Sierra Industrial Facility (Shea)

NOISE IMPACT ANALYSIS

CITY OF FONTANA

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak Particle Velocity
Project	Sierra Industrial Facility (Shea)
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures, if any, for the proposed Sierra Industrial Facility (Shea) development ("Project"). The proposed Project is to consist of a 199,999 square foot warehouse building. This study has been prepared to satisfy applicable City of Fontana standards and thresholds of significance based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

The results of this Sierra Industrial Facility (Shea) Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Operational Noise	7	*Less Than Significant*	-
Construction Noise	8	*Less Than Significant*	-
Nighttime Concrete Pour		*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Sierra Industrial Facility (Shea) ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term stationary-source operational noise and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed project is located north of Casa Grande Drive and east of Sierra Avenue in the City of Fontana as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The proposed Project is to consist of a 199,999 square foot warehouse building. The preliminary site plan for the proposed Project is shown on Exhibit 1-B.

The on-site Project-related noise sources are expected to include: loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements. This noise analysis is intended to describe noise level impacts associated with the expected typical operational activities at the Project site.

EXHIBIT 1-A: LOCATION MAP

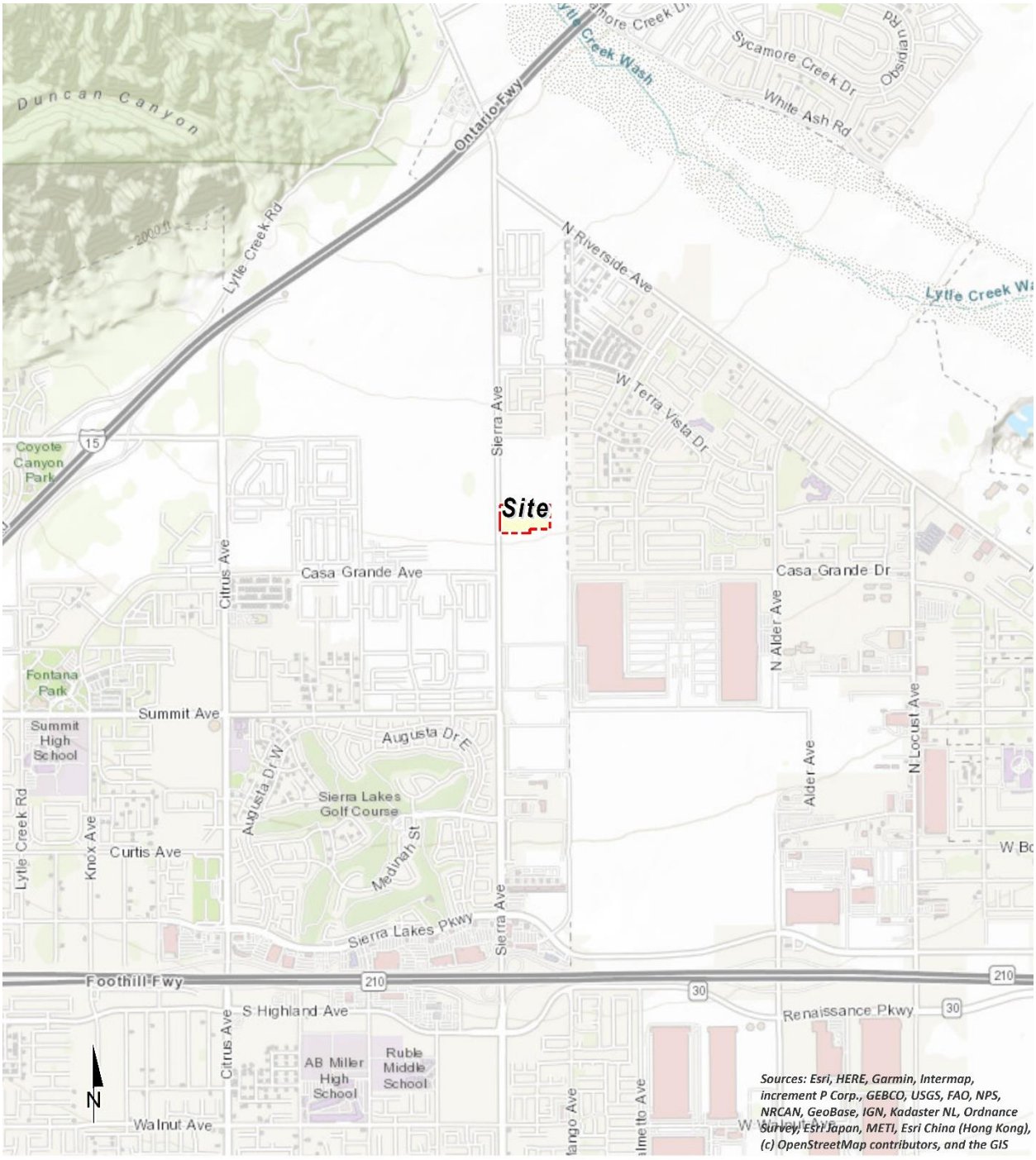
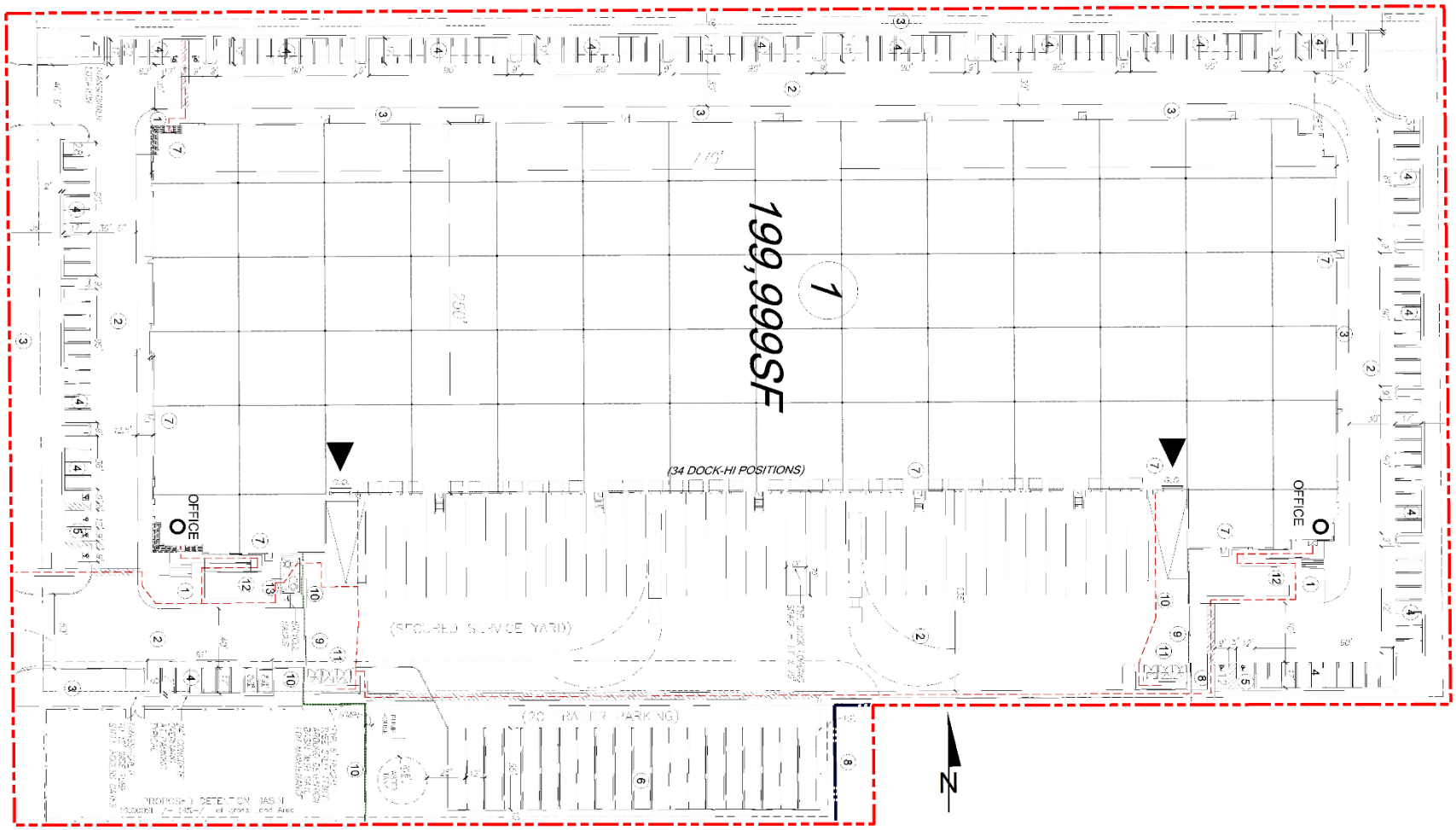


EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

Noise is simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: Environmental Protection Agency Office of Noise Abatement and Control, 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.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (2) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 1,000 feet, which can cause serious discomfort. (3) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most used metric is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time-of-day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when noise can become more intrusive. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Fontana relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (2)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually

sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (4)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (2)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of-sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The Federal Highway Administration (FHWA) does not consider the planting of vegetation to be a noise abatement measure. (5)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receiver by controlling the noise source, transmission path, receiver, or all three. This concept is known as the source-path-receiver concept. In general, noise control measures can be applied to these three elements.

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must block the line-of-sight path of sound from the noise source.

2.6 LAND USE COMPATIBILITY WITH NOISE

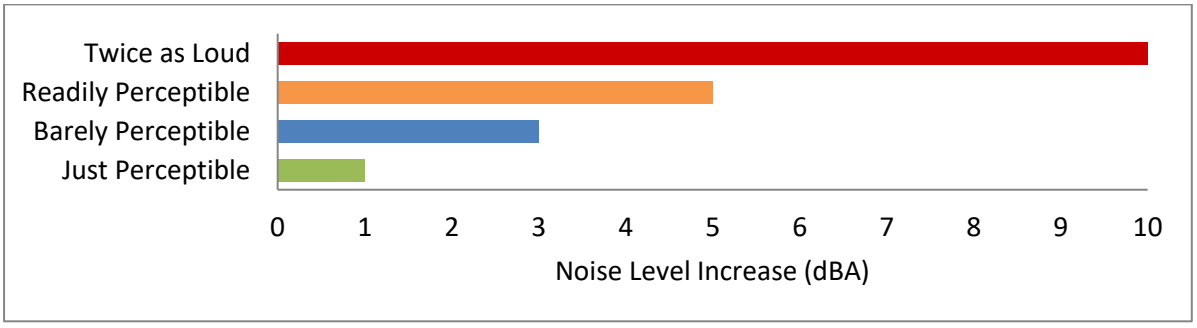
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (6)

2.7 COMMUNITY RESPONSE TO NOISE

Approximately sixteen percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints may occur. Twenty to thirty percent of the population will not complain even in very severe noise environments. (7 pp. 8-6) Thus, a variety of reactions can be expected from people exposed to any given noise environment.

Surveys have shown that community response to noise varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing. (8) According to research originally published in the Noise Effects Handbook (7), the percentage of high annoyance ranges from approximately 0 percent at 45 dB or less, 10 percent are highly annoyed around 60 dB, and increases rapidly to approximately 70 percent being highly annoyed at approximately 85 dB or greater. Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA is considered barely perceptible, and changes of 5 dBA are considered readily perceptible. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



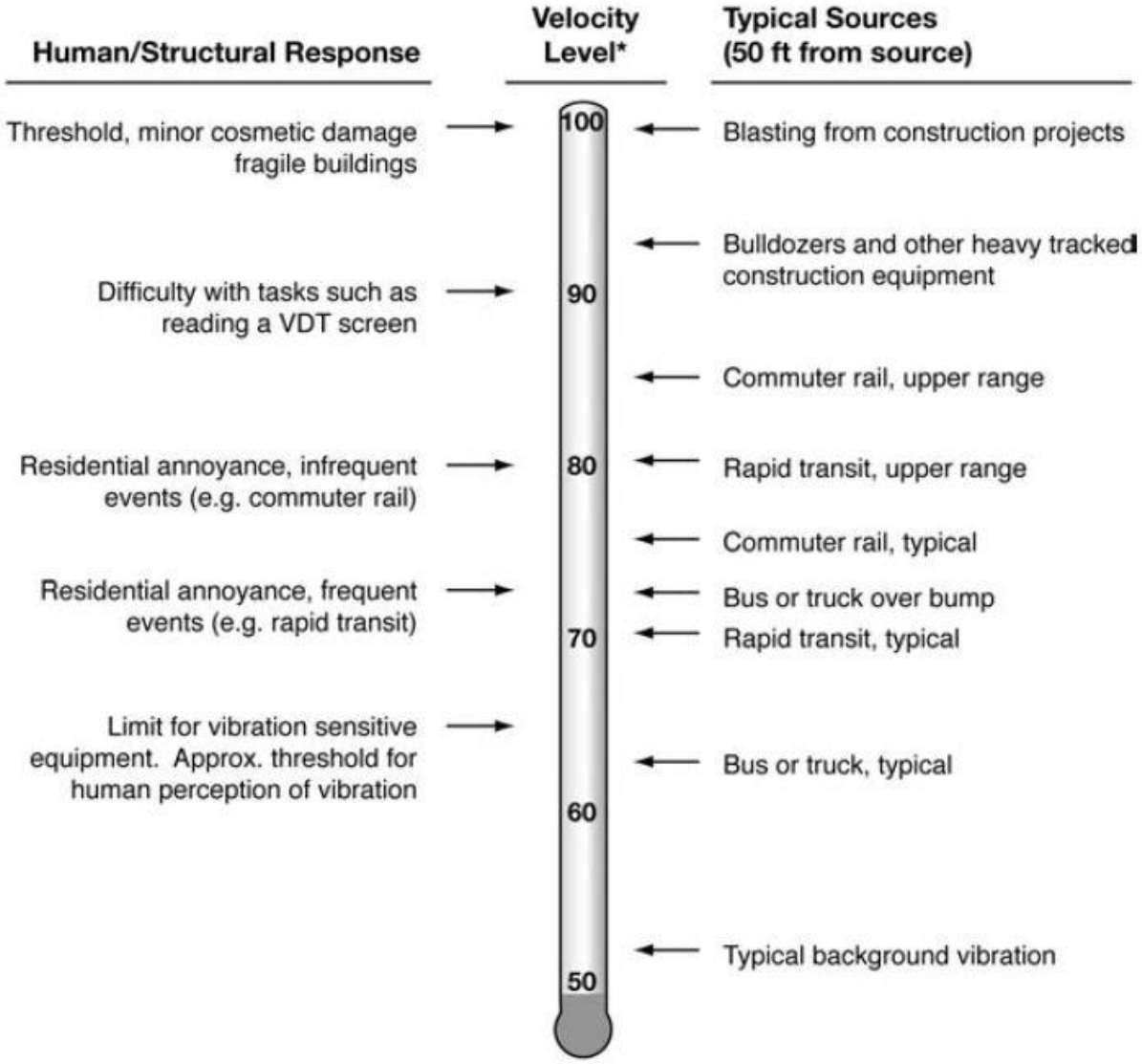
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Impact Assessment Manual* (8) , vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment and/or activities.

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



** RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

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

3 REGULATORY SETTING

The federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (9) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 CITY OF FONTANA GENERAL PLAN NOISE ELEMENT

The City of Fontana General Plan was updated on November 13, 2018. (10) To protect residents from the negative effect of "spillover" noise (Goal #10), the City of Fontana has identified the following policies in the General Plan Noise Element:

Policy

Residential land uses and areas identified as noise-sensitive shall be protected from excessive noise from non-transportation sources including industrial, commercial, and residential activities and equipment.

Actions

A. Projects located in commercial areas shall not exceed stationary- source noise standards at the property line of proximate residential or commercial uses.

B. Industrial uses shall not exceed commercial or residential stationary source noise standards at the most proximate land uses.

C. Non-transportation noise shall be considered in land use planning decisions.

D. Construction shall be performed as quietly as feasible when performed in proximity to residential or other noise sensitive land uses.

3.3 OPERATIONAL NOISE STANDARDS

Although the Project site is located within the City of Fontana, noise-sensitive receivers potentially impacted by operational noise activities are also located in the City of Rialto. However, the City of Rialto Municipal Code does not identify specific exterior noise level standards. Therefore, the City of Fontana standards are used in this noise study to assess the potential impacts at adjacent sensitive receiver locations consistent with Section 9.50.050[B] of the City Rialto Municipal Code.

To analyze noise impacts originating from a designated fixed location or private property such as the Sierra Industrial Facility (Shea) Project, stationary-source (operational) noise such as the expected loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements are typically evaluated against standards established under a jurisdiction's Municipal Code.

3.3.1 CITY OF FONTANA EXTERIOR NOISE STANDARDS

The City of Fontana noise control guidelines for determining and mitigating non-transportation or stationary noise source impacts from operations in neighboring residential areas are found in the Zoning and Development Code (Section 30-543), provided in Appendix 3.1. For industrial zoning districts, Section 30-543 indicates that *no person shall create or cause to be created any sound which exceeds the noise levels in this section as measured at the property line of any residentially zoned property*. The performance standards found in Section 30-543 limit the exterior noise level to 70 dBA L_{eq} during the daytime hours, and 65 dBA L_{eq} during the nighttime hours at sensitive receiver locations as shown on Table 3-1. (11)

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Jurisdiction	Land use	Noise Level Standards (dBA Leq)[2]	
		Daytime	Nighttime
City of Fontana[1]	Residential	70	65

[1] Section 30-543 of the City of Fontana Development Code (Appendix 3.1).
[2] L_{eq} represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

3.4 CONSTRUCTION NOISE STANDARDS

The City of Fontana has set restrictions to control noise impacts associated with the construction of the proposed Project. According to Section 18-63(b)(7) of the city's Municipal Code, *Construction or repairing of buildings or structures,* construction activity is limited: *between the hours of 7:00 a.m. and 6:00 p.m. on weekdays and between the hours of 8:00 a.m. and 5:00 p.m. on Saturdays except in the case of urgent necessity*. (12) Project construction noise levels are, therefore, considered exempt from municipal regulation if activities occur within the hours specified in the City of Fontana Municipal Code, Section 18-63(7) of 7:00 a.m. to 6:00 p.m. on weekdays and between the hours of 8:00 a.m. to 5:00 p.m. on Saturdays. However, if activity occurs outside of these hours, the City of Fontana stationary-source (operational) noise level

standards of 70 dBA L_{eq} during the daytime hours, and 65 dBA L_{eq} during the nighttime hours shall apply as previously discussed in Section 3.4. The City of Rialto Municipal Code does not identify specific construction noise level standards, therefore, the City of Fontana standards are used in this noise study to assess the potential impacts at adjacent sensitive receiver locations consistent with Section 9.50.050[B] of the City Rialto Municipal Code, which states that construction activities are permitted between the hours of 7:00 a.m. to 5:30 p.m. Monday through Friday from October 1st to April 30th, 6:00 a.m. to 7:00 p.m. Monday through Friday from May 1st to September 30th, and 8:00 a.m. to 5:00 p.m. on Saturdays any time of year; with no activity allowed on Sundays or state holidays. (13).

3.5 CONSTRUCTION VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. (8)

To analyze vibration impacts originating from the construction of the Sierra Industrial Facility (Shea), vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of Fontana and the City of Rialto do not identify specific vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (14 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

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4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

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 ground-borne vibration or ground-borne 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 project area to excessive noise levels?

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (15) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged.

The Federal Interagency Committee on Noise (FICON) (16) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (15) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the without project noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if

the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (4 p. 9) and Caltrans (17 p. 2_48).

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.5, the vibration impacts originating from the construction of Sierra Industrial Facility (Shea), vibration-generating activities are appropriately evaluated using the Caltrans vibration damage thresholds to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or air strips and focuses on land use compatibility of the Project to nearby airports and airstrips. The Project site is not located within two miles of an airport or airstrip. The closest airport is the Ontario International Airport (ONT) located roughly 10.7 miles southwest of the Project site. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Appendix G to the CEQA Guidelines, Noise Threshold C.

4.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed Project. Table 4-1 shows the significance criteria summary matrix that includes the allowable criteria used to identify potentially significant incremental noise level increases.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Operational Noise	Adjacent Uses	Exterior Noise Level Standards[1]	70 dBA L_{eq}	65 dBA L_{eq}
	Noise-Sensitive[2]	if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
Construction Noise[3]	Adjacent Uses	If construction occurs outside of permitted hours	70 dBA L_{eq}	65 dBA L_{eq}
Construction Vibration[4]		Vibration Level Threshold	0.3 PPV (in/sec)	

[1] Based on Section 30-543 of the City of Fontana Municipal Code.
[2] FICON, 1992.
[3] Based on Sections 18-63(7) and 30-543 of the City of Fontana Municipal Code.
[4] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Table 19.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at four locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, January 12th, 2022. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the equivalent daytime and nighttime hourly noise levels. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (18)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (2) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (8)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (8) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels

and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location.

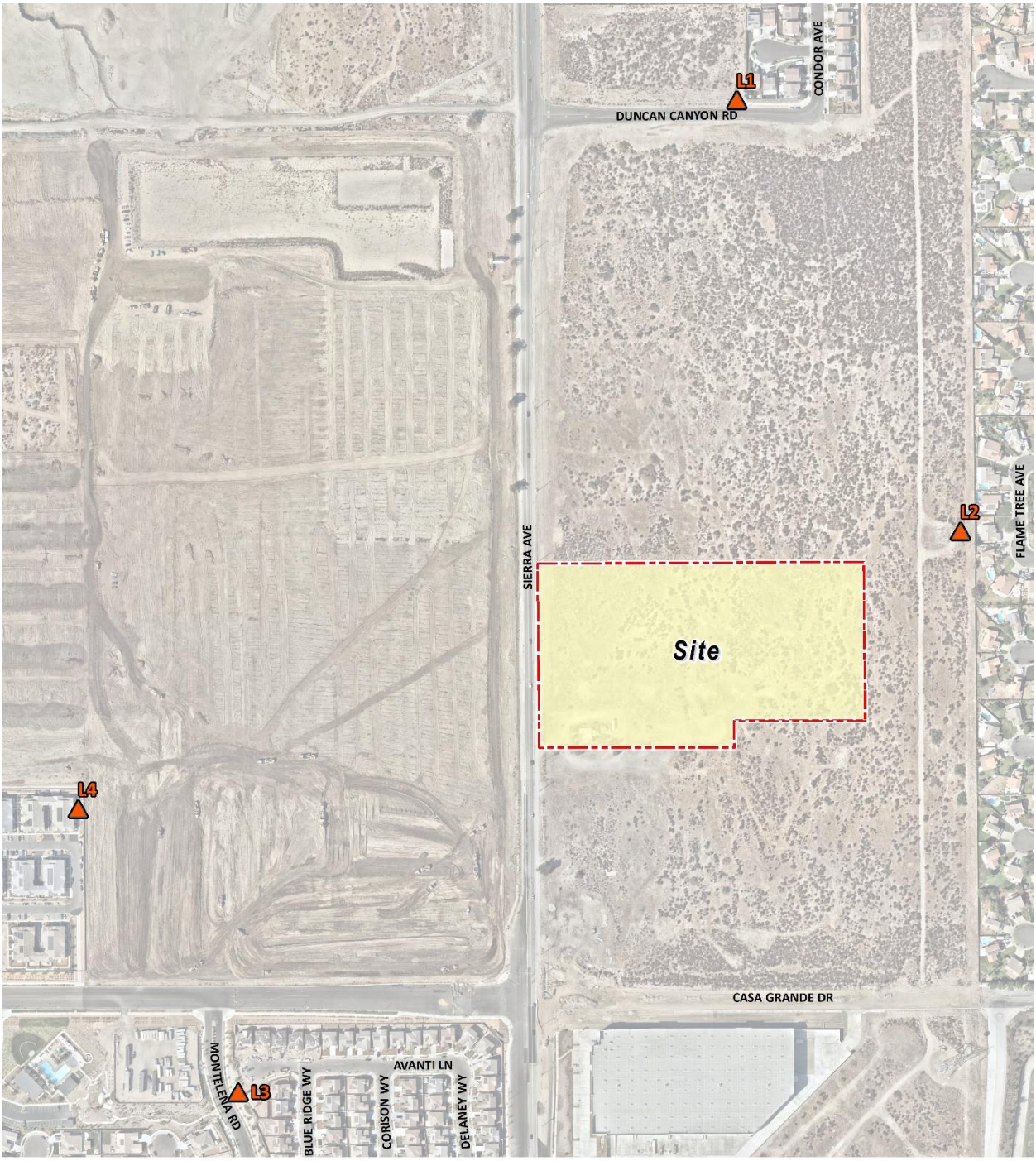
TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]	
		Daytime	Nighttime
L1	Located north of the Project site near single-family residence at 17007 Oriole Lane.	54.5	52.8
L2	Located east of the Project site near single-family residence at 3414 North Flame Tree Avenue.	50.2	45.3
L3	Located southwest of the Project site near single-family residence at 5348 Blue Ridge Way.	54.3	47.8
L4	Located southwest of the Project site near single-family residence at Gabion Ranch Woodridge south of Casa Grande Avenue.	51.4	44.0

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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6 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 6-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To describe the potential off-site Project noise levels, five receiver locations in the vicinity of the Project site were identified. All distances are measured from the Project site boundary to the outdoor living areas (e.g., private backyards) or at the building façade, whichever is closer to the Project site. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the project boundary to each receiver location.

R1: Location R1 represents existing noise sensitive residence at 4893 Condor Avenue, approximately 1,330 feet north of the Project site. R1 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

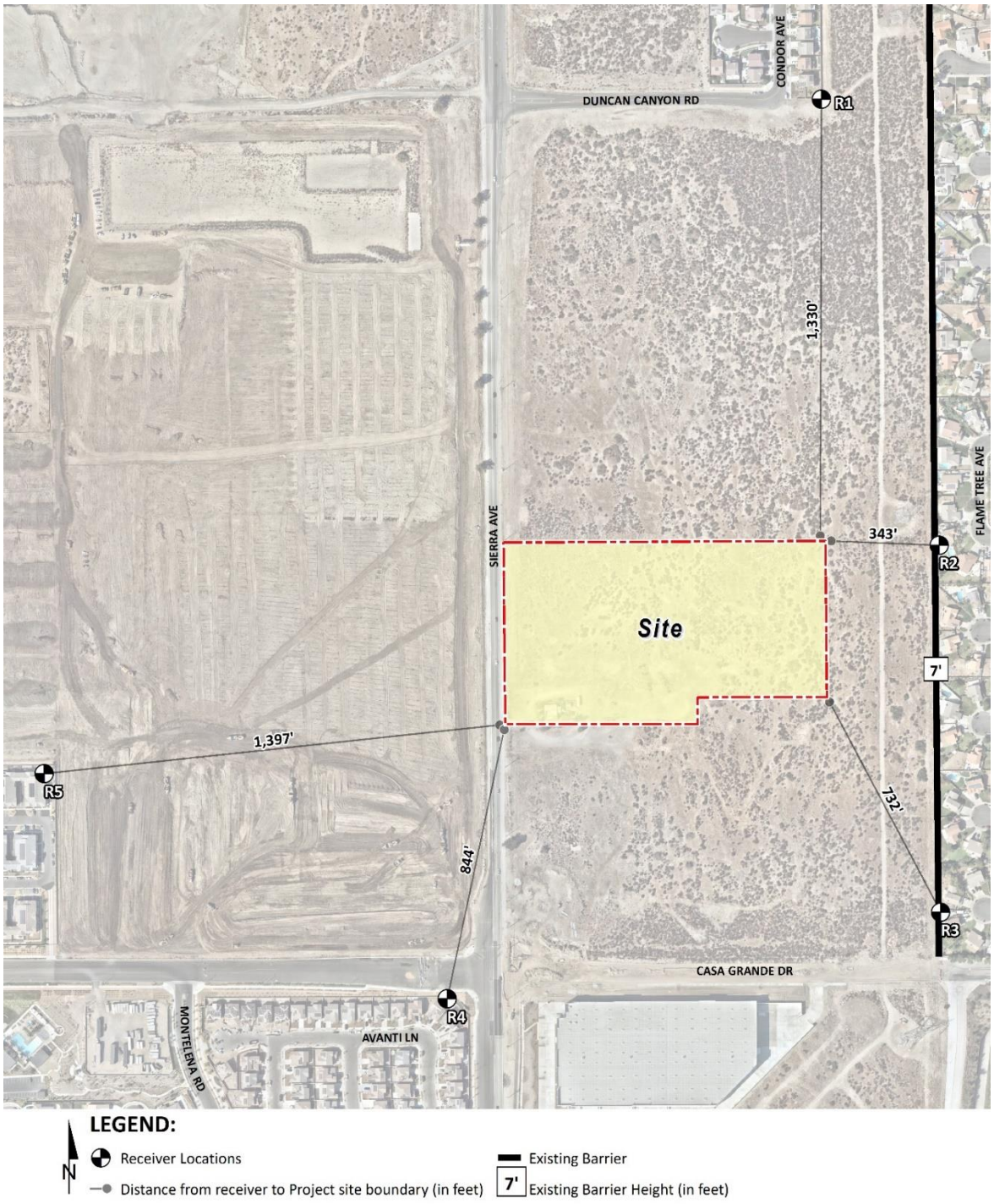
R2: Location R2 represents the existing noise sensitive residence at 3404 North Flame Tree Avenue in the City of Rialto, approximately 343 feet east of the Project site. R2 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing noise sensitive residence at 2895 West Fairview Drive in the City of Rialto, approximately 732 feet southeast of the Project site. R3 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R4: Location R4 represents the existing noise sensitive residence at 16696 Avanti Lane, approximately 844 feet southwest of the Project site. R4 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R5: Location R5 represents the existing noise sensitive Gabion Ranch Woodridge at 16502 Casa Grande Avenue, approximately 1,397 feet southwest of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R5 is placed at the building façade. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

EXHIBIT 6-A: RECEIVER LOCATIONS



7 OPERATIONAL NOISE ANALYSIS

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Section 6, resulting from the operation of the proposed Sierra Industrial Facility (Shea) Project. Exhibit 7-A identifies the noise source locations used to assess the operational noise levels.

7.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical of daytime and nighttime activities at the Project site. To present the potential worst-case noise conditions, this analysis assumes the Project would be operational 24 hours per day, seven days per week. Consistent with similar warehouse and industrial uses, the Project business operations would primarily be conducted within the enclosed buildings, except for traffic movement, parking, as well as loading and unloading of trucks at designated loading bays. The on-site Project-related noise sources are expected to include: loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements.

7.2 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 7-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements all operating at the same time. These sources of noise activity will likely vary throughout the day.

7.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precisions sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (18)

EXHIBIT 7-A: OPERATIONAL NOISE SOURCE LOCATIONS

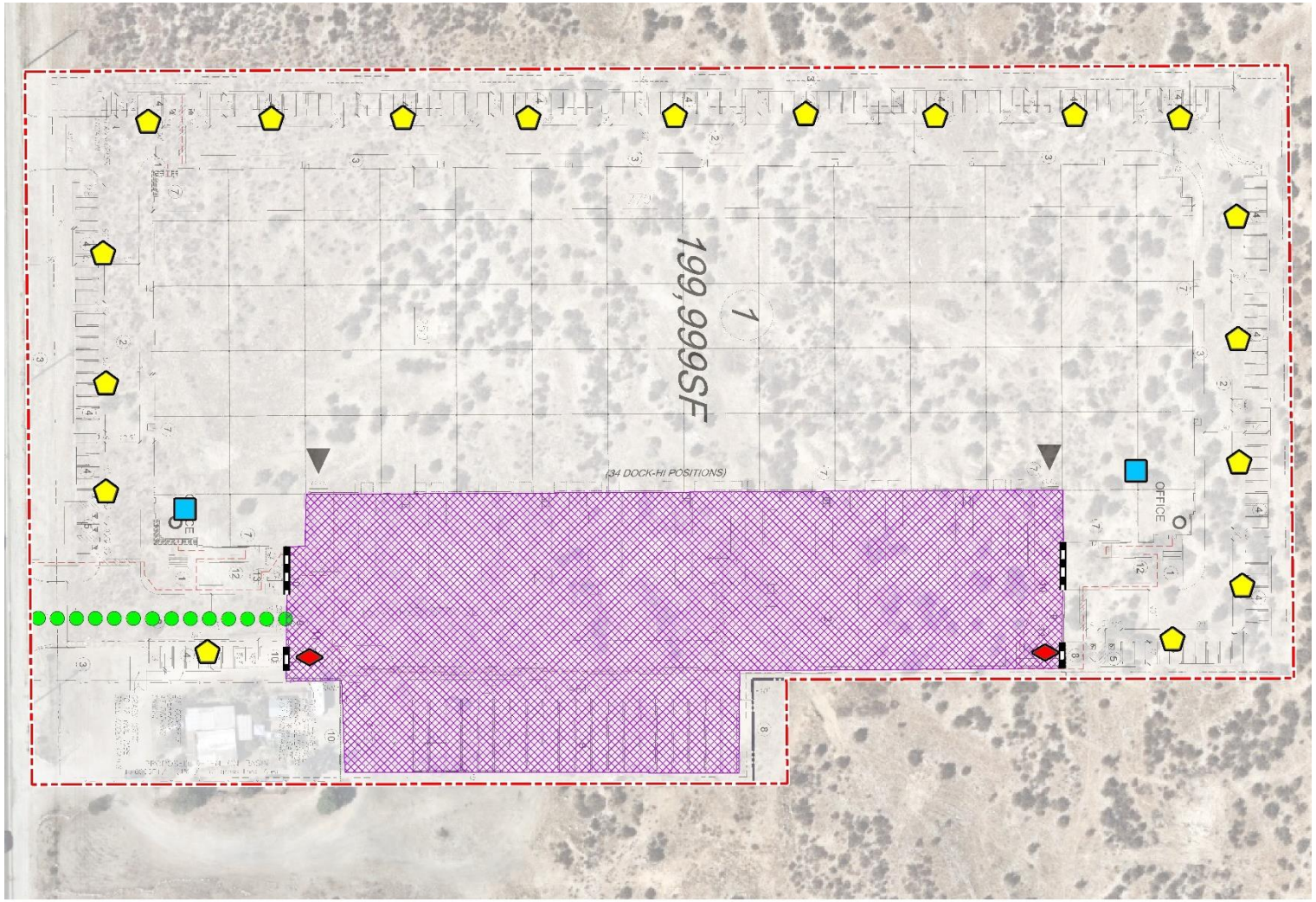


TABLE 7-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./ Hour[2]		Reference Noise Level (dBA L_{eq}) @ 50 Feet	Sound Power Level (dBA)[3]
		Day	Night		
Loading Dock Activity	8'	60	60	65.7	111.5
Roof-Top Air Conditioning Units	5'	39	28	57.2	88.9
Trash Enclosure Activity	5'	10	10	57.3	89.0
Parking Lot Vehicle Movements	5'	60	60	56.1	87.8
Truck Movements	8'	-[4]	-[4]	59.8	93.2

[1] As measured by Urban Crossroads, Inc.
[2] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.
[3] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source.
[4] Truck Movements are calculate based on the number of events by time of day (See Table 7-2).

7.2.2 LOADING DOCK ACTIVITY

The reference loading dock activities are intended to describe the typical outdoor operational noise activities associated with the Project. This includes truck idling, reefer activity (refrigerator truck/cold storage), deliveries, backup alarms, trailer docking including a combination of tractor trailer semi-trucks, two-axle delivery trucks, and background operation activities. Since the noise levels generated by cold storage loading dock activity can be slightly higher due to the use of refrigerated trucks or reefers, this analysis conservatively assumes that all loading dock activity is associated with cold storage facilities, even though only 20 percent cold storage is anticipated.

The reference noise level measurement was taken in the center of the loading dock activity area and represents multiple concurrent noise sources resulting in a combined noise level of 65.7 dBA L_{eq} at a uniform distance of 50 feet. Specifically, the reference noise level measurement represents one truck located approximately 30 feet from the noise level meter with another truck passing by to park roughly 20 feet away, both with their engines idling. Throughout the reference noise level measurement, a separate docked and running reefer truck was located approximately 50 feet east of the measurement location. Additional background noise sources included truck pass-by noise, truck drivers talking to each other next to docked trucks, and air brake release noise when trucks parked.

7.2.3 ROOF-TOP AIR CONDITIONING UNITS

The noise level measurements describe a single mechanical roof-top air conditioning unit. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. At the uniform reference distance of 50 feet, the reference noise levels are 57.2 dBA L_{eq}. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. These operating conditions reflect peak summer cooling requirements with measured temperatures approaching

96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project buildings.

7.2.5 TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with a trash enclosure activity, Urban Crossroads collected a reference noise level measurement at an existing trash enclosure containing two dumpster bins. The trash enclosure noise levels describe metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, and trash dropping into the metal dumpster. The reference noise levels describe trash enclosure noise activities when trash is dropped into an empty metal dumpster, as would occur at the Project Site. The measured reference noise level at the uniform 50-foot reference distance is 57.3 dBA L_{eq} for the trash enclosure activity. The reference noise level describes the expected noise source activities associated with the trash enclosures for the Project's proposed building. Typical trash enclosure activities are estimated to occur for 10 minutes per hour.

7.2.6 PARKING LOT VEHICLE MOVEMENTS

To describe the on-site parking lot activity, a long-term 29-hour reference noise level measurement was collected in the center of activity within the staff parking lot of a warehouse distribution center. At 50 feet from the center of activity, the parking lot produced a reference noise level of 56.1 dBA L_{eq}. Parking activities are expected to take place during the full hour (60 minutes) throughout the daytime and evening hours. The parking lot noise levels are mainly due cars pulling in and out of parking spaces in combination with car doors opening and closing.

7.2.7 TRUCK MOVEMENTS

The truck movements reference noise level measurement was collected over a period of 1 hour and 28 minutes and represents multiple heavy trucks entering and exiting the outdoor loading dock area producing a reference noise level of 59.8 dBA L_{eq} at 50 feet. The noise sources included at this measurement location account for trucks entering and existing the Project driveways and maneuvering in and out of the outdoor loading dock activity area.

Consistent with the Scoping Agreement for the *Sierra Industrial Facility (Shea)Traffic Assessment* prepared by Urban Crossroads, Inc., the Project is expected to generate a total of approximately 54 two-way truck trips per day (19). Using the estimated number of truck trips in combination with time-of-day vehicle splits, the number of truck movements were calculated. As shown on Table 7-2, this information is then used to calculate the truck movements operational noise source activity based on the number of events by time of day.

TABLE 7-2: TRUCK MOVEMENTS BY LOCATION

Truck Movement Location	Total Project Truck Trips[1]	Trip Dist.[2]	Truck Trips by Location[3]	Time of Day Vehicle Splits[4]			Truck Movements[5]		
				Day	Evening	Night	Day	Evening	Night
All Driveways	54	100%	54	86.50%	2.70%	10.80%	47	1	6

[1] Total Project truck trips according to Table 4-2 of the North Fontana Industrial Complex (Acacia) Traffic Study.
[2] Project truck trip distribution according to Exhibit 4-1 of the North Fontana Industrial Complex (Acacia) Traffic Study.
[3] Calculated trip trucks per location represents the product of the total project truck trips and the trip distribution.
[4] Typical Southern California vehicle mix. Values rounded to the nearest one-hundredth.
[5] Calculated time of day entry gate and truck movements by location.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

7.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels.

Using the ISO 9613-2 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613-2 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the CadnaA noise analysis to account for mixed ground representing a combination of hard and soft surfaces. Appendix 9.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

7.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 9-3

shows the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 34.0 to -49.6 dBA L_{eq}.

TABLE 7-3: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA L_{eq})				
	R1	R2	R3	R4	R5
Loading Dock Activity	26.5	28.4	42.0	49.5	44.9
Roof-Top Air Conditioning Units	19.0	24.6	21.5	25.9	22.5
Trash Enclosure Activity	0.0	0.0	13.8	20.6	12.6
Parking Lot Vehicle Movements	33.0	32.8	27.1	32.0	29.4
Truck Movements	0.0	2.1	14.4	26.1	22.3
Total (All Noise Sources)	**34.0**	**34.6**	**42.2**	**49.6**	**45.1**

[1] See Exhibit 7-A for the noise source locations. CadnaA noise model calculations are included in Appendix 7.1.

Table 7-4 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 33.1to 48.7 dBA L_{eq}. The differences between the daytime and nighttime noise levels are largely related to the estimated duration of noise activity as outlined in Table 7-1 and Appendix 7.1.

TABLE 7-4: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA L_{eq})				
	R1	R2	R3	R4	R5
Loading Dock Activity	25.5	27.4	41.0	48.6	44.0
Roof-Top Air Conditioning Units	16.6	22.2	19.1	23.5	20.1
Trash Enclosure Activity	0.0	0.0	12.9	19.6	11.6
Parking Lot Vehicle Movements	32.1	31.8	26.1	31.1	28.5
Truck Movements	0.0	0.0	5.5	17.1	13.4
Total (All Noise Sources)	**33.1**	**33.5**	**41.2**	**48.7**	**44.1**

[1] See Exhibit 7-A for the noise source locations. CadnaA noise model calculations are included in Appendix 7.1.

7.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Fontana exterior noise level standards at nearby noise-sensitive receiver locations. Table 7-5 shows the operational noise levels associated with Sierra Industrial Facility (Shea) Project will satisfy the City of Fontana 70 dBA L_{eq} daytime and 65 dBA L_{eq} nighttime exterior noise level standards at the nearest receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 7-5: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	City	Project Operational Noise Levels (dBA L_{eq})[2]		Noise Level Standards (dBA L_{eq})[3]		Noise Level Standards Exceeded?[4]	
		Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	Fontana	34.0	33.1	70	65	No	No
R2	Rialto	34.6	33.5	55	45	No	No
R3	Rialto	42.2	41.2	55	45	No	No
R4	Fontana	49.6	48.7	70	65	No	No
R5	Fontana	45.1	44.1	70	65	No	No

[1] See Exhibit 6-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 7-3 and 7-4.
[3] Exterior noise level standards, as shown on Table 4-1.
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.

7.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (2) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment.

As indicated on Table 7-6, the Project will generate a daytime operational noise level increases ranging from 0.0 to 1.3 dBA L_{eq} at the nearest receiver locations. Table 7-7 shows that the Project will generate a nighttime operational noise level increases ranging from 0.0 to 3.5 dBA L_{eq} at the nearest receiver locations. A review of the operational noise level increases shows that the nighttime increases are somewhat higher than the daytime increases. This is largely due to the lower nighttime ambient conditions that when combined with the Project produce a higher increase. The project-related operational noise level increases will satisfy the operational noise level increase significance criteria presented on Table 4-1. Therefore, the incremental Project operational noise level increase is considered *less than significant* at all receiver locations.

7.7 OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the proposed Project will influence the traffic noise levels in surrounding off-site areas and at the Project site. According to the October 2021, Scoping Agreement for the *Sierra Industrial Facility (Shea) Traffic prepared by Urban Crossroads, Inc*., the proposed Project is anticipated to generate fewer than 50 peak hour trips and would contribute fewer than 50 peak hour trips to any study area intersection. (19) The Scoping Agreement determined that no further operations analysis is required beyond the trip generation since the Project is anticipated to result in a net reduction in trips in comparison to the currently adopted land use/zoning.

TABLE 7-6: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	34.0	L1	54.5	54.5	0.0	5.0	No
R2	34.6	L2	50.2	50.3	0.1	5.0	No
R3	42.2	L2	50.2	50.8	0.6	5.0	No
R4	49.6	L3	54.3	55.6	1.3	5.0	No
R5	45.1	L4	51.4	52.3	0.9	5.0	No

[1] See Exhibit 7-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 7-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

TABLE 7-7: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	33.1	L1	52.8	52.8	0.0	5.0	No
R2	33.5	L2	45.3	45.6	0.3	5.0	No
R3	41.2	L2	45.3	46.7	1.4	5.0	No
R4	48.7	L3	47.8	51.3	3.5	5.0	No
R5	44.1	L4	44.0	47.1	3.1	5.0	No

[1] See Exhibit 6-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 7-4.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

8 CONSTRUCTION ANALYSIS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 8-A shows the construction activity boundaries in relation to the nearest sensitive receiver locations previously described in Section 6. City of Fontana Municipal Code Section 18-63(7), states that project construction noise levels are considered exempt between 7:00 a.m. and 6:00 p.m. on weekdays and between the hours of 8:00 a.m. to 5:00 p.m. on Saturdays.

If Project construction activity occurs outside of the hours specified in the Municipal Code, noise levels shall satisfy the City of Fontana construction noise level thresholds of 70 dBA L_{eq} during the daytime hours and 65 dBA L_{eq} during the nighttime hours.

8.1 CONSTRUCTION NOISE LEVELS

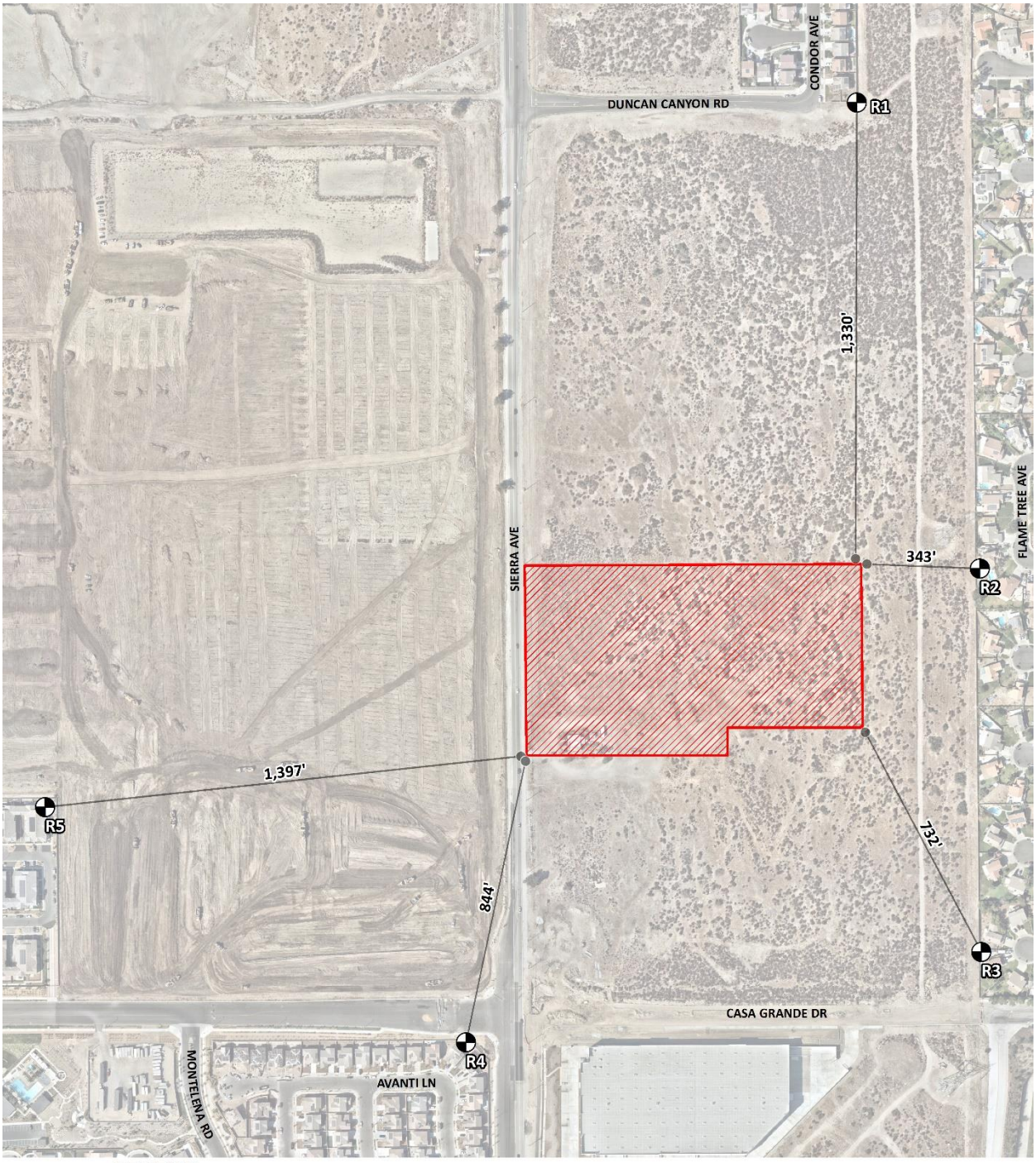
The FTA *Transit Noise and Vibration Impact Assessment Manual* recognizes that construction projects are accomplished in several different stages and outlines the procedures for assessing noise impacts during construction. Each stage has a specific equipment mix, depending on the work to be completed during that stage. As a result of the equipment mix, each stage has its own noise characteristics; some stages have higher continuous noise levels than others, and some have higher impact noise levels than others. The Project construction activities are expected to occur in the following stages:

- Demolition
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

8.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (20) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

EXHIBIT 8-A: CONSTRUCTION NOISE SOURCE AND RECEIVER LOCATIONS



8.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. Consistent with FTA guidance for general construction noise assessment, Table 8-1 presents the combined noise levels for the loudest construction equipment, assuming they operate at the same time. As shown on Table 8-2, the construction noise levels are expected to range from 38.5 to 51.2 dBA L_{eq} at the nearby receiver locations. Appendix 8.1 includes the detailed CadnaA construction noise model inputs.

TABLE 8-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Activity	Reference Noise Level @ 50 Feet (dBA L_{eq})[1]	Combined Noise Level (dBA L_{eq})[2]	Combined Sound Power Level (PWL)[3]
Demolition	Demolition Equipment	82	83	115
	Backhoes	74		
	Hauling Trucks	72		
Site Preparation	Crawler Tractors	78	80	112
	Hauling Trucks	72		
	Rubber Tired Dozers	75		
Grading	Graders	81	83	115
	Excavators	77		
	Compactors	76		
Building Construction	Cranes	73	81	113
	Tractors	80		
	Welders	70		
Paving	Pavers	74	83	115
	Paving Equipment	82		
	Rollers	73		
Architectural Coating	Cranes	73	77	109
	Air Compressors	74		
	Generator Sets	70		

[1] FHWA Roadway Construction Noise Model (RCNM).
[2] Represents the combined noise level for all equipment assuming they operate at the same time consistent with FTA Transit Noise and Vibration Impact Assessment guidance.
[3] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calibrated using the CadnaA noise model at the reference distance to the noise source.

TABLE 8-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})						
	Demolition	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	48.7	45.7	48.7	46.7	48.7	42.7	48.7
R2	47.8	44.8	47.8	45.8	47.8	41.8	47.8
R3	44.5	41.5	44.5	42.5	44.5	38.5	44.5
R4	51.2	48.2	51.2	49.2	51.2	45.2	51.2
R5	47.6	44.6	47.6	45.6	47.6	41.6	47.6

[1] Noise receiver locations are shown on Exhibit 8-A.
[2] Construction noise level calculations based on distance from the construction activity, which is measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 8.1.

8.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the closest point from the edge of primary construction activity to each of the nearby receiver locations. Project construction noise levels are considered exempt if activities occur within the hours specified in the City of Fontana Municipal Code, Section 18-63(7) of 7:00 a.m. to 6:00 p.m. on weekdays and between the hours of 8:00 a.m. to 5:00 p.m. on Saturdays.

If Project construction activity occurs outside of the hours specified in the Municipal Code, noise levels shall satisfy the City of Fontana construction noise level thresholds of 70 dBA L_{eq} during the daytime hours and 65 dBA L_{eq} during the nighttime hours. No Project construction activity is planned within the hours specified in the City of Fontana Municipal Code, Section 18-63(7). As shown on Table 8-3, the noise impacts due to project construction noise is considered *less than significant* at all receiver locations.

TABLE 8-3: TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})				
	Highest Construction Noise Levels[2]	Threshold			Specified Hours Threshold Exceeded?[5]
		Specified Hours[3]	Outside of Specified Hours Daytime[4]	Outside of Specified Hours Nighttime[4]	
R1	48.7	Exempt	70	65	No
R2	47.8	Exempt	70	65	No
R3	44.5	Exempt	70	65	No
R4	51.2	Exempt	70	65	No
R5	47.6	Exempt	70	65	No

[1] Noise receiver locations are shown on Exhibit 8-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations as shown on Table 8-2.
[3] Specified hours of 7:00 a.m. to 6:00 p.m. on weekdays and between the hours of 8:00 a.m. to 5:00 p.m. on Saturdays as per the City of Fontana Municipal Code Section 18-63(7).
[4] City of Fontana exterior noise level standards for residential land use, as shown on Table 3-1.
[5] Do the estimated Project construction noise levels exceed the construction noise level threshold during the specified hours mentioned in The City of Fontana Municipal Code Section 18-63(7)?

8.5 NIGHTTIME CONCRETE POUR NOISE ANALYSIS

It is our understanding that nighttime concrete pouring activities will occur as a part of Project building construction activities. Nighttime concrete pouring activities are often used to support reduced concrete mixer truck transit times and lower air temperatures than during the daytime hours and are generally limited to the actual building pad area as shown on Exhibit 8-B. Since the nighttime concrete pours will take place outside the permitted City of Fontana Municipal Code, Section 18-63(b)(7) hours of *7:00 a.m. and 6:00 p.m. on weekdays and between the hours of 8:00 a.m. and 5:00 p.m. on Saturdays* the Project Applicant will be required to obtain authorization for nighttime work from the City of Fontana. Any nighttime construction noise activities shall satisfy the residential noise limit categories outlined in Table 3-1.

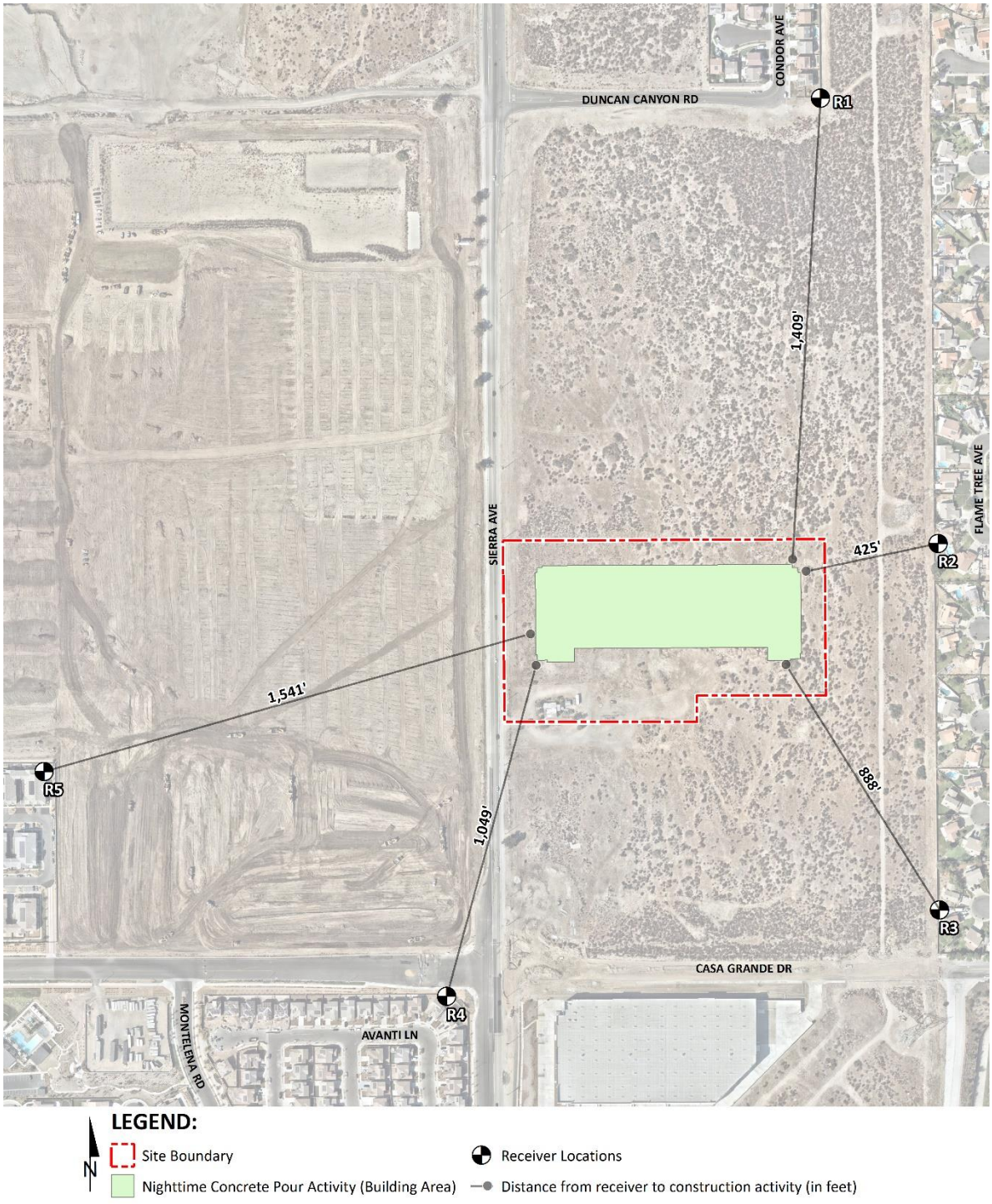
8.5.1 NIGHTTIME CONCRETE POUR REFERENCE NOISE LEVEL MEASUREMENTS

To estimate the noise levels due to nighttime concrete pour activities, sample reference noise level measurements were taken during a nighttime concrete pour at a construction site. Urban Crossroads, Inc. collected short-term nighttime concrete pour reference noise level measurements during the noise-sensitive nighttime hours between 1:00 a.m. to 2:00 a.m. The reference noise levels describe the expected concrete pour noise sources that may include concrete mixer truck movements and pouring activities, concrete paving equipment, rear mounted concrete mixer truck backup alarms, engine idling, air brakes, generators, and workers communicating/whistling.

To describe the nighttime concrete pour noise levels associated with the construction of the Sierra Industrial Facility (Shea), this analysis relies on reference sound power level of 100.3 dBA L_w. While the Project noise levels will depend on the actual duration of activities and specific

equipment fleet in use at the time of construction, the reference sound power level of 100.3 dBA L_w is used to describe the expected Project nighttime concrete pour noise activities.

EXHIBIT 8-B: NIGHTTIME CONCRETE POUR NOISE SOURCE AND RECEIVER LOCATIONS



8.5.2 NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

As shown on Table 8-4, the noise levels associated with the nighttime concrete pour activities are estimated to range from 28.7 to 35.0 dBA L_{eq} and will satisfy the City of Fontana 65 dBA L_{eq} nighttime stationary-source exterior hourly average L_{eq} residential noise level threshold at all the receiver locations. Based on the results of this analysis, all nearest noise receiver locations will experience *less than significant* impacts due to the Project related nighttime concrete pour activities. Appendix 8.2 includes the CadnaA nighttime concrete pour noise model inputs.

TABLE 8-4: NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

Receiver Location[1]	Use	Construction Noise Levels (dBA L_{eq})		
		Paving Construction[2]	Nighttime Threshold[3]	Threshold Exceeded?[4]
R1	Residence	33.3	65	No
R2	Residence	32.2	65	No
R3	Residence	28.7	65	No
R4	Residence	35.0	65	No
R5	Residence	31.7	65	No

[1] Noise receiver locations are shown on Exhibit 8-B.
[2] Paving construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations.
[3] Exterior noise level standards based on the City of Fontana Development Code Section 30-543.
[4] Do the estimated Project construction noise levels exceed the nighttime construction noise level threshold?

8.6 CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Ground vibration levels associated with various types of construction equipment are summarized on Table 8-5. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential for human response (annoyance) and building damage using the following vibration assessment methods defined by the FTA. To describe the vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 8-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Table 8-6 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 343 to 1,397 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.000 to 0.002 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec), the typical Project construction vibration levels will fall below the building damage thresholds at all the noise sensitive receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities at the Project site. Moreover, the vibration levels reported at the sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

TABLE 8-6: PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]					Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Highest Vibration Level		
R1	1,330'	0.000	0.000	0.000	0.000	0.000	0.3	No
R2	343'	0.000	0.001	0.001	0.002	0.002	0.3	No
R3	732'	0.000	0.000	0.000	0.001	0.001	0.3	No
R4	844'	0.000	0.000	0.000	0.000	0.000	0.3	No
R5	1,397'	0.000	0.000	0.000	0.000	0.000	0.3	No

[1] Receiver locations are shown on Exhibit 8-A.
[2] Distance from receiver location to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 8-4).
[4] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Table 19, p. 38.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

9 REFERENCES

1. **State of California.** *California Environmental Quality Act, Environmental Checklist Form Appendix G.* 2021.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
5. **U.S. Department of Transportation Federal Highway Administration.** *Highway Noise Barrier Design Handbook.* 2001.
6. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
7. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
8. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
9. **Office of Planning and Research.** *State of California General Plan Guidlines.* October 2019.
10. **City of Fontana.** *General Plan Noise Element.* November 2018.
11. —. *Zoning and Development Code, Section 30, Article V - Residential Zoning Districts, Division 6 - Performance Standards.*
12. —. *Municipal Code, Chapter 18, Article II - Noise.*
13. **City of Rialto.** *Municipal Code, Chapter 9.50 - Noise Control.*
14. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.
15. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
16. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
17. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
18. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
19. **Urban Crossroads, Inc.** *Scoping Agreement for the Sierra Industrial Facility (Shea) Traffic Assessment.* October 2021.
20. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *FHWA Roadway Construction Noise Model.* January, 2006.

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10 CERTIFICATIONS

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Sierra Industrial Facility (Shea) Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 584-3148.

Bill Lawson, P.E., INCE
Principal
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Newport Beach, CA 92658
(949) 581-3148
blawson@urbanxroads.com



EDUCATION

Master of Science in Civil and Environmental Engineering
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning
California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012
PTP – Professional Transportation Planner • May, 2007 – May, 2013
INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CITY OF FONTANA DEVELOPMENT CODE

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Section No. 30-542 - Trash and Recycling Collection Areas.

All trash receptacles and disposal areas shall be screened from view. All industrial facilities shall be provided with trash receptacles and recycling facilities as follows:

1. ***Number***. An adequate number and size of receptacles shall be provided to serve all uses on a property.

2. ***Screening***. All receptacles shall be screened and the trash enclosure that is designed pursuant to the City approved Conceptual Plan. The receptacle shall not be visible above the wall. The enclosure shall be architecturally compatible with the architecture of the proposed/existing structures.

DIVISION 6. - PERFORMANCE STANDARDS

Section No. 30-543 - Noise and Vibration.

A. ***Noise Levels***. No person shall create or cause to be created any sound which exceeds the noise levels in this Section as measured at the property line of any residentially zoned property:

   1. The noise level between 7:00 a.m. and 10:00 p.m. shall not exceed 70 db(A).

   2. The noise level between 10:00 p.m. and 7:00 a.m. shall not exceed 65 db(A).

B. ***Noise Measurements***. Noise shall be measured with a sound level meter that meets the standards of the American National Standards Institute (ANSI) Section SI4-1979, Type 1 or Type 2. Noise levels shall be measured using the "A" weighted sound pressure level scale in decibels (reference pressure = 20 micronewtons per meter squared).

C. ***Vibration***. No person shall create or cause to be created any activity which causes a vibration which can be felt beyond the property line with or without the aid of an instrument.

Section No. 30-544 - Light and Glare.

All lights shall be directed and/or shielded to prevent the light from adversely affecting adjacent properties. No structure or lighting feature shall be permitted which creates adverse glare. A photometric plan shall be provided that indicates the amount of light emanating from the proposed/existing light fixtures.

Section No. 30-545 - Odors.

All uses shall be operated in a manner such that no offensive odor is perceptible at or beyond the property line of that use.

Section No. 30-546 - Electromagnetic Interference.

No use, activity, or process shall be conducted which produces electromagnetic interference with normal radio and television receptions beyond the property line of that use.

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APPENDIX 5.1:

STUDY AREA PHOTOS

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JN: 14283 Study Area Photos



L1_E
34, 9' 54.580000"117, 26' 2.610000"



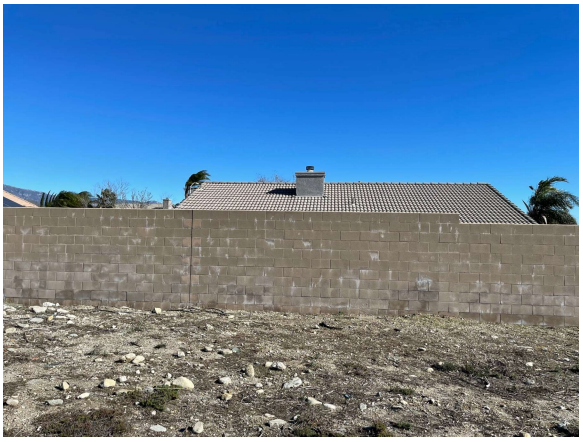
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L1_S
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L1_W
34, 9' 54.610000"117, 26' 2.640000"



L2_E
34, 9' 41.900000"117, 25' 54.810000"



L2_N
34, 9' 41.930000"117, 25' 54.900000"

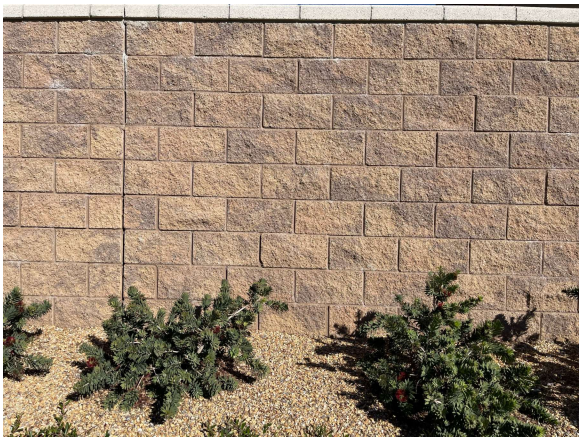
JN: 14283 Study Area Photos



L2_S
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L2_W
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L3_E
34, 9' 25.530000"117, 26' 20.470000"



L3_N
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L3_S
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L3_W
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JN: 14283 Study Area Photos



L4_E
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L4_N
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L4_S
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L4_W
34, 9' 33.880000"117, 26' 26.100000"

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APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

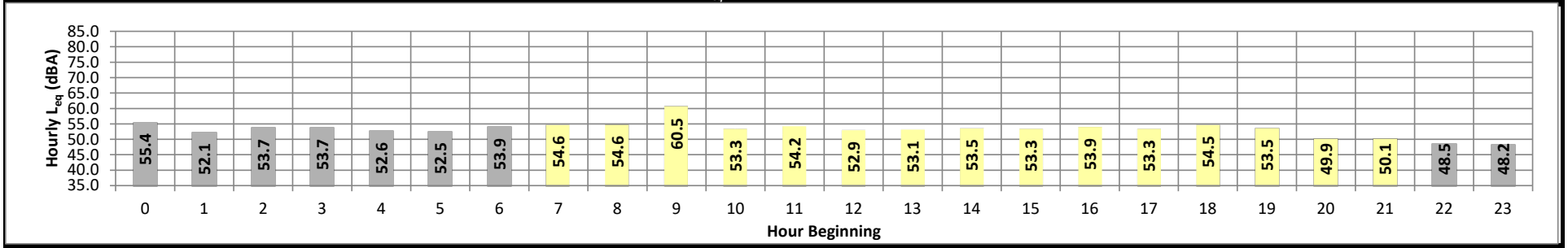
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24-Hour Noise Level Measurement Summary

Date: Wednesday, January 12, 2022 *Location:* L1 - Located northwest of the Project site near single-family *Meter:* Piccolo II *JN:* 14283

Project: Sierra Industrial *Source:* residence at 17007 Oriole Lane. *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	55.4	61.2	50.1	60.9	60.3	59.1	58.4	56.3	54.3	51.4	50.9	50.3	55.4	10.0	65.4
	1	52.1	57.9	47.4	57.5	57.1	55.9	55.1	52.9	51.1	48.5	48.1	47.6	52.1	10.0	62.1
	2	53.7	59.8	48.5	59.5	59.1	57.6	56.8	54.5	52.5	49.8	49.3	48.7	53.7	10.0	63.7
	3	53.7	61.3	48.4	60.9	60.3	58.2	56.7	54.3	52.3	49.5	49.0	48.5	53.7	10.0	63.7
	4	52.6	59.3	48.7	59.0	58.4	56.7	55.4	52.9	51.4	49.6	49.3	48.8	52.6	10.0	62.6
	5	52.5	60.7	48.6	60.0	59.1	56.5	55.1	52.7	51.2	49.4	49.1	48.8	52.5	10.0	62.5
	6	53.9	61.2	49.4	60.8	60.3	58.5	57.0	54.3	52.5	50.4	50.0	49.6	53.9	10.0	63.9
Day	7	54.6	61.2	50.3	60.9	60.4	58.8	57.7	54.9	53.3	51.2	50.9	50.5	54.6	0.0	54.6
	8	54.6	61.5	50.0	61.1	60.6	59.1	58.2	55.0	53.1	51.0	50.6	50.1	54.6	0.0	54.6
	9	60.5	73.9	49.4	73.5	72.6	68.0	63.3	54.5	52.4	50.3	49.9	49.5	60.5	0.0	60.5
	10	53.3	60.1	49.3	59.8	59.3	57.4	56.3	53.6	52.1	50.2	49.8	49.4	53.3	0.0	53.3
	11	54.2	64.3	48.6	64.0	63.1	60.0	57.6	52.8	51.3	49.5	49.1	48.7	54.2	0.0	54.2
	12	52.9	61.0	48.0	60.7	60.1	58.3	56.8	52.8	50.6	48.9	48.6	48.2	52.9	0.0	52.9
	13	53.1	61.8	48.3	61.4	60.8	58.7	56.8	52.8	50.7	49.1	48.8	48.4	53.1	0.0	53.1
	14	53.5	62.6	48.8	62.1	61.5	59.0	57.0	52.9	51.2	49.5	49.2	48.9	53.5	0.0	53.5
	15	53.3	61.4	48.4	60.9	60.1	58.0	56.6	53.6	51.6	49.4	49.0	48.5	53.3	0.0	53.3
	16	53.9	61.3	49.3	61.0	60.4	58.6	57.5	54.1	52.3	50.2	49.8	49.4	53.9	0.0	53.9
	17	53.3	61.8	48.9	61.3	60.5	58.2	56.4	53.2	51.6	49.7	49.4	49.0	53.3	0.0	53.3
	18	54.5	64.3	48.6	63.8	63.3	60.7	58.6	54.1	51.1	49.3	49.0	48.7	54.5	0.0	54.5
	19	53.5	62.7	47.8	62.4	61.9	59.7	58.0	52.6	50.5	48.7	48.4	47.9	53.5	5.0	58.5
	20	49.9	55.8	46.6	55.5	55.0	53.7	52.8	50.2	48.9	47.4	47.1	46.7	49.9	5.0	54.9
	21	50.1	56.4	46.9	56.0	55.3	53.8	52.7	50.4	49.1	47.6	47.4	47.0	50.1	5.0	55.1
Night	22	48.5	55.5	44.8	55.1	54.6	52.8	51.8	48.6	47.2	45.6	45.3	44.9	48.5	10.0	58.5
	23	48.2	54.4	45.2	53.7	52.9	51.1	50.4	48.6	47.5	46.0	45.7	45.3	48.2	10.0	58.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	49.9	55.8	46.6	55.5	55.0	53.7	52.7	50.2	48.9	47.4	47.1	46.7
	Max	60.5	73.9	50.3	73.5	72.6	68.0	63.3	55.0	53.3	51.2	50.9	50.5
Energy Average		54.5	Average:		61.6	61.0	58.8	57.1	53.2	51.3	49.5	49.1	48.7
Night	Min	48.2	54.4	44.8	53.7	52.9	51.1	50.4	48.6	47.2	45.6	45.3	44.9
	Max	55.4	61.3	50.1	60.9	60.3	59.1	58.4	56.3	54.3	51.4	50.9	50.3
Energy Average		52.8	Average:		58.6	58.0	56.3	55.2	52.8	51.1	48.9	48.5	48.0

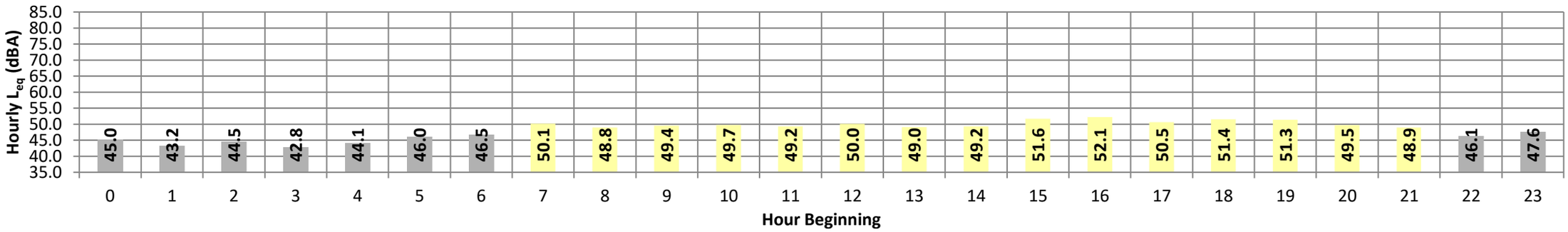
L_{eq} (dBA)		
24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
53.9	**54.5**	**52.8**

24-Hour Noise Level Measurement Summary

Date: Wednesday, January 12, 2022 *Location:* L2 - Located east of the Project site near single-family *Meter:* Piccolo II *JN:* 14283

Project: Sierra Industrial *Source:* residence at 3414 North Flame Tree Avenue. *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	45.0	50.5	41.2	50.0	49.5	48.5	47.8	45.8	44.2	42.0	41.7	41.3	45.0	10.0	55.0
	1	43.2	48.9	39.2	48.4	47.9	46.9	46.2	44.1	42.1	39.9	39.6	39.3	43.2	10.0	53.2
	2	44.5	50.1	41.1	49.6	49.0	47.5	46.7	45.1	43.9	41.8	41.5	41.2	44.5	10.0	54.5
	3	42.8	46.2	40.2	46.0	45.7	45.0	44.6	43.6	42.4	40.8	40.6	40.3	42.8	10.0	52.8
	4	44.1	47.9	41.9	47.5	47.1	46.4	45.8	44.7	43.8	42.5	42.2	42.0	44.1	10.0	54.1
	5	46.0	50.0	43.4	49.7	49.4	48.7	48.1	46.6	45.3	44.0	43.8	43.5	46.0	10.0	56.0
	6	46.5	50.5	44.4	50.2	49.8	49.1	48.5	46.9	46.0	44.9	44.7	44.5	46.5	10.0	56.5
Day	7	50.1	53.1	48.2	52.7	52.5	51.8	51.5	50.6	49.8	48.7	48.5	48.3	50.1	0.0	50.1
	8	48.8	51.8	46.8	51.5	51.3	50.8	50.5	49.3	48.5	47.4	47.2	47.0	48.8	0.0	48.8
	9	49.4	52.5	47.8	52.1	51.8	51.1	50.8	49.8	49.1	48.3	48.1	47.9	49.4	0.0	49.4
	10	49.7	52.7	48.0	52.3	52.0	51.4	51.1	50.1	49.3	48.5	48.3	48.1	49.7	0.0	49.7
	11	49.2	51.9	47.5	51.7	51.5	51.0	50.7	49.7	48.8	47.9	47.8	47.6	49.2	0.0	49.2
	12	50.0	55.9	45.9	55.3	54.7	53.3	52.6	50.7	49.2	46.9	46.6	46.1	50.0	0.0	50.0
	13	49.0	54.3	45.9	53.9	53.3	52.2	51.5	49.7	48.1	46.7	46.4	46.1	49.0	0.0	49.0
	14	49.2	54.5	46.2	54.1	53.5	52.3	51.7	49.7	48.4	47.0	46.7	46.3	49.2	0.0	49.2
	15	51.6	58.9	46.4	58.3	57.6	56.4	55.8	52.1	49.5	47.2	46.9	46.5	51.6	0.0	51.6
	16	52.1	58.3	47.5	57.7	57.1	55.9	55.2	53.0	50.9	48.6	48.2	47.7	52.1	0.0	52.1
	17	50.5	56.1	47.1	55.5	55.0	53.8	53.0	51.1	49.8	48.0	47.6	47.2	50.5	0.0	50.5
	18	51.4	58.2	47.4	57.5	56.7	55.3	54.5	52.0	50.2	48.3	48.0	47.6	51.4	0.0	51.4
	19	51.3	56.9	47.7	56.3	55.6	54.4	53.7	51.9	50.5	48.7	48.2	47.8	51.3	5.0	56.3
	20	49.5	55.2	46.1	54.6	53.9	52.7	52.0	50.1	48.7	47.1	46.7	46.2	49.5	5.0	54.5
	21	48.9	54.3	45.6	53.8	53.2	51.9	51.2	49.4	48.2	46.6	46.2	45.8	48.9	5.0	53.9
Night	22	46.1	51.6	43.2	51.0	50.5	49.2	48.4	46.6	45.5	43.9	43.6	43.3	46.1	10.0	56.1
	23	47.6	53.7	44.4	52.9	52.1	50.7	49.9	48.0	46.8	45.2	44.9	44.5	47.6	10.0	57.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	48.8	51.8	45.6	51.5	51.3	50.8	50.5	49.3	48.1	46.6	46.2	45.8
	Max	52.1	58.9	48.2	58.3	57.6	56.4	55.8	53.0	50.9	48.7	48.5	48.3
Energy Average		50.2	Average:		54.5	54.0	53.0	52.4	50.6	49.3	47.7	47.4	47.1
Night	Min	42.8	46.2	39.2	46.0	45.7	45.0	44.6	43.6	42.1	39.9	39.6	39.3
	Max	47.6	53.7	44.4	52.9	52.1	50.7	49.9	48.0	46.8	45.2	44.9	44.5
Energy Average		45.3	Average:		49.5	49.0	48.0	47.3	45.7	44.4	42.8	42.5	42.2

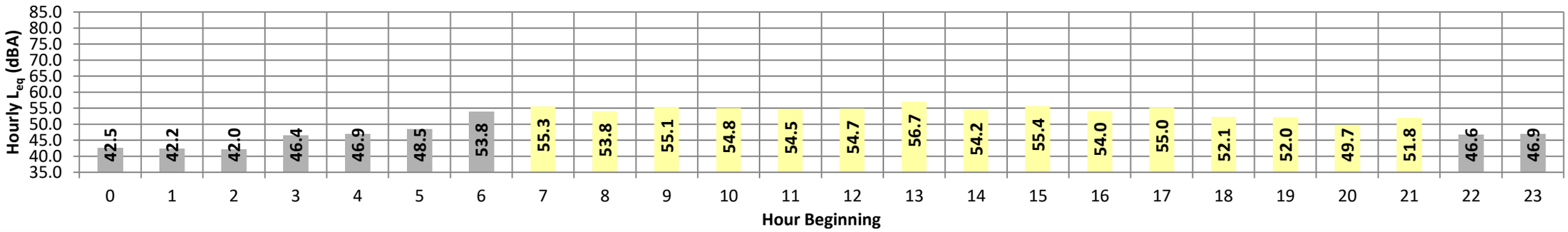
24-Hour	L_{eq} (dBA) Daytime (7am-10pm)	Nighttime (10pm-7am)
48.9	50.2	45.3

24-Hour Noise Level Measurement Summary

Date: Wednesday, January 12, 2022 *Location:* L3 - Located southwest of the Project site near single-family *Meter:* Piccolo II *JN:* 14283

Project: Sierra Industrial *Source:* residence at 5348 Blue Ridge Way. *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	42.5	47.3	39.1	47.0	46.7	45.8	45.1	43.2	41.8	39.9	39.6	39.3	42.5	10.0	52.5
	1	42.2	48.3	39.2	48.1	47.8	46.4	45.1	42.0	41.0	39.8	39.6	39.3	42.2	10.0	52.2
	2	42.0	45.8	39.5	45.5	45.2	44.5	44.0	42.6	41.6	40.2	39.9	39.7	42.0	10.0	52.0
	3	46.4	57.3	40.9	56.6	56.3	53.1	50.0	44.1	42.5	41.4	41.2	41.0	46.4	10.0	56.4
	4	46.9	56.2	42.6	55.9	55.4	53.1	50.7	45.5	44.4	43.3	43.0	42.7	46.9	10.0	56.9
	5	48.5	55.2	45.5	55.0	54.6	52.9	51.5	48.1	47.2	46.1	45.9	45.6	48.5	10.0	58.5
	6	53.8	64.9	46.9	64.1	63.2	60.8	58.9	51.9	48.7	47.5	47.3	47.0	53.8	10.0	63.8
Day	7	55.3	64.5	49.6	64.2	63.7	61.6	59.9	54.6	51.8	50.2	50.0	49.7	55.3	0.0	55.3
	8	53.8	62.4	48.5	62.2	61.7	60.0	58.5	53.4	50.5	49.0	48.8	48.6	53.8	0.0	53.8
	9	55.1	65.1	49.4	64.9	64.4	62.4	59.7	53.1	51.0	49.9	49.7	49.5	55.1	0.0	55.1
	10	54.8	64.1	49.5	63.7	63.3	61.5	59.5	53.5	51.4	50.1	49.9	49.6	54.8	0.0	54.8
	11	54.5	63.6	48.4	63.3	62.9	61.1	59.5	53.4	51.0	49.1	48.8	48.5	54.5	0.0	54.5
	12	54.7	62.7	48.5	62.3	61.7	59.6	58.1	55.1	52.9	50.0	49.3	48.7	54.7	0.0	54.7
	13	56.7	68.0	48.1	67.5	66.8	64.0	61.2	54.6	52.3	49.2	48.8	48.2	56.7	0.0	56.7
	14	54.2	62.9	47.3	62.5	62.0	60.3	58.8	53.8	51.4	48.6	48.1	47.5	54.2	0.0	54.2
	15	55.4	63.9	46.9	63.4	62.7	61.1	59.8	56.3	52.2	48.6	47.8	47.1	55.4	0.0	55.4
	16	54.0	64.4	44.9	63.9	63.1	60.9	59.2	53.2	49.7	46.1	45.6	45.0	54.0	0.0	54.0
	17	55.0	66.5	44.9	65.8	65.1	62.3	60.1	53.1	49.1	46.1	45.6	45.1	55.0	0.0	55.0
	18	52.1	61.2	45.2	60.9	60.4	58.4	57.1	51.4	49.0	46.1	45.8	45.3	52.1	0.0	52.1
	19	52.0	60.1	45.9	59.8	59.4	57.7	56.1	51.9	49.8	47.1	46.6	46.1	52.0	5.0	57.0
	20	49.7	56.7	44.2	56.5	56.1	54.7	53.3	50.0	48.1	45.4	44.9	44.4	49.7	5.0	54.7
	21	51.8	60.5	44.4	60.1	59.6	57.9	56.6	51.7	48.7	45.7	45.2	44.6	51.8	5.0	56.8
Night	22	46.6	54.9	41.5	54.4	53.8	52.5	50.3	46.0	44.5	42.5	42.1	41.6	46.6	10.0	56.6
	23	46.9	54.8	42.6	54.4	53.8	51.8	50.1	46.9	45.3	43.4	43.1	42.7	46.9	10.0	56.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	49.7	56.7	44.2	56.5	56.1	54.7	53.3	50.0	48.1	45.4	44.9	44.4
	Max	56.7	68.0	49.6	67.5	66.8	64.0	61.2	56.3	52.9	50.2	50.0	49.7
Energy Average		54.3	Average:		62.7	62.2	60.2	58.5	53.3	50.6	48.1	47.7	47.2
Night	Min	42.0	45.8	39.1	45.5	45.2	44.5	44.0	42.0	41.0	39.8	39.6	39.3
	Max	53.8	64.9	46.9	64.1	63.2	60.8	58.9	51.9	48.7	47.5	47.3	47.0
Energy Average		47.8	Average:		53.5	53.0	51.2	49.5	45.6	44.1	42.7	42.4	42.1

L_{eq} (dBA)		
24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
52.8	**54.3**	**47.8**

24-Hour Noise Level Measurement Summary

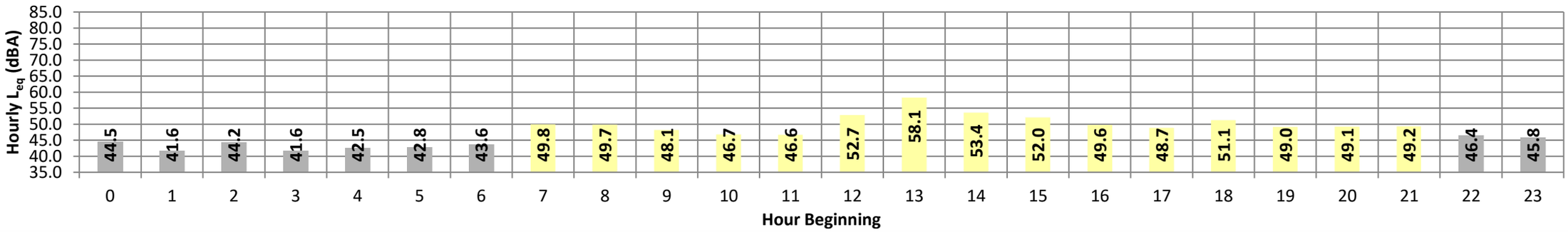
Date: Wednesday, January 12, 2022
Project: Sierra Industrial

Location: L4 - Located southwest of the Project site near single-family residence at Gabion Ranch Woodridge south of Casa Grande Avenue.

Meter: Piccolo II

JN: 14283
Analyst: A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*	*L_{eq}*	*Adj.*	*Adj. L_{eq}*
Night	0	44.5	48.8	41.9	48.5	48.0	47.1	46.6	45.2	44.0	42.5	42.3	42.0	44.5	10.0	54.5
	1	41.6	43.0	40.7	42.9	42.7	42.4	42.3	41.8	41.5	41.0	40.9	40.7	41.6	10.0	51.6
	2	44.2	49.3	41.0	48.8	48.1	47.2	46.6	44.9	43.5	41.7	41.4	41.1	44.2	10.0	54.2
	3	41.6	43.3	40.7	43.1	42.9	42.6	42.3	41.8	41.4	40.9	40.8	40.7	41.6	10.0	51.6
	4	42.5	44.9	41.3	44.7	44.3	43.9	43.6	42.8	42.3	41.6	41.5	41.3	42.5	10.0	52.5
	5	42.8	44.8	41.8	44.6	44.4	44.0	43.8	43.0	42.6	42.1	42.0	41.8	42.8	10.0	52.8
	6	43.6	48.2	41.7	47.8	47.3	46.5	45.9	44.2	42.8	42.1	41.9	41.7	43.6	10.0	53.6
Day	7	49.8	52.5	47.8	52.2	51.9	51.4	51.1	50.3	49.6	48.4	48.2	47.9	49.8	0.0	49.8
	8	49.7	53.2	47.7	52.7	52.2	51.5	51.1	50.1	49.4	48.3	48.1	47.8	49.7	0.0	49.7
	9	48.1	53.4	45.6	52.7	52.1	50.8	50.1	48.5	47.5	46.3	46.1	45.7	48.1	0.0	48.1
	10	46.7	51.4	44.1	50.9	50.4	49.5	48.8	47.0	46.1	44.9	44.6	44.3	46.7	0.0	46.7
	11	46.6	50.4	44.6	49.9	49.5	48.3	47.8	47.0	46.3	45.3	45.1	44.8	46.6	0.0	46.6
	12	52.7	58.0	47.3	57.6	57.1	56.3	55.8	53.7	51.9	48.7	48.2	47.5	52.7	0.0	52.7
	13	58.1	69.1	49.1	67.8	66.2	62.9	61.5	58.2	55.7	51.4	50.6	49.5	58.1	0.0	58.1
	14	53.4	59.8	47.2	59.3	58.8	57.6	56.7	54.2	52.4	49.2	48.4	47.4	53.4	0.0	53.4
	15	52.0	57.6	46.2	57.3	56.9	56.0	55.2	53.0	50.9	47.6	47.1	46.5	52.0	0.0	52.0
	16	49.6	57.2	43.8	56.5	55.7	54.4	53.5	50.0	47.8	44.9	44.5	43.9	49.6	0.0	49.6
	17	48.7	55.4	44.4	54.9	54.1	52.5	51.7	49.4	47.5	45.3	45.0	44.5	48.7	0.0	48.7
	18	51.1	57.7	45.4	57.2	56.5	55.2	54.3	52.0	50.0	46.9	46.3	45.6	51.1	0.0	51.1
	19	49.0	53.9	45.0	53.5	53.1	52.2	51.7	49.9	48.3	46.1	45.7	45.2	49.0	5.0	54.0
	20	49.1	55.0	43.8	54.5	54.0	52.9	52.2	49.9	48.1	44.9	44.4	43.9	49.1	5.0	54.1
	21	49.2	54.4	44.4	54.0	53.5	52.6	52.1	50.2	48.4	45.8	45.2	44.6	49.2	5.0	54.2
Night	22	46.4	51.1	42.9	50.7	50.2	49.2	48.7	47.1	45.8	43.9	43.5	43.0	46.4	10.0	56.4
	23	45.8	50.6	42.7	50.2	49.8	48.7	48.0	46.4	45.1	43.4	43.1	42.8	45.8	10.0	55.8

Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	46.6	50.4	43.8	49.9	49.5	48.3	47.8	47.0	46.1	44.9	44.4	43.9
	Max	58.1	69.1	49.1	67.8	66.2	62.9	61.5	58.2	55.7	51.4	50.6	49.5
Energy Average		51.4	Average:		55.4	54.8	53.6	52.9	50.9	49.3	46.9	46.5	45.9
Night	Min	41.6	43.0	40.7	42.9	42.7	42.4	42.3	41.8	41.4	40.9	40.8	40.7
	Max	46.4	51.1	42.9	50.7	50.2	49.2	48.7	47.1	45.8	43.9	43.5	43.0
Energy Average		44.0	Average:		46.8	46.4	45.7	45.3	44.1	43.2	42.1	41.9	41.7

24-Hour	*L_{eq} (dBA) Daytime (7am-10pm)*	*Nighttime (10pm-7am)*
49.8	**51.4**	**44.0**

APPENDIX 7.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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14283 - North Fontana Industrial Complex (Shea Project)

CadnaA Noise Prediction Model: 14283_06 Shea.cna
Date: 13.04.22
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	34.0	33.0	39.4	70.0	65.0	0.0				5.00	a	6203825.03	2369601.69	5.00
RECEIVERS		R2	34.6	33.5	39.9	55.0	45.0	0.0				5.00	a	6204157.27	2368253.24	5.00
RECEIVERS		R3	42.2	41.2	47.6	55.0	45.0	0.0				5.00	a	6204143.03	2367148.53	5.00
RECEIVERS		R4	49.7	48.7	55.1	70.0	65.0	0.0				5.00	a	6202651.19	2366912.74	5.00
RECEIVERS		R5	45.1	44.1	50.5	70.0	65.0	0.0				5.00	a	6201448.49	2367611.31	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89.0		150.00	0.00	90.00	5.00	a	6203620.32	2367824.03	5.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89.0		150.00	0.00	90.00	5.00	a	6203054.54	2367829.91	5.00
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6202960.89	2367945.59	50.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6203692.60	2367962.64	50.00
POINTSOURCE		PARK01	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6202976.33	2367835.71	5.00
POINTSOURCE		PARK02	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203718.54	2367832.89	5.00
POINTSOURCE		PARK03	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6202900.38	2367960.36	5.00
POINTSOURCE		PARK04	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6202901.79	2368043.53	5.00
POINTSOURCE		PARK05	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6202901.32	2368143.36	5.00
POINTSOURCE		PARK06	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6202937.75	2368244.02	5.00
POINTSOURCE		PARK07	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203032.52	2368244.58	5.00
POINTSOURCE		PARK08	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203133.78	2368243.58	5.00
POINTSOURCE		PARK09	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203229.96	2368241.95	5.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		PARK10	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203342.80	2368241.48	5.00
POINTSOURCE		PARK11	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203443.35	2368241.21	5.00
POINTSOURCE		PARK12	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203543.13	2368238.07	5.00
POINTSOURCE		PARK13	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203650.17	2368236.98	5.00
POINTSOURCE		PARK14	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203731.13	2368233.43	5.00
POINTSOURCE		PARK15	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203773.23	2368156.76	5.00
POINTSOURCE		PARK16	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203773.08	2368062.72	5.00
POINTSOURCE		PARK17	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203772.19	2367967.97	5.00
POINTSOURCE		PARK18	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203772.75	2367873.20	5.00

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)	
LINESOURCE		TRUCK01	87.7	71.0	78.8	69.9	53.2	61.0	PWL-Pt	93.2					47.0	1.0	6.0	6.2	8	a

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	8.00	a			6203037.61	2367859.76	8.00	0.00
					6202840.61	2367863.65	8.00	0.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
AREASOURCE		DOCK01	111.5	111.5	111.5	71.6	71.6	71.6	Lw	111.5		900.00	0.00	540.00	8	a

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	8.00	a			6203054.34	2367955.31	8.00	0.00
					6203635.07	2367947.95	8.00	0.00
					6203634.87	2367908.48	8.00	0.00
					6203632.29	2367811.67	8.00	0.00
					6203385.11	2367813.96	8.00	0.00
					6203383.28	2367735.64	8.00	0.00
					6203080.52	2367741.31	8.00	0.00
					6203079.09	2367811.74	8.00	0.00
					6203036.65	2367811.74	8.00	0.00
					6203038.71	2367915.33	8.00	0.00
					6203052.72	2367915.25	8.00	0.00

Barrier(s)

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
			left	right		horz.	vert.	Begin		End	x	y	z	Ground
					(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIERTEMP		0						14.00	a		6203635.75	2367909.07	14.00	0.00
											6203634.75	2367871.72	14.00	0.00
BARRIERTEMP		0						14.00	a		6203037.19	2367838.62	14.00	0.00
											6203036.81	2367819.83	14.00	0.00
BARRIERTEMP		0						14.00	a		6203038.71	2367915.33	14.00	0.00
											6203037.98	2367878.49	14.00	0.00
BARRIEREXISTING		0						7.00	a		6204134.92	2367013.98	7.00	0.00
											6204157.70	2370287.00	7.00	0.00
BARRIEREXISTING		0						14.00	a		6203632.76	2367811.70	14.00	0.00
											6203633.93	2367840.58	14.00	0.00

Building(s)

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING		BUILDING00001	x	0		45.00	a	6202939.85	2368185.66	45.00	0.00
								6202944.53	2368186.51	45.00	0.00
								6202944.77	2368200.96	45.00	0.00
								6202960.61	2368200.22	45.00	0.00
								6202961.19	2368206.74	45.00	0.00
								6203715.70	2368197.18	45.00	0.00
								6203715.53	2368187.40	45.00	0.00
								6203731.38	2368187.59	45.00	0.00
								6203732.53	2368172.66	45.00	0.00
								6203740.45	2368172.52	45.00	0.00
								6203738.63	2367928.30	45.00	0.00

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
								6203734.44	2367928.37	45.00	0.00
								6203735.57	2367912.97	45.00	0.00
								6203705.73	2367912.54	45.00	0.00
								6203705.66	2367908.35	45.00	0.00
								6203635.75	2367909.07	45.00	0.00
								6203635.96	2367948.69	45.00	0.00
								6203054.34	2367955.31	45.00	0.00
								6203052.72	2367915.25	45.00	0.00
								6202970.23	2367915.72	45.00	0.00
								6202971.73	2367921.75	45.00	0.00
								6202941.88	2367920.86	45.00	0.00
								6202942.16	2367937.64	45.00	0.00
								6202937.05	2367938.65	45.00	0.00

Ground Absorption(s)

Name	M.	ID	G	Coordinates	
				x	y
				(ft)	(ft)
GROUND		0	1.0	6203807.85	2367020.69
				6203883.57	2370250.68
				6204126.37	2370232.67
				6204087.39	2367016.66

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APPENDIX 8.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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14283 - North Fontana Industrial Complex (Shea Project)

CadnaA Noise Prediction Model: 14283_06 Shea_Construction.cna
Date: 13.04.22
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	48.7	48.7	55.4	70.0	65.0	0.0				5.00	a	6203825.03	2369601.69	5.00
RECEIVERS		R2	47.8	47.8	54.4	55.0	45.0	0.0				5.00	a	6204157.27	2368253.24	5.00
RECEIVERS		R3	44.5	44.5	51.2	55.0	45.0	0.0				5.00	a	6204143.03	2367148.53	5.00
RECEIVERS		R4	51.2	51.2	57.9	70.0	65.0	0.0				5.00	a	6202651.19	2366912.74	5.00
RECEIVERS		R5	47.6	47.6	54.3	70.0	65.0	0.0				5.00	a	6201448.49	2367611.31	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL"			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		CONSTRUCTION	115.0	115.0	115.0	68.3	68.3	68.3	Lw	115					8	a

Name	Height			Coordinates			
	Begin		End	x	y	z	Ground
	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	8.00	a		6202843.54	2368283.63	8.00	0.00
				6203814.67	2368271.98	8.00	0.00
				6203811.24	2367800.98	8.00	0.00
				6203421.08	2367806.84	8.00	0.00
				6203420.50	2367726.80	8.00	0.00
				6202839.72	2367735.86	8.00	0.00

Barrier(s)

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
			left	right		horz.	vert.	Begin		End		x	y	z	Ground
					(ft)	(ft)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING		0						7.00	a			6204134.92	2367013.98	7.00	0.00
												6204157.70	2370287.00	7.00	0.00

Ground Absorption(s)

Name	M.	ID	G	Coordinates	
				x	y
				(ft)	(ft)
GROUND		0	1.0	6203807.85	2367020.69
				6203883.57	2370250.68
				6204126.37	2370232.67
				6204087.39	2367016.66

APPENDIX 8.2:

CADNAA CONCRETE POUR NOISE MODEL INPUTS

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14283 - North Fontana Industrial Complex (Shea Project)

CadnaA Noise Prediction Model: 14283_06 Shea_ConcretePour.cna
Date: 13.04.22
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	33.3	33.3	40.0	70.0	65.0	0.0				5.00	a	6203825.03	2369601.69	5.00
RECEIVERS		R2	32.2	32.2	38.9	55.0	45.0	0.0				5.00	a	6204157.27	2368253.24	5.00
RECEIVERS		R3	28.7	28.7	35.4	55.0	45.0	0.0				5.00	a	6204143.03	2367148.53	5.00
RECEIVERS		R4	35.0	35.0	41.7	70.0	65.0	0.0				5.00	a	6202651.19	2366912.74	5.00
RECEIVERS		R5	31.7	31.7	38.3	70.0	65.0	0.0				5.00	a	6201448.49	2367611.31	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
BUILDING		NIGHTTIMECONCRETEPOUR	100.3	100.3	100.3	57.4	57.4	57.4	Lw	100.3					6	a

Name	Height			Coordinates			
	Begin		End	x	y	z	Ground
	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BUILDING	6.00	a		6202939.85	2368185.66	6.00	0.00
				6202944.53	2368186.51	6.00	0.00
				6202944.77	2368200.96	6.00	0.00
				6202960.61	2368200.22	6.00	0.00
				6202961.19	2368206.74	6.00	0.00
				6203715.70	2368197.18	6.00	0.00
				6203715.53	2368187.40	6.00	0.00
				6203731.38	2368187.59	6.00	0.00

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
					6203732.53	2368172.66	6.00	0.00
					6203740.45	2368172.52	6.00	0.00
					6203738.63	2367928.30	6.00	0.00
					6203734.44	2367928.37	6.00	0.00
					6203735.57	2367912.97	6.00	0.00
					6203705.73	2367912.54	6.00	0.00
					6203705.66	2367908.35	6.00	0.00
					6203635.75	2367909.07	6.00	0.00
					6203635.96	2367948.69	6.00	0.00
					6203054.34	2367955.31	6.00	0.00
					6203052.72	2367915.25	6.00	0.00
					6202970.23	2367915.72	6.00	0.00
					6202971.73	2367921.75	6.00	0.00
					6202941.88	2367920.86	6.00	0.00
					6202942.16	2367937.64	6.00	0.00
					6202937.05	2367938.65	6.00	0.00

Barrier(s)

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
			left	right		horz.	vert.	Begin		End		x	y	z	Ground
					(ft)	(ft)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING		0						7.00	a			6204134.92	2367013.98	7.00	0.00
												6204157.70	2370287.00	7.00	0.00

Ground Absorption(s)

Name	M.	ID	G	Coordinates	
				x	y
				(ft)	(ft)
GROUND		0	1.0	6203807.85	2367020.69
				6203883.57	2370250.68
				6204126.37	2370232.67
				6204087.39	2367016.66