BROWN STRAUSS BANNING INDUSTRIAL NOISE IMPACT ANALYSIS

City of Banning

December 5, 2023

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

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Project No. 19588

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EXECUTIVE SUMMARY

The approximately 14.92-acre project site is located at 1219 and 1431 West Lincoln Street (APNs 540-180-020, -022, and -026) in the City of Banning, California. The project site is currently vacant.

The project is a proposal to construct a 45,000 square foot warehouse, a 3,000 square foot office, two 500 square foot enclosed saw sheds, and development of an outdoor storage yard to be used for steel distribution. The project also involves a General Plan Amendment/Zone Change for a portion of the site from Industrial (I) and General Commercial (CC) to Industrial (I).

The proposed warehouse would be utilized to store structural tube, structural channel and structural angle. The outdoor storage yard would be utilized to store wide flange beam and structural tube. Products inside the warehouse are moved via overhead cranes and products in the outdoor storage yard are moved via forklifts. Brown Strauss is primarily a distributor, buying structural steel products in bulk quantities from the steel mills and selling the same products in smaller quantities to steel fabricators. The proposed operation does not include a steel mill or foundry. Instead, the only manufacturing activity that Brown Strauss performs is to cut in products within the enclosed saw sheds. Less than 10 percent of customer orders are cut to length by Brown Strauss.

The project site is proposed to provide four access driveways on West Lincoln Street. The project west driveway will be a truck entrance only driveway. The project central-west driveway will be a full access automobile only driveway. The project central-east and east driveways will be truck exit only driveways. For purposes of this analysis, the proposed project is anticipated to be constructed and fully operational by year 2025.

Brown Strauss Steel currently operates a larger facility located at 14970 Jurupa Avenue in the City of Fontana. If the proposed Banning project is approved, the existing operation in Fontana will be closed and its operations will be moved to the proposed Banning location.

Existing Noise Environment

Sensitive receptors that may be affected by project generated noise include the single-family residential uses located as close as approximately 75 feet south (along the southern side of Lincoln Avenue).

Noise measurements were collected at nine locations to document existing ambient noise levels in the project area as well as of the rail spur activity at the existing facility associated with the proposed project. Measured short-term ambient noise levels ranged between 52.8 and 69.4 dBA L_{eq} and long-term ambient noise levels ranged between 56.4 and 65.8 dBA L_{eq}. The dominant noise source for the measurements taken near the proposed project site included vehicle traffic associated with West Lincoln Street and the Interstate 10 Freeway as well as passing trains. The dominant noise source for the measurements taken at the existing facility included vehicle traffic along Live Oak Avenue and Jurupa Avenue and truck engine noise.

Construction Noise Impacts

Project construction will not occur outside of the hours outlined in Section 8.44.090(E) of the City of Banning Municipal Code. Based on the modeled construction noise levels, construction noise levels are anticipated to reach up to approximately 71.9 dBA L_{eq} at the nearest residential property line. Therefore, interior noise levels would be anticipated to reach up to 51.9 dBA L_{eq} (with windows closed based on typical exterior to interior noise transmission) at the nearest residential dwelling unit. Project construction noise would not exceed City-established construction noise standards of an interior noise level of 55 dBA. 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.

Stationary Source Noise Impacts

Stationary noise source standards are established within Sections 8.44.050 through 8.44.080 of the City of Banning Valley Municipal Code (see Regulatory Setting section of this report). The City noise criteria for stationary operational noise are dependent on the existing zoning and not the existing land use. The City has only established noise criteria for stationary noise impacts to residential zoned land. The only residentially zoned land in the vicinity of the project site is located on the west side of South 16th Street southwest of the project site.

Peak hour project operation is expected to reach up to 48.5 dBA L_{eq} at the nearest residentially zoned properties located on the west side of South 16th street (see Receiver 4 on Figure 6) and would not exceed the daytime L_{eq} criteria of 55 dBA but could exceed the nighttime L_{eq} criteria of 45 dBA. However, it will not result in a noticeable increase over the existing measured nighttime noise levels (1 dB). It should also be noted that nighttime onsite operations are typically less intensive than peak hour onsite operations. This impact is less than significant. No mitigation is required.

Maximum noise events on the project site could result in noise levels of up to 48.7 dBA L_{max} at the closest residentially zoned properties and would not exceed the City's daytime L_{max} criteria of 75 dBA or the their nighttime L_{max} criteria of 65 dBA. This impact is less than significant. No mitigation is required.

Mobile Source Noise Impacts – Vehicle Trips

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

Construction Groundborne Vibration Impacts

With implementation of the vibration related best management practice (as provided in the Project Description), groundborne vibration generated by project construction would not exceed the levels necessary to cause architectural damage to sensitive receptors. However, even with implementation of the best management practice, the threshold for annoyance due to vibration at offsite sensitive uses could theoretically be exceeded at existing residential receptors to the south of the project site. However, perceptibility of construction vibration would only occur while vibratory equipment is utilized within 16 feet of the project property line in vicinity of the residential use. Furthermore, this impact would only occur during daytime hours and will be temporary. The project impact is less than significant; no mitigation is required.

Air Traffic Impacts

The project site is located well outside the 55 dBA CNEL noise contours for the Banning Municipal Airport. Therefore, the project would not expose people residing or working in the project area to excessive noise levels associated with airports. The impact would be 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 and vibration impacts resulting from development of the proposed project and to identify mitigation measures that may be necessary to reduce those impacts. The noise and vibration 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 Banning, 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 approximately 14.92-acre project site is located at 1219 and 1431 West Lincoln Street (APNs 540-180-020, -022, and -026) in the City of Banning, California. The project site is currently vacant. A vicinity map showing the project location is provided on Figure 1.

PROJECT SETTING

The project site is located approximately 315 feet south of Interstate 10 which travels in an east/west direction in this area; approximately 80 feet south of two Burlington Northern Sante Fe (BNSF) rail lines which also traveling in an east/west direction in the project area; vacant and industrial land to the east and west and industrial and single-family residential land uses to the south. As indicated in the aerial photographs, a few of the single-family residential properties are transitioning or being used for light industrial uses.

Stationary noise source standards are established within Sections 8.44.050 through 8.44.080 of the City of Banning Valley Municipal Code (see Regulatory Setting section of this report). The City noise criteria for stationary operational noise are dependent on the existing zoning and not the existing land use. The City has only established noise criteria for stationary noise impacts to residential zoned land. The properties east and west of the project site are zoned General Commercial; properties south of the project site are zoned Business Park; and properties north of the project site are zoned Public Facilities (Railroad/Interstate). Existing single-family homes located southwest of the project site and west of South 16th Street, are on land zoned Very Low Residential.

PROJECT DESCRIPTION

The currently vacant site is proposed to be developed with a steel distribution use. The total development proposal includes a 45,000 square foot warehouse, a 3,000 square foot office, two 500 square foot enclosed saw sheds, and an outdoor storage yard. The project also involves a General Plan Amendment/Zone Change for a portion of the site from Industrial (I) and General Commercial (CC) to Industrial (I).

The warehouse would be utilized to store structural tube, structural channel and structural angle. The outdoor storage yard would be utilized to store wide flange beam and structural tube. Products inside the warehouse are moved via overhead cranes and products in the outdoor storage yard are moved via forklifts. Brown Strauss is primarily a distributor, buying structural steel products in bulk quantities from the steel mills and selling the same products in smaller quantities to steel fabricators. The proposed operation does not include a steel mill or foundry. Instead, the only manufacturing activity that Brown Strauss performs is to cut in

products within the enclosed saw sheds. Less than 10 percent of customer orders are cut to length by Brown Strauss.

The project site is proposed to provide four access driveways on West Lincoln Street. The project west driveway will be a truck entrance only driveway. The project central-west driveway will be a full access automobile only driveway. The project central-east and east driveways will be truck exit only driveways. For purposes of this analysis, the proposed project is anticipated to be constructed and fully operational by year 2025.

Brown Strauss Steel currently operates a larger facility located at 14970 Jurupa Avenue in the City of Fontana, California. If the proposed Banning project is approved, the existing operation in Fontana will be closed and its operations will be moved to the proposed Banning location.

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 and operational noise emanating from the proposed project:

1. All equipment, whether fixed or mobile, will be equipped with properly operating and maintained mufflers, consistent with manufacturer standards.
2. All stationary construction equipment will be placed so that emitted noise is directed away from the noise sensitive receptors nearest the project site.
3. As applicable, all equipment shall be shut off and not left in idle when not in use.
4. 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.
5. 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.
6. No amplified music and/or voice will be allowed on the project site.
7. Haul truck deliveries will not occur outside of the hours presented as exempt for construction per City of Banning Municipal Code Section 8.44.090(E).
8. The use of vibratory rollers, or other similar vibratory equipment, will be prohibited within 26 feet of the existing commercial structures to the east of the project site.

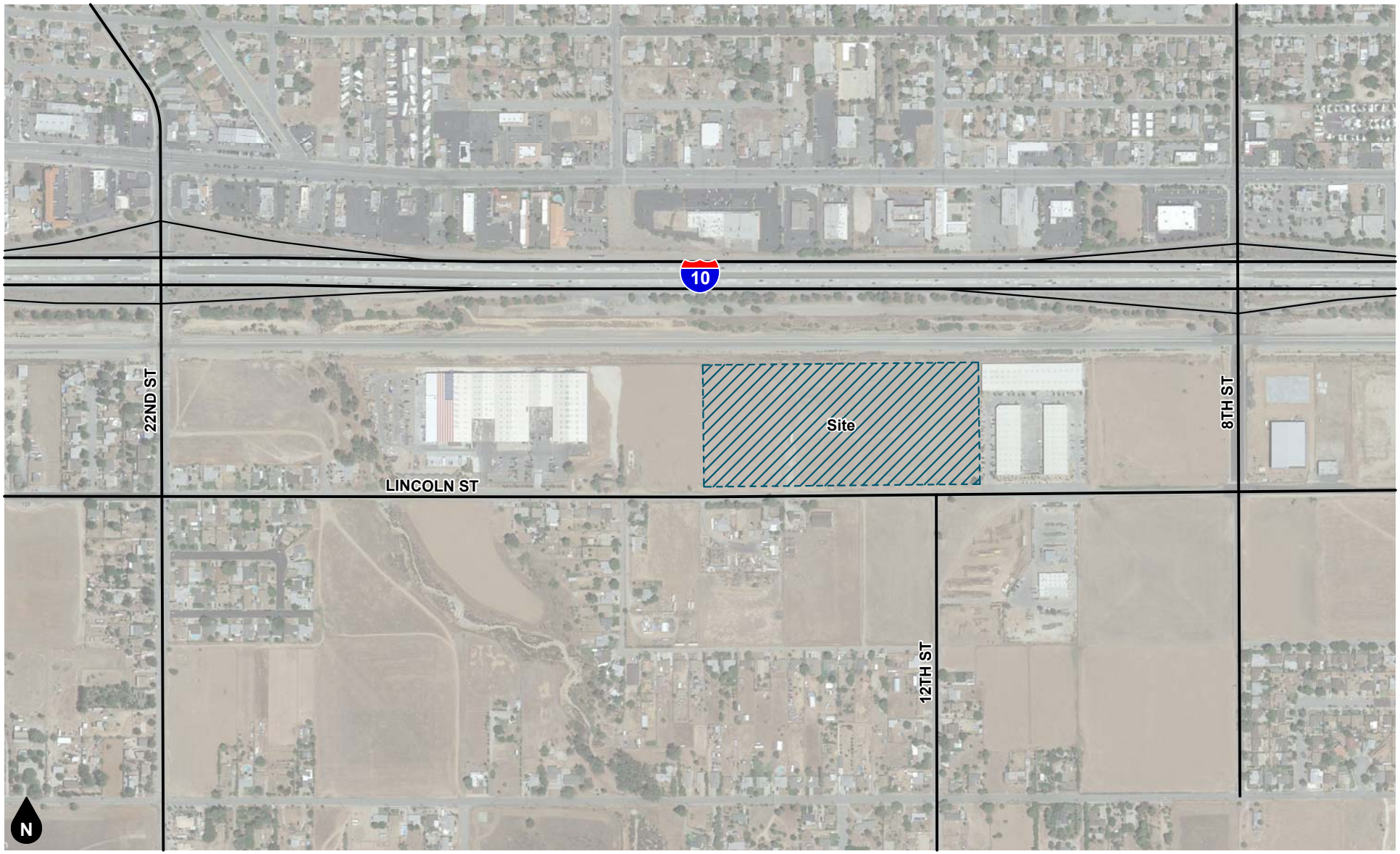


Figure 1
Project Location Map

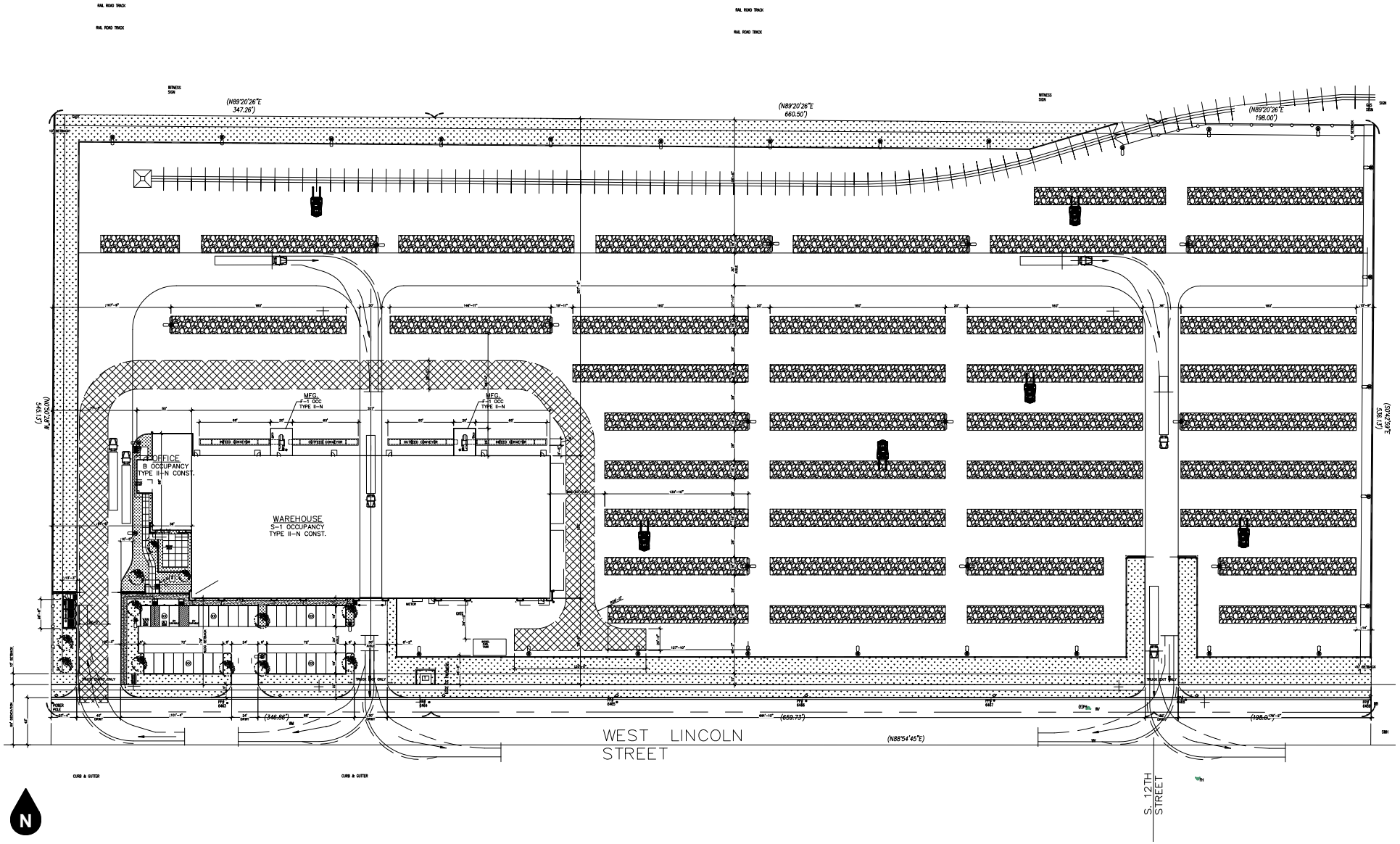


Figure 2
Site Plan

2. NOISE AND VIBRATION FUNDAMENTALS

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, $L_{eq(3\text{-}hr)}$ 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 weights 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

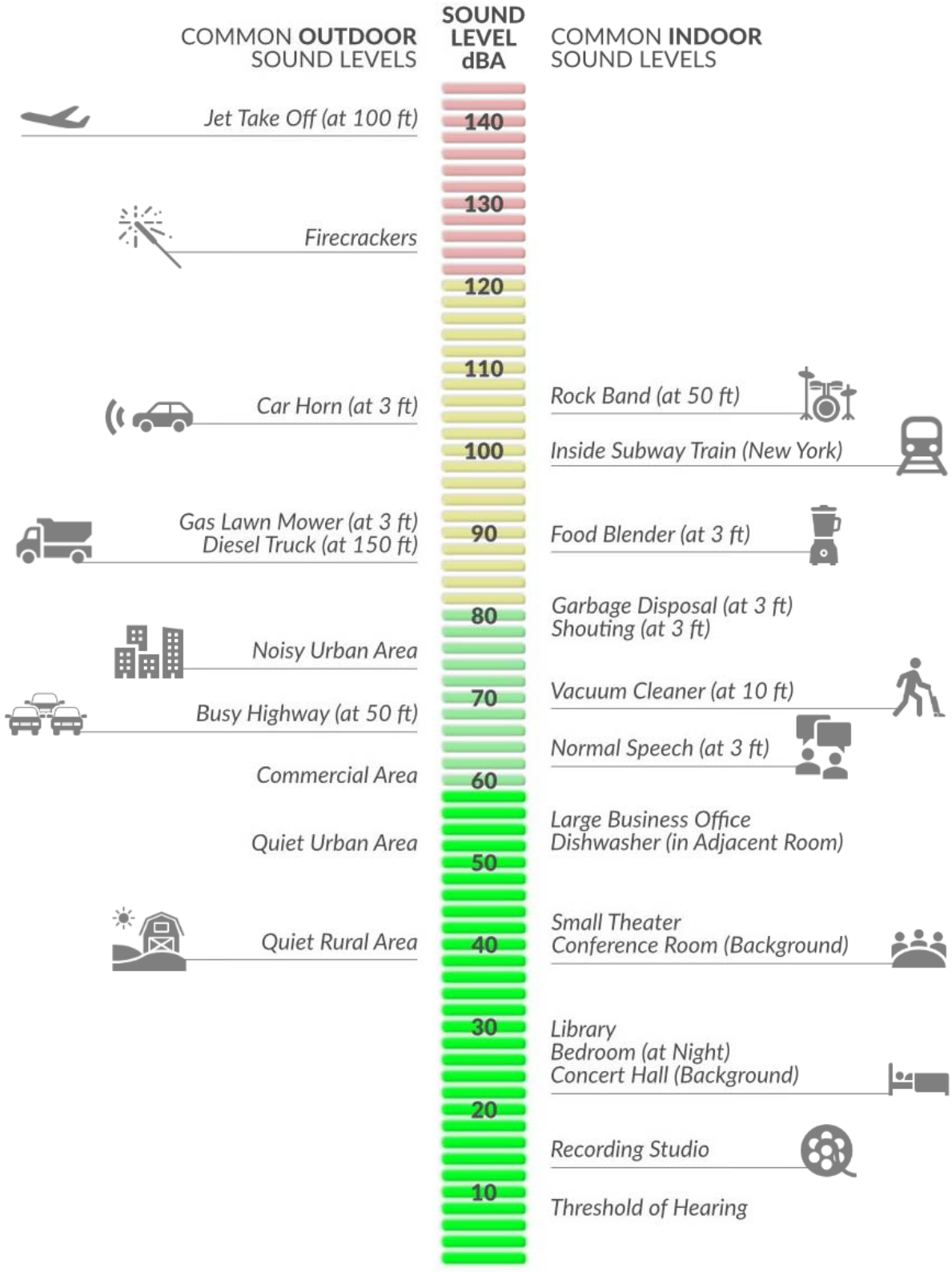
The way in which vibration is transmitted through the earth is called propagation. Propagation of earthborn vibrations is complicated and difficult to predict because of the endless variations in the soil through which waves travel. There are three main types of vibration propagation: surface, compression and shear waves. Surface waves, or Rayleigh 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.

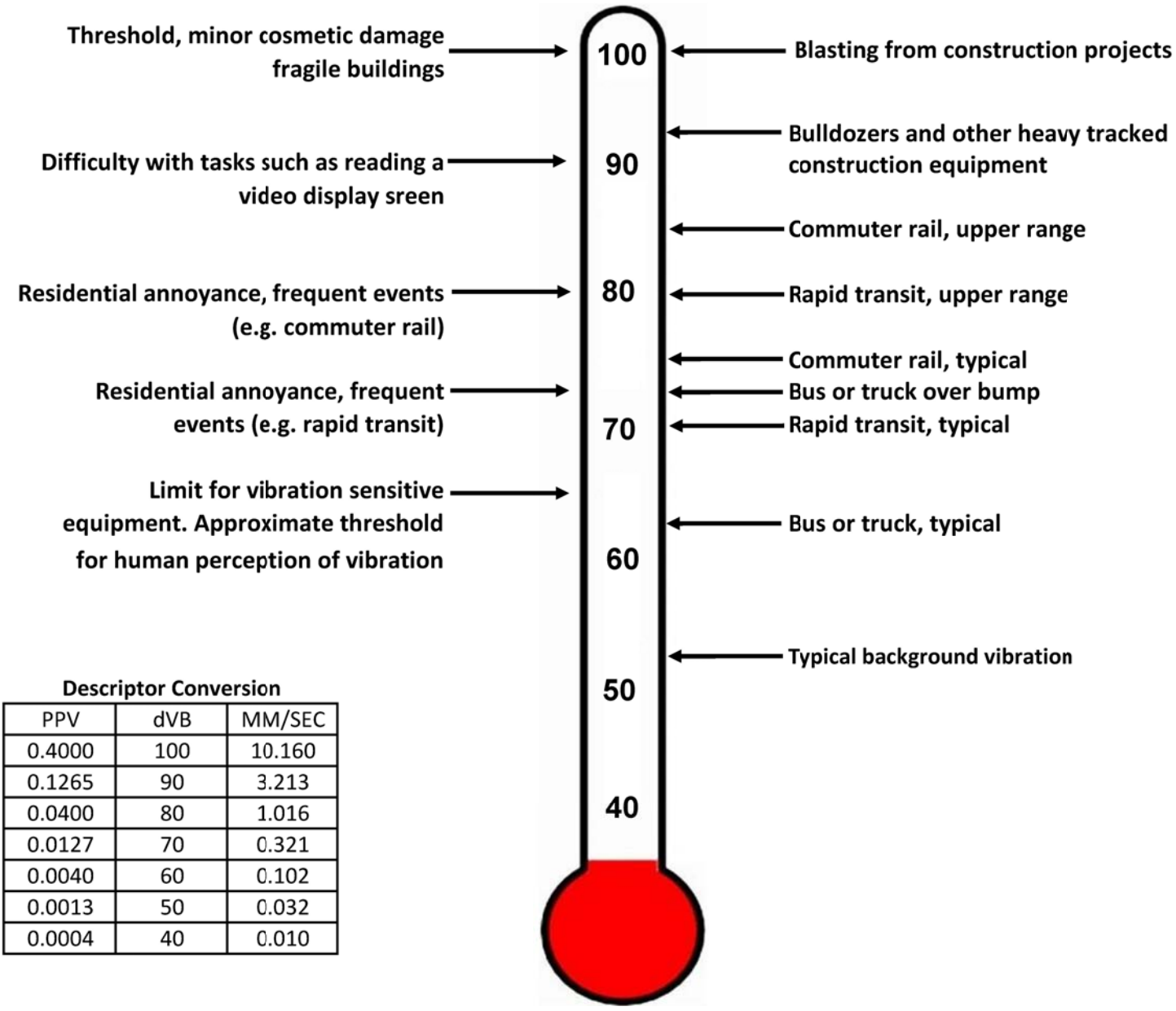
Vibration amplitudes are usually expressed as either peak particle velocity (PPV) or the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous peak of the vibration signal in inches per second. The RMS of a signal is the average of the squared amplitude of the signal in vibration 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.



Based on Policy & Guidance from Federal Aviation Administration

Figure 3
A-Weighted Comparative Sound Levels



Descriptor Conversion

PPV	dVB	MM/SEC
0.4000	100	10.160
0.1265	90	3.213
0.0400	80	1.016
0.0127	70	0.321
0.0040	60	0.102
0.0013	50	0.032
0.0004	40	0.010

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.

Figure 4
Typical Levels of Groundborne Vibration

3. EXISTING ENVIRONMENT

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

EXISTING LAND USES AND SENSITIVE RECEPTORS

The project site is bordered by a Union Pacific (UP) rail line to the north, an industrial use to the east, Lincoln Street to the south, and vacant land to the west.

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 single-family residential uses located as close as approximately 75 feet south (along the southern side of Lincoln Avenue).

AMBIENT NOISE MEASUREMENTS

An American National Standards Institute (ANSI Section S1.4 2014 Class 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, four (4) 15-minute daytime noise measurements were taken between 10:18 AM and 12:02 PM on April 25, 2023, and one (1) 15-minute daytime noise measurements was taken between 3:47 PM and 4:02 PM on April 26, 2023. In addition, one (1) long-term 24-hour noise measurement was also taken from April 25, 2023, to April 26, 2023. Furthermore, (1) 15-minute and two (2) 2-hour measurements were taken on May 10, 2023, at the existing facility associated with the proposed project in Fontana, California in order to document the noise levels associated with project rail spur activity. Figure 5 shows the noise measurement location map for the measurements taken near the proposed project site and Figure 6 shows the noise measurement location map for the measurements taken at the rail spur at the existing facility. 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 at the proposed project site:

- STNM1: represents the existing noise environment of the single-family residences located to the south of the project site along the southern side of Lincoln Street. The noise meter was placed along the southern side of Lincoln Street at the northern property line of the vacant residential property located at 1356 West Lincoln Street, Banning.
- STNM2: represents the existing noise environment of the single-family residence located to the southwest of the project site along the southern side of Lincoln Street. The noise meter was placed along the southern side of Lincoln Street near the northeastern property line of the residential property located at 1574 West Lincoln Street, Banning.
- STNM3: represents the existing noise environment of the single-family residences located to the southwest of the project site along the southern side of Barbour Avenue. The noise meter was placed along the southern side of Barbour Avenue near the northern property line of the residential property located at 1340 Barbour Avenue, Banning.
- STNM4: represents the existing noise environment of the northern project site boundary. The noise meter was placed near the center of the northern boundary of the project site just south of the adjacent UP rail line.
- STNM5: represents the existing noise environment of the single-family residences located to the southwest of the project site along the northern side of Lincoln Street. The noise meter was placed along the northern side of Lincoln Street near the southern property line of the residential property located at 2099 West Lincoln Street, Banning.

- LTNM1: represents the existing noise environment of the project site and the adjacent residential uses to the south. The noise meter was placed within the project site boundary in proximity to the project's southern property line and just north of Lincoln Avenue and the residential property located at 1380 West Lincoln Street, Banning.

As shown in Figure 6, the noise meter was placed at the following locations at the existing facility:

- NM (Base Measurement): represents the noise level without rail spur activity. The noise meter was placed near the center of the rail spur at the existing facility located at 14970 Jurupa Avenue, Fontana.
- NM1: represents the southern/dead end of the rail spur during pick up/delivery of rail car activity. The noise meter was placed near the southern portion of the rail spur at the existing facility located at 14970 Jurupa Avenue, Fontana.
- NM2: represents the northern end of the rail spur during pick up/delivery of rail car activity. The noise meter was placed near the northern portion of the rail spur at the existing facility located at 14970 Jurupa Avenue, Fontana.

Table 1 provides a summary of the short-term ambient noise data. Table 2 provides hourly interval ambient noise data from the long-term noise measurement. Short-term ambient noise levels were measured between 52.8 and 69.4 dBA L_{eq} at the proposed project site and between 60.1 and 65.1 dBA L_{eq} at the rail spur associated with the existing project site. Long-term hourly noise measurement ambient noise levels ranged from 56.4 to 65.8 dBA L_{eq} at the proposed project site. The dominant noise source for the measurements taken near the proposed project site included vehicle traffic associated with West Lincoln Street and the Interstate 10 Freeway as well as passing trains. The dominant noise source for the measurements taken at the existing facility included vehicle traffic along Live Oak Avenue and Jurupa Avenue and truck engine noise.

Table 1
Short-Term Noise Measurement Summary (dBA)

Daytime Measurements								
Site Location	Time Started	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
Proposed Project Site Measurements[1]								
STNM1	10:18 AM	65.7	80.9	52.8	76.6	71.1	59.6	56.6
STNM2	10:47 PM	65.6	85.4	50.5	76.2	70.1	58.8	55.0
STNM3	11:16 AM	52.8	60.5	49.1	56.2	54.9	53.5	52.4
STNM4	11:47 AM	69.4	84.2	55.0	80.5	73.4	64.6	62.4
STNM5	3:47 PM	63.3	96.5	49.8	72.0	68.3	62.4	57.1
Existing Facility Rail Spur Noise Measurements[2]								
NM (Base Measurement)	11:26 AM	60.1	72.6	44.7	67.8	64.7	60.9	55.7
NM1	1:45 PM	65.1	87.6	51.5	71.4	68.3	66.5	59.7
NM2	1:45 PM	64.7	87.0	56.5	72.9	68.0	62.7	59.4

Notes:

(1) Noise measurements STNM1 through STNM4 were performed on April 25, 2023, while STNM5 was performed on April 26, 2023. Each noise measurement was performed over a 15-minute duration. See Figure 5 for noise measurement locations.

(2) Measurement taken of rail spur activity at existing facility located at 14970 Jurupa Avenue, Fontana. Measurements were performed on May 10, 2023. NM (Base Measurement) was taken with no rail activity over a 15-minute duration. NM1 and NM2 were taken during rail activity over an approximate 2-hour duration. See Figure 6 for noise measurement locations.

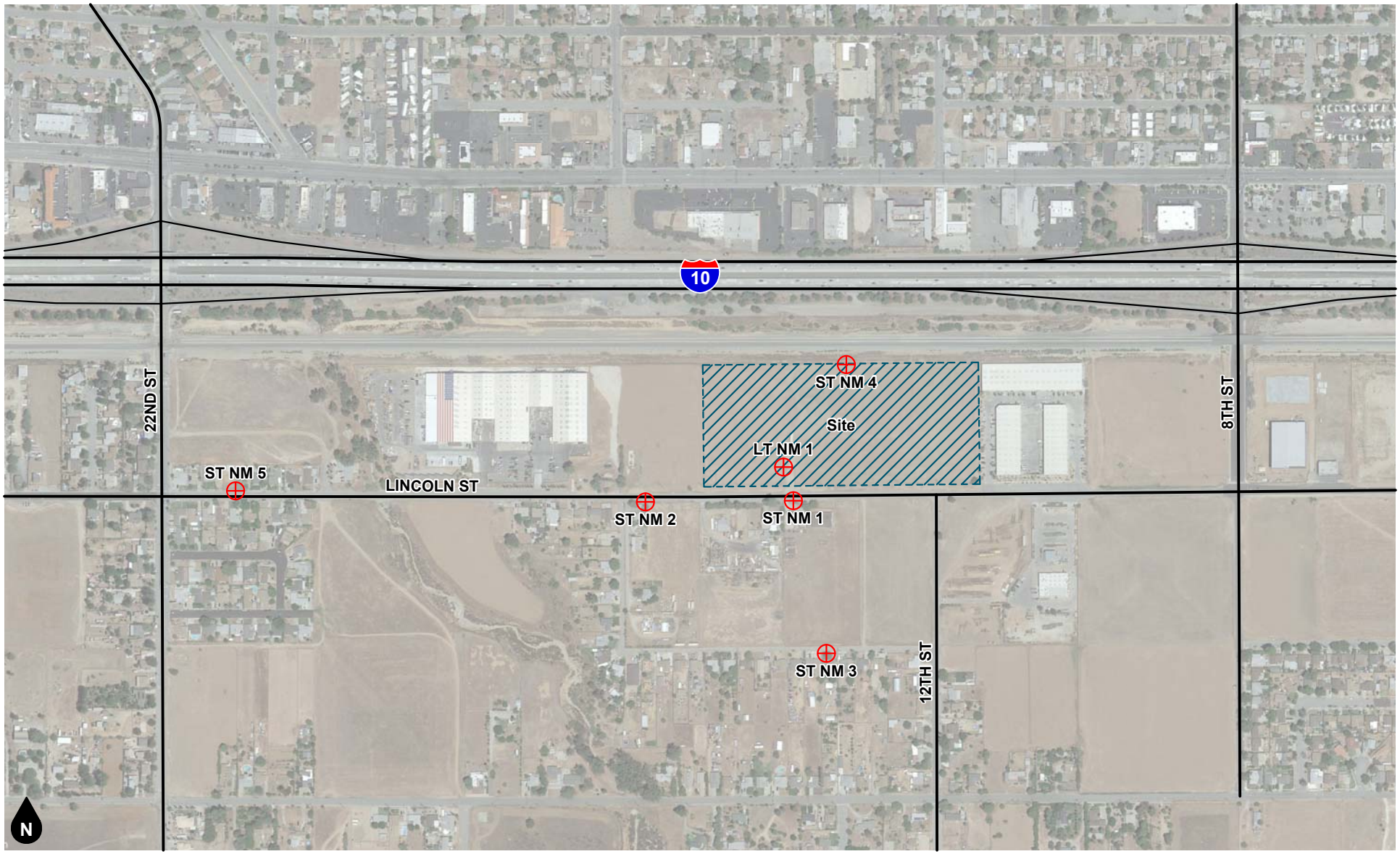
Table 2
Long-Term Noise Measurement Summary (LTNM1) (dBA)

24-Hour Ambient Noise[1,2]								
Hourly Measurements	Time Started	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
Overall Summary	1:00 PM	61.7	81.8	47.9	67.5	65.4	62.4	59.7
1	1:00 PM	57.8	77.1	51.2	62.9	60.4	58.0	56.3
2	2:00 PM	57.3	69.9	50.1	62.4	60.0	57.9	56.2
3	3:00 PM	57.8	72.8	51.0	62.5	60.4	58.3	56.6
4	4:00 PM	59.9	81.8	51.6	66.8	61.5	58.9	57.2
5	5:00 PM	60.9	79.5	54.3	65.4	62.8	61.1	59.6
6	6:00 PM	62.6	71.4	56.4	65.9	64.5	63.3	62.2
7	7:00 PM	60.6	70.5	53.6	65.0	63.3	61.5	59.8
8	8:00 PM	56.4	66.3	51.1	60.4	58.4	57.0	56.0
9	9:00 PM	57.6	65.7	51.1	61.7	60.0	58.4	57.0
10	10:00 PM	59.9	71.9	52.2	64.4	61.9	60.3	59.0
11	11:00 PM	61.9	74.2	52.2	69.8	65.3	61.4	59.7
12	12:00 AM	62.0	76.8	50.6	68.7	64.3	61.9	60.1
13	1:00 AM	61.5	76.8	49.7	69.3	64.2	61.3	59.4
14	2:00 AM	60.7	76.2	47.9	66.2	62.4	60.5	58.7
15	3:00 AM	61.1	78.4	52.0	67.5	63.6	61.3	59.6
16	4:00 AM	64.2	75.9	56.8	70.2	66.7	64.4	62.9
17	5:00 AM	64.8	74.1	58.1	69.2	66.9	65.5	64.4
18	6:00 AM	65.6	70.7	60.8	68.0	67.1	66.3	65.5
19	7:00 AM	65.8	76.6	60.9	70.1	67.6	66.3	65.2
20	8:00 AM	63.5	72.3	56.0	67.9	65.4	64.1	63.0
21	9:00 AM	61.5	76.1	55.3	67.8	63.6	61.4	60.0
22	10:00 AM	60.5	71.7	53.4	64.3	62.6	61.1	59.9
23	11:00 AM	60.2	70.7	52.0	66.0	62.8	60.8	59.3
24	12:00 PM	58.8	68.3	50.2	64.3	61.5	59.6	58.0
CNEL	69.1							

Notes:

(1) See Figure 5 for noise measurement locations. Noise measurement was performed over a 24-hour duration.

(2) Noise measurement performed from April 25, 2023 to April 26, 2023.



Legend

NM 1 Noise Measurement Location

ST NM Short-Term Noise Measurement

LT NM Long-Term Noise Measurement

Figure 5
Noise Measurement Location Map - Proposed Project Site

Legend

⊕ Noise Measurement Location

NM 1

Figure 6

Noise Measurement Location Map - Existing Facility Rail Spur

4. REGULATORY SETTING

This section documents the regulatory framework and applicable noise standards.

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

Transit and Construction Noise

FTA standards and criteria for assessing noise impacts related to transit projects are based on community reactions to noise. The criteria reflect changes in noise exposure using a sliding scale where the higher the level of existing noise, the smaller increase in total noise exposure is allowed. Some land use activities are more sensitive to noise than others, such as parks, churches and residences, as compared to industrial and commercial uses. FTA Noise Impact Criteria groups sensitive land uses into the three categories described below.

(1) Category 1 – High Sensitivity: Land where quiet is an essential element of its intended purpose. Example land uses include preserved land for serenity and quiet, outdoor amphitheaters and concert pavilions, and national historic landmarks with considerable outdoor use. Recording studios and concert halls are also included in this category.
(2) Category 2 – Residential: This category is applicable all residential land use and buildings where people normally sleep, such as hotels and hospitals.
(3) Category 3 – Institutional: This category is applicable to institutional land uses with primarily daytime and evening use. Example land uses include schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds, and recreational facilities are also included in this category.

Most commercial or industrial uses are not considered noise-sensitive because activities within these buildings are generally compatible with higher noise levels. Business can be considered noise-sensitive if low noise levels are an important part of operations, such as sound and motion picture recording studios. Most parks used primarily for active recreation such as sports complexes and bike or running paths are not considered noise sensitive. However, some parks (even some in dense urban areas) are primarily used for passive recreation such as reading, conversation, or meditation. These places, which may be valued as havens from

the noise and rapid pace of everyday city life, are treated as noise-sensitive, and are included in land use Category 3. Non-sensitive uses do not require noise impact assessment.

Construction noise is assessed using guidance provided in the FTA Guidance Manual. The FTA provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction. For residential uses, the daytime noise threshold is 80 dBA L_{eq} averaged over an 8-hour period ($L_{eq\ (8\text{-}hr)}$; and the nighttime noise threshold is 70 dBA $L_{eq\ (8\text{-}hr)}$. For commercial uses, the daytime and nighttime noise threshold is 85 dBA $L_{eq\ (8\text{-}hr)}$ and for industrial uses the daytime and nighttime noise threshold is 90 dBA $L_{eq\ (8\text{-}hr)}$.

Transit and Construction Vibration

FTA has developed impact criteria for acceptable levels of groundborne noise (GBN) and groundborne vibration (GBV). Criteria for ground-borne vibration are expressed in terms of rms velocity levels in VdB, and criteria for ground-borne noise are expressed in terms of A-weighted sound pressure levels in dBA. Table 3 shows that 80 VdB is the threshold for annoyance from groundborne vibration at sensitive receptors for infrequent events. The FTA also provides criteria for special buildings such as concert halls, television and recording studios, auditoriums, and theaters, which are also sensitive to vibration but do not fit into the three FTA sensitive land use categories previously described.

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 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 4, the threshold at which there is a risk to "architectural" damage to non-engineered timber and masonry buildings is a peak particle velocity (PPV) of 0.2, at engineered concrete and masonry buildings a PPV of 0.3, and at reinforced-concrete, steel, or timber buildings a PPV of 0.5.

STATE REGULATIONS

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.

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

LOCAL REGULATIONS

City of Banning General Plan

Table 5 shows the City's noise level standards related to land use compatibility. As shown in Table 5, industrial land uses are considered "normally acceptable" where noise levels are not expected to exceed 70 dBA CNEL and "conditionally acceptable" between 70-75 dBA CNEL. These standards apply to the proposed project itself.

The City of Banning General Plan has also established the following goals and policies in regard to noise which apply to the proposed project.

Goal *A noise environment that complements the community's residential character and its land uses.*

Policy 1 *The City shall protect noise sensitive land uses, including residential neighborhoods, schools, hospitals, libraries, churches, resorts and community open space, from potentially significant sources of community noise.*

Policy 2 *The relationship between land use designations in the Land Use Element and changes in the circulation pattern of the City, as well as individual developments, shall be monitored and mitigated.*

Policy 3 *Private sector project proposals shall include measures that assure that noise exposures levels comply with State of California noise insulation standards as defined in Title 25 (California Noise Insulation Standards) and/or Banning Ordinances 1138 and 1234, whichever is more restrictive.*

Policy 4 *The City shall maintain a General Plan Circulation Map and assure low levels of traffic within neighborhoods by assigning truck routes to major roadways only.*

Policy 6 *All development proposals within the noise impact area of the Interstate and the railroad shall mitigate both noise levels and vibration to acceptable levels through the preparation of focused studies and analysis in the development review and environmental review process.*

Policy 7 *The City shall coordinate with adjoining jurisdictions to assure noise-compatible land uses across jurisdictional boundaries.*

Policy 8 *The City shall impose and integrate special design features into proposed development that minimize impacts associated with the operation of air conditioning and heating equipment, onsite traffic, and use of parking, loading and trash storage facilities.*

Policy 9 *The City shall support development that results in grade separated railroad tracks.*

City of Banning Municipal Code

Section 8.44.050 Base ambient noise level

All ambient noise measurements shall commence at the base ambient noise levels in decibels within the respective times and zones provided in Table 6.

Section 8.44.070 Maximum residential noise levels

No noise level shall exceed those provided in Table 7 *for the duration of the periods specified.*

Section 8.44.080 Maximum nonresidential noise levels

Any provision contained herein to the contrary notwithstanding, no exterior noise level shall exceed the base ambient noise levels (BANL) for nonresidential land uses set forth in any development agreement applicable to such development or as otherwise specifically set forth in any development standard which is by its terms enforceable by the city against the noise maker.

Section 8.44.090 Noises prohibited – Unnecessary noise standard

Any other provision of this chapter notwithstanding, the following acts are expressly prohibited as a violation of this chapter. Such acts are hereby expressly declared to be loud, unusual and unnecessary noises in violation of this chapter, namely:

A. *Horns, signaling devices, etc. The sounding of any horn or signaling device on any automobile, motorcycle, streetcar or other vehicle on any street or public place of the city, except as a danger warning. Back-up beepers may be sounded consistent with the maximum duration periods set forth in Section 8.44.080 of this chapter. The creation by means of any such signaling device of any unreasonably loud or harsh sound and, the sounding of any such device for an unnecessary and unreasonable period of time. For the purposes of establishing an unnecessary and unreasonable period of time with respect to automobile anti-theft alarm devices, such alarm shall not sound in excess of fifteen minutes.*

C. *Loudspeakers, amplifiers for advertising. The using, operating or permitting to be played, used or operated of any radio receiving set, musical instrument, phonograph, loudspeaker, sound amplifier or other machine or device for the producing or reproducing of sound which is cast upon the public streets in such manner as to exceed the maximum exterior noise level permitted under this chapter.*

E. *Construction, landscape maintenance or repair.*

1. *It shall be unlawful for any person to engage in or permit the generation of noise related to landscape maintenance, construction including erection, excavation, demolition, alteration or repair of any structure or improvement, at such sound levels, as measured at the property line of the nearest adjacent occupied property, as to be in excess of the sound levels permitted under this chapter, at other times than between the hours of 7:00 AM and 6:00 PM. The person engaged in such activity is hereby permitted to exceed sound levels otherwise set forth in this chapter for the duration of the activity during the above-described hours for purposes of construction. However, nothing contained herein shall permit any person to cause sound levels to at any time exceed 55 dBA for intervals of more than fifteen minutes per hour as measured in the interior of the nearest occupied residence or school.*

2. *Construction related noise as defined in subsection (E)(1) immediately above, may take place outside the time period set forth in subsection (E)(1) and above the relative sound levels in case of urgent necessity in the interest of public health and safety, and then only with the prior permission of the building inspector. Such permit may be granted for a period not to exceed three days or until the emergency ends, whichever is less. The permit may be renewed for periods of three days while the emergency continues.*

3. *Unless exempted by this chapter, if the building official should determine that the public health and safety will not be impaired by the construction related noise, the building inspector may issue a permit for construction within the hours of 6:00 PM and 7:00 AM, upon application being made at the time the permit for the work is awarded or during the progress of the work. The building official may place such conditions on the issuance of the permit as to him or her shall seem appropriate to maintain the public health and safety.*

F. *Machinery, equipment, fans and air conditioning. It shall be unlawful for any person to operate, cause to operate or permit the operation of any machinery, equipment, device, pump, fan, compressor, air conditioning apparatus or similar mechanical device, including the use of any steam shovel, pneumatic hammer, derrick, steam or electric hoist, blower or power fan, or any internal combustion engine, the operation of which causes noise due to the explosion of operating gases or fluids, or other appliance, in any manner so as to create any noise which would cause the noise level at the property line of the property upon which the equipment or machinery is operated to exceed the base ambient noise level by 5 dBA.*

Section 8.44.100 Application between zones

In applying the regulations set forth in this chapter, each source of noise shall be subject only to such regulation as shall apply to the zone, including any designated truck route, within which it is located. A use lying adjacent to a zone with a more restrictive noise requirement hereunder shall not be required to conform to that more restrictive requirement. For purposes of this subsection, "zone" shall be as utilized in Title 17 of the Banning Ordinance Code.

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

Land Use Category	GBV Impact Levels (VdB re 1 micro-inch/sec)			GBN Impact Levels (dBA, 20 micro Pascals)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB*	65 VdB*	65 VdB*	N/A	N/A	N/A
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB	35	38	43
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB	40	43	48

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

Notes:

*This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. For equipment that is more sensitive, a Detailed Vibration Analysis must be performed.

1. "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.
2. "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operation.
3. "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day. This category includes commuter rail branch lines.

Table 4
Construction Vibration Damage Criteria

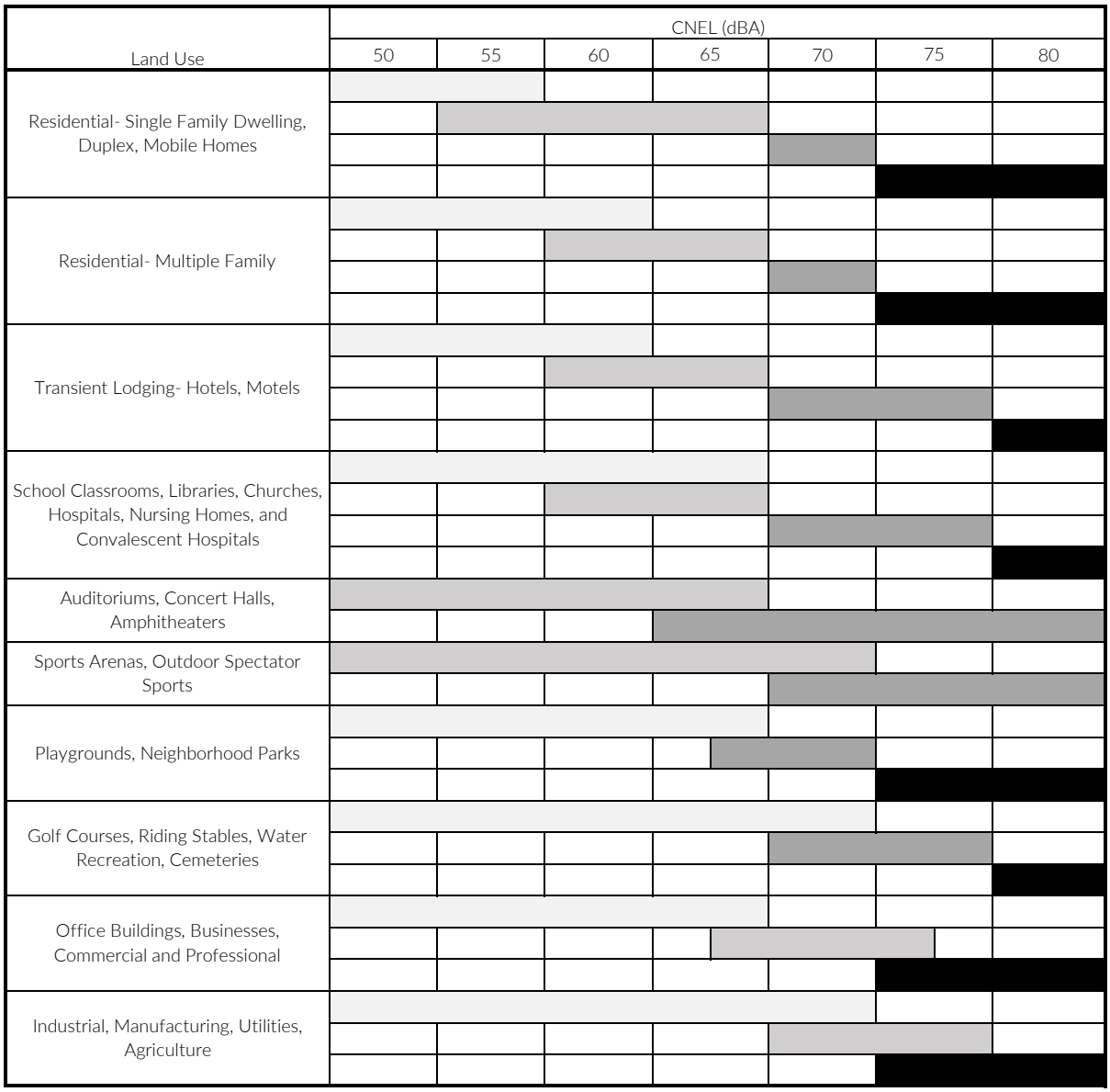
Building/Structural Category	PPV, in/sec	Approximate Lv*
I. Reinforced-concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extemely susceptible to vibration damage	0.1	90

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

Notes:

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

Table 5
Land Use Compatibility for Community Noise Environments



Normally Acceptable:	With no special noise reduction requirements assuming standard construction.
Conditionally Acceptable:	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design.
Normally Unacceptable:	New construction is discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
Clearly Unacceptable:	New construction or development should generally not be undertaken.

Notes:
Source: City of Banning General Plan Environmental Hazards Element Table V-4, 2006.

Table 6
Base Ambient Noise Level

Decibels	Time	Zone Use
45 dB(A)	10:00 PM - 7:00 AM	Residential
55 dB(A)	7:00 AM - 10:00 PM	Residential
75 dB(A)	Anytime	Industrial and Commercial

Source: City of Banning Municipal Code Section 8.44.050.

Table 7
Maximum Residential Noise Levels

Noise Level Exceeded	Maximum Duration Period
5 dB(A) above BANL	15 minutes any hour
10 dB(A) above BANL	5 minutes any hour
15 dB(A) above BANL	1 minutes any hour
20 dB(A) above BANL	Not Permitted

Source: City of Banning Municipal Code Section 8.44.070.

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 CalEEMod modeling in the Air Quality, Global Climate Change, HRA, 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 8. Construction noise worksheets are provided in Appendix D.

Typical construction generally provides 20 dBA noise level reduction from exterior to interior with windows closed. A "windows closed" condition assumes mechanical fresh air ventilation (e.g., air conditioning) is provided in habitable dwelling units. Thus, the projected interior noise level can be estimated by subtracting the building shell noise reduction from the modeled exterior noise level.

ONSITE OPERATIONAL NOISE MODELING

The SoundPLAN acoustical modeling software was utilized to model project operational stationary source and rail noise levels from the proposed project to adjacent sensitive uses (e.g., residences). SoundPLAN is capable of evaluating stationary noise sources (e.g., parking lots, drive-through 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.

Storage Yard Noise

An existing facility was visited in order to understand the type and number of noise sources within the yard area. The primary noise source within the rail yard are industrial sized forklift machines driving around and moving steel product. Although back up beepers and steel and steel noise could be heard intermittently, these noise events were not loud enough and did not occur frequently enough to make a difference for peak hour modeling and are discussed in the maximum noise event (Lmax) analysis. A representative sound power level of 97 dB was used to model four industrial sized forklifts that were all assumed to be in operation for the entire peak hour. Two back up alarms were modeled using a sound power level of 103 dBA to assess impacts associated with the L_{max} standard.

Rail Spur and Rail Spur Loading/Unloading

The proposed rail spur, to be located immediately south of the existing BNSF rail line was modeled as a line source with a sound level of 88 dBA. It was assumed that no more than one train would arrive during any particular hour. A representative noise level of 68 dBA was used to model the loading and unloading activities.

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 hour[2].

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 parking lot study:

Lw, ref = Lw0 + KPA + KI + KD + KStrO + 10 log(B) [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

It is expected that the buildings associated with the proposed project would include rooftop mounted heating, ventilation, and air conditioning (HVAC) units. The type, size and number of mechanical equipment are not known at this time. A conservative estimate was utilized for modeling purposes. The HVAC equipment was modeled as point sources placed on-top of each structure's roof. 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 units.[3] The proposed building heights were modeled between 12 and 40 feet in height and HVAC units were modeled 1 meter above the rooftop surface. No attenuation that provided by parapets or other architectural features was included.

OFFSITE OPERATIONAL NOISE MODELING

Project Generated Vehicle Traffic

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

[2] SoundPLAN Essential 4.0 Manual. SoundPLAN International, LLC. May 2016.
[3] MD Acoustics, LLC. Noise Measurement Data for RTU –Carrier 50TFQ0006 and car alarm.

of adjustments to the Reference Energy Mean Emission Level (REMEL). 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

Table 9 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 10 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 10, 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:

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

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 8 (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 8 (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 9
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		
22nd Street	North of Lincoln Street	1,356	1,476	35	Hard
8th Street	North of Lincoln Street	7,848	7,920	30	Hard
Lincoln Street	East of 22nd Street	1,800	1,920	45	Hard
	West of Project West Dwy	1,656	1,776	45	Hard
	Project West Dwy to Project Central-West Dwy	1,656	1,764	45	Hard
	Project Central-West Dwy to Project Central-East Dwy	1,656	1,740	45	Hard
	Project Central-East Dwy to Project East Dwy	1,656	1,740	45	Hard
	East of Project East Dwy	1,680	1,752	45	Hard
	West of 8th Street	1,812	1,884	45	Hard

Vehicle Distribution (Heavy Mix)[2]			
Motor-Vehicle Type	Daytime % (7 AM-7 PM)	Evening % (7 PM-10 PM)	Night % (10 PM-7 AM)
Automobiles	75.54	14.02	10.43
Medium Trucks	48.00	2.00	50.00
Heavy Trucks	48.00	2.00	50.00

Notes:

(1) Existing and project average daily vehicle trips calculated from the PM peak hour turning movement volumes provided in the Brown Strauss Banning Industrial Project Traffic Impact Analysis (TIA) (Ganddini Group October 27, 2023). Project trip percentages based on the trip generation provided in the TIA.

(2) Existing vehicle percentages are based on the Riverside County Industrial Hygiene Letter for Traffic Noise.

Table 10
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 Banning 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 Banning can be categorized into the following areas:

- Construction Noise
- Stationary Source Noise
- Mobile Source Noise

Construction Noise

Construction noise is regulated within Section 8.44.090(E) of the City of Banning Municipal Code (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 and 6:00 PM; or,
- Project construction noise exceeds 55 dBA at the interior of an occupied residence or school for any 15-minute period.

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 11.

As shown in Table 11, modeled construction noise levels reach up to 71.9 dBA L_{eq} at the nearest vacant residential property line to the south and up to 71.2 dBA L_{eq} at the nearest occupied residential property line to the south of the project site.

Project construction will not occur outside of the hours outlined in Section 8.44.090(E) of the City of Banning Municipal Code. Based on the modeled construction noise levels (see Table 11), interior noise levels are estimated to reach a maximum of 51.9 dBA at the nearest residential property line with windows closed based on typical exterior to interior noise transmission. 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.

Stationary Source Noise (Onsite Noise)

Stationary noise source standards are established within Sections 8.44.050 through 8.44.080 of the City of Banning Valley Municipal Code (see Regulatory Setting section of this report). The City noise criteria for stationary operational noise are dependent on the existing zoning and not the existing land use. The City has only established noise criteria for stationary noise impacts to residential zoned land. The properties east and west of the project site are zoned General Commercial; properties south of the project site are zoned Business Park; and properties north of the project site are zoned Public Facilities (Railroad/Interstate). Existing single-family homes located southwest of the project site and west of South 16th Street, are on land zoned Very Low Residential. Accordingly, the project would result in a significant impact if it exceeds the noise criteria presented in Table 6 and Table 7. For the purposes of this analysis, the project's consistency with the L_{eq} and L_{max} standards are evaluated. Specifically, project operational noise levels would be significant if they exceed a nighttime L_{eq} of 45 dBA or a daytime L_{eq} of 55 dBA; or if they exceed a nighttime Lmax of 65 or a daytime L_{max} of 75 dBA at residentially zoned properties.

Noise levels at nearby land uses were modeled using the SoundPLAN acoustical model developed for the project. Please note that the City's ordinance criteria discussed above only applies to the residentially zoned property located southwest of the project site, on the west side of South 16th Street. This area is represented by NM (noise measurement) 2 on Figure 5 and by Receiver 4 on Figures 7 through 10. SoundPLAN modeling worksheets are provided in Appendix E.

Peak Hour Noise Modeling and Results (L_{eq})

As shown on Figure 7 and Figure 8, peak hour project operation is expected to reach up to 48.5 dBA L_{eq} at the nearest residentially zoned properties located on the west side of South 16th street (see Receiver 4 on Figure 5) and would not exceed the daytime L_{eq} criteria of 55 dBA but could exceed the nighttime L_{eq} criteria of 45 dBA. However, based on existing measured nighttime noise levels of freeway and rail noise, nighttime noise levels at the residentially zoned properties at this location currently range between 55.9 and 56.9 dBA L_{eq} and therefore, the addition of project operational noise (48.5 dBA L_{eq}) will not result in a noticeable increase over the existing measured nighttime noise levels (1 dB). It should also be noted that nighttime onsite operations are typically less intensive than peak hour onsite operations. This impact is less than significant. No mitigation is required.

Peak Hour Noise Modeling and Results (L_{max})

As shown on Figure 9 and Figure 10, maximum noise events on the project site could result in noise levels of up to 48.7 dBA L_{max} at the closest residentially zoned properties (see Receiver Number 4) and would not exceed the City's daytime L_{max} criteria of 75 dBA or the their nighttime L_{max} criteria of 65 dBA. This impact is less than significant. No mitigation is required.

Mobile Source Noise (Off-Site 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).

It is widely accepted that the average healthy human ear can barely perceive changes of 3 dBA in an outdoor environment and that a change of 5 dBA is readily perceptible.[4] Considering relevant case law, the project would result in a significant impact if:

- The addition of project trips on surrounding roadways causes noise levels to increase by:
  - 5 dBA in residential areas where the existing ambient noise level is less than or equal to a CNEL of 65 dBA; or,
  - 3 dBA in residential areas where the existing ambient noise level exceeds a CNEL of 65 dBA.

Project Operational Mobile Source Noise

Roadway noise levels were calculated at roadways included in the *Brown Strauss Banning Industrial Project Traffic Impact Analysis* (Ganddini Group, Inc., October 27, 2023) based on the FHWA Traffic Noise Prediction Model methodology. During operation, the proposed project is expected to generate approximately 191 average daily trips with 22 trips during the AM peak-hour and 10 trips during the PM peak-hour. Roadway noise levels were calculated for the following scenarios:

- *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 12 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 12, modeled existing traffic noise levels range between 63-70 dBA CNEL and the modeled Existing Plus Project traffic noise levels range between 65-70 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 12). 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 the 10 Freeway, it is anticipated that vendor and/or haul truck traffic would take the most direct route to the appropriate freeway ramps.

Lincoln Street currently handles between approximately 1,656 to 1,812 average daily vehicle trips in the vicinity of the project site.[5] According to the *Brown Strauss Industrial Project Air Quality, Global Climate Change, HRA, and Energy Impact Analysis* (Ganddini Group, Inc., 2023), the greatest number of construction-related vehicle trips per day would be during building construction at up to 29 vehicle trips per day (20.6 for worker trips and 8.03 for vendor trips). Therefore, vehicle traffic generated during project construction is nominal

[4] California Department of Transportation's *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013)

[5] Existing average daily traffic volumes as calculated from the PM peak hour turning movement volumes provided in the from the *Brown Strauss Banning Industrial Project Traffic Impact Analysis (TIA)* (Ganddini Group, Inc., October 27, 2023). See Table 9 for more details.

relative to existing roadway volumes and would not result in the doubling of traffic volume necessary to increase noise levels by 3 dBA. The project impact is less than significant; no mitigation is required.

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 Moreno Valley 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 Vibration Impacts

Based on the groundborne vibration modeling, use of a vibratory roller is expected to generate a PPV of 0.375 in/sec and use of a bulldozer is expected to generate a PPV of 0.159 in/sec at the closest off-site building, a commercial use located approximately 17 feet east of the project site (Table 13). Other equipment anticipated to be used during project construction generate lower PPV. However, with implementation of the project best management practice provided in the Project Description, groundborne vibration generated by project construction would not exceed the levels necessary to cause architectural damage.

The closest structures to the project site are the commercial uses to the east; however, commercial uses are not considered to be vibration-sensitive land uses. Use of vibratory rollers could theoretically exceed the threshold for annoyance due to vibration (72 VdB at offsite residential sensitive uses) at the nearest existing residential structure to the south of the project site, located approximately 120 feet south, and residents may be temporarily annoyed (Table 13). However, perceptibility of construction vibration would be temporary and would only occur while vibratory equipment is utilized within 16 feet of the project property lines in proximity of the residential use to the south. Furthermore, this impact would be reduced with incorporation of the best management practice identified above for architectural damage and would only occur during daytime hours. This impact would be less than significant. No mitigation is required.

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 Banning Municipal Airport with airport runways located as close as approximately 1.72 miles east of the project site. Per the Banning Municipal Airport Master Plan Update (2007) the project site is well outside the 55 dBA CNEL noise contour for the airport.[6] The project would not expose people residing or working in the project area to excessive noise levels associated with airports. This impact would be less than significant. No mitigation is required.

[6] http://banning.ca.us/DocumentCenter/View/470/Airport_MP?bidId=

Table 11
Construction Noise Levels (dBA L_{eq})

Phase	Receptor Location	Existing Ambient Noise Levels (dBA Leq)[1]	Construction Noise Levels (dBA Leq)[2]	Interior Noise Level (dBA Leq)[3]
Grading	Vacant Residential to South (1356 W Lincoln Street, Banning)	65.7	71.9	51.9
	Residential to South (1380 W Lincoln Street, Banning)	65.7	71.2	51.2
Building Construction	Vacant Residential to South (1356 W Lincoln Street, Banning)	65.7	70.5	50.5
	Residential to South (1380 W Lincoln Street, Banning)	65.7	69.8	49.8
Paving	Vacant Residential to South (1356 W Lincoln Street, Banning)	65.7	64.1	44.1
	Residential to South (1380 W Lincoln Street, Banning)	65.7	63.4	43.4
Architectural Coating	Vacant Residential to South (1356 W Lincoln Street, Banning)	65.7	57.5	37.5
	Residential to South (1380 W Lincoln Street, Banning)	65.7	56.8	36.8

Notes:

(1) Per measured existing ambient noise levels (Table 1). STNM1 was used for residential receptors to the south of the project site.

(2) Construction noise worksheets are provided in Appendix D.

(3) Residential construction typically provides an exterior to interior noise reduction of approximately 20 dB with a windows closed condition. It should be noted that the construction noise levels were calculated at the property line rather than the dwelling unit; therefore, as the interior noise levels are based on the calculated construction noise levels at the properyt line, they are conservative.

Table 12
Increase in Existing Noise Levels Along Roadways as a Result of Project (dBA CNEL)

Roadway	Segment	Distance from roadway centerline to ROW (feet)[1]	Modeled Noise Levels at ROW (dBA CNEL)[2]				
			Existing Without Project	Existing Plus Project	Change in Noise Level	Exceeds Standards[3]	Increase of 3 dB or More?
22nd Street	North of Lincoln Street	44	63.3	65.1	1.80	Yes	No
8th Street	North of Lincoln Street	50	69.5	69.7	0.23	Yes	No
Lincoln Street	East of 22nd Street	50	65.5	66.8	1.31	Yes	No
	West of Project West Dwy	50	65.1	66.5	1.40	Yes	No
	Project West Dwy to Project Central-West Dwy	50	65.1	66.4	1.28	Yes	No
	Project Central-West Dwy to Project Central-East Dwy	50	65.1	66.1	1.03	Yes	No
	Project Central-East Dwy to Project East Dwy	50	65.1	66.1	1.03	Yes	No
	East of Project East Dwy	50	65.2	66.0	0.88	No	No
	West of 8th Street	50	65.5	66.3	0.82	No	No

Notes:

(1) Right-of-way (ROW) per the City of Banning General Plan Circulation Element roadway cross-sections.

(2) Exterior noise levels calculated 5 feet above pad elevation, perpendicular to subject roadway.

(3) Per the City of Banning "normally acceptable" standard for single-family detached residential dwelling units of 60 dBA CNEL (see Table 5).

Table 13
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[1,3]	Threshold Exceeded With BMPs?[2,3]
Architectural Damage Analysis:						
Commercial Use to East (northern building, 1143 West Lincoln Street, Banning)	17	Vibratory Roller	0.375	Yes	0.198	No
	17	Large Bulldozer	0.159	No	-	-
Commercial Use to East (southern building, 1143 West Lincoln Street, Banning)	77	Vibratory Roller	0.039	No	-	-
	77	Large Bulldozer	0.016	No	-	-
Residential to South (1380 West Lincoln Street, Banning)	120	Vibratory Roller	0.020	No	-	-
	120	Large Bulldozer	0.008	No	-	-
Industrial Use to West (1879 West Lincoln Street, Banning)	505	Vibratory Roller	0.002	No	-	-
	505	Large Bulldozer	0.001	No	-	-
Annoyance Analysis						
Residential to South (1380 West Lincoln Street, Banning)	120	Vibratory Roller	74	Yes	-	-
	120	Large Bulldozer	67	No	-	-

Notes:

(1) Vibration levels are provided in PPV in/sec.

(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 4). 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) Best management practices include prohibiting the use of vibratory rollers, or other similar vibratory equipment, within 26 feet of commercial structures to the east of the project site.

Signs and symbols

- Proposed Project
- Proposed Concrete Walls (6 ft)
- Proposed Buildings
- Receiver
- Point source (HVAC and Industrial Lifts)
- Line Source (Rail Spur)
- Area source (Rail Spur Loading/Unloading) and Conveyror Belt and Drive Unit)
- Parking lot
- Noise Level Tables (dBA, Leq)

Figure 7
Operational Noise Levels (dBA, Leq)

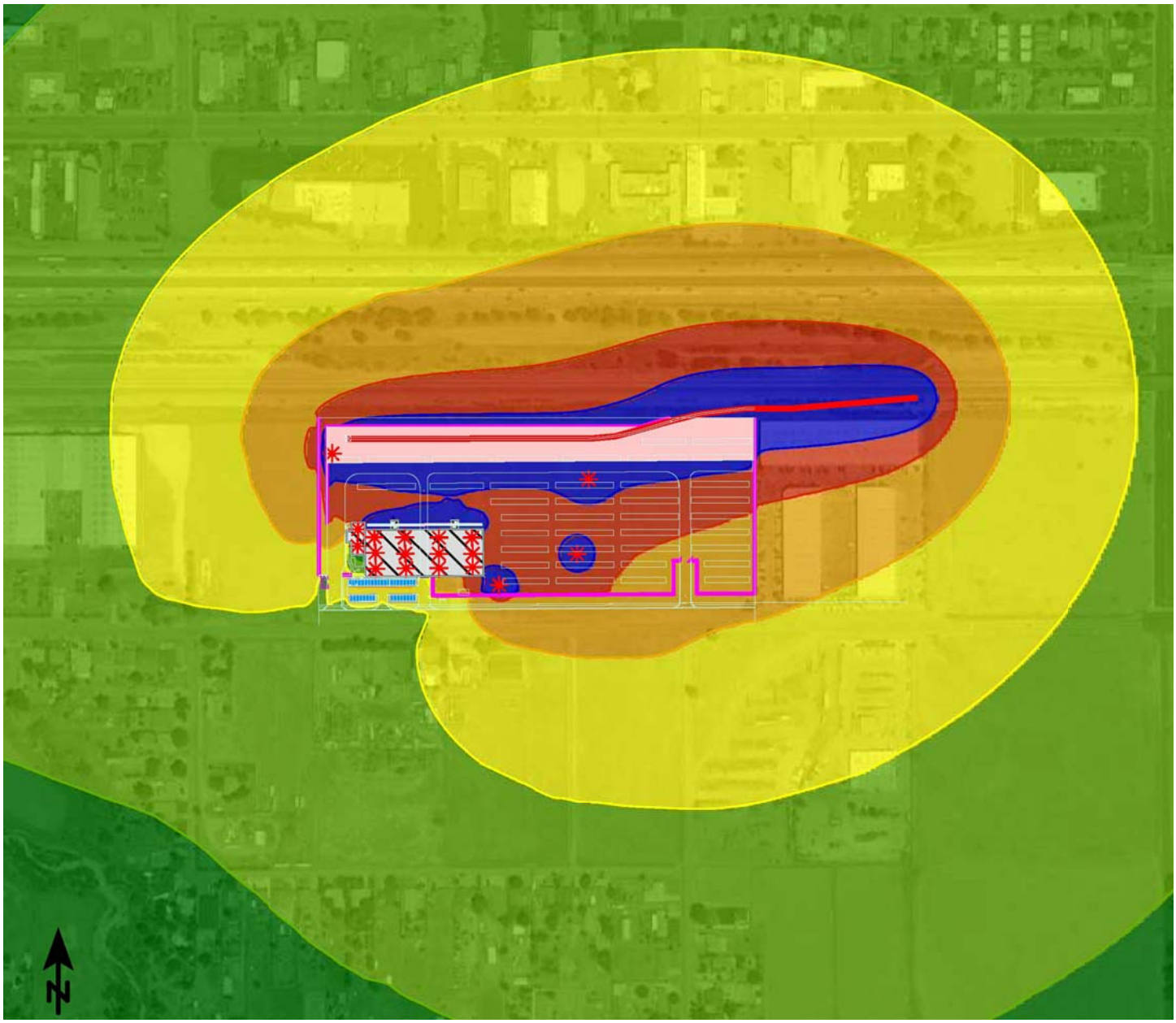
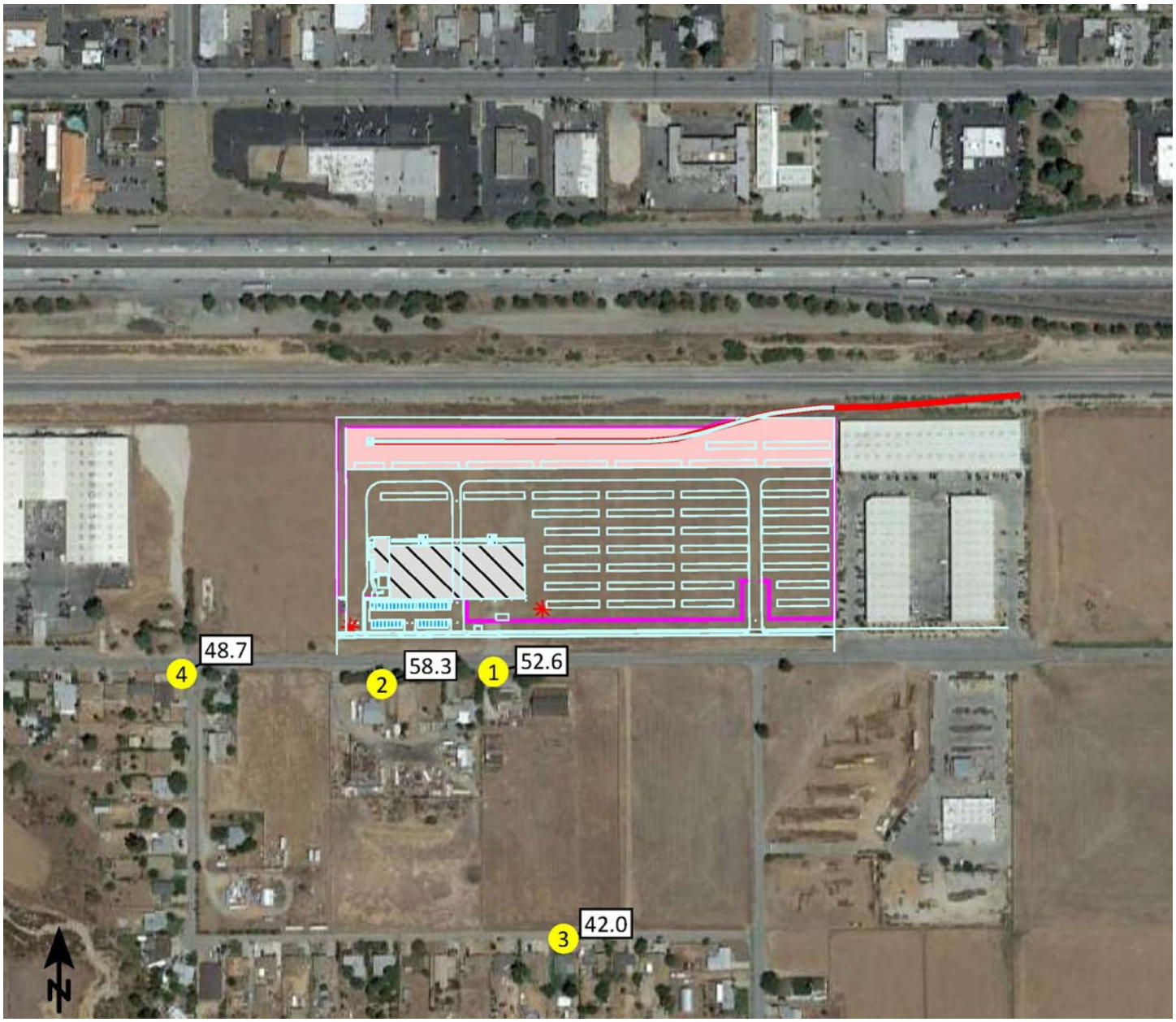


Figure 8
Operational Noise Level Contours (dBA, Leq)



Signs and symbols

- Proposed Project
- Proposed Concrete Walls (6 ft)
- Proposed Buildings
- Receiver
- Point source (HVAC and Industrial Lifts)
- Rail Spur
- Area source (Rail Spur Loading/Unloading) and Conveyror Belt and Drive Unit)
- Parking lot
- Noise Level Tables (dBA, Lmax)

Figure 9
Operational Noise Levels (dBA. Lmax)

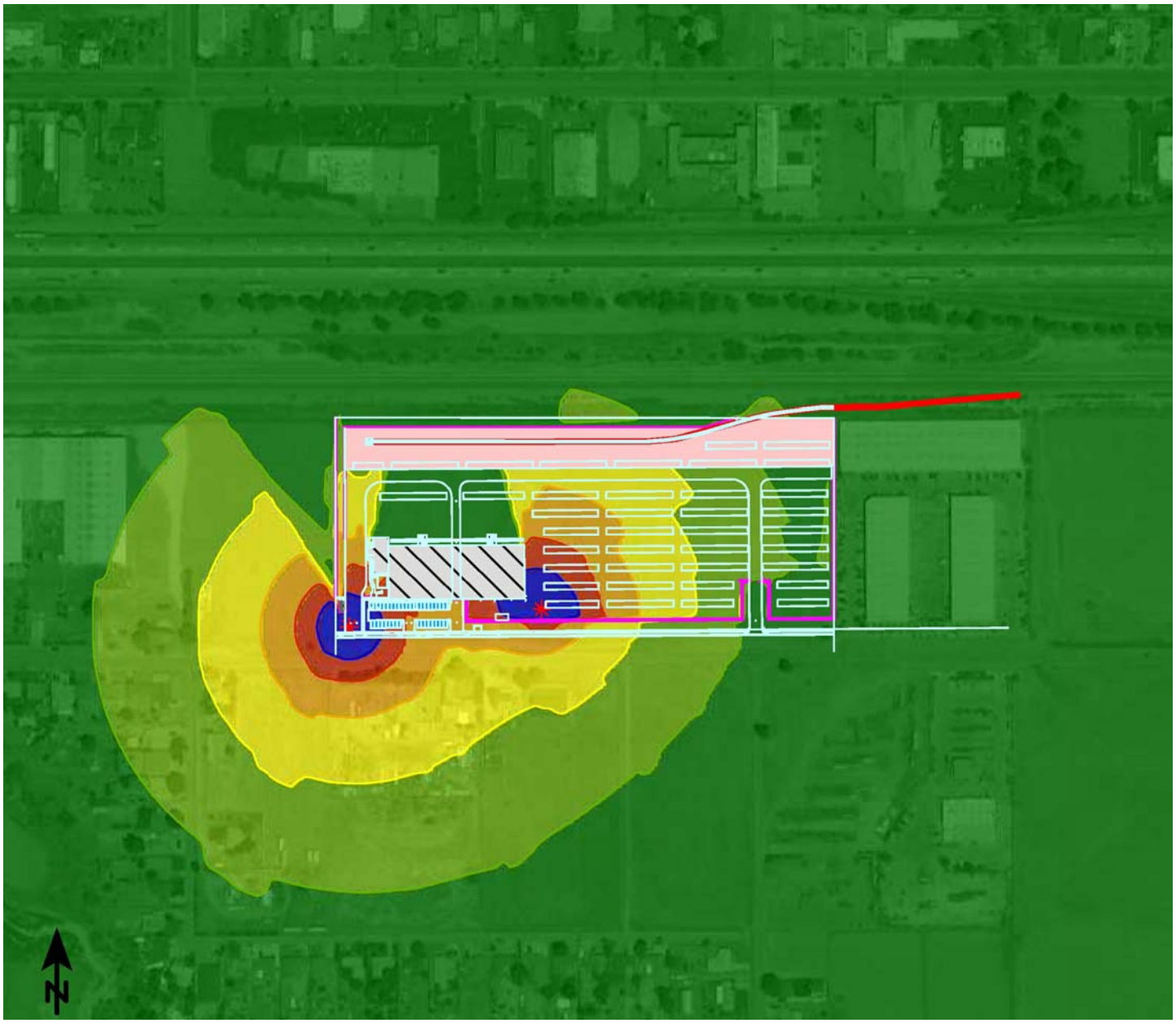


Figure 10
Operational Noise Level Contours (dBA, Lmax)

7. REFERENCES

Banning, City of
2006 General Plan. January 31.
2022 Municipal Code. March 22.

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.

Ganddini Group, Inc.
2023 Brown Strauss Banning Industrial Project Traffic Impact Analysis. October 27.

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

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-strautins/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 and Vibration 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 L_{eq}	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
$L_{eq(x)}$	Equivalent Noise Level for '"x" period of time
L_{eq}	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)
Lp	Sound Pressure Level
LOS C	Level of Service C
Lw	Sound Power Level
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}	Lmax 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. Lmin 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 AND VIBRATION MEASUREMENT FIELD WORKSHEETS

Noise Measurement
Field Data

Project Name: Brown Strauss Industrial Project, City of Banning **Date:** April 25, 2023

Project #: 19588

Noise Measurement #: STNM1 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 1356 West Lincoln Street, Banning, CA 92220

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just north of unoccupied residence at 1356 W Lincoln St. Adjacent: W Lincoln St (running E-W) adjacent to north, two very active rail lines (running E-W) ~680' north, 10 Fwy (running E-W) ~920' north, residential to south and southwest.

Weather: Clear skies, sunshine. Sunset 7:27 PM **Settings:** SLOW FAST

Temperature: 74 deg F **Wind:** 5 mph **Humidity:** 20% **Terrain:** Flat

Start Time: 10:18 AM **End Time:** 10:33 AM **Run Time:**

Leq: 65.7 dB

Lmax 80.9 dB

L2 76.6 dB

L8 71.1 dB

L25 59.6 dB

L50 56.6 dB

Primary Noise Source: Traffic noise from the 24 vehicles passing microphone traveling along W Lincoln Street during STNM1 measurement. 10 Fwy ambiance ~920' N of STNM1.

Secondary Noise Sources: Occasional overhead air traffic, residential ambiance from dogs kenneled in front yard of 1380 W Lincoln St. Active train tracks ~680' N of STNM1.

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:	4/25/2023		

Noise Measurement
Field Data

PHOTOS:

STNM1 looking SE from W Lincoln Street towards unoccupied residence, 1356 W Lincoln Street, Banning.

STNM1 looking west down W Lincoln Street, residence 1380 W Lincoln Street, Banning on left of image.

Summary	
File Name on Meter	LxT_Data.252.s
File Name on PC	LxT_0003099-20230425 101804-LxT_Data.252.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM1 33°55'17.63"N 116°53'29.73"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini 19588 Brown Strauss Industrial Project, City of Banning

Measurement	
Start	2023-04-25 10:18:04
Stop	2023-04-25 10:33:04
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-04-25 10:06:31
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	122.5 dB

Results			
LA_{eq}	65.7		
LAE	95.3		
EA	372.6572	µPa²h	
EA8	11.92503	mPa²h	
EA40	59.62516	mPa²h	
$LA_{peak\ (max)}$	2023-04-25 10:18:25	99.9	dB
LAS_{max}	2023-04-25 10:25:12	80.9	dB
LAS_{min}	2023-04-25 10:32:53	52.8	dB

			Statistics	
LC_{eq}	72.2	dB	**LA2.00**	76.6 dB
LA_{eq}	65.7	dB	**LA8.00**	71.1 dB
LC_{eq} - LA_{eq}	6.5	dB	**LA25.00**	59.6 dB
LAI_{eq}	72.3	dB	**LA50.00**	56.6 dB
LA_{eq}	65.7	dB	**LA66.60**	55.7 dB
LAI_{eq} - LA_{eq}	6.6	dB	**LA90.00**	54.5 dB
Overload Count	0			

Measurement Report

Report Summary

Meter's File Name	LxT_Data.252.s	Computer's File Name	LxT_0003099-20230425 101804-LxT_Data.252.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	STNM1 33°55'17.63"N 116°53'29.73"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini 19588 Brown Strauss Industrial Project, W Lincoln Street, City of Banning		
Start Time	2023-04-25 10:18:04	Duration	0:15:00.0
End Time	2023-04-25 10:33:04	Run Time	0:15:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	65.7 dB		
LAE	95.3 dB	SEA	--- dB
EA	372.7 µPa²h	LAFTM5	74.0 dB
EA8	11.9 mPa²h		
EA40	59.6 mPa²h		
LA_{peak}	99.9 dB	2023-04-25 10:18:25	
LAS_{max}	80.9 dB	2023-04-25 10:25:12	
LAS_{min}	52.8 dB	2023-04-25 10:32:53	
LA_{eq}	65.7 dB		
LC_{eq}	72.2 dB	LC_{eq} - LA_{eq}	6.5 dB
LAI_{eq}	72.3 dB	LAI_{eq} - LA_{eq}	6.6 dB

Exceedances	Count	Duration
LAS > 65.0 dB	21	0:02:43.8
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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

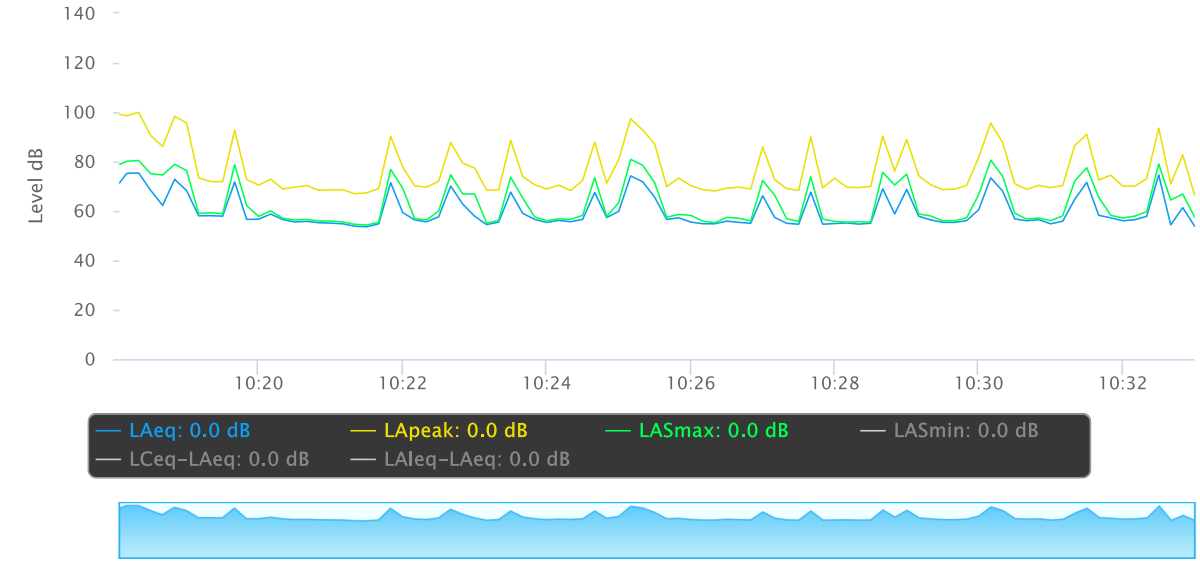
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	65.7 dB		72.2 dB		--- dB	
$Ls_{(max)}$	80.9 dB	2023-04-25 10:25:12	--- dB		--- dB	
$LS_{(min)}$	52.8 dB	2023-04-25 10:32:53	--- dB		--- dB	
$L_{Peak(max)}$	99.9 dB	2023-04-25 10:18:25	--- dB		--- dB	

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

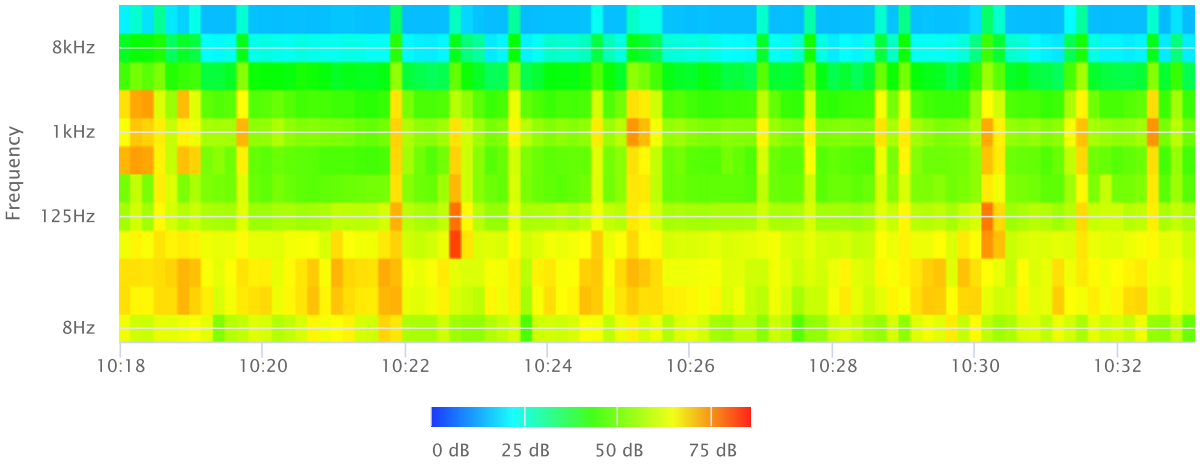
Statistics

LAS 2.0	76.6 dB
LAS 8.0	71.1 dB
LAS 25.0	59.6 dB
LAS 50.0	56.6 dB
LAS 66.6	55.7 dB
LAS 90.0	54.5 dB

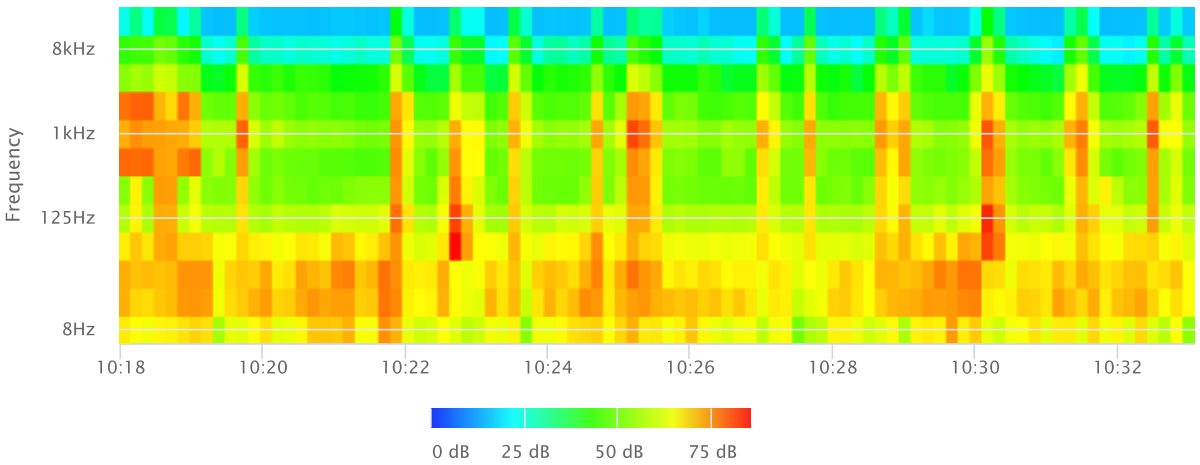
Time History



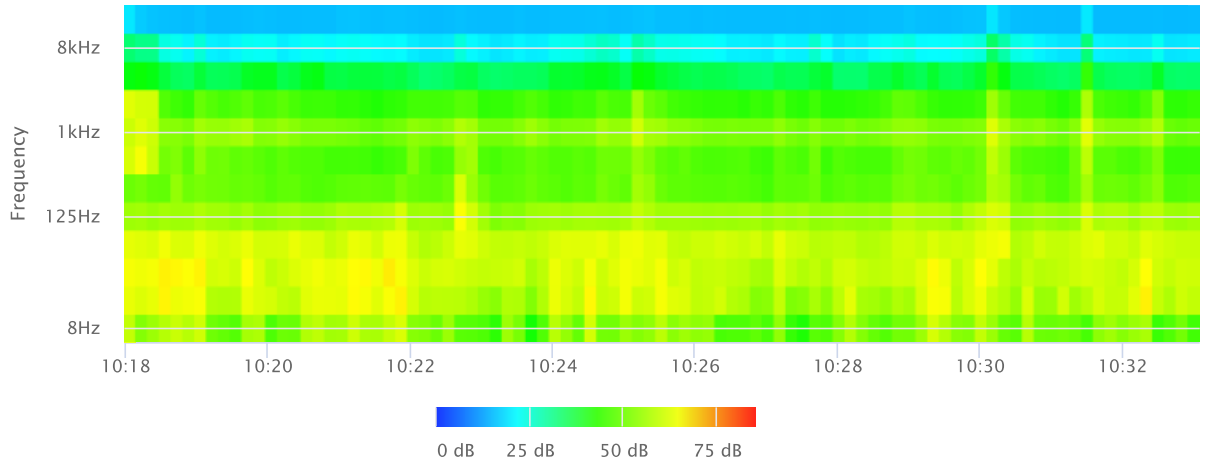
OBA 1/1 Leq



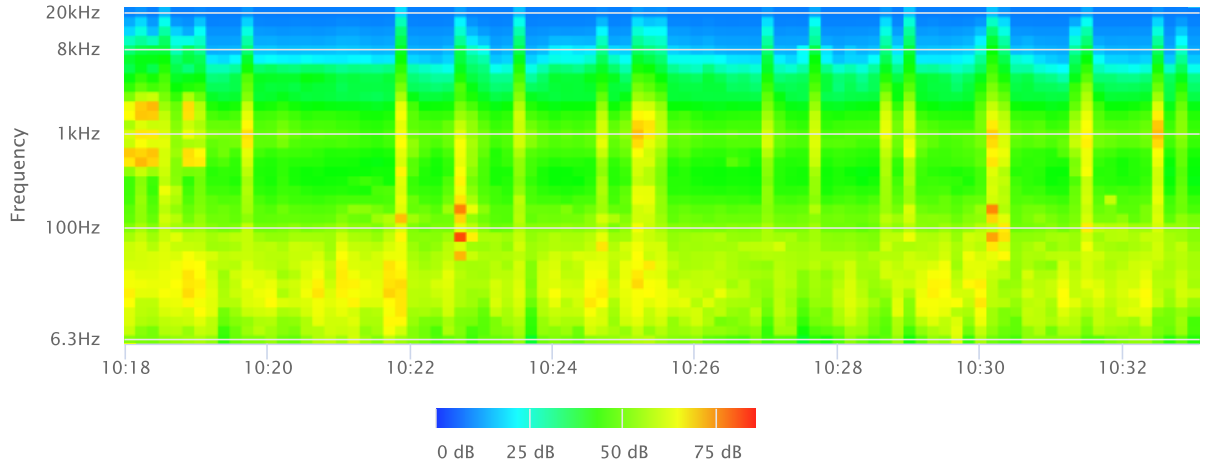
OBA 1/1 Lmax



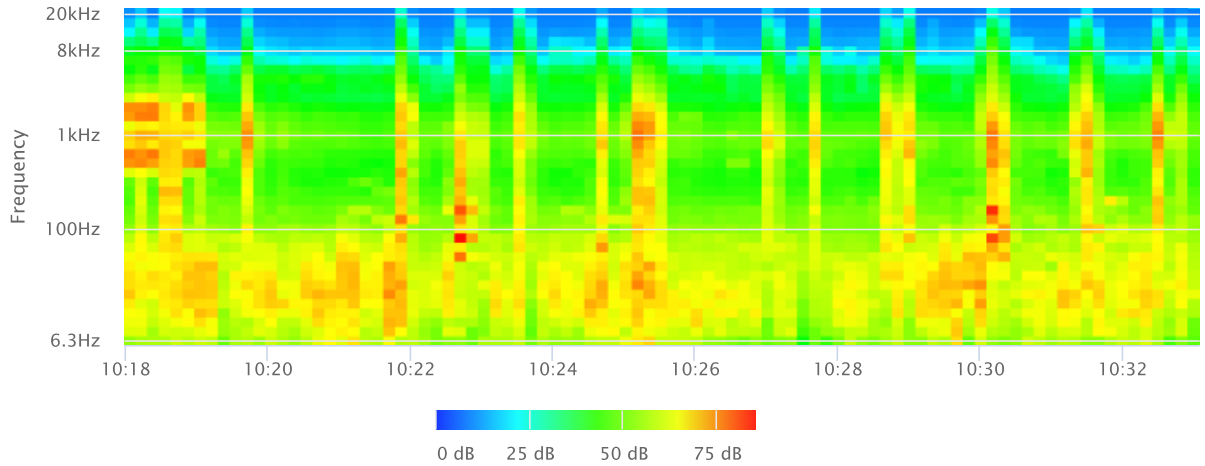
OBA 1/1 Lmin



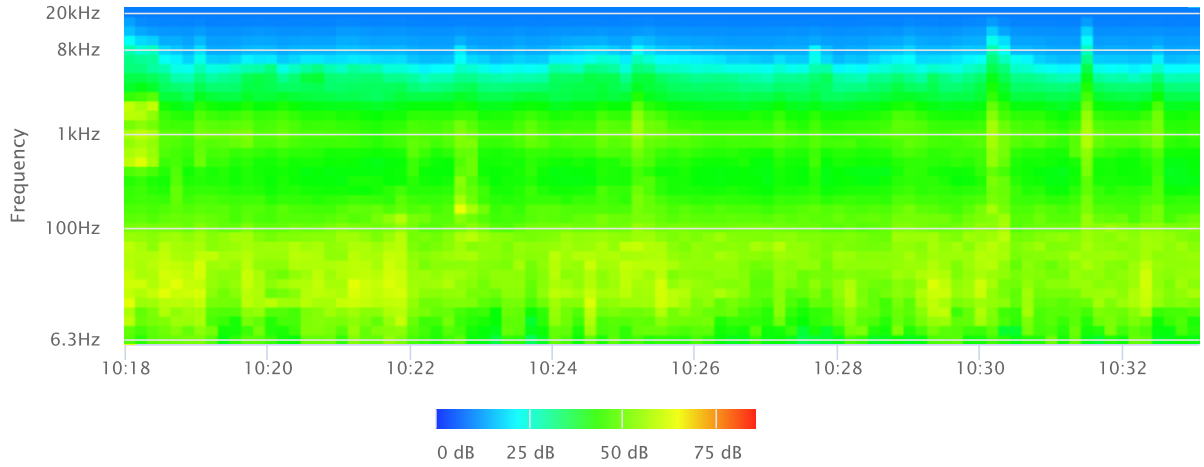
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
10:18
10:20
10:22
10:24
10:26
10:28
10:30
10:32
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: Brown Strauss Industrial Project, City of Banning **Date:** April 25, 2023

Project #: 19588

Noise Measurement #: STNM2 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 1574 West Lincoln Street, Banning, CA 92220

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just NE of residence 1574 W Lincoln St, on unpaved sidewalk. Adjacent: W Lincoln St (running E-W) adjacent to north, two very active rail lines (running E-W) ~680' north, 10 Fwy (running E-W) ~920' north, single-family residence to south, and industrial use to northwest.

Weather: Clear skies, sunshine. Sunset 7:27 PM **Settings:** SLOW FAST

Temperature: 74 deg F **Wind:** 5 mph **Humidity:** 20% **Terrain:** Flat

Start Time: 10:47 AM **End Time:** 11:02 AM **Run Time:**

Leq: 65.6 dB

Lmax 85.4 dB

L2 76.2 dB

L8 70.1 dB

L25 58.8 dB

L50 55.0 dB

Primary Noise Source: Traffic noise from the 34 vehicles passing microphone traveling along W Lincoln Street during STNM2 measurement. 10 Fwy ambiance ~920' N of STNM2.

Secondary Noise Sources: Occasional overhead air traffic. Active train tracks ~680' N of STNM2. Train engines & train horn. Bird song.

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:	4/25/2023		

Noise Measurement
Field Data

PHOTOS:

STNM2 looking SW from W Lincoln Street towards front yard of residence 1574 W Lincoln Street, Banning.

STNM2 looking NW across W Lincoln Street, towards east side of building 1777 W Lincoln Street, Banning.

Summary	
File Name on Meter	LxT_Data.253.s
File Name on PC	LxT_0003099-20230425 104711-LxT_Data.253.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM2 33°55'17.60"N 116°53'38.06"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini 19588 Brown Strauss Industrial Project, City of Banning

Measurement	
Start	2023-04-25 10:47:11
Stop	2023-04-25 11:02:11
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-04-25 10:47:01
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	122.7 dB

Results			
L_{Aeq}	65.6		
LAE	95.1		
EA	359.8882 µPa²h		
EA8	11.51642 mPa²h		
EA40	57.58211 mPa²h		
$L_{Apeak\ (max)}$	2023-04-25 10:55:17	99.6 dB	
L_{ASmax}	2023-04-25 10:55:18	85.4 dB	
L_{ASmin}	2023-04-25 11:00:15	50.5 dB	

		Statistics	
L_{Ceq}	71.1 dB	**LA2.00**	76.2 dB
L_{Aeq}	65.6 dB	**LA8.00**	70.1 dB
L_{Ceq} - L_{Aeq}	5.6 dB	**LA25.00**	58.8 dB
L_{AIeq}	69.4 dB	**LA50.00**	55.0 dB
L_{Aeq}	65.6 dB	**LA66.60**	54.1 dB
L_{AIeq} - L_{Aeq}	3.9 dB	**LA90.00**	52.6 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.253.s	Computer's File Name	LxT_0003099-20230425 104711-LxT_Data.253.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	STNM2 33°55'17.60"N 116°53'38.06"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini 19588 Brown Strauss Industrial Project, W Lincoln Street, City of Banning		
Start Time	2023-04-25 10:47:11	Duration	0:15:00.0
End Time	2023-04-25 11:02:11	Run Time	0:15:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	65.6 dB		
LAE	95.1 dB	SEA	--- dB
EA	359.9 µPa²h	LAFTM5	72.6 dB
EA8	11.5 mPa²h		
EA40	57.6 mPa²h		
LA_{peak}	99.6 dB	2023-04-25 10:55:17	
LAS_{max}	85.4 dB	2023-04-25 10:55:18	
LAS_{min}	50.5 dB	2023-04-25 11:00:15	
LA_{eq}	65.6 dB		
LC_{eq}	71.1 dB	LC_{eq} - LA_{eq}	5.6 dB
LAI_{eq}	69.4 dB	LAI_{eq} - LA_{eq}	3.9 dB

Exceedances	Count	Duration
LAS > 65.0 dB	24	0:02:36.2
LAS > 85.0 dB	1	0:00:01.1
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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}	65.6 dB		71.1 dB		--- dB	
$Ls_{(max)}$	85.4 dB	2023-04-25 10:55:18	--- dB		--- dB	
$LS_{(min)}$	50.5 dB	2023-04-25 11:00:15	--- dB		--- dB	
$L_{Peak(max)}$	99.6 dB	2023-04-25 10:55:17	--- dB		--- dB	

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

Statistics

LAS 2.0	76.2 dB
LAS 8.0	70.1 dB
LAS 25.0	58.8 dB
LAS 50.0	55.0 dB
LAS 66.6	54.1 dB
LAS 90.0	52.6 dB

Noise Measurement
Field Data

Project Name: Brown Strauss Industrial Project, City of Banning **Date:** April 25, 2023

Project #: 19588

Noise Measurement #: STNM3 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 1340 Barbour Avenue , Banning, CA 92220

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just northeast of residence 1340 Barbour Ave, on unpaved sidewalk. Adjacent: Barbour Ave adjacent to north with vacant land just past, single-family residential to south, W Lincoln St (running E-W) ~670' north, two very active rail lines (running E-W) ~1,300' north, and 10 Fwy (running E-W) ~1,550' north.

Weather: Clear skies, sunshine. Sunset 7:27 PM **Settings:** SLOW FAST

Temperature: 74 deg F **Wind:** 5 mph **Humidity:** 20% **Terrain:** Flat

Start Time: 11:16 AM **End Time:** 11:31 AM **Run Time:**

Leq:	52.8	dB
Lmax	60.5	dB
L2	56.2	dB
L8	54.9	dB
L25	53.5	dB
L50	52.4	dB

Primary Noise Source: Traffic ambiance from vehicles traveling along W Lincoln Street and the 10 Freeway. No vehicles passed the microphone traveling on Barbour Avenue.

Secondary Noise Sources: Occasional overhead air traffic. Active train tracks ~680' N of STNM2. Trainengines & train horn. Bird song. Distant wind chimes.

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:	4/25/2023		

Noise Measurement
Field Data

PHOTOS:

STNM3 looking SW from W Barbour Ave towards front yard of residence 1340 Barbour Avenue, Banning.

STNM3 looking NNW across Barbour Avenue, towards unoccupied residence 1356 W Lincoln Street, Banning (~550').

Summary	
File Name on Meter	LxT_Data.254.s
File Name on PC	LxT_0003099-20230425 111623-LxT_Data.254.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM3 33°55'11.26"N 116°53'28.24"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini 19588 Brown Strauss Industrial Project, City of Banning

Measurement	
Start	2023-04-25 11:16:23
Stop	2023-04-25 11:31:23
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-04-25 11:16:04
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	122.9 dB

Results			
LA_{eq}		52.8	
LAE		82.4	
EA		19.11259	µPa²h
EA8		611.603	µPa²h
EA40		3.058015	mPa²h
$LA_{peak\ (max)}$	2023-04-25 11:30:36	81.2	dB
LAS_{max}	2023-04-25 11:29:36	60.5	dB
LAS_{min}	2023-04-25 11:27:34	49.1	dB

		Statistics	
LC_{eq}	65.5 dB	**LA2.00**	56.2 dB
LA_{eq}	52.8 dB	**LA8.00**	54.9 dB
LC_{eq} - LA_{eq}	12.7 dB	**LA25.00**	53.5 dB
LAI_{eq}	53.9 dB	**LA50.00**	52.4 dB
LA_{eq}	52.8 dB	**LA66.60**	51.6 dB
LAI_{eq} - LA_{eq}	1.1 dB	**LA90.00**	50.5 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.254.s	Computer's File Name	LxT_0003099-20230425 111623-LxT_Data.254.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	STNM3 33°55'11.26"N 116°53'28.24"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini 19588 Brown Strauss Industrial Project, W Lincoln Street, City of Banning		
Start Time	2023-04-25 11:16:23	Duration	0:15:00.0
End Time	2023-04-25 11:31:23	Run Time	0:15:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	52.8 dB		
LAE	82.4 dB	SEA	--- dB
EA	19.1 µPa²h	LAFTM5	55.0 dB
EA8	611.6 µPa²h		
EA40	3.1 mPa²h		
LA_{peak}	81.2 dB	2023-04-25 11:30:36	
LAS_{max}	60.5 dB	2023-04-25 11:29:36	
LAS_{min}	49.1 dB	2023-04-25 11:27:34	
LA_{eq}	52.8 dB		
LC_{eq}	65.5 dB	LC_{eq} - LA_{eq}	12.7 dB
LAI_{eq}	53.9 dB	LAI_{eq} - LA_{eq}	1.1 dB

Exceedances	Count	Duration
LAS > 65.0 dB	0	0:00:00.0
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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

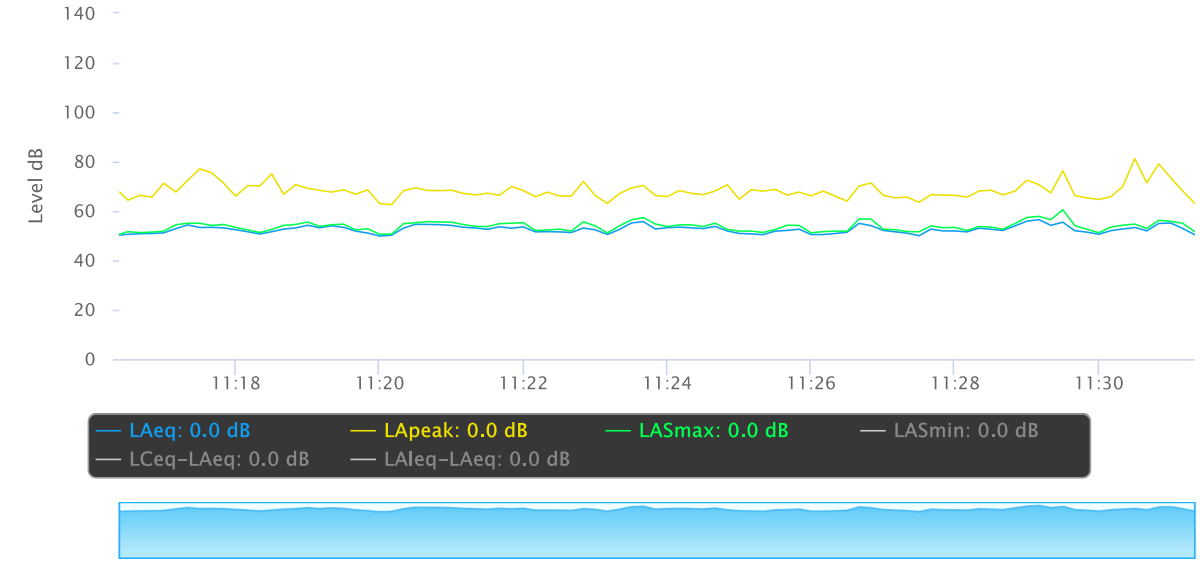
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	52.8 dB		65.5 dB		--- dB	
$Ls_{(max)}$	60.5 dB	2023-04-25 11:29:36	--- dB		--- dB	
$LS_{(min)}$	49.1 dB	2023-04-25 11:27:34	--- dB		--- dB	
$L_{Peak(max)}$	81.2 dB	2023-04-25 11:30:36	--- dB		--- dB	

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

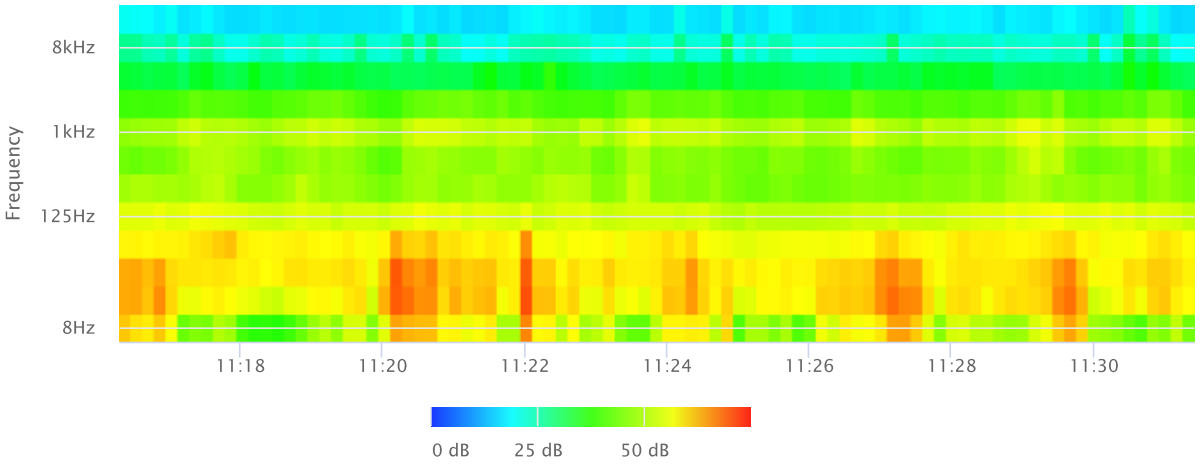
Statistics

LAS 2.0	56.2 dB
LAS 8.0	54.9 dB
LAS 25.0	53.5 dB
LAS 50.0	52.4 dB
LAS 66.6	51.6 dB
LAS 90.0	50.5 dB

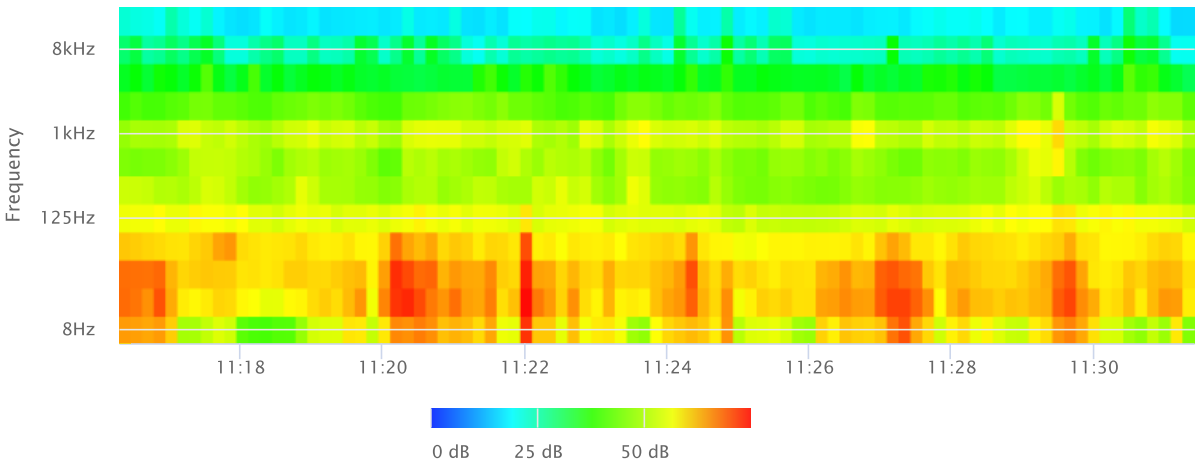
Time History



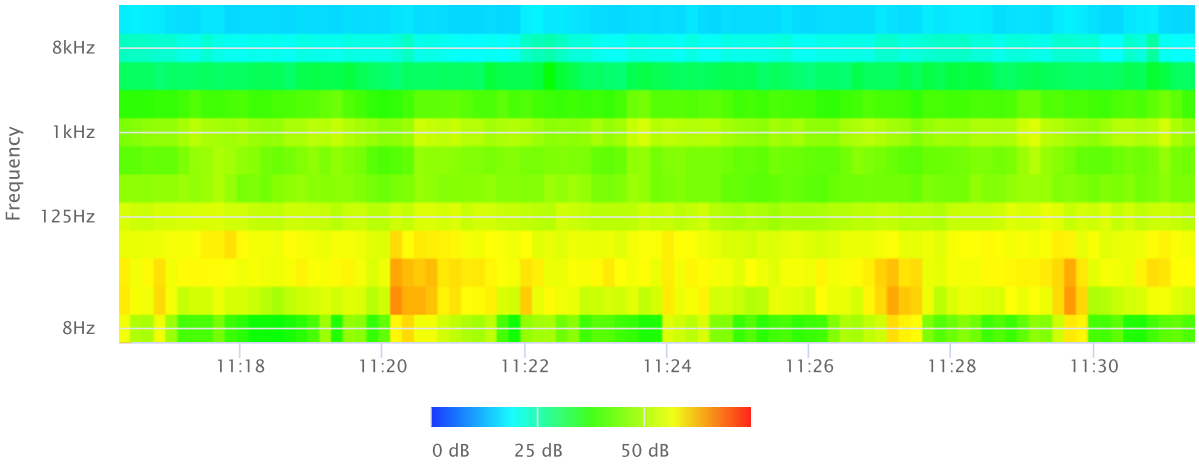
OBA 1/1 Leq



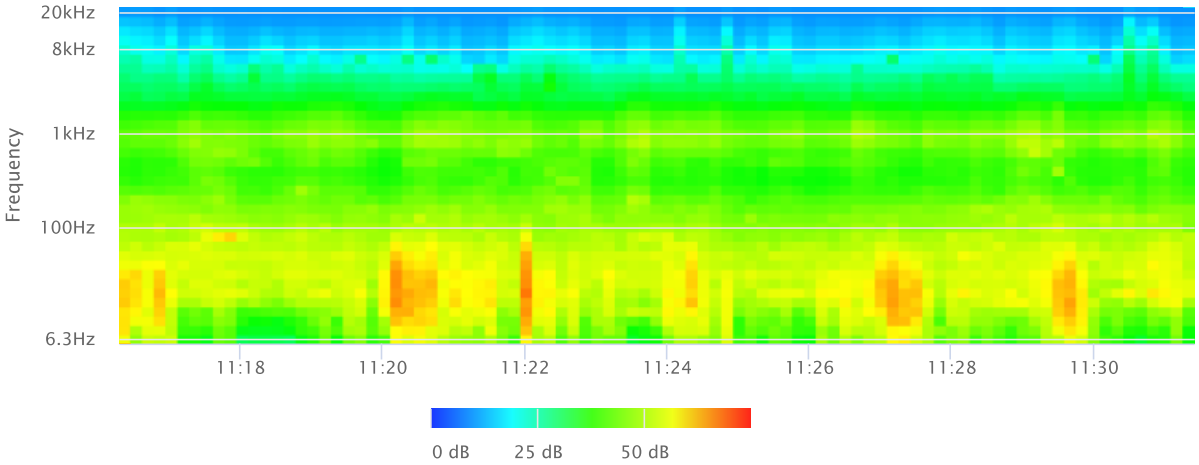
OBA 1/1 Lmax



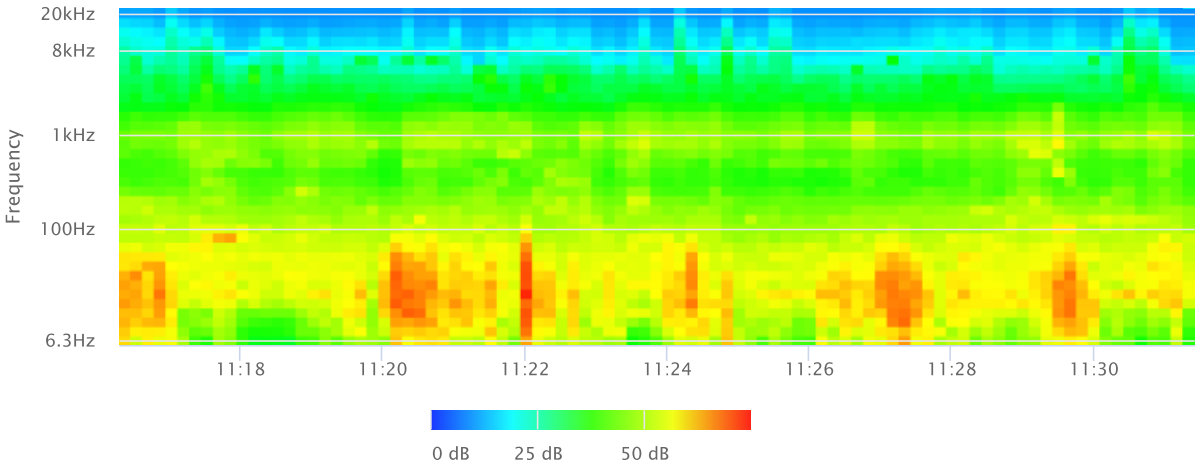
OBA 1/1 Lmin



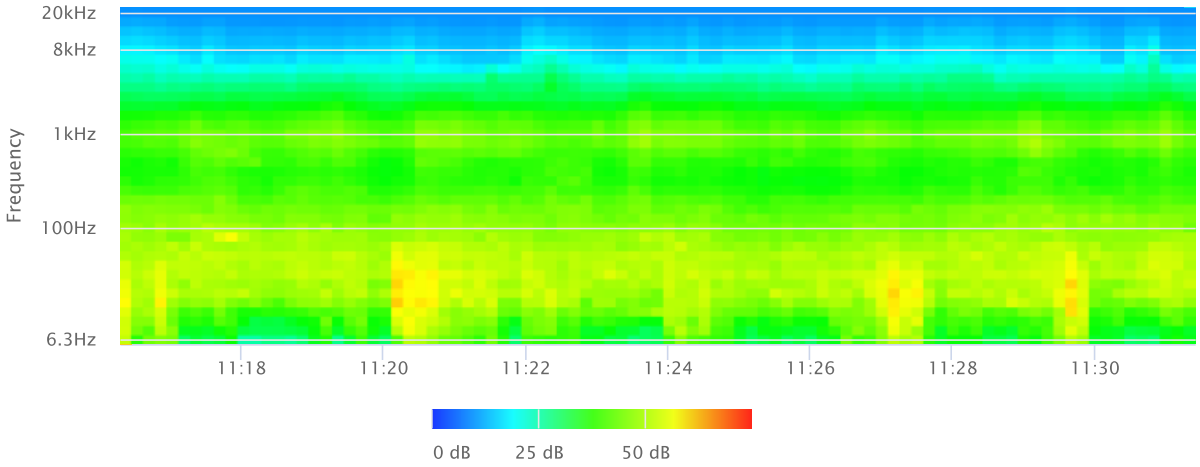
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
11:18
11:20
11:22
11:24
11:26
11:28
11:30
0 dB
25 dB
50 dB

Noise Measurement
Field Data

Project Name: Brown Strauss Industrial Project, City of Banning **Date:** April 25, 2023

Project #: 19588

Noise Measurement #: STNM4 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: Middle of northern edge of site area, Banning, CA 92220. 33°55'23.25"N 116°53'28.16"W

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Taken near northern boundary of project site which consists mainly of vacant, flat land. Adjacent: Vacant project site surrouding measurement to south, east, and west with two very active rail lines (running E-W) ~100' north and 10 Fwy (running E-W) ~360' north. In addition, Lincoln St (running E-W) is ~530' south of STNM4.

Weather: Clear skies, sunshine. Sunset 7:27 PM **Settings:** SLOW FAST

Temperature: 74 deg F **Wind:** 5 mph **Humidity:** 20% **Terrain:** Flat

Start Time: 11:47 AM **End Time:** 12:02 PM **Run Time:**

Leq: 69.4 dB

Lmax 84.2 dB

L2 80.5 dB

L8 73.4 dB

L25 64.6 dB

L50 62.4 dB

Primary Noise Source: Two active train tracks 100' N of STNM4. Two freight trains pass microphone during measurement, times of each train passing are 11:54 AM & 12:01 PM.

Secondary Noise Sources: Occasional overhead air traffic, including Good Year blimp. Traffic ambiance from vehicles traveling on the 10 Fwy to the N & W Lincoln Street to the S.

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:	4/25/2023		

Noise Measurement
Field Data

PHOTOS:

STNM4 looking S across project site towards W Lincoln Street (~530') and unoccupied residence 1356 W Lincoln Street, Banning.

STNM4 looking N towards two rail lines (~100') and the 10 Fwy (~360').

Summary	
File Name on Meter	LxT_Data.255.s
File Name on PC	LxT_0003099-20230425 114739-LxT_Data.255.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM4 33°55'23.25"N 116°53'28.16"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini 19588 Brown Strauss Industrial Project, City of Banning

Measurement	
Start	2023-04-25 11:47:39
Stop	2023-04-25 12:02:39
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-04-25 11:47:20
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	122.8 dB

Results			
L_{Aeq}	69.4		
LAE	99.0		
EA	877.3751 µPa²h		
EA8	28.076 mPa²h		
EA40	140.38 mPa²h		
$L_{Apeak\ (max)}$	2023-04-25 12:01:33	100.6 dB	
L_{ASmax}	2023-04-25 12:01:27	84.2 dB	
L_{ASmin}	2023-04-25 11:56:09	55.0 dB	

		Statistics	
L_{Ceq}	80.5 dB	**LA2.00**	80.5 dB
L_{Aeq}	69.4 dB	**LA8.00**	73.4 dB
L_{Ceq} - L_{Aeq}	11.1 dB	**LA25.00**	64.6 dB
L_{AIeq}	70.8 dB	**LA50.00**	62.4 dB
L_{Aeq}	69.4 dB	**LA66.60**	61.6 dB
L_{AIeq} - L_{Aeq}	1.4 dB	**LA90.00**	59.3 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.255.s	Computer's File Name	LxT_0003099-20230425 114739-LxT_Data.255.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	STNM4 33°55'23.25"N 116°53'28.16"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini 19588 Brown Strauss Industrial Project, W Lincoln Street, City of Banning		
Start Time	2023-04-25 11:47:39	Duration	0:15:00.0
End Time	2023-04-25 12:02:39	Run Time	0:15:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	69.4 dB		
LAE	99.0 dB	SEA	--- dB
EA	877.4 µPa²h	LAFTM5	72.5 dB
EA8	28.1 mPa²h		
EA40	140.4 mPa²h		
LA_{peak}	100.6 dB	2023-04-25 12:01:33	
LAS_{max}	84.2 dB	2023-04-25 12:01:27	
LAS_{min}	55.0 dB	2023-04-25 11:56:09	
LA_{eq}	69.4 dB		
LC_{eq}	80.5 dB	LC_{eq} - LA_{eq}	11.1 dB
LAI_{eq}	70.8 dB	LAI_{eq} - LA_{eq}	1.4 dB

Exceedances	Count	Duration
LAS > 65.0 dB	12	0:04:06.8
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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

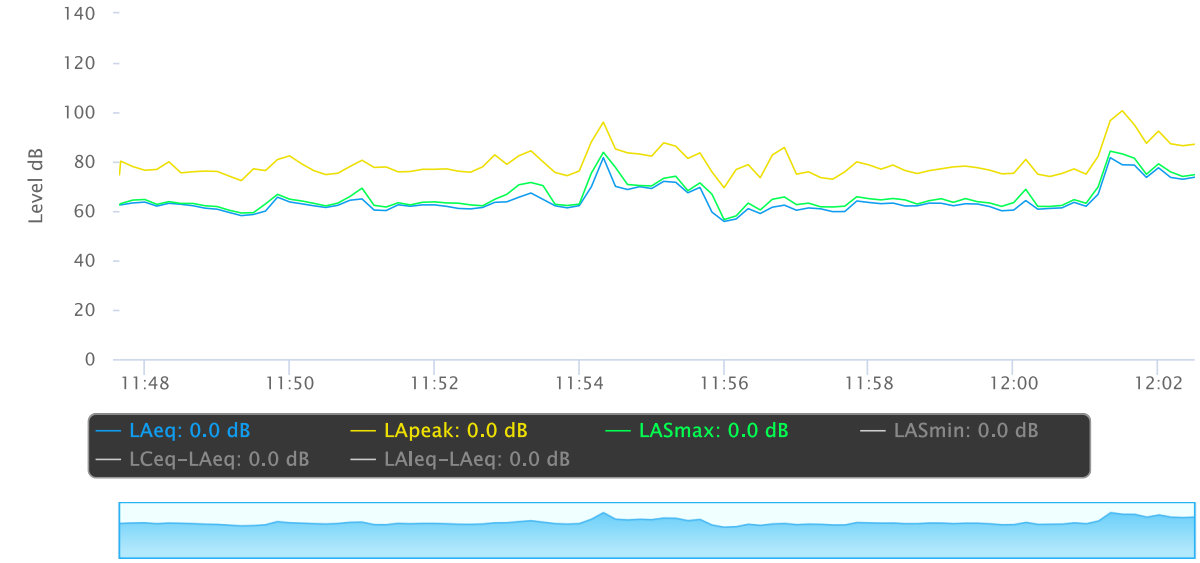
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	69.4 dB		80.5 dB		--- dB	
$Ls_{(max)}$	84.2 dB	2023-04-25 12:01:27	--- dB		--- dB	
$LS_{(min)}$	55.0 dB	2023-04-25 11:56:09	--- dB		--- dB	
$L_{Peak(max)}$	100.6 dB	2023-04-25 12:01:33	--- dB		--- dB	

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

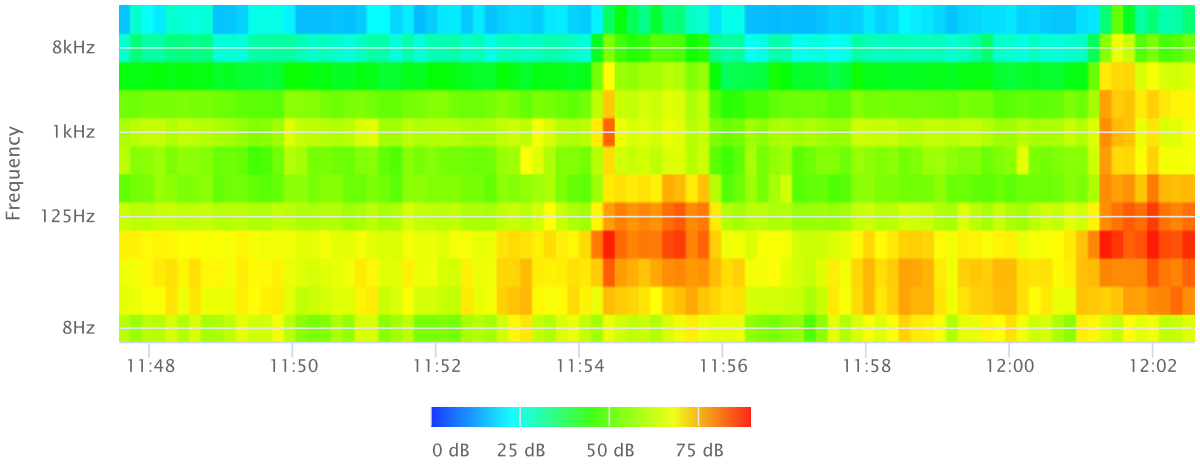
Statistics

LAS 2.0	80.5 dB
LAS 8.0	73.4 dB
LAS 25.0	64.6 dB
LAS 50.0	62.4 dB
LAS 66.6	61.6 dB
LAS 90.0	59.3 dB

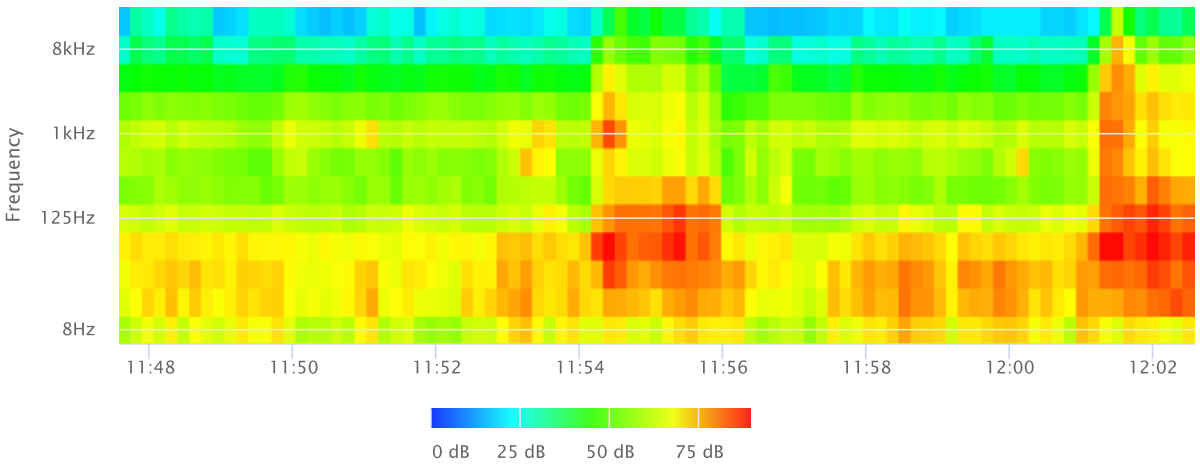
Time History



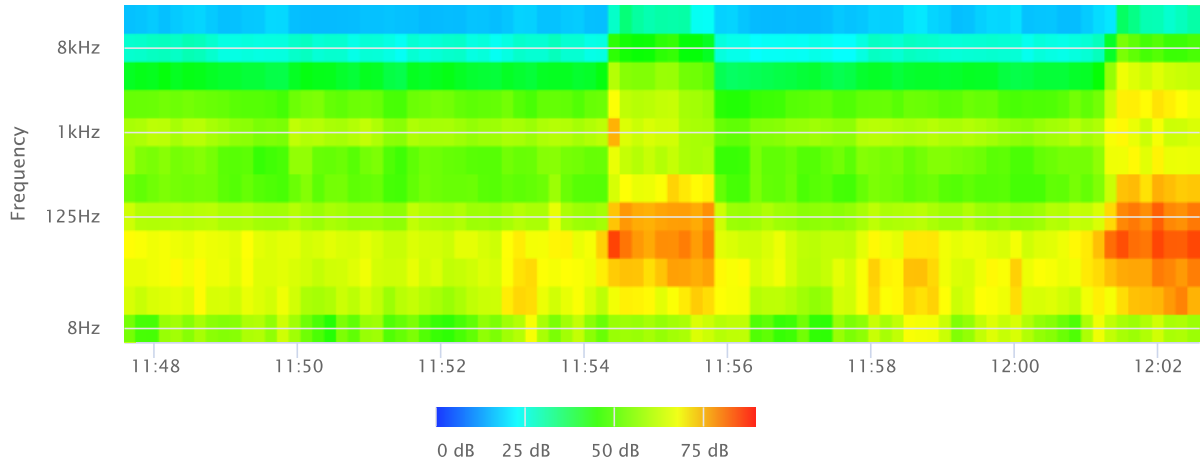
OBA 1/1 Leq



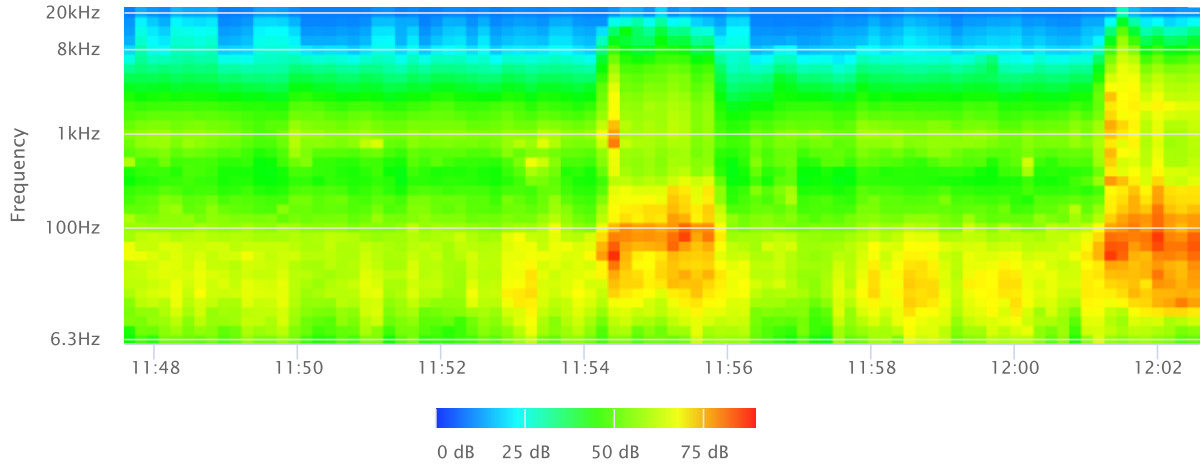
OBA 1/1 Lmax



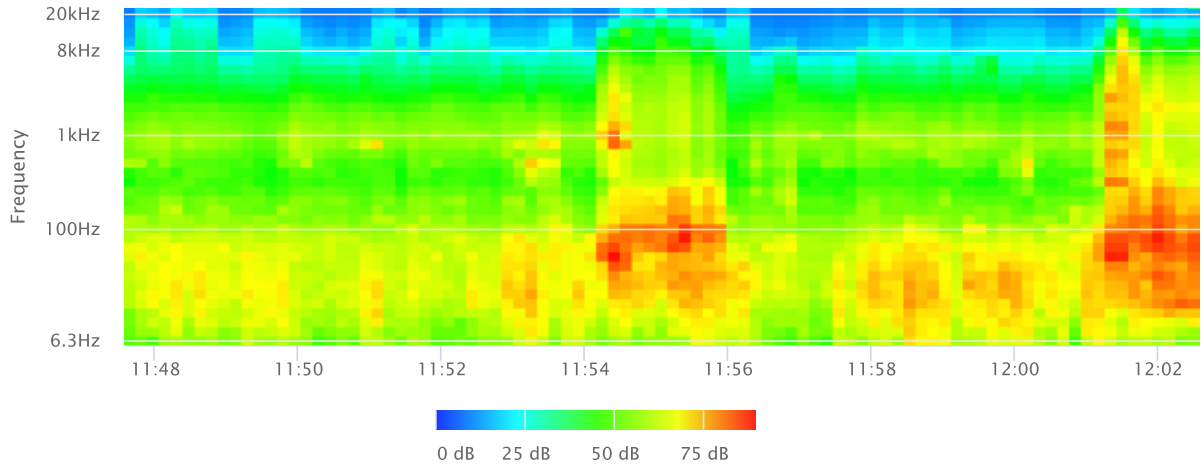
OBA 1/1 Lmin



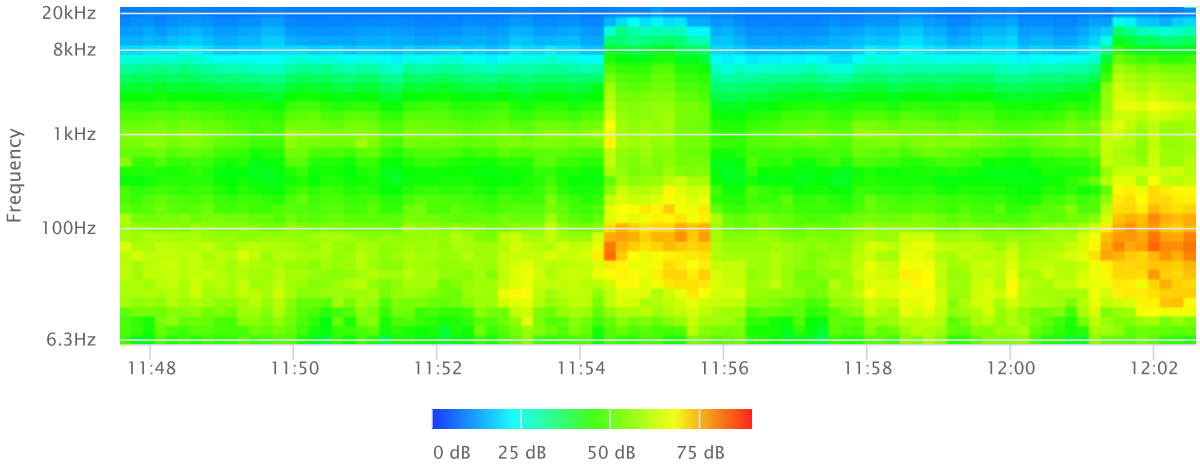
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
11:48
11:50
11:52
11:54
11:56
11:58
12:00
12:02
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: Brown Strauss Industrial Project, City of Banning **Date:** April 26, 2023

Project #: 19588

Noise Measurement #: STNM5 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 2099 West Lincoln Street, Banning, CA 92220

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just south of residence 2099 W Lincoln St.
Adjacent: Single-family residential adjacent to north, W Lincoln St (running E-W) adjacent to south with single-family residential further south, two active rail lines (running E-W) ~620' north, and 10 Fwy (running E-W) ~870' north.

Weather: Clear skies, sunshine. Sunset 7:28 PM **Settings:** SLOW FAST

Temperature: 80 deg F **Wind:** 3 mph **Humidity:** 19% **Terrain:** Flat

Start Time: 3:47 PM **End Time:** 4:02 PM **Run Time:**

Leq: 63.3 dB
Lmax 78.3 dB
L2 72.0 dB
L8 68.3 dB
L25 62.4 dB
L50 57.1 dB

Primary Noise Source: 20 vehicles passed microphone traveling along West Lincoln Street during the measurement. Traffic ambiance from 10 Fwy (~870' N of STNM5).

Secondary Noise Sources: Noise from freight trains passing microphone (~620' N of STNM5). Train tracks intersect S 22nd Street (~680' NW), trains sound horn when approaching street.

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:	4/25/2023		

Noise Measurement
Field Data

PHOTOS:

STNM5 looking NE across front yard of residence 2099 W Lincoln Street, Banning.

STNM5 looking S across W Lincoln Street towards residence 2102 W Lincoln Street, Banning.

Summary	
File Name on Meter	LxT_Data.257.s
File Name on PC	LxT_0003099-20230426 154734-LxT_Data.257.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM5 33°55'17.96"N 116°53'59.38"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini 19588 Brown Strauss Industrial Project, City of Banning

Measurement	
Start	2023-04-26 15:47:34
Stop	2023-04-26 16:02:34
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-04-26 15:46:49
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	122.8 dB

Results			
LA_{eq}	63.3		
LAE	92.8		
EA	212.0573 µPa²h		
EA8	6.785833 mPa²h		
EA40	33.92916 mPa²h		
$LA_{peak\ (max)}$	2023-04-26 15:51:35	96.5 dB	
LAS_{max}	2023-04-26 16:01:16	78.3 dB	
LAS_{min}	2023-04-26 15:54:10	49.8 dB	

		Statistics	
LC_{eq}	71.1 dB	**LA2.00**	72.0 dB
LA_{eq}	63.3 dB	**LA8.00**	68.3 dB
LC_{eq} - LA_{eq}	7.9 dB	**LA25.00**	62.4 dB
LAI_{eq}	68.5 dB	**LA50.00**	57.1 dB
LA_{eq}	63.3 dB	**LA66.60**	55.5 dB
LAI_{eq} - LA_{eq}	5.3 dB	**LA90.00**	52.7 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.257.s	Computer's File Name	LxT_0003099-20230426 154734-LxT_Data.257.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	STNM5 33°55'17.96"N 116°53'59.38"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini 19588 Brown Strauss Industrial Project, W Lincoln Street, City of Banning		
Start Time	2023-04-26 15:47:34	Duration	0:15:00.0
End Time	2023-04-26 16:02:34	Run Time	0:15:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	63.3 dB		
LAE	92.8 dB	SEA	--- dB
EA	212.1 µPa²h	LAFTM5	70.6 dB
EA8	6.8 mPa²h		
EA40	33.9 mPa²h		
LA_{peak}	96.5 dB	2023-04-26 15:51:35	
LAS_{max}	78.3 dB	2023-04-26 16:01:16	
LAS_{min}	49.8 dB	2023-04-26 15:54:10	
LA_{eq}	63.3 dB		
LC_{eq}	71.1 dB	LC_{eq} - LA_{eq}	7.9 dB
LAI_{eq}	68.5 dB	LAI_{eq} - LA_{eq}	5.3 dB

Exceedances	Count	Duration
LAS > 65.0 dB	47	0:03:19.7
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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

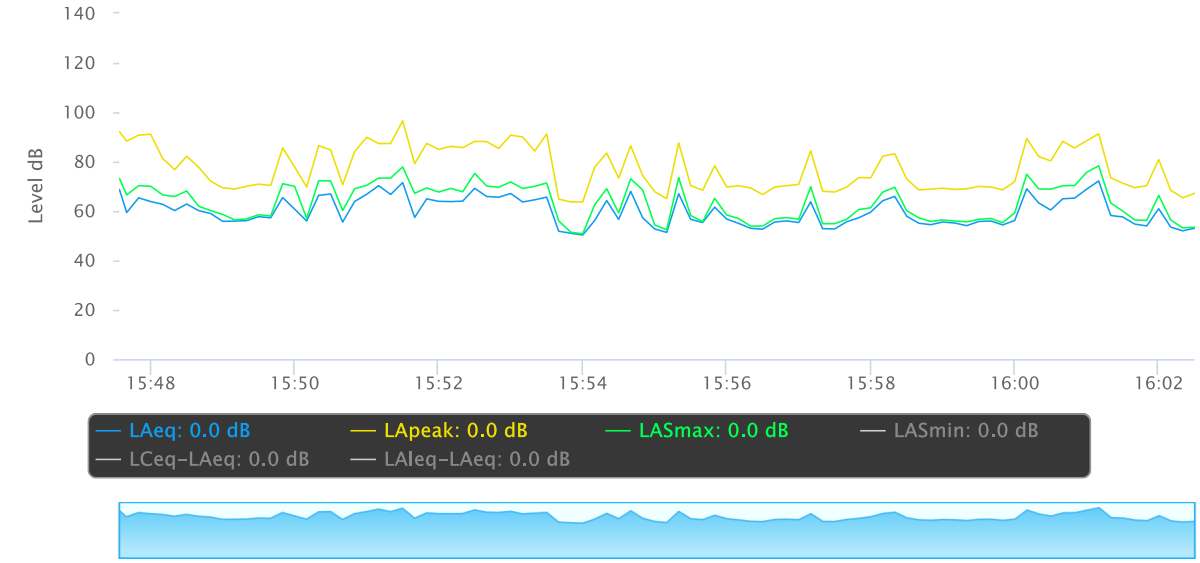
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	63.3 dB		71.1 dB		--- dB	
$Ls_{(max)}$	78.3 dB	2023-04-26 16:01:16	--- dB		--- dB	
$LS_{(min)}$	49.8 dB	2023-04-26 15:54:10	--- dB		--- dB	
$L_{Peak(max)}$	96.5 dB	2023-04-26 15:51:35	--- dB		--- dB	

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

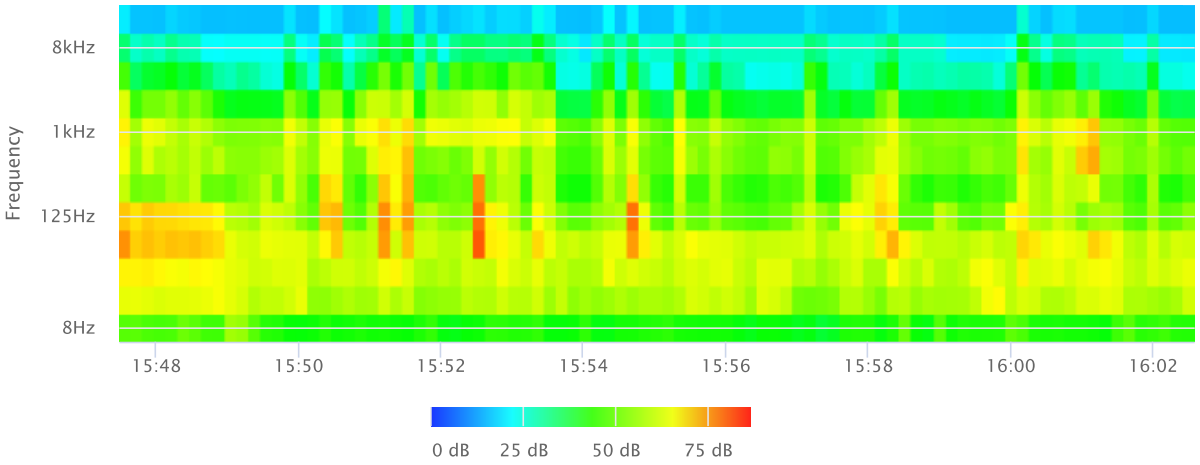
Statistics

LAS 2.0	72.0 dB
LAS 8.0	68.3 dB
LAS 25.0	62.4 dB
LAS 50.0	57.1 dB
LAS 66.6	55.5 dB
LAS 90.0	52.7 dB

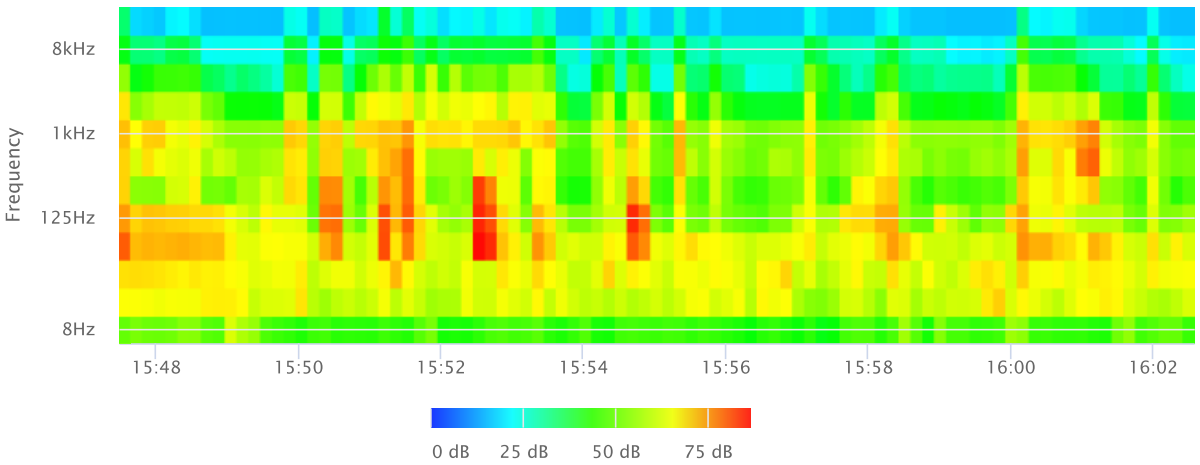
Time History



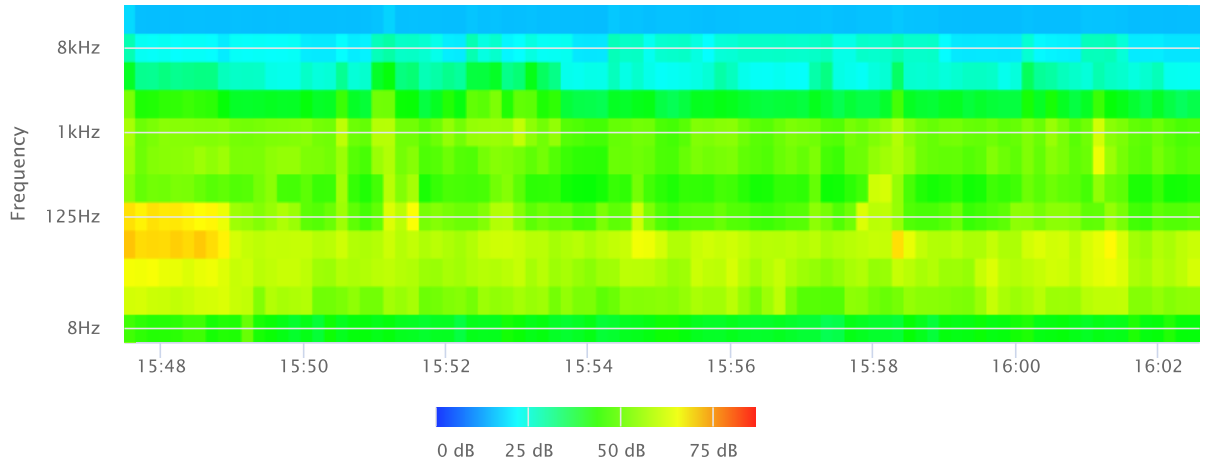
OBA 1/1 Leq



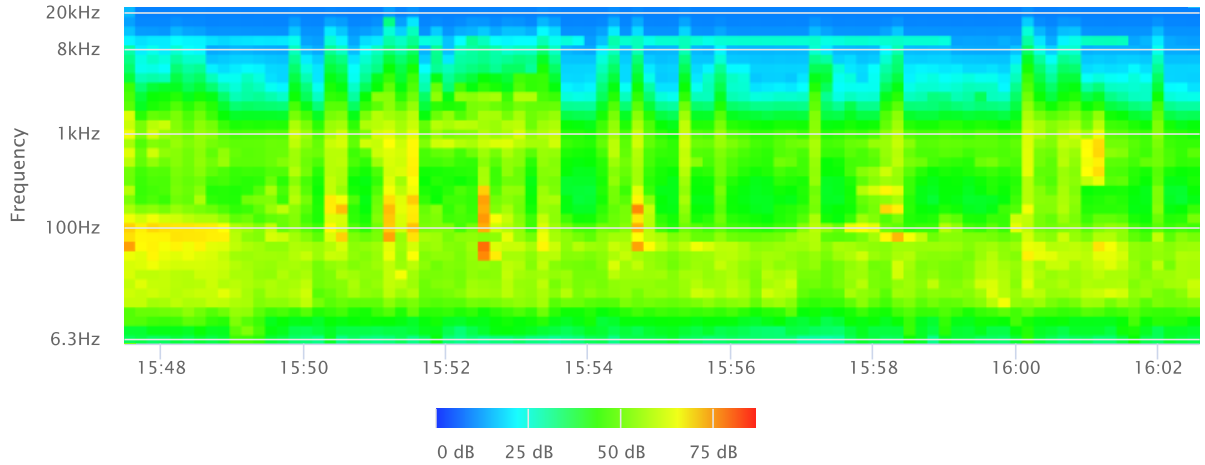
OBA 1/1 Lmax



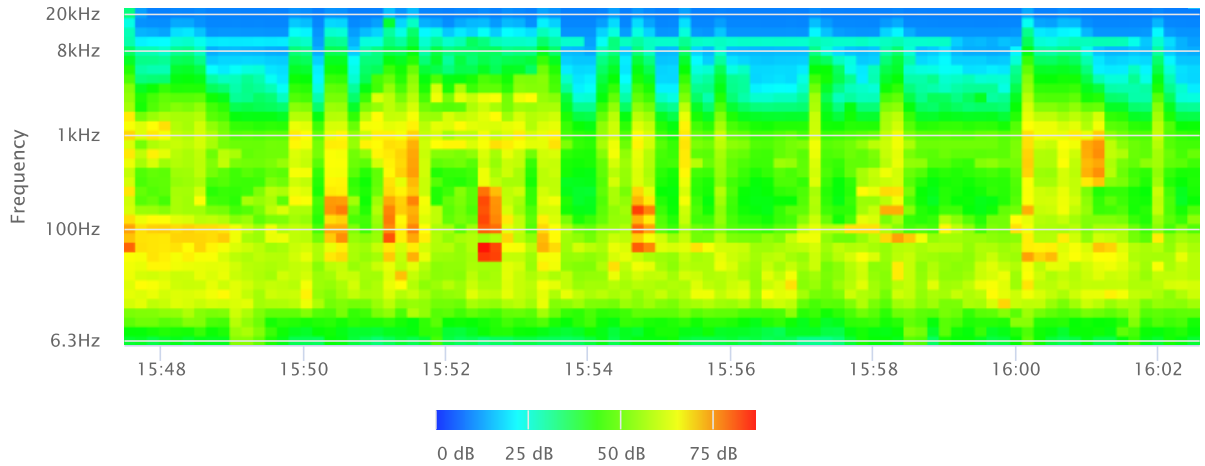
OBA 1/1 Lmin



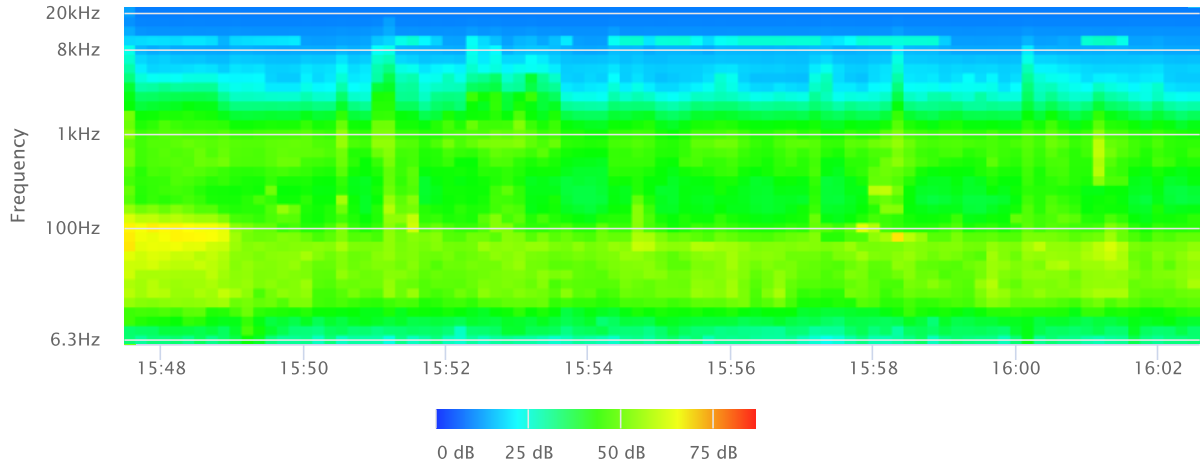
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
15:48
15:50
15:52
15:54
15:56
15:58
16:00
16:02
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: Brown Strauss Industrial Project, City of Banning **Date:** April 25-26, 2023

Project #: 19588

Noise Measurement #: LTNM1 Run Time: 24 hours (24 x 1 hours) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 1380 West Lincoln Street, Banning, CA 92220

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: LTNM1 on western gate post at entrace to project site, just north of residence 1380 W Lincoln St. Adjacent: W Lincoln St (running E-W) ~110' S, 10 Fwy (running E-W) ~780' N, two very active rail lines (running E-W) ~530' N, and vacant project site surrouding measurement to north/east/west. .

Weather: Clear skies, sunshine by day. Sunset/rise 7:27 PM /6:08 AM **Settings:** SLOW FAST

Temperature: 59-80 deg F **Wind:** 0-8 mph **Humidity:** 20-50% **Terrain:** Flat

Start Time: 1:00 PM **End Time:** 1:00 PM **Run Time:**

Leq: 61.7 dB

Lmax 81.8 dB

L2 67.5 dB

L8 65.4 dB

L25 62.4 dB

L50 59.7 dB

Primary Noise Source: Traffic noise from vehicles passing microphone traveling along W Lincoln Street during LTNM1 measurement. 10 Fwy ambiance ~780' N of LTNM1.

Secondary Noise Sources: Occasional overhead air traffic, residential ambiance from dogs kenneled in front yard of 1380 W Lincoln St. Active train tracks ~530' N of LTNM1.

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:	4/25/2023		

Noise Measurement
Field Data

PHOTOS:

LTNM1 looking SE across W Lincoln Street towards unoccupied residence, 1356 W Lincoln Street, Banning (behind trees on right of image).

LTNM1 looking N across site area towards railroad tracks (~530') & 10 Freeway (~780').

Summary	
File Name on Meter	LxT_Data.256.s
File Name on PC	LxT_0003099-20230425 130000-LxT_Data.256.ldbin
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	LTNM1 33°55'19.04"N 116°53'31.11"W
Job Description	24 hour noise measurement (24 x 1 hours)
Note	Ganddini 19588 Brown Strauss Industrial Project, City of Banning

Measurement	
Start	2023-04-25 13:00:00
Stop	2023-04-26 13:00:00
Duration	24:00:00.0
Run Time	24:00:00.0
Pause	00:00:00.0
Pre-Calibration	2023-04-25 12:39:49
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	A Weighting
OBA Max Spectrum	Bin Max
Overload	122.8 dB

Results				
L_{Aeq}	61.7			
LAE	111.1			
EA	14.234	mPa^2h		
EA8	4.745	mPa^2h		
EA40	23.723	mPa^2h		
$L_{Apeak\ (max)}$	2023-04-26 05:31:43	107.2	dB	
L_{ASmax}	2023-04-25 16:21:58	81.8	dB	
L_{ASmin}	2023-04-26 02:06:43	47.9	dB	

			Statistics		
L_{Ceq}	73.0	dB	**LA2.00**	67.5	dB
L_{Aeq}	61.7	dB	**LA8.00**	65.4	dB
L_{Ceq} - L_{Aeq}	11.3	dB	**LA25.00**	62.4	dB
L_{AIeq}	62.8	dB	**LA50.00**	59.7	dB
L_{Aeq}	61.7	dB	**LA90.00**	55.4	dB
L_{AIeq} - L_{Aeq}	1.1	dB	**LA99.00**	52.9	dB
Overload Count	0				

Record #	Date	Time	Run Duration	Run Time	Pause	LAeq	LASmin	LASmin Time	LASmax	LASmax Time	LAS2.00	LAS8.00	LAS25.00	LAS50.00	LAS90.00	LAS99.00
1	2023-04-25	13:00:00	01:00:00.0	01:00:00.0	00:00:00.0	57.8	51.2	13:38:46	77.1	13:59:41	62.9	60.4	58.0	56.3	53.4	51.9
2	2023-04-25	14:00:00	01:00:00.0	01:00:00.0	00:00:00.0	57.3	50.1	14:23:50	69.9	14:26:09	62.4	60.0	57.9	56.2	53.4	51.0
3	2023-04-25	15:00:00	01:00:00.0	01:00:00.0	00:00:00.0	57.8	51.0	15:32:27	72.8	15:26:18	62.5	60.4	58.3	56.6	54.2	52.7
4	2023-04-25	16:00:00	01:00:00.0	01:00:00.0	00:00:00.0	59.9	51.6	16:03:28	81.8	16:21:58	66.8	61.5	58.9	57.2	54.3	52.9
5	2023-04-25	17:00:00	01:00:00.0	01:00:00.0	00:00:00.0	60.9	54.3	17:07:14	79.5	17:46:30	65.4	62.8	61.1	59.6	57.1	55.5
6	2023-04-25	18:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.6	56.4	18:00:07	71.4	18:26:46	65.9	64.5	63.3	62.2	60.1	58.3
7	2023-04-25	19:00:00	01:00:00.0	01:00:00.0	00:00:00.0	60.6	53.6	19:53:18	70.5	19:24:21	65.0	63.3	61.5	59.8	56.6	55.0
8	2023-04-25	20:00:00	01:00:00.0	01:00:00.0	00:00:00.0	56.4	51.1	20:46:35	66.3	20:10:45	60.4	58.4	57.0	56.0	53.9	52.2
9	2023-04-25	21:00:00	01:00:00.0	01:00:00.0	00:00:00.0	57.6	51.1	21:04:42	65.7	21:49:34	61.7	60.0	58.4	57.0	54.8	53.3
10	2023-04-25	22:00:00	01:00:00.0	01:00:00.0	00:00:00.0	59.9	52.2	22:59:22	71.9	22:03:44	64.4	61.9	60.3	59.0	56.8	54.9
11	2023-04-25	23:00:00	01:00:00.0	01:00:00.0	00:00:00.0	61.9	52.2	23:48:05	74.2	23:23:39	69.8	65.3	61.4	59.7	56.6	54.0
12	2023-04-26	00:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.0	50.6	00:35:26	76.8	00:14:06	68.7	64.3	61.9	60.1	56.8	54.0
13	2023-04-26	01:00:00	01:00:00.0	01:00:00.0	00:00:00.0	61.5	49.7	01:23:05	76.8	01:07:31	69.3	64.2	61.3	59.4	55.7	53.4
14	2023-04-26	02:00:00	01:00:00.0	01:00:00.0	00:00:00.0	60.7	47.9	02:06:43	76.2	02:17:13	66.2	62.4	60.5	58.7	55.2	51.7
15	2023-04-26	03:00:00	01:00:00.0	01:00:00.0	00:00:00.0	61.1	52.0	03:07:39	78.4	03:53:59	67.5	63.6	61.3	59.6	56.5	53.9
16	2023-04-26	04:00:00	01:00:00.0	01:00:00.0	00:00:00.0	64.2	56.8	04:01:22	75.9	04:55:33	70.2	66.7	64.4	62.9	60.6	58.5
17	2023-04-26	05:00:00	01:00:00.0	01:00:00.0	00:00:00.0	64.8	58.1	05:10:08	74.1	05:29:49	69.2	66.9	65.5	64.4	61.6	59.5
18	2023-04-26	06:00:00	01:00:00.0	01:00:00.0	00:00:00.0	65.6	60.8	06:56:03	70.7	06:06:47	68.0	67.1	66.3	65.5	63.7	61.9
19	2023-04-26	07:00:00	01:00:00.0	01:00:00.0	00:00:00.0	65.8	60.9	07:48:30	76.6	07:09:51	70.1	67.6	66.3	65.2	63.1	61.7
20	2023-04-26	08:00:00	01:00:00.0	01:00:00.0	00:00:00.0	63.5	56.0	08:46:20	72.3	08:25:46	67.9	65.4	64.1	63.0	60.5	58.7
21	2023-04-26	09:00:00	01:00:00.0	01:00:00.0	00:00:00.0	61.5	55.3	09:31:10	76.1	09:38:43	67.8	63.6	61.4	60.0	58.0	56.4
22	2023-04-26	10:00:00	01:00:00.0	01:00:00.0	00:00:00.0	60.5	53.4	10:53:41	71.7	10:00:39	64.3	62.6	61.1	59.9	57.8	55.9
23	2023-04-26	11:00:00	01:00:00.0	01:00:00.0	00:00:00.0	60.2	52.0	11:14:53	70.7	11:26:03	66.0	62.8	60.8	59.3	56.0	53.9
24	2023-04-26	12:00:00	01:00:00.0	01:00:00.0	00:00:00.0	58.8	50.2	12:37:55	68.3	12:06:51	64.3	61.5	59.6	58.0	54.3	51.5

Measurement Report

Report Summary

Meter's File Name	LxT_Data.256.s	Computer's File Name	LxT_0003099-20230425 130000-LxT_Data.256.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	LTNM1 33°55'19.04"N 116°53'31.11"W
Job Description	24 hour noise measurement (24 x 1 hours)		
Note	Ganddini 19588 Brown Strauss Industrial Project, W Lincoln Street, City of Banning		
Start Time	2023-04-25 13:00:00	Duration	24:00:00.0
End Time	2023-04-26 13:00:00	Run Time	24:00:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	61.7 dB		
LAE	111.1 dB	SEA	--- dB
EA	14.2 mPa²h	LAFTM5	64.1 dB
EA8	4.7 mPa²h		
EA40	23.7 mPa²h		
LA_{peak}	107.2 dB	2023-04-26 05:31:43	
LAS_{max}	81.8 dB	2023-04-25 16:21:58	
LAS_{min}	47.9 dB	2023-04-26 02:06:43	
LA_{eq}	61.7 dB		
LC_{eq}	73.0 dB	LC_{eq} - LA_{eq}	11.3 dB
LAI_{eq}	62.8 dB	LAI_{eq} - LA_{eq}	1.1 dB

Exceedances	Count	Duration
LAS > 65.0 dB	436	3:43:50.0
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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

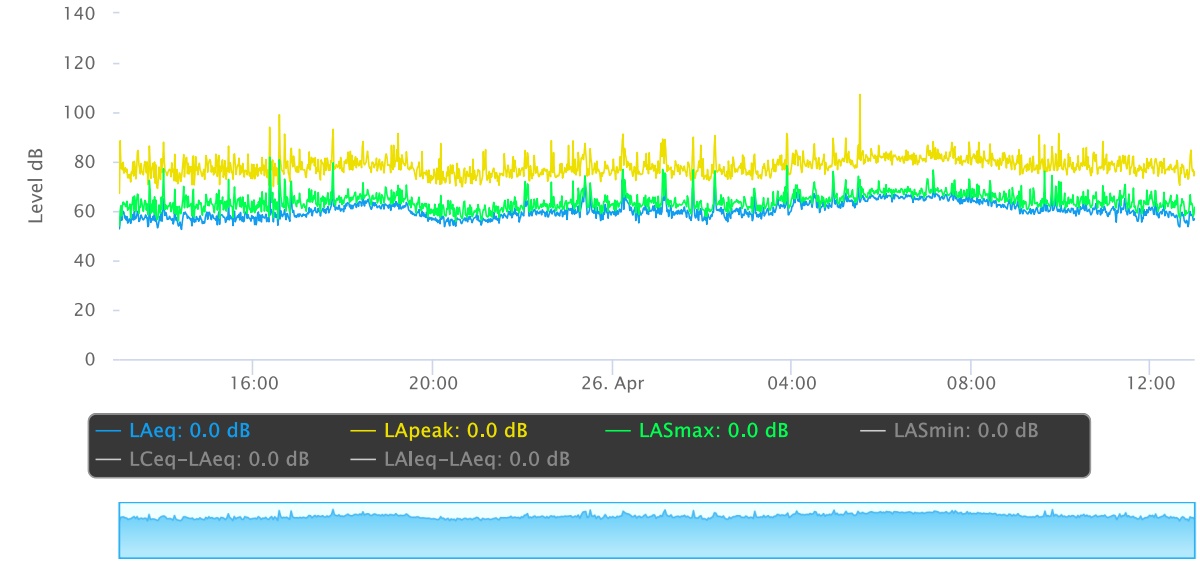
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	61.7 dB		73.0 dB		--- dB	
$Ls_{(max)}$	81.8 dB	2023-04-25 16:21:58	--- dB		--- dB	
$LS_{(min)}$	47.9 dB	2023-04-26 02:06:43	--- dB		--- dB	
$L_{Peak(max)}$	107.2 dB	2023-04-26 05:31:43	--- dB		--- dB	

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

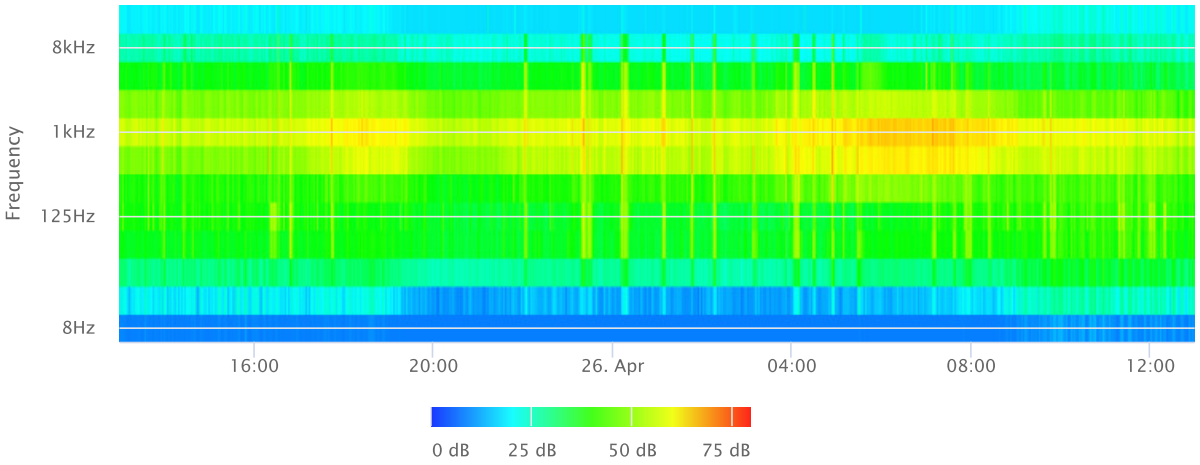
Statistics

LAS 2.0	67.5 dB
LAS 8.0	65.4 dB
LAS 25.0	62.4 dB
LAS 50.0	59.7 dB
LAS 90.0	55.4 dB
LAS 99.0	52.9 dB

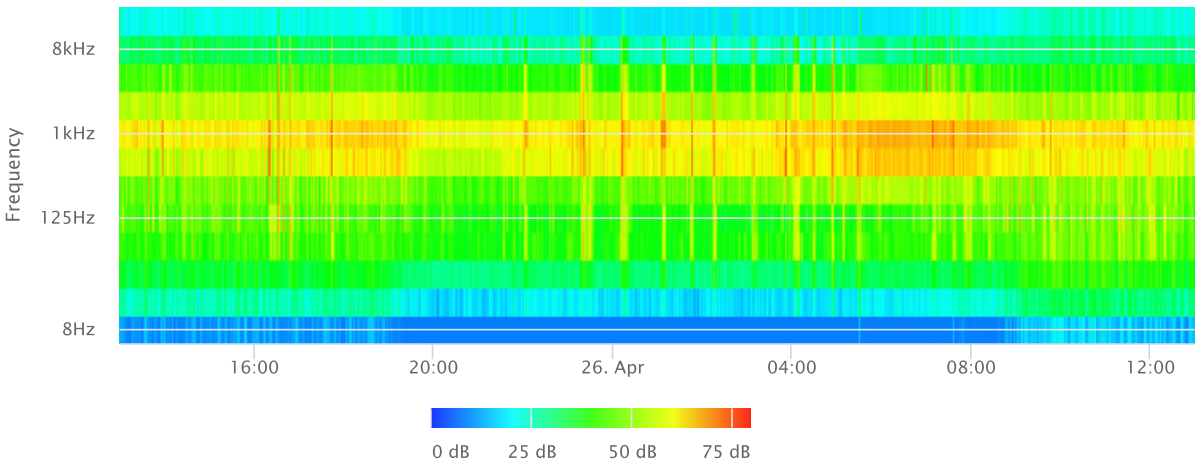
Time History



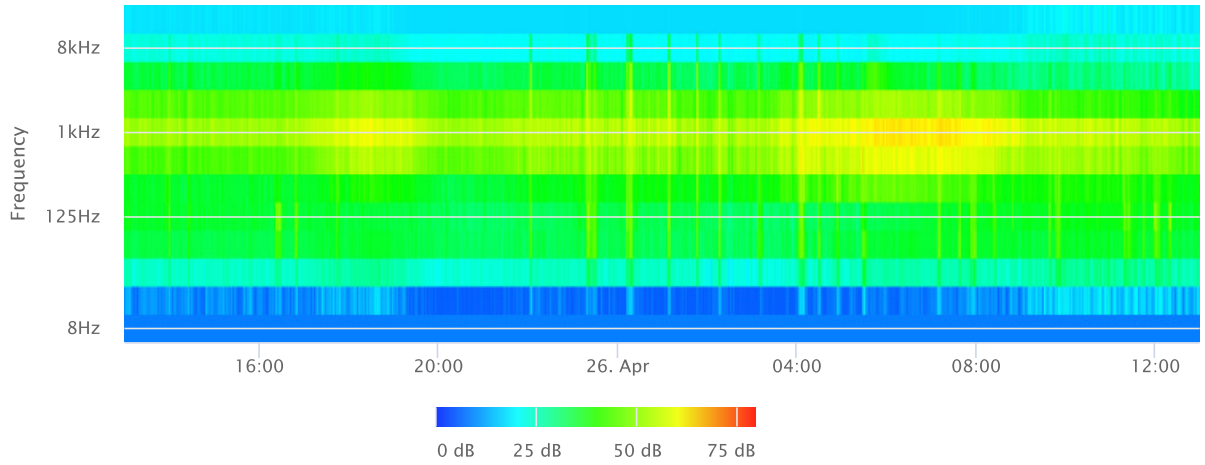
OBA 1/1 Leq



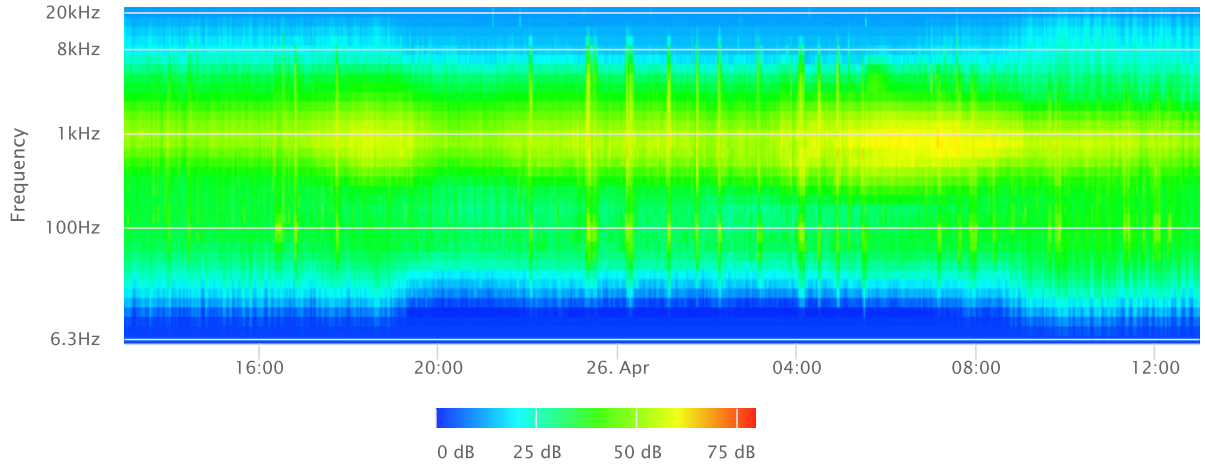
OBA 1/1 Lmax



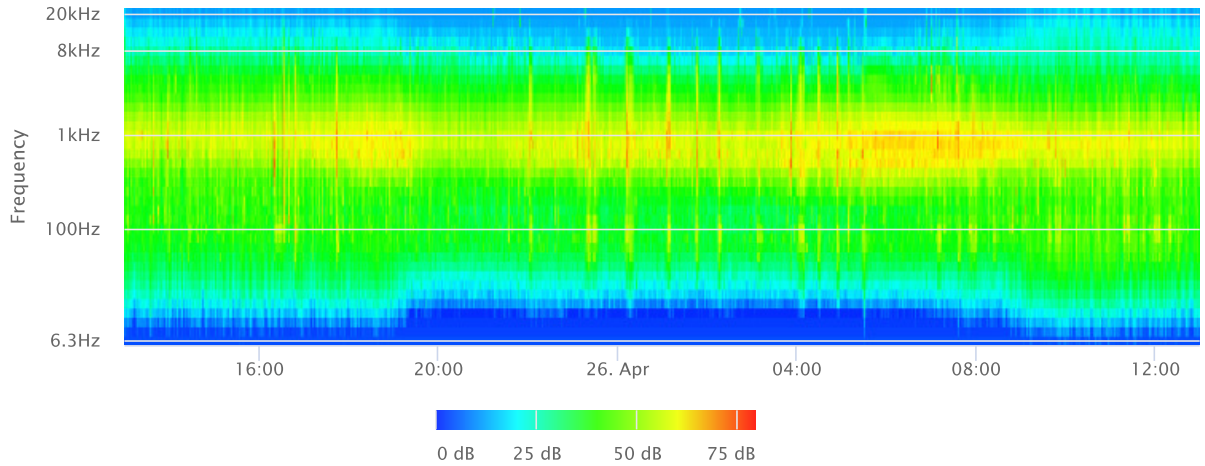
OBA 1/1 Lmin



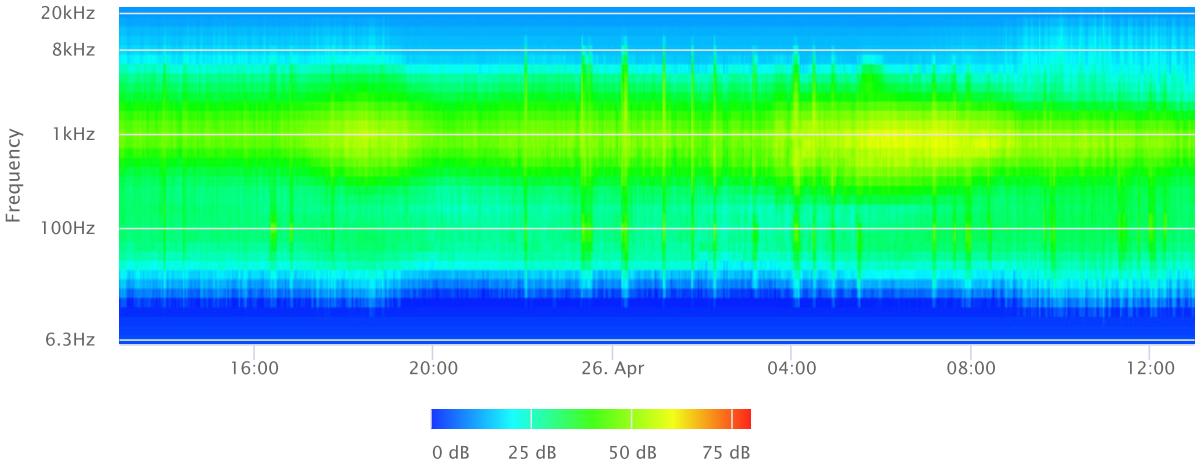
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
16:00
20:00
26. Apr
04:00
08:00
12:00
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: Brown Strauss Industrial Project (measurement at existing facility rail spur, City of Fontana) **Date:** May 10, 2023

Project #: 19588

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

Nearest Address or Cross Street: Rail Spur (half way point), 14970 Jurupa Ave, Fontana, CA 92337

Site Description (Type of Existing Land Use and any other notable features): Project Site: NM (base measurement) about half way point on rail spur at existing facility at 14970 Jurupa Ave, Fontana. Adjacent: 3 empty rail cars & existing facility open storage yard to the east, Live Oak Ave (running N-S) & warehouse to the west, Jurupa Ave (running E-W) ~450' S of NM.

Weather: 80% cloud, heavily filtered sunshine. Sunset 7:42 PM **Settings:** SLOW FAST

Temperature: 65 deg F **Wind:** 3 mph **Humidity:** 50% **Terrain:** Flat

Start Time: 11:26 AM **End Time:** 11:41 AM **Run Time:**

Leq: 60.1 dB

Lmax 72.6 dB

L2 67.8 dB

L8 64.7 dB

L25 60.9 dB

L50 55.7 dB

Primary Noise Source: Traffic noise from the 34 vehicles passing microphone traveling along Live Oak Ave during NM. Traffic noise from Jurupa Ave ~450' S .

Secondary Noise Sources: Overhead air traffic, noise from large forklift trucks moving steel I beams in storage yard on other side of rail cars.

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:	5/10/2023		

Noise Measurement
Field Data

PHOTOS:

NM (Base Measurement) looking E towards empty, stationary cars on rail spur. 14970 Jurupa Ave storage yard for I beams on other side of trains.

NM (Base Measurement) looking SSW towards Live Oak Ave & Jurupa Ave intersection (~470').

Summary	
File Name on Meter	LxT_Data.258.s
File Name on PC	LxT_0003099-20230510 112625-LxT_Data.258.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM (Base) 34° 2'58.02"N 117°28'48.61"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19588 Rail Spur. Base measurement, no train.

Measurement	
Start	2023-05-10 11:26:25
Stop	2023-05-10 11:41:25
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-05-10 11:25:34
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	122.8 dB

Results			
LA_{eq}		60.1	
LAE		89.6	
EA		101.2365	µPa²h
EA8		3.239568	mPa²h
EA40		16.19784	mPa²h
$LA_{peak\ (max)}$	2023-05-10 11:35:28	85.8	dB
LAS_{max}	2023-05-10 11:27:33	72.6	dB
LAS_{min}	2023-05-10 11:29:37	44.7	dB

		Statistics	
LC_{eq}	70.0 dB	**LA2.00**	67.8 dB
LA_{eq}	60.1 dB	**LA8.00**	64.7 dB
LC_{eq} - LA_{eq}	10.0 dB	**LA25.00**	60.9 dB
LAI_{eq}	61.9 dB	**LA50.00**	55.7 dB
LA_{eq}	60.1 dB	**LA66.60**	53.8 dB
LAI_{eq} - LA_{eq}	1.9 dB	**LA90.00**	51.1 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.258.s	Computer's File Name	LxT_0003099-20230510 112625-LxT_Data.258.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM (Base) 34° 2'58.02"N 117°28'48.61"W
Job Description	15 minute noise measuremnt (1 x 15 minutes)		
Note	Ganddini Project 19588 Rail Spur. Base measurement, no train.		
Start Time	2023-05-10 11:26:25	Duration	0:15:00.0
End Time	2023-05-10 11:41:25	Run Time	0:15:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	60.1 dB		
LAE	89.6 dB	SEA	--- dB
EA	101.2 µPa²h	LAFTM5	64.7 dB
EA8	3.2 mPa²h		
EA40	16.2 mPa²h		
LA_{peak}	85.8 dB	2023-05-10 11:35:28	
LAS_{max}	72.6 dB	2023-05-10 11:27:33	
LAS_{min}	44.7 dB	2023-05-10 11:29:37	
LA_{eq}	60.1 dB		
LC_{eq}	70.0 dB	LC_{eq} - LA_{eq}	10.0 dB
LAI_{eq}	61.9 dB	LAI_{eq} - LA_{eq}	1.9 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	21	0:01:37.1
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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}	60.1 dB		70.0 dB		--- dB	
$L_{S(max)}$	72.6 dB	2023-05-10 11:27:33	--- dB		--- dB	
$L_{S(min)}$	44.7 dB	2023-05-10 11:29:37	--- dB		--- dB	
$L_{Peak(max)}$	85.8 dB	2023-05-10 11:35:28	--- dB		--- dB	

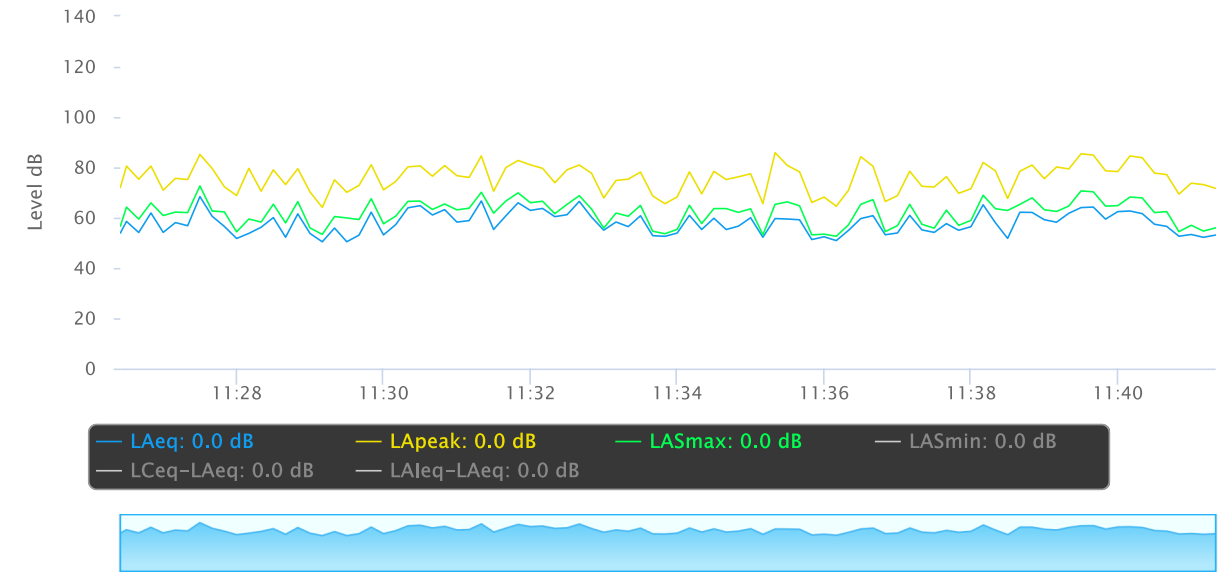
Overloads

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

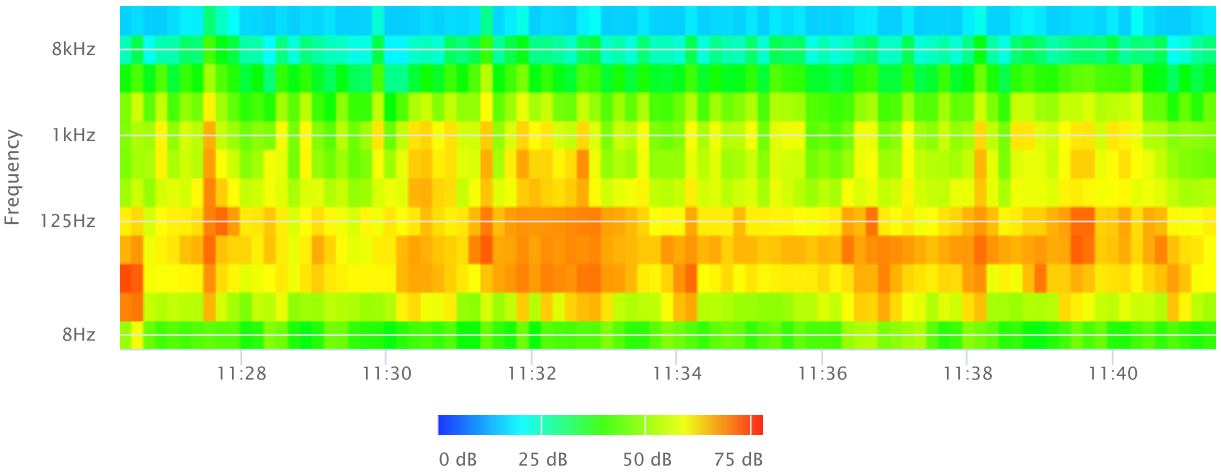
Statistics

LAS 2.0	67.8 dB
LAS 8.0	64.7 dB
LAS 25.0	60.9 dB
LAS 50.0	55.7 dB
LAS 66.6	53.8 dB
LAS 90.0	51.1 dB

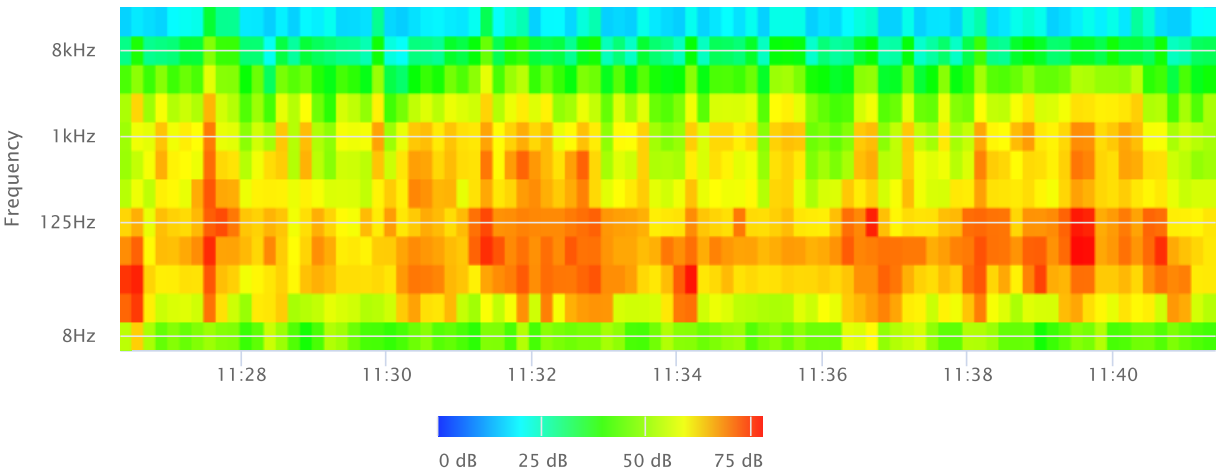
Time History



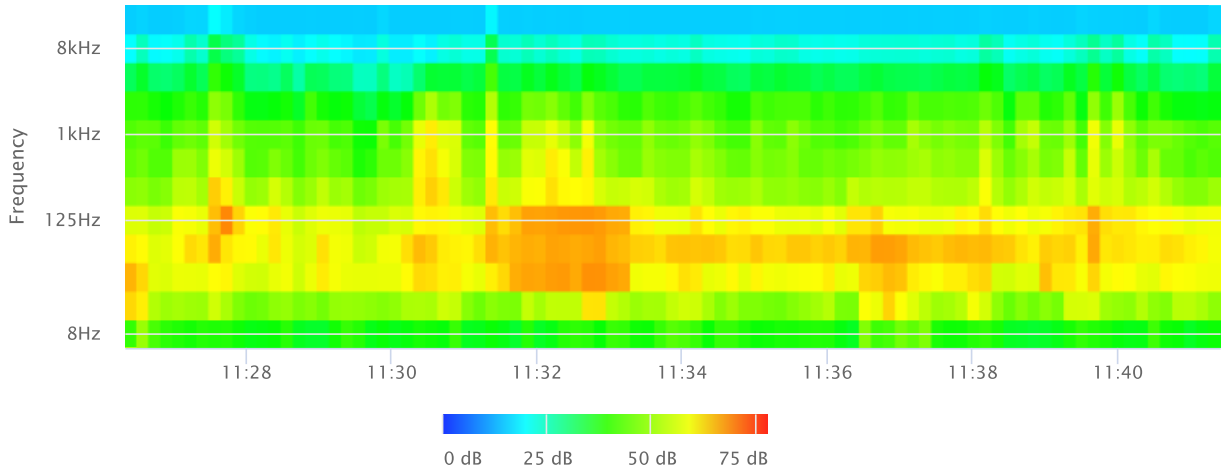
OBA 1/1 Leq



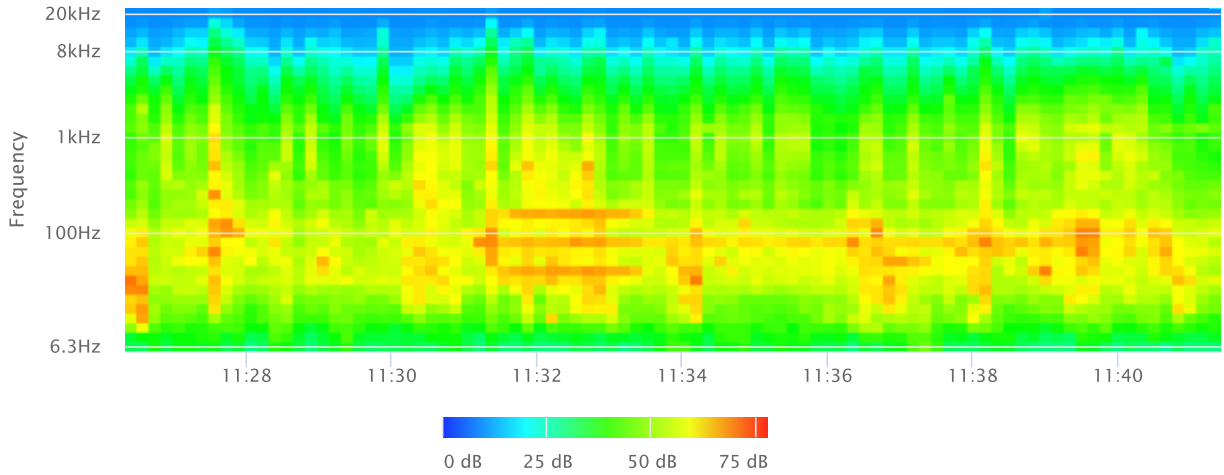
OBA 1/1 Lmax



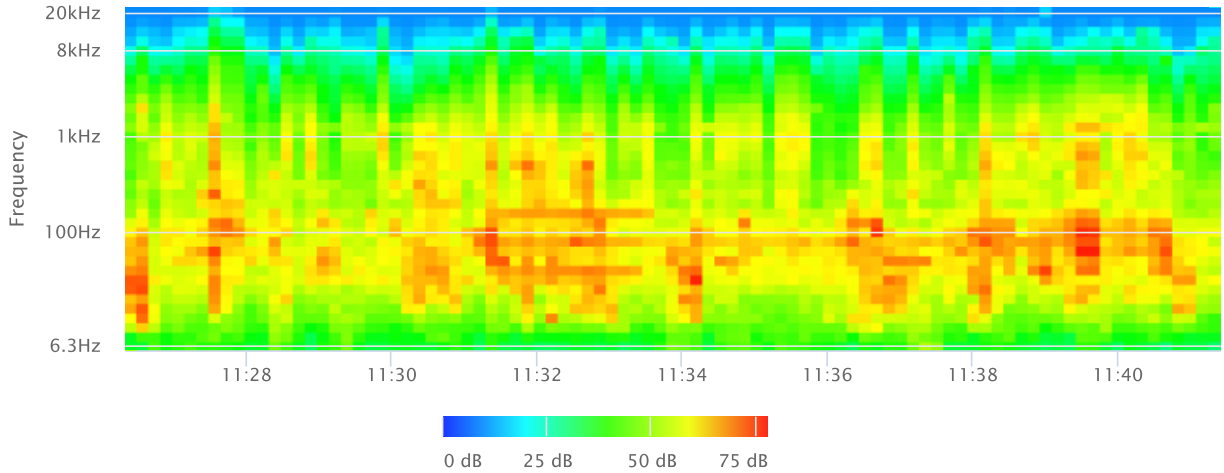
OBA 1/1 Lmin



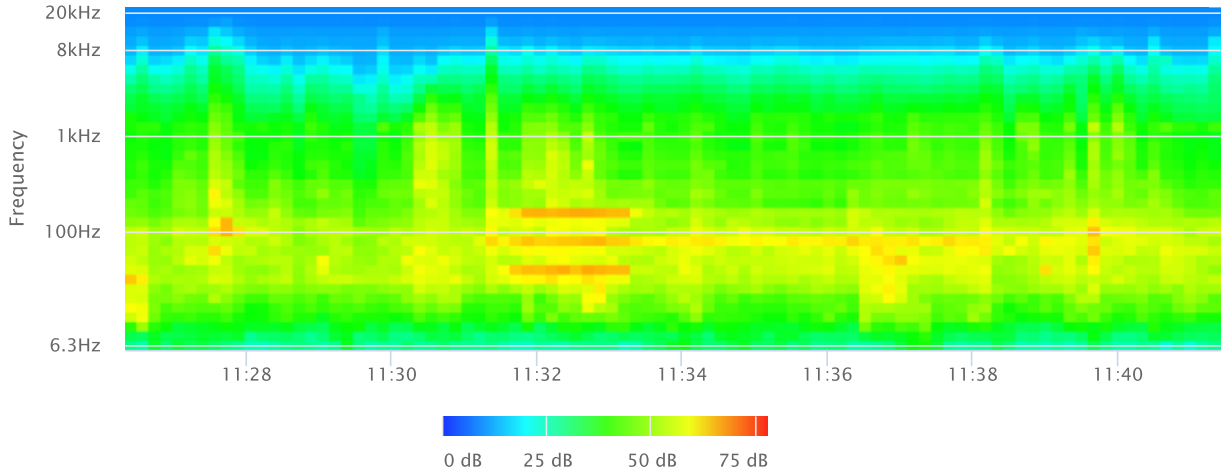
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
11:28
11:30
11:32
11:34
11:36
11:38
11:40
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: Brown Strauss Industrial Project (measurement at existing facility rail spur, City of Fontana) **Date:** May 10, 2023

Project #: 19588

Noise Measurement #: NM1 Run Time: about 2 hours (8 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: Rail Spur (south, dead end), 14970 Jurupa Ave, Fontana, CA 92337

Site Description (Type of Existing Land Use and any other notable features): Project Site: NM1 at south end of rail spur at existing facility at 14970 Jurupa Ave, Fontana. Adjacent: Back end of train/rail cars. To east of measurement is open storage yard (on other side of train), Live Oak Ave (running N-S) & warehouse to the west, Jurupa Ave (running E-W) ~370' S of meausurement.

Weather: 50% cloud, filtered sunshine. Sunset 7:42 PM **Settings:** SLOW FAST

Temperature: 68 deg F **Wind:** 4 mph **Humidity:** 45% **Terrain:** Flat

Start Time: 1:45 PM **End Time:** 3:48 PM **Run Time:**

Leq: 65.1 dB

Lmax 87.6 dB

L2 71.4 dB

L8 68.3 dB

L25 66.5 dB

L50 59.7 dB

Primary Noise Source: Traffic noise from vehicles passing microphone traveling along Live Oak Ave.

Traffic noise from Jurupa Ave ~370' S. Noise from truck engines parked on Live Oak.

Secondary Noise Sources: Overhead air traffic, noise from large forklift trucks moving steel I beams in storage yard on other side of train. Train engine at north end of rail spur.

NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CA 200
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	CA 200
SERIAL NUMBER:	3855	**SERIAL NUMBER:**	11178
FACTORY CALIBRATION DATE:	3/31/2021	**FACTORY CALIBRATION DATE:**	11/18/2021
FIELD CALIBRATION DATE:	5/10/2023		

Noise Measurement
Field Data

PHOTOS:

NM1 looking NE towards back end of the 3 empty rail cars on rail spur.

NM2 looking NNW towards truck parked on Live Oak Ave. During NM a truck parked behind truck in photo. Both engines were running during entire measurement, overshadowing noise from arriving train. Noise is dominated by truck engine noise.

Summary	
File Name on Meter	LxT_Data.007.s
File Name on PC	LxT_0003855-20230510 134500-LxT_Data.007.ldbin
Serial Number	0003855
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM1 34° 2'57.16"N 117°28'48.55"W
Job Description	~2 hour noise measurement (8 x 15 minutes)
Note	Ganddini Project 19588 Rail Spur. Back end of train.

Measurement	
Start	2023-05-10 13:45:00
Stop	2023-05-10 15:48:47
Duration	02:03:47.5
Run Time	02:03:47.5
Pause	00:00:00.0
Pre-Calibration	2023-05-10 13:38:09
Post-Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	145.4 dB

Results			
LA_{eq}		65.1	
LAE		103.8	
EA		2.671	mPa²h
EA8		10.356	mPa²h
EA40		51.781	mPa²h
$LA_{peak\ (max)}$	2023-05-10 15:48:38	107.7	dB
LAS_{max}	2023-05-10 14:34:02	87.6	dB
LAS_{min}	2023-05-10 14:56:52	51.5	dB

		Statistics	
LC_{eq}	76.2 dB	**LA2.00**	71.4 dB
LA_{eq}	65.1 dB	**LA8.00**	68.3 dB
LC_{eq} - LA_{eq}	11.1 dB	**LA25.00**	66.5 dB
LAI_{eq}	67.9 dB	**LA50.00**	59.7 dB
LA_{eq}	65.1 dB	**LA90.00**	54.1 dB
LAI_{eq} - LA_{eq}	2.8 dB	**LA99.00**	52.8 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.007.s	Computer's File Name	LxT_0003855-20230510 134500-LxT_Data.007.ldbin
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM1 34° 2'57.16"N 117°28'48.55"W
Job Description	~2 hour noise measurement (8 x 15 minutes)		
Note	Ganddini Project 19588 Rail Spur. Back end of train.		
Start Time	2023-05-10 13:45:00	Duration	2:03:47.5
End Time	2023-05-10 15:48:47	Run Time	2:03:47.5
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	65.1 dB		
LAE	103.8 dB	SEA	--- dB
EA	2.7 mPa²h	LAFTM5	70.4 dB
EA8	10.4 mPa²h		
EA40	51.8 mPa²h		
LA_{peak}	107.7 dB	2023-05-10 15:48:38	
LAS_{max}	87.6 dB	2023-05-10 14:34:02	
LAS_{min}	51.5 dB	2023-05-10 14:56:52	
LA_{eq}	65.1 dB		
LC_{eq}	76.2 dB	LC_{eq} - LA_{eq}	11.1 dB
LAI_{eq}	67.9 dB	LAI_{eq} - LA_{eq}	2.8 dB

Exceedances	Count	Duration
LAS > 65.0 dB	136	0:47:05.8
LAS > 85.0 dB	1	0:00:01.6
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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

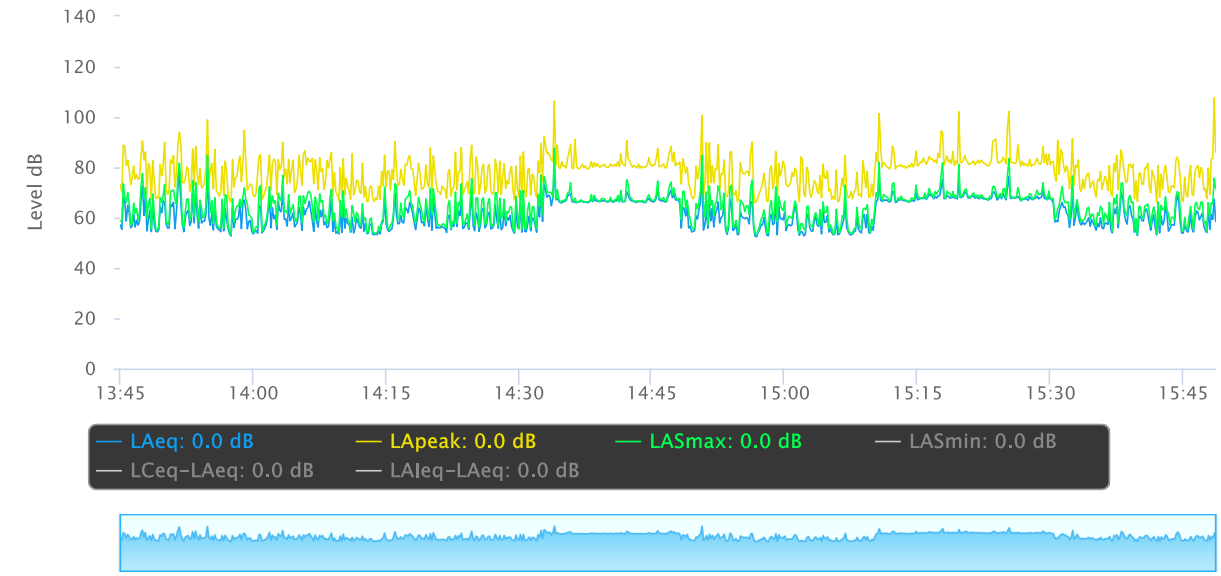
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	65.1 dB		76.2 dB		--- dB	
$L_{S(max)}$	87.6 dB	2023-05-10 14:34:02	--- dB		--- dB	
$L_{S(min)}$	51.5 dB	2023-05-10 14:56:52	--- dB		--- dB	
$L_{Peak(max)}$	107.7 dB	2023-05-10 15:48:38	--- dB		--- dB	

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

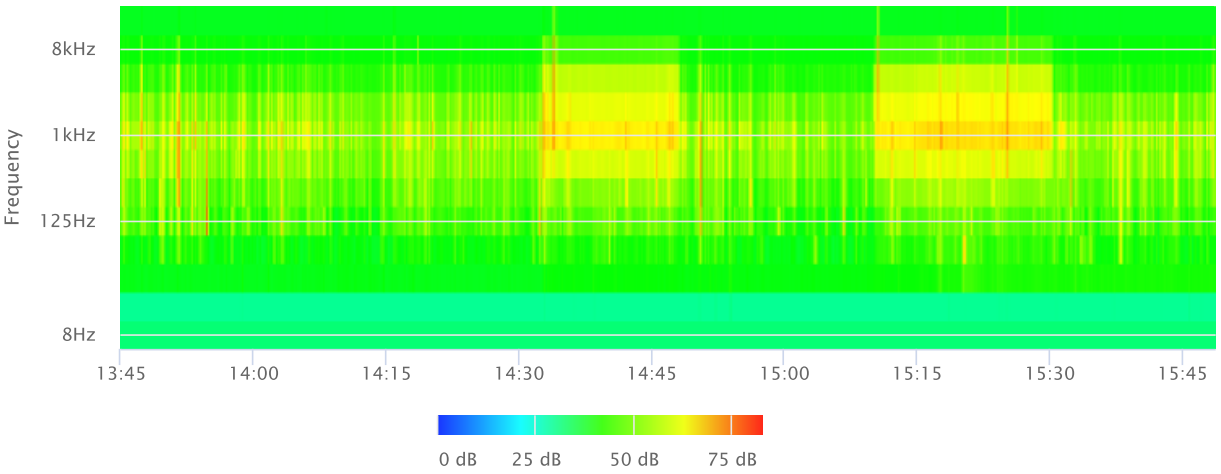
Statistics

LAS 2.0	71.4 dB
LAS 8.0	68.3 dB
LAS 25.0	66.5 dB
LAS 50.0	59.7 dB
LAS 90.0	54.1 dB
LAS 99.0	52.8 dB

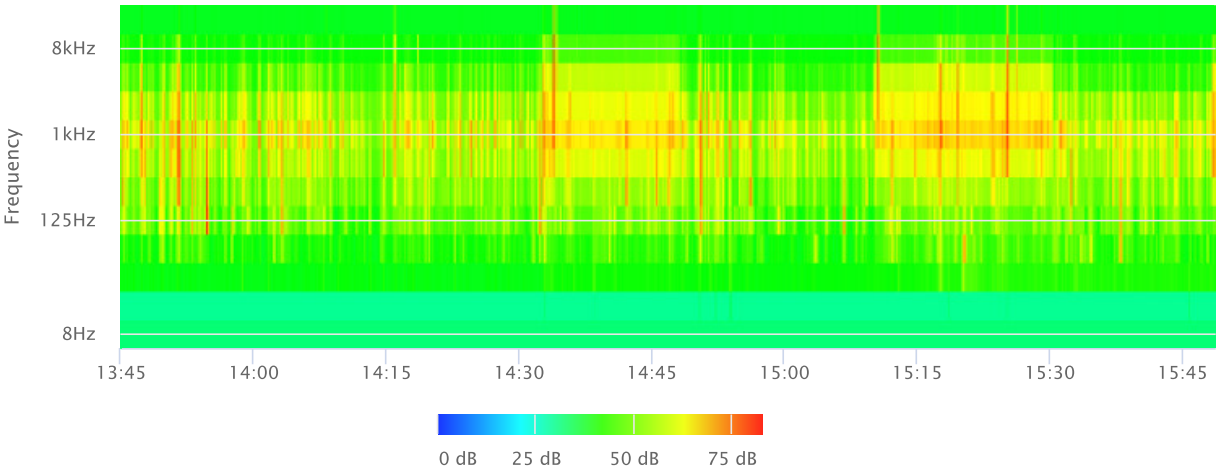
Time History



OBA 1/1 Leq



OBA 1/1 Lmax



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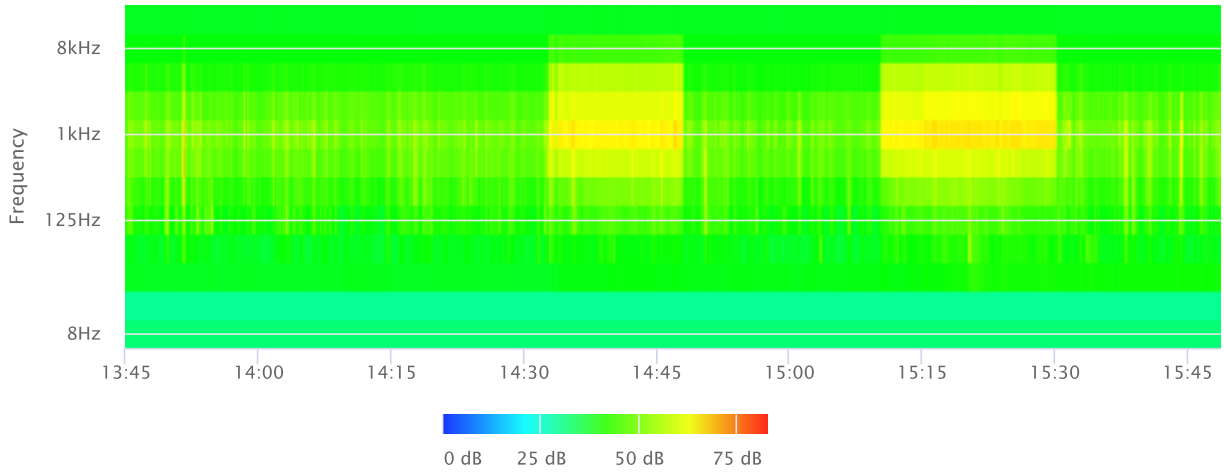
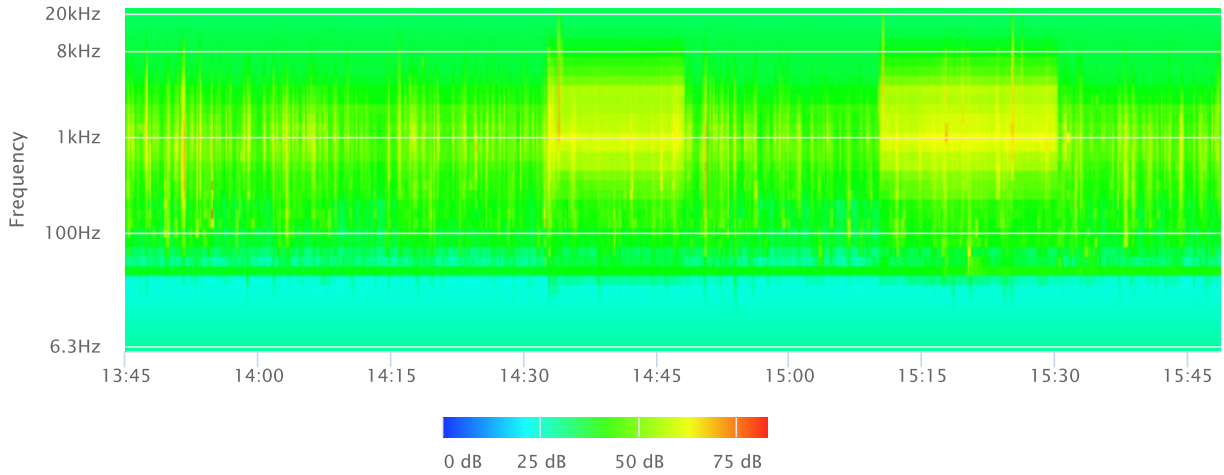


OBA 1/3 Leq



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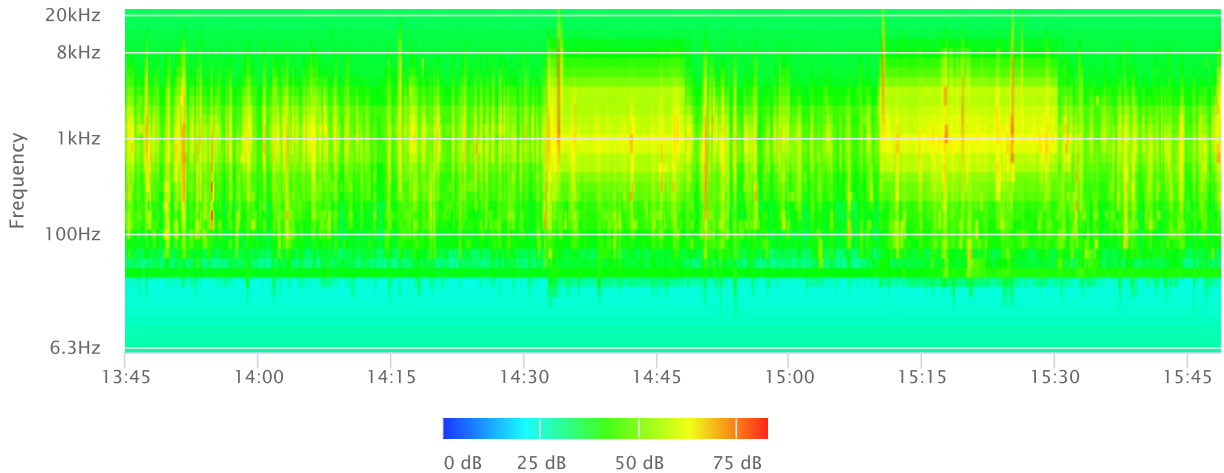
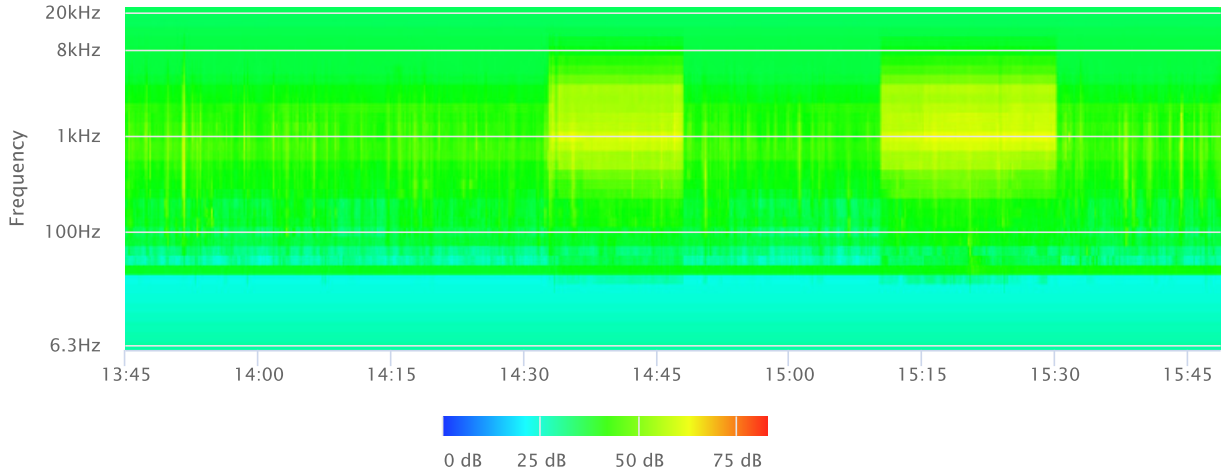


OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
13:45
14:00
14:15
14:30
14:45
15:00
15:15
15:30
15:45
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: Brown Strauss Industrial Project (measurement at existing facility rail spur, City of Fontana) **Date:** May 10, 2023

Project #: 19588

Noise Measurement #: NM2 Run Time: about 2 hours (8 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: Rail Spur (north end), 14970 Jurupa Ave, Fontana, CA 92337

Site Description (Type of Existing Land Use and any other notable features): Project Site: NM2 at north end of rail spur at existing facility at 14970 Jurupa Ave, Fontana. Adjacent: Train, rail cars and engines to the east with storage yard on other side of train, Live Oak Ave (running N-S) & warehouse to the west, and Jurupa Ave (running E-W) ~650' S of measurement.

Weather: 50% cloud, filtered sunshine. Sunset 7:42 PM **Settings:** SLOW FAST

Temperature: 68 deg F **Wind:** 4 mph **Humidity:** 45% **Terrain:** Flat

Start Time: 1:45 PM **End Time:** 3:45 PM **Run Time:**

Leq: 64.7 dB **Primary Noise Source:** Traffic noise from vehicles passing NM2 microphone traveling along Live Oak Ave.

Lmax 87 dB Traffic noise from Jurupa Ave ~650' S.

L2 72.9 dB **Secondary Noise Sources:** Overhead air traffic, noise from large forklift trucks moving steel I beams in storage

L8 68.0 dB yard on other side of train. Train engine arrives at 3:19PM & departs at 3:32PM.

L25 62.7 dB

L50 59.4 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:	5/10/2023		

Noise Measurement
Field Data

PHOTOS:

NM2 looking NE towards train engines arriving to pick up the 3 empty rail cars on spur. Time 3:19PM.

NM2 looking NE at same train engines, now delivering new cars carrying I beams for storage yard, 14970 Jurupa Ave. Time 3:31PM

Summary	
File Name on Meter	LxT_Data.259.s
File Name on PC	LxT_0003099-20230510 134500-LxT_Data.259.ldbin
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM2 34° 2'59.95"N 117°28'48.62"W
Job Description	~2 hour noise measurement (8 x 15 minutes)
Note	Ganddini Project 19588 Rail Spur. Location nearest train engines moving cars.

Measurement	
Start	2023-05-10 13:45:00
Stop	2023-05-10 15:45:03
Duration	02:00:03.8
Run Time	02:00:03.8
Pause	00:00:00.0
Pre-Calibration	2023-05-10 13:26:50
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	A Weighting
OBA Max Spectrum	Bin Max
Overload	122.8 dB

Results				
L_{Aeq}	64.7			
LAE	103.3			
EA	2.389	mPa^2h		
EA8	9.553	mPa^2h		
EA40	47.763	mPa^2h		
$L_{Apeak\ (max)}$	2023-05-10 15:31:05	104.2	dB	
L_{ASmax}	2023-05-10 14:52:37	87.0	dB	
L_{ASmin}	2023-05-10 15:11:31	56.5	dB	

		Statistics	
L_{Ceq}	75.3 dB	**LA2.00**	72.9 dB
L_{Aeq}	64.7 dB	**LA8.00**	68.0 dB
L_{Ceq} - L_{Aeq}	10.6 dB	**LA25.00**	62.7 dB
L_{AIeq}	67.6 dB	**LA50.00**	59.4 dB
L_{Aeq}	64.7 dB	**LA90.00**	57.8 dB
L_{AIeq} - L_{Aeq}	2.9 dB	**LA99.00**	57.1 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.259.s	Computer's File Name	LxT_0003099-20230510 134500-LxT_Data.259.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM2 34° 2'59.95"N 117°28'48.62"W
Job Description	~2 hour noise measurement (8 x 15 minutes)		
Note	Ganddini Project 19588 Rail Spur. Location nearest train engines moving cars.		
Start Time	2023-05-10 13:45:00	Duration	2:00:03.8
End Time	2023-05-10 15:45:03	Run Time	2:00:03.8
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	64.7 dB		
LAE	103.3 dB	SEA	--- dB
EA	2.4 mPa²h	LAFTM5	70.3 dB
EA8	9.6 mPa²h		
EA40	47.8 mPa²h		
LA_{peak}	104.2 dB	2023-05-10 15:31:05	
LAS_{max}	87.0 dB	2023-05-10 14:52:37	
LAS_{min}	56.5 dB	2023-05-10 15:11:31	
LA_{eq}	64.7 dB		
LC_{eq}	75.3 dB	LC_{eq} - LA_{eq}	10.6 dB
LAI_{eq}	67.6 dB	LAI_{eq} - LA_{eq}	2.9 dB

Exceedances	Count	Duration
LAS > 65.0 dB	217	0:25:00.8
LAS > 85.0 dB	2	0:00:02.9
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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

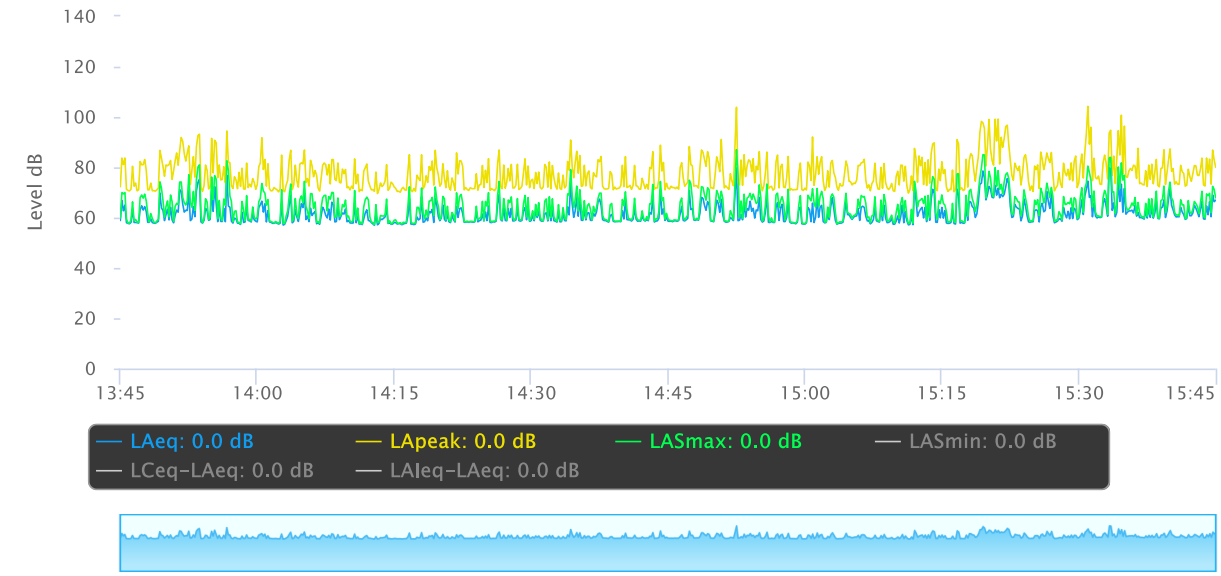
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	64.7 dB		75.3 dB		--- dB	
$L_{S(max)}$	87.0 dB	2023-05-10 14:52:37	--- dB		--- dB	
$L_{S(min)}$	56.5 dB	2023-05-10 15:11:31	--- dB		--- dB	
$L_{Peak(max)}$	104.2 dB	2023-05-10 15:31:05	--- dB		--- dB	

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

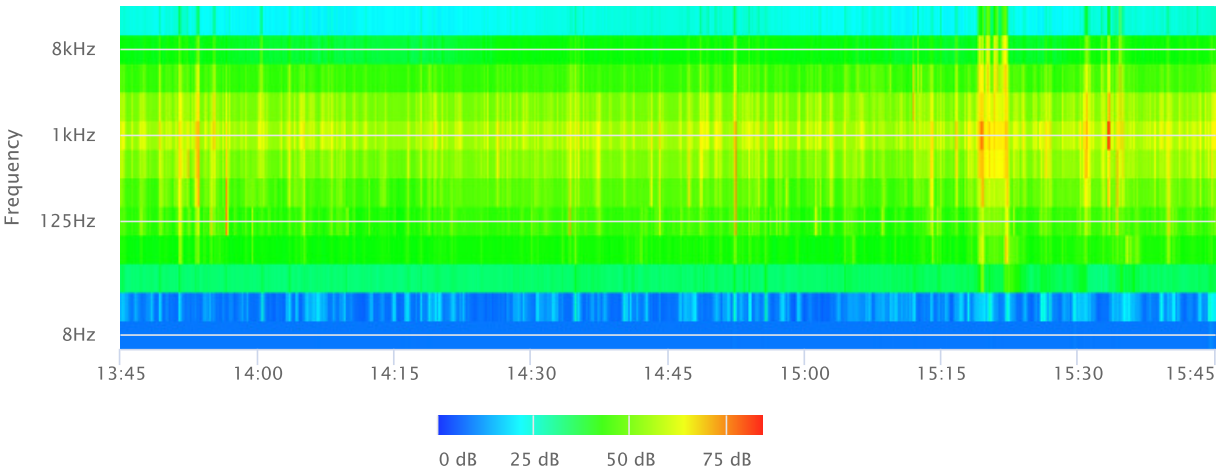
Statistics

LAS 2.0	72.9 dB
LAS 8.0	68.0 dB
LAS 25.0	62.7 dB
LAS 50.0	59.4 dB
LAS 90.0	57.8 dB
LAS 99.0	57.1 dB

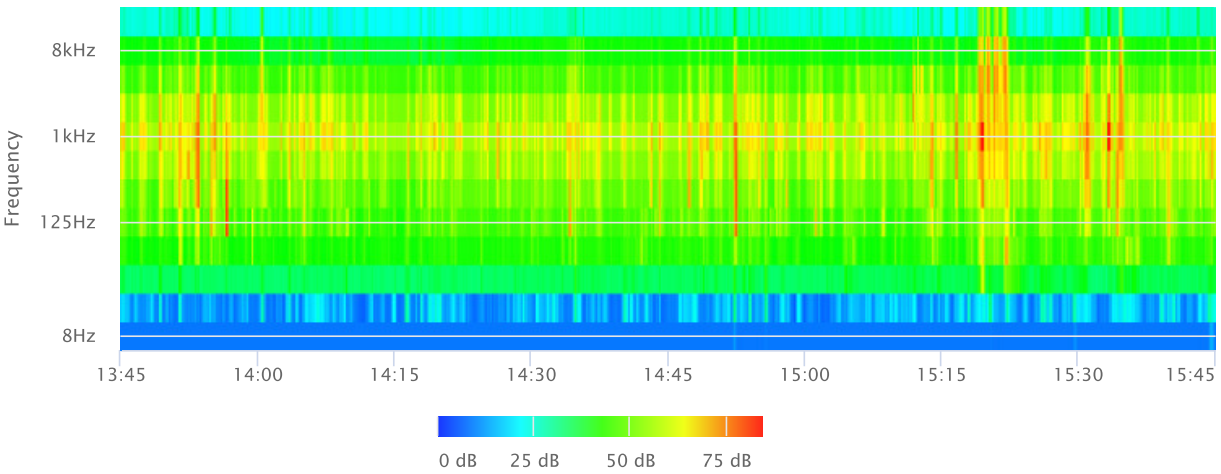
Time History



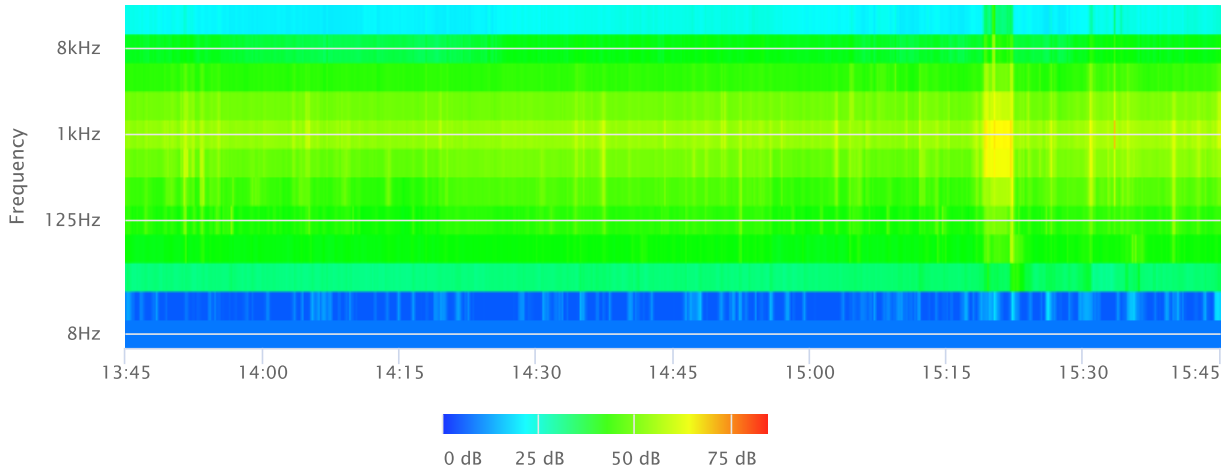
OBA 1/1 Leq



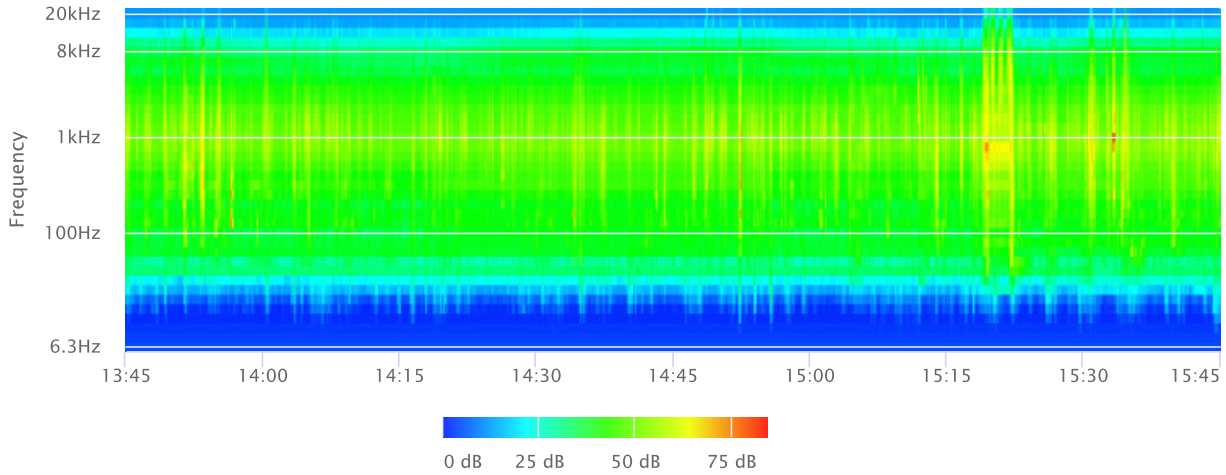
OBA 1/1 Lmax



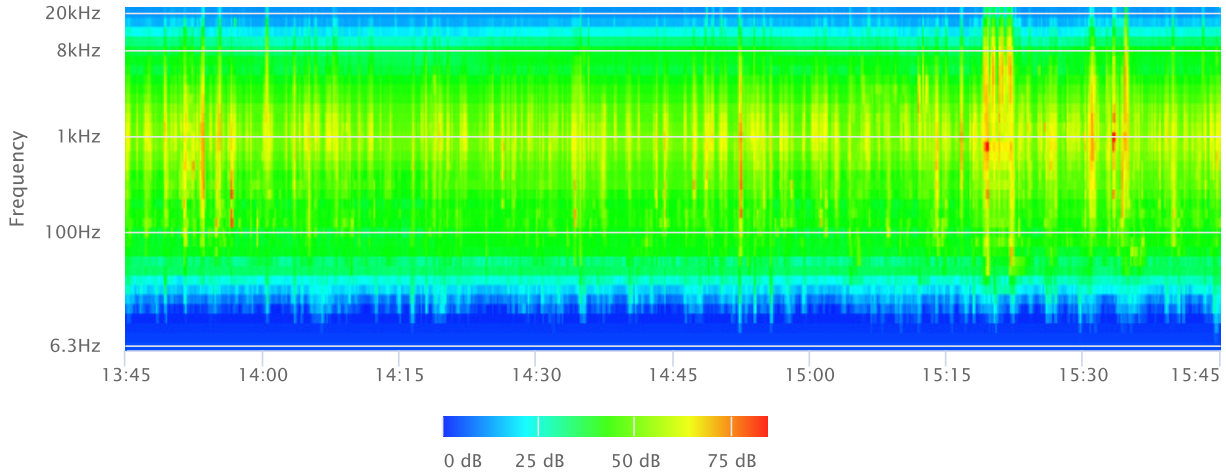
OBA 1/1 Lmin



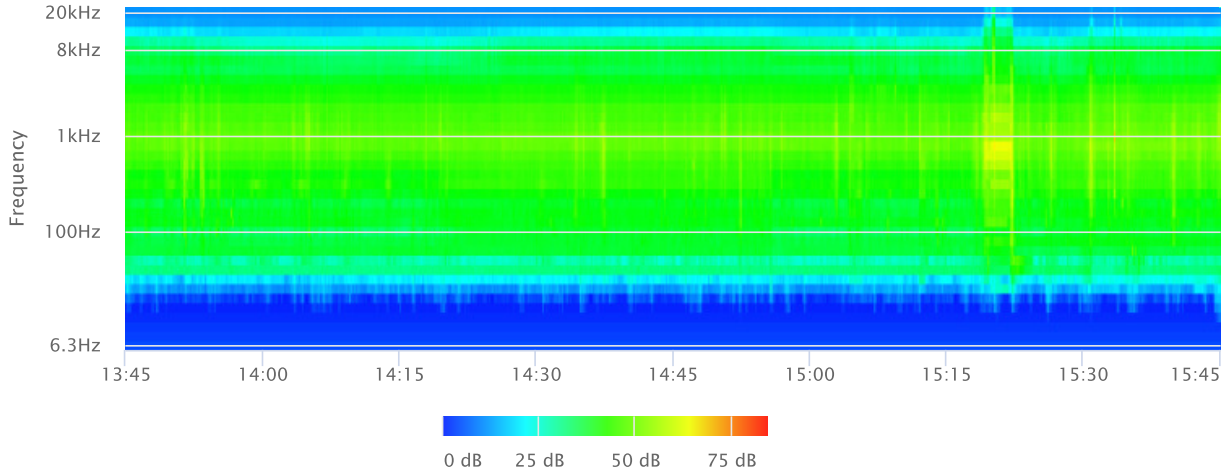
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
13:45
14:00
14:15
14:30
14:45
15:00
15:15
15:30
15:45
0 dB
25 dB
50 dB
75 dB

APPENDIX D

CONSTRUCTION NOISE MODEL WORKSHEETS

Receptor - Vacant Residential to South (1356 W Lincoln Street, Banning)

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
Grading									
Excavators	2	81	334	40	0.8	-16.5	-1.0	64.5	63.5
Rubber Tired Dozers	1	82	334	40	0.40	-16.5	-4.0	65.5	61.5
Tractors/Loaders/Backhoes	2	84	334	40	0.80	-16.5	-1.0	67.5	66.5
Scrapers	2	84	334	40	0.80	-16.5	-1.0	67.5	66.5
Graders	1	85	334	40	0.40	-16.5	-4.0	68.5	64.5
								Log Sum	71.9
Building Construction									
Cranes	1	81	334	16	0.16	-16.5	-8.0	64.5	56.5
Forklifts[2]	4	48	334	40	1.60	-16.5	2.0	31.5	33.5
Generator Sets	1	81	334	50	0.50	-16.5	-3.0	64.5	61.5
Welders	2	74	334	40	0.80	-16.5	-1.0	57.5	56.5
Tractors/Loaders/Backhoes	4	84	334	40	1.60	-16.5	2.0	67.5	69.5
								Log Sum	70.5
Paving									
Pavers	1	77	334	50	0.50	-16.5	-3.0	60.5	57.5
Paving Equipment	2	77	334	50	1.00	-16.5	0.0	60.5	60.5
Rollers	2	80	334	20	0.40	-16.5	-4.0	63.5	59.5
								Log Sum	64.1
Architectural Coating									
Air Compressors	1	78	334	40	0.40	-16.5	-4.0	61.5	57.5
								Log Sum	57.5

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 project site to nearest sensitive use (property line).

Receptor - Residential to South (1380 W Lincoln Street, Banning)

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
Grading									
Excavators	2	81	364	40	0.8	-17.2	-1.0	63.8	62.8
Rubber Tired Dozers	1	82	364	40	0.40	-17.2	-4.0	64.8	60.8
Tractors/Loaders/Backhoes	2	84	364	40	0.80	-17.2	-1.0	66.8	65.8
Scrapers	2	84	364	40	0.80	-17.2	-1.0	66.8	65.8
Graders	1	85	364	40	0.40	-17.2	-4.0	67.8	63.8
								Log Sum	71.2
Building Construction									
Cranes	1	81	364	16	0.16	-17.2	-8.0	63.8	55.8
Forklifts[2]	4	48	364	40	1.60	-17.2	2.0	30.8	32.8
Generator Sets	1	81	364	50	0.50	-17.2	-3.0	63.8	60.7
Welders	2	74	364	40	0.80	-17.2	-1.0	56.8	55.8
Tractors/Loaders/Backhoes	4	84	364	40	1.60	-17.2	2.0	66.8	68.8
								Log Sum	69.8
Paving									
Pavers	1	77	364	50	0.50	-17.2	-3.0	59.8	56.7
Paving Equipment	2	77	364	50	1.00	-17.2	0.0	59.8	59.8
Rollers	2	80	364	20	0.40	-17.2	-4.0	62.8	58.8
								Log Sum	63.4
Architectural Coating									
Air Compressors	1	78	364	40	0.40	-17.2	-4.0	60.8	56.8
								Log Sum	56.8

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 project site to nearest sensitive use (property line).

APPENDIX E

SOUNDPLAN WORKSHEETS

Noise emissions of industry sources

Source name	Reference	Level		Frequency spectrum [dB(A)]										Corrections		
				31	63	125	250	500	1	2	4	8	16	Cwall	CI	CT
			dB(A)	Hz	Hz	Hz	Hz	Hz	kHz	kHz	kHz	kHz	kHz	dB	dB	dB
Industrial Fork Lift Truck	Lw/	Day	97.0	-	78.5	82.6	86.6	89.6	92.6	90.6	85.6	80.6	-	-	-	-
	Lw/	Day	97.0	-	78.5	82.6	86.6	89.6	92.6	90.6	85.6	80.6	-	-	-	-
	Lw/	Day	97.0	-	78.5	82.6	86.6	89.6	92.6	90.6	85.6	80.6	-	-	-	-
	Lw/	Day	97.0	-	78.5	82.5	86.6	89.6	92.5	90.5	85.6	80.5	-	-	-	-
HVAC	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	-	-	-
	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	-	-	-
	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	-	-	-
	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	-	-	-
	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	-	-	-
	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	-	-	-
	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	-	-	-
Conveyor Belt and Drive Unit	Lw/m²	Day	75.7	-	46.8	58.9	64.4	69.8	70.0	69.2	67.0	57.9	-	-	-	-
Rail Spur Loading/Unloading	Lw/m²	Day	66.0											-	-	-
Rail Spur	Lw/m	Day	87.0											-	-	-

Noise emissions of parking lot traffic

Name	Parking lot type	Size	Movements per hour			Road surface	Separated method	Lw,ref
			Day	Evening	Night			dB(A)
P1	Visitors and staff	22 Parking bays	0.600	0.000	0.000	Asphaltic driving lanes	no	79.2
P2	Visitors and staff	8 Parking bays	0.600	0.000	0.000	Asphaltic driving lanes	no	72.0
P3	Visitors and staff	8 Parking bays	0.600	0.000	0.000	Asphaltic driving lanes	no	72.0

Receiver list

No.	Receiver name	Building side	Floor	Limit Day dB(A)	Level Day dB(A)	Conflict Day dB
1	R1	-	EG	-	52.6	-
2	R2	-	EG	-	47.9	-
3	R3	-	EG	-	47.9	-
4	R4	-	EG	-	48.5	-

Noise emissions of industry sources

Source name	Reference	Level		Frequency spectrum [dB(A)]								Corrections		
			dB(A)	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	Cwall dB	CI dB	CT dB
Conveyor Belt and Drive Unit	Lw/m²	Day	-	-	-	-	-	-	-	-	-	-	-	-
Rail Spur Loading/Unloading	Lw/m²	Day	-									-	-	-
Rail Spur	Lw/m	Day	-									-	-	-
Back up Alarm	Lw/unit	Day	103.0	70.0	80.0	87.1	93.1	96.0	97.0	97.1	95.0	-	-	-
	Lw/unit	Day	103.0	70.0	80.0	87.1	93.1	96.0	97.0	97.1	95.0	-	-	-

Receiver list

No.	Receiver name	Building side	Floor	Limit Day dB(A)	Level Day dB(A)	Conflict Day dB
1	R1	-	EG	-	52.6	-
2	R2	-	EG	-	58.3	-
3	R3	-	EG	-	42.0	-
4	R4	-	EG	-	48.7	-

APPENDIX F

FHWA TRAFFIC NOISE MODEL WORKSHEETS

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **22nd Street**

Segment: **North of Lincoln Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	1356.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	35.00
										DISTANCE	44.00
INPUT PARAMETERS											
Vehicles per hour	78.54	1.63	2.71	58.31	0.27	0.45	14.46	2.26	3.77	% A	92
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	% MT	3
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	5
ADJUSTMENTS											
Flow	13.20	-3.63	-1.41	11.91	-11.41	-9.20	5.86	-2.21	0.01		
Distance	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	63.25
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	57.36
LEQ	53.80	46.68	54.12	52.51	38.90	46.34	46.45	48.11	55.54	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	57.36		EVENING LEQ	53.60		NIGHT LEQ	56.70		Use hour?	no
										GRADE dB	0.00
		CNEL	**63.25**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Plus Project Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **22nd Street**

Segment: **North of Lincoln Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	1476.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	35.00
										DISTANCE	44.00
INPUT PARAMETERS											
Vehicles per hour	82.45	2.16	4.50	61.21	0.36	0.75	15.18	2.99	6.25	% A	88.73
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	% MT	3.65
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	7.62
ADJUSTMENTS											
Flow	13.42	-2.41	0.78	12.12	-10.19	-7.00	6.07	-0.98	2.21		
Distance	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	65.05
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	58.70
LEQ	54.01	47.90	56.31	52.72	40.12	48.53	46.66	49.33	57.74	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	58.70		EVENING LEQ	54.29		NIGHT LEQ	58.61		Use hour?	no
										GRADE dB	0.00
		CNEL	**65.05**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **8th Street**

Segment: **North of Lincoln Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	7848.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	30.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	454.53	9.42	15.70	337.46	1.57	2.62	83.71	13.08	21.80	% A	92
Speed in MPH	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00		
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	% MT	3
NOISE CALCULATIONS											
Reference levels	62.51	73.11	78.76	62.51	73.11	78.76	62.51	73.11	78.76	% HT	5
ADJUSTMENTS											
Flow	21.50	4.66	6.88	20.21	-3.12	-0.90	14.15	6.09	8.31		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	69.46
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	63.24
LEQ	58.94	52.71	60.57	57.65	44.93	52.79	51.59	54.13	62.00	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	63.24		EVENING LEQ	59.05		NIGHT LEQ	62.98		Use hour?	no
										GRADE dB	0.00
		CNEL	**69.46**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Plus Project Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **8th Street**

Segment: **North of Lincoln Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	7920.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	30.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	456.88	9.73	16.77	339.21	1.62	2.79	84.14	13.52	23.29	% A	91.63
Speed in MPH	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00		
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	% MT	3.07
NOISE CALCULATIONS											
Reference levels	62.51	73.11	78.76	62.51	73.11	78.76	62.51	73.11	78.76	% HT	5.29
ADJUSTMENTS											
Flow	21.52	4.81	7.17	20.23	-2.98	-0.61	14.17	6.23	8.59		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	69.69
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	63.42
LEQ	58.96	52.85	60.86	57.67	45.07	53.08	51.62	54.28	62.28	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	63.42		EVENING LEQ	59.14		NIGHT LEQ	63.23		Use hour?	no
										GRADE dB	0.00
		CNEL	**69.69**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **Lincoln Street**

Segment: **East of 22nd Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	1800.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	104.25	2.16	3.60	77.40	0.36	0.60	19.20	3.00	5.00	% A	92
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
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	% MT	3
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	5
ADJUSTMENTS											
Flow	13.34	-3.49	-1.27	12.05	-11.27	-9.06	6.00	-2.07	0.15		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	65.46
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	60.16
LEQ	57.62	49.06	55.80	56.32	41.28	48.02	50.27	50.49	57.22	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	60.16		EVENING LEQ	57.04		NIGHT LEQ	58.73		Use hour?	no
										GRADE dB	0.00
		CNEL	**65.46**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Plus Project Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **Lincoln Street**

Segment: **East of 22nd Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	1920.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	108.16	2.69	5.39	80.31	0.45	0.90	19.92	3.73	7.48	% A	89.49
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
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	% MT	3.50
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	7.01
ADJUSTMENTS											
Flow	13.50	-2.54	0.47	12.21	-10.33	-7.31	6.16	-1.12	1.90		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	66.77
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	61.03
LEQ	57.78	50.01	57.55	56.48	42.23	49.76	50.43	51.44	58.97	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	61.03		EVENING LEQ	57.45		NIGHT LEQ	60.17		Use hour?	no
										GRADE dB	0.00
		CNEL	**66.77**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **Lincoln Street**

Segment: **West of Project West Driveway**

	DAYTIME			EVENING			NIGHTTIME			ADT	1656.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	95.91	1.99	3.31	71.21	0.33	0.55	17.66	2.76	4.60	% A	92
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
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	% MT	3
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	5
ADJUSTMENTS											
Flow	12.98	-3.86	-1.64	11.69	-11.64	-9.42	5.63	-2.43	-0.21		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	65.10
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	59.80
LEQ	57.26	48.70	55.43	55.96	40.92	47.65	49.91	50.12	56.86	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	59.80		EVENING LEQ	56.68		NIGHT LEQ	58.36		Use hour?	no
										GRADE dB	0.00
		CNEL	**65.10**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Plus Project Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **Lincoln Street**

Segment: **West of Project West Driveway**

	DAYTIME			EVENING			NIGHTTIME			ADT	1776.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	99.82	2.52	5.10	74.11	0.42	0.85	18.38	3.49	7.08	% A	89.28
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
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	% MT	3.54
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	7.18
ADJUSTMENTS											
Flow	13.15	-2.83	0.24	11.86	-10.61	-7.55	5.81	-1.41	1.66		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	66.50
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	60.74
LEQ	57.43	49.72	57.31	56.14	41.94	49.53	50.08	51.15	58.73	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	60.74		EVENING LEQ	57.13		NIGHT LEQ	59.91		Use hour?	no
										GRADE dB	0.00
		CNEL	**66.50**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **Lincoln Street**

Segment: **Project West Driveway to Project Central-West Driveway**

	DAYTIME			EVENING			NIGHTTIME			ADT	1656.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	95.91	1.99	3.31	71.21	0.33	0.55	17.66	2.76	4.60	% A	92
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
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	% MT	3
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	5
ADJUSTMENTS											
Flow	12.98	-3.86	-1.64	11.69	-11.64	-9.42	5.63	-2.43	-0.21		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	65.10
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	59.80
LEQ	57.26	48.70	55.43	55.96	40.92	47.65	49.91	50.12	56.86	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	59.80		EVENING LEQ	56.68		NIGHT LEQ	58.36		Use hour?	no
										GRADE dB	0.00
		CNEL	**65.10**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Plus Project Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **Lincoln Street**

Segment: **Project West Driveway to Project Central-West Driveway**

	DAYTIME			EVENING			NIGHTTIME			ADT	1764.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	99.43	2.46	4.92	73.82	0.41	0.82	18.31	3.42	6.83	% A	89.54
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
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	% MT	3.49
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	6.97
ADJUSTMENTS											
Flow	13.14	-2.92	0.08	11.84	-10.71	-7.70	5.79	-1.50	1.51		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	66.38
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	60.65
LEQ	57.41	49.63	57.15	56.12	41.85	49.37	50.06	51.05	58.58	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	60.65		EVENING LEQ	57.08		NIGHT LEQ	59.78		Use hour?	no
										GRADE dB	0.00
		CNEL	**66.38**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **Lincoln Street**

Segment: **Project Central-West Driveway to Project Central-East Driveway**

	DAYTIME			EVENING			NIGHTTIME			ADT	1656.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	95.91	1.99	3.31	71.21	0.33	0.55	17.66	2.76	4.60	% A	92
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
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	% MT	3
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	5
ADJUSTMENTS											
Flow	12.98	-3.86	-1.64	11.69	-11.64	-9.42	5.63	-2.43	-0.21		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	65.10
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	59.80
LEQ	57.26	48.70	55.43	55.96	40.92	47.65	49.91	50.12	56.86	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	59.80		EVENING LEQ	56.68		NIGHT LEQ	58.36		Use hour?	no
										GRADE dB	0.00
		CNEL	**65.10**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Plus Project Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **Lincoln Street**

Segment: **Project Central-West Driveway to Project Central-East Driveway**

	DAYTIME			EVENING			NIGHTTIME			ADT	1740.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	98.65	2.36	4.56	73.24	0.39	0.76	18.17	3.27	6.34	% A	90.06
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
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	% MT	3.39
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	6.55
ADJUSTMENTS											
Flow	13.10	-3.11	-0.25	11.81	-10.90	-8.03	5.76	-1.69	1.18		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	66.13
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	60.48
LEQ	57.38	49.44	56.83	56.08	41.66	49.04	50.03	50.86	58.25	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	60.48		EVENING LEQ	57.00		NIGHT LEQ	59.50		Use hour?	no
										GRADE dB	0.00
		CNEL	**66.13**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **Lincoln Street**

Segment: **Project Central-East Driveway to Project East Driveway**

	DAYTIME			EVENING			NIGHTTIME			ADT	1656.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	95.91	1.99	3.31	71.21	0.33	0.55	17.66	2.76	4.60	% A	92
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
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	% MT	3
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	5
ADJUSTMENTS											
Flow	12.98	-3.86	-1.64	11.69	-11.64	-9.42	5.63	-2.43	-0.21		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	65.10
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	59.80
LEQ	57.26	48.70	55.43	55.96	40.92	47.65	49.91	50.12	56.86	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	59.80		EVENING LEQ	56.68		NIGHT LEQ	58.36		Use hour?	no
										GRADE dB	0.00
		CNEL	**65.10**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Plus Project Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **Lincoln Street**

Segment: **Project Central-East Driveway to Project East Driveway**

	DAYTIME			EVENING			NIGHTTIME			ADT	1740.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	98.65	2.36	4.56	73.24	0.39	0.76	18.17	3.27	6.34	% A	90.06
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
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	% MT	3.39
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	6.55
ADJUSTMENTS											
Flow	13.10	-3.11	-0.25	11.81	-10.90	-8.03	5.76	-1.69	1.18		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	66.13
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	60.48
LEQ	57.38	49.44	56.83	56.08	41.66	49.04	50.03	50.86	58.25	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	60.48		EVENING LEQ	57.00		NIGHT LEQ	59.50		Use hour?	no
										GRADE dB	0.00
		CNEL	**66.13**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **Lincoln Street**

Segment: **East of Project East Driveway**

	DAYTIME			EVENING			NIGHTTIME			ADT	1680.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	97.30	2.02	3.36	72.24	0.34	0.56	17.92	2.80	4.67	% A	92
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
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	% MT	3
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	5
ADJUSTMENTS											
Flow	13.04	-3.79	-1.57	11.75	-11.57	-9.36	5.70	-2.37	-0.15		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	65.16
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	59.86
LEQ	57.32	48.76	55.50	56.02	40.98	47.72	49.97	50.19	56.92	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	59.86		EVENING LEQ	56.74		NIGHT LEQ	58.43		Use hour?	no
										GRADE dB	0.00
		CNEL	**65.16**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Plus Project Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **Lincoln Street**

Segment: **East of Project East Driveway**

	DAYTIME			EVENING			NIGHTTIME			ADT	1752.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	99.65	2.33	4.43	73.98	0.39	0.74	18.35	3.24	6.15	% A	90.35
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
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	% MT	3.33
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	6.32
ADJUSTMENTS											
Flow	13.15	-3.16	-0.37	11.85	-10.94	-8.15	5.80	-1.73	1.05		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	66.04
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	60.44
LEQ	57.42	49.39	56.70	56.13	41.61	48.92	50.07	50.82	58.13	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	60.44		EVENING LEQ	57.01		NIGHT LEQ	59.41		Use hour?	no
										GRADE dB	0.00
		CNEL	**66.04**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **Lincoln Street**

Segment: **West of 8th Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	1812.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	104.95	2.17	3.62	77.92	0.36	0.60	19.33	3.02	5.03	% A	92
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
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	% MT	3
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	5
ADJUSTMENTS											
Flow	13.37	-3.46	-1.25	12.08	-11.25	-9.03	6.02	-2.04	0.18		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	65.49
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	60.19
LEQ	57.65	49.09	55.83	56.35	41.31	48.04	50.30	50.51	57.25	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	60.19		EVENING LEQ	57.07		NIGHT LEQ	58.76		Use hour?	no
										GRADE dB	0.00
		CNEL	**65.49**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Plus Project Traffic Noise

Project: **19588 Brown Strauss Banning Industrial Project**

Road: **Lincoln Street**

Segment: **West of 8th Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	1884.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	107.29	2.49	4.70	79.66	0.42	0.78	19.76	3.46	6.52	% A	90.46
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
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	% MT	3.31
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	6.23
ADJUSTMENTS											
Flow	13.47	-2.87	-0.12	12.17	-10.66	-7.90	6.12	-1.45	1.31		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
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	CNEL	66.31
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	60.73
LEQ	57.74	49.68	56.95	56.45	41.90	49.17	50.39	51.10	58.38	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	60.73		EVENING LEQ	57.32		NIGHT LEQ	59.67		Use hour?	no
										GRADE dB	0.00
		CNEL	**66.31**								

ADT'S BY LEG

FACTOR= 12.0 Use 10 (LA County), 12 (Riverside), or 11.5 (SB)

Intersection	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG
Existing																	
22nd St (NS) / Lincoln St (EW)	4	44	7	37	28	10	17	38	6	6	38	24	259	1,920	1,140	1,800	1,356
Project West Dwy (NS)/Lincoln St (EW)	0	0	0	0	0	0	0	71	0	0	67	0	138	-	-	1,656	1,656
Project Central-West Dwy (NS)/Lincoln St (EW)	0	0	0	0	0	0	0	71	0	0	67	0	138	-	-	1,656	1,656
Project Central-East Dwy (NS)/Lincoln St (EW)	0	0	0	0	0	0	0	71	0	0	67	0	138	-	-	1,656	1,656
Project East Dwy (NS)/12th St (NS)/Lincoln St (EW)	4	0	3	0	0	0	0	68	3	6	63	0	147	-	192	1,680	1,656
8th St (NS)/Lincoln St (EW)	2	80	0	216	89	34	39	38	4	5	34	196	737	7,848	2,160	5,868	1,812
Project																	
22nd St (NS) / Lincoln St (EW)	0	0	0	5	0	0	0	0	0	0	0	5	10	120	-	120	-
Project West Dwy (NS)/Lincoln St (EW)	0	0	0	0	0	0	5	0	0	0	5	4	14	108	-	108	120
Project Central-West Dwy (NS)/Lincoln St (EW)	0	0	0	1	0	3	0	0	0	0	6	0	10	48	-	84	108
Project Central-East Dwy (NS)/Lincoln St (EW)	0	0	0	0	0	0	0	1	0	0	6	0	7	-	-	84	84
Project East Dwy (NS)/12th St (NS)/Lincoln St (EW)	0	0	0	1	0	2	0	1	0	0	4	0	8	36	-	72	84
8th St (NS)/Lincoln St (EW)	0	0	0	0	0	4	2	0	0	0	0	0	6	72	-	-	72
													-	-	-	-	-

APPENDIX G

GROUNDBORNE VIBRATION WORKSHEETS

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19588 Brown Strauss Banning Industrial		Date: 5/9/23
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Commercial Use to East (northern building)		
Address:	1143 West Lincoln Street, Banning		
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 =	17.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.			
RESULTS			
PPV =	0.375	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19588 Brown Strauss Banning Industrial	Date:	5/9/23
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Commercial Use to East (northern building)		
Address:	1143 West Lincoln Street, Banning		

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 =	17.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.

RESULTS

PPV =	0.159	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19588 Brown Strauss Banning Industrial	Date:	5/9/23
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Commercial Use to East (southern building)		
Address:	1143 West Lincoln Street, Banning		

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 =	77.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.

RESULTS

PPV =	0.039	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19588 Brown Strauss Banning Industrial	Date:	5/9/23
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Commercial Use to East (southern building)		
Address:	1143 West Lincoln Street, Banning		

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 =	77.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.

RESULTS

PPV =	0.016	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19588 Brown Strauss Banning Industrial	Date:	5/9/23
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Residential to South		
Address:	1380 West Lincoln Street, Banning		

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 =	120.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.

RESULTS

PPV =	0.020	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19588 Brown Strauss Banning Industrial	Date:	5/9/23
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Residential to South		
Address:	1380 West Lincoln Street, Banning		

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 =	120.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.

RESULTS

PPV =	0.008	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19588 Brown Strauss Banning Industrial	Date:	5/9/23
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Industrial Use to West		
Address:	1879 West Lincoln Street, Banning		

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 =	505.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.

RESULTS

PPV =	0.002	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19588 Brown Strauss Banning Industrial	Date:	5/9/23
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Industrial Use to West		
Address:	1879 West Lincoln Street, Banning		

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 =	505.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.

RESULTS

PPV =	0.001	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19588 Brown Strauss Banning Industrial	Date:	5/9/23
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 the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.

RESULTS

PPV =	0.198	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19588 Brown Strauss Banning Industrial	Date:	5/9/23
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 the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.

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: $Lvdistance = Lvref - 30\log(D/25)$

Lvdistance = the rms velocity level adjsuted for distance, VdB
Lvref = the source reference vibration level at 25 feet, VdB
D = distance from the equipment to th receiver, ft.

Large Bulldozer:

Residential to South: $Lvdistance = 87 - 30 \log(120/25) = 66.56$ VdB

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

Vibratory Roller:

Residential to South: $Lvdistance = 94 - 30 \log(120/25) = 73.56$ VdB

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

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