APPENDIX I

NOISE IMPACT ASSESSMENT

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Noise Impact Assessment

Ganahl Lumber Hardware Store and Lumber Yard Project

San Juan Capistrano, California

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ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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LIST OF ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibels
FHWA	Federal Highway Administration
I-5	Interstate 5
in/sec	Inches per second
L_{max}	Maximum sound level
OCTA	Orange County Transportation Authority
OSHA	Occupational Safety and Health Administration

LIST OF ACRONYMS AND ABBREVIATIONS

PPV	Peak particle velocity
Project	Ganahl Lumber Hardware Store & Lumber Yard Project
RMS	Root mean square
USEPA	U.S. Environmental Protection Agency
WEAL	Western Electro-Acoustic Laboratory, Inc.

1.0 INTRODUCTION

This report documents the results of a Noise Impact Assessment completed for the Ganahl Lumber Hardware Store & Lumber Yard Project (Project), which includes the development of a new hardware store and lumber yard in San Juan Capistrano, in addition to the entitlement of a commercial development (restaurants) and automobile storage. This assessment was prepared as a comparison of predicted Project noise levels to noise standards promulgated by the San Juan Capistrano General Plan Noise Element and Municipal Code. The purpose of this report is to estimate Project-generated noise and to determine the level of impact the Project would have on the environment.

1.1 Project Location and Description

The Proposed Project is located on a 17-acre site along Stonehill Drive between the San Juan Creek Trail and Camino Capistrano in the City of San Juan Capistrano (Figure 1. *Project Vicinity* and Figure 2. *Project Location*). The site is mostly disturbed with a vehicle storage facility containing 752 spaces in its central and southern portions and a vacant disturbed lot in the northern section of the site. A section of the northern portion of the Project site has been previously graded for use as a construction yard for Orange County Public Works San Juan Creek Levee Phases 4, 5, and 6 Project. (This project is not related to the proposed Ganahl Lumber Hardware Store & Lumber Yard Project.)

The Project site is bound by a residential mobile home park to the north (approximately 60 feet from the proposed development area), a rail line and commercial land uses to the east with Interstate 5 (I-5) beyond, and Stonehill Drive to the south with industrial/commercial land uses, as well as a hotel, beyond. To the west of the Project site is San Juan Creek and Creekside Park, with residential land uses beyond.

The Project site is designated by the City of San Juan Capistrano General Plan as "Industrial Park." According to the San Juan Capistrano General Plan, the Industrial Park designation allows for light industrial and manufacturing uses, including wholesale businesses, light manufacturing and assembly, research and development, warehousing and storage, and distribution and sales.

The Proposed Project includes several uses and is distinguished by three separate components known as Site A, Site B, and Site C (see Figure 3. *Project Site Plan*).

1.1.1 Site A

Site A includes the 2.06 acres closest to Stonehill Drive and is proposed to accommodate the development of two building pads and entitlement for approximately 6,000 square feet of food service space to be constructed and operated independently of Ganahl Lumber. Site A would include 0.5 acre of internal circulation.

Location: N:\2017\2017-208 Ganahl Lumber SJC\MAPS\Location_Vicinity\GLSJC_Vicinity_v1.mxd (JL)-jlotta 9/27/2017

Map Date: 9/27/2017

Service Layer Credits: Sources: Esri, USGS, NOAA

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Figure 1. Project Vicinity

2017-208 Ganahl Lumber SJC

Location: N:\2017\2017-208 Ganahl Lumber SJC\MAPS\Location_Vicinity\GLSJC_Location_v1.mxd (JL)-lotta 9/27/2017

Map Date: 9/27/2017

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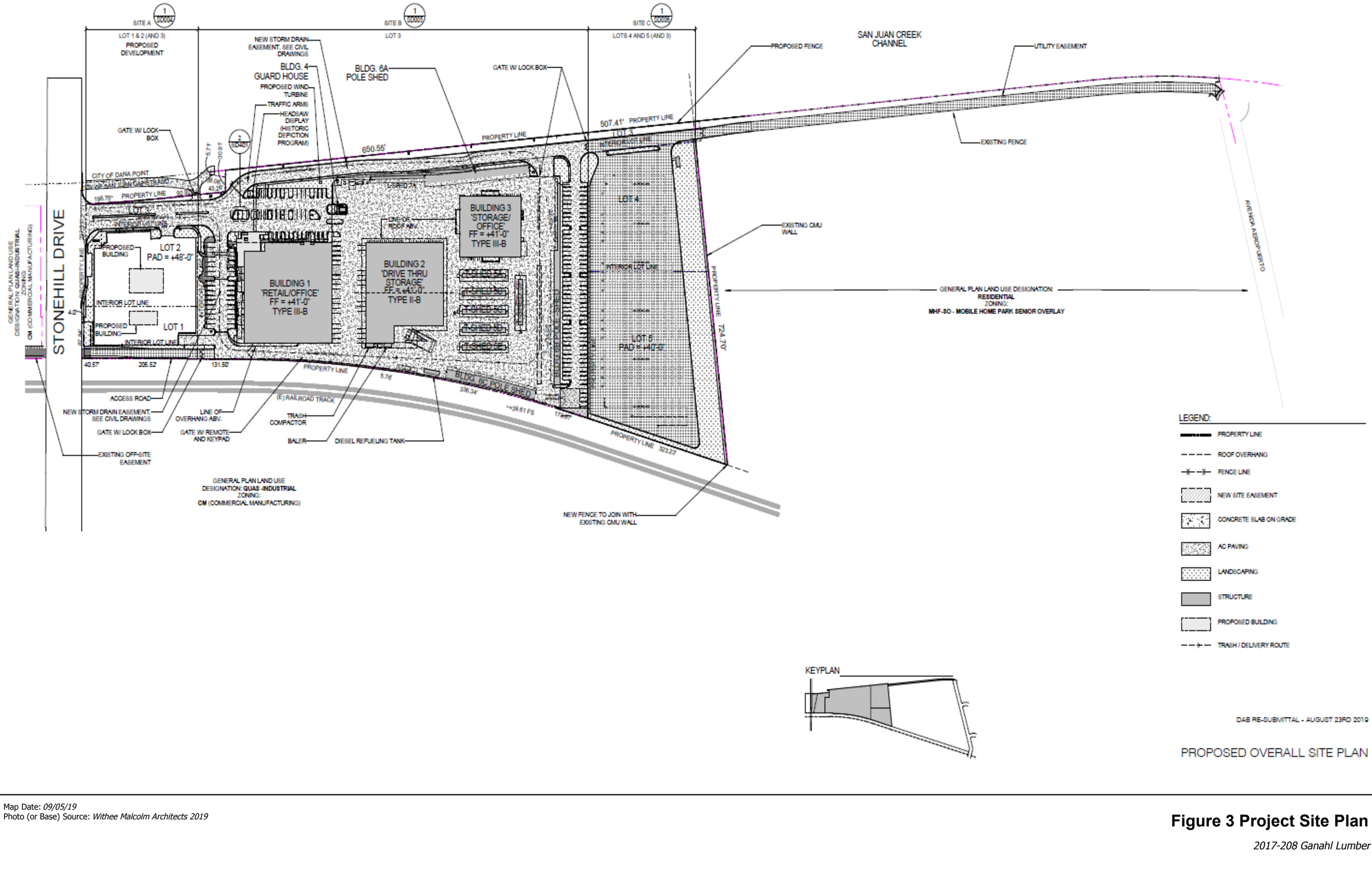
Figure 2. Project Location

2017-208 Ganahl Lumber SJC



Map Date: *09/05/19*
Photo (or Base) Source: *Withee Malcolm Architects 2019*

Figure 3 Project Site Plan

2017-208 Ganahl Lumber

1.1.2 Site B

The proposed Ganahl Lumber Hardware Store and Lumber Yard would be constructed on 10.61 acres in the center of the property (Site B). The proposed Ganahl Lumber Hardware Store & Lumber Yard would include three main buildings and 12 sheds (see Figure 4. *Ganahl Hardware Store and Lumber Yard Site Plan*):

- **Building 1: 55,723-square-foot Hardware Store (Retail).** All Ganahl Lumber retail sales would be housed in this building, which includes a complete hardware store, a doors and windows showroom and sales department, hardwood and molding display areas, as well as sales and customer service areas. The structure would include a control room for yard operations and a mezzanine.
- **Building 2: 44,370-square-foot Drive-Thru Shed and Marking Room with Loading Docks**. This building would accommodate Ganahl Lumber product storage.
- **Building 3: 22,513-square-foot Will Call and Storage/Operations Offices**; Building 3 would accommodate distribution operations and includes a customer service area. Delivery and receiving activity would be scheduled and conducted in the office of the building.
- **Building 4: 187-square-foot Guard House.** Building 4 would be located between the main retail customer parking area and the yard. The guard house would be staffed during all business hours (6:00 a.m. to 6:00 p.m.) and would have closed and secured gates when the business is closed to customers.
- **T-Sheds 5A – 5F: Six Storage Sheds spanning 2,856 square feet each, totaling 17,136 square feet.** These six sheds would serve as service and building materials stock areas (sheds), primarily to store lumber and wood products, and would be located on the northern and western sections of Site B (see Figure 4). These storage sheds would not be permanently staffed. Employees and customers would come and go as stored product is sold or replenished in the regular sales cycle.
- **Buildings 6A, 6B, & 6C: Three Pole Sheds totaling 17,837 square feet.** These proposed pole sheds would be located predominantly on the perimeter of the northern section of Site B. The pole sheds would be used for storage of inventory (products such as lumber, plywood, other panel products, and bagged concrete products) and would not be permanently staffed. The pole sheds would also serve a secondary purpose of providing a sound and visual barrier between the lumber yard and Site C and the residential area to the north, as well as from the San Juan Creek Channel and linear park, and residential area across the channel to the west. The proposed landscaped berm on Site C would further block the sight lines and serve as a noise barrier between the Project site and the residential area to the north. At the eastern border, the shed would block the sound of the railroad while also providing unique possibilities for public art, viewable from the train, from Stonehill Drive, and from the hills above.
- **L-Sheds 7A – 7B: Two Storage Sheds totaling 3,619 square feet**. These sheds would serve as service and building materials stock areas (sheds) and would be located on the northern and western sections of Site B (see Figure 4). Specifically, they would be used to store lumber and

wood products. These storage sheds would not be permanently staffed. Employees and customers would come and go as stored product is sold or replenished in the regular sales cycle. The L-Sheds would also serve a secondary purpose of providing a sound and visual barrier between the lumber yard and Site C and the residential area to the north, as well as from the San Juan Creek Channel and linear park, and residential area across the channel to the west.

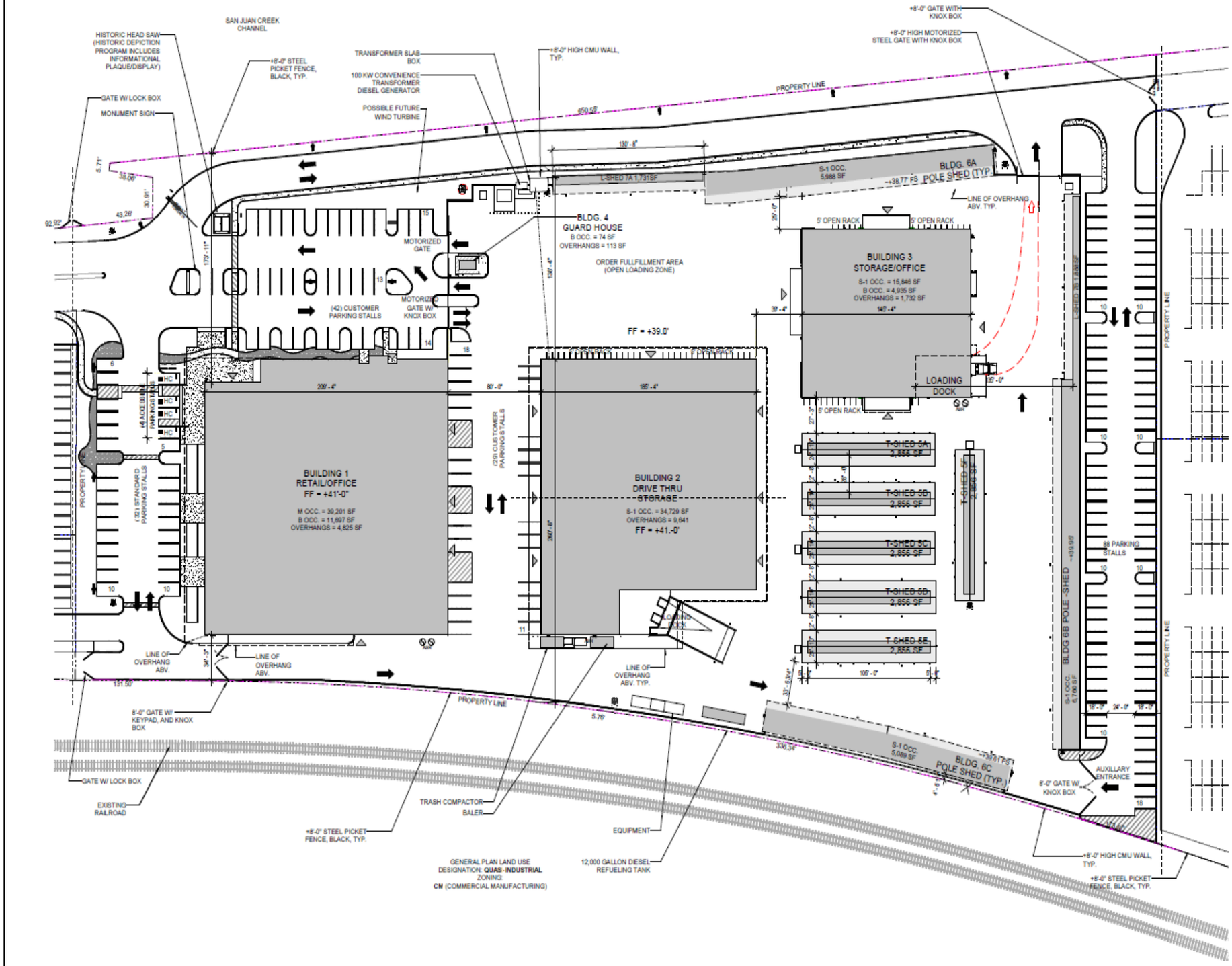
The total building area of Site B is 161,385 square feet spanning a 2.96-acre footprint. Retail business hours would be 6:00 a.m. to 6:00 p.m. Monday through Saturday (no Sunday hours). In addition, some staff would arrive ½ hour to an hour prior to opening to prepare the store for customers. A night shift would be scheduled to work in Building 1 until 11:00 p.m. and may work longer as needed depending on work load. A third shift from 10:00 p.m. to 6:00 a.m. may be added in the future as the business is established and volumes dictate. After-hours activities would include replenishment, cleaning, and order pulling for the next day.

The Project also proposes a lumber yard. The ±4-acre yard would support six to nine trucks for deliveries to customers. The onsite fleet would consist of trucks, trailers, 10-wheel trucks, bobtail, and box trucks. The fleet would be fueled by an onsite 6,000-gallon above ground diesel refueling tank (double wall with containment vessel) built to current standards with containment features to avoid potential hazardous materials impacts. Customer deliveries per day would typically number from 30 to 40 stops. Ganahl Lumber is anticipated to handle 10 to 15 incoming vendor trucks per day supplying material for inventory replenishment.

Yard operating hours would be from 5:00 a.m. to 11:00 p.m. Monday through Friday. All receiving would take place from 6:00 a.m. to 11:00 p.m. It is forecasted that within two years of operation, a shift from 11:00 p.m. to 7:00 a.m. would be added for organizing and preparing materials for the next day. All Ganahl Lumber trucks and vendor deliveries would enter at the proposed signalized location located at the southern end of the property. All Ganahl Lumber and vendor trucks would exit at the same signalized intersection onto Stonehill Drive.

Approximately 10 - 12 material handling vehicles would be used in the lumber yard to stack, load, and unload product at the yard. Storage in the yard would consist of covered racking and storage sheds for lumber and building materials as described above. The racking would vary to match the products stored. Pallet racks, cantilever racks, and custom racks for storing doors and windows would be incorporated in the layout of the yard. Customer traffic into the yard area would enter and exit through a controlled and guarded point located in front of Building 1. The yard includes a trash compactor, baler, and generator.

Site B includes a total of 165 parking spaces at grade surrounding Building 1, on the south side of Building 2, and a double row of parking on the north end (including handicap accessible stalls and walkways) available to employees and customers.



SITE B PARKING CALC'S

BUILDING 1:

MAIN RETAIL FLOOR (M OCC.): 38,146 SF / 800 = 48
[PER TABLE 3-34]
- DOES NOT INCLUDE RESTROOMS & VERTICAL CIRCULATION PER SJC MUNICIPAL CODE.

1 ST FLOOR OFFICE (B OCC.) **4,325 SF** / 1,000 X 3.5 = 16 [PER TABLE 3-35]

OFFICE MEZZANINE (B OCC.): **8,839 SF** / 1,000 X 3.5 = 23

BUILDING 2:

DRIVE THRU SHED (S-1 OCC.): **14,626 SF** / 1,000 = 15
- DOES NOT INCLUDE DRIVE AISLES (**16,310 SF**)

MARKING ROOM (B OCC.): **5,403 SF** / 1000 X 3.5 = 19

BUILDING 3:

WILL CALL (S-1 OCC.): **13,568** / 1,000 = 14 [PER TABLE 3-38]
- DOES NOT INCLUDE RESTROOMS OR LOADING DOCK

OPS OFFICE (B OCC.): **1,710 SF** / 1,000 X 3.5 = 6

OPS MEZZANINE (B OCC.): **1,874 SF** / 1,000 X 3.5 = 7

BUILDINGS 4A, 4B, 4C:

SHED 6A (S-1 OCC.): **5,988 SF** / 1,000 = 6

SHED 6B (S-1 OCC.): **6,760 SF** / 1,000 = 6

SHED 6C (S-1 OCC.): **5,089 SF** / 1,000 = 6

TOTAL PARKING STALLS REQUIRED: **166** PARKING STALLS

TOTAL PARKING STALLS PROVIDED: 191 PARKING STALLS

CUSTOMER PARKING STALL, TYP. 10x20
EMPLOYEE PARKING STALL, TYP. 9x18

LEGEND:

- PROPERTY LINE
- ROOF OVERHANG
- FENCE LINE
- CONCRETE PAVING
- LINEAR PAVERS
- LANDSCAPING
- AC PAVING
- CRUSHED ROCK, PERVIOUS, ALL-WEATHER SURFACE
- BUILDING ENTRANCE
- FH — FIRE HYDRANT
- ASR — AUTOMATIC SPRINKLER RISER
- SINGLE LIGHT POLE W/ RAISED CONC. FOOTING
- DUAL LIGHT POLE W/ RAISED CONC. FOOTING
- TRAFIC FLOW

GENERAL NOTES:

1. SEE CIVIL DRAWINGS FOR ALL EASEMENTS.
2. PARCELS 1-5 ARE CONTAINED WITHIN THE GENERAL PLAN LAND USE DESIGNATION: QUASI-INDUSTRIAL, AND ARE ZONED CM (COMMERCIAL MANUFACTURING).
3. ADDITIONAL SIGNAGE FOR POSSIBLE FUTURE BUILDINGS TO BE SUBMITTED AT A LATER DATE.3. ADDITIONAL SIGNAGE FOR POSSIBLE FUTURE BUILDINGS TO BE SUBMITTED AT A LATER DATE.
4. ANY BUILDINGS LOCATED WITHIN 5'-0" OF A PROPERTY LINE SHALL BE FIRE RATED AS REQUIRED PER THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE.

Map Date: *04/03/19*
Photo (or Base) Source: *Withee Malcolm Architects 2019*

Figure 4. Ganahl Hardware Store and Lumber Yard Site Plan

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1.1.3 Site C

The majority of Site C is proposed to be utilized as an ±4.4-acre vehicle storage lot for local car dealers. The lot would consist of a pervious crushed rock base with landscaping and would include 399 vehicle storage spaces with a capacity to store more vehicles if tandem parking or other parking strategies are utilized. The northern portion of Site C is proposed to accommodate a landscaped berm in order to block the sight lines of the parked cars from the backyards of the neighboring residences to the north.

Construction of the Proposed Project is anticipated to last 18 months.

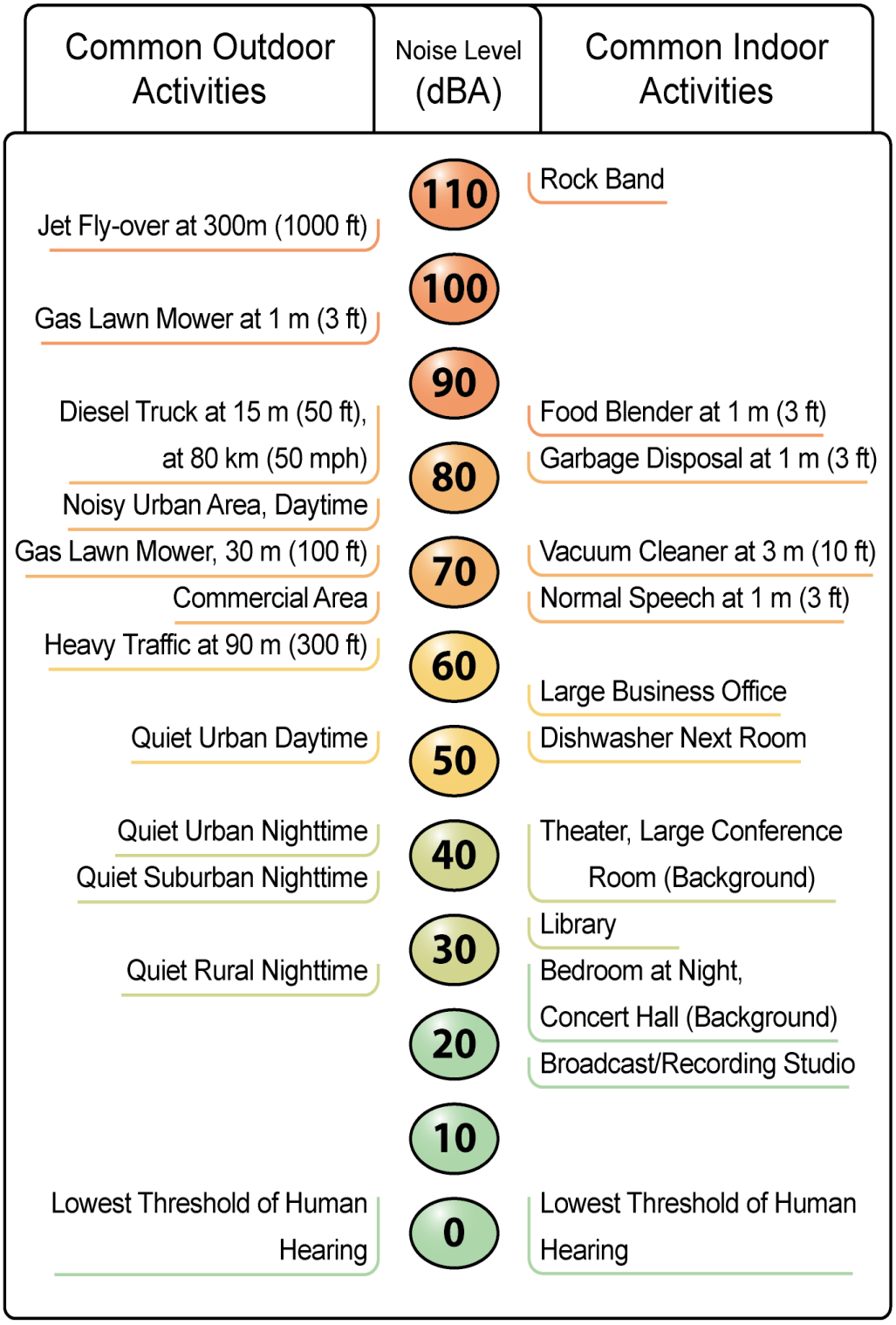
2.0 ENVIRONMENTAL NOISE AND GROUNDBORNE VIBRATION

2.1 Fundamentals of Noise and Environmental Sound

2.1.1 Addition of Decibels

The decibel (dB) scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions (FTA 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). Under the decibel scale, three sources of equal loudness together would produce an increase of 5 dB.

Typical noise levels associated with common noise sources are depicted in Figure 5. *Common Noise Levels*.



Source: Caltrans 2012

Figure 5. Common Noise Levels

2.1.2 Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (FHWA 2011). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. For line sources, an overall attenuation rate of 3 dB per doubling of distance is assumed (FHWA 2011).

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about 5 dBA (FHWA 2006), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. [WEAL] 2000). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the "line of sight" between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend length-wise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

2.1.3 Noise Descriptors

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL (Community Noise Equivalent Level) are measures of community noise. Each is applicable to this analysis and defined in Table 1.

Table 1. Common Acoustical Descriptors

Descriptor	Definition
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average acoustic energy content of noise for a stated period of time. Thus, the Leq of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	A 24-hour average Leq with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour Leq would result in a measurement of 66.4 dBA Ldn.
Community Noise Equivalent Level, CNEL	A 24-hour average Leq with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour Leq would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.

The A-weighted decibel sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source. Close to the noise source, the models are accurate to within about ±1 to 2 dBA.

2.1.4 Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60- to 70-dBA range, and high, above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

2.1.5 Effects of Noise on People

Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. For ground vehicles, a noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance.

2.2 Fundamentals of Environmental Groundborne Vibration

2.2.1 Vibration Sources and Characteristics

Sources of earthborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or manmade causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

2.2.2 Vibration Sources and Characteristics

Table 2 displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Table 2. Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels

Peak Particle Velocity (inches/ second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Recommended upper level to which ruins and ancient monuments should be subjected
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Virtually no risk of architectural damage to normal buildings, yet threshold at which there is a risk of architectural damage to fragile buildings
0.2	94	Vibrations may begin to annoy people	Threshold at which there is a risk of architectural damage to normal dwellings
0.4–0.6	98–104	Vibrations considered unpleasant by people subjected to continuous vibrations	Architectural damage and possibly minor structural damage

Source: Caltrans 2013

Ground vibration can be a concern in instances where buildings shake and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment. The Orange County Transportation Authority (OCTA) Metrolink Railroad corridor, which accommodates light rail, traverses the eastern boundary of the Project site. Vibration impacts from light rail transit operations are generated by motions and actions at the wheel/rail interface. Vibration from passing trains has a small potential to traverse geologic strata and negatively impact nearby buildings (MTA 2012).

For the purposes of this analysis, a PPV descriptor with units of inches per second (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints.

3.0 EXISTING ENVIRONMENTAL NOISE SETTING

3.1 Noise Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

Nearby noise-sensitive land uses consist of a residential mobile home park to the northern boundary of the Project site, approximately 60 feet from the proposed development area. This mobile home park is

located within the City of San Juan Capistrano. To the west of the Project site is Creekside Park with residential land uses beyond located in the City of Dana Point, and there are also residential land uses to the southwest and southeast of the Project site, beyond Stonehill Drive and also within the City of Dana Point. The nearest sensitive receptors are residences within the mobile home park adjacent to the northern boundary of the Project.

3.2 Existing Ambient Noise Environment

The noise environment in the Proposed Project area is impacted by various noise sources. Mobile sources of noise, especially cars and trucks traveling on I-5 and Stonehill Drive, are the most common and significant sources of noise in Project area. The Project area is also affected by the OCTA Metrolink Railroad corridor, which accommodates light rail and traverses the eastern boundary of the Project site. Noise generated by light rail is primarily generated by the train's steel wheels rolling on steel rails. This rolling noise increases in direct proportion to increases in train speed, and also increases substantially when impacts occur as train wheels traverse the rail gaps and joints of special trackwork for crossovers and turnouts. According to recent data collected on the Metro Gold Line Foothill Extension, the maximum sound level (L_{max}) of a two-car Metro train operating at 40 miles per hour on ballast-and-tie track, at a distance of 50 feet, is 77 dBA L_{max} (ATS Consulting 2012). The Project site is located within a railway Quiet Zone, which is a segment of a rail line where locomotive horns are not routinely sounded, and therefore is not affected by noise from train horns.

Other sources of noise are the various land uses (i.e., residential, commercial, institutional, and recreational and parks activities) throughout San Juan Capistrano and Dana Point that generate stationary source noise. The Project site is located outside of any airport land use plan. Furthermore, the Project site is located more than two miles from any airport.

3.2.1 Existing Ambient Noise Measurements

The Project site currently consists of an operating vehicle storage facility containing 752 spaces in its central and southern portions. The site is relatively flat and is surrounded by dense urban development that characterizes the Capistrano Valley. A mix of residential, commercial, park, and industrial land uses dominate the area. In order to quantify existing ambient noise levels in the Project area, ECORP Consulting conducted four short-term noise measurements on the afternoon of September 29, 2017. ECORP additionally conducted two more short-term measurements in the early morning of June 6, 2019. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site (see Attachment A for Noise Measurement Locations). The September 29, 2017 measurements were taken between 11:55 a.m. and 1:23 p.m. while the June 6, 2019 measurements were taken between 5.04 a.m. and 5:47 a.m. These short-term (L_{eq}) measurements are considered representative of the noise levels throughout the day. The average noise levels and sources of noise measured at each location are listed in in Table 3.

Table 3. Existing (Baseline) Noise Measurements

Location Number	Location	L_{eq} dBA	L_{min} dBA	L_{max} dBA	Time
September 29, 2017 Measurements					
1	Northern boundary of the Project site, adjacent to the mobile home park	**48.7**	43.2	62.2	11:55 a.m. – 12:05 p.m.
2	Southeast corner of the Project site, adjacent to Metro Rail Corridor and an elevated portion of Stonehill Drive	**56.4**	45.8	70.7	12:25 p.m. – 12.35 p.m.
3	Directly west of Project site on the San Juan Creek Trail	**55.5**	48.4	62.1	12:49 p.m. – 12:59 p.m.
4	Scotty's Cove Drive, southwest of the Project site, across Stonehill Drive	**56.8**	46.8	69.0	1:13 p.m. – 1:23 p.m.
June 6, 2019 Measurements					
5	Along San Juan Creek Trail, approximately 100 feet south of Stonehill Drive and 100 feet east of residences fronting Scotty's Cove Drive. Southwest of the Project site and in the City of Dana Point	**55.7**	40.7	73.8	5:04 a.m. – 5:19 a.m.
6	Northern boundary of the Project site, adjacent to the mobile home park. Same location as #1	**46.1**	36.1	66.9	5:32 a.m. – 5:47 a.m.

Source: Measurements were taken by ECORP Consulting with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. See Attachment A for noise measurement outputs.

As shown in Table 3, the ambient recorded noise levels ranged from 48.7 to 56.8 dBA near the Project site in the afternoon and 46.1 to 55.7 dBA in the early morning (see Attachment A for noise measurement locations). The noise most commonly in the Project vicinity is produced by automotive vehicles (cars, trucks, buses, motorcycles). Traffic moving along streets produces a sound level that remains relatively constant and is part of the Project area's minimum ambient noise level. Vehicular noise varies with the volume, speed and type of traffic. Slower traffic produces less noise than fast moving traffic. Trucks typically generate more noise than cars. Infrequent or intermittent noise also is associated with vehicles, including sirens, vehicle alarms, slamming of doors, trains, garbage and construction vehicle activity and honking of horns. These noises add to urban noise and are regulated by a variety of agencies.

3.2.2 Existing Roadway Noise Levels

Existing roadway noise levels were calculated for the roadway segments in the Project vicinity. This task was accomplished using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) (see Attachment B) and traffic volumes from the Project transportation impact analysis. The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates

identified for California by the California Department of Transportation (Caltrans). The Caltrans data shows that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along these roadway segments are presented in Table 4.

Table 4. Existing (Baseline) Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway
Stonehill Drive		
Camino Capistrano to Project Driveway	Commercial & Hotel	64.1
Project Driveway to Del Obispo Street	Residential & Park/Outdoor Recreation	64.0
Camino Capistrano/Doheny Park Road		
Victoria Boulevard to Costco Driveway	Commercial & Residential	62.0
Costco Driveway to Stonehill Drive	Commercial, Hotel & Residential	62.5
Stonehill Drive to Avenida Aeropuerto	Commercial	63.1
Valle Road		
South of La Novia Avenue	Residential	55.3
La Novia Avenue		
East of Valle Road	Residential	53.6
Del Obispo Street		
North of Stonehill Avenue	Commercial & Residential	61.7
South of Stonehill Avenue	Commercial & Residential	60.6

Source: Traffic noise levels were calculated by ECORP Consulting using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by LSA 2019. Refer to **Attachment B** for traffic noise modeling assumptions and results.

As shown, the existing traffic-generated noise level on Project-vicinity roadways currently ranges from 53.6 to 64.1 dBA CNEL. As previously described, CNEL is 24-hour average noise level with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. It should be noted that the modeled noise levels depicted in Table 4 may differ from measured levels in Table 3 because the measurements represent noise levels at different locations around the Project site and are also reported in different noise metrics (e.g., noise measurements are the L_{eq} values and traffic noise levels are reported in CNEL).

4.0 REGULATORY FRAMEWORK

4.1 State

4.1.1 State of California General Plan Guidelines

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria. The State of California General Plan Guidelines (OPR 2003), published by the OPR, also provides guidance for the acceptability of projects within specific CNEL/L_{dn} contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

State Office of Planning and Research Noise Element Guidelines

The OPR Noise Element Guidelines include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The Noise Element Guidelines contain a land use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL.

4.2 Local

4.2.1 City of San Juan Capistrano General Plan

The purpose of the City of San Juan Capistrano General Plan Noise Element is to limit the exposure of the community to excessive noise levels. The Noise Element includes a land use compatibility table that provides the City of San Juan Capistrano with a tool to gauge the compatibility of new land uses relative to existing and future noise levels. This table, presented as Table 5 in this document, identifies normally acceptable, conditionally acceptable, and clearly unacceptable noise levels for various land uses. If the noise levels identified at a proposed project site fall within levels considered normally acceptable, the project is considered compatible with the existing noise environment. A conditionally acceptable noise level at a proposed project site implies new construction or development can be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated in the design. By comparison, a normally acceptable noise level designation indicates that standard construction methods can occur with no special noise reduction requirements. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

Table 5. Land Use Compatibility for Community Noise Environments

Land Use Category	Community Noise Exposure (CNEL)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential – Single Family, Multifamily, Duplex	50 – 60	60 – 70	70 – 75	≥ 75
Residential – Mobile Homes	50 – 60	60 – 65	65 – 75	≥ 75
Transient Lodging - Motel, Hotels	50 – 60	60 – 70	70 – 80	≥ 80
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 – 60	60 – 65	65 – 75	≥ 75
Auditoriums, Concert Halls, Amphitheaters	NA	50 – 60	60 – 70	≥ 70
Sports Arenas, Outdoor Spectator Sports, amusement Parks	50 – 65	65 – 75	NA	≥ 75
Playgrounds, Neighborhood Parks	50 – 65	65 – 70	70 – 75	≥ 75
Golf Courses, Riding Stables, Cemeteries	50 – 70	70 – 75	75 – 85	≥ 85
Office and Profession Buildings	50 – 65	65 – 75	75 – 80	≥ 80
Commercial Retail, Banks, Restaurants, Theaters	50 – 70	70 – 80	80 – 85	≥ 85
Industrial, Manufacturing, Utilities, Wholesale, Service Stations	50 – 70	70 – 85	NA	NA
Agriculture	≥ 50	NA	NA	NA

Source: San Juan Capistrano 1999.
Notes:
NA: Not Applicable; CNEL: Community Noise Equivalent Level
Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
Normally Unacceptable: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
Clearly Unacceptable: New construction or development should generally not be undertaken.

As shown, the San Juan Capistrano General Plan Noise Element regulates land use compatibility with the CNEL noise descriptor. As previously described, CNEL is a 24-hour average L_{eq} with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. Since CNEL is a 24-hour average L_{eq} noise level, this noise descriptor is appropriate for the measurement of continuous noise sources, predominately traffic.

In addition to the noise compatibility standards shown in Table 5, the City of San Juan Capistrano has adopted interior and exterior noise standards for land uses, as shown in Table 6. As shown, the City requires outdoor areas of frequent human use to achieve 65 dBA CNEL. (The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is

generally 30 dBA or more. Thus, determining compliance with the exterior standard demonstrates compliance with the interior standard.)

Table 6. City of San Juan Capistrano Interior and Exterior Noise Standards

Land Use Category	Exterior Standards (CNEL)	Interior Standards (CNEL)
Residential – Single Family, Multifamily, Duplex, mobile home	65 dBA	45 dBA
Residential – Transient Lodging, Hotels, Motels, Nursing Homes, Hospitals, Assisted Care Facilities	65 dBA	45 dBA
Private Offices, Churches, Libraries, Theaters, Concert Halls, meeting Halls, Schools	65 dBA	45 dBA
General Commercial, Retail, Reception, Restaurant	65 dBA	50 dBA
Manufacturing, Industrial[1]	--	--
Parks, Playgrounds	65 dBA	--
Golf Courses, Riding Stables, Cemeteries	70 dBA	--

Source: San Juan Capistrano 1999.
Note:
[1]Noise standards not applied to Industrial districts

The Noise Element also contains goals and policies that must be used to guide decisions concerning land uses that are common sources of excessive noise levels. The General Plan policies most applicable to the Proposed Project include *Noise Element Policy 1.3* and *Noise Element Policy 3.1*. *Noise Element Policy 1.3* states that noise control measures shall be provided in areas of new construction, and *Noise Element Policy 3.1* requires the reduction of noise associated with noise-producing land uses and noise-producing activities on noise sensitive land uses.

4.2.2 San Juan Capistrano Municipal Code

The City's Municipal Code (Title 9, Chapter 3, Article 5 *Noise Standards (residential and nonresidential*) regulates non-transportation noise sources (i.e., stationary sources). These standards do not gauge the compatibility of developments on the noise environment yet provide restrictions on the amount and duration of noise generated by stationary sources at a property, as measured at the property line of a noise receptor. The San Juan Capistrano Municipal Code is designed to protect people from objectionable non-transportation noise sources such as machinery, pumps, and HVAC units. The non-transportation noise standards are shown in Table 7.

Table 7. City of San Juan Capistrano Noise Standards for Stationary Noise Sources	
Exterior Noise Level	**Time Period**
Residential & Public and Institutional Land Uses	
65 dBA L_{eq}	7:00 a.m. to 7:00 p.m.
55 dBA L_{eq}	7:00 p.m. to 10:00 p.m.
45 dBA L_{eq}	10:00 p.m. to 7:00 a.m.
Commercial Land Uses	
65 dBA L_{eq}	At any time during the day

Source: City of San Juan Capistrano Municipal Code
Notes: Leq = (Equivalent Energy Level). The sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period, typically one, eight or 24 hours.
dB(A) = (A-weighted Sound Pressure Level). The sound pressure level, in decibels, as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear.

The City's Municipal Code exempts noise from construction noise provided that construction is limited to between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday, and between the hours of 8:30 a.m. and 4:30 p.m. on Saturdays. Construction noise occurring on Sundays or federal holidays is not exempt. Construction-related noise that occurs as a result of construction activities adhering to these daytime restrictions is deemed to comply with the City Municipal Code.

4.2.3 City of Dana Point General Plan and Municipal Code

The City of Dana Point city limits is located directly across San Juan Creek, west and southwest of the Project site. As previously described, there are sensitive noise receptors consisting of single-family residences and the Creekside Park located within the City of Dana Point near the Project site. The City of Dana Point General Plan Noise Element promulgates a mobile-source threshold of 65 dBA CNEL at residential land uses. The Dana Point Municipal Code Chapter 11.10, *Noise Control,* regulates stationary-source noise. Dana Point stationary source noise regulations are shown in Table 8.

Table 8. City of Dana Point Noise Standards for Stationary Noise Sources	
Exterior Noise Level	**Time Period**
Residential Land Uses	
55 dBA L_{eq}	7:00 a.m. to 10:00 p.m.
50 dBA L_{eq}	10:00 p.m. to 7:00 a.m.

Source: City of Dana Point Municipal Code
Notes: L_{eq} = (Equivalent Energy Level). The sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period, typically one, eight or 24 hours.
dB(A) = (A-weighted Sound Pressure Level). The sound pressure level, in decibels, as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear.

4.2.4 City of San Clemente

Project-generated traffic could potential influence the ambient noise environment in the City of San Clemente to the south, specifically a mobile home park located across Camino Capistrano from the existing Costco store. The City of San Clemente does not promulgate a specific mobile-source standard and therefore a threshold of 65 dBA CNEL at residential land uses shall be employed for the purpose of this analysis, consistent with the mobile-source noise thresholds of both San Juan Capistrano and Dana Point.

5.0 IMPACT ASSESSMENT

5.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. The Project would result in a significant noise-related impact if it would meet any of the following criteria:

1) 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.

2) Generation of excessive groundborne vibration or groundborne noise levels.

3) 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 expose people residing or working in the project area to excessive noise levels.

The Project is not located within two miles of a public airport or private airstrip. As a result, the Project site is not subject to high levels of aircraft noise. Implementation of the Proposed Project would not affect airport operations nor result in increased exposure of noise-sensitive receptors to aircraft noise. For these reasons, exposure to aircraft noise levels would be considered less than significant and is not discussed further.

For purposes of this analysis and where applicable, the noise standards for the cities of San Juan Capistrano and Dana Point were used for evaluation of Project-related noise impacts. This impact discussion uses Caltrans (2013) recommended standard of 0.2 in/sec PPV with respect to the prevention of structural damage for normal buildings from construction-generated groundborne vibration, and 0.1 in/sec PPV with respect to the prevention of structural damage for mobile homes from construction-generated groundborne vibration (as shown in Table 2, 0.1 in/sec PPV is the threshold at which there is a risk of architectural damage to "fragile" buildings, and this therefore employed for an analysis of mobile homes).

5.2 Methodology

This analysis of the existing and future noise environments is based on noise prediction modeling and empirical observations. Predicted construction noise levels were calculated utilizing the Federal Highway

Administration's Roadway Construction Model (2008). Transportation-source noise levels in the Project vicinity were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108). Onsite stationary source noise levels have been calculated with the SoundPLAN 3D noise model, which predicts noise propagation from a noise source based on the location, noise level, and frequency spectra of the noise sources as well as the geometry and reflective properties of the local terrain, buildings and barriers, coupled with reference-level noise measurements conducted by ECORP staff at an existing Ganahl Lumber facility in Torrance, California. These measurements were taken with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator.

Groundborne vibration levels associated with construction-related activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment obtained from the Caltrans guidelines set forth above. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby land uses and typically applied criteria for structural damage and human annoyance.

5.2.1 Impact Analysis

Would the Project Result in Short-Term Construction-Generated Noise in Excess of Noise Standards?

Construction noise associated with the Proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect residences in the vicinity of the construction site. As previously stated, the closest residences are located adjacent to the northern boundary of the Project site. It is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to Project sensitive receptors.

Noise levels associated with individual construction equipment are summarized in Table 9.

Table 9. Typical Construction Equipment Noise Levels

Type of Equipment	Maximum Noise (L_{max}) at 50 Feet (dBA)	Maximum 8-Hour Noise (L_{eq}) at 50 Feet (dBA)
Crane	80.6	72.6
Dozer	81.7	77.7
Excavator	80.7	76.7
Generator	80.6	77.6
Grader	85.0	81.0
Other Equipment (greater than 5 horsepower)	85.0	82.0
Paver	77.2	74.2
Roller	80.0	73.0
Tractor	84.0	80.0
Dump Truck	76.5	72.5
Concrete Pump Truck	81.4	74.4
Welder	74.0	70.0

Source: Federal Highway Administration, Roadway Construction Noise Model (FHWA-HEP-05-054), dated January 2008.

As depicted in Table 9, noise levels generated by individual pieces of construction equipment typically range from approximately 70.0 dBA L_{eq} to 82.0 dBA L_{eq} at 50 feet. Noise levels associated with construction projects can vary, depending on the activities performed. Short-term increases in vehicle traffic, including worker commute trips and haul truck trips, may also result in temporary increases in ambient noise levels.

During Project construction, exterior noise levels could affect sensitive receptors in the vicinity. As depicted in Table 9, the residential mobile home park to the north of the site could be exposed to temporary and intermittent noise levels of 82 dBA L_{eq} with L_{max} events even louder (the nearest residence at the mobile home park is approximately 60 feet from the proposed construction area). Project construction activities would occur within San Juan Capistrano and as previously discussed, the City's Municipal Code exempts construction noise from noise standards provided that construction is limited to between the hours of 7:00 a.m. to 6:00 p.m. Monday through Friday, and between the hours of 8:30 a.m. and 4:30 p.m. on Saturdays. Construction noise occurring on Sundays or federal holidays is not exempt from noise standards. Construction-related noise that occurs as a result of construction activities adhering to these daytime restrictions is deemed to comply with the City Municipal Code. Therefore, mitigation measure NOI-1 is recommended to ensure Project construction is limited to the hours in the day which construction noise is exempt from City of San Juan Capistrano noise standards.

Additionally, the City General Plan contains *Noise Element Policy 1.3*, which requires noise control measures in areas of new construction. Furthermore, *Noise Element Policy 3.1* requires the reduction of noise associated with noise-producing activities, such as construction activities on noise sensitive land uses. Noise source control is the most effective method of controlling construction noise. Source controls,

which limit noise, are the easiest to oversee on a construction project. Mitigation at the source reduces the problem everywhere, not just along one single path or for one receiver. Noise path controls are the second method in controlling noise. Barriers or enclosures can provide a substantial reduction in the nuisance effect in some cases. Path control measures include moving equipment farther away from the receiver; enclosing especially noisy activities or stationary equipment; erecting noise enclosures, barriers, or curtains; and using landscaping as a shield and dissipater. As previously described, noise barriers or enclosures can provide a sound reduction 35 dBA or greater (WEAL 2000). To be effective, a noise enclosure/barrier must physically fit in the available space, must completely break the line of sight between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend length-wise and vertically as far as feasibly possible to be most effective. Mitigation measure NOI-2 is recommended to reduce construction noise.

5.2.2 Recommended Mitigation Measures

NOI-1: Per Title 9, Chapter 3, Article 5 *Noise Standards (residential and nonresidential)* of the San Juan Capistrano Municipal Code, Project construction shall be limited to between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday, and between the hours of 8:30 a.m. and 4:30 p.m. on Saturday. All construction activities shall be prohibited on Sundays and all federal holidays.

NOI-2: Per *Noise Element Policy 1.3* and *3.1* of the San Juan Capistrano General Plan, the Project improvement and building plans will include the following requirements for construction activities:

- Construction contracts must specify that all construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and other state-required noise attenuation devices.
- A sign, legible at a distance of 50 feet, shall be posted at the Project construction site providing a contact name and a telephone number where residents can inquire about the construction process and register complaints. This sign shall indicate the dates and duration of construction activities. In conjunction with this required posting, a noise disturbance coordinator will be identified to address construction noise concerns received. The coordinator shall be responsible for responding to any local complaints about construction noise. When a complaint is received, the disturbance coordinator shall notify the City within 24 hours of the complaint and determine the cause of the noise complaint (starting too early, malfunctioning muffler, etc.) and shall implement reasonable measures to resolve the complaint, as deemed acceptable by the City. All signs posted at the construction site shall include the contact name and the telephone number for the noise disturbance coordinator.
- Construction equipment shall be prohibited from idling for longer than 5 minutes. After five minutes of idling equipment shall be shut off.

- In order to maximize the distance between construction equipment staging areas and the sensitive noise receivers north of the Project site, all equipment staging areas and material storage areas shall be placed within the southern portion of the site, as far from these receivers as possible.
- The use of electric air compressors and similar power tools shall be employed to the maximum extent feasible.
- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from the sensitive noise receivers north of the Project site and the use of temporary acoustic barriers around stationary equipment shall be implemented at all times.
- The temporary storage of earth material excavated from the site shall be positioned in a manner to function as a noise barrier between the sensitive noise receivers north of the Project site and the active portions of the construction site, to the extent feasible.
- Proposed Project "Pole Shed 6B" and "L-Shed 7B" shall be of the first buildings constructed onsite in order to provide a barrier between the sensitive noise receivers north of the Project site and the rest of the construction site. When built, these buildings would collectively span approximately 500 feet long (see Figure 3) while reaching approximately 20 feet in height,

Implementation of mitigation measures NOI-1 and NOI-2 would substantially reduce construction-generated noise levels and result in Project compliance with the City of San Juan Capistrano General Plan and Municipal Code.

Result in the Exposure of Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Once operational, the Project would not be a source of groundborne vibration. Increases in groundborne vibration levels attributable to the Proposed Project would be primarily associated with short-term construction-related activities. Construction on the Project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment such as dozers and trucks. Vibration decreases rapidly with distance and it is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to sensitive receptors.

Groundborne vibration levels associated with representative construction equipment are summarized in Table 10.

Table 10. Representative Vibration Source Levels for Construction Equipment

Equipment Type	Peak Particle Velocity at 50 Feet (inches per second)
Vibratory Roller	0.073
Large Bulldozer	0.031
Caisson Drilling	0.031
Loaded Trucks	0.026
Rock Breaker	0.031
Jackhammer	0.012
Small Bulldozer/Tractor	0.001

Source: FTA 2018; Caltrans 2013

This impact discussion uses Caltrans's (2013) recommended standard of 0.2 in/sec PPV with respect to the prevention of structural damage for normal buildings, and 0.1 in/sec PPV with respect to the prevention of structural damage for mobile homes (as shown in Table 2, 0.1 in/sec PPV is the threshold at which there is a risk of architectural damage to "fragile" buildings, and this therefore employed for an analysis of mobile homes). Therefore, groundborne vibration levels would be considered significant if predicted short-term construction groundborne vibration levels attributable to the Proposed Project would exceed 0.2 in/sec PPV at the nearest offsite existing non-mobile structure, and 0.1 in/sec PPV at the nearest offsite mobile home. Based on the vibration levels presented in Table 10, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.073 in/sec PPV at 50 feet. Therefore, the use of virtually any type of construction equipment would not result in a groundborne vibration velocity level above 0.1 in/sec at the nearest offsite structures, including at any mobile homes.

Would the Project Result in a Substantial Permanent Increase in Ambient Noise Levels in Excess of City Standards During Operations?

Project Land Use Compatibility

The Noise Element includes a land use compatibility table that provides the City with a tool to gauge the compatibility of new land uses relative to existing noise levels. This table, presented as Table 5, identifies normally acceptable, conditionally acceptable, and clearly unacceptable noise levels for various land uses, including commercial and industrial land uses such as those proposed by the Project. In the case that the noise levels identified at a Proposed Project site fall within levels considered normally acceptable, the project is considered compatible with the existing noise environment. As shown in Table 5, an acceptable existing noise level for locating both commercial uses such as fast-food restaurants and hardware stores, as well as industrial uses such as a lumber yard, falls under 70 dBA CNEL. In order to quantify existing ambient noise levels in the Project area, ECORP conducted four short-term noise measurements on September 29, 2017 and two additional measurements on June 6, 2019. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site and are considered representative of the noise levels throughout the day. As shown in Table 3, the ambient recorded noise levels ranged from 46.1 to 56.8 dBA near the Project site. Additionally, as shown

in Table 4, the existing traffic-generated noise level on Project-vicinity roadways currently ranges from 53.6 to 64.1 dBA CNEL. As these ranges fall below 70 dBA, the Project site is considered an appropriate noise environment to locate proposed commercial and industrial land uses.

Project Operations

Noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. Nearby noise-sensitive land uses consist of a residential mobile home park adjacent to the northern boundary of the Project site. To the west of the Project site is Creekside Park with residential land uses beyond, and there are also residential land uses to the southwest and southeast of the Project site, beyond Stonehill Drive. There are schools and churches within the residential neighborhoods to the west.

Operational noise sources associated with the Proposed Project include mobile and stationary (i.e., mechanical equipment, lumber yard operations) sources.

Operational Traffic Noise

Future traffic noise levels throughout the Project vicinity were modeled based on the traffic volumes identified by LSA Associates, Inc. (2019) to determine the noise levels along Project vicinity roadways. Table 11 shows the calculated offsite roadway noise levels under existing traffic levels compared to future buildout of the Project. The calculated noise levels as a result of the Project at affected land uses are compared to the noise standards in the City of Dana Point General Plan Noise Element for the segment of Stonehill Drive west of the Project driveway, as well as the segments of Del Obispo Street north and south of Stonehill Drive. As previously described, the City of Dana Point General Plan Noise Element promulgates a mobile-source threshold of 65 dBA CNEL at residential land uses. Calculated noise levels as a result of the Project at affected land uses are compared to the noise standards in the San Juan Capistrano Noise Element (see Table 6) for the remainder of Project vicinity roadway segments. As shown in Table 6, similar to Dana Point, the City of San Juan Capistrano requires outdoor areas of frequent human use to achieve 65 dBA CNEL. Finally, as previously described, Project-generated traffic could potential influence the ambient noise environment in the City of San Clemente to the south, specifically a mobile home park located across Camino Capistrano from the existing Costco store. The City of San Clemente does not promulgate a specific mobile-source standard and therefore a threshold of 65 dBA CNEL at residential land uses shall be employed for the purpose of this analysis, consistent with the mobile-source noise thresholds of both San Juan Capistrano and Dana Point.

Table 11. Existing Plus Project Conditions Predicted Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway		Noise Standard (dBA CNEL)	Exceed Standard / Significant Impact?
		Existing Conditions	Existing + Project Conditions		
Stonehill Drive					
Camino Capistrano to Project Driveway (in the City of San Juan Capistrano)	Commercial & Hotel,	64.1	64.4	*65 dBA*	**No**
Project Driveway to Del Obispo Street (in the City of Dana Point)	Residential & Park/Outdoor Recreation	64.0	64.0	*65 dBA*	**No**
Camino Capistrano/Doheny Park Road					
Victoria Boulevard to Costco Driveway (in the City of San Clemente)	Commercial & Residential	62.0	62.0	*65 dBA*	**No**
Costco Driveway to Stonehill Drive (in the City of San Juan Capistrano)	Commercial, Hotel & Residential	62.5	62.5	*65 dBA*	**No**
Stonehill Drive to Avenida Aeropuerto (in the City of San Juan Capistrano)	Commercial	63.1	63.1	*65 dBA*	**No**
Valle Road					
South of La Novia Avenue (in the City of San Juan Capistrano)	Residential	55.3	55.3	*65 dBA*	**No**
La Novia Avenue					
East of Valle Road (in the City of San Juan Capistrano)	Residential	53.6	53.6	*65 dBA*	**No**
Del Obispo Street					
North of Stonehill Avenue (in the City of Dana Point)	Commercial & Residential	61.7	61.7	*65 dBA*	**No**
South of Stonehill Avenue (in the City of Dana Point)	Commercial & Residential	60.6	60.6	*65 dBA*	**No**

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by LSA 2019. Refer to Attachment B for traffic noise modeling assumptions and results.

As shown in Table 11, predicted increases in traffic noise levels associated with the Project would not result in any mobile-source noise level standards being exceeded.

Operational Stationary Noise

The City of San Juan Capistrano's Municipal Code (Title 9, Chapter 3, Article 5 *Noise Standards [residential and nonresidential]*) regulates non-transportation noise sources (i.e., stationary sources). These standards are designed to protect people from objectionable non-transportation noise sources such as machinery, pumps, and HVAC units. The non-transportation noise standards for varying time periods throughout a day are shown in Table 7. As depicted, the City promulgates a standard of 65 dBA from 7:00 a.m. to 7:00

p.m., 55 dBA from 7:00 p.m. to 10:00 p.m., and 45 dBA from 10:00 p.m. to 7:00 a.m. for residential, public, and institutional land uses. A standard of 65 dBA all day is applied to commercial and industrial land uses.

As shown in Table 8, the City of Dana Point Municipal Code (Chapter 11.10, *Noise Control*) regulates stationary-source noise with a standard of 55 dBA from 7:00 a.m. to 10:00 p.m., and 50 dBA from 10:00 p.m. to 7:00 a.m. for residential land uses.

The Proposed Project would include several onsite noise sources such as drive-thru and parking lot noise associated with the proposed restaurants on Site A, material handling vehicles stacking, loading and unloading products, back-up beepers, delivery trucks, a trash compactor, a baler, and other mechanical equipment and parking lot noise on Site B, and parking lot noise on Site C. These noise sources combined could result in noise standards being exceeded at vicinity residential land uses. Furthermore, the Project would operate differently during different portions of the day. For instance, retail business hours associated with the proposed hardware store would be 6:00 a.m. to 6:00 p.m. Monday through Saturday, yet the proposed lumber yard would operate from 5:00 a.m. to 11:00 p.m. Monday through Friday. The fast-food restaurants proposed on Site A would be expected to operate similar hours as the lumber yard, though seven days a week, while the vehicle storage facility proposed for Site C would only operate during daytime hours. Table 12 summarizes representative operational onsite noise sources.

Table 12. Summary of Onsite Stationary Sources

Stationary Sources	Noise Level (dBA L_{eq}) at the Source	Estimated Time of Use
Drive-Thru Activity on Site A (including amplified comm system)	75.0 dBA	5:00 a.m. – 11:00 p.m.
Parking Lot Activity on Site A	60.0 dBA	5:00 a.m. – 11:00 p.m.
Parking Lot Activity at Main Parking Lot on Site B	65.7 dBA	5:00 a.m. – 11:00 p.m.
Parking Lot Activity on Site B	65.7 dBA	5:00 a.m. – 11:00 p.m.
Employee Parking Lot Activity on Site B	50.9 dBA	5:00 a.m. – 11:00 p.m.
Lumber Yard Activity on Site B (including material handling vehicles)	73.6 dBA	5:00 a.m. – 11:00 p.m.
Wood Chip Baler on Site B	68.0 dBA	6:00 a.m. – 10:00 p.m.
Trash Compactor on Site B	60.1 dBA	6:00 a.m. – 10:00 p.m.
Truck Loading Docks on Site B	73.0 dBA	6:00 a.m. – 11:00 p.m.
Vehicle Storage Facility on Site C	48.7 dBA	7:00 a.m. – 7:00 p.m.

Sources: See Attachment C for reference noise citations

It is noted that the Project has been designed to contain noise within the Project site to the extent feasible. For instance, Buildings 6A, 6B, and 6C (pole sheds) would be positioned in a manner that would serve to provide the noise attenuation of sound traveling toward the residential area to the north, the San Juan Creek Channel and linear park, and residential area across the channel to the west. L-Sheds 7A and

7B would be positioned in a manner to provide the noise attenuation of sound traveling toward the residential area to the north, as well as from the San Juan Creek Channel and linear park, and residential area across the channel to the west. The Project further proposes a landscaped berm on Site C in order to serve as an additional noise barrier between the Project site and the residential area to the north.

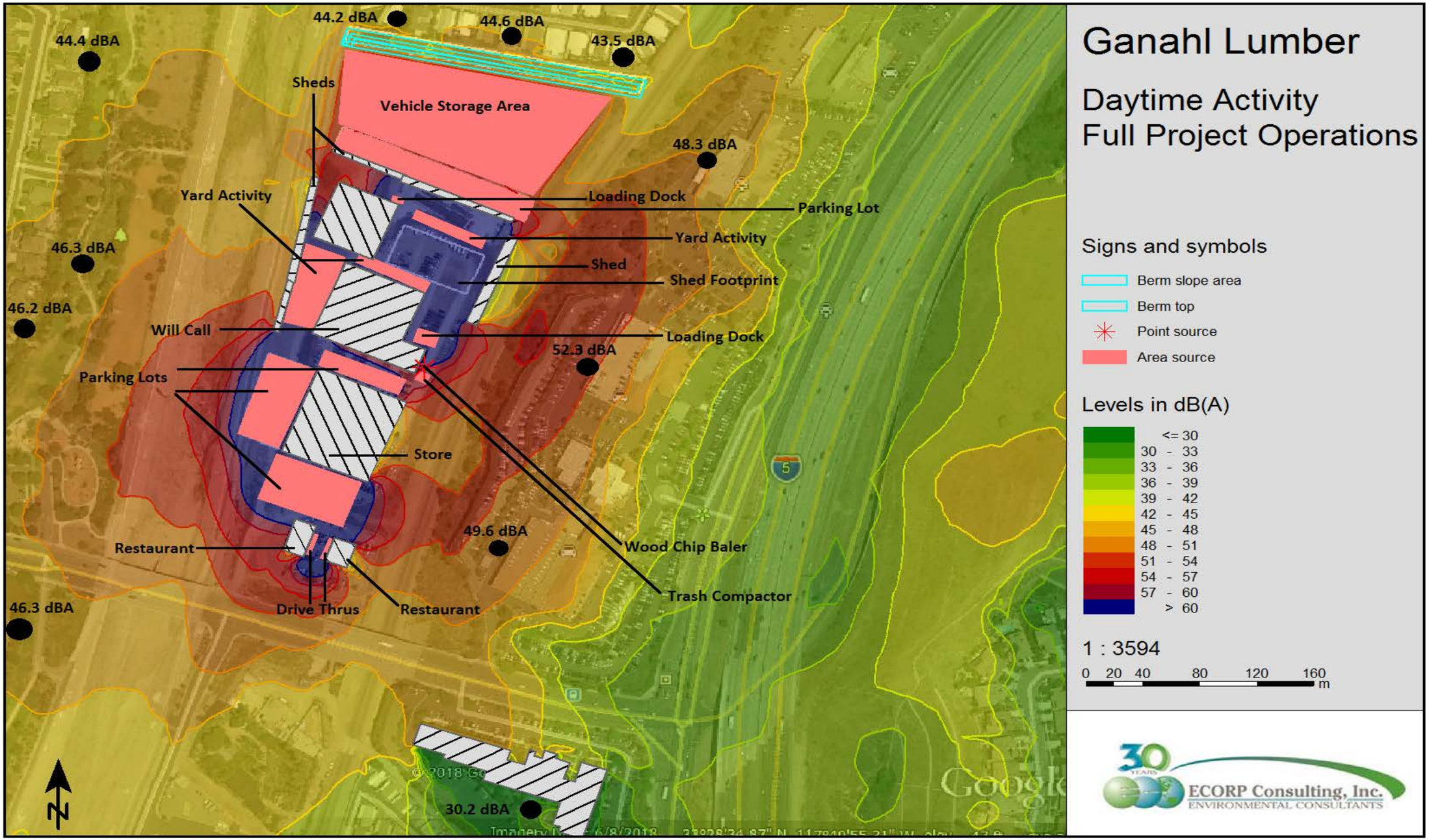
Table 13 shows the predicted noise propagation associated with full operation of the Proposed Project, as predicted by the SoundPLAN 3D noise model. (The results of this model can be found in Attachment C.) Additionally, a noise contour graphic (Figure 6) has been prepared to depict the predicted noise levels in the vicinity. Full operations at the Project site include noise associated with the proposed restaurants on Site A, the Ganahl Lumber retail store and yard operations on Site B, and the vehicle storage facility on Site C. Full operations at the Project site would occur between the daytime hours of 7:00 a.m. and 7:00 p.m.

Table 13. Predicted Onsite Operational Noise from Full Site Operations (Occurring 7:00 a.m. to 7:00 p.m.)

Receiver Number	Receiver	Modeled Noise Levels (dBA L_{eq})	Daytime Noise Standards (dBA L_{eq})[1]	Exceed Standard?
1	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**44.2 dBA**	*65 dBA*	**No**
2	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**44.6 dBA**	*65 dBA*	**No**
3	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**43.5 dBA**	*65 dBA*	**No**
4	Commercial Area to the East (in the City of San Juan Capistrano)	**48.3 dBA**	*65 dBA*	**No**
5	Commercial Area to the East (in the City of San Juan Capistrano)	**52.3 dBA**	*65 dBA*	**No**
6	Commercial Area to the East (in the City of San Juan Capistrano)	**49.3 dBA**	*65 dBA*	**No**
7	Hotel to the Southeast (in the City of San Juan Capistrano)	**30.2 dBA**	*65 dBA*	**No**
8	Residential Neighborhood to the Southwest (in the City of Dana Point)	**46.3 dBA**	*55 dBA*	**No**
9	Residential Neighborhood to the West, across San Juan Creek (in the City of Dana Point)	**46.2 dBA**	*55 dBA*	**No**
10	Creekside Park to the west (in the City of Dana Point)	**46.3 dBA**	*55 dBA*	**No**
11	Residential Neighborhood to the West, across San Juan Creek (in the City of Dana Point)	**44.4 dBA**	*55 dBA*	**No**

Source: Stationary source noise levels were modeled by ECORP using SoundPLAN 3D noise model. Refer to Attachment C for noise modeling assumptions and results.
Notes: [1]Daytime noise standards vary depending on the location of the receiver being in either San Juan Capistrano or Dana Point.

As shown in Table 13 (and Figure 6. *Project Noise Propagation – Daytime Activity*), daytime noise levels at vicinity nonresidential uses, Receivers 4-6, and 10, range from 46.3 dBA (Receiver 10) to 52.3 dBA (Receiver 5). These noise levels all fall below applicable daytime standards. Daytime noise levels at the Project vicinity residential uses (the hotel is characterized as residential for the purpose of this analysis), Receivers 1-3, 7-9, and 11, range from 30.2 dBA (Receiver 7) to 46.3 dBA (Receivers 8 and 10). These noise levels all fall below applicable daytime noise standards.



Map Date: *10/31/19*
Photo (or Base) Source: *SoundPLAN 2019*

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Figure 6. Project Noise Propagation - Daytime Activity

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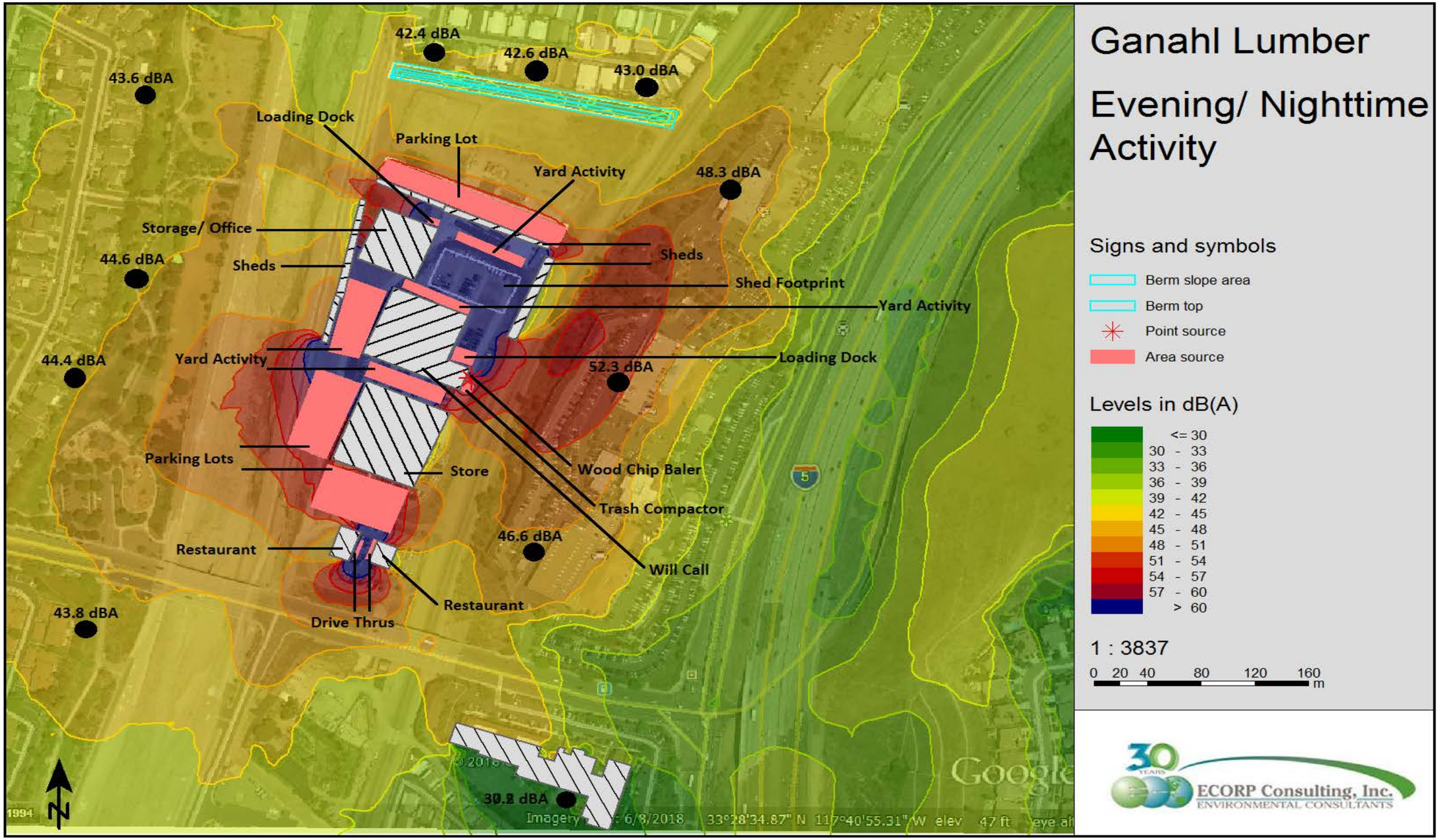
Table 14 shows the predicted noise propagation associated with evening and nighttime operations of the Proposed Project, as predicted by the SoundPLAN 3D noise model. The results of this model can be found in Attachment C. Additionally, a noise contour graphic (Figure 7. *Project Noise Propagation – Evening and Nighttime Activity*) has been prepared to depict the predicted noise levels. Evening and nighttime operations at the Project site precludes operation of the proposed vehicle storage facility on Site C, as this component of the Project would only operate within the daytime hours between 7:00 a.m. and 7:00 p.m. Further, the proposed hardware store would be closed. However, a third shift from 10:00 p.m. to 6:00 a.m. may be added in the future for the purpose of replenishment, cleaning, and order pulling for the next day. Therefore, parking lot activity surrounding the proposed hardware store is accounted even though the store would be closed to the public from 10:00 p.m. to 6:00 a.m. Evening and nighttime operations at the Project site would occur between the hours of 7:00 p.m. and 7:00 a.m.

Table 14. Predicted Onsite Operational Noise During Evening and Nighttime Hours (7:00 p.m. to 7:00 a.m.)

Receiver Number	Receiver	Modeled Noise Levels (dBA L_{eq})	Evening Noise Standards (dBA L_{eq}) [1]	Nighttime Noise Standards (dBA L_{eq}) [1]	Exceed Standard?
1	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**42.4 dBA**	*55 dBA*	*45 dBA*	**No**
2	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**42.6 dBA**	*55 dBA*	*45 dBA*	**No**
3	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**43.0 dBA**	*55 dBA*	*45 dBA*	**No**
4	Commercial Area to the East (in the City of San Juan Capistrano)	**48.3 dBA**	*65 dBA*	*65 dBA*	**No**
5	Commercial Area to the East (in the City of San Juan Capistrano)	**52.3 dBA**	*65 dBA*	*65 dBA*	**No**
6	Commercial Area to the East (in the City of San Juan Capistrano)	**46.6 dBA**	*65 dBA*	*65 dBA*	**No**
7	Hotel to the Southeast (in the City of San Juan Capistrano)	**30.2 dBA**	*55 dBA*	*45 dBA*	**No**
8	Residential Neighborhood to the Southwest (in the City of Dana Point)	**43.8 dBA**	*50 dBA*	*50 dBA*	**No**
9	Residential Neighborhood to the West, across San Juan Creek (in the City of Dana Point)	**44.4 dBA**	*50 dBA*	*50 dBA*	**No**
10	Creekside Park to the west (in the City of Dana Point)	**44.6 dBA**	*50 dBA*	*50 dBA*	**No**
11	Residential Neighborhood to the West, across San Juan Creek (in the City of Dana Point)	**43.6 dBA**	*50 dBA*	*50 dBA*	**No**

Source: Stationary source noise levels were modeled by ECORP using SoundPLAN 3D noise model. Refer to Attachment C for noise modeling assumptions and results.

Notes: [1]Daytime noise standards vary depending on the location of the receiver being in either San Juan Capistrano or Dana Point.



Ganahl Lumber

Evening/ Nighttime Activity

Signs and symbols

- Berm slope area
- Berm top
- Point source
- Area source

Levels in dB(A)

<= 30
30 - 33
33 - 36
36 - 39
39 - 42
42 - 45
45 - 48
48 - 51
51 - 54
54 - 57
57 - 60
> 60

1 : 3837

0 20 40 80 120 160 m

30 YEARS ECORP Consulting, Inc. ENVIRONMENTAL CONSULTANTS

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Figure 7. Project Noise Propagation - Evening and Nighttime Activity

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As shown in Table 14 (and Figure 7), evening and nighttime noise levels at vicinity nonresidential uses, Receivers 4-6, and 10, range from 44.6 dBA (Receiver 10) to 52.3 dBA (Receiver 5). These noise levels all fall below applicable evening and nighttime standards. Noise levels at the Project vicinity residential uses (the hotel is characterized as residential for the purpose of this analysis), Receivers 1-3, 7-9, and 11, range from 30.2 dBA (Receiver 7) to 44.4 dBA (Receiver 9). These noise levels all fall below applicable evening and nighttime noise standards.

5.2.3 Cumulative Noise Impacts?

Cumulative Construction Noise

Construction activities associated with the Proposed Project and other construction projects in the area may overlap, resulting in construction noise in the area. However, construction noise impacts primarily affect the areas immediately adjacent to the construction site. Construction noise for the Proposed Project was determined to be less than significant following compliance with the City's Municipal Code. Cumulative development in the vicinity of the Project site could result in elevated construction noise levels at sensitive receptors in the Project area. However, each project would be required to comply with the applicable City's Municipal Code limitations on construction. Therefore, the Project would not contribute to cumulative impacts during construction.

Cumulative Stationary Source Noise Impacts

Long-term stationary noise sources associated with the development at the Project, combined with other cumulative projects, could cause local noise level increases. Noise levels associated with the Proposed Project and related cumulative projects together could result in higher noise levels than considered separately. As previously described, onsite noise sources associated with the Proposed Project would not exceed any applicable noise standards. Additionally, related cumulative projects would be required to comply with the City's noise level standards and include mitigation measures if standards are exceeded. Therefore, cumulative noise impacts from stationary noise sources would be considered less than significant.

Cumulative Traffic Source Noise Impacts

According to the U.S. Environmental Protection Agency (USEPA), cumulative noise impacts represent the combined and incremental effects of human activities that accumulate over time. While the incremental impacts may be insignificant by themselves, the combined effect may result in a significant impact. Conversely, although there may be a significant noise increase due to the Proposed Project in combination with other related projects (combined effects), it must also be demonstrated that the Project has an incremental effect. In other words, a significant portion of the noise increase must be due to the Proposed Project.

Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to construction of the Project and other projects in the vicinity. A project's contribution to a cumulative traffic noise increase could be considered significant when the combined effect exceeds the perception level (i.e., auditory level increase) threshold. The combined effect compares the "Cumulative Plus Project"

condition to "Existing" conditions. This comparison accounts for the traffic noise increase generated by a project combined with the traffic noise increase generated by projects in the area. The incremental effect compares the "Cumulative Plus Project" condition to the "Cumulative No Project" condition.

The following combined effect and incremental effect criteria have been utilized to evaluate the overall effect of the cumulative noise increase.

- **Combined Effect**. The cumulative with Project noise level ("Cumulative Plus Project") would cause a significant cumulative impact if a 3.0-dB increase over Existing Conditions occurs and the resulting noise level exceeds the applicable exterior standard at a sensitive use. Although there may be a significant noise increase due to the Proposed Project in combination with other related projects (combined effects), it must also be demonstrated that the Project has an incremental effect. In other words, a significant portion of the noise increase must be due to the Proposed Project.
- **Incremental Effects**. The "Cumulative Plus Project" causes a 1.0 dBA increase in noise over the "Cumulative No Project" noise level.

A significant impact would result only if *both* the combined and incremental effects criteria have been exceeded at a single roadway segment, since such would indicate that there is a significant noise increase due to the Proposed Project in combination with other related projects *and* a significant portion of the noise increase is due to the Proposed Project. Noise by definition is a localized phenomenon and reduces as distance from the source increases. Consequently, only the Proposed Project and growth due to occur in the Project site's general vicinity would contribute to cumulative noise impacts. Table 15 lists the traffic noise effects along roadway segments in the Project vicinity for "Existing," "Cumulative No Project," and "Cumulative Plus Project," conditions, including incremental and net cumulative impacts.

Table 15. Cumulative Traffic Noise Scenario

Roadway Segment	Existing	Cumulative No Project	Cumulative Plus Project	Combined Effects	Incremental Effects	Cumulatively Significant Impact?
	CNEL @ 100 Feet from Roadway Centerline	CNEL @ 100 Feet from Roadway Centerline	CNEL @ 100 Feet from Roadway Centerline	Difference in CNEL Between Existing and Cumulative + Project	Difference in CNEL Between Cumulative No Project and Cumulative + Project	
Stonehill Drive						
Camino Capistrano to Project Driveway	64.1	64.1	64.5	0.4	0.4	**No**
Project Driveway to Del Obispo Street	64.0	64.0	64.2	0.2	0.2	**No**
Camino Capistrano/Doheny Park Road						
Victoria Boulevard to Costco Driveway	62.0	62.3	62.5	0.5	0.2	**No**
Costco Driveway to Stonehill Drive	62.5	62.8	63.0	0.5	0.2	**No**
Stonehill Drive to Avenida Aeropuerto	63.1	63.4	63.4	0.3	0.0	**No**
Valle Road						
South of La Novia Avenue	55.3	56.3	56.4	1.0	0.1	**No**
La Novia Avenue						
East of Valle Road	53.6	57.1	57.1	**3.5**	0.0	**No**
Del Obispo Street						
North of Stonehill Avenue	61.7	62.0	62.2	0.5	0.2	**No**
South of Stonehill Avenue	60.6	61.0	61.1	0.5	0.1	**No**

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by LSA 2019. Refer to Attachment C for traffic noise modeling assumptions and results.

As shown in Table 15, no significant cumulative traffic noise impact would result. As previously described, the combined effect and incremental effect criteria have been utilized to evaluate the overall effect of the cumulative noise increase, and a significant impact would result only if *both* the combined and incremental effects criteria have been exceeded at a single roadway segment. While traffic noise at the segment of La Novia Avenue east of the Valle Road/La Novia Avenue roundabout would surpass the combined effect threshold of 3.0 dBA over Existing Conditions, there is no increase in noise beyond the Cumulative No Project scenario as a result of the Project, and thus no incremental effect.

6.0 ALTERNATIVES ANALYSIS

The following discussion is the evaluation of a range of alternative land use patterns for the Project site in order to inform decision makers and the public potential impacts associated with different land use patterns on the subject site and to make decisions about the Proposed Project based on the comparisons.

6.1 Description of Alternatives

6.1.1 Alternative 1: No Restaurants

Alternative 1: No Restaurants would preclude the development of buildings on Site A. The 2.06 acres of Site A would be converted to approximately 150 parking spaces, and would not be developed with 6,000 square feet of food service building space.

Construction Noise and Vibration

Grading and site preparation activities are the loudest aspects of construction, and the grading and site preparation involved with *Alternative 1: No Restaurants* would require the same amount of ground disturbance as the Proposed Project. Thus, similar to the Proposed Project, Alternative 1 would span the same amount of acreage within the same proximity to vicinity noise receptors. However, Alternative 1 would result in the construction of less building space. For these reasons it can be assumed that construction-related noise generated under this alternative would be produced for a slightly shorter period of time than the Proposed Project. As previously discussed, the City's Municipal Code exempts construction noise from noise standards provided that construction is limited to between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday, and between the hours of 8:30 a.m. and 4:30 p.m. on Saturdays. Construction-related noise that occurs as a result of construction activities adhering to these daytime restrictions is deemed to comply with the City Municipal Code. Additionally, like the Proposed Project, Alternative 1 would still be subject to both City General Plan Noise Element Policy 1.3, which requires noise control measures in areas of new construction, and Noise Element Policy 3.1, which requires the reduction of noise associated with noise-producing activities, such as construction activities, on noise sensitive land uses. As determined in Section 5.0 of this Assessment, the Proposed Project would result in a less than significant impact concerning construction noise with the imposition of mitigation measures. Thus, the reduced development intensity of Alternative 1, adhering with the same type of noise-reducing mitigation, would also be expected to result in less than significant construction noise.

Similar to construction noise, Alternative 1 would result in the same amount of ground vibration as the Proposed Project. As with the Proposed Project, the use of virtually any type of construction equipment during construction of Alternative 1 would not result in a groundborne vibration velocity level above 0.2 in/sec at the nearest offsite structures.

Operational Noise

Operational noise sources associated with Alternative 1 would include mobile and stationary sources (i.e., mechanical equipment, lumber yard operations).

As determined in Section 5.0 of this Assessment, predicted increases in traffic noise levels associated with the Project would not result in any mobile-source noise level standards being exceeded. Alternative 1 would generate 37 percent *less* traffic on vicinity roadways. Such a decrease in automobile trips would equate to similar to slightly less traffic noise compared with the Proposed Project, depending on the specific roadway segments. For instance, the greatest reduction of traffic noise would occur on the segment of Stonehill Drive between the Project driveway and Camino Capistrano. Specifically, 37 percent

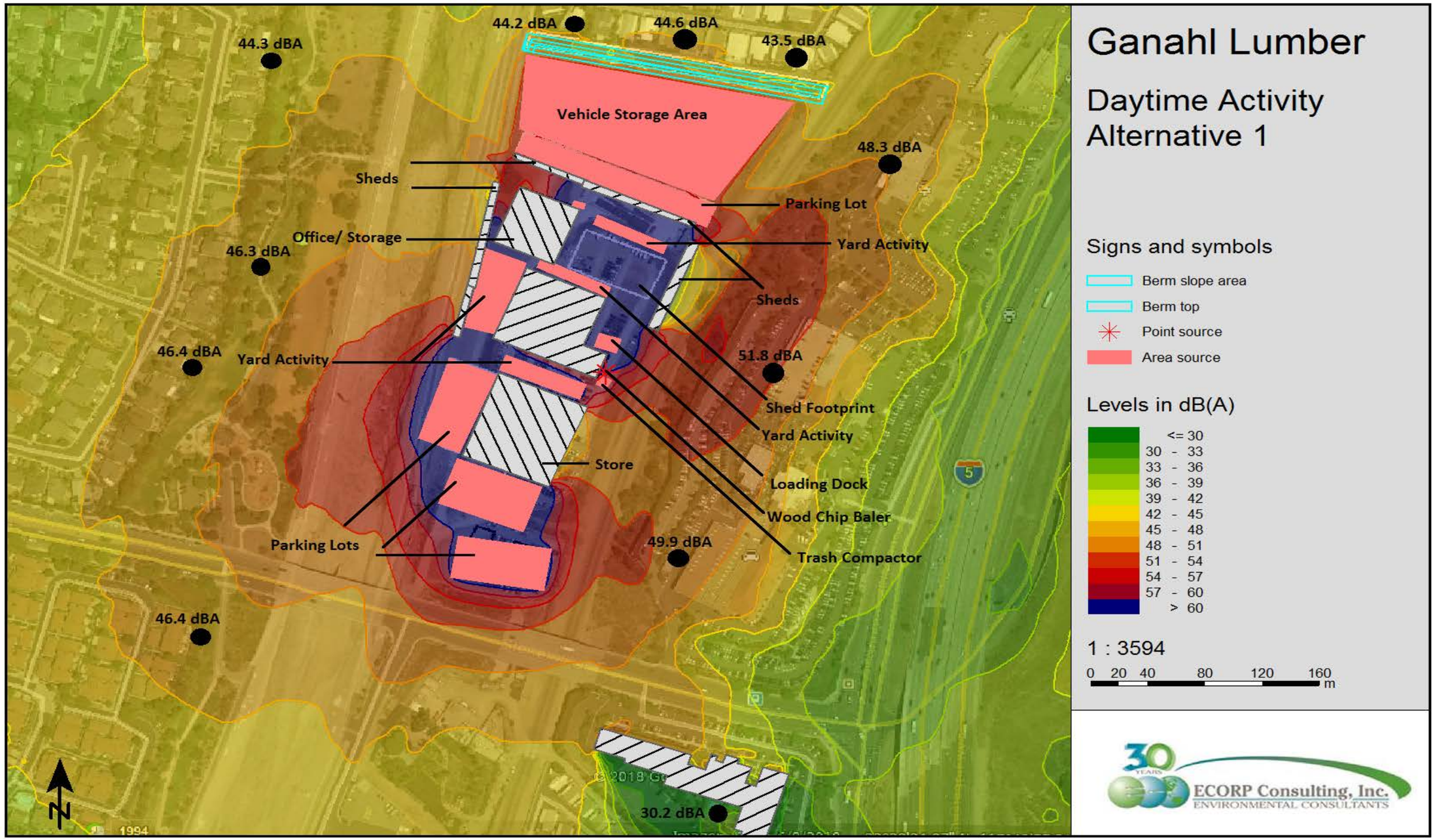
less Project traffic on the segment of Stonehill Drive between the Project driveway and Camino Capistrano would result in a 0.3 dBA CNEL decrease compared with the Proposed Project. All the remaining vicinity roadway segments would experience the same level of traffic noise with implementation of Alternative 1 compared with the Proposed Project.

Alternative 1 would include several onsite noise sources such material handling vehicles stacking, loading and unloading products, back-up beepers, delivery trucks, a trash compactor, a baler, and other mechanical equipment and parking lot noise. However, compared with the Proposed Project, Alternative 1 would not include any fast-food restaurants. Table 16 shows the predicted noise propagation associated with daytime, evening and nighttime operations of Alternative 1, as predicted by the SoundPLAN 3D noise model, in comparison to the Proposed Project. Additionally, daytime and nighttime activity noise contour graphics (Figure 8. *Alternative 1 Noise Propagation – Daytime Activity* and Figure 9. *Alternative 1 Noise Propagation - Evening & Nighttime Activity*) has been prepared to depict the predicted noise levels.

Table 16. Predicted Onsite Operational Noise Attributable to Alternative 1

Receiver Number	Receiver	Alternative 1 Daytime Noise Levels (dBA L_{eq})	Comparison to Proposed Project - Daytime	Alternative 1 Evening & Nighttime Noise Levels (dBA L_{eq})	Comparison to Proposed Project – Evening & Nighttime
1	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**44.2 dBA**	*Same*	**42.4 dBA**	*Same*
2	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**44.6 dBA**	*Same*	**42.6 dBA**	*Same*
3	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**43.5 dBA**	*Same*	**43.0 dBA**	*Same*
4	Commercial Area to the East (in the City of San Juan Capistrano)	**48.3 dBA**	*Same*	**48.3 dBA**	*Same*
5	Commercial Area to the East (in the City of San Juan Capistrano)	**51.8 dBA**	*-0.5 dBA*	**51.8 dBA**	*-0.5 dBA*
6	Commercial Area to the East (in the City of San Juan Capistrano)	**49.9 dBA**	*+0.6 dBA*	**49.9 dBA**	*+3.3 dBA*
7	Hotel to the Southeast (in the City of San Juan Capistrano)	**30.2 dBA**	*Same*	**30.2 dBA**	*Same*
8	Residential Neighborhood to the Southwest (in the City of Dana Point)	**46.4 dBA**	*+0.1 dBA*	**46.4 dBA**	*+2.6 dBA*
9	Residential Neighborhood to the West, across San Juan Creek (in the City of Dana Point)	**46.4 dBA**	*+0.2 dBA*	**44.6 dBA**	*+0.2 dBA*
10	Creekside Park to the west (in the City of Dana Point)	**46.3 dBA**	*Same*	**44.7 dBA**	*+0.1 dBA*
11	Residential Neighborhood to the West, across San Juan Creek (in the City of Dana Point)	**44.3 dBA**	*-0.1 dBA*	**39.9 dBA**	*-3.7 dBA*

Source: Stationary source noise levels were modeled by ECORP using SoundPLAN 3D noise model.



Map Date:*10/31/19*
Photo (or Base) Source:*SoundPLAN 2019*

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Figure 8. Alternative 1 Noise Propagation - Daytime Activity

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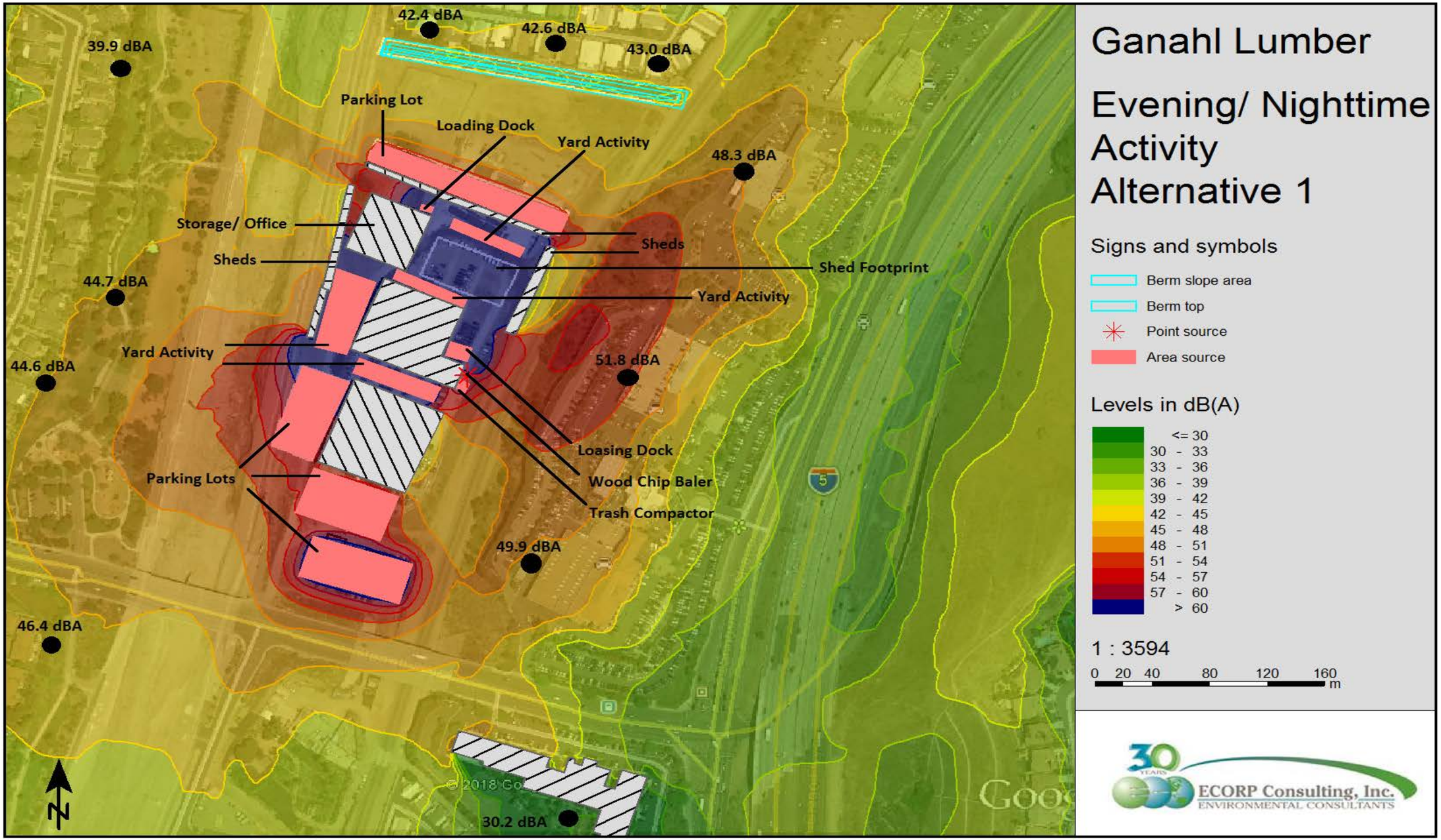

Map Date:*10/31/19*
Photo (or Base) Source:*SoundPLAN 2019*

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Figure 9. Alternative 1 Noise Propagation - Evening & Nighttime Activity

2017-208 Ganahl Lumber

As shown in Table 16, Alternative 1 would result in the same amount of noise at the majority of vicinity receivers compared with the Proposed Project, a greater amount of noise at three receivers, and less noise at two receivers.

6.1.2 Alternative 2: Reduced Density – 2,000 Square Feet of Restaurant Building Space

Alternative 2: Reduced Density – 2,000 Square Feet of Restaurant Building Space, would allow for 2,000 square feet of fast food restaurant building space as opposed to 6,000 square feet. Alternative 2 would result in 4,000 fewer square feet of building space compared with the Proposed Project. However, the 2.06 acres would still be subject to grading and site preparation.

Construction Noise and Vibration

As previously discussed, grading and site preparation activities are the loudest aspects of construction, and the grading and site preparation involved with Alternative 2 would require the same amount of ground disturbance as the Proposed Project. Thus, similar to the Proposed Project, Alternative 2 would span the same amount of acreage within the same proximity to vicinity noise receptors. However, Alternative 2 would result in the construction of less building space (4,000 fewer square feet). For these reasons it can be assumed that construction-related noise generated under this Alternative would be produced for a slightly shorter period of time than the Proposed Project. As previously discussed, the City's Municipal Code exempts construction noise from noise standards provided that construction is limited to between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday, and between the hours of 8:30 a.m. and 4:30 p.m. on Saturdays. Construction-related noise that occurs as a result of construction activities adhering to these daytime restrictions is deemed to comply with the City Municipal Code. Additionally, like the Proposed Project, Alternative 2 would be subject to City General Plan Noise Element Policy 1.3, which requires noise control measures in areas of new construction and, Noise Element Policy 3.1, which requires the reduction of noise associated with noise-producing activities on noise sensitive land uses, such as construction activities. As determined in Section 5.0 of this Assessment, the Proposed Project would result in a less than significant impact concerning construction noise, with the imposition of mitigation measures. Thus, the reduced development intensity of Alternative 2, adhering with the same type of noise-reducing mitigation, would also be expected to result in less than significant construction noise.

Similar to construction noise, Alternative 2 would result in the same amount of ground vibration as the Proposed Project. As with the Proposed Project, the use of virtually any type of construction equipment during construction of Alternative 2 would not result in a groundborne vibration velocity level above 0.2 in/sec at the nearest offsite structures.

Operational Noise

Operational noise sources associated with Alternative 2 would include mobile and stationary (i.e., fast food restaurant drive thru, mechanical equipment, lumber yard operations) sources.

As determined in Section 5.0 of this Assessment, predicted increases in traffic noise levels associated with the Project would not result in any mobile-source noise level standards being exceeded. Alternative 2

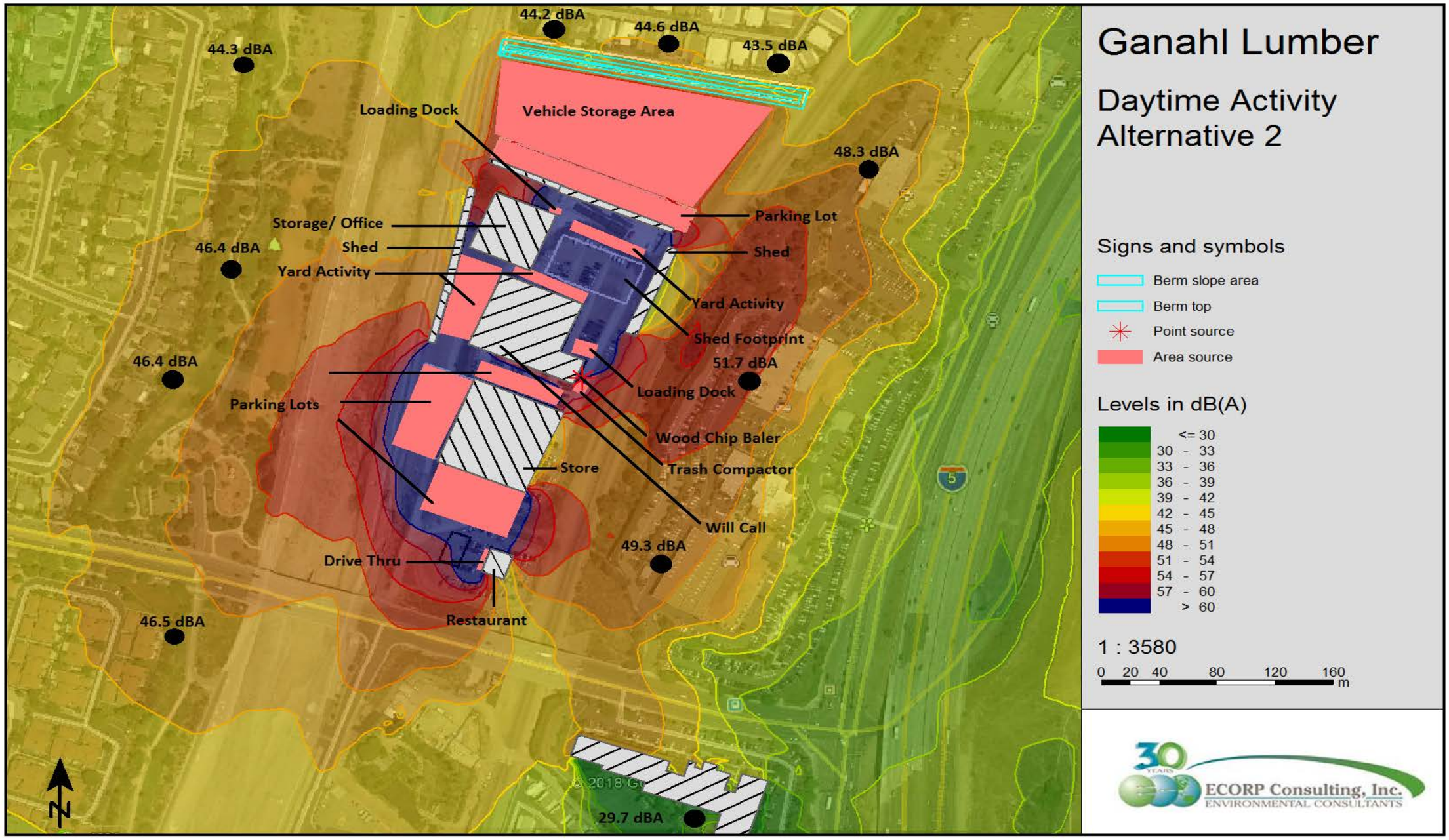
would generate approximately 25 percent *less* traffic on vicinity roadways. Such a decrease in automobile trips would equate to similar to slightly less traffic noise compared with the Proposed Project, depending on the specific roadway segments. For instance, the greatest reduction of traffic noise would occur on the segment of Stonehill Drive between the Project driveway and Camino Capistrano. Specifically, 25 percent less Project traffic on the segment of Stonehill Drive between the Project driveway and Camino Capistrano would result in a 0.1 dBA CNEL decrease compared with the Proposed Project. All the remaining vicinity roadway segments would experience the same level of traffic noise with implementation of Alternative 2 compared with the Proposed Project.

Alternative 2 would include several onsite noise sources such material handling vehicles stacking, loading and unloading products, back-up beepers, delivery trucks, a trash compactor, a baler, and other mechanical equipment and parking lot noise. Compared with the Proposed Project, Alternative 2 would not include as much activity associated with fast-food restaurants as there would be less square footage for this land use type. Table 17 shows the predicted noise propagation associated with daytime, evening and nighttime operations of Alternative 2, as predicted by the SoundPLAN 3D noise model, in comparison to the Proposed Project. Additionally, daytime and nighttime activity noise contour graphics (Figure 10. *Alternative 2 Noise Propagation - Daytime Activity* and 11. *Alternative 2 Noise Propagation - Evening & Nighttime Activity*) has been prepared to depict the predicted noise levels.

Table 17. Predicted Onsite Operational Noise Attributable to Alternative 2

Receiver Number	Receiver	Alternative 2 Daytime Noise Levels (dBA L_{eq})	Comparison to Proposed Project - Daytime	Alternative 2 Evening & Nighttime Noise Levels (dBA L_{eq})	Comparison to Proposed Project – Evening & Nighttime
1	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**44.2 dBA**	*Same*	**42.7 dBA**	*+0.3 dBA*
2	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**44.6 dBA**	*Same*	**43.2 dBA**	*+0.6 dBA*
3	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**43.5 dBA**	*Same*	**42.4 dBA**	*-0.6 dBA*
4	Commercial Area to the East (in the City of San Juan Capistrano)	**48.3 dBA**	*Same*	**47.9 dBA**	*-0.4 dBA*
5	Commercial Area to the East (in the City of San Juan Capistrano)	**51.7 dBA**	*-0.6 dBA*	**51.4 dBA**	*-0.9 dBA*
6	Commercial Area to the East (in the City of San Juan Capistrano)	**49.3 dBA**	*Same*	**46.5 dBA**	*-0.1 dBA*
7	Hotel to the Southeast (in the City of San Juan Capistrano)	**29.7 dBA**	*-0.5 dBA*	**28.0 dBA**	*-2.2 dBA*
8	Residential Neighborhood to the Southwest (in the City of Dana Point)	**46.5 dBA**	*+0.2 dBA*	**43.8 dBA**	*Same*
9	Residential Neighborhood to the West, across San Juan Creek (in the City of Dana Point)	**46.4 dBA**	*+0.2 dBA*	**42.6 dBA**	*-1.8 dBA*
10	Creekside Park to the west (in the City of Dana Point)	**46.4 dBA**	*+0.1 dBA*	**43.8 dBA**	*-0.8 dBA*
11	Residential Neighborhood to the West, across San Juan Creek (in the City of Dana Point)	**44.3 dBA**	*-0.1 dBA*	**42.7 dBA**	*-0.9 dBA*

Source: Stationary source noise levels were modeled by ECORP using SoundPLAN 3D noise model.



Map Date:*10/31/19*
Photo (or Base) Source:*SoundPLAN 2019*

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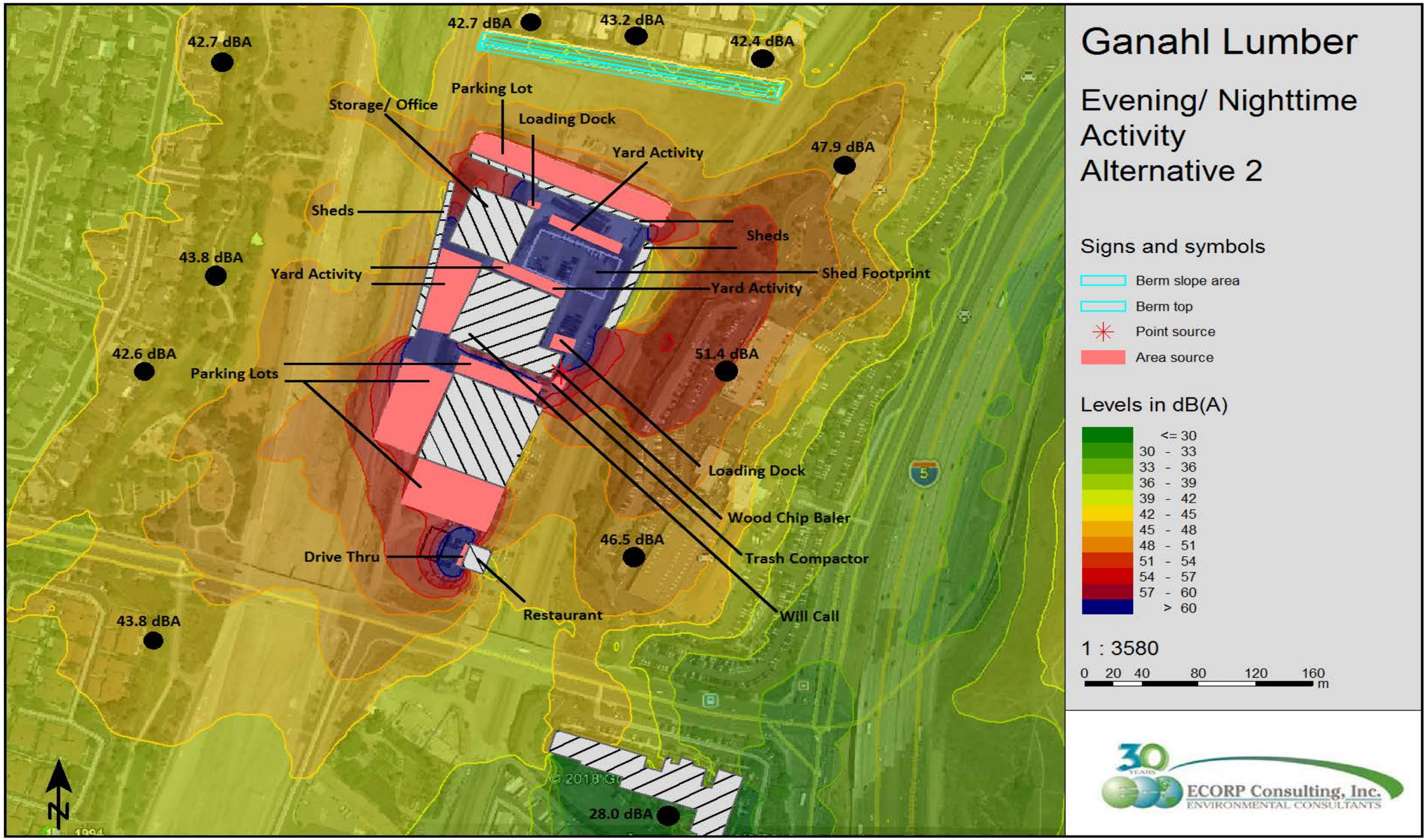
Figure 10. Alternative 2 Noise Propagation - Daytime Activity

2017-208 Ganahl Lumber



Map Date:*10/31/19*
Photo (or Base) Source:*SoundPLAN 2019*

ECORP Consulting, Inc.
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Figure 11. Alternative 2 Noise Propagation - Evening & Nighttime Activity

2017-208 Ganahl Lumber

As shown in Table 17, Alternative 2 would generally result in the same amount of noise with the Proposed Project, with minor deviations at select receivers.

6.1.3 Alternative 3: Reduced Density – 4,000 Square Feet of Restaurant Building Space

Alternative 3: Reduced Density – 4,000 Square Feet of Restaurant Building Space, would for 4,000 square feet of fast food restaurant building space as opposed to 6,000 square feet. Alternative 3 would result in 2,000 fewer square feet of building space compared with the Proposed Project.

Construction Noise and Vibration

As previously discussed, grading and site preparation activities are the loudest aspects of construction, and the grading and site preparation involved with Alternative 3 would require the same amount of ground disturbance as the Proposed Project. Thus, similar to the Proposed Project, Alternative 3 would span the same amount of acreage within the same proximity to vicinity noise receivers. However, Alternative 3 would result in the construction of slightly less building space (2,000 fewer square feet). For these reasons it can be assumed that construction-related noise generated under this Alternative would be produced for a slightly shorter period of time than the Proposed Project. As previously discussed, the City's Municipal Code exempts construction noise from noise standards provided that construction is limited to between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday, and between the hours of 8:30 a.m. and 4:30 p.m. on Saturdays. Construction-related noise that occurs as a result of construction activities adhering to these daytime restrictions is deemed to comply with the City Municipal Code. Additionally, like the Proposed Project, Alternative 3 would be subject to City General Plan Noise Element Policy 1.3, which requires noise control measures in areas of new construction and, Noise Element Policy 3.1, which requires the reduction of noise associated with noise-producing activities, such as construction activities, on noise sensitive land uses. As determined in Section 5.0 of this Assessment, the Proposed Project would result in a less than significant impact concerning construction noise, with the imposition of mitigation measures. Thus, the reduced development intensity of Alternative 3, adhering with the same type of noise-reducing mitigation, would also be expected to result in less than significant construction noise.

Similar to construction noise, Alternative 3 would result in the same amount of ground vibration as the Proposed Project. As with the Proposed Project, the use of virtually any type of construction equipment during construction of Alternative 3 would not result in a groundborne vibration velocity level above 0.2 in/sec at the nearest offsite structures.

Operational Noise

Operational noise sources associated with Alternative 3 would include mobile and stationary (i.e., fast-food restaurant drive thru, mechanical equipment, lumber yard operations) sources.

As determined in Section 5.0 of this Assessment, predicted increases in traffic noise levels associated with the Project would not result in any mobile-source noise level standards being exceeded. Alternative 3 would generate approximately 12 percent less traffic on vicinity roadways. Such a decrease in automobile trips would equate to similar to slightly less traffic noise compared with the Proposed Project, depending

on the specific roadway segments. For instance, the greatest reduction of traffic noise would occur on the segment of Stonehill Drive between the Project driveway and Camino Capistrano. Specifically, 12 percent less Project traffic on the segment of Stonehill Drive between the Project driveway and Camino Capistrano would result in a 0.1-dBA CNEL decrease compared with the Proposed Project. All the remaining vicinity roadway segments would experience the same level of traffic noise with implementation of Alternative 3 compared with the Proposed Project.

Alternative 3 would include several onsite noise sources such material handling vehicles stacking, loading and unloading products, back-up beepers, delivery trucks, a trash compactor, a baler, and other mechanical equipment and parking lot noise. Compared with the Proposed Project, Alternative 3 would include slightly less activity associated with fast-food restaurants as there would be less square footage for this land use type. Table 18 shows the predicted noise propagation associated with daytime, evening and nighttime operations of Alternative 3, as predicted by the SoundPLAN 3D noise model, in comparison to the Proposed Project. Additionally, daytime and nighttime activity noise contour graphics (Figure 12. *Alternative 3 Noise Propagation - Daytime Activity* and 13. *Alternative 3 Noise Propagation - Evening & Nighttime Activity*) has been prepared to depict the predicted noise levels.

Table 18. Predicted Onsite Operational Noise Attributable to Alternative 3

Receiver Number	Receiver	Alternative 3 Daytime Noise Levels (dBA L_{eq})	Comparison to Proposed Project - Daytime	Alternative 3 Evening & Nighttime Noise Levels (dBA L_{eq})	Comparison to Proposed Project – Evening & Nighttime
1	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**44.2 dBA**	*Same*	**42.4 dBA**	*Same*
2	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**44.6 dBA**	*Same*	**42.6 dBA**	*Same*
3	Residential Neighborhood to the North (in the City of San Juan Capistrano)	**43.5 dBA**	*Same*	**43.0 dBA**	*Same*
4	Commercial Area to the East (in the City of San Juan Capistrano)	**48.5 dBA**	*+0.2 dBA*	**48.3 dBA**	*Same*
5	Commercial Area to the East (in the City of San Juan Capistrano)	**52.2 dBA**	*-0.1 dBA*	**51.7 dBA**	*-0.6 dBA*
6	Commercial Area to the East (in the City of San Juan Capistrano)	**50.3 dBA**	*+1.0 dBA*	**47.3 dBA**	*+0.7 dBA*
7	Hotel to the Southeast (in the City of San Juan Capistrano)	**30.3 dBA**	*+0.1 dBA*	**30.3 dBA**	*+0.1 dBA*
8	Residential Neighborhood to the Southwest (in the City of Dana Point)	**46.0 dBA**	*-0.3 dBA*	**43.6 dBA**	*-0.2 dBA*
9	Residential Neighborhood to the West, across San Juan Creek (in the City of Dana Point)	**46.2 dBA**	*Same*	**44.4 dBA**	*Same*
10	Creekside Park to the west (in the City of Dana Point)	**46.2 dBA**	*-0.1 dBA*	**44.5 dBA**	*-0.1 dBA*
11	Residential Neighborhood to the West, across San Juan Creek (in the City of Dana Point)	**44.3 dBA**	*-0.1 dBA*	**43.4 dBA**	*-0.2 dBA*

Source: Stationary source noise levels were modeled by ECORP Consulting using SoundPLAN 3D noise model.

As shown in Table 18, Alternative 3 would generally result in the same amount of noise with the Proposed Project, with minor deviations at select receivers.

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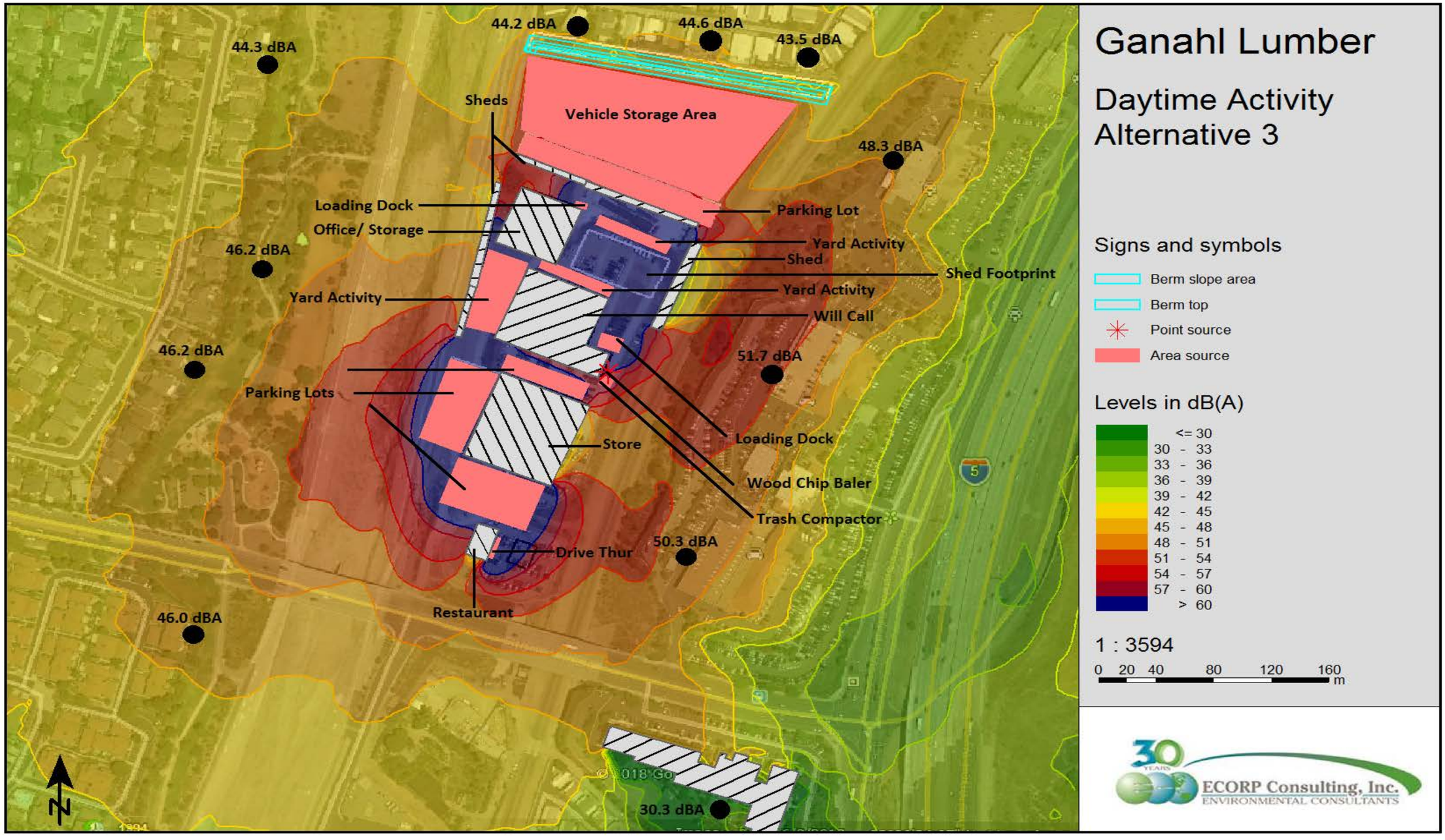

Map Date:*10/31/19*
Photo (or Base) Source:*SoundPLAN 2019*

ECORP Consulting, Inc.
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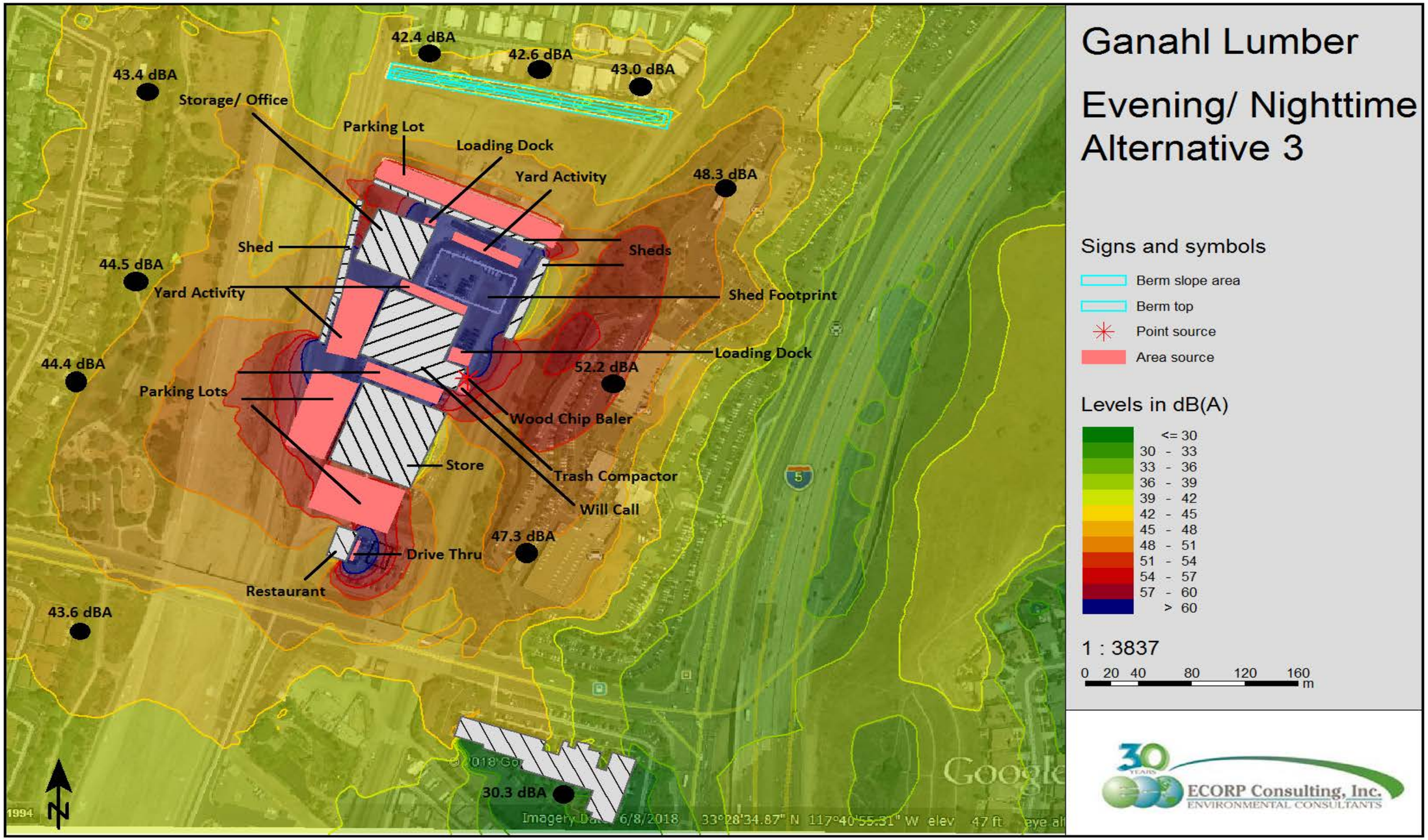
Figure 12. Alternative 3 Noise Propagation - Daytime Activity

2017-208 Ganahl Lumber



Map Date:*10/31/19*
Photo (or Base) Source:*SoundPLAN 2019*

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Figure 13 Alternative 3 Noise Propagation - Evening & Nighttime Activity

2017-208 Ganahl Lumber

7.0 REFERENCES

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LIST OF ATTACHMENTS

ATTACHMENT A

Baseline (Existing) Noise Measurements – Project Site and Vicinity

Site Number: 1
Recorded By: Jerry Aguirre
Job Number: 2017-208
Date: 09/29/2017
Time: 11:55 a.m.
Location: 33°28'41" N, 117°40'36" W; disturbed path south of fence line adjacent to mobile home park
Source of Peak Noise: highway, construction equipment, residences

Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
48.7	43.3	62.2	93.7

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	6/27/2017	
	Microphone	Larson Davis	377B02	174464	5/19/2017	
	Preamp	Larson Davis	PRMLxT1L	042852	6/1/2017	
	Calibrator	Larson Davis	CAL200	14105	6/13/2017	

Weather Data			
Est.	Duration: 10 minutes		Sky: sunny
	Note: dBA Offset = 0.1		Sensor Height (ft): 5 ft
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	2-5 mph	78 F	1012.89 hPa

Photo of Measurement Location

Summary

File Name on Meter	LxT_Data.019
File Name on PC	SLM_0005120_LxT_Data_019.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.301
User	Jerry Aguirre
Location	San Juan Capistrano
Job Description	Ganahl Lumber #1
Note	

Measurement

Description	
Start	2017-09-29 11:55:46
Stop	2017-09-29 12:05:46
Duration	00:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre Calibration	2017-09-29 11:53:02
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max

Overload	122.3 dB		
	A	**C**	**Z**
Under Range Peak	78.6	75.6	**80.6** dB
Under Range Limit	**25.3**	25.4	30.4 dB
Noise Floor	16.1	16.3	21.2 dB

Results

LAeq	48.7 dB		
LAE	76.5 dB		
EA	4.950 µPa²h		
LZpeak (max)	2017-09-29 12:03:54	93.7 dB	
LAFmax	2017-09-29 11:59:45	62.2 dB	
LAFmin	2017-09-29 11:58:07	43.3 dB	
SEA	-99.9 dB		
LAF > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LAF > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s	

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	48.7	48.7	-99.9	48.7	48.7	-99.9

LCeq	63.3 dB		
LAeq	48.7 dB		
LCeq - LAeq	14.6 dB		
LAleq	49.9 dB		
LAeq	48.7 dB		
LAleq - LAeq	1.2 dB		

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	48.7		63.3			
LF(max)	62.2	2017/09/29 11:59:45				

LF(min)	43.3	2017/09/29 11:58:07				
LPeak(max)					93.7	2017/09/29 12:03:54

# Overloads	0	
Overload Duration	0.0	s
# OBA Overloads	1.0	
OBA Overload Duration	2.1	s

Statistics

LAF5.00	53.6	dB
LAF10.00	49.6	dB
LAF33.30	47.2	dB
LAF50.00	46.4	dB
LAF66.60	45.8	dB
LAF90.00	45.0	dB

Calibration History

Preamp	**Date**	**dB re. 1V/Pa**	**6.3**	**8.0**	**10.0**
PRMLxT1L	2017-09-29 11:52:59	-28.7	52.4	48.9	50.1
PRMLxT1L	2017-09-29 11:52:01	-28.7	48.0	51.0	50.8
PRMLxT1L	2017-09-29 11:51:28	-28.7	57.8	55.0	61.0
PRMLxT1L	2017-09-15 11:50:28	-28.8	31.4	40.6	34.7
PRMLxT1L	2017-09-05 10:49:41	-28.6	41.6	45.6	34.2
PRMLxT1L	2017-08-25 19:05:29	-28.7	40.6	54.8	53.2
PRMLxT1L	2017-08-10 11:53:08	-28.5	40.6	59.3	72.0
PRMLxT1L	2017-07-19 09:20:22	-28.6	43.7	45.9	52.5
PRMLxT1L	2017-06-27 09:59:53	-28.5	48.4	55.0	51.1
PRMLxT1L	2017-06-27 07:22:34	-28.4	41.1	40.4	37.9
PRMLxT1L	2017-06-27 07:09:47	-26.4	7.8	5.1	5.9

Site Number: 2			
Recorded By: Jerry Aguirre			
Job Number: 2017-208			
Date: 09/29/2017			
Time: 12:25 p.m.			
Location: 33°28'27" N, 117°40'40" W; disturbed path west of rail line			
Source of Peak Noise: highway, bridge overhead, machinery grinder, bike rider			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
56.4	45.8	70.7	99.3

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	6/27/2017	
	Microphone	Larson Davis	377B02	174464	5/19/2017	
	Preamp	Larson Davis	PRMLxT1L	042852	6/1/2017	
	Calibrator	Larson Davis	CAL200	14105	6/13/2017	

Weather Data			
Est.	Duration: 10 minutes		Sky: sunny
	Note: dBA Offset = 0.1		Sensor Height (ft): 5 ft
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	2-5 mph	78 F	1012.89 hPa

Photo of Measurement Location

Summary

File Name on Meter	LxT_Data.020
File Name on PC	SLM_0005120_LxT_Data_020.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.301
User	Jerry Aguirre
Location	San Juan Capistrano
Job Description	Ganahl Lumber #2
Note	

Measurement

Description	
Start	2017-09-29 12:25:22
Stop	2017-09-29 12:35:22
Duration	00:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre Calibration	2017-09-29 11:52:59
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.3 dB

	A	**C**	**Z**	
Under Range Peak	78.6	75.6	**80.6**	dB
Under Range Limit	**25.3**	25.4	30.4	dB
Noise Floor	16.1	16.3	21.2	dB

Results

LAeq	56.4 dB
LAE	84.2 dB

EA	29.079	µPa²h	
LZpeak (max)	2017-09-29 12:34:43	99.3	dB
LAFmax	2017-09-29 12:34:46	70.7	dB
LAFmin	2017-09-29 12:29:12	45.8	dB
SEA	-99.9	dB	

LAF > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAF > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	56.4	56.4	-99.9	56.4	56.4	-99.9

LCeq	69.6	dB
LAeq	56.4	dB
LCeq - LAeq	13.2	dB
LAleq	57.6	dB
LAeq	56.4	dB
LAleq - LAeq	1.2	dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	56.4		69.6			
LF(max)	70.7	2017/09/29 12:34:46				
LF(min)	45.8	2017/09/29 12:29:12				
LPeak(max)					99.3	2017/09/29 12:34:43

# Overloads	0	
Overload Duration	0.0	s
# OBA Overloads	4.0	
OBA Overload Duration	9.7	s

Statistics

LAF5.00	59.8	dB
LAF10.00	58.6	dB
LAF33.30	56.5	dB
LAF50.00	55.3	dB
LAF66.60	53.8	dB
LAF90.00	50.5	dB

Calibration History

Preamp	Date	dB re. 1V/Pa	6.3	8.0	10.0
PRMLxT1L	2017-09-29 11:52:59	-28.7	52.4	48.9	50.1
PRMLxT1L	2017-09-29 11:52:01	-28.7	48.0	51.0	50.8
PRMLxT1L	2017-09-29 11:51:28	-28.7	57.8	55.0	61.0
PRMLxT1L	2017-09-15 11:50:28	-28.8	31.4	40.6	34.7
PRMLxT1L	2017-09-05 10:49:41	-28.6	41.6	45.6	34.2
PRMLxT1L	2017-08-25 19:05:29	-28.7	40.6	54.8	53.2
PRMLxT1L	2017-08-10 11:53:08	-28.5	40.6	59.3	72.0
PRMLxT1L	2017-07-19 09:20:22	-28.6	43.7	45.9	52.5
PRMLxT1L	2017-06-27 09:59:53	-28.5	48.4	55.0	51.1
PRMLxT1L	2017-06-27 07:22:34	-28.4	41.1	40.4	37.9
PRMLxT1L	2017-06-27 07:09:47	-26.4	7.8	5.1	5.9

Site Number: 3			
Recorded By: Jerry Aguirre			
Job Number: 2017-208			
Date: 09/29/2017			
Time: 12:49 p.m.			
Location: 33°28'34" N, 117°40'46" W; paved area adjacent to bike path			
Source of Peak Noise: vehicles, construction equipment, playground, bike riders			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
55.5	48.4	62.1	93.7

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	6/27/2017	
	Microphone	Larson Davis	377B02	174464	5/19/2017	
	Preamp	Larson Davis	PRMLxT1L	042852	6/1/2017	
	Calibrator	Larson Davis	CAL200	14105	6/13/2017	

Weather Data			
Est.	Duration: 10 minutes		Sky: sunny
	Note: dBA Offset = 0.1		Sensor Height (ft): 5 ft
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	2-5 mph	78 F	1012.89 hPa

Photo of Measurement Location

Summary

File Name on Meter	LxT_Data.021
File Name on PC	SLM_0005120_LxT_Data_021.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.301
User	Jerry Aguirre
Location	San Juan Capistrano
Job Description	Ganahl Lumber #3
Note	

Measurement

Description	
Start	2017-09-29 12:49:00
Stop	2017-09-29 12:59:00
Duration	00:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre Calibration	2017-09-29 11:52:59
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.3 dB

	A	**C**	**Z**
Under Range Peak	78.6	75.6	**80.6** dB
Under Range Limit	**25.3**	25.4	30.4 dB
Noise Floor	16.1	16.3	21.2 dB

Results

LAeq	55.5 dB
LAE	83.3 dB

EA	23.905 µPa²h		
LZpeak (max)	2017-09-29 12:50:39	93.7 dB	
LAFmax	2017-09-29 12:54:07	62.1 dB	
LAFmin	2017-09-29 12:57:15	48.4 dB	
SEA	-99.9 dB		
LAF > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LAF > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s	

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	55.5	55.5	-99.9	55.5	55.5	-99.9

LCeq	66.3	dB
LAeq	55.5	dB
LCeq - LAeq	10.7	dB
LAleq	56.4	dB
LAeq	55.5	dB
LAleq - LAeq	0.9	dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	55.5		66.3			
LF(max)	62.1	2017/09/29 12:54:07				
LF(min)	48.4	2017/09/29 12:57:15				
LPeak(max)					93.7	2017/09/29 12:50:39

# Overloads	0	
Overload Duration	0.0	s
# OBA Overloads	2.0	
OBA Overload Duration	4.0	s

Statistics

LAF5.00	58.2	dB
LAF10.00	57.7	dB
LAF33.30	56.0	dB
LAF50.00	55.2	dB
LAF66.60	54.4	dB
LAF90.00	52.0	dB

Calibration History

Preamp	Date	dB re. 1V/Pa	6.3	8.0	10.0
PRMLxT1L	2017-09-29 11:52:59	-28.7	52.4	48.9	50.1
PRMLxT1L	2017-09-29 11:52:01	-28.7	48.0	51.0	50.8
PRMLxT1L	2017-09-29 11:51:28	-28.7	57.8	55.0	61.0
PRMLxT1L	2017-09-15 11:50:28	-28.8	31.4	40.6	34.7
PRMLxT1L	2017-09-05 10:49:41	-28.6	41.6	45.6	34.2
PRMLxT1L	2017-08-25 19:05:29	-28.7	40.6	54.8	53.2
PRMLxT1L	2017-08-10 11:53:08	-28.5	40.6	59.3	72.0
PRMLxT1L	2017-07-19 09:20:22	-28.6	43.7	45.9	52.5
PRMLxT1L	2017-06-27 09:59:53	-28.5	48.4	55.0	51.1
PRMLxT1L	2017-06-27 07:22:34	-28.4	41.1	40.4	37.9
PRMLxT1L	2017-06-27 07:09:47	-26.4	7.8	5.1	5.9

Site Number: 4			
Recorded By: Jerry Aguirre			
Job Number: 2017-208			
Date: 09/29/2017			
Time: 1:13 p.m.			
Location: 33°28'28" N, 117°40'51" W; sidewalk adjacent to garage door of duplex apartment			
Source of Peak Noise: vehicles			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
56.8	46.8	69.0	94.1

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	6/27/2017	
	Microphone	Larson Davis	377B02	174464	5/19/2017	
	Preamp	Larson Davis	PRMLxT1L	042852	6/1/2017	
	Calibrator	Larson Davis	CAL200	14105	6/13/2017	

Weather Data			
Est.	Duration: 10 minutes		Sky: sunny
	Note: dBA Offset = 0.1		Sensor Height (ft): 5 ft
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	2-5 mph	78 F	1012.89 hPa

Photo of Measurement Location

Summary

File Name on Meter	LxT_Data.022
File Name on PC	SLM_0005120_LxT_Data_022.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.301
User	Jerry Aguirre
Location	San Juan Capistrano
Job Description	Ganahl Lumber #4
Note	

Measurement

Description	
Start	2017-09-29 13:13:16
Stop	2017-09-29 13:23:16
Duration	00:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre Calibration	2017-09-29 11:52:59
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.3 dB

	A	**C**	**Z**	
Under Range Peak	78.6	75.6	**80.6**	dB
Under Range Limit	**25.3**	25.4	30.4	dB
Noise Floor	16.1	16.3	21.2	dB

Results

LAeq	56.8 dB
LAE	84.5 dB

EA		31.576	µPa²h
LZpeak (max)	2017-09-29 13:16:05	94.1	dB
LAFmax	2017-09-29 13:19:24	69.0	dB
LAFmin	2017-09-29 13:17:09	46.8	dB
SEA		-99.9	dB

LAF > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAF > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	56.8	56.8	-99.9	56.8	56.8	-99.9

LCeq	68.4	dB
LAeq	56.8	dB
LCeq - LAeq	11.6	dB
LAleq	57.4	dB
LAeq	56.8	dB
LAleq - LAeq	0.7	dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	56.8		68.4			
LF(max)	69.0	2017/09/29 13:19:24				
LF(min)	46.8	2017/09/29 13:17:09				
LPeak(max)					94.1	2017/09/29 13:16:05

# Overloads	0	
Overload Duration	0.0	s
# OBA Overloads	2.0	
OBA Overload Duration	4.0	s

Statistics

LAF5.00	59.8	dB
LAF10.00	58.9	dB
LAF33.30	56.8	dB
LAF50.00	55.9	dB
LAF66.60	55.0	dB
LAF90.00	52.8	dB

Calibration History

Preamp	Date	dB re. 1V/Pa	6.3	8.0	10.0
PRMLxT1L	2017-09-29 11:52:59	-28.7	52.4	48.9	50.1
PRMLxT1L	2017-09-29 11:52:01	-28.7	48.0	51.0	50.8
PRMLxT1L	2017-09-29 11:51:28	-28.7	57.8	55.0	61.0
PRMLxT1L	2017-09-15 11:50:28	-28.8	31.4	40.6	34.7
PRMLxT1L	2017-09-05 10:49:41	-28.6	41.6	45.6	34.2
PRMLxT1L	2017-08-25 19:05:29	-28.7	40.6	54.8	53.2
PRMLxT1L	2017-08-10 11:53:08	-28.5	40.6	59.3	72.0
PRMLxT1L	2017-07-19 09:20:22	-28.6	43.7	45.9	52.5
PRMLxT1L	2017-06-27 09:59:53	-28.5	48.4	55.0	51.1
PRMLxT1L	2017-06-27 07:22:34	-28.4	41.1	40.4	37.9
PRMLxT1L	2017-06-27 07:09:47	-26.4	7.8	5.1	5.9

Site Number: 5			
Recorded By: Jerry Aguirre			
Job Number: 2017-208			
Date: 06/06/2019			
Time: 5:04 a.m.			
Location: 33°28'27" N, 117°40'48" W. Along San Juan Creek Trail, approximately 100 feet south of Stonehill Drive and 100 feet east of residences fronting Scotty's Cove Drive. Southwest of the Project site.			
Source of Peak Noise: Vehicles along Stonehill Drive, nearby train			
Noise Data			
L_{eq} (dB)	**L_{min} (dB)**	**L_{max} (dB)**	**Peak (dB)**
55.7	40.7	73.8	88.7

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**6/04/2018**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**5/31/2018**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**6/04/2018**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**5/31/2018**	

Weather Data			
Est.	**Duration:** 15 minutes		**Sky: Overcast**
	Note: dBA Offset = 0.04		**Sensor Height (ft):** 4.0 – 4.5 ft
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	0-1	61° F	29.9

Photo of Measurement Location

Summary

File Name on Meter	LxT_Data.122
File Name on PC	SLM_0005120_LxT_Data_122.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Jerry Aguirre
Location	Ganahl San Juan Capistrano
Job Description	2017-208 Ganahl SJC
Note	

Measurement

Description	
Start	2019-06-06 05:04:10
Stop	2019-06-06 05:19:10
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2019-06-06 04:59:22
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.8 dB

	A	**C**	**Z**	
Under Range Peak	79.1	76.1	**81.1**	dB
Under Range Limit	**28.1**	26.5	34.1	dB
Noise Floor	17.3	17.3	23.7	dB

Results

LA_{eq}	**55.7 dB**		
LAE	85.3 dB		
EA	37.340 µPa²h		
$LZ_{peak\ (max)}$	2019-06-06 05:04:48	88.7 dB	
LAF_{max}	2019-06-06 05:09:09	73.8 dB	
LAF_{min}	2019-06-06 05:16:47	40.7 dB	
SEA	-99.9 dB		
LAF > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LAF > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZ_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZ_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZ_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s	

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**	**LNight 22:00-07:00**

	65.7	-99.9	55.7	65.7	-99.9	-99.9	55.7	dB

LCeq	65.4	dB
LAeq	55.7	dB
LCeq - LAeq	9.7	dB
LAleq	57.6	dB
LAeq	55.7	dB
LAleq - LAeq	1.9	dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	55.7		65.4			
LF(max)	73.8	2019/06/06 5:09:09				
LF(min)	40.7	2019/06/06 5:16:47				
LPeak(max)					88.7	2019/06/06 5:04:48

# Overloads	0	
Overload Duration	0.0	s
# OBA Overloads	0	
OBA Overload Duration	0.0	s

Statistics

LAF5.00	61.8	dB
LAF10.00	59.5	dB
LAF33.30	54.5	dB
LAF50.00	51.9	dB
LAF66.60	49.4	dB
LAF90.00	44.4	dB

Site Number: 6			
Recorded By: Jerry Aguirre			
Job Number: 2017-208			
Date: 06/06/2019			
Time: 5:32 a.m.			
Location: 33°28'41" N, 117°40'36" W; south of fence line adjacent to mobile home park			
Source of Peak Noise: Vehicles on Interstate 5 and Stonehill Drive, nearby train			
Noise Data			
L_{eq} (dB)	**L_{min} (dB)**	**L_{max} (dB)**	**Peak (dB)**
46.1	36.1	66.9	90.6

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**6/04/2018**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**5/31/2018**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**6/04/2018**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**5/31/2018**	

Weather Data			
Est.	**Duration:** 15 minutes		**Sky: Overcast**
	Note: dBA Offset = 0.04		**Sensor Height (ft):** 4.0 – 4.5 ft
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	0-1	61° F	29.9

Photo of Measurement Location

Summary

File Name on Meter	LxT_Data.123
File Name on PC	SLM_0005120_LxT_Data_123.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Jerry Aguirre
Location	Ganahl San Juan Capistrano
Job Description	2017-208 Ganahl SJC
Note	

Measurement

Description	
Start	2019-06-06 05:32:23
Stop	2019-06-06 05:47:23
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2019-06-06 04:59:14
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.8 dB

	A	**C**	**Z**
Under Range Peak	79.1	76.1	**81.1** dB
Under Range Limit	**28.1**	26.5	34.1 dB
Noise Floor	17.3	17.3	23.7 dB

Results

LA_{eq}	**46.1 dB**	
LAE	75.6 dB	
EA	4.080 µPa²h	
$LZ_{peak\ (max)}$	2019-06-06 05:45:49	90.6 dB
LAF_{max}	2019-06-06 05:45:48	66.9 dB
LAF_{min}	2019-06-06 05:36:05	36.1 dB
SEA	-99.9 dB	

LAF > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAF > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**	**LNight 22:00-07:00**

	56.1	-99.9	46.1	56.1	-99.9	-99.9	46.1	dB

LCeq	61.1	dB
LAeq	46.1	dB
LCeq - LAeq	15.0	dB
LAleq	47.0	dB
LAeq	46.1	dB
LAleq - LAeq	0.9	dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	46.1		61.1			
LF(max)	66.9	2019/06/06 5:45:48				
LF(min)	36.1	2019/06/06 5:36:05				
LPeak(max)					90.6	2019/06/06 5:45:49

# Overloads	0	
Overload Duration	0.0	s
# OBA Overloads	0	
OBA Overload Duration	0.0	s

Statistics		
LAF5.00	43.6	dB
LAF10.00	42.1	dB
LAF33.30	40.5	dB
LAF50.00	39.8	dB
LAF66.60	39.2	dB
LAF90.00	38.1	dB

ATTACHMENT B

Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108) Outputs – Project Traffic Noise

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2017-208
Project Name: Ganahl Lumber Store and Hardware Yard

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: LSA Associates
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Centerline of Roadway: CNEL at 100 Feet	70 CNEL	Distance to Contour: 65 CNEL	60 CNEL	55 CNEL	Calc Dist
Analysis Condition - Existing Conditions													
Stonehill Drive													
Camino Capistrano to Project Driveway	4	14	24,440	40	0.5	1.8%	0.7%	**64.1**	-	87	187	403	100
Project Driveway to Del Obispo Street	4	14	24,012	40	0.5	1.8%	0.7%	**64.0**	-	86	185	399	100
Camino Capistrano / Doheny Park Road													
Victoria Blvd to Costco Driveway	4	14	15,156	40	0.5	1.8%	0.7%	**62.0**	-	63	136	293	100
Costco Driveway to Stonehill Drive	4	14	17,001	40	0.5	1.8%	0.7%	**62.5**	-	68	147	317	100
Stonehill Drive to Avenida Aeropuerto	4	14	19,431	40	0.5	1.8%	0.7%	**63.1**	-	75	161	346	100
Valle Road													
South of La Novia Avenue	2	10	4,626	35	0.5	1.8%	0.7%	**55.3**	-	-	49	105	100
La Novia Avenue													
East of Valle Road	2	0	3,087	35	0.5	1.8%	0.7%	**53.6**	-	-	37	80	100
Del Obispo Street													
North of Stonehill Drive	4	0	14,391	40	0.5	1.8%	0.7%	**61.7**	-	60	129	279	100
South of Stonehill Drive	4	0	11,133	40	0.5	1.8%	0.7%	**60.6**	-	51	109	235	100

Ganahl Lumber Hardware
Existing + Project Conditions

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2017-208
Project Name: Ganahl Lumber Store and Hardware Yard

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: LSA Associates
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Centerline of Roadway: CNEL at 100 Feet	Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist
Analysis Condition - Existing + Project Conditions													
Stonehill Drive													
Camino Capistrano to Project Driveway	4	14	26,037	40	0.5	1.8%	0.7%	**64.4**	-	91	195	421	100
Project Driveway to Del Obispo Street	4	14	24,242	40	0.5	1.8%	0.7%	**64.0**	-	86	186	401	100
Camino Capistrano / Doheny Park Road													
Victoria Blvd to Costco Driveway	4	14	15,188	40	0.5	1.8%	0.7%	**62.0**	-	63	136	294	100
Costco Driveway to Stonehill Drive	4	14	17,150	40	0.5	1.8%	0.7%	**62.5**	-	69	148	318	100
Stonehill Drive to Avenida Aeropuerto	4	14	19,706	40	0.5	1.8%	0.7%	**63.1**	-	75	162	349	100
Valle Road													
South of La Novia Avenue	2	10	4,626	35	0.5	1.8%	0.7%	**55.3**	-	-	49	105	100
La Novia Avenue													
East of Valle Road	2	0	3,087	35	0.5	1.8%	0.7%	**53.6**	-	-	37	80	100
Del Obispo Street													
North of Stonehill Drive	4	0	14,409	40	0.5	1.8%	0.7%	**61.7**	-	60	130	279	100
South of Stonehill Drive	4	0	11,187	40	0.5	1.8%	0.7%	**60.6**	-	51	109	236	100

Ganahl Lumber Hardware
Cumulative No Project Conditions

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2017-208
Project Name: Ganahl Lumber Store and Hardware Yard

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: LSA Associates
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Centerline of Roadway: CNEL at 100 Feet	Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist
Analysis Condition - Cumulative No Project Conditions													
Stonehill Drive													
Camino Capistrano to Project Driveway	4	14	24,449	40	0.5	1.8%	0.7%	**64.1**	-	87	187	403	100
Project Driveway to Del Obispo Street	4	14	24,021	40	0.5	1.8%	0.7%	**64.0**	-	86	185	399	100
Camino Capistrano / Doheny Park Road													
Victoria Blvd to Costco Driveway	4	14	16,380	40	0.5	1.8%	0.7%	**62.3**	-	67	143	309	100
Costco Driveway to Stonehill Drive	4	14	18,225	40	0.5	1.8%	0.7%	**62.8**	-	71	154	332	100
Stonehill Drive to Avenida Aeropuerto	4	14	20,655	40	0.5	1.8%	0.7%	**63.4**	-	78	167	361	100
Valle Road													
South of La Novia Avenue	2	10	5,742	35	0.5	1.8%	0.7%	**56.3**	-	-	56	122	100
La Novia Avenue													
East of Valle Road	2	0	6,930	35	0.5	1.8%	0.7%	**57.1**	-	-	64	137	100
Del Obispo Street													
North of Stonehill Drive	4	0	15,597	40	0.5	1.8%	0.7%	**62.0**	-	63	137	294	100
South of Stonehill Drive	4	0	12,339	40	0.5	1.8%	0.7%	**61.0**	-	54	117	252	100

Ganahl Lumber Hardware
Cumulative + Project Conditions

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2017-208
Project Name: Ganahl Lumber Store and Hardware Yard

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: LSA Associates
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Centerline of Roadway: CNEL at 100 Feet	Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist
Analysis Condition - Cumulative + Project Conditions													
Stonehill Drive													
Camino Capistrano to Project Driveway	4	14	26,775	40	0.5	1.8%	0.7%	**64.5**	-	92	199	429	100
Project Driveway to Del Obispo Street	4	14	24,971	40	0.5	1.8%	0.7%	**64.2**	-	88	190	409	100
Camino Capistrano / Doheny Park Road													
Victoria Blvd to Costco Driveway	4	14	16,866	40	0.5	1.8%	0.7%	**62.5**	-	68	146	315	100
Costco Driveway to Stonehill Drive	4	14	18,882	40	0.5	1.8%	0.7%	**63.0**	-	73	158	340	100
Stonehill Drive to Avenida Aeropuerto	4	14	20,759	40	0.5	1.8%	0.7%	**63.4**	-	78	168	362	100
Valle Road													
South of La Novia Avenue	2	10	5,904	35	0.5	1.8%	0.7%	**56.4**	-	-	58	124	100
La Novia Avenue													
East of Valle Road	2	0	7,047	35	0.5	1.8%	0.7%	**57.1**	-	-	64	139	100
Del Obispo Street													
North of Stonehill Drive	4	0	16,047	40	0.5	1.8%	0.7%	**62.2**	-	65	139	300	100
South of Stonehill Drive	4	0	12,726	40	0.5	1.8%	0.7%	**61.1**	-	55	119	257	100

ATTACHMENT C

SoundPLAN Outputs – Onsite Project Noise

SoundPLAN
Output Source Information

Number	Reciever Name	Floor	Daytime Level at Receiver	Evening & Nighttime Level at Receiver
1	Residential Neighborhood (Mobile Home Park to North of Project Site)	Ground Floor	44.2 dBA	42.4 dBA
2	Residential Neighborhood (Mobile Home Park to North of Project Site)	Ground Floor	44.6 dBA	42.6 dBA
3	Residential Neighborhood (Mobile Home Park to North of Project Site)	Ground Floor	43.5 dBA	43.0 dBA
4	Commercial Area to the East of Project Site	Ground Floor	48.3 dBA	48.3 dBA
5	Commercial Area to the East of Project Site	Ground Floor	52.3 dBA	52.3 dBA
6	Commercial Area to the East of Project Site	Ground Floor	49.3 dBA	46.6 dBA
7	Hotel to the Southeast of Project Site	Ground Floor	30.2 dBA	30.2 dBA
8	Residential Neighborhood to the Southwest of Project Site	Ground Floor	46.3 dBA	43.8 dBA
9	Residential Neighborhood to the West of Project Site	Ground Floor	46.2 dBA	44.4 dBA
10	Creekside Park	Ground Floor	46.3 dBA	44.6 dBA
11	Residential Neighborhood to the West of Project Site	Ground Floor	44.4 dBA	43.6 dBA

Number	Noise Source Information	Citation	Level at Source
1	Drive-Thru Activity Noise (including amplified comm system)	SoundPLAN 4.1 Reference Library	75.0 dBA
2	Primary Parking Lot (Directly West of Hardware Store) Activity	ECORP Noise Measurements at Torrance Ganahl (see Attachment D)	65.7 dBA
3	Back Parking Lot (Between Pole Sheds and Vehicle Storage Area) Activity	ECORP Noise Measurements at the Parking Lot of Industrial/Business Park	50.9 dBA
4	Other Parking Lots (Directly South and North of Hardware Store) Activity	SoundPLAN 4.1 Reference Library	60.0 dBA
5	Lumber Yard Activity (including material handling vehicles)[1]	ECORP Noise Measurements at Torrance Ganahl (see Attachment D)	73.6 dBA
6	Wood Chip Baler	Industrysearch.com	68.0 dBA
7	Trash Compactor	SoundPLAN 4.1 Reference Library	60.0 dBA
8	Truck Loading Docks[2]	City of San Jose 2014 Midpoint at 237 Loading Dock Noise Study	79.0 dBA
9	Vehicle Storage Facility	ECORP Noise Measurements at Project site w/ existing vehicle storage facility (see Attachment A)	48.7 dBA

[1] The Torrance Ganahl employs an outdoor, unwalled lumber mill on site, which is not proposed in San Juan Capistrano, as well as 30 forklifts which is greater than the number proposed.

[2]This reference is adjusted to reflect the Leq experienced over one hour. Specifically, a truck is assumed to take approximately 5 minutes to drive in the site and position itself into one of two Project bays, 30-45 minutes to be unloaded or loaded, and another 5 minutes to exit the bay , complete necessary paperwork and drive out of the site. This equates to 40-55 minutes it would take for one truck to complete a delivery, therefore only one truck at the most could deliver to one of the two Project loading docks in one hour. During the loading/unloading of the truck the engine can only idle for five (5) minutes in compliance with State air quality requirements. To be conservative, it was assumed the truck engine could be operating for 15 minutes of the total time required during the delivery process (5 minutes at arrival, 5 minutes of idle and 5 minutes at departure). Noise levels drop 3 decibels each time the duration of the source is reduced in half. Therefore, hourly truck noise level over a 15 minute period would be reduced 6 decibels to 73 dBA at the source based on the limited time of operation. Noise propagation modeling accounts for 2 loading dock sources emitting noise simultaneously.

ATTACHMENT D

Reference Noise Measurements – Existing Operations at Ganahl Lumber Torrance Facility

Site Number: 1			
Recorded By: Jerry Aguirre			
Job Number: 2017-208			
Date: 1/4/2017			
Time: 11:50 a.m.			
Location: Ganahl Lumber Torrance facility- lumber yard adjacent to will call building (southwest of will call building)			
Source of Peak Noise: forklift, semi-trucks, passenger cars, train			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
73.6	64.3	91.1	109.7

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	6/27/2017	
	Microphone	Larson Davis	377B02	174464	5/19/2017	
	Preamp	Larson Davis	PRMLxT1L	042852	6/1/2017	
	Calibrator	Larson Davis	CAL200	14105	6/13/2017	

Weather Data			
Est.	Duration: 10 minutes		Sky: sunny
	Note: dBA Offset = -0.04		Sensor Height (ft): 5 ft
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	0-1 mph	72 F	30.15 inHg

Photo of Measurement Location

Summary

File Name on Meter	LxT_Data.044
File Name on PC	SLM_0005120_LxT_Data_044.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.301
User	Jerry Aguirre
Location	Ganahl Lumber Store - Torrance, CA
Job Description	Site 2
Note	

Measurement

Description	
Start	2018-01-04 11:49:49
Stop	2018-01-04 12:09:49
Duration	00:20:00.0
Run Time	00:20:00.0
Pause	00:00:00.0
Pre Calibration	2018-01-04 11:12:52
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.5 dB

	A	**C**	**Z**
Under Range Peak	78.8	75.8	**80.8** dB
Under Range Limit	**25.4**	25.4	30.4 dB
Noise Floor	16.1	16.3	21.3 dB

Results

LAeq	73.6 dB
LAE	104.4 dB

EA	3.048	mPa²h	
LZpeak (max)	2018-01-04 11:57:44	109.7	dB
LAFmax	2018-01-04 11:57:44	91.1	dB
LAFmin	2018-01-04 11:50:08	64.3	dB
SEA	-99.9	dB	

LAF > 85.0 dB (Exceedance Counts / Duratio	8	20.8	s
LAF > 115.0 dB (Exceedance Counts / Durati	0	0.0	s
LZpeak > 135.0 dB (Exceedance Counts / Du	0	0.0	s
LZpeak > 137.0 dB (Exceedance Counts / Du	0	0.0	s
LZpeak > 140.0 dB (Exceedance Counts / Du	0	0.0	s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	73.6	73.6	-99.9	73.6	73.6	-99.9

LCeq	77.6	dB
LAeq	73.6	dB
LCeq - LAeq	4.0	dB
LAleq	75.8	dB
LAeq	73.6	dB
LAleq - LAeq	2.2	dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	73.6		77.6			
LF(max)	91.1	2018/01/04 11:57:44				
LF(min)	64.3	2018/01/04 11:50:08				
LPeak(max)					109.7	2018/01/04 11:57:44

# Overloads	0	
Overload Duration	0.0	s
# OBA Overloads	33.0	
OBA Overload Duration	115.5	s

Statistics

LAF5.00	77.5	dB
LAF10.00	74.0	dB
LAF33.30	70.0	dB
LAF50.00	68.8	dB
LAF66.60	67.9	dB
LAF90.00	66.3	dB

Calibration History

Preamp	Date	dB re. 1V/Pa	6.3	8.0	10.0
PRMLxT1L	2018-01-04 11:12:52	-28.8	59.4	60.8	54.8
PRMLxT1L	2017-12-28 10:24:59	-28.8	42.5	56.9	52.2
PRMLxT1L	2017-12-07 13:40:48	-28.8	63.7	62.9	56.6
PRMLxT1L	2017-11-28 15:19:48	-28.9	43.5	42.7	50.9
PRMLxT1L	2017-11-28 15:19:30	-28.9	32.1	46.0	43.5
PRMLxT1L	2017-11-28 15:19:12	-28.9	42.8	43.9	44.2
PRMLxT1L	2017-11-02 13:52:42	-28.8	53.5	50.8	49.4
PRMLxT1L	2017-10-11 10:26:19	-28.6	59.8	50.8	62.2
PRMLxT1L	2017-09-29 11:52:59	-28.7	52.4	48.9	50.1
PRMLxT1L	2017-09-29 11:52:01	-28.7	48.0	51.0	50.8
PRMLxT1L	2017-09-29 11:51:28	-28.7	57.8	55.0	61.0

Site Number: 2			
Recorded By: Jerry Aguirre			
Job Number: 2017-208			
Date: 1/4/2017			
Time: 12:15 p.m.			
Location: Ganahl Lumber Torrance facility- parking lot at center of entrance			
Source of Peak Noise: vehicle traffic			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
65.7	56.4	93.1	109.9

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	6/27/2017	
	Microphone	Larson Davis	377B02	174464	5/19/2017	
	Preamp	Larson Davis	PRMLxT1L	042852	6/1/2017	
	Calibrator	Larson Davis	CAL200	14105	6/13/2017	

Weather Data			
Est.	Duration: 10 minutes		Sky: sunny
	Note: dBA Offset = -0.04		Sensor Height (ft): 5 ft
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	0-1 mph	72 F	30.15 inHg

Photo of Measurement Location

Summary

File Name on Meter	LxT_Data.045
File Name on PC	SLM_0005120_LxT_Data_045.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.301
User	Jerry Aguirre
Location	Ganahl Lumber Store- Torrance, CA
Job Description	2017-208/003/003E
Note	

Measurement

Description	
Start	2018-01-04 12:15:20
Stop	2018-01-04 12:25:20
Duration	00:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre Calibration	2018-01-04 11:12:52
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting			
Peak Weight	Z Weighting			
Detector	Fast			
Preamp	PRMLxT1L			
Microphone Correction	Off			
Integration Method	Linear			
OBA Range	Low			
OBA Bandwidth	1/1 and 1/3			
OBA Freq. Weighting	Z Weighting			
OBA Max Spectrum	Bin Max			
Overload	122.5 dB			
	A	**C**	**Z**	
Under Range Peak	78.8	75.8	**80.8** dB	
Under Range Limit	**25.4**	25.4	30.4 dB	
Noise Floor	16.1	16.3	21.3 dB	

Results

LAeq	65.7 dB
LAE	93.5 dB

EA		249.760	µPa²h
LZpeak (max)	2018-01-04 12:16:58	109.9	dB
LAFmax	2018-01-04 12:16:58	93.1	dB
LAFmin	2018-01-04 12:15:48	56.4	dB
SEA		-99.9	dB

LAF > 85.0 dB (Exceedance Counts / Duration)	2	1.1 s
LAF > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 135.0 dB (Exceedance Counts / Duratic	0	0.0 s
LZpeak > 137.0 dB (Exceedance Counts / Duratic	0	0.0 s
LZpeak > 140.0 dB (Exceedance Counts / Duratic	0	0.0 s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	65.7	65.7	-99.9	65.7	65.7	-99.9

LCeq	73.9	dB
LAeq	65.7	dB
LCeq - LAeq	8.2	dB
LAleq	72.6	dB
LAeq	65.7	dB
LAleq - LAeq	6.9	dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	65.7		73.9			
LF(max)	93.1	2018/01/04 12:16:58				
LF(min)	56.4	2018/01/04 12:15:48				
LPeak(max)					109.9	2018/01/04 12:16:58

# Overloads	0	
Overload Duration	0.0	s
# OBA Overloads	5.0	
OBA Overload Duration	20.4	s

Statistics

LAF5.00	68.6	dB
LAF10.00	67.2	dB
LAF33.30	63.9	dB
LAF50.00	62.1	dB
LAF66.60	60.7	dB
LAF90.00	58.6	dB

Calibration History

Preamp	Date	dB re. 1V/Pa	6.3	8.0	10.0
PRMLxT1L	2018-01-04 11:12:52	-28.8	59.4	60.8	54.8
PRMLxT1L	2017-12-28 10:24:59	-28.8	42.5	56.9	52.2
PRMLxT1L	2017-12-07 13:40:48	-28.8	63.7	62.9	56.6
PRMLxT1L	2017-11-28 15:19:48	-28.9	43.5	42.7	50.9
PRMLxT1L	2017-11-28 15:19:30	-28.9	32.1	46.0	43.5
PRMLxT1L	2017-11-28 15:19:12	-28.9	42.8	43.9	44.2
PRMLxT1L	2017-11-02 13:52:42	-28.8	53.5	50.8	49.4
PRMLxT1L	2017-10-11 10:26:19	-28.6	59.8	50.8	62.2
PRMLxT1L	2017-09-29 11:52:59	-28.7	52.4	48.9	50.1
PRMLxT1L	2017-09-29 11:52:01	-28.7	48.0	51.0	50.8
PRMLxT1L	2017-09-29 11:51:28	-28.7	57.8	55.0	61.0