	16	0.32	-15.5	-4.9	65.5	60.5
Forklifts ⁴	4	48	299	40	1.60	-15.5	2.0	32.5	34.5
Generator Sets	1	81	299	50	0.50	-15.5	-3.0	65.5	62.5
Welders	2	74	299	40	0.80	-15.5	-1.0	58.5	57.5
Tractors/Loaders/Backhoes	5	84	299	40	2.00	-15.5	3.0	68.5	71.5
								Log Sum	72.4
Paving									
Pavers	2	77	299	50	1.00	-15.5	0.0	61.5	61.5
Paving Equipment	2	77	299	50	1.00	-15.5	0.0	61.5	61.5
Rollers	2	80	299	20	0.40	-15.5	-4.0	64.5	60.5
								Log Sum	65.9
Architectural Coating									
Air Compressors	1	78	299	40	0.40	-15.5	-4.0	62.5	58.5
								Log Sum	58.5

Notes:

- (1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
- (2) Source: SoundPLAN reference list.
- (3) Distance to receptor calculated from center of site. Construction noise projected from the center of the disturbed area of the project site to nearest sensitive use (property line).

Receptor - Residential to Northeast (1448 Rincon Avenue, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation									
Rubber Tired Dozers	1	82	527	40	0.40	-20.5	-4.0	61.5	57.6
Tractors/Loaders/Backhoes	1	84	527	40	0.40	-20.5	-4.0	63.5	59.6
								Log Sum	61.7
Grading									
Rubber Tired Dozers	1	82	527	40	0.40	-20.5	-4.0	61.5	57.6
Tractors/Loaders/Backhoes	3	84	527	40	1.20	-20.5	0.8	63.5	64.3
Excavators	1	81	527	40	0.40	-20.5	-4.0	60.5	56.6
Graders	1	85	527	40	0.40	-20.5	-4.0	64.5	60.6
								Log Sum	66.9
Building Construction									
Cranes	2	81	527	16	0.32	-20.5	-4.9	60.5	55.6
Forklifts ⁴	4	48	527	40	1.60	-20.5	2.0	27.5	29.6
Generator Sets	1	81	527	50	0.50	-20.5	-3.0	60.5	57.5
Welders	2	74	527	40	0.80	-20.5	-1.0	53.5	52.6
Tractors/Loaders/Backhoes	5	84	527	40	2.00	-20.5	3.0	63.5	66.6
								Log Sum	67.5
Paving									
Pavers	2	77	527	50	1.00	-20.5	0.0	56.5	56.5
Paving Equipment	2	77	527	50	1.00	-20.5	0.0	56.5	56.5
Rollers	2	80	527	20	0.40	-20.5	-4.0	59.5	55.6
								Log Sum	61.0
Architectural Coating									
Air Compressors	1	78	527	40	0.40	-20.5	-4.0	57.5	53.6
								Log Sum	53.6

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the disturbed area of the project site to nearest sensitive use (property line).

Receptor - Residential/Agricultural to East/Southeast (1643 Rincon Avenue, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation									
Rubber Tired Dozers	1	82	820	40	0.40	-24.3	-4.0	57.7	53.7
Tractors/Loaders/Backhoes	1	84	820	40	0.40	-24.3	-4.0	59.7	55.7
								Log Sum	57.8
Grading									
Rubber Tired Dozers	1	82	820	40	0.40	-24.3	-4.0	57.7	53.7
Tractors/Loaders/Backhoes	3	84	820	40	1.20	-24.3	0.8	59.7	60.5
Excavators	1	81	820	40	0.40	-24.3	-4.0	56.7	52.7
Graders	1	85	820	40	0.40	-24.3	-4.0	60.7	56.7
								Log Sum	63.0
Building Construction									
Cranes	2	81	820	16	0.32	-24.3	-4.9	56.7	51.8
Forklifts ⁴	4	48	820	40	1.60	-24.3	2.0	23.7	25.7
Generator Sets	1	81	820	50	0.50	-24.3	-3.0	56.7	53.7
Welders	2	74	820	40	0.80	-24.3	-1.0	49.7	48.7
Tractors/Loaders/Backhoes	5	84	820	40	2.00	-24.3	3.0	59.7	62.7
								Log Sum	63.7
Paving									
Pavers	2	77	820	50	1.00	-24.3	0.0	52.7	52.7
Paving Equipment	2	77	820	50	1.00	-24.3	0.0	52.7	52.7
Rollers	2	80	820	20	0.40	-24.3	-4.0	55.7	51.7
								Log Sum	57.2
Architectural Coating									
Air Compressors	1	78	820	40	0.40	-24.3	-4.0	53.7	49.7
								Log Sum	49.7

Notes:

- (1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
- (2) Source: SoundPLAN reference list.
- (3) Distance to receptor calculated from center of site. Construction noise projected from the center of the disturbed area of the project site to nearest sensitive use (property line).

Receptor - Residential to South (1165 Witherby Lane, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation									
Rubber Tired Dozers	1	82	1156	40	0.40	-27.3	-4.0	54.7	50.7
Tractors/Loaders/Backhoes	1	84	1156	40	0.40	-27.3	-4.0	56.7	52.7
								Log Sum	54.9
Grading									
Rubber Tired Dozers	1	82	1156	40	0.40	-27.3	-4.0	54.7	50.7
Tractors/Loaders/Backhoes	3	84	1156	40	1.20	-27.3	0.8	56.7	57.5
Excavators	1	81	1156	40	0.40	-27.3	-4.0	53.7	49.7
Graders	1	85	1156	40	0.40	-27.3	-4.0	57.7	53.7
								Log Sum	60.1
Building Construction									
Cranes	2	81	1156	16	0.32	-27.3	-4.9	53.7	48.8
Forklifts ⁴	4	48	1156	40	1.60	-27.3	2.0	20.7	22.8
Generator Sets	1	81	1156	50	0.50	-27.3	-3.0	53.7	50.7
Welders	2	74	1156	40	0.80	-27.3	-1.0	46.7	45.8
Tractors/Loaders/Backhoes	5	84	1156	40	2.00	-27.3	3.0	56.7	59.7
								Log Sum	60.7
Paving									
Pavers	2	77	1156	50	1.00	-27.3	0.0	49.7	49.7
Paving Equipment	2	77	1156	50	1.00	-27.3	0.0	49.7	49.7
Rollers	2	80	1156	20	0.40	-27.3	-4.0	52.7	48.7
								Log Sum	54.2
Architectural Coating									
Air Compressors	1	78	1156	40	0.40	-27.3	-4.0	50.7	46.7
								Log Sum	46.7

Notes:

- (1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
- (2) Source: SoundPLAN reference list.
- (3) Distance to receptor calculated from center of site. Construction noise projected from the center of the disturbed area of the project site to nearest sensitive use (property line).

APPENDIX E
SOUNDPLAN WORKSHEETS

Emission "TNM 2.5" X

Traffic **Speeds, surface**

Entry type: Veh/h manually (3) v

One-way traffic: In entry direction v ADT [Veh/24h]: 14999

	Veh/h(d)	p(d)[%]	Veh/h(e)	p(e)[%]	Veh/h(n)	p(n)[%]
	935.6	100.0	683.4	100.0	191.3	100.0

	Veh/h(d)	p(d)[%]	Veh/h(e)	p(e)[%]	Veh/h(n)	p(n)[%]
Automobiles	919.9	98.3	679.4	99.4	170.3	89.0
Medium trucks	11.3	1.2	2.0	0.3	15.1	7.9
Heavy trucks	4.4	0.5	2.0	0.3	5.9	3.1
Buses	0.0	0.0	0.0	0.0	0.0	0.0
Motorcycles	0.0	0.0	0.0	0.0	0.0	0.0
Auxiliary vehicle	0.0	0.0	0.0	0.0	0.0	0.0

Levels	d(7-19h)	e(19-22h)	n(22-7h)
[dB(A)]	66.88	65.24	62.04

Gradient: 0.0%
Driving on right side

OK Cancel Help

Emission "TNM 2.5" X

Traffic **Speeds, surface**

Speeds

Vehicles type	Vehicle name	Speed [km/h]
Automobiles	TNM 2.5 AU	64.4
Medium trucks	TNM 2.5 MT	64.4
Heavy trucks	TNM 2.5 HT	64.4
Buses	TNM 2.5 Bus	0.0
Motorcycles	TNM 2.5 MC	0.0
Auxiliary vehicle		0.0

Control device: none v Constrained speed [km/h]: 0.0

Affected vehicles [%]: 0.0

Pavement type: Average (of DGAC and PCC) v

Levels	d(7-19h)	e(19-22h)	n(22-7h)
[dB(A)]	66.88	65.24	62.04

Gradient: 0.0%
Driving on right side

OK Cancel Help

Receiver list

No.	Receiver name	Building side	Floor	Limit				Level				Conflict			
				Day	Evenin	Night	Lden	Day	Evenin	Night	Lden	Day	Evenin	Night	Lden
				dB(A)				dB(A)				dB			
1	2	-	EG	-	-	-	-	64.7	63.0	60.1	67.8	-	-	-	-
2		-	EG	-	-	-	-	60.2	58.5	55.9	63.5	-	-	-	-
3	3	-	EG	-	-	-	-	59.5	57.8	54.8	62.6	-	-	-	-

Noise emissions of industry sources

Source name	Reference	Level	Frequency spectrum [dB(A)]											Corrections		
			31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	16 kHz	Cwall dB	CI dB	CT dB	
2	Lw/unit	Day	78.7	42.5	46.5	59.5	64.5	58.5	69.5	71.5	70.5	72.5	72.5	-	-	-
	Lw/unit	Day	78.7	42.5	46.5	59.5	64.5	58.5	69.5	71.5	70.5	72.5	72.5	-	-	-
3	Lw/unit	Day	78.7	42.5	46.5	59.5	64.5	58.5	69.5	71.5	70.5	72.5	72.5	-	-	-
4	Lw/unit	Day	78.7	42.5	46.5	59.5	64.5	58.5	69.5	71.5	70.5	72.5	72.5	-	-	-
5	Lw/unit	Day	78.7	42.5	46.5	59.5	64.5	58.5	69.5	71.5	70.5	72.5	72.5	-	-	-
6	Lw/unit	Day	78.7	42.5	46.5	59.5	64.5	58.5	69.5	71.5	70.5	72.5	72.5	-	-	-
7	Lw/unit	Day	78.7	42.5	46.5	59.5	64.5	58.5	69.5	71.5	70.5	72.5	72.5	-	-	-
8	Lw/unit	Day	78.7	42.5	46.5	59.5	64.5	58.5	69.5	71.5	70.5	72.5	72.5	-	-	-
9	Lw/unit	Day	78.7	42.5	46.5	59.5	64.5	58.5	69.5	71.5	70.5	72.5	72.5	-	-	-

Noise emissions of parking lot traffic

Name	Parking lot type	Size	Movements per hour			Road surface	Separated method	Lw,ref dB(A)
			Day	Evening	Night			
P1	Visitors and staff	14 Parking bays	0.200	0.000	0.000	Asphaltic driving lanes	no	76.2
P2	Visitors and staff	18 Parking bays	0.200	0.000	0.000	Asphaltic driving lanes	no	77.9
P3	Visitors and staff	18 Parking bays	0.200	0.000	0.000	Asphaltic driving lanes	no	77.9
P4	Visitors and staff	23 Parking bays	0.200	0.000	0.000	Asphaltic driving lanes	no	79.5

Receiver list

No.	Receiver name	Building side	Floor	Limit Day dB(A)	Level Day dB(A)	Conflict Day dB
1	1	-	EG	-	29.7	-
2	2	-	EG	-	25.1	-
3	3	-	EG	-	32.0	-
4	4	-	EG	-	-0.2	-
5	5	-	EG	-	22.4	-
6	6	-	EG	-	11.3	-
7	7	-	EG	-	17.7	-

APPENDIX F

FHWA TRAFFIC NOISE MODEL WORKSHEETS

Existing Traffic Noise

1
 North Broadway
 North of Rincon Avenue

:Id
 :Road
 :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 6900
 Speed 40
 Distance 31
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	423.17	5.17	2.01	312.73	0.92	0.92	78.33	6.90	2.68
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	19.94	0.81	-3.29	18.63	-6.70	-6.68	12.61	2.06	-2.04
Distance	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.30	54.13	54.88	62.99	46.62	51.48	56.98	55.38	56.13
	DAY LEQ	65.13		EVENING LEQ	63.38		NIGHT LEQ	60.98	

F CNEL **68.57** Day hour 89.00
 DAY LEQ 65.13 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

1 :ld
 North Broadway :Road
 North of Rincon Avenue :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 6909
 Speed 40
 Distance 31
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	423.73	5.18	2.02	313.14	0.92	0.92	78.43	6.91	2.69
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	19.94	0.82	-3.28	18.63	-6.69	-6.68	12.62	2.07	-2.03
Distance	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.31	54.14	54.88	63.00	46.63	51.49	56.98	55.39	56.13
	DAY LEQ	65.14		EVENING LEQ	63.39		NIGHT LEQ	60.99	

CNEL 68.57
 DAY LEQ 65.14

Day hour 89.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Traffic Noise

2
 North Broadway
 South of Rincon Avenue

:Id
 :Road
 :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 4200
 Speed 40
 Distance 31
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	257.58	3.15	1.23	190.36	0.56	0.56	47.68	4.20	1.63
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	17.78	-1.34	-5.44	16.47	-8.85	-8.84	10.46	-0.09	-4.20
Distance	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	62.15	51.98	52.72	60.84	44.47	49.32	54.82	53.22	53.97
	DAY LEQ	62.98		EVENING LEQ	61.22		NIGHT LEQ	58.83	

CNEL 66.41
 DAY LEQ 62.98

Day hour 90.00
 Absorptive? no
 Use hour? no
 GRADE dB 1.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

2 :ld
 North Broadway :Road
 South of Rincon Avenue :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 4245
 Speed 40
 Distance 31
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	260.34	3.18	1.24	192.40	0.56	0.57	48.19	4.24	1.65
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	17.83	-1.30	-5.40	16.52	-8.81	-8.79	10.50	-0.05	-4.15
Distance	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	62.19	52.02	52.77	60.88	44.51	49.37	54.87	53.27	54.02
	DAY LEQ	63.02		EVENING LEQ	61.27		NIGHT LEQ	58.87	

CNEL 66.46
 DAY LEQ 63.02

Day hour 90.00
 Absorptive? no
 Use hour? no
 GRADE dB 1.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Traffic Noise

3
 North Ash Street
 South of Rincon Avenue

:Id
 :Road
 :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 3900
 Speed 35
 Distance 31
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	239.19	2.92	1.14	176.76	0.52	0.52	44.27	3.90	1.52
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	18.04	-1.09	-5.19	16.73	-8.59	-8.58	10.72	0.16	-3.94
Distance	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	60.16	50.75	51.87	58.84	43.24	48.47	52.83	52.00	53.11
	DAY LEQ	61.17		EVENING LEQ	59.33		NIGHT LEQ	57.44	

CNEL 64.88
 DAY LEQ 61.17

Day hour 91.00
 Absorptive? no
 Use hour? no
 GRADE dB 2.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

3 :ld
 North Ash Street :Road
 South of Rincon Avenue :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 3909
 Speed 35
 Distance 31
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	239.74	2.93	1.14	177.17	0.52	0.52	44.38	3.91	1.52
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	18.05	-1.08	-5.18	16.74	-8.58	-8.57	10.73	0.17	-3.93
Distance	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	60.17	50.76	51.88	58.85	43.25	48.48	52.84	52.01	53.12
	DAY LEQ	61.18		EVENING LEQ	59.34		NIGHT LEQ	57.45	

CNEL 64.89
 DAY LEQ 61.18

Day hour 91.00
 Absorptive? no
 Use hour? no
 GRADE dB 2.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Traffic Noise

4
 Conway Drive
 South of Rincon Avenue

:Id
 :Road
 :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 1200
 Speed 35
 Distance 31
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	73.60	0.90	0.35	54.39	0.16	0.16	13.62	1.20	0.47
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	12.92	-6.20	-10.31	11.61	-13.71	-13.70	5.60	-4.95	-9.06
Distance	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	55.04	45.63	46.75	53.72	38.12	43.35	47.71	46.88	48.00
	DAY LEQ	56.05		EVENING LEQ	54.21		NIGHT LEQ	52.33	

CNEL 59.76
 DAY LEQ 56.05

Day hour 92.00
 Absorptive? no
 Use hour? no
 GRADE dB 3.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

4 :ld
 Conway Drive :Road
 South of Rincon Avenue :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 1209
 Speed 35
 Distance 31
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	74.15	0.91	0.35	54.80	0.16	0.16	13.73	1.21	0.47
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	12.95	-6.17	-10.27	11.64	-13.68	-13.67	5.63	-4.92	-9.02
Distance	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	55.07	45.66	46.78	53.76	38.15	43.38	47.74	46.91	48.03
	DAY LEQ	56.08		EVENING LEQ	54.25		NIGHT LEQ	52.36	

CNEL 59.79
 DAY LEQ 56.08

Day hour 92.00
 Absorptive? no
 Use hour? no
 GRADE dB 3.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Traffic Noise

5
Rincon Avenue
 West of North Broadway

:Id
 :Road
 :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 8400
 Speed 40
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	515.17	6.30	2.45	380.72	1.12	1.12	95.36	8.40	3.27
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	20.79	1.67	-2.43	19.48	-5.84	-5.83	13.47	2.92	-1.19
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.05	53.88	54.62	62.74	46.37	51.23	56.73	55.13	55.87
	DAY LEQ	64.88		EVENING LEQ	63.13		NIGHT LEQ	60.73	

CNEL 68.32
 DAY LEQ 64.88

Day hour 93.00
 Absorptive? no
 Use hour? no
 GRADE dB 4.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

5 :ld
Rincon Avenue :Road
West of North Broadway :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 8499
 Speed 40
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	521.24	6.37	2.48	385.20	1.13	1.13	96.48	8.50	3.31
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	20.84	1.72	-2.38	19.53	-5.79	-5.78	13.52	2.97	-1.13
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.10	53.93	54.67	62.79	46.42	51.28	56.78	55.18	55.92
	DAY LEQ	64.93		EVENING LEQ	63.18		NIGHT LEQ	60.78	

CNEL 68.37
 DAY LEQ 64.93

Day hour 93.00
 Absorptive? no
 Use hour? no
 GRADE dB 4.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Traffic Noise

6 :ld
 Rincon Avenue :Road
 North Broadway to North Ash Street :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 6300
 Speed 40
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	386.38	4.72	1.84	285.54	0.84	0.84	71.52	6.30	2.45
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	19.54	0.42	-3.68	18.23	-7.09	-7.08	12.22	1.67	-2.43
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	62.80	52.63	53.37	61.49	45.12	49.98	55.48	53.88	54.62
	DAY LEQ	63.63		EVENING LEQ	61.88		NIGHT LEQ	59.48	

CNEL 67.07
 DAY LEQ 63.63

Day hour 94.00
 Absorptive? no
 Use hour? no
 GRADE dB 5.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

6 :ld
 Rincon Avenue :Road
 North Broadway to North Ash Street :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 6461
 Speed 40
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	396.25	4.85	1.88	292.83	0.86	0.86	73.35	6.46	2.51
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	19.65	0.53	-3.57	18.34	-6.98	-6.97	12.33	1.78	-2.32
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	62.91	52.74	53.48	61.60	45.23	50.09	55.59	53.99	54.73
	DAY LEQ	63.74		EVENING LEQ	61.99		NIGHT LEQ	59.59	

CNEL 67.18
 DAY LEQ 63.74

Day hour 94.00
 Absorptive? no
 Use hour? no
 GRADE dB 5.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Traffic Noise

7 :ld
Rincon Avenue :Road
 North Ash Street to Conway Drive :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 5000
 Speed 40
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	306.65	3.75	1.46	226.62	0.67	0.67	56.76	5.00	1.94
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	18.54	-0.59	-4.69	17.23	-8.10	-8.08	11.21	0.66	-3.44
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	61.80	51.63	52.37	60.49	44.12	48.97	54.47	52.87	53.62
	DAY LEQ	62.63		EVENING LEQ	60.87		NIGHT LEQ	58.48	

CNEL 66.06
 DAY LEQ 62.63

Day hour 95.00
 Absorptive? no
 Use hour? no
 GRADE dB 6.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

7 :ld
Rincon Avenue :Road
 North Ash Street to Conway Drive :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 5313
 Speed 40
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	325.84	3.98	1.55	240.80	0.71	0.71	60.32	5.31	2.07
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	18.80	-0.32	-4.42	17.49	-7.83	-7.82	11.48	0.93	-3.17
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	62.06	51.89	52.63	60.75	44.38	49.24	54.74	53.14	53.88
	DAY LEQ	62.89		EVENING LEQ	61.14		NIGHT LEQ	58.74	

CNEL 66.33
 DAY LEQ 62.89

Day hour 95.00
 Absorptive? no
 Use hour? no
 GRADE dB 6.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Traffic Noise

8
Rincon Avenue
East of Conway Drive

:Id
:Road
:Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 3000
Speed 40
Distance 31
Left Angle -90
Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	183.99	2.25	0.88	135.97	0.40	0.40	34.06	3.00	1.17
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	16.32	-2.80	-6.91	15.01	-10.31	-10.30	9.00	-1.56	-5.66
Distance	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	60.69	50.51	51.26	59.37	43.01	47.86	53.36	51.76	52.51
	DAY LEQ	61.52		EVENING LEQ	59.76		NIGHT LEQ	57.36	

CNEL 64.95
DAY LEQ 61.52

Day hour 96.00
Absorptive? no
Use hour? no
GRADE dB 7.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

8 :ld
Rincon Avenue :Road
East of Conway Drive :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 3078
 Speed 40
 Distance 31
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	188.77	2.31	0.90	139.51	0.41	0.41	34.94	3.08	1.20
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	16.43	-2.69	-6.79	15.12	-10.20	-10.19	9.11	-1.44	-5.55
Distance	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	60.80	50.63	51.37	59.49	43.12	47.97	53.47	51.87	52.62
	DAY LEQ	61.63		EVENING LEQ	59.87		NIGHT LEQ	57.48	

CNEL 65.06
 DAY LEQ 61.63

Day hour 96.00
 Absorptive? no
 Use hour? no
 GRADE dB 7.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



APPENDIX G

GROUNDBORNE VIBRATION WORKSHEETS

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19648 ISKCON of Escondido	Date:	9/29/23
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Residential to West		
Address:	2292 Creek Hollow Place, Escondido, CA		
PPV = $PPV_{ref}(25/D)^n$ (in/sec)			
INPUT			
Equipment = Type	1	Vibratory Roller	INPUT SECTION IN GREEN
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	21.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.273	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19648 ISKCON of Escondido	Date:	9/29/23
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Residential to West		
Address:	2292 Creek Hollow Place, Escondido, CA		
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	2	Large Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	21.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.116	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19648 ISKCON of Escondido	Date:	9/29/23
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Residential to Northwest		
Address:	2332 Briarwood Place, Escondido, CA		
PPV = $PPV_{ref}(25/D)^n$ (in/sec)			
INPUT			
Equipment = Type	1	Vibratory Roller	INPUT SECTION IN GREEN
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	249.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.007	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19648 ISKCON of Escondido	Date:	9/29/23
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Residential to Northwest		
Address:	2332 Briarwood Place, Escondido, CA		
PPV = $PPV_{ref}(25/D)^n$ (in/sec)			
INPUT			
Equipment = Type	2	Large Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	249.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.003	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19648 ISKCON of Escondido	Date:	9/29/23
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Commercial to North		
Address:	1501 Rincon Avenue, Escondido, CA		
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	1	Vibratory Roller	INPUT SECTION IN GREEN
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	80.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.037	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19648 ISKCON of Escondido	Date:	9/29/23
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Commercial to North		
Address:	1501 Rincon Avenue, Escondido, CA		
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	2	Large Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	80.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.016	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19648 ISKCON of Escondido	Date:	9/29/23
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Residential to Northeast		
Address:	1448 Rincon Avenue, Escondido, CA		
PPV = $PPV_{ref}(25/D)^n$ (in/sec)			
INPUT			
Equipment = Type	1	Vibratory Roller	INPUT SECTION IN GREEN
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	70.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.045	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19648 ISKCON of Escondido	Date:	9/29/23
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Residential to Northeast		
Address:	1448 Rincon Avenue, Escondido, CA		
PPV = $PPV_{ref}(25/D)^n$ (in/sec)			
INPUT			
Equipment = Type	2	Large Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	70.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.019	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project: 19648 ISKCON of Escondido Date: 9/29/23
 Source: Vibratory Roller
 Scenario: Unmitigated
 Location: Residential to Souh
 Krishna Farm, 1365 Rincon Avenue, Escondido, CA (located within southern portion
 Address: of project site)
 PPV = $PPV_{ref}(25/D)^n$ (in/sec)

INPUT

Equipment = 1 Vibratory Roller INPUT SECTION IN GREEN
 Type
 PPVref = 0.21 Reference PPV (in/sec) at 25 ft.
 D = 75.00 Distance from Equipment to Receiver (ft)
 n = 1.50 Vibration attenuation rate through the ground

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.

RESULTS

PPV = 0.040 IN/SEC OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19648 ISKCON of Escondido	Date:	9/29/23
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Residential to Souh		
Address:	Krishna Farm, 1365 Rincon Avenue, Escondido, CA (located within southern portion of project site)		
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	2	Large Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	75.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.017	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19648 ISKCON of Escondido	Date:	9/29/23
Source:	Vibratory Roller		
Scenario:	BMPs		
Location:	Threshold for Damage		
Address:			
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	1	Vibratory Roller	INPUT SECTION IN GREEN
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	26.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.198	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19648 ISKCON of Escondido	Date:	9/29/23
Source:	Large Bulldozer		
Scenario:	BMPs		
Location:	Threshold for Damage		
Address:			
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	2	Large Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	15.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.191	IN/SEC	OUTPUT IN BLUE

Construction Annoyance Vibration Calculations

Source: Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment Manual (September 2018).

Eq. 7-3: $L_{\text{distance}} = L_{\text{ref}} - 30 \log (D/25)$

L_{distance} = the rms velocity level adjusted for distance, VdB
 L_{ref} = the source reference vibration level at 25 feet, VdB
 D = distance from the equipment to the receiver, ft.

Large Bulldozer:

Residential to West: $L_{\text{distance}} = 87 - 30 \log (21/25) = 89.27$ VdB
Residential to Northwest: $L_{\text{distance}} = 87 - 30 \log (249/25) = 57.05$ VdB
Residential to Northeast: $L_{\text{distance}} = 87 - 30 \log (70/25) = 73.56$ VdB
Residential to South: $L_{\text{distance}} = 87 - 30 \log (75/25) = 72.68$ VdB

Under Threshold Mitigation Distance: $87 - 30 \log (80/25) = 71.85$ VdB

Vibratory Roller:

Residential to West: $L_{\text{distance}} = 94 - 30 \log (21/25) = 96.27$ VdB
Residential to Northwest: $L_{\text{distance}} = 94 - 30 \log (249/25) = 64.05$ VdB
Residential to Northeast: $L_{\text{distance}} = 94 - 30 \log (70/25) = 80.59$ VdB
Residential to South: $L_{\text{distance}} = 94 - 30 \log (75/25) = 79.69$ VdB

Under Threshold Mitigation Distance: $94 - 30 \log (136/25) = 71.93$ VdB



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