Noise & Vibration Study
Chartwell Warehouse at Rider Street & Redlands Avenue
City of Perris

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June 2022

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1.0 INTRODUCTION

The Chartwell Warehouse at Rider Street and Redlands Avenue (Project) is being proposed within the Perris Valley Commerce Center Specific Plan (PVCCSP) planning area in the City of Perris. The Project has the potential to generate changes in the existing noise environment. Under the California Environmental Quality Act (CEQA), projects of this type must undergo an environmental review to assess potential impacts. The following noise analysis has been prepared to support the Mitigated Negative Declaration (MND) for the Project and to demonstrate consistency with all applicable federal, state, and local noise regulations.

The following noise study describes the Project, provides information regarding noise fundamentals, describes the applicable federal, state, and local noise guidelines, characterizes the existing noise environment, provides the study methods and procedures used to perform the traffic noise analysis, and evaluates off-site traffic noise impacts, presents stationary-related noise impacts from loading and unloading activities and construction noise impacts near sensitive residential land uses. The Project must incorporate the recommended noise mitigation measures presented in the Perris Valley Commerce Center Specific Plan Environmental Impact Report (PVCC SP EIR, July 2011).

1.1 Project Location and Site Description

The Project site is located on approximately 6.26 net acres on the northeastern corner of Rider St. and Redland Avenue in Perris, California. **Figure 1** depicts the Project area in a regional context, while **Figure 2** presents the Project site.

1.2 Project Description

The Project applicant proposes the development of a non-refrigerated warehouse building, approximately 132,485 square feet in size which includes 3,000 SF of office space and 3,000 SF of mezzanine space. The warehouse building will feature approximately 19 loading dock doors on the southwest side of the proposed building (**Figure 3 – Site Plan**).

The Project will be constructed as a speculative warehouse building; that is, there is not a specific tenant identified at this time. This analysis assumes the Project would be operated 24 hours per day, seven days per week, to present a conservative analysis or worst-case conditions.

The proposed Project has been designed to comply with the applicable Standards and Guidelines outlined in the Perris Valley Commerce Center Specific Plan (PVCCSP), including but not limited to landscape, parkway, setback, lot coverage, Floor Area Ratio (FAR), architectural requirements, and employee amenities requirements. The proposed warehouse building will be constructed from concrete tilt-up panes that will be painted according to the approved City's color palette. The warehouse building will consist of few non-reflective glass windows which will include a mixture of glazing and tempered glass to allow for interior natural light. Most of the windows will be placed on the office areas. Landscaping, screen walls, and fencing will be provided on site as required for screening, privacy, and security. The Project also includes approximately 37,042 SF of on-site landscaping. The truck loading docks will be located on the western side of the building and will be enclosed by 9-foot-high metal tube steel fence to the west, by the proposed warehouse building to the east, and by two 6-foot double metal swing gates with concrete fence to the north

and south. Access to the truck loading docks will be through those rolling metal gates. As noted, the Project site will include onsite landscaping. Landscaping will be provided along the street frontages, along the walls and fencing on the south and west sides of the property, and adjacent to the north, east, and south sides, and a portion of the northwestern side of the proposed building. The southwestern side of the proposed building will include a landscaped employee break area. Vehicle parking located on the northern sides of the building will be visible from Redlands Avenue and Rider Street.

Access to the Project site will be provided from Redlands Avenue and Rider Street via two driveways; the driveway on Redlands Avenue is designated for truck access and will be restricted to right-in only turns, with no truck exit access. The driveway on Rider Street is designated truck and passenger vehicle access; trucks will be restricted to right-out turns and right in/right out.
passenger vehicles will have full access. This passenger driveway will include decorative concrete near the driveway entrance. As shown in **Figure 3 –Site Plan**, automobile parking would be provided at the site; the number of parking spaces provided would be consistent with the parking requirements outlined in Perris Municipal Code, Chapter 19.69. No additional truck parking stalls are required, as the parking required by the Municipal Code has already been met. A total of 98 auto parking stalls will be provided along the northern portion of the Project site. Pursuant to Section 5.106.5.2 of the 2019 California Green Building Standards Code (CCR, Title 24, Part 11 – CalGreen), five of the parking spaces will be designated for low-emitting, fuel efficient, and carpool/vanpool vehicles. Pursuant to Section 5.106.5.3.2 of the CalGreen Code, five parking spaces will include equipment for the charging of electric vehicles (EV), this includes chargers on two American with Disabilities Act (ADA) stalls. A total of six ADA stalls will be included. Further, bicycle parking is provided on the northwest side of the proposed building, near the parking passenger parking lot.

The Project will utilize storm drains, curb and gutter, and catch basins to convey on-site flows to two proposed water quality bio-treatment units known as Modular Wetlands Systems (MWS) and to an underground CMP Detention Basin. Low water flow will enter the MWS and the high flow water will bypass the WMS and go to the underground CMP system for detention. The treated low flows and detained higher flows would d combine at a proposed man hole. A proposed 18-inch storm drain (approximately 62 linear feet) will convey the outflow to the existing Perris Valley Master Drainage Plan (PVMDP) storm drain (MDP) Line A-B, which drains into the Perris Valley Storm Drain Channel. The drainage systems are located in the northern portion of the Project site.

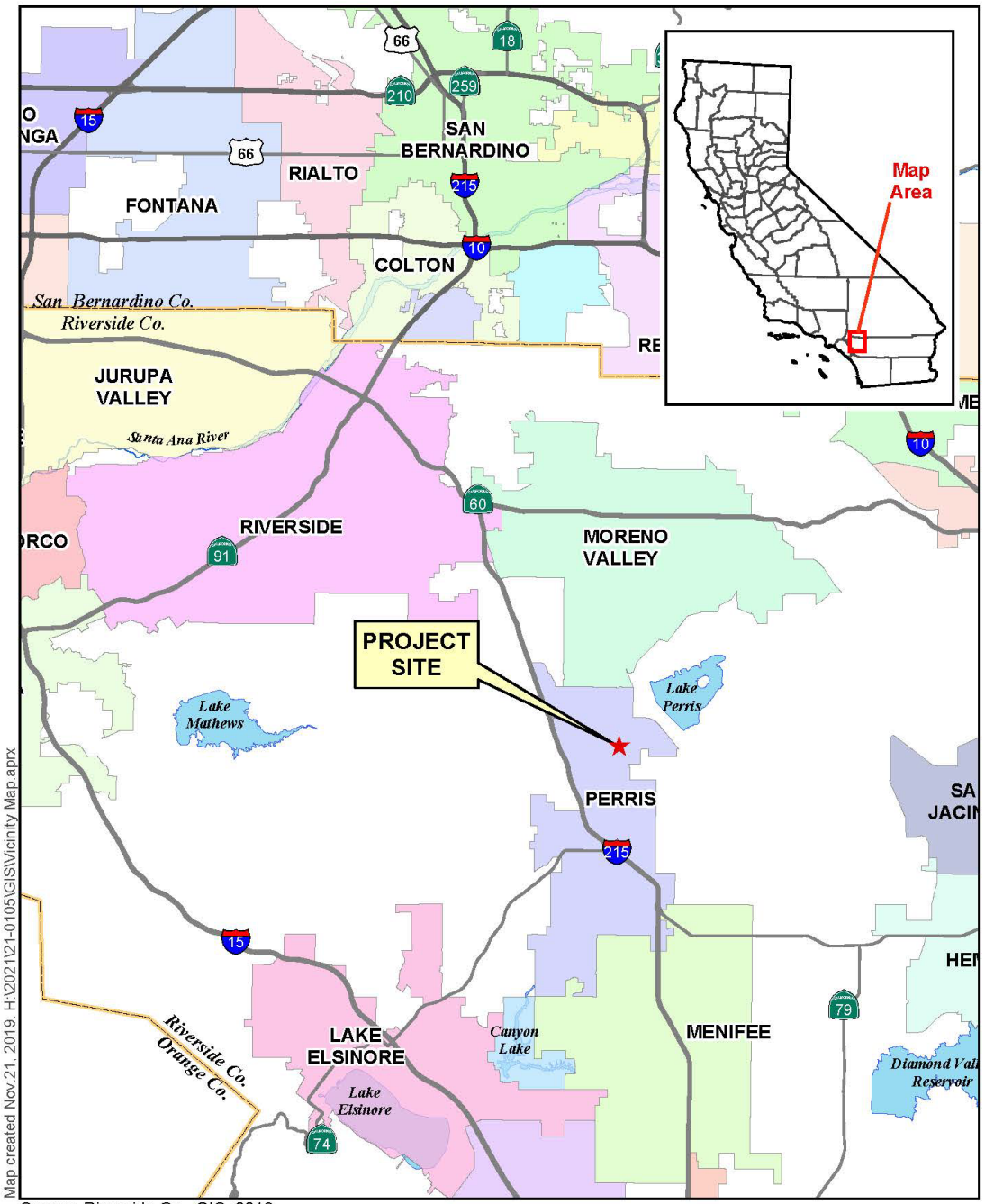
Trucks currently use the PVCCSP-designated truck route on the Harley Knox Boulevard interchange to access the freeway. However, a new freeway interchange is planned to be constructed at Placentia Avenue, which would be closer to the proposed Project site and is anticipated to be open by the time Project construction is complete. Signage shall be posted on-site directing truck drivers to use designated City truck routes to access the Interstate 215 (I-215) freeway. The information on the signage will be coordinated with City Planning and the City's Traffic Engineer during the plan check process.

The PVCCSP Circulation Element designates Redlands Avenue and Rider Street, which are adjacent to the Project site, as a Secondary Arterial. Secondary Arterials within the PVCCSP generally range from 64-feet to 70-feet wide curb-to-curb with 6 feet of sidewalk on both sides depending on the particular design and traffic volumes to be served. In the vicinity of the Project site, Redlands Avenue and Rider Street are designated as 94-feet wide curb to curb. Along the Project's easterly frontage, 3 feet of ROW will be dedicated to obtaining a 47-foot half street ROW on the west side of Redlands Avenue. The south half of Rider Street is fully dedicated and no additional

dedication will be required. The Project Applicant proposes to construct full half street improvements on the west side of Redlands Avenue along the project frontage and partial-width improvements on the east side of Redlands Avenue including curb and gutter, sidewalk, and road resurfacing, if required. Rider Street Rider Street improvements, if required, will include a 12-foot raised landscape median and resurfacing of existing pavement. Existing power poles on Redlands Avenue along the Property frontage will be removed and cables under 66 kilovolts will be undergrounded. Five streetlights are proposed along the Project's frontage: two along Rider Street and three along Redlands Avenue

In addition to the improvements at the Project site, the Project applicant proposes to construct a new catch basin to each side of Redlands Avenue creating low points on both sides of Redlands Avenue to intercept street flow and allow the removal of the existing cross gutter. Additionally, Lateral AB-10 in Redlands Avenue will be extended to convey the catch basin flow. Potable water and sewer pipelines currently exist in Rider Street and Redlands Avenue and dry utilities are along Rider Street; therefore, the only construction required is connection to the existing pipelines

The proposed Project would be constructed in a single phase, and approximately 6,500 cubic yards of soil would be imported to the Project site. Construction is expected to commence in March 2023 and be completed in 2024.



Source: Riverside Co. GIS, 2019

Figure 1- Regional Map
Chartwell Warehouse

Figure 2 - Aerial Map
Chartwell Warehouse

H:\2021\21-0105\GIS\Site Plan\Site Plan aprx Map created 05 Apr 2022

Source: Herdman, 8-04-21

Figure 3. Site Plan

Chartwell Warehouse

Not to Scale

ALBERT A. WEBB ASSOCIATES

2.0 FUNDAMENTALS OF SOUND

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally defined as unwanted or excessive sound, which can vary in intensity by over one million times within the range of human hearing; therefore, a logarithmic scale, known as the decibel scale (dB), is used to quantify sound intensity. Community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. As such, background noise level changes throughout a typical day, corresponding with the addition and subtraction of distant noise sources such as traffic and single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

Because the noise environment is continually changing, average noise over a period of time is generally used to describe the community noise environment, which requires the measurement of noise over a period of time to accurately characterize a community noise environment. This time-varying characteristic of environmental noise is described using various noise descriptors, which are defined below:

L_{eq}: The L_{eq}, or equivalent sound level, is used to describe noise over a specified period of time in terms of a single numerical value; the L_{eq} of a time-varying signal and that of a steady signal are the same if they deliver the same acoustic energy over a given time. The L_{eq} may also be referred to as the average sound level.

L_{max}: The maximum instantaneous noise level experienced during a given period of time.

L_{min}: The minimum instantaneous noise level experienced during a given period of time.

L_x: The noise level exceeded a percentage of a specified time period. The "x" represents the percentage of time a noise level is exceeded. For instance, L_{50} and L_{90} represent the noise levels that are exceeded 50 percent and 90 percent of the time, respectively.

L_{dn}: Also termed the day-night average noise level (DNL), the L_{dn} is the average A-weighted noise level during a 24-hour day, obtained after the addition of 10 dBA to measured noise levels between the hours of 10:00 pm to 7:00 am to account for nighttime noise sensitivity.

CNEL: CNEL, or Community Noise Equivalent Level, is the average A-weighted noise level during a 24-hour day that is obtained after the addition of 5 dBA to measured noise levels between the hours of 7:00 pm to 10:00 pm and after the addition of 10 dBA to noise levels between the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively.

In addition, sound is characterized by both its amplitude and frequency (or pitch). The human ear does not hear all frequencies equally. In particular, the ear deemphasizes low and very high frequencies. To approximate the sensitivity of human hearing, the A-weighted decibel scale (dBA) is used. On this

scale, the human hearing range extends from approximately 3 dBA to around 140 dBA. **Table 2-1** includes examples of A-weighted noise levels from common indoor and outdoor activities.

Table 2-1. Typical A-Weighted Noise Levels

Common Outdoor Noise	Noise Level (dBA)	Common Indoor Noise
	— 110 —	Rock band (noise to some, music to others)
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher in a neighboring room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing
SOURCE: Caltrans, 1998.		

Sound levels from two or more sources cannot be directly added together to determine the overall sound level using the decibel scale. Rather, the combination of two sounds at the same level yields an increase of 3 dBA. The smallest recognizable change in sound levels is approximately 1 dBA. A 3-dBA increase is generally considered barely perceptible, whereas a 5-dBA increase is readily perceptible. Most people judge a 10-dBA increase as an approximate doubling of the sound loudness.

Two of the primary factors that reduce levels of environmental sounds are increasing the distance between the sound source to the receiver and having intervening obstacles such as walls, buildings, or terrain features between the sound source and the receiver. Factors that act to increase the loudness of environmental sounds include moving the sound source closer to the receiver, sound enhancements caused by reflections, and focusing caused by various meteorological conditions.

2.1. Effects of Noise on People

Noise is generally loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity that is a nuisance or disruptive. The effects of noise on people can be placed into four general categories:

- Subjective effects (e.g., dissatisfaction, annoyance)
- Interference effects (e.g., communication, sleep, and learning interference)
- Physiological effects (e.g., startle response)
- Physical effects (e.g., hearing loss)

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. Interference effects refer to interruption of daily activities and include interference with human communication activities, such as normal conversations, watching television, telephone conversations, and interference with sleep. Sleep interference effects can consist of both awakening and arousal to a lesser state of sleep. With regard to the subjective effects, the responses of individuals to similar noise events are diverse. They are influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day, and the type of activity during which the noise occurs, and individual noise sensitivity.

Overall, a wide variation of tolerance to noise exists, based on an individual's past experiences with sound. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived.
- A 3 dBA change in noise levels is considered a barely perceivable difference outside the laboratory.
- A change in noise levels of 5 dBA is considered to be a readily perceivable difference.
- A change in noise levels of 10 dBA is subjectively heard as doubling of the perceived loudness.

These relationships partly occur because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion; hence the decibel scale was developed.

Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

2.2. Noise Attenuation

Stationary point noise sources, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate between 6 dBA for hard sites and 7.5 dBA for soft sites for each doubling of distance from the reference measurement. Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dBA (per doubling distance) is normally assumed for soft sites. Noise from line sources (such as traffic noise from vehicles) attenuates at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement (Caltrans 2013).

Physical barriers between the noise source and the receiving property also reduce noise levels. Effective noise barriers can lower noise levels by 10 to 15dBA. Depending on site geometry, a noise barrier is more effective when placed closest to the noise source or receiver. However, there is a limitation on the effectiveness of a noise barrier. Noise barriers must block the line of sight between the receiving property and the noise source. A noise barrier can achieve a 5-dBA noise level reduction when this occurs. This may require the noise barrier to be sufficiently long and high enough to block the view of a road to reduce traffic noise.

2.3. Fundamentals of Vibration

Vibration is energy transmitted in waves through the ground or man-made structures, and these energy waves generally dissipate with distance from the vibration source. Familiar sources of ground-borne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operation of heavy earth-moving equipment. As described in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment (FTA 2006), ground-borne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard.

Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. Peak particle velocity is typically a factor of 1.7 to 6 times greater than RMS vibration velocity (FTA 2006). The decibel notation compresses the range of numbers required to describe vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the vibration source. Sensitive receptors for vibration

include structures (especially older masonry structures), people (especially residents, the elderly, and the sick), and vibration-sensitive equipment.

The effects of ground-borne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration levels exceed the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV (FTA 2006).

The background vibration velocity level in residential areas is usually around 50 VdB (approximately 0.0013 in/sec PPV). This level is well below the vibration velocity threshold of perception for humans, approximately 65 VdB. A vibration velocity level of 75 VdB is considered to be the approximate dividing line between barely perceptible and distinctly perceptible levels for many people (FTA 2006).

3.0 REGULATORY FRAMEWORK

The Project's governing regulatory framework within the City of Perris includes federal, state, and local noise and vibration standards. These standards are summarized below.

3.1 Federal Regulations and Standards

There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the Project. With regard to noise exposure and workers, the Office of Safety and Health Administration (OSHA) regulations safeguard the hearing of workers exposed to occupational noise. Federal regulations also establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations (CFR), Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 15 meters (approximately 50 feet) from the vehicle pathway centerline. These controls are implemented through regulatory restrictions on truck manufacturers.

3.2 Federal Transit Authority Vibration Standards

The City of Perris does not have vibration standards for evaluating building damage, and FTA vibration criteria will be utilized as a guide in lieu of specific vibration criteria. The FTA has adopted vibration standards to evaluate potential building damage impacts related to construction activities. The vibration damage criteria adopted by the FTA are shown in **Table 3-1**.

Table 3-1. Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12
SOURCE: FTA, 2006.	

The FTA has also adopted the following standards for ground-borne vibration impacts related to human annoyance: Vibration Category 1 – High Sensitivity, Vibration Category 2 – Residential, and Vibration Category 3 – Institutional. The FTA defines Category 1 as buildings where vibration would interfere with operations, such as vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and research operations. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have

vibration-sensitive equipment but still have the potential for activity interference. The vibration thresholds associated with human annoyance for these three land-use categories are shown in **Table 3-2**. No thresholds have been adopted or recommended for industrial, commercial, and office uses.

Table 3-2. Ground-borne Vibration Impact Criteria for General Assessment

Land Use Category	Frequent Events [a]	Occasional Events [b]	Infrequent Events [c]
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB[d]	65 VdB[d]	65 VdB[d]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

[a] Frequent Events" is defined as more than 70 vibration events of the same source per day.

[b] Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

[c] Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day.

[d] This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes.

SOURCE: FTA, 2006

3.2 State Regulations and Standards

Noise Standards

The California Department of Health Services has established guidelines for land use and noise exposure compatibility that are listed in **Table 3-3**. In addition, the California Government Code (Section 65302(g)) requires a noise element to be included in general plans and requires that the noise element: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

Table 3-3. California Community Noise Exposure (Ldn or CNEL)

Land Use	Normally Acceptable[a]	Conditionally Acceptable[b]	Normally Unacceptable[c]	Clearly Unacceptable[d]
Single-family, Duplex, Mobile Homes	50 - 60	55 – 70	70 - 75	above 75
Multi-Family Homes	50 - 65	60 – 70	70 - 75	above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 - 70	60 – 70	70 - 80	above 80
Transient Lodging – Motels, Hotels	50 - 65	60 – 70	70 - 80	above 75
Auditoriums, Concert Halls, Amphitheaters	---	50 – 70	---	above 70
Sports Arena, Outdoor Spectator Sports	---	50 – 75	---	above 75
Playgrounds, Neighborhood Parks	50 - 70	---	67 - 75	above 75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 - 75	---	70 - 80	above 80
Office Buildings, Business, and Professional Commercial	50 - 70	67 – 77	above 75	---
Industrial, Manufacturing, Utilities, Agriculture	50 - 75	70 – 80	above 75	---

a 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.

b 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.

c Normally Unacceptable: New construction or development should generally 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.

d Clearly Unacceptable: New construction or development should generally not be undertaken.

SOURCE: FTA, 2006.

The State of California has noise limits for vehicles licensed to operate on public roads. For heavy trucks, the state pass-by standard is consistent with the federal limit of 80 dBA. The state pass-by

standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters (50 feet) from the centerline. These standards are implemented through controls on vehicle manufacturers and by state and local law enforcement officials' legal sanctions.

3.3 Local Regulations and Standards

City of Perris Municipal Code

The City of Perris Municipal Code, Chapter 19.44 (Industrial Zones) Section 19.44.070 b(1) and b(2), outlines performance standards for Industrial uses as follows.

- Noise generated on-site shall be controlled for compatibility with surrounding land uses. Any proposed use that may generate noise during evening hours (7:00 pm to 7:00 am) must submit a detailed noise assessment and plan to mitigate potential noise impacts.
- Vibrations generated on-site shall not be detectable off-site. Any proposed use that may generate vibrations detectable off-site must submit a detailed vibration assessment and plan to address and mitigate potential impacts.

The City of Perris Municipal Code, under Chapter 7.34 (Noise Control), provides the local government ordinance relative to community noise level exposure, guidelines, and regulations.

The City of Perris Municipal Code, Chapter 7.34 *Noise Control*, Section 7.34.040, establishes the following permissible noise levels that may intrude into a neighbor's property from the use of sound-amplifying equipment. The maximum permissible noise level shall not exceed 60 dBA during the hours of 10:01 pm to 7:00 am, and 80 dBA between the house or 7:01 am to 10:00 pm at the property line of the affected residential land use

The Municipal Code exterior noise level criteria for residential properties affected by operational noise sources are included in Section 7.34.050 *General Prohibition*, which states that the Section 7.34.040 sound-amplifying equipment noise standards shall apply.

Construction Noise Levels Pursuant to Section 7.34.060 (Construction Noise), the construction, demolition, excavation, alteration, or repair of any building or structure in such a manner as to create disturbing, excessive, or offensive noise is prohibited between the hours of 7:00 pm, and 7:00 am, on Sundays, and a legal holiday. Construction activity shall not exceed 80 dBA Lmax in residential zones within the city.

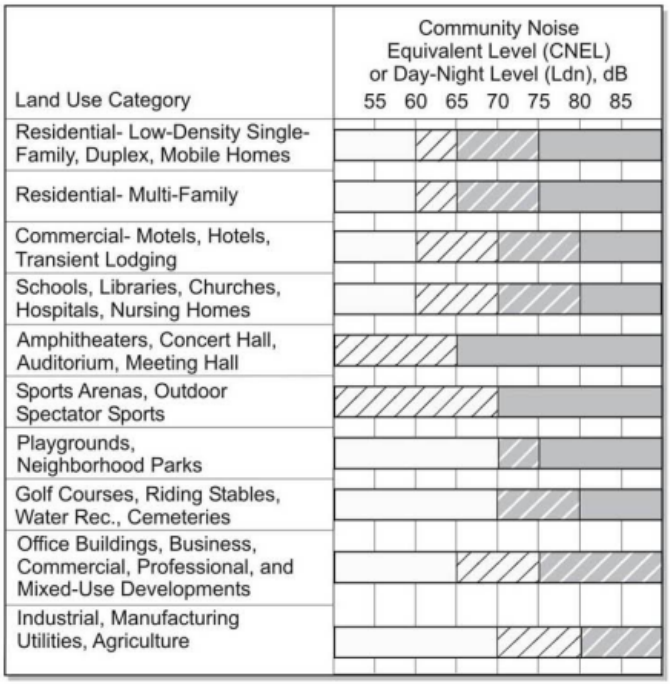
City of Perris General Plan

The City of Perris General Plan Noise Element includes Land Use/Noise Compatibility Guidelines, as shown in **Figure 4** (on page 18), which generally establishes acceptable exterior noise levels for specified land uses.

Under Policy V.A, the City of Perris General Plan states that new large-scale commercial or industrial facilities within 160 feet of sensitive land uses shall mitigate noise impacts to attain an acceptable level required by the State of California Noise/Land Use Compatibility Criteria. Under this policy, the City of Perris General Plan Noise Element lists Implementation Measure V.A.1. This implementation measure requires an acoustical impact analysis to be prepared for new industrial and large-scale commercial facilities that are constructed within 160 feet of the property line of any existing noise-sensitive land use. This analysis shall document the nature of the commercial or industrial facility and all interior or exterior facility operations that would generate exterior noise. The analysis shall

document the placement of any existing or proposed noise-sensitive land uses situated within the 160-foot distance. The analysis shall determine the potential noise levels that could be received at these sensitive land uses and specify specific measures to be employed by the large-scale commercial or industrial facility to ensure that these levels do not exceed 60 dBA CNEL at the property line of the adjoining sensitive land use. No development permits or approval of land use applications shall be issued until the acoustic analysis is received and approved by the City Staff.

This acoustical impact analysis satisfies Implementation Measure V.A.1 and provides documentation of compliance to all applicable noise standards.



Nature of the noise environment where the CNEL or Ldn level is:

Below 55 dB
Relatively quiet suburban or urban areas, no arterial streets within 1 block, no freeways within 1/4 mile.

55-65 dB
Most somewhat noisy urban areas, near but not directly adjacent to high volumes of traffic.

65-75 dB
Very noisy urban areas near arterials, freeways or airports.

75+ dB
Extremely noisy urban areas adjacent to freeways or under airport traffic patterns. Hearing damage with constant exposure outdoors.

Normally Acceptable
Specific land use is satisfactory, based on the assumption that any building is 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 noise reduction requirements is made and needed noise insulation features included in 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 generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in design.

Clearly Unacceptable
New construction or development should generally not be undertaken.

The Community Noise Equivalent Level (CNEL) and Day-Night Noise Level (Ldn) are measures of the 24-hour noise environment. They represent the constant A-weighted noise level that would be measured if all the sound energy received over the day were averaged. In order to account for the greater sensitivity of people to noise at night, the CNEL weighting includes a 5-decibel penalty on noise between 7:00 p.m. and 10:00 p.m. and a 10-decibel penalty on noise between 10:00 p.m. and 7:00 a.m. of the next day. The Ldn includes only the 10-decibel weighting for late-night noise events. For practical purposes, the two measures are equivalent for typical urban noise environments.

Figure 4. City of Perris Land Use Compatibility Guidelines

4.0 THRESHOLDS OF SIGNIFICANCE

Appendix G of the 2020 California Environmental Quality Act (CEQA) Guidelines states that a Project could have a noise impact if any of the following would occur:

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

b) Generation of excessive ground-borne vibration or ground-borne noise levels?

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

4.1. Perris Valley Commerce Center Specific Plan Thresholds

According to the PVCC SP Environmental Impact Report (EIR), there is no official "industry standard" for determining the significance of noise impacts. While the CEQA Guidelines and the City of Perris General Plan Guidelines provide direction on noise compatibility and establish noise standards by land-use type, CEQA thresholds are not defined for the levels at which increases are considered substantial*. However, a jurisdiction will typically identify either 3 dBA or 5 dBA increase as the threshold because these levels represent varying levels of perceived noise increases* (page 4.9-20, PVCC SP EIR, July 2011).

The PVCC SP EIR indicates that a 5-dBA noise level increase is considered *discernable to most people in an exterior environment* when the existing noise levels are below 60 dBA. Further, it identifies a 3-dBA increase threshold when the existing ambient noise levels already exceed 60 dBA (page 4.9-20, PVCC SP EIR, July 2011).

4.2. Operational and Construction Thresholds

Noise levels exceed CEQA thresholds if any of the following occur as a direct result of the due to the proposed development.

OFF-SITE TRAFFIC NOISE

Traffic noise impacts exceed the CEQA thresholds when the resulting noise levels at noise-sensitive land uses (e.g., residential, etc.):

- are less than 60 dBA CNEL and the project creates a 5 dBA CNEL or greater project-related noise level increase (PVCC SP EIR, Page 4.9-20); or
- exceed 60 dBA CNEL, and the project creates a 3 dBA CNEL or greater project-related noise level increase (PVCC SP EIR, Page 4.9-20).

OPERATIONAL NOISE AND VIBRATION

The noise CEQA threshold is exceeded if one of the following occurs:

- Project-related operational noise levels resulting from stationary sources, such as on-site noise such as idling trucks, delivery truck activities, backup alarms, loading and unloading, air

conditioning units, and parking lot vehicle movements, exceed the 80 dBA L_{max} daytime or 60 dBA L_{max} nighttime noise level standards at the nearby sensitive receiver locations in the City of Perris (City of Perris Municipal Code, Section 7.34.040); or

- Project-related operational noise levels from industrial or commercial facilities located within 160 feet of the property line of the affected residential land use exceed 60 dBA CNEL: or
- Ambient noise levels at the nearby noise-sensitive receivers near the Project site:
  - are less than 60 dBA L_{eq} and the project creates a 5 dBA L_{eq} or greater project-related noise level increase (PVCC SP EIR, Page 4.9-20); or
  - exceed 60 dBA L_{eq}, and the project creates a 3 dBA L_{eq} or greater project-related noise level increase (PVCC SP EIR, Page 4.9-20).

Although the City of Perris does not have any specified thresholds for vibration, the FTA vibration criteria, as referenced in the PVCC SP EIR pages 4.9-27 and 4.9-28, will be utilized to evaluate vibration impacts. If long-term project generated operational source vibration levels exceed the FTA maximum acceptable vibration standard of 80 vibration decibels (VdB) at noise-sensitive receiver locations, noise levels will exceed the vibration CEQA threshold.

CONSTRUCTION NOISE AND VIBRATION

If project-related construction activities create noise levels at sensitive receiver locations in the City of Perris above the construction noise level limit of 80 dBA L_{eq} (City of Perris Municipal Code7.34.060), noise levels will exceed the noise CEQA threshold. Although the City of Perris does not have any specified thresholds for vibration, the FTA vibration criteria, as referenced PVCC SP EIR pages 4.9-27 and 4.9-28, will be utilized to evaluate vibration impacts. If short-term project-generated construction source vibration levels exceed the FTA maximum acceptable vibration standard of 80 vibration decibels (VdB) at noise-sensitive receiver locations, noise levels will exceed the vibration CEQA threshold.

AIRPORT NOISE

The proposed Project site is approximately 2.5 miles east of the March Air Reserve Base/Inland Port Airport (MARB/IPA). It is subject to the March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan (MARB/IPA LUCP). The MARB/IPA LUCP divides the area close to the airport into zones based on proximity to the airport and perceived risks. The Riverside County Airport Land Use Commission adopted the March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan. This Plan provides noise contours for this airport to assist in setting policies for establishing new land uses and appropriate mitigation for properties that will continue to be exposed to higher noise levels. The proposed Project site is within Airport Overlay Zone B2, as shown in **Figure 5 – MARB Compatibility Zones**. The Project site is not located within a MARB/IPA Accident Potential Zone. For this zone, the noise contour is 65 CNEL. The Project is consistent with the type of land use for this compatibility zone. Standard building construction for the Project is presumed to provide adequate sound attenuation where the difference between the exterior noise exposure and the interior standard is 20 dB or less. Compliance with the land use type for this compatibility zone meets the CEQA threshold for airport noise.

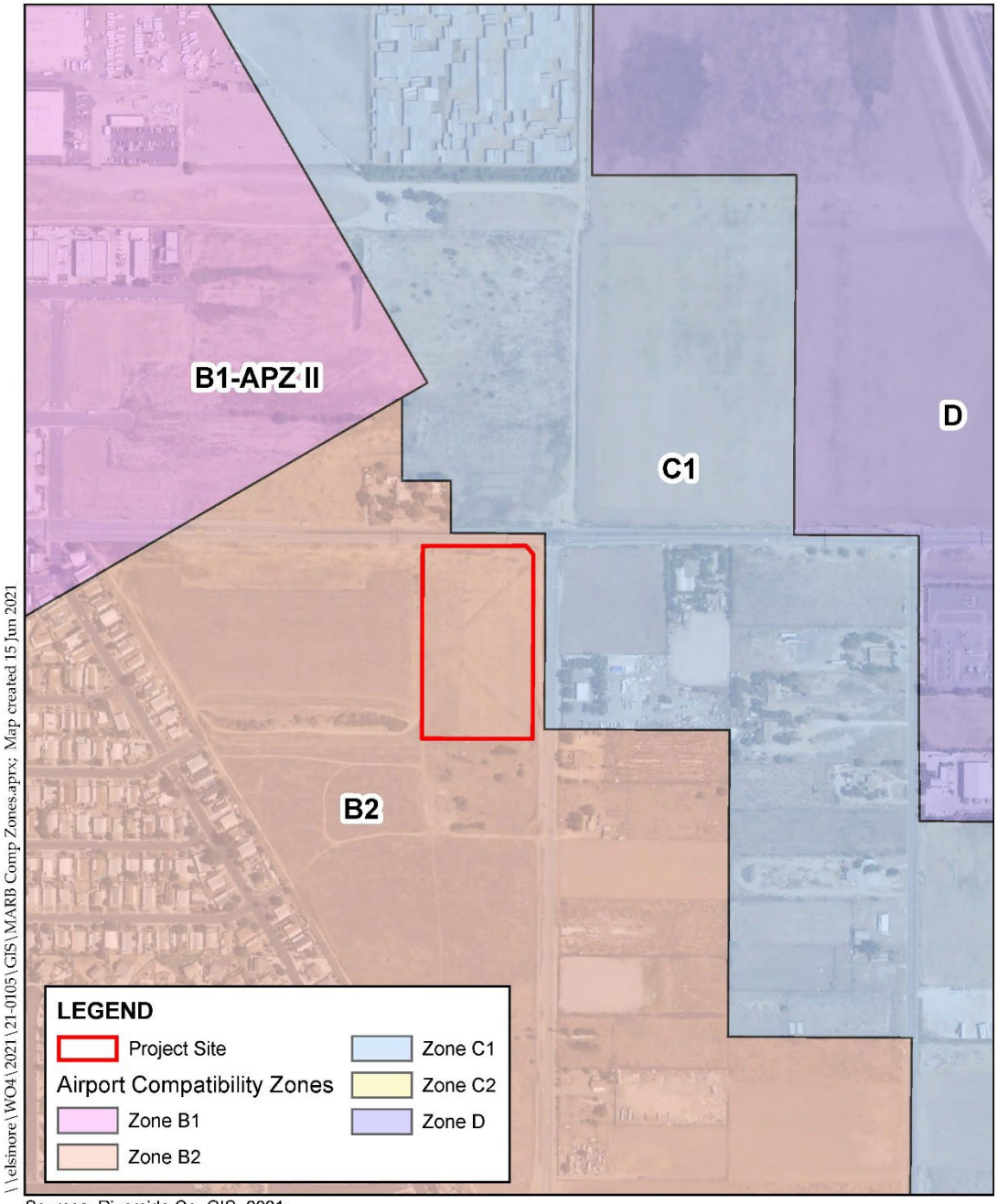


Figure 5. MARB Compatibility Zones
Chartwell Warehouse

5.0 EXISTING NOISE MEASUREMENTS

The existing noise environment was characterized by collecting field noise measurements at the property boundary of the Project area. One (1) long-term 24-hour measurement was taken at the Project site from March 9 through March 10, 2022. **Table 5-1** presents the CNEL values and hourly day and night noise levels for the Project site for the sensitive receivers identified in **Figure 6**. Appendix A includes the field monitoring data for this monitoring location.

5.1 Measurement Procedure and Criteria

Hourly noise levels were measured during typical weekday conditions over 24 hours to describe the existing noise environment, the daytime, nighttime hourly noise levels, and associated 24-hour CNEL. The 24-hour measurement provides the hourly noise levels to calculate the CNEL for the Project area. The long-term noise measurements were taken using a Larson Davis Type 1 precision sound level meter. The noise meter was programmed in "slow" mode to record noise levels in the "A" weighted form. The sound level meter and microphone were mounted, five feet above the ground, and equipped with a windscreen during all measurements. The Larson Davis sound level meter was calibrated before the monitoring using a CAL200 calibrator. All noise level measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

5.2 Noise Measurement Locations

Noise measurement locations are shown in **Figure 6**. **Table 5-1** identifies the hourly daytime (7:01 am to 10:00 pm) and nighttime (10:01 pm to 7:00 am) noise levels for the noise measurement location consistent with the City of Perris Municipal Code. Appendix A provides a summary of the existing hourly ambient noise levels as described below:

- Site 1 represents the noise levels at the non-conforming residential property identified to the north of the Project site boundary along Rider Street. The noise level measurements collected show an overall 24-hour exterior noise level of 73 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 63.4 dBA L_{eq} with an average nighttime noise level of 51.8 dBA L_{eq}.

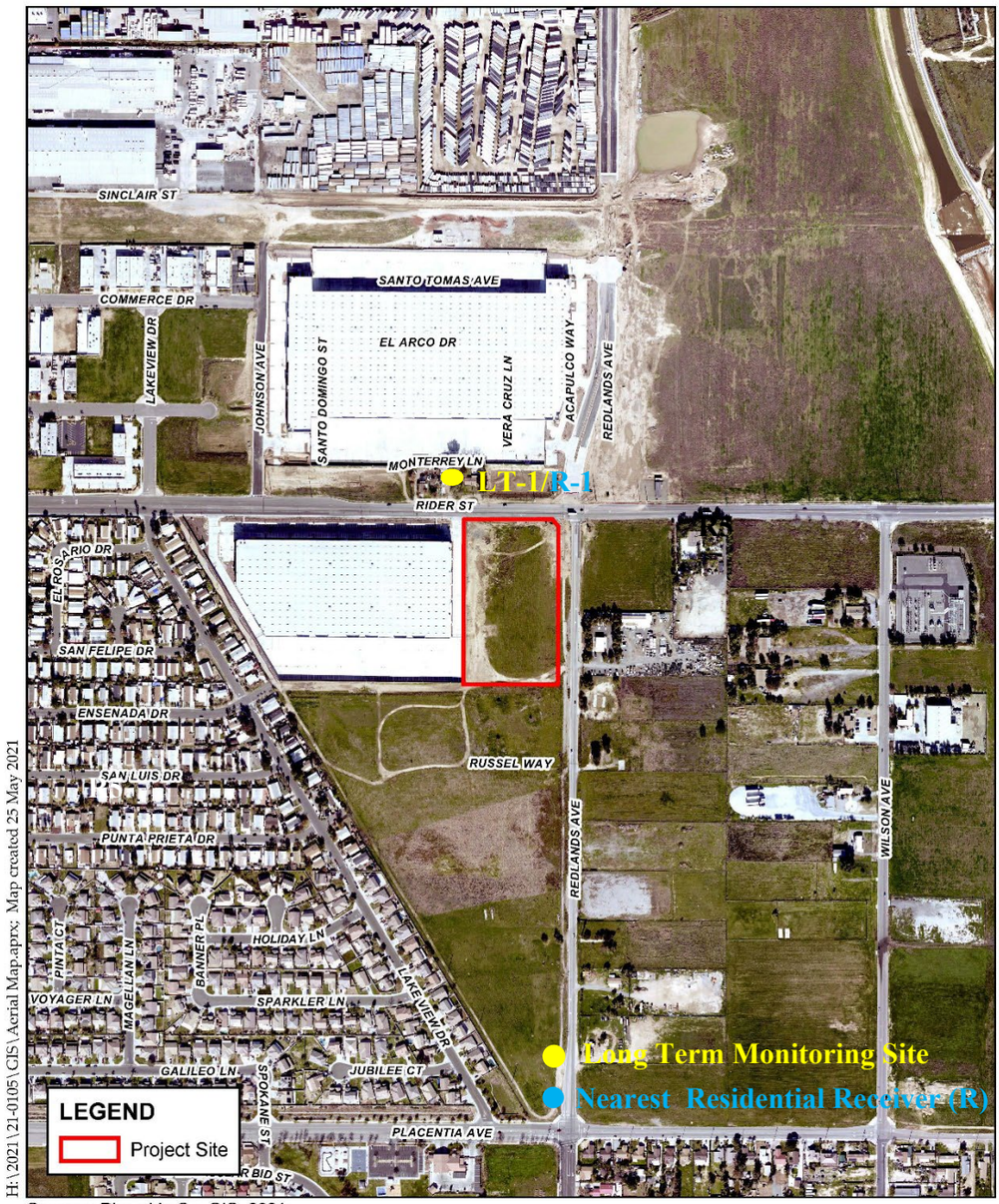
Table 5-1. Existing (Ambient) Long-Term (24-hour) Noise Level Measurements[1]								
Noise Monitoring Location ID[2,3]	Description	Hourly Noise Levels (1hr-L_{eq})[4]						24-hour Noise Levels (CNEL)
		Daytime Minimum	Daytime Maximum	Average Daytime	Nighttime Minimum	Nighttime Maximum	Average Nighttime	
Site 1	North of Project Site on Rider St.	51.8	59.0	63.4	59.0	70.2	51.8	73

[1] Noise measurement was taken on March 9, 2022, and March 10, 2022. See Appendix A for monitoring data.

[2] See Figure 6 for the location of the monitoring sites.

[3] Taken with Larson Davis Type 1 noise meter

[4] Daytime hours- 7:01am to 10:00pm, Nighttime hours-10:01pm to 7:00am



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Sources: Riverside Co. GIS, 2021; RCIT, 2019.

Figure 6-Noise Measurement & Receiver Locations

Chartwell Warehouse

6.0 ANALYSIS METHODS AND PROCEDURES

The following section outlines the analysis methods utilized to predict future noise and vibration levels from the construction and operation of the Project.

6.1 Construction

6.1.1 Noise Analysis Methods

The assessment of the construction noise impacts must be relatively general at this phase of the Project because many of the decisions affecting noise will be at the contractor's discretion. However, an assessment based on the type of equipment expected to be used by the contractor can provide a reasonable estimate of potential noise impacts and the need for noise mitigation. A representative construction noise scenario was developed to estimate the loudest activities occurring at the Project site. Pile driving and blasting activities are not anticipated; therefore, the loudest construction activities are centered around the movement of heavy construction equipment during grading operations and the erection of buildings. It was assumed that all construction activities would occur at the center of the Project site. The calculated noise level was then compared to the local noise regulation to determine if construction would exceed the City of Perris's exterior noise standard of 80 dBA L_{max} at nearby residential land uses. Construction of the Project is expected to occur over eleven months. Receiver distance to the construction activity and the equipment operating at the maximum load will greatly influence construction noise levels experienced at residential land uses.

6.1.2 Vibration Analysis Methods

Ground-borne vibration levels resulting from construction activities within the Project area were estimated using the FTA data in its Transit Noise and Vibration Impact Assessment Manual (FTA, 2018). Predicted construction vibration levels were identified at the nearest off-site residential land use R1 and compared to the FTA damage and human annoyance criteria, as shown previously in **Table 3-2**.

6.2 Operational Noise & Vibration Analysis

6.2.1 Operational Traffic Noise Analysis Methods

The expected roadway noise level increases from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (13) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). The national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels in California. (14) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major, or arterial), the active roadway width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

6.2.2 Operational Traffic Noise Analysis Inputs

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. As shown, Table 6-1 identifies the three study area roadway segments, the existing and Project ADT volumes, the posted vehicle speeds, and the time of day (daytime, evening, and nighttime) vehicle splits. The ADT volumes used in this study are presented for the Project were obtained from the *City of Perris Scoping Form for Land Use Projects, SWC Rider-Redlands Warehouse (Chartwell) DPR 21-00003* prepared by Webb Associates (December 2021) for the following traffic scenarios: Existing with and without the Project.

Table 6-1. Roadway Parameters and Vehicle Distribution					
Roadway	**Segment**	**Existing ADT[1]**	**Existing Plus Project ADT**	**Speed (MPH)**	**Site Conditions**
Redlands Ave	South of Rider St	6,008	6,071	45	Soft
Redlands Ave	North of Rider St	4,374	4,484	45	Soft
Rider St	East of Redland Ave	11,288	11,332	45	Soft
Rider St	West of Redland Ave	8,600	8,737	45	Soft
Secondary and Collector Vehicle Distribution (Truck Mix)[2]					
Motor-Vehicle Type		**Daytime % (7AM to 7 PM)**	**Evening % (7 PM to 10 PM)**	**Night % (10 PM to 7 AM)**	**Total % of Traffic Flow**
Automobiles		75.5	14.0	10.5	97.42
Medium Trucks		48.9	2.2	48.9	1.84
Heavy Trucks		47.3	5.4	47.3	0.74

Notes:
[1] Maximum two-way traffic volume (ADT) with Level of Service D (LOS D) conditions of a major arterial roadways as outlined in the Riverside County Office of Industrial Hygiene Acoustical Modeling Parameters.
[2] Vehicle distribution data is based on Riverside County Mix data for collectors and secondary roadways.

6.2.3 Operational Traffic Vibration Analysis

As a conservative measure, the vibration vs. distance curve obtained from the Caltrans Transportation and Construction Vibration Guidance Manual will be used to represent worst-case vibration levels from truck traffic at the nearest receiver location. This curve provides empirical data collected from several freeways and local roadways to determine auto and truck traffic vibration levels. This curve will qualitatively assess anticipated vibration levels at residential land uses along local roadways near the Project site. These vibration levels will be compared to the Caltrans and FTA vibration criteria, as shown previously in **Tables 3-1 and 3-2**. These criteria will be utilized to evaluate the vibration effects of continuous auto and truck traffic.

6.2.4 Stationary Noise Analysis Method

The primary non-transportation noise sources associated with the Project are HVAC equipment, on-site parking lot circulation, and the loading docks' activity. In order to evaluate these noise sources at the nearest residential noise-sensitive receptors, the reference noise level of similar operational activities was obtained from the SoundPlan library. **Table 6.2** provides the SoundPlan reference noise levels used for operational noise sources. These reference noise levels were used to describe the anticipated operational noise levels generated from idling trucks, delivery truck activities, backup alarms, loading and unloading, air conditioning units, and parking lot vehicle movements.

The SoundPLAN noise prediction model was used to calculate noise levels at the noise-sensitive receptors located around the Project site. Inputs to the SoundPLAN model included ground topography and ground type, noise source locations and heights, receiver locations, and sound power level data. These predictions are made in accordance with International Organization for Standardization (ISO) standard 9613-2:1996 (Acoustics – Attenuation of sound during propagation outdoors). It should be noted that sound power measures the total acoustic energy emitted by a noise source and is irrespective of the distance from the source. Sound power is input into the SoundPLAN model to represent the total acoustic energy emitted by a specific noise source. Sound power levels in this report are reported asA-weighted decibel levels, noted as "dBA, PWL" per industry standards. The model then corrects the many factors (i.e., distance, terrain shielding, atmospheric absorption, etc.) that affect sound propagation from the noise source to the receiver location.

Table 6-2. Reference Noise Levels					
Noise source[1]	**Source Type**	**# of Units**	**Reference Noise Level L_{eq} (dBA)[1]**	**Reference Noise Level L_{max} (dBA)[1]**	**Distance (ft)**
Idling Semi Truck	Point Source	19	73.8	74.9	10
Back Up Alarm	Point Source	19	77.9	92.7	3
HVAC	Point Source	9	67.7	68.6	3
Parking	Area(SP Parking Tool)	101	-	-	1 car per hr

[1] Reference noise levels were obtained from the Sound Plan library.
[2] Based on the throughput of 3 cars per hour

7.0 OFF-SITE TRANSPORTATION NOISE IMPACTS

Roadway Noise

Implementation of the Project would generate increased traffic volumes along nearby roadway segments. The Project's increase in traffic may result in noise increases on Project area roadways. In general, a traffic noise increase of 3 dBA is barely perceptible to people, while a 5-dBA increase is readily noticeable. Traffic volumes on Project area roadways would have to approximately double for the resulting traffic noise levels to increase by 3 dBA.

Off-site transportation CNEL noise level impacts from the proposed Project were predicted using the *City of Perris Scoping Form for Land Use Projects, SWC Rider-Redlands Warehouse (Chartwell) DPR 21-00003* prepared by Webb Associates (December 2021). The CNEL noise levels are evaluated from the center of the roadway. Noise contours were developed for the following traffic scenarios:

- Existing Without Project: This scenario refers to the existing present-day noise conditions, without the proposed Project.

- Existing With Project: This scenario refers to the existing present-day noise conditions, with the proposed Project.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic based on the PVCC SP EIR significance criteria. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, 60, and 55 CNEL dBA noise levels.

The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they do not reflect noise contributions from the surrounding stationary noise sources within the Project study area.

Tables 7-1 through 7-3 summarize the exterior traffic noise levels, without barrier attenuation, for the three study area roadway segments analyzed from the without Project to the with Project under existing conditions. Appendix B includes a summary of the traffic noise level contours for each of the two traffic scenarios.

Table 7-1 and 7-2 presents the Existing without and with Project condition CNEL noise levels for four roadway segments. As shown in Table 7-3, the Project will generate an 0.1 dBA increase in exterior noise levels. Noise levels for the Existing without Project and with Project along Redlands Avenue and Rider St East of Redlands remain unchanged at 65.7 and 68.4 dBA CNEL, respectively. Therefore CNEL noise levels will remain below the significance threshold of 3 dBA CNEL when the without Project noise levels are above 60 dBA CNEL. Thus, the off-site Project-related traffic noise level increase is considered a *less than significant* impact under Existing with Project conditions.

Table 7-1. Existing Without Project Exterior Noise Levels

Roadway[1]	Segment	CNEL at 60 ft (dBA)	Distance to Contour (ft)[2]			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Redlands Ave	South of Rider St	65.7	31	66	143	309
Redlands Ave	North of rider St	64.3	25	54	116	250
Rider St	East of Redlands Ave	68.4	47	101	218	470
Rider St	West of Redlands Ave	67.2	39	84	182	392

Notes:
[1] Exterior noise levels calculated at 5 feet above ground level.
[2] Noise levels were calculated from the centerline of the subject roadway.

Table 7-2. Existing With Project Exterior Noise Levels						
Roadway[1]	**Segment**	**CNEL at 60 ft (dBA)**	**Distance to Contour (ft)[2]**			
			70 dBA CNEL	**65 dBA CNEL**	**60 dBA CNEL**	**55 dBA CNEL**
Redlands Ave	South of Rider St	65.7	31	67	144	311
Redlands Ave	North of Rider St	64.4	25	55	118	254
Rider St	East of Redlands	68.4	47	101	219	471
Rider St	West of Redlands	67.3	40	85	184	396

Notes:
[1] Exterior noise levels calculated at 5 feet above ground level.
[2] Noise levels were calculated from the centerline of the subject roadway.

Table 7-3. Change in Existing Noise Levels as a Result of Project					
Roadway[1]	**CNEL at 60 Feet dBA[2]**				
	Segment	**Existing Without Project**	**Existing With Project**	**Change in Noise Level**	**Potential Significant Impact**
Redlands Ave	North of rider St	64.3	64.4	0.1	No
Rider St	West of Redlands	67.2	67.3	0.1	No

Notes:
[1] Exterior noise levels calculated at 5 feet above ground level.
[2] Noise levels were calculated from the centerline of the subject roadway.

8.0 STATIONARY-RELATED NOISE IMPACTS

The Project was evaluated for stationary noise impacts. The City of Perris Municipal Code, Section 7.34.040, requires operational noise levels not to exceed the 80 dBA L_{max} daytime or 60 dBA L_{max} nighttime noise level standards at the nearby sensitive receiver locations in the City of Perris. This noise study evaluates noise levels at one non-conforming residential land use across from the Project site. The residential noise standards were applied to this location. Stationary-related noise impacts were evaluated utilizing the maximum noise levels assumptions outlined in section 6.2.4 for the HVAC equipment, on-site parking lot circulation, and the loading docks (including backup beeps and air brake releases).

Table 8-1 list the sensitive residential receiver locations near the Project site. Distances were measured from the sensitive receiver location to the Project site boundary for receivers R1 through R4.

The reference noise levels for various operational noise sources provided in **Table 6.1** were utilized to calculate the predicted operational source noise level at Receiver, R1. The combined Project operational noise levels at receiver R1 is 52 dBA $L_{max,}$ as shown in Table 8-1. Table 8-2 shows the combined operational CNEL value of range 42 CNEL for Receiver, R1 . Therefore, operational noise levels associated with the Project will satisfy the City of Perris Municipal Code exterior noise level standards of 80 dBA L_{max} daytime and 60 dBA L_{max} nighttime and the General Plan Standard of 60 CNEL.

Table 8-1. Project Only Operational Noise levels (dBA L_{max})

Receiver Location[1]	Distance from the Project site to receiving property line (ft)	Combined Project Only Operational Noise Level (dBA L_{max})	Daytime Standard 80 dBA L_{max} Exceeded	Nighttime Standard 60 dBA L_{max} Exceeded
R1	145	52	No	No

Table 8-2. Project Only Operational Noise levels (dBA L_{eq}) & CNEL

Receiver Location[1]	Distance from the Project site to receiving property line (ft)	Combined Project Only Operational Noise Level (dBA L_{eq}) [3]	CNEL	60 CNEL Standard Exceeded
R1	145	39	42	No

[1] Figure 6 shows the receiver locations.

As shown in **Tables 8-3 and 8-4,** the combined Project only operational noise levels provided in **Table 8.2** were added to the average measured ambient noise level to determine the total combined operational noise level and the increase over existing ambient noise levels.

Table 8-3. Operational Daytime Operational Noise levels (dBA L_{eq})

Receiver Location[1]	Combined Operational Noise Level (dBA L_{eq}) [2]	Measurement Location[3]	Average Measured Ambient Noise Level (dBA L_{eq})[3]	Combined Noise level (dBA L_{eq})[4]	Project Increase
R1	39	Site 1	63.4	63.4	0.0

[1] Figure 6 shows the receiver locations.

[2] Combined Noise Level from Table 8-2.

[3] Site 1 average measured daytime noise level was used for long-term measurement.

Table 8-4. Operational Nighttime Operational Noise levels (dBA L_{eq})					
Receiver Location[1]	**Combined Operational Noise Level (dBA L_{eq})[2]**	**Measurement Location[3]**	**Measured Ambient Noise Level (dBA L_{eq})[3]**	**Combined Noise level (dBA L_{eq}) [4]**	**Project Increase**
R1	39	Site 1	51.8	52.0	0.2
[1] Figure 6 shows the receiver locations.					
[2] Combined Noise Level from Table 8-2.					
[3] Site 1 average measured nighttime noise level was used for long-term measurement.					

The Project daytime and nighttime operational noise levels will increase above existing levels at Receiver, R1. However, the Project-related operational noise level contributions would not exceed the CEQA threshold of 5-dBA L_{eq} when the without Project noise levels are below 60 dBA, as discussed in Section 4. Therefore, the increases at the sensitive residential receiver locations will not exceed the CEQA threshold.

9.0 OPERATIONAL VIBRATION ANALYSIS

The Project's operation will increase auto and truck traffic within the Project area. Per the Caltrans Transportation Noise and Vibration Manual, traffic, auto, and heavy trucks traveling on roadways rarely generate vibration amplitudes high enough to cause structural or cosmetic damage. However, a qualitative analysis was provided in this study to evaluate the likelihood of vibration impacts from the Project utilizing the empirical vibration curve developed by Caltrans.

The Caltrans Noise and Vibration Manual collects measured vibration data for truck pass-bys. This data demonstrates that truck pass-bys can be characterized by a peak in vibration that is considerably higher than those generated by automobiles for a few seconds. Vibration from these trucks drops off dramatically with distance. As truck volumes increases, more peaks will occur but not necessarily higher peaks. Vibration wavefronts emanating from several trucks closely together may either cancel or partially cancel (destructive interference) or reinforce or partially reinforce (constructive interference) each other, depending on their phases and frequencies. Since traffic vibrations can be considered random, total destructive or constructive interference probabilities are minimal. Coupled with the fact that two trucks cannot occupy the same space and the rapid drop-off rates, it is understandable that two or more trucks normally do not contribute significantly to each other's peaks.

In order to predict the maximum truck traffic vibrations from the Project, the Caltrans empirical curve, as shown in **Figure 7,** was obtained from the Caltrans Noise and Vibration Manual (Caltrans, 2013). This curve was used to predict operational vibration impacts. **Figure 7** shows a graph of measured vibration data collected from truck traffic traveling on freeways and local roadways plotted by truck traffic vibrations vs. distance from the nearest travel lane's centerline. The graph indicates that the highest traffic-generated vibrations measured on freeway shoulders (5 m from the centerline of the nearest lane) have never exceeded 2.0 mm/s or (0.08 in/sec) with the worst combinations of heavy trucks. This amplitude coincides with the maximum recommended "safe amplitude" for historical buildings. The graph illustrates the rapid attenuation of vibration amplitudes, which dips below the perception threshold for most people at about 45 m (150 ft). Caltrans states that sensitive receivers adjacent to local roadways, within 15 m(50 feet) of the nearest travel lane's centerline will have maximum worse-case vibration levels near 0.08 mm/s or (0.0032 in/sec or 70 VdB).

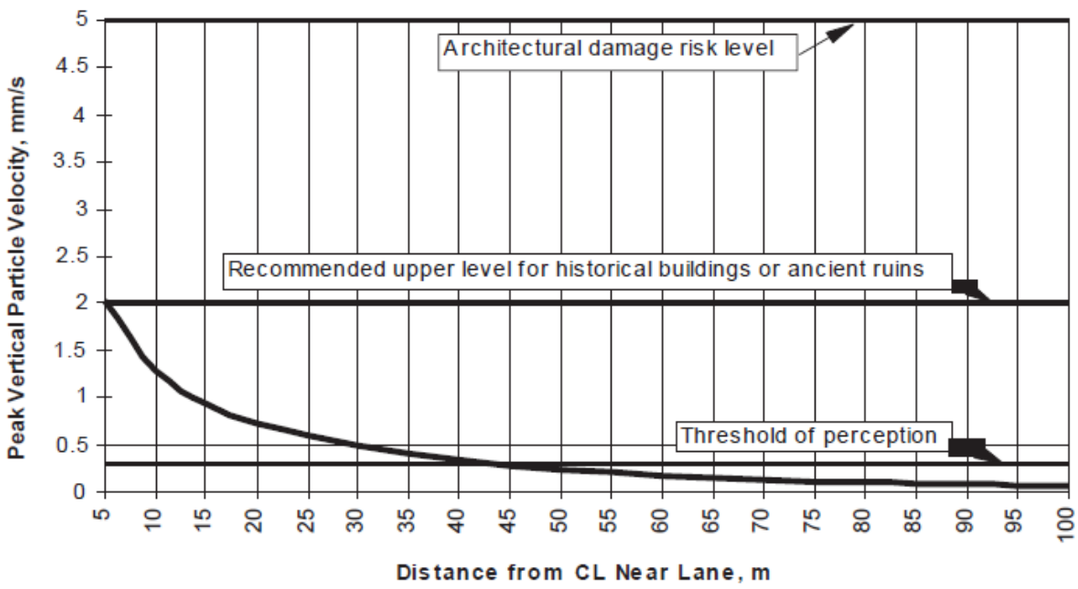

Figure 7. Maximum Truck Traffic Vibration Levels vs. Distance

Caltrans and FTA provide a range of perceptible annoyance levels, and this predicted vibration level falls well below the distinctly perceptible level of 0.08 PPV (in/sec), below the FTA damage criteria of 0.3 PPV (in/sec) and the human annoyance level of 80 VdB. Further, this worst-case vibration level from truck traffic would not exceed the Caltrans threshold of 0.2 PPV (in/sec). It is expected that actual vibration levels within the Project area from truck traffic will be lower than this worst-case level when soil type and pavement conditions are considered. On this basis, the potential for the Project to result in the exposure of persons to, or generation of, excessive ground-borne vibration is determined to be below the 80 VdB FTA vibration threshold.

10.0 SHORT-TERM CONSTRUCTION NOISE & VIBRATION IMPACTS

Construction noise represents a temporary impact on ambient noise levels. Construction noise is primarily caused by diesel engines (trucks, dozers, backhoes), impacts (jackhammers, pile drivers, hoe rams), and backup alarms. Construction equipment can be stationary or mobile. Stationary equipment operates in one location for hours or days in a constant mode (generators, compressors) or generates variable noise operations (pile drivers, jackhammers), producing constant noise for a period of time. Mobile equipment moves around the site and is characterized by variations in power and location, resulting in significant variations in noise levels over time. Grading activities and rock blasting typically generate the greatest noise impacts during construction. This section assesses the potential noise impacts to the existing sensitive residential land uses during construction.

10.1 Noise Sensitive Uses and Construction Noise Standards

Pursuant to the City of Perris Municipal Code Section 7.34.060 (Construction Noise), the following construction activities such as demolition, excavation, alteration, or repair of any building or structure are prohibited from creating disturbing, excessive, or offensive noise between the hours of 7:00 pm and 7:00 am, on Sundays, and on a legal holiday. Construction activities within the City of Perris shall not exceed 80 dBA in residential zones within the city. Although the surrounding land uses are not residential zones, one non-conforming residential home is located near the Project site; therefore, the residential standards will be utilized to evaluate construction noise impacts.

10.2 Construction Schedule

The construction schedule for the Project is described below.

As shown in **Table 10-1**, the estimated construction period for the Project is approximately eleven months. Construction is anticipated to begin with grading in June 2023 and end with architectural coatings (painting) starting in January 2024, as shown in **Table 10-1**.

Table 10-1. Construction Schedule

Construction Activity	Start Date	End Date	Total Working Days
Grading	June 1, 2023	June 28, 2023	20
Building Construction	June 29, 2023	February 21, 2024	170
Paving	January 25, 2024	February 21, 2024	20
Architectural Coatings	January 11, 2024	February 21, 2024	30

Table 10-2 presents the equipment for each construction activity based on engineering estimates and the Applicant.

Table 10-2. Equipment by Construction Activity

Construction Activity	Off-Road Equipment	Unit Amount
Grading	Excavators	1
	Graders	1
	Rubber Tired Dozers	1
	Scrapers	1
	Tractors/Loaders/Backhoes	3
Building Construction	Crane	1
	Forklifts	3
	Generator Set	1
	Tractor/Loader/Backhoe	3
	Welder	1
Paving	Rollers	1
	Pavers	1
	Paving Equipment	1
Architectural Coating	Air Compressors	1

10.3 Construction Noise Levels

The RCNM model was used to determine which phase of construction activity for the Project would generate the greatest construction noise level. It was assumed that each construction activity would occur at the center of the Project to the nearest residential receiver, R_1. Receiver R1 is located along Rider Street north of the Project site. **Table 10-3** presents the noise levels in L_{max} for each construction phase. Table 10-3 shows that the highest noise level experienced at R1 is 81 dBA L_{max} during Grading activities. This noise level is above Perris's noise standard of 80 dBA L_{max} within residential zones. The mitigation measures presented in section 10.5 will reduce these impacts to less than significant levels.

Table 10-3. Construction Noise Levels by Construction Phase

Construction Phases	Construction dBA, L_{max}[1]
Grading	81
Building	78
Paving	71
Painting	74

[1]Worst-case construction noise levels evaluated at the property line of receiver R1, the closest receivers to the Project site.

10.4 Construction Vibration

Ground-borne vibration levels resulting from construction activities within the Project site were estimated using the FTA data. Construction activities that would occur within the Project site include grading, building construction, paving, and painting, and these activities can generate low levels of ground-borne vibration.

Using the vibration source level of construction equipment provided in Table 7-4 of the FTA Noise and Vibration Manual and the FTA's construction vibration assessment methodology, it is possible to estimate Project vibration impacts. **Table 10-4** presents the expected Project-related vibration levels at the nearest residential land use that abuts the Project site, R1.

Table 10-4. Construction Equipment Vibration Levels

Noise Receiver	Distance from Construction Activity to Property Line	Large Bulldozer Reference Vibration Level PPV_{ref} (VdB) at 25ft[1]	Peak Vibration PPV (VdB)	Exceed Threshold? (Below 80 VdB)
R1	145 feet	87 VdB	64 VdB	No

[1] Reference noise level obtained from the FTA Noise and Vibration Manual, Table 7-4. (FTA, 2018)

Based on the FTA's reference vibration levels, a large bulldozer represents the peak vibration source with a reference level of 87 VdB at a distance of 25 feet. At 145 feet, measured from the center of the Project site to the nearest receiver, the construction vibration levels are expected to approach 64VdB. Using the construction vibration assessment annoyance criteria provided by the FTA for infrequent events, as shown in **Table 3-2**, the construction of the Project site will not result in a perceptible human response (annoyance). Impacts at the closest sensitive receptor site are unlikely to be sustained during the entire construction period. Moreover, construction at the Project site will be restricted to daytime hours, thereby eliminating potential vibration impacts during sensitive nighttime hours. Further, the predicted construction noise level is below the PVCC SP vibration threshold of 80 VdB.

10.5 Construction Mitigation Measures

As discussed previously, the Project site is located within the PVCCSP planning area of the City of Perris. The Project's construction noise impacts are slightly above the City standards and CEQA thresholds; therefore, the Project is subject to all applicable mitigation measures from the PVCCSP EIR. The PVCCSP EIR mitigation measures that apply to the Project are as follows:

- **PVCCSP EIR MM Noise 1**: During all Project site excavation and grading on-site, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and

maintained mufflers, consistent with the manufacturers' standards. The construction contractors shall place all stationary construction equipment, so that emitted noise is directed away from the noise-sensitive receptors nearest the Project site.

- **PVCCSP EIR MM Noise 2**: During construction, stationary construction equipment, stockpiling, and vehicle staging areas will be placed a minimum of 446 feet away from the closet sensitive receptor.

- **PVCCSP EIR MM Noise 3**: No combustion-powered equipment, such as pumps or generators, shall be allowed to operate within 446 feet of any occupied residence unless a noise protection barrier surrounds the equipment.

- **PVCCSP EIR MM Noise 4:** Construction contractors implementing development projects shall limit haul truck deliveries to the same hours specified for construction equipment. To the extent feasible, haul routes shall not pass sensitive land uses or residential dwellings.

11.0 REFERENCES

California Department of Transportation's (Caltrans). 2013. *Transportation- and Construction-Vibration Guidance Manual*.

California Department of Transportation (Caltrans). 2013. Technical Noise Supplement (TeNS), A Technical Supplement to the Traffic Noise Analysis Protocol. http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf

City of Perris General Plan Circulation Element August 26, 2008

Federal Highway Administration (FHWA) Construction Noise Handbook Section 9.0. Accessed at: https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm

Federal Highway Administration (FHWA) Construction Noise Handbook Section 8.0. Accessed at: https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook08.cfm

Federal Highway Administration (FHWA), Roadway Construction Noise Model (RCNM) (2008).

Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment. https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/fta-noise-and-vibration-impact-assessment

March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan Mead Hunt, November 13, 2014 Draft (rcaluc.org)

Perris Valley Commerce Center Specific Plan Draft Environmental Impact Report (PVCC SP EIR), July 2011.

Perris Valley Commerce Center Specific Plan Amendment No. 11, December 2021

Webb Associates (2021) *City of Perris Scoping Form for Land Use Projects, SWC Rider-Redlands Warehouse (Chartwell) DPR 21-00003* prepared by Webb Associates (December 2021).

Appendix A Noise Monitoring Data

Site 1 - CNEL Values, March 9, 2022					
Background Leq and Hour Averaging DNL					
Hour	**Background L_{eq}**	**Penalty**	**L_{eq} DNL (L_{eq} + 10)**		**L_{eq} DNL (10^(D/10))**
0	59	10	69	DNL	7943282.347
1	61.5	10	71.5	DNL	14125375.45
2	62.2	10	72.2	DNL	16595869.07
3	67.3	10	77.3	DNL	53703179.64
4	68.7	10	78.7	DNL	74131024.13
5	68.2	10	78.2	DNL	66069344.8
6	70.2	10	80.2	DNL	104712854.8
7	71.1		71.1		12882495.52
8	67.3		67.3		5370317.964
9	59		59		794328.2347
10	61.5		61.5		1412537.545
11	62.2		62.2		1659586.907
12	67.3		67.3		5370317.964
13	68.7		68.7		7413102.413
14	68.2		68.2		6606934.48
15	70.2		70.2		10471285.48
16	71.1		71.1		12882495.52
17	67.3		67.3		5370317.964
18	66.1		66.1		4073802.778
19	68.1	5	73.1	CNEL	20417379.45
20	67	5	72	CNEL	15848931.92
21	65.1	5	70.1	CNEL	10232929.92
22	63.7	10	73.7	DNL	23442288.15
23	61.5	10	71.5	DNL	14125375.45
				Average=	20652306.58
			10LOG10 of (Average=)		73.14968563

Appendix B Traffic Noise Model Data

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT:	Chartwell Rider Industrial	JOB #:	0889-2022-04
ROADWAY:	Redlands Ave, south of Rider St	DATE:	3-May-22
LOCATION:	Southwest Corner Redlands Ave & Rider St, Perris CA 92571	ENGINEER:	F. Irarrazabal

NOISE INPUT DATA Existing

ROADWAY CONDITIONS

ADT =	6,008	
SPEED =	45	
PK HR % =	10	
NEAR LANE/FAR LANE DIS	64	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	601	

RECEIVER INPUT DATA

RECEIVER DISTANCE =	60	
DIST C/L TO WALL =	0	
RECEIVER HEIGHT =	5.0	
WALL DISTANCE FROM RECEIVER	60	
PAD ELEVATION =	0.0	
ROADWAY VIEW: LF ANGLE=	-90	
RT ANGLE=	90	
DF ANGLE=	180	

SITE CONDITIONS

AUTOMOBILES =	15	
MEDIUM TRUCKS =	15	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	15	

WALL INFORMATION

HTH WALL:	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.9742
MEDIUM TRUCK	0.489	0.022	0.489	0.0184
HEAVY TRUCKS	0.473	0.054	0.473	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	50.84	- -
MEDIUM TRUCKS	4.0	50.76	- -
HEAVY TRUCKS	8.0	50.84	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	63.8	61.8	60.4	54.4	62.9	63.5
MEDIUM TRUCKS	54.8	50.9	43.5	52.2	58.3	58.4
HEAVY TRUCKS	55.4	51.3	47.9	52.6	58.8	58.9
NOISE LEVELS (dBA)	64.8	62.4	60.8	57.9	65.3	65.7

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	63.8	61.8	60.4	54.4	62.9	63.5
MEDIUM TRUCKS	54.8	50.9	43.5	52.2	58.3	58.4
HEAVY TRUCKS	55.4	51.3	47.9	52.6	58.8	58.9
NOISE LEVELS (dBA)	64.8	62.4	60.8	57.9	65.3	65.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	31	66	143	309
LDN	29	63	135	290

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT:	Chartwell Rider Industrial	JOB #:	0889-2022-04
ROADWAY:	Redlands Ave, north of Rider St	DATE:	3-May-22
LOCATION:	Southwest Corner Redlands Ave & Rider St, Perris CA 92571	ENGINEER:	F. Irarrazabal

NOISE INPUT DATA Existing

ROADWAY CONDITIONS

ADT =	4,374	
SPEED =	45	
PK HR % =	10	
NEAR LANE/FAR LANE DIS	64	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	437	

RECEIVER INPUT DATA

RECEIVER DISTANCE =	60	
DIST C/L TO WALL =	0	
RECEIVER HEIGHT =	5.0	
WALL DISTANCE FROM RECEIVER	60	
PAD ELEVATION =	0.0	
ROADWAY VIEW: LF ANGLE=	-90	
RT ANGLE=	90	
DF ANGLE=	180	

SITE CONDITIONS

AUTOMOBILES =	15	
MEDIUM TRUCKS =	15	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	15	

WALL INFORMATION

HTH WALL:	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.9742
MEDIUM TRUCK	0.489	0.022	0.489	0.0184
HEAVY TRUCKS	0.473	0.054	0.473	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	50.84	- -
MEDIUM TRUCKS	4.0	50.76	- -
HEAVY TRUCKS	8.0	50.84	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.4	60.4	59.1	53.1	61.5	62.1
MEDIUM TRUCKS	53.4	49.5	42.1	50.8	57.0	57.0
HEAVY TRUCKS	54.0	49.9	46.5	51.2	57.4	57.5
NOISE LEVELS (dBA)	63.4	61.1	59.4	56.6	63.9	64.3

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.4	60.4	59.1	53.1	61.5	62.1
MEDIUM TRUCKS	53.4	49.5	42.1	50.8	57.0	57.0
HEAVY TRUCKS	54.0	49.9	46.5	51.2	57.4	57.5
NOISE LEVELS (dBA)	63.4	61.1	59.4	56.6	63.9	64.3

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	25	54	116	250
LDN	23	51	109	235

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT:	Chartwell Rider Industrial	JOB #:	0889-2022-04
ROADWAY:	Rider St, east of Redlands Ave	DATE:	3-May-22
LOCATION:	Southwest Corner Redlands Ave & Rider St, Perris CA 92571	ENGINEER:	F. Irarrazabal

NOISE INPUT DATA Existing

ROADWAY CONDITIONS

ADT =	11,288	
SPEED =	45	
PK HR % =	10	
NEAR LANE/FAR LANE DIS	64	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	1,129	

RECEIVER INPUT DATA

RECEIVER DISTANCE =	60	
DIST C/L TO WALL =	0	
RECEIVER HEIGHT =	5.0	
WALL DISTANCE FROM RECEIVER	60	
PAD ELEVATION =	0.0	
ROADWAY VIEW: LF ANGLE=	-90	
RT ANGLE=	90	
DF ANGLE=	180	

SITE CONDITIONS

AUTOMOBILES =	15	
MEDIUM TRUCKS =	15	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	15	

WALL INFORMATION

HTH WALL:	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.9742
MEDIUM TRUCK	0.489	0.022	0.489	0.0184
HEAVY TRUCKS	0.473	0.054	0.473	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	50.84	- -
MEDIUM TRUCKS	4.0	50.76	- -
HEAVY TRUCKS	8.0	50.84	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	66.5	64.5	63.2	57.2	65.6	66.2
MEDIUM TRUCKS	57.6	53.7	46.2	54.9	61.1	61.1
HEAVY TRUCKS	58.1	54.1	50.7	55.3	61.5	61.6
NOISE LEVELS (dBA)	67.6	65.2	63.5	60.7	68.0	68.4

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	66.5	64.5	63.2	57.2	65.6	66.2
MEDIUM TRUCKS	57.6	53.7	46.2	54.9	61.1	61.1
HEAVY TRUCKS	58.1	54.1	50.7	55.3	61.5	61.6
NOISE LEVELS (dBA)	67.6	65.2	63.5	60.7	68.0	68.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	47	101	218	470
LDN	44	95	205	442

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT:	Chartwell Rider Industrial	JOB #:	0889-2022-04
ROADWAY:	Rider St, west of Redlands Ave	DATE:	3-May-22
LOCATION:	Southwest Corner Redlands Ave & Rider St, Perris CA 92571	ENGINEER:	F. Irarrazabal

NOISE INPUT DATA Existing

ROADWAY CONDITIONS

ADT =	8,600	
SPEED =	45	
PK HR % =	10	
NEAR LANE/FAR LANE DIS	64	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	860	

RECEIVER INPUT DATA

RECEIVER DISTANCE =		60
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5.0
WALL DISTANCE FROM RECEIVER		60
PAD ELEVATION =		0.0
ROADWAY VIEW:	LF ANGLE=	-90
	RT ANGLE=	90
	DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	15	
MEDIUM TRUCKS =	15	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	15	

WALL INFORMATION

HTH WALL:	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.9742
MEDIUM TRUCK	0.489	0.022	0.489	0.0184
HEAVY TRUCKS	0.473	0.054	0.473	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	50.84	- -
MEDIUM TRUCKS	4.0	50.76	- -
HEAVY TRUCKS	8.0	50.84	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.3	63.3	62.0	56.0	64.4	65.0
MEDIUM TRUCKS	56.4	52.5	45.0	53.7	59.9	59.9
HEAVY TRUCKS	56.9	52.9	49.5	54.1	60.3	60.4
NOISE LEVELS (dBA)	66.4	64.0	62.3	59.5	66.8	67.2

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.3	63.3	62.0	56.0	64.4	65.0
MEDIUM TRUCKS	56.4	52.5	45.0	53.7	59.9	59.9
HEAVY TRUCKS	56.9	52.9	49.5	54.1	60.3	60.4
NOISE LEVELS (dBA)	66.4	64.0	62.3	59.5	66.8	67.2

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	39	84	182	392
LDN	37	79	171	369

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT:	Chartwell Rider Industrial	JOB #:	0889-2022-04
ROADWAY:	Redlands Ave, south of Rider St	DATE:	3-May-22
LOCATION:	Southwest Corner Redlands Ave & Rider St, Perris CA 92571	ENGINEER:	F. Irarrazabal

NOISE INPUT DATA Existing + Project

ROADWAY CONDITIONS

ADT =	6,071	
SPEED =	45	
PK HR % =	10	
NEAR LANE/FAR LANE DIS	64	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	607	

RECEIVER INPUT DATA

RECEIVER DISTANCE =	60	
DIST C/L TO WALL =	0	
RECEIVER HEIGHT =	5.0	
WALL DISTANCE FROM RECEIVER	10	
PAD ELEVATION =	0.0	
ROADWAY VIEW: LF ANGLE=	-90	
RT ANGLE=	90	
DF ANGLE=	180	

SITE CONDITIONS

AUTOMOBILES =	15	
MEDIUM TRUCKS =	15	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	15	

WALL INFORMATION

HTH WALL:	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.9742
MEDIUM TRUCK	0.489	0.022	0.489	0.0184
HEAVY TRUCKS	0.473	0.054	0.473	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	50.84	- -
MEDIUM TRUCKS	4.0	50.76	- -
HEAVY TRUCKS	8.0	50.84	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	63.8	61.8	60.5	54.5	62.9	63.5
MEDIUM TRUCKS	54.9	51.0	43.5	52.2	58.4	58.4
HEAVY TRUCKS	55.4	51.4	48.0	52.6	58.8	58.9
NOISE LEVELS (dBA)	64.9	62.5	60.8	58.0	65.3	65.7

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	63.8	61.8	60.5	54.5	62.9	63.5
MEDIUM TRUCKS	54.9	51.0	43.5	52.2	58.4	58.4
HEAVY TRUCKS	55.4	51.4	48.0	52.6	58.8	58.9
NOISE LEVELS (dBA)	64.9	62.5	60.8	58.0	65.3	65.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	31	67	144	311
LDN	29	63	136	292

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT:	Chartwell Rider Industrial	JOB #:	0889-2022-04
ROADWAY:	Redlands Ave, north of Rider St	DATE:	3-May-22
LOCATION:	Southwest Corner Redlands Ave & Rider St, Perris CA 92571	ENGINEER:	F. Irarrazabal

NOISE INPUT DATA Existing + Project

ROADWAY CONDITIONS

ADT =	4,484	
SPEED =	45	
PK HR % =	10	
NEAR LANE/FAR LANE DIS	64	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	448	

RECEIVER INPUT DATA

RECEIVER DISTANCE =	60	
DIST C/L TO WALL =	0	
RECEIVER HEIGHT =	5.0	
WALL DISTANCE FROM RECEIVER	10	
PAD ELEVATION =	0.0	
ROADWAY VIEW: LF ANGLE=	-90	
RT ANGLE=	90	
DF ANGLE=	180	

SITE CONDITIONS

AUTOMOBILES =	15	
MEDIUM TRUCKS =	15	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	15	

WALL INFORMATION

HTH WALL:	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.9742
MEDIUM TRUCK	0.489	0.022	0.489	0.0184
HEAVY TRUCKS	0.473	0.054	0.473	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	50.84	- -
MEDIUM TRUCKS	4.0	50.76	- -
HEAVY TRUCKS	8.0	50.84	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.5	60.5	59.2	53.2	61.6	62.2
MEDIUM TRUCKS	53.5	49.6	42.2	50.9	57.1	57.1
HEAVY TRUCKS	54.1	50.1	46.7	51.3	57.5	57.6
NOISE LEVELS (dBA)	63.5	61.2	59.5	56.7	64.0	64.4

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.5	60.5	59.2	53.2	61.6	62.2
MEDIUM TRUCKS	53.5	49.6	42.2	50.9	57.1	57.1
HEAVY TRUCKS	54.1	50.1	46.7	51.3	57.5	57.6
NOISE LEVELS (dBA)	63.5	61.2	59.5	56.7	64.0	64.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	25	55	118	254
LDN	24	51	111	239

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT:	Chartwell Rider Industrial	JOB #:	0889-2022-04
ROADWAY:	Rider St, east of Redlands Ave	DATE:	3-May-22
LOCATION:	Southwest Corner Redlands Ave & Rider St, Perris CA 92571	ENGINEER:	F. Irarrazabal

NOISE INPUT DATA Existing + Project

ROADWAY CONDITIONS

ADT =	11,332	
SPEED =	45	
PK HR % =	10	
NEAR LANE/FAR LANE DIS	64	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	1,133	

RECEIVER INPUT DATA

RECEIVER DISTANCE =	60	
DIST C/L TO WALL =	0	
RECEIVER HEIGHT =	5.0	
WALL DISTANCE FROM RECEIVER	10	
PAD ELEVATION =	0.0	
ROADWAY VIEW: LF ANGLE=	-90	
RT ANGLE=	90	
DF ANGLE=	180	

SITE CONDITIONS

AUTOMOBILES =	15	
MEDIUM TRUCKS =	15	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	15	

WALL INFORMATION

HTH WALL:	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.9742
MEDIUM TRUCK	0.489	0.022	0.489	0.0184
HEAVY TRUCKS	0.473	0.054	0.473	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	50.84	- -
MEDIUM TRUCKS	4.0	50.76	- -
HEAVY TRUCKS	8.0	50.84	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	66.5	64.5	63.2	57.2	65.6	66.2
MEDIUM TRUCKS	57.6	53.7	46.2	54.9	61.1	61.1
HEAVY TRUCKS	58.1	54.1	50.7	55.3	61.5	61.6
NOISE LEVELS (dBA)	67.6	65.2	63.5	60.7	68.0	68.4

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	66.5	64.5	63.2	57.2	65.6	66.2
MEDIUM TRUCKS	57.6	53.7	46.2	54.9	61.1	61.1
HEAVY TRUCKS	58.1	54.1	50.7	55.3	61.5	61.6
NOISE LEVELS (dBA)	67.6	65.2	63.5	60.7	68.0	68.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	47	101	219	471
LDN	44	95	206	443

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT:	Chartwell Rider Industrial	JOB #:	0889-2022-04
ROADWAY:	Rider St, west of Redlands Ave	DATE:	3-May-22
LOCATION:	Southwest Corner Redlands Ave & Rider St, Perris CA 92571	ENGINEER:	F. Irarrazabal

NOISE INPUT DATA Existing + Project

ROADWAY CONDITIONS

ADT =	8,737	
SPEED =	45	
PK HR % =	10	
NEAR LANE/FAR LANE DIS	64	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	874	

RECEIVER INPUT DATA

RECEIVER DISTANCE =	60	
DIST C/L TO WALL =	0	
RECEIVER HEIGHT =	5.0	
WALL DISTANCE FROM RECEIVER	10	
PAD ELEVATION =	0.0	
ROADWAY VIEW: LF ANGLE=	-90	
RT ANGLE=	90	
DF ANGLE=	180	

SITE CONDITIONS

AUTOMOBILES =	15	
MEDIUM TRUCKS =	15	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	15	

WALL INFORMATION

HTH WALL:	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.9742
MEDIUM TRUCK	0.489	0.022	0.489	0.0184
HEAVY TRUCKS	0.473	0.054	0.473	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	50.84	- -
MEDIUM TRUCKS	4.0	50.76	- -
HEAVY TRUCKS	8.0	50.84	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.4	63.4	62.1	56.1	64.5	65.1
MEDIUM TRUCKS	56.4	52.5	45.1	53.8	60.0	60.0
HEAVY TRUCKS	57.0	53.0	49.6	54.2	60.4	60.5
NOISE LEVELS (dBA)	66.4	64.1	62.4	59.6	66.9	67.3

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.4	63.4	62.1	56.1	64.5	65.1
MEDIUM TRUCKS	56.4	52.5	45.1	53.8	60.0	60.0
HEAVY TRUCKS	57.0	53.0	49.6	54.2	60.4	60.5
NOISE LEVELS (dBA)	66.4	64.1	62.4	59.6	66.9	67.3

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	40	85	184	396
LDN	37	80	173	373

Appendix C Stationary Noise Model Data

Chartwell Warehouse
Contribution level - 001 - Chartwell Warehouse: Outdoor SP **9**

Source	Source group	Source ty	Tr. lane	LrD dB(A)	A dB	
Receiver R1 Fl G LrD,lim dB(A) LrD 39.4 dB(A)						
Parking	Default parking lot noise	PLot		30.3	0.0	
Parking	Default parking lot noise	PLot		27.9	0.0	
Parking	Default parking lot noise	PLot		24.9	0.0	
Parking	Default parking lot noise	PLot		24.1	0.0	
Parking	Default parking lot noise	PLot		26.9	0.0	
Parking	Default parking lot noise	PLot		26.5	0.0	
Parking	Default parking lot noise	PLot		33.6	0.0	
Parking	Default parking lot noise	PLot		31.8	0.0	
Parking	Default parking lot noise	PLot		26.8	0.0	
Loading Dock	Default industrial noise	Point		7.6	0.0	
Loading Dock	Default industrial noise	Point		8.5	0.0	
Loading Dock	Default industrial noise	Point		9.1	0.0	
Loading Dock	Default industrial noise	Point		9.7	0.0	
Loading Dock	Default industrial noise	Point		10.1	0.0	
Loading Dock	Default industrial noise	Point		10.5	0.0	
Loading Dock	Default industrial noise	Point		10.8	0.0	
Loading Dock	Default industrial noise	Point		11.1	0.0	
Loading Dock	Default industrial noise	Point		11.4	0.0	
Loading Dock	Default industrial noise	Point		11.6	0.0	
Loading Dock	Default industrial noise	Point		11.8	0.0	
Loading Dock	Default industrial noise	Point		11.9	0.0	
Loading Dock	Default industrial noise	Point		12.1	0.0	
Loading Dock	Default industrial noise	Point		19.4	0.0	
Loading Dock	Default industrial noise	Point		17.5	0.0	
Loading Dock	Default industrial noise	Point		19.2	0.0	
Loading Dock	Default industrial noise	Point		19.1	0.0	
Loading Dock	Default industrial noise	Point		19.0	0.0	
Loading Dock	Default industrial noise	Point		18.9	0.0	
HVAC	Default industrial noise	Point		18.9	0.0	
HVAC	Default industrial noise	Point		16.4	0.0	
HVAC	Default industrial noise	Point		13.1	0.0	
HVAC	Default industrial noise	Point		10.7	0.0	
HVAC	Default industrial noise	Point		12.1	0.0	
HVAC	Default industrial noise	Point		11.5	0.0	
HVAC	Default industrial noise	Point		18.8	0.0	
HVAC	Default industrial noise	Point		18.6	0.0	
HVAC	Default industrial noise	Point		18.6	0.0	
Alarm	Default industrial noise	Point		0.2	0.0	
Alarm	Default industrial noise	Point		0.9	0.0	
Alarm	Default industrial noise	Point		2.1	0.0	
Alarm	Default industrial noise	Point		2.5	0.0	
Alarm	Default industrial noise	Point		2.9	0.0	
Alarm	Default industrial noise	Point		3.2	0.0	
Alarm	Default industrial noise	Point		3.4	0.0	

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SoundPLAN 8.2

Chartwell Warehouse
Contribution level - 001 - Chartwell Warehouse: Outdoor SP **9**

Source	Source group	Source ty	Tr. lane	LrD dB(A)	A dB	
Alarm	Default industrial noise	Point		3.7	0.0	
Alarm	Default industrial noise	Point		3.8	0.0	
Alarm	Default industrial noise	Point		4.0	0.0	
Alarm	Default industrial noise	Point		4.1	0.0	
Alarm	Default industrial noise	Point		4.3	0.0	
Alarm	Default industrial noise	Point		12.4	0.0	
Alarm	Default industrial noise	Point		12.2	0.0	
Alarm	Default industrial noise	Point		12.0	0.0	
Alarm	Default industrial noise	Point		11.9	0.0	
Alarm	Default industrial noise	Point		13.8	0.0	
Alarm	Default industrial noise	Point		13.7	0.0	
Alarm	Default industrial noise	Point		13.5	0.0	
Receiver R2 Fl G LrD,lim dB(A) LrD 37.1 dB(A)						
Parking	Default parking lot noise	PLot		23.7	0.0	
Parking	Default parking lot noise	PLot		25.6	0.0	
Parking	Default parking lot noise	PLot		26.1	0.0	
Parking	Default parking lot noise	PLot		26.4	0.0	
Parking	Default parking lot noise	PLot		28.0	0.0	
Parking	Default parking lot noise	PLot		22.2	0.0	
Parking	Default parking lot noise	PLot		29.8	0.0	
Parking	Default parking lot noise	PLot		31.6	0.0	
Parking	Default parking lot noise	PLot		19.6	0.0	
Loading Dock	Default industrial noise	Point		7.9	0.0	
Loading Dock	Default industrial noise	Point		9.0	0.0	
Loading Dock	Default industrial noise	Point		7.1	0.0	
Loading Dock	Default industrial noise	Point		6.9	0.0	
Loading Dock	Default industrial noise	Point		6.8	0.0	
Loading Dock	Default industrial noise	Point		6.7	0.0	
Loading Dock	Default industrial noise	Point		6.6	0.0	
Loading Dock	Default industrial noise	Point		6.5	0.0	
Loading Dock	Default industrial noise	Point		6.4	0.0	
Loading Dock	Default industrial noise	Point		6.3	0.0	
Loading Dock	Default industrial noise	Point		6.3	0.0	
Loading Dock	Default industrial noise	Point		6.2	0.0	
Loading Dock	Default industrial noise	Point		6.1	0.0	
Loading Dock	Default industrial noise	Point		6.0	0.0	
Loading Dock	Default industrial noise	Point		5.9	0.0	
Loading Dock	Default industrial noise	Point		5.8	0.0	
Loading Dock	Default industrial noise	Point		3.6	0.0	
Loading Dock	Default industrial noise	Point		3.6	0.0	
Loading Dock	Default industrial noise	Point		3.5	0.0	
HVAC	Default industrial noise	Point		14.6	0.0	
HVAC	Default industrial noise	Point		18.7	0.0	
HVAC	Default industrial noise	Point		13.1	0.0	
HVAC	Default industrial noise	Point		10.9	0.0	

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SoundPLAN 8.2

Chartwell Warehouse
Contribution level - 001 - Chartwell Warehouse: Outdoor SP **9**

Source	Source group	Source ty	Tr. lane	LrD dB(A)	A dB	
HVAC	Default industrial noise	Point		12.0	0.0	
HVAC	Default industrial noise	Point		11.7	0.0	
HVAC	Default industrial noise	Point		14.5	0.0	
HVAC	Default industrial noise	Point		14.6	0.0	
HVAC	Default industrial noise	Point		14.4	0.0	
Alarm	Default industrial noise	Point		-0.1	0.0	
Alarm	Default industrial noise	Point		1.7	0.0	
Alarm	Default industrial noise	Point		1.6	0.0	
Alarm	Default industrial noise	Point		1.5	0.0	
Alarm	Default industrial noise	Point		1.2	0.0	
Alarm	Default industrial noise	Point		1.1	0.0	
Alarm	Default industrial noise	Point		1.0	0.0	
Alarm	Default industrial noise	Point		0.9	0.0	
Alarm	Default industrial noise	Point		0.8	0.0	
Alarm	Default industrial noise	Point		0.7	0.0	
Alarm	Default industrial noise	Point		0.6	0.0	
Alarm	Default industrial noise	Point		0.5	0.0	
Alarm	Default industrial noise	Point		0.4	0.0	
Alarm	Default industrial noise	Point		0.3	0.0	
Alarm	Default industrial noise	Point		0.3	0.0	
Alarm	Default industrial noise	Point		-1.8	0.0	
Alarm	Default industrial noise	Point		-1.9	0.0	
Alarm	Default industrial noise	Point		-2.0	0.0	
Alarm	Default industrial noise	Point		-2.1	0.0	
Receiver R3 Fl G LrD,lim dB(A) LrD 37.7 dB(A)						
Parking	Default parking lot noise	PLot		22.9	0.0	
Parking	Default parking lot noise	PLot		24.9	0.0	
Parking	Default parking lot noise	PLot		26.1	0.0	
Parking	Default parking lot noise	PLot		29.4	0.0	
Parking	Default parking lot noise	PLot		28.7	0.0	
Parking	Default parking lot noise	PLot		14.9	0.0	
Parking	Default parking lot noise	PLot		29.7	0.0	
Parking	Default parking lot noise	PLot		32.3	0.0	
Parking	Default parking lot noise	PLot		18.9	0.0	
Loading Dock	Default industrial noise	Point		6.8	0.0	
Loading Dock	Default industrial noise	Point		6.8	0.0	
Loading Dock	Default industrial noise	Point		6.7	0.0	
Loading Dock	Default industrial noise	Point		6.7	0.0	
Loading Dock	Default industrial noise	Point		6.7	0.0	
Loading Dock	Default industrial noise	Point		6.8	0.0	
Loading Dock	Default industrial noise	Point		6.9	0.0	
Loading Dock	Default industrial noise	Point		7.0	0.0	
Loading Dock	Default industrial noise	Point		6.9	0.0	
Loading Dock	Default industrial noise	Point		6.9	0.0	
Loading Dock	Default industrial noise	Point		6.9	0.0	

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SoundPLAN 8.2

Chartwell Warehouse
Contribution level - 001 - Chartwell Warehouse: Outdoor SP **9**

Source	Source group	Source ty	Tr. lane	LrD dB(A)	A dB	
Loading Dock	Default industrial noise	Point		6.8	0.0	
Loading Dock	Default industrial noise	Point		6.8	0.0	
Loading Dock	Default industrial noise	Point		6.8	0.0	
Loading Dock	Default industrial noise	Point		6.8	0.0	
Loading Dock	Default industrial noise	Point		4.4	0.0	
Loading Dock	Default industrial noise	Point		0.6	0.0	
Loading Dock	Default industrial noise	Point		0.5	0.0	
Loading Dock	Default industrial noise	Point		0.4	0.0	
HVAC	Default industrial noise	Point		12.9	0.0	
HVAC	Default industrial noise	Point		23.7	0.0	
HVAC	Default industrial noise	Point		16.6	0.0	
HVAC	Default industrial noise	Point		14.8	0.0	
HVAC	Default industrial noise	Point		16.0	0.0	
HVAC	Default industrial noise	Point		15.5	0.0	
HVAC	Default industrial noise	Point		13.1	0.0	
HVAC	Default industrial noise	Point		13.1	0.0	
HVAC	Default industrial noise	Point		13.3	0.0	
Alarm	Default industrial noise	Point		-0.6	0.0	
Alarm	Default industrial noise	Point		-0.6	0.0	
Alarm	Default industrial noise	Point		-0.7	0.0	
Alarm	Default industrial noise	Point		-0.7	0.0	
Alarm	Default industrial noise	Point		-0.8	0.0	
Alarm	Default industrial noise	Point		-0.7	0.0	
Alarm	Default industrial noise	Point		-0.7	0.0	
Alarm	Default industrial noise	Point		-0.7	0.0	
Alarm	Default industrial noise	Point		-0.7	0.0	
Alarm	Default industrial noise	Point		-0.8	0.0	
Alarm	Default industrial noise	Point		-0.8	0.0	
Alarm	Default industrial noise	Point		-0.9	0.0	
Alarm	Default industrial noise	Point		-0.9	0.0	
Alarm	Default industrial noise	Point		-1.0	0.0	
Alarm	Default industrial noise	Point		-1.0	0.0	
Alarm	Default industrial noise	Point		-2.6	0.0	
Alarm	Default industrial noise	Point		-4.4	0.0	
Alarm	Default industrial noise	Point		-4.5	0.0	
Alarm	Default industrial noise	Point		-4.6	0.0	
Receiver R4 Fl G LrD,lim dB(A) LrD 49.6 dB(A)						
Parking	Default parking lot noise	PLot		13.5	0.0	
Parking	Default parking lot noise	PLot		8.5	0.0	
Parking	Default parking lot noise	PLot		6.7	0.0	
Parking	Default parking lot noise	PLot		5.4	0.0	
Parking	Default parking lot noise	PLot		3.7	0.0	
Parking	Default parking lot noise	PLot		2.4	0.0	
Parking	Default parking lot noise	PLot		13.4	0.0	
Parking	Default parking lot noise	PLot		12.2	0.0	

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SoundPLAN 8.2

Chartwell Warehouse
Contribution level - 001 - Chartwell Warehouse: Outdoor SP **9**

Source	Source group	Source ty	Tr. lane	LrD dB(A)	A dB	
Parking	Default parking lot noise	PLot		16.3	0.0	
Loading Dock	Default industrial noise	Point		32.6	0.0	
Loading Dock	Default industrial noise	Point		32.6	0.0	
Loading Dock	Default industrial noise	Point		32.7	0.0	
Loading Dock	Default industrial noise	Point		32.9	0.0	
Loading Dock	Default industrial noise	Point		33.2	0.0	
Loading Dock	Default industrial noise	Point		33.5	0.0	
Loading Dock	Default industrial noise	Point		33.8	0.0	
Loading Dock	Default industrial noise	Point		34.1	0.0	
Loading Dock	Default industrial noise	Point		34.4	0.0	
Loading Dock	Default industrial noise	Point		34.9	0.0	
Loading Dock	Default industrial noise	Point		35.3	0.0	
Loading Dock	Default industrial noise	Point		35.8	0.0	
Loading Dock	Default industrial noise	Point		36.3	0.0	
Loading Dock	Default industrial noise	Point		36.9	0.0	
Loading Dock	Default industrial noise	Point		37.5	0.0	
Loading Dock	Default industrial noise	Point		38.1	0.0	
Loading Dock	Default industrial noise	Point		38.7	0.0	
Loading Dock	Default industrial noise	Point		39.3	0.0	
Loading Dock	Default industrial noise	Point		39.9	0.0	
HVAC	Default industrial noise	Point		14.4	0.0	
HVAC	Default industrial noise	Point		11.2	0.0	
HVAC	Default industrial noise	Point		14.4	0.0	
HVAC	Default industrial noise	Point		16.1	0.0	
HVAC	Default industrial noise	Point		15.4	0.0	
HVAC	Default industrial noise	Point		16.0	0.0	
HVAC	Default industrial noise	Point		14.4	0.0	
HVAC	Default industrial noise	Point		14.6	0.0	
HVAC	Default industrial noise	Point		14.6	0.0	
Alarm	Default industrial noise	Point		25.3	0.0	
Alarm	Default industrial noise	Point		25.3	0.0	
Alarm	Default industrial noise	Point		25.4	0.0	
Alarm	Default industrial noise	Point		25.6	0.0	
Alarm	Default industrial noise	Point		25.9	0.0	
Alarm	Default industrial noise	Point		26.2	0.0	
Alarm	Default industrial noise	Point		26.5	0.0	
Alarm	Default industrial noise	Point		26.8	0.0	
Alarm	Default industrial noise	Point		27.1	0.0	
Alarm	Default industrial noise	Point		27.6	0.0	
Alarm	Default industrial noise	Point		28.0	0.0	
Alarm	Default industrial noise	Point		28.5	0.0	
Alarm	Default industrial noise	Point		29.1	0.0	
Alarm	Default industrial noise	Point		29.6	0.0	
Alarm	Default industrial noise	Point		30.2	0.0	
Alarm	Default industrial noise	Point		30.8	0.0	

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SoundPLAN 8.2

Chartwell Warehouse
Contribution level - 001 - Chartwell Warehouse: Outdoor SP **9**

Source	Source group	Source ty	Tr. lane	LrD dB(A)	A dB	
Alarm	Default industrial noise	Point		31.4	0.0	
Alarm	Default industrial noise	Point		32.0	0.0	
Alarm	Default industrial noise	Point		32.6	0.0	

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SoundPLAN 8.2

Chartwell Warehouse
Octave spectra of the sources in dB(A) - 001 - Chartwell Warehouse: Outdoor SP **3**

Name	Source type	I or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
Alarm	Point				83.4	83.4	0.0	0.0		0	Back up Alarm	Back up Beeper	68.6	63.0	65.0	72.1	70.8	82.4	66.4	59.1	45.8
HVAC	Point				74.9	74.9	0.0	0.0		0	HVAC	HVAC @ 3ft - Carrier 50TFQ0006 - 5 Ton	51.2	60.1	62.7	67.5	69.3	69.1	66.1	61.7	50.0
HVAC	Point				74.9	74.9	0.0	0.0		0	HVAC	HVAC @ 3ft - Carrier 50TFQ0006 - 5 Ton	51.2	60.1	62.7	67.5	69.3	69.1	66.1	61.7	50.0
HVAC	Point				74.9	74.9	0.0	0.0		0	HVAC	HVAC @ 3ft - Carrier 50TFQ0006 - 5 Ton	51.2	60.1	62.7	67.5	69.3	69.1	66.1	61.7	50.0
HVAC	Point				74.9	74.9	0.0	0.0		0	HVAC	HVAC @ 3ft - Carrier 50TFQ0006 - 5 Ton	51.2	60.1	62.7	67.5	69.3	69.1	66.1	61.7	50.0
HVAC	Point				74.9	74.9	0.0	0.0		0	HVAC	HVAC @ 3ft - Carrier 50TFQ0006 - 5 Ton	51.2	60.1	62.7	67.5	69.3	69.1	66.1	61.7	50.0
HVAC	Point				74.9	74.9	0.0	0.0		0	HVAC	HVAC @ 3ft - Carrier 50TFQ0006 - 5 Ton	51.2	60.1	62.7	67.5	69.3	69.1	66.1	61.7	50.0

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SoundPLAN 8.2

Chartwell Warehouse
Octave spectra of the sources in dB(A) - 001 - Chartwell Warehouse: Outdoor SP **3**

Name	Source type	I or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
HVAC	Point				74.9	74.9	0.0	0.0		0	HVAC	HVAC @ 3ft - Carrier 50TFQ0006 - 5 Ton	51.2	60.1	62.7	67.5	69.3	69.1	66.1	61.7	50.0
HVAC	Point				74.9	74.9	0.0	0.0		0	HVAC	HVAC @ 3ft - Carrier 50TFQ0006 - 5 Ton	51.2	60.1	62.7	67.5	69.3	69.1	66.1	61.7	50.0
HVAC	Point				74.9	74.9	0.0	0.0		0	HVAC	HVAC @ 3ft - Carrier 50TFQ0006 - 5 Ton	51.2	60.1	62.7	67.5	69.3	69.1	66.1	61.7	50.0
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Loading Dock	Point				91.4	91.4	0.0	0.0		0	Back up Alarm	Idiling Heavy Diesel Truck	60.6	78.3	77.1	83.5	88.0	84.7	79.7	71.7	59.6
Parking	PLot	130.38			54.3	75.5	0.0	0.0		0	100%/24h	Typical spectrum	58.8	70.4	62.9	67.4	67.5	67.9	65.2	59.0	46.2
Parking	PLot	374.90			56.9	82.6	0.0	0.0		0	100%/24h	Typical spectrum	66.0	77.6	70.1	74.6	74.7	75.1	72.4	66.2	53.4
Parking	PLot	335.97			57.4	82.6	0.0	0.0		0	100%/24h	Typical spectrum	66.0	77.6	70.1	74.6	74.7	75.1	72.4	66.2	53.4
Parking	PLot	76.89			55.1	74.0	0.0	0.0		0	100%/24h	Typical spectrum	57.3	68.9	61.4	65.9	66.0	66.4	63.7	57.5	44.7
Parking	PLot	174.04			55.8	78.2	0.0	0.0		0	100%/24h	Typical spectrum	61.5	73.1	65.6	70.1	70.2	70.6	67.9	61.7	48.9

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SoundPLAN 8.2

Chartwell Warehouse
Octave spectra of the sources in dB(A) - 001 - Chartwell Warehouse: Outdoor SP

3

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Parking	PLot	173.07			54.6	77.0	0.0	0.0		0	100%/24h	Typical spectrum	60.3	71.9	64.4	68.9	69.0	69.4	66.7	60.5	47.7
Parking	PLot	157.98			55.0	77.0	0.0	0.0		0	100%/24h	Typical spectrum	60.3	71.9	64.4	68.9	69.0	69.4	66.7	60.5	47.7
Parking	PLot	135.68			54.7	76.0	0.0	0.0		0	100%/24h	Typical spectrum	59.4	71.0	63.5	68.0	68.1	68.5	65.8	59.6	46.8
Parking	PLot	152.22			54.7	76.5	0.0	0.0		0	100%/24h	Typical spectrum	59.9	71.5	64.0	68.5	68.6	69.0	66.3	60.1	47.3

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SoundPLAN 8.2

Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP **23**

Source	Time slice	Sum dB(A)	25Hz dB(A)	31.5Hz dB(A)	40Hz dB(A)	50Hz dB(A)	63Hz dB(A)	80Hz dB(A)	100Hz dB(A)	125Hz dB(A)	160Hz dB(A)	200Hz dB(A)	250Hz dB(A)	315Hz dB(A)	400Hz dB(A)	500Hz dB(A)	630Hz dB(A)	800Hz dB(A)	1kHz dB(A)	1.25kHz dB(A)	1.6kHz dB(A)	2kHz dB(A)	2.5kHz dB(A)	3.15kHz dB(A)	4kHz dB(A)	5kHz dB(A)	6.3kHz dB(A)	8kHz dB(A)	10kHz dB(A)
Receiver R1 Fl G LrD,lim dB(A) LrD 39.4 dB(A)																													
Alarm	LrD	3.2	-17.0	-15.7	-21.0	-7.9	-2.2	-4.6	-13.5	-17.1	-19.0	-21.0	-20.9	-17.1	-7.8	-16.8	-17.4	-15.1	-15.4	-17.0	-16.0	-7.4	-5.1	-24.2	-30.6	-37.3	-44.8	-53.7	-70.4
Alarm	LrD	3.4	-17.0	-15.6	-20.9	-7.8	-2.1	-4.4	-13.3	-16.8	-18.7	-20.8	-20.6	-16.8	-7.5	-16.4	-17.1	-14.7	-15.1	-16.6	-15.6	-7.0	-4.7	-23.8	-30.3	-37.1	-45.1	-54.3	-71.3
Alarm	LrD	3.7	-17.0	-15.6	-20.8	-7.7	-1.9	-4.2	-13.1	-16.6	-18.5	-20.5	-20.4	-16.5	-7.2	-16.2	-16.8	-14.3	-14.7	-16.3	-15.3	-6.7	-4.4	-23.6	-30.1	-36.9	-45.1	-54.8	-72.1
Alarm	LrD	3.8	-17.0	-15.6	-20.8	-7.6	-1.8	-4.0	-13.0	-16.4	-18.3	-20.4	-20.2	-16.3	-7.0	-15.9	-16.5	-14.0	-14.4	-16.0	-15.0	-6.4	-4.1	-23.3	-29.8	-36.8	-45.1	-55.3	-72.9
Alarm	LrD	2.9	-17.1	-15.8	-21.1	-8.1	-2.5	-4.9	-13.8	-17.4	-19.3	-21.4	-21.3	-17.5	-8.2	-17.2	-17.8	-15.5	-15.9	-17.5	-16.4	-7.8	-5.5	-24.5	-30.9	-37.5	-44.4	-53.1	-69.6
Alarm	LrD	0.2	-17.9	-16.8	-22.4	-9.7	-4.3	-6.9	-15.8	-19.6	-21.7	-23.8	-23.8	-20.1	-13.2	-22.2	-22.9	-20.2	-20.6	-22.2	-21.2	-12.5	-9.4	-27.6	-32.9	-38.5	-45.0	-52.9	-68.3
Alarm	LrD	0.9	-17.6	-16.4	-21.9	-9.1	-3.6	-6.2	-15.1	-18.8	-20.8	-22.9	-22.9	-19.2	-12.2	-21.3	-22.0	-19.3	-19.7	-21.3	-20.2	-11.6	-9.2	-27.6	-33.1	-38.7	-45.3	-53.5	-69.2
Alarm	LrD	2.1	-17.3	-16.1	-21.5	-8.7	-3.1	-5.6	-14.5	-18.2	-20.2	-22.3	-22.2	-18.5	-9.2	-18.2	-18.9	-16.6	-17.0	-18.6	-17.6	-8.9	-6.6	-25.6	-31.2	-36.9	-43.6	-51.9	-67.8
Alarm	LrD	2.5	-17.2	-15.9	-21.3	-8.3	-2.8	-5.2	-14.1	-17.7	-19.7	-21.8	-21.7	-17.9	-8.6	-17.6	-18.3	-16.0	-16.4	-18.0	-17.0	-8.3	-6.0	-25.0	-31.3	-37.2	-44.0	-52.5	-68.7
Alarm	LrD	4.0	-17.1	-15.6	-20.7	-7.6	-1.7	-3.9	-12.8	-16.3	-18.1	-20.2	-20.0	-16.1	-6.8	-15.7	-16.3	-13.8	-14.1	-15.7	-14.7	-6.1	-3.9	-23.1	-29.7	-36.7	-45.1	-55.5	-73.7
Alarm	LrD	11.9	-17.4	-15.9	-20.9	-7.5	-1.6	-3.6	-12.6	-15.9	-17.5	-19.7	-19.3	-15.3	-8.2	-14.8	-15.4	-12.5	-12.8	-4.9	-3.1	6.2	9.2	-9.4	-15.5	-22.3	-30.7	-41.7	-61.7
Alarm	LrD	13.8	-17.5	-15.9	-20.9	-7.6	-1.6	-3.6	-12.6	-15.8	-17.5	-19.6	-19.3	-15.3	-8.1	-14.7	-15.2	-12.3	-12.7	-2.8	-0.9	8.4	11.4	-7.2	-13.4	-20.2	-28.8	-40.0	-60.3
Alarm	LrD	13.7	-17.6	-16.0	-21.0	-7.6	-1.6	-3.6	-12.6	-15.8	-17.4	-19.6	-19.2	-15.2	-8.0	-14.6	-15.1	-12.2	-12.5	-2.9	-1.1	8.2	11.2	-7.4	-13.6	-20.6	-29.3	-40.6	-61.1
Alarm	LrD	13.5	-17.7	-16.1	-21.0	-7.7	-1.6	-3.6	-12.6	-15.8	-17.4	-19.6	-19.2	-15.1	-7.9	-14.5	-15.0	-12.0	-12.3	-3.1	-1.2	8.1	11.0	-7.6	-13.9	-20.9	-29.7	-41.2	-61.9
Alarm	LrD	12.0	-17.4	-15.8	-20.8	-7.5	-1.5	-3.6	-12.6	-15.9	-17.6	-19.7	-19.4	-15.4	-8.3	-14.9	-15.5	-12.7	-13.0	-4.8	-3.0	6.4	9.4	-9.2	-15.2	-21.9	-30.3	-41.1	-60.8
Alarm	LrD	4.1	-17.1	-15.6	-20.7	-7.5	-1.7	-3.8	-12.8	-16.2	-18.0	-20.1	-19.8	-15.9	-6.6	-15.5	-16.1	-13.5	-13.9	-15.5	-14.4	-5.9	-3.6	-22.9	-29.5	-36.6	-45.1	-55.7	-74.5
Alarm	LrD	4.3	-17.2	-15.6	-20.7	-7.5	-1.6	-3.7	-12.7	-16.1	-17.8	-20.0	-19.7	-15.8	-6.4	-15.3	-15.9	-13.3	-13.6	-15.2	-14.2	-5.7	-3.4	-22.7	-29.4	-36.6	-45.2	-55.9	-75.0
Alarm	LrD	12.2	-17.3	-15.7	-20.8	-7.5	-1.6	-3.6	-12.6	-15.9	-17.6	-19.8	-19.5	-15.5	-8.4	-15.0	-15.6	-12.9	-3.9	-4.7	-2.8	6.5	9.6	-8.9	-15.0	-21.6	-29.8	-40.5	-60.0
Alarm	LrD	12.4	-17.2	-15.7	-20.8	-7.5	-1.6	-3.7	-12.6	-16.0	-17.7	-19.9	-19.6	-15.7	-6.3	-15.2	-15.8	-13.1	-3.8	-4.5	-2.7	6.7	9.7	-8.7	-14.7	-21.3	-29.4	-39.9	-59.1
HVAC	LrD	18.8	-31.7	-25.7	-21.7	-8.7	-3.7	-9.7	-1.7	0.3	-0.7	1.2	1.2	3.2	4.2	5.1	9.1	10.9	6.8	8.7	9.9	7.6	8.1	4.4	4.3	0.5	-2.1	-11.1	-21.9
HVAC	LrD	11.5	-36.6	-30.8	-26.9	-14.1	-9.3	-15.4	-7.6	-5.7	-6.9	-5.0	-5.1	-3.2	-2.3	-1.4	2.4	4.1	-0.2	1.5	2.3	-0.4	-0.5	-5.2	-6.8	-12.7	-18.5	-32.1	-49.5
HVAC	LrD	18.6	-31.7	-25.7	-21.8	-8.8	-3.8	-9.8	-1.8	0.1	-0.9	1.1	1.1	3.0	4.0	5.0	8.9	10.7	6.7	8.5	9.7	7.4	7.9	4.2	4.0	0.2	-2.5	-11.6	-22.5
HVAC	LrD	18.6	-30.5	-24.6	-20.8	-8.0	-3.1	-9.3	-1.4	0.5	-0.6	1.2	1.1	3.1	4.1	5.0	8.9	10.8	6.7	8.5	9.6	7.3	7.9	4.1	3.9	0.2	-2.6	-11.7	-22.7
HVAC	LrD	12.1	-36.1	-30.3	-26.5	-13.6	-8.8	-14.9	-7.1	-5.2	-6.3	-4.4	-4.5	-2.6	-1.7	-0.8	3.1	4.7	0.5	2.2	3.0	0.3	0.3	-4.3	-5.7	-11.3	-16.8	-29.8	-46.4
HVAC	LrD	18.9	-31.6	-25.6	-21.6	-8.6	-3.6	-9.6	-1.6	0.3	-0.7	1.3	1.3	3.3	4.2	5.2	9.2	11.0	6.9	8.8	9.9	7.6	8.2	4.5	4.3	0.6	-2.0	-11.0	-21.8
HVAC	LrD	16.4	-34.3	-28.3	-24.3	-11.3	-6.3	-12.3	-4.4	-2.4	-3.4	-1.4	-1.4	0.6	1.6	2.6	6.6	8.4	4.4	6.3	7.5	5.3	5.9	2.2	2.1	-1.7	-4.5	-13.5	-26.1
HVAC	LrD	10.7	-37.1	-31.3	-27.4	-14.6	-9.8	-16.0	-8.2	-6.4	-7.5	-5.7	-5.8	-3.9	-3.0	-2.1	1.7	3.4	-0.9	0.7	1.6	-1.2	-1.4	-6.2	-8.0	-14.2	-20.4	-34.7	-53.1
HVAC	LrD	13.1	-35.7	-29.8	-25.9	-13.0	-8.1	-14.2	-6.4	-4.4	-5.5	-3.6	-3.7	-1.8	-0.9	0.0	3.9	5.6	1.4	3.1	4.0	1.3	1.4	-3.1	-4.3	-9.6	-14.5	-26.9	-42.4
Loading Dock	LrD	10.8	-27.7	-23.3	-19.6	-18.5	-14.2	-9.6	-10.8	3.4	-7.2	-7.5	-5.2	-3.2	-0.9	-0.4	-0.7	1.0	4.1	-1.7	-1.6	-3.4	-7.3	-11.6	-16.5	-22.4	-31.8	-43.6	-58.4
Loading Dock	LrD	10.5	-27.7	-23.4	-19.7	-18.7	-14.4	-9.8	-11.0	3.1	-7.5	-7.8	-5.5	-3.5	-1.2	-0.7	-1.1	0.6	3.7	-2.1	-2.0	-3.8	-7.7	-11.9	-16.8	-22.6	-31.4	-43.0	-57.5
Loading Dock	LrD	11.1	-27.7	-23.3	-19.5	-18.4	-14.0	-9.4	-10.6	3.5	-7.0	-7.3	-5.0	-2.9	-0.6	-0.1	-0.4	1.3	4.4	-1.4	-1.3	-3.1	-7.0	-11.3	-16.3	-22.2	-31.7	-44.2	-59.3
Loading Dock	LrD	11.4	-27.7	-23.3	-19.5	-18.3	-13.9	-9.2	-10.5	3.7	-6.8	-7.1	-4.8	-2.7	-0.4	0.1	-0.2	1.6	4.7	-1.1	-1.0	-2.8	-6.7	-11.1	-16.1	-22.1	-31.7	-44.6	-60.1
Loading Dock	LrD	10.1	-27.8	-23.5	-19.8	-18.8	-14.6	-10.0	-11.3	2.8	-7.8	-8.1	-5.9	-3.8	-1.6	-1.1	-1.5	0.2	3.3	-2.5	-2.4	-4.2	-8.1	-12.3	-17.1	-22.7	-31.0	-42.4	-56.7
Loading Dock	LrD	7.6	-28.5	-24.5	-21.1	-20.4	-16.4	-12.1	-13.3	0.6	-10.1	-8.1	-8.4	-6.4	-4.2	-3.8	-4.2	-2.6	0.5	-5.3	-5.2	-6.9	-9.9	-13.2	-16.9	-21.4	-29.2	-39.9	-53.1
Loading Dock	LrD	8.5	-28.2	-24.0	-20.6	-19.8	-15.7	-11.3	-12.6	1.4	-9.3	-7.2	-7.5	-5.5	-3.3	-2.9	-3.3	-1.6	1.4	-4.3	-4.3	-6.0	-9.8	-13.4	-17.2	-21.8	-29.7	-40.5	-54.0

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SoundPLAN 8.2

Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP **23**

Source	Time slice	Sum dB(A)	25Hz dB(A)	31.5Hz dB(A)	40Hz dB(A)	50Hz dB(A)	63Hz dB(A)	80Hz dB(A)	100Hz dB(A)	125Hz dB(A)	160Hz dB(A)	200Hz dB(A)	250Hz dB(A)	315Hz dB(A)	400Hz dB(A)	500Hz dB(A)	630Hz dB(A)	800Hz dB(A)	1kHz dB(A)	1.25kHz dB(A)	1.6kHz dB(A)	2kHz dB(A)	2.5kHz dB(A)	3.15kHz dB(A)	4kHz dB(A)	5kHz dB(A)	6.3kHz dB(A)	8kHz dB(A)	10kHz dB(A)
Loading Dock	LrD	9.1	-28.0	-23.8	-20.2	-19.4	-15.2	-10.8	-12.0	2.0	-8.7	-9.0	-6.8	-4.8	-2.6	-2.2	-2.5	-0.9	2.2	-3.6	-3.6	-5.3	-9.1	-13.3	-17.4	-22.1	-30.1	-41.1	-54.9
Loading Dock	LrD	9.7	-27.8	-23.6	-20.0	-19.1	-14.9	-10.4	-11.6	2.5	-8.2	-8.5	-6.3	-4.3	-2.0	-1.6	-1.9	-0.3	2.8	-3.0	-3.0	-4.7	-8.5	-12.7	-17.5	-22.4	-30.6	-41.8	-55.8
Loading Dock	LrD	11.6	-27.7	-23.3	-19.4	-18.3	-13.8	-9.1	-10.4	3.9	-6.7	-6.9	-4.6	-2.5	-0.2	0.3	0.0	1.9	5.0	-0.8	-0.7	-2.5	-6.5	-10.9	-15.9	-22.0	-31.7	-44.8	-60.9
Loading Dock	LrD	19.2	-28.0	-23.5	-19.5	-18.2	-13.6	-8.8	-10.1	4.3	-6.1	-6.4	-6.4	-1.8	0.6	1.2	1.0	3.1	6.2	12.4	13.3	12.4	9.1	5.4	0.9	-5.0	-14.8	-28.6	-46.4
Loading Dock	LrD	19.1	-28.1	-23.6	-19.6	-18.3	-13.7	-8.8	-10.1	4.3	-6.0	-6.4	-6.3	-1.7	0.7	1.3	1.1	3.3	6.4	12.3	13.2	12.2	8.9	5.2	0.6	-5.3	-15.3	-29.2	-47.3
Loading Dock	LrD	19.0	-28.2	-23.6	-19.6	-18.3	-13.7	-8.7	-10.1	4.3	-6.0	-6.3	-6.2	-1.7	0.8	1.4	1.2	3.4	6.5	12.2	13.0	12.0	8.8	5.0	0.3	-5.7	-15.7	-29.8	-48.1
Loading Dock	LrD	18.9	-28.3	-23.7	-19.7	-18.4	-13.7	-8.7	-10.1	4.3	-6.0	-6.3	-6.2	-1.6	0.9	1.5	1.3	3.5	6.7	12.0	12.9	11.9	8.6	4.8	0.1	-6.0	-16.2	-30.4	-49.0
Loading Dock	LrD	17.5	-28.0	-23.4	-19.5	-18.2	-13.7	-8.8	-10.1	4.2	-6.1	-6.5	-6.4	-1.9	0.5	1.1	0.9	2.9	6.0	10.3	11.1	10.1	6.9	3.2	-1.3	-7.1	-16.8	-30.4	-47.9
Loading Dock	LrD	11.8	-27.7	-23.3	-19.4	-18.2	-13.8	-9.0	-10.3	4.0	-6.5	-6.8	-4.5	-2.3	0.0	0.5	0.2	2.1	5.2	-0.5	-0.5	-2.3	-6.3	-10.7	-15.8	-21.9	-31.8	-45.0	-61.7
Loading Dock	LrD	11.9	-27.8	-23.3	-19.4	-18.2	-13.7	-8.9	-10.2	4.1	-6.4	-6.7	-4.4	-2.2	0.2	0.7	0.4	2.4	5.5	-0.3	-0.3	-2.1	-6.1	-10.5	-15.6	-21.9	-31.8	-45.3	-62.2
Loading Dock	LrD	12.1	-27.8	-23.3	-19.4	-18.2	-13.7	-8.9	-10.2	4.1	-6.3	-6.6	-6.6	-2.1	0.3	0.8	0.6	2.6	5.7	-0.1	-0.1	-1.9	-5.9	-10.3	-15.5	-21.8	-31.9	-45.5	-62.7
Loading Dock	LrD	19.4	-27.9	-23.4	-19.5	-18.2	-13.7	-8.8	-10.2	4.2	-6.2	-6.5	-6.5	-2.0	0.4	1.0	0.7	2.7	15.4	10.4	11.3	10.3	7.1	3.4	-1.0	-6.7	-16.4	-29.8	-47.1
Parking	LrD	26.5					11.5			22.5			8.5			14.9			19.4			20.0			15.0			0.6	
Parking	LrD	33.6					19.7			28.7			15.1			22.6			27.0			27.6			22.7			9.1	
Parking	LrD	31.8					18.2			26.8			12.7			20.7			25.4			25.9			20.6			5.2	
Parking	LrD	26.8					13.1			22.3			9.2			15.7			19.7			20.3			16.0			4.1	
Parking	LrD	26.9					12.7			22.4			8.9			15.4			20.2			20.7			15.1			-1.4	
Parking	LrD	30.3					16.5			25.7			12.8			18.8			23.3			23.9			19.6			7.9	
Parking	LrD	27.9					14.2			23.2			9.6			15.9			21.1			21.7			16.9			3.5	
Parking	LrD	24.9					11.5			20.2			6.0			12.4			18.4			18.8			13.5			-2.0	
Parking	LrD	24.1					10.9			19.1			4.7			12.2			17.9			18.3			12.5			-4.7	
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												

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SoundPLAN 8.2

Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP

23

Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												

3

SoundPLAN 8.2

Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP

23

Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												

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SoundPLAN 8.2

Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP

23

Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Receiver R2 Fl G LrD,lim dB(A) LrD 37.1 dB(A)																													
Alarm	LrD	1.1	-23.3	-22.6	-28.4	-15.9	-10.6	-13.3	-22.8	-26.6	-28.6	-29.5	-29.5	-25.8	-19.0	-28.1	-28.8	-27.0	-27.5	-14.0	-12.8	-4.2	-2.1	-21.8	-29.2	-37.5	-47.7	-60.3	-80.7
Alarm	LrD	1.0	-23.5	-22.7	-28.6	-16.0	-10.7	-13.4	-22.9	-26.7	-28.8	-29.6	-29.6	-25.9	-19.1	-28.2	-28.9	-27.1	-27.6	-14.0	-12.9	-4.3	-2.2	-21.9	-29.4	-37.7	-48.0	-60.7	-81.4
Alarm	LrD	0.9	-23.6	-22.8	-28.7	-16.1	-10.8	-13.5	-23.0	-26.8	-28.9	-29.7	-29.7	-26.0	-19.2	-28.2	-29.0	-27.2	-27.7	-14.1	-13.0	-4.4	-2.3	-22.0	-29.5	-38.0	-48.4	-61.2	-82.1
Alarm	LrD	0.8	-23.7	-23.0	-28.8	-16.2	-10.9	-13.6	-23.1	-26.9	-29.0	-29.8	-29.8	-26.1	-19.3	-28.3	-29.1	-27.3	-27.8	-14.2	-13.0	-4.5	-2.5	-22.2	-29.7	-38.2	-48.7	-61.7	-82.9
Alarm	LrD	1.2	-23.2	-22.4	-28.3	-15.8	-10.5	-13.2	-22.7	-26.4	-28.5	-29.4	-29.4	-25.8	-18.9	-28.0	-28.7	-26.9	-27.4	-13.9	-12.7	-4.1	-2.0	-21.6	-29.0	-37.3	-47.4	-59.8	-80.0
Alarm	LrD	-0.1	-22.6	-21.8	-27.7	-15.2	-10.0	-12.8	-22.1	-26.0	-28.1	-29.1	-29.1	-25.4	-18.5	-27.6	-28.3	-26.6	-14.6	-16.0	-14.8	-6.2	-4.0	-23.4	-30.5	-38.3	-47.6	-58.7	-77.4
Alarm	LrD	1.7	-22.7	-22.0	-27.9	-15.4	-10.2	-12.9	-22.3	-26.1	-28.2	-29.2	-29.2	-25.5	-18.6	-27.7	-28.4	-26.7	-14.8	-13.5	-12.3	-3.8	-1.6	-21.2	-28.5	-36.6	-46.4	-58.4	-77.9
Alarm	LrD	1.6	-22.9	-22.1	-28.0	-15.5	-10.3	-13.0	-22.4	-26.2	-28.3	-29.3	-29.2	-25.6	-18.7	-27.8	-28.5	-26.8	-14.9	-13.7	-12.5	-3.9	-1.8	-21.4	-28.7	-36.8	-46.8	-58.8	-78.6
Alarm	LrD	1.5	-23.0	-22.3	-28.2	-15.7	-10.4	-13.1	-22.5	-26.3	-28.4	-29.4	-29.3	-25.7	-18.8	-27.9	-28.6	-26.9	-15.0	-13.8	-12.6	-4.0	-1.9	-21.5	-28.8	-37.1	-47.1	-59.3	-79.3
Alarm	LrD	0.7	-23.9	-23.1	-28.9	-16.3	-11.0	-13.6	-23.3	-27.0	-29.1	-29.9	-29.9	-26.2	-19.3	-28.4	-29.2	-27.4	-27.8	-14.3	-13.1	-4.6	-2.6	-22.3	-29.8	-38.4	-49.0	-62.2	-83.6
Alarm	LrD	-1.8	-24.5	-23.7	-29.5	-16.9	-11.5	-14.1	-23.9	-27.6	-29.7	-30.4	-30.4	-26.7	-19.8	-28.9	-29.7	-27.9	-28.3	-17.3	-16.2	-7.7	-5.7	-25.5	-33.1	-41.8	-52.6	-66.2	-88.5
Alarm	LrD	-1.9	-24.6	-23.8	-29.5	-16.9	-11.6	-14.1	-24.0	-27.7	-29.8	-30.4	-30.4	-26.7	-19.9	-29.0	-29.7	-27.9	-28.4	-17.4	-16.2	-7.7	-5.8	-25.6	-33.3	-42.0	-52.9	-66.7	-89.2
Alarm	LrD	-2.0	-24.6	-23.8	-29.6	-17.0	-11.6	-14.2	-24.1	-27.8	-29.8	-30.5	-30.5	-26.8	-19.9	-29.0	-29.8	-28.0	-28.5	-17.4	-16.3	-7.8	-5.9	-25.7	-33.4	-42.3	-53.3	-67.1	-89.9
Alarm	LrD	-2.1	-24.7	-23.9	-29.7	-17.0	-11.7	-14.2	-24.1	-27.9	-29.9	-30.6	-30.5	-26.9	-20.0	-29.1	-29.9	-28.0	-28.5	-17.5	-16.4	-7.9	-5.9	-25.8	-33.6	-42.5	-53.6	-67.6	-90.7
Alarm	LrD	0.3	-24.4	-23.6	-29.4	-16.8	-11.4	-14.0	-23.8	-27.5	-29.6	-30.3	-30.3	-26.6	-19.7	-28.8	-29.6	-27.8	-28.3	-14.7	-13.5	-5.0	-3.1	-22.9	-30.6	-39.5	-50.5	-64.5	-87.2
Alarm	LrD	0.6	-24.0	-23.2	-29.0	-16.4	-11.1	-13.7	-23.4	-27.1	-29.2	-30.0	-30.0	-26.3	-19.4	-28.5	-29.3	-27.5	-27.9	-14.4	-13.2	-4.7	-2.7	-22.4	-30.0	-38.6	-49.3	-62.6	-84.3

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SoundPLAN 8.2

Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP

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Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Alarm	LrD	0.5	-24.1	-23.3	-29.1	-16.5	-11.2	-13.8	-23.5	-27.2	-29.3	-30.1	-30.1	-26.4	-19.5	-28.6	-29.3	-27.6	-28.0	-14.4	-13.3	-4.8	-2.8	-22.5	-30.2	-38.8	-49.6	-63.1	-85.0
Alarm	LrD	0.3	-24.3	-23.5	-29.3	-16.7	-11.4	-14.0	-23.7	-27.4	-29.5	-30.2	-30.2	-26.5	-19.7	-28.8	-29.5	-27.7	-28.2	-14.6	-13.4	-4.9	-3.0	-22.8	-30.5	-39.3	-50.2	-64.0	-86.5
Alarm	LrD	0.4	-24.2	-23.4	-29.2	-16.6	-11.3	-13.9	-23.6	-27.3	-29.4	-30.1	-30.1	-26.4	-19.6	-28.7	-29.4	-27.6	-28.1	-14.5	-13.4	-4.9	-2.9	-22.7	-30.3	-39.1	-49.9	-63.6	-85.8
HVAC	LrD	14.5	-36.1	-30.1	-26.1	-13.1	-8.1	-14.1	-6.1	-4.1	-5.2	-3.2	-3.2	-1.3	-0.3	0.6	4.5	6.3	3.4	5.1	6.2	3.6	3.8	-0.5	-1.6	-6.7	-11.3	-23.1	-37.8
HVAC	LrD	11.7	-36.0	-30.1	-26.3	-13.5	-8.6	-14.8	-7.3	-5.4	-6.6	-5.0	-5.1	-3.2	-2.2	-1.4	2.5	4.2	0.0	1.7	2.6	-0.1	-0.1	-4.7	-6.2	-11.9	-17.7	-31.2	-48.7
HVAC	LrD	14.6	-35.4	-29.6	-25.7	-12.8	-7.9	-14.0	-6.1	-4.2	-5.2	-3.4	-3.4	-1.5	-0.5	0.4	4.3	7.4	3.3	5.0	6.0	3.5	3.6	-0.7	-1.8	-6.9	-11.7	-23.7	-38.7
HVAC	LrD	14.4	-35.4	-29.5	-25.6	-12.7	-7.8	-13.9	-6.0	-4.1	-5.1	-3.2	-3.3	-1.3	-0.4	0.6	4.5	6.2	3.3	5.1	6.1	3.5	3.7	-0.6	-1.7	-6.8	-11.5	-23.3	-38.1
HVAC	LrD	12.0	-37.4	-31.5	-27.5	-14.5	-9.6	-15.6	-7.6	-5.7	-6.7	-4.8	-4.8	-2.9	-2.0	-1.0	2.9	4.6	0.4	2.1	3.1	0.4	0.5	-4.0	-5.3	-10.9	-16.3	-29.4	-46.1
HVAC	LrD	14.6	-36.2	-30.2	-26.2	-13.2	-8.2	-14.2	-6.3	-4.3	-5.3	-3.3	-3.4	-1.4	-0.5	0.5	4.4	7.5	3.3	5.1	6.1	3.6	3.7	-0.6	-1.7	-6.8	-11.5	-23.4	-38.4
HVAC	LrD	18.7	-32.4	-26.4	-22.4	-9.4	-4.4	-10.4	-2.4	-0.4	-1.4	0.6	0.6	2.6	3.6	4.6	8.6	10.5	6.5	8.5	9.8	7.7	8.5	5.0	5.4	2.2	0.6	-8.1	-19.5
HVAC	LrD	10.9	-36.9	-31.1	-27.3	-14.5	-9.6	-15.8	-8.2	-6.3	-7.5	-5.8	-5.9	-4.0	-3.0	-2.1	1.7	3.5	-0.8	0.9	1.8	-0.9	-0.9	-5.6	-7.2	-13.3	-19.4	-33.6	-51.9
HVAC	LrD	13.1	-36.7	-30.7	-26.8	-13.8	-8.8	-14.9	-6.9	-4.9	-6.0	-4.0	-4.1	-2.2	-1.2	-0.3	3.6	5.3	1.1	2.8	4.7	2.0	2.0	-2.6	-3.9	-9.5	-14.7	-27.3	-43.1
Loading Dock	LrD	6.6	-34.9	-31.3	-28.3	-27.8	-24.0	-19.7	-21.6	-7.7	-18.5	-17.8	-18.1	-16.2	-14.0	-13.7	-14.1	-12.5	-8.5	1.1	1.3	-0.5	-4.7	-9.5	-15.4	-22.8	-34.5	-49.8	-68.3
Loading Dock	LrD	6.7	-34.8	-31.2	-28.1	-27.7	-23.8	-19.6	-21.5	-7.6	-18.4	-17.7	-18.0	-16.1	-13.9	-13.5	-14.0	-12.3	-8.4	1.2	1.4	-0.4	-4.5	-9.4	-15.2	-22.6	-34.1	-49.4	-67.6
Loading Dock	LrD	6.5	-35.1	-31.4	-28.4	-27.9	-24.1	-19.8	-21.7	-7.8	-18.6	-17.9	-18.2	-16.3	-14.1	-13.8	-14.2	-12.6	-8.7	1.0	1.2	-0.6	-4.8	-9.6	-15.5	-23.0	-34.8	-50.3	-69.0
Loading Dock	LrD	6.4	-35.2	-31.6	-28.5	-28.0	-24.2	-19.9	-21.9	-7.9	-18.7	-18.0	-18.3	-16.4	-14.2	-13.9	-14.3	-12.8	-8.8	0.9	1.1	-0.7	-4.9	-9.7	-15.7	-23.3	-35.1	-50.8	-69.7
Loading Dock	LrD	6.8	-34.6	-31.0	-28.0	-27.6	-23.7	-19.5	-21.3	-7.4	-18.2	-17.6	-17.9	-16.0	-13.8	-13.4	-13.9	-12.2	-8.2	1.3	1.5	-0.3	-4.4	-9.2	-15.0	-22.4	-33.8	-48.9	-66.9
Loading Dock	LrD	7.9	-34.0	-30.4	-27.4	-27.0	-23.2	-19.0	-20.8	-6.9	-17.7	-17.2	-17.4	-15.5	-13.4	-13.0	-13.4	-11.6	4.8	-0.8	-0.6	-2.3	-6.3	-10.9	-16.5	-23.4	-34.0	-47.8	-64.3
Loading Dock	LrD	9.0	-34.1	-30.5	-27.5	-27.1	-23.3	-19.2	-20.9	-7.0	-17.8	-17.3	-17.6	-15.6	-13.5	-13.1	-13.5	-11.8	4.6	1.6	1.8	0.1	-4.0	-8.8	-14.5	-21.7	-32.9	-47.5	-64.7
Loading Dock	LrD	7.1	-34.3	-30.7	-27.7	-27.3	-23.5	-19.3	-21.1	-7.2	-18.0	-17.4	-17.7	-15.7	-13.6	-13.2	-13.6	-11.9	-8.0	1.5	1.7	-0.1	-4.2	-8.9	-14.7	-21.9	-33.2	-47.9	-65.4
Loading Dock	LrD	6.9	-34.5	-30.9	-27.8	-27.4	-23.6	-19.4	-21.2	-7.3	-18.1	-17.5	-17.8	-15.8	-13.7	-13.3	-13.7	-12.1	-8.1	1.4	1.6	-0.2	-4.3	-9.1	-14.9	-22.1	-33.5	-48.4	-66.1
Loading Dock	LrD	6.3	-35.3	-31.7	-28.6	-28.2	-24.3	-20.0	-22.0	-8.1	-18.8	-18.1	-18.4	-16.5	-14.3	-14.0	-14.4	-12.9	-9.0	0.8	1.0	-0.8	-5.0	-9.9	-15.9	-23.5	-35.4	-51.3	-70.5
Loading Dock	LrD	5.8	-36.0	-32.3	-29.2	-28.7	-24.8	-20.5	-22.7	-8.7	-19.5	-18.7	-18.9	-17.0	-14.9	-14.5	-14.9	-13.6	-9.8	0.4	0.6	-1.3	-5.6	-10.6	-16.8	-24.8	-37.3	-54.1	-74.8
Loading Dock	LrD	3.6	-36.1	-32.4	-29.3	-28.8	-24.9	-20.6	-22.8	-8.8	-19.6	-18.7	-19.0	-17.1	-14.9	-14.6	-15.0	-13.7	-9.9	-2.2	-2.0	-3.9	-8.1	-13.1	-19.2	-27.1	-39.3	-55.8	-76.1
Loading Dock	LrD	3.6	-36.2	-32.5	-29.4	-28.8	-24.9	-20.6	-22.9	-8.9	-19.7	-18.8	-19.1	-17.2	-15.0	-14.7	-15.1	-13.8	-10.0	-2.3	-2.1	-3.9	-8.2	-13.2	-19.4	-27.3	-39.7	-56.3	-76.9
Loading Dock	LrD	3.5	-36.2	-32.5	-29.4	-28.9	-25.0	-20.7	-22.9	-9.0	-19.8	-18.9	-19.2	-17.2	-15.1	-14.8	-15.2	-13.8	-10.2	-2.3	-2.2	-4.0	-8.3	-13.3	-19.6	-27.5	-40.0	-56.8	-77.6
Loading Dock	LrD	5.9	-35.9	-32.3	-29.2	-28.6	-24.7	-20.4	-22.6	-8.6	-19.4	-18.6	-18.9	-16.9	-14.8	-14.4	-14.9	-13.5	-9.7	0.5	0.6	-1.2	-5.5	-10.5	-16.7	-24.6	-37.0	-53.6	-74.1
Loading Dock	LrD	6.3	-35.5	-31.8	-28.8	-28.3	-24.4	-20.1	-22.1	-8.2	-19.0	-18.2	-18.5	-16.6	-14.4	-14.1	-14.5	-13.0	-9.1	0.8	0.9	-0.9	-5.1	-10.0	-16.0	-23.7	-35.7	-51.7	-71.2
Loading Dock	LrD	6.2	-35.6	-32.0	-28.9	-28.4	-24.5	-20.2	-22.2	-8.3	-19.1	-18.3	-18.6	-16.7	-14.5	-14.2	-14.6	-13.2	-9.3	0.7	0.9	-1.0	-5.2	-10.1	-16.2	-23.9	-36.0	-52.2	-71.9
Loading Dock	LrD	6.1	-35.7	-32.1	-29.0	-28.5	-24.6	-20.3	-22.3	-8.4	-19.2	-18.4	-18.7	-16.8	-14.6	-14.3	-14.7	-13.3	-9.4	0.6	0.8	-1.0	-5.3	-10.3	-16.3	-24.1	-36.3	-52.7	-72.7
Loading Dock	LrD	6.0	-35.8	-32.2	-29.1	-28.6	-24.6	-20.4	-22.5	-8.5	-19.3	-18.5	-18.8	-16.8	-14.7	-14.3	-14.8	-13.4	-9.5	0.5	0.7	-1.1	-5.4	-10.4	-16.5	-24.3	-36.6	-53.2	-73.4
Parking	LrD	22.2					8.8			16.8			4.6			11.1			16.1			16.4			10.3			-8.2	
Parking	LrD	29.8					16.6			24.7			10.3			18.6			23.5			23.9			18.0			0.2	
Parking	LrD	31.6					18.0			26.6			12.4			20.4			25.2			25.6			20.3			4.7	
Parking	LrD	19.6					6.8			14.7			0.1			6.6			13.5			13.7			7.2			-12.6	
Parking	LrD	28.0					13.3			24.0			9.8			16.2			20.9			21.4			16.1			0.4	

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SoundPLAN 8.2

Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP

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Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Parking	LrD	23.7					10.8			18.9			4.4			10.9			17.4			17.7			11.6			-6.5	
Parking	LrD	25.6					12.3			20.8			6.7			13.0			19.1			19.5			14.1			-1.7	
Parking	LrD	26.1					12.9			21.9			8.2			14.5			18.9			19.5			14.9			1.6	
Parking	LrD	26.4					13.3			22.3			8.5			14.8			19.1			19.7			15.1			1.7	
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												

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SoundPLAN 8.2

Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP

23

Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												

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SoundPLAN 8.2

Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP

23

Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Remaining contrib. of src "Loading Dock"	LrD																											
Remaining contrib. of src "Loading Dock"	LrD																											
Remaining contrib. of src "Loading Dock"	LrD																											
Remaining contrib. of src "Loading Dock"	LrD																											
Remaining contrib. of src "Loading Dock"	LrD																											
Remaining contrib. of src "Loading Dock"	LrD																											
Remaining contrib. of src "Loading Dock"	LrD																											
Remaining contrib. of src "Loading Dock"	LrD																											
Remaining contrib. of src "Loading Dock"	LrD																											
Remaining contrib. of src "Loading Dock"	LrD																											
Remaining contrib. of src "Loading Dock"	LrD																											
Remaining contrib. of src "Parking"	LrD																											
Remaining contrib. of src "Parking"	LrD																											
Remaining contrib. of src "Parking"	LrD																											
Remaining contrib. of src "Parking"	LrD																											
Remaining contrib. of src "Parking"	LrD																											
Remaining contrib. of src "Parking"	LrD																											
Remaining contrib. of src "Parking"	LrD																											
Remaining contrib. of src "Parking"	LrD																											

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SoundPLAN 8.2

Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP

23

Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Remaining contrib. of src "Parking"	LrD																											
Receiver R3 Fl G LrD,lim dB(A) LrD 37.7 dB(A)																												
Alarm	LrD	-0.7	-21.3	-20.6	-26.6	-14.1	-9.0	-11.7	-20.6	-24.4	-26.5	-27.6	-27.6	-23.9	-17.0	-26.1	-26.8	-24.9	-16.1	-17.6	-16.4	-7.7	-5.2	-24.1	-30.2	-36.4	-43.3	-51.1	-65.9
Alarm	LrD	-0.7	-21.4	-20.7	-26.7	-14.2	-9.0	-11.8	-20.7	-24.5	-26.6	-27.7	-27.7	-24.0	-17.1	-26.2	-26.9	-25.0	-15.9	-17.4	-16.2	-7.5	-5.1	-24.0	-30.2	-36.6	-43.5	-51.5	-66.4
Alarm	LrD	-0.7	-21.5	-20.8	-26.8	-14.3	-9.1	-11.8	-20.8	-24.6	-26.7	-27.8	-27.8	-24.1	-17.2	-26.3	-27.0	-25.2	-15.8	-17.3	-16.1	-7.4	-5.0	-24.0	-30.3	-36.7	-43.8	-51.9	-67.0
Alarm	LrD	-0.7	-21.6	-20.9	-26.8	-14.4	-9.2	-11.9	-20.9	-24.7	-26.8	-27.9	-27.9	-24.2	-17.3	-26.4	-27.1	-25.3	-15.8	-17.3	-16.2	-7.5	-5.1	-24.1	-30.4	-36.9	-44.0	-52.3	-67.5
Alarm	LrD	-0.8	-21.2	-20.5	-26.5	-14.1	-8.9	-11.6	-20.5	-24.3	-26.4	-27.5	-27.5	-23.8	-17.0	-26.0	-26.7	-24.8	-16.3	-17.8	-16.6	-7.8	-5.3	-24.2	-30.2	-36.3	-43.1	-50.8	-65.4
Alarm	LrD	-0.6	-20.8	-20.2	-26.1	-13.7	-8.6	-11.3	-20.1	-23.9	-26.0	-27.2	-27.2	-23.5	-16.6	-25.7	-26.4	-24.3	-16.3	-17.7	-16.5	-7.7	-5.1	-23.9	-29.8	-35.7	-42.1	-49.4	-63.6
Alarm	LrD	-0.6	-20.9	-20.3	-26.2	-13.8	-8.7	-11.4	-20.2	-24.0	-26.1	-27.3	-27.3	-23.6	-16.7	-25.8	-26.5	-24.4	-16.3	-17.7	-16.5	-7.7	-5.2	-24.0	-29.9	-35.9	-42.3	-49.7	-64.0
Alarm	LrD	-0.7	-21.0	-20.3	-26.3	-13.9	-8.7	-11.5	-20.3	-24.1	-26.2	-27.3	-27.3	-23.7	-16.8	-25.9	-26.6	-24.5	-16.3	-17.8	-16.6	-7.8	-5.2	-24.1	-30.0	-36.0	-42.6	-50.1	-64.4
Alarm	LrD	-0.7	-21.1	-20.4	-26.4	-14.0	-8.8	-11.5	-20.4	-24.2	-26.3	-27.4	-27.4	-23.7	-16.9	-25.9	-26.7	-24.6	-16.3	-17.8	-16.6	-7.8	-5.3	-24.1	-30.1	-36.2	-42.8	-50.4	-64.9
Alarm	LrD	-0.8	-21.7	-21.0	-26.9	-14.5	-9.3	-12.0	-21.0	-24.8	-26.9	-28.0	-28.0	-24.3	-17.4	-26.5	-27.2	-25.4	-15.8	-17.3	-16.2	-7.5	-5.1	-24.2	-30.5	-37.1	-44.3	-52.7	-68.1
Alarm	LrD	-2.6	-22.2	-21.5	-27.5	-15.0	-9.7	-12.4	-21.5	-25.3	-27.4	-28.5	-28.5	-24.8	-17.9	-27.0	-27.7	-26.0	-18.9	-20.3	-19.1	-10.3	-7.8	-26.7	-33.0	-39.4	-46.8	-55.6	-71.9
Alarm	LrD	-4.4	-22.2	-21.5	-27.4	-14.9	-9.7	-12.4	-21.5	-25.3	-27.4	-28.6	-28.6	-24.9	-18.0	-27.1	-27.8	-26.0	-25.8	-26.5	-24.5	-15.0	-11.7	-29.8	-35.2	-40.9	-47.7	-56.3	-72.6
Alarm	LrD	-4.5	-22.2	-21.6	-27.5	-15.0	-9.8	-12.4	-21.6	-25.4	-27.5	-28.7	-28.7	-25.0	-18.1	-27.2	-27.9	-26.1	-25.9	-26.6	-24.7	-15.1	-11.9	-30.0	-35.4	-41.2	-48.1	-56.8	-73.3
Alarm	LrD	-4.6	-22.3	-21.6	-27.5	-15.1	-9.8	-12.5	-21.7	-25.5	-27.6	-28.7	-28.7	-25.1	-18.2	-27.3	-28.0	-26.1	-26.0	-26.8	-24.8	-15.3	-12.0	-30.2	-35.7	-41.5	-48.5	-57.3	-74.0
Alarm	LrD	-1.0	-22.1	-21.5	-27.4	-14.9	-9.7	-12.4	-21.4	-25.2	-27.3	-28.4	-28.4	-24.7	-17.9	-26.9	-27.7	-25.9	-15.9	-17.4	-16.3	-7.7	-5.4	-24.6	-31.2	-38.0	-45.8	-54.9	-71.2
Alarm	LrD	-0.8	-21.8	-21.1	-27.0	-14.6	-9.4	-12.1	-21.1	-24.9	-26.9	-28.1	-28.0	-24.4	-17.5	-26.6	-27.3	-25.6	-15.9	-17.3	-16.2	-7.5	-5.2	-24.3	-30.7	-37.3	-44.6	-53.1	-68.7
Alarm	LrD	-0.9	-21.9	-21.2	-27.1	-14.7	-9.5	-12.2	-21.2	-25.0	-27.0	-28.1	-28.1	-24.5	-17.6	-26.7	-27.4	-25.7	-15.9	-17.3	-16.2	-7.6	-5.2	-24.3	-30.8	-37.4	-44.9	-53.5	-69.3
Alarm	LrD	-1.0	-22.0	-21.4	-27.3	-14.8	-9.6	-12.3	-21.3	-25.1	-27.2	-28.3	-28.3	-24.6	-17.8	-26.8	-27.6	-25.8	-15.9	-17.4	-16.3	-7.6	-5.3	-24.5	-31.0	-37.8	-45.5	-54.4	-70.6
Alarm	LrD	-0.9	-21.9	-21.3	-27.2	-14.7	-9.5	-12.2	-21.2	-25.0	-27.1	-28.2	-28.2	-24.5	-17.7	-26.7	-27.5	-25.8	-15.9	-17.4	-16.2	-7.6	-5.3	-24.4	-30.9	-37.6	-45.2	-54.0	-69.9
HVAC	LrD	13.1	-34.2	-28.3	-24.4	-11.4	-6.5	-12.6	-4.7	-2.8	-4.0	-2.1	-2.3	-0.6	0.1	0.8	4.4	5.8	1.3	2.6	3.1	0.1	-0.2	-4.8	-6.1	-11.3	-15.7	-27.0	-40.8
HVAC	LrD	15.5	-33.4	-27.5	-23.5	-10.6	-5.6	-11.7	-3.8	-1.8	-2.9	-1.0	-1.1	0.8	1.7	2.6	6.4	8.0	3.7	5.4	6.2	3.5	3.6	-0.7	-1.6	-6.4	-10.3	-21.0	-34.0
HVAC	LrD	13.1	-32.8	-27.0	-23.2	-10.4	-5.6	-11.8	-4.2	-2.4	-3.6	-2.1	-2.3	-0.6	0.2	0.8	4.4	5.8	1.2	2.6	3.1	0.0	-0.3	-5.0	-6.3	-11.6	-16.1	-27.5	-41.5
HVAC	LrD	13.3	-32.6	-26.8	-23.0	-10.2	-5.4	-11.6	-4.0	-2.2	-3.4	-1.8	-2.1	-0.4	0.4	1.0	4.6	6.0	1.5	2.8	3.3	0.3	0.0	-4.7	-6.0	-11.2	-15.6	-26.9	-40.7
HVAC	LrD	16.0	-32.6	-26.7	-22.8	-9.8	-4.9	-11.0	-3.0	-1.1	-2.2	-0.3	-0.4	1.5	2.4	3.2	7.0	8.6	4.3	5.9	6.7	3.9	4.0	-0.3	-1.2	-5.8	-9.5	-19.8	-32.3
HVAC	LrD	12.9	-34.3	-28.4	-24.5	-11.6	-6.7	-12.8	-4.9	-3.0	-4.2	-2.3	-2.5	-0.8	-0.1	0.6	4.2	5.6	1.0	2.4	2.9	-0.1	-0.4	-5.1	-6.5	-11.7	-16.2	-27.6	-41.6
HVAC	LrD	23.7	-27.0	-21.0	-17.0	-4.1	0.9	-5.1	2.9	4.9	3.9	5.9	5.9	7.8	8.8	9.8	13.8	15.7	11.6	13.6	14.7	12.5	13.3	9.8	10.2	7.1	5.5	-1.8	-10.3
HVAC	LrD	14.8	-34.2	-28.3	-24.4	-11.4	-6.5	-12.5	-4.6	-2.7	-3.7	-1.8	-1.9	0.0	0.9	1.8	5.7	7.3	3.1	4.7	5.6	3.0	3.1	-1.3	-2.2	-7.1	-11.3	-22.4	-36.1
HVAC	LrD	16.6	-31.8	-25.8	-21.9	-9.0	-4.0	-10.1	-2.2	-0.3	-1.4	0.5	0.4	2.2	3.1	3.9	7.6	9.2	4.8	6.4	7.1	4.4	4.4	0.1	-0.7	-5.2	-8.7	-18.6	-30.5
Loading Dock	LrD	6.9	-32.6	-29.1	-26.1	-25.7	-21.9	-17.8	-19.0	-5.1	-15.9	-15.5	-15.7	-13.8	-11.6	-11.3	-11.2	-9.1	3.4	-2.2	-2.1	-3.7	-7.5	-11.6	-16.2	-21.6	-29.8	-40.5	-53.2
Loading Dock	LrD	6.8	-32.5	-29.0	-26.0	-25.6	-21.8	-17.7	-18.9	-5.0	-15.8	-15.4	-15.6	-13.7	-11.5	-11.2	-11.1	-9.0	3.2	-2.4	-2.2	-3.8	-7.6	-11.7	-16.2	-21.4	-29.6	-40.1	-52.6
Loading Dock	LrD	7.0	-32.7	-29.2	-26.2	-25.8	-22.0	-17.9	-19.1	-5.2	-16.0	-15.6	-15.8	-13.9	-11.7	-11.4	-11.3	-9.2	3.5	-2.1	-2.0	-3.6	-7.4	-11.6	-16.3	-21.7	-30.1	-40.8	-53.7
Loading Dock	LrD	6.9	-32.8	-29.3	-26.3	-25.9	-22.1	-18.0	-19.2	-5.3	-16.1	-15.7	-16.0	-14.0	-11.9	-11.5	-11.5	-9.4	3.5	-2.2	-2.0	-3.6	-7.5	-11.7	-16.4	-21.9	-30.4	-41.3	-54.3
Loading Dock	LrD	6.7	-32.4	-28.8	-25.9	-25.5	-21.8	-17.6	-18.8	-4.9	-15.7	-15.3	-15.5	-13.6	-11.4	-11.1	-10.9	-8.8	3.0	-2.6	-2.4	-4.0	-7.7	-11.7	-16.2	-21.3	-29.4	-39.7	-52.1

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Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP

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Source	Time slice	Sum dB(A)	25Hz dB(A)	31.5Hz dB(A)	40Hz dB(A)	50Hz dB(A)	63Hz dB(A)	80Hz dB(A)	100Hz dB(A)	125Hz dB(A)	160Hz dB(A)	200Hz dB(A)	250Hz dB(A)	315Hz dB(A)	400Hz dB(A)	500Hz dB(A)	630Hz dB(A)	800Hz dB(A)	1kHz dB(A)	1.25kHz dB(A)	1.6kHz dB(A)	2kHz dB(A)	2.5kHz dB(A)	3.15kHz dB(A)	4kHz dB(A)	5kHz dB(A)	6.3kHz dB(A)	8kHz dB(A)	10kHz dB(A)
Loading Dock	LrD	6.8	-32.0	-28.5	-25.5	-25.2	-21.4	-17.3	-18.4	-4.5	-15.3	-14.9	-15.2	-13.2	-11.1	-10.7	-10.4	-8.4	3.0	-2.6	-2.3	-3.9	-7.5	-11.4	-15.8	-20.7	-28.4	-38.4	-50.3
Loading Dock	LrD	6.8	-32.1	-28.5	-25.6	-25.2	-21.5	-17.4	-18.5	-4.6	-15.4	-15.0	-15.3	-13.3	-11.2	-10.8	-10.5	-8.5	3.0	-2.6	-2.4	-3.9	-7.6	-11.5	-15.9	-20.8	-28.6	-38.7	-50.7
Loading Dock	LrD	6.7	-32.2	-28.6	-25.7	-25.3	-21.6	-17.4	-18.6	-4.7	-15.5	-15.1	-15.3	-13.4	-11.2	-10.9	-10.7	-8.6	3.0	-2.6	-2.4	-3.9	-7.6	-11.6	-16.0	-21.0	-28.9	-39.0	-51.2
Loading Dock	LrD	6.7	-32.3	-28.7	-25.8	-25.4	-21.7	-17.5	-18.7	-4.8	-15.6	-15.2	-15.4	-13.5	-11.3	-11.0	-10.8	-8.7	3.0	-2.6	-2.4	-4.0	-7.7	-11.7	-16.1	-21.2	-29.1	-39.4	-51.6
Loading Dock	LrD	6.9	-32.9	-29.4	-26.4	-26.0	-22.2	-18.0	-19.3	-5.4	-16.2	-15.8	-16.1	-14.1	-12.0	-11.6	-11.6	-9.5	3.5	-2.2	-2.0	-3.7	-7.5	-11.8	-16.5	-22.1	-30.7	-41.7	-54.9
Loading Dock	LrD	4.4	-33.5	-30.0	-27.0	-26.6	-22.8	-18.5	-20.0	-6.1	-16.9	-16.4	-16.7	-14.8	-12.6	-12.2	-12.5	-10.4	0.4	-5.1	-4.9	-6.5	-10.2	-14.3	-18.9	-24.4	-33.1	-44.6	-58.7
Loading Dock	LrD	0.6	-33.6	-30.1	-27.1	-26.6	-22.8	-18.6	-20.1	-6.2	-17.0	-16.5	-16.8	-14.9	-12.7	-12.3	-12.7	-10.5	-6.5	-11.4	-10.4	-11.2	-14.1	-17.3	-21.2	-25.9	-34.0	-45.3	-59.4
Loading Dock	LrD	0.5	-33.7	-30.1	-27.1	-26.7	-22.9	-18.7	-20.2	-6.3	-17.1	-16.6	-16.9	-15.0	-12.8	-12.4	-12.8	-10.6	-6.6	-11.5	-10.5	-11.3	-14.3	-17.5	-21.4	-26.2	-34.4	-45.8	-60.1
Loading Dock	LrD	0.4	-33.7	-30.2	-27.2	-26.8	-22.9	-18.7	-20.3	-6.3	-17.1	-16.7	-17.0	-15.1	-12.9	-12.5	-12.9	-10.7	-6.8	-11.6	-10.7	-11.5	-14.4	-17.7	-21.6	-26.5	-34.8	-46.3	-60.8
Loading Dock	LrD	6.8	-33.5	-29.9	-26.9	-26.5	-22.7	-18.5	-19.9	-6.0	-16.8	-16.3	-16.6	-14.7	-12.5	-12.1	-12.4	-10.2	3.4	-2.2	-2.1	-3.8	-7.8	-12.1	-17.1	-23.1	-32.2	-43.9	-58.0
Loading Dock	LrD	6.9	-33.1	-29.5	-26.5	-26.1	-22.3	-18.1	-19.4	-5.6	-16.4	-15.9	-16.2	-14.2	-12.1	-11.7	-11.8	-9.7	3.5	-2.2	-2.0	-3.7	-7.6	-11.8	-16.7	-22.3	-31.0	-42.1	-55.5
Loading Dock	LrD	6.8	-33.2	-29.6	-26.6	-26.2	-22.4	-18.2	-19.6	-5.7	-16.5	-16.0	-16.3	-14.3	-12.2	-11.8	-11.9	-9.8	3.5	-2.2	-2.1	-3.7	-7.6	-11.9	-16.8	-22.5	-31.3	-42.5	-56.1
Loading Dock	LrD	6.8	-33.3	-29.7	-26.7	-26.3	-22.5	-18.3	-19.7	-5.8	-16.6	-16.1	-16.4	-14.4	-12.3	-11.9	-12.1	-9.9	3.4	-2.2	-2.1	-3.8	-7.7	-12.0	-16.9	-22.7	-31.6	-43.0	-56.7
Loading Dock	LrD	6.8	-33.4	-29.8	-26.8	-26.4	-22.6	-18.4	-19.8	-5.9	-16.7	-16.2	-16.5	-14.6	-12.4	-12.0	-12.2	-10.1	3.4	-2.2	-2.1	-3.8	-7.7	-12.1	-17.0	-22.9	-31.9	-43.4	-57.3
Parking	LrD	14.9					6.4			13.1			-0.4			2.3			3.5			1.1			-7.3			-25.9	
Parking	LrD	29.7					17.2			25.6			11.4			17.8			22.5			23.0			17.6			1.6	
Parking	LrD	32.3					19.3			28.2			14.5			20.7			25.1			25.7			21.0			7.6	
Parking	LrD	18.9					7.1			15.0			0.5			6.9			11.9			12.2			6.0			-12.6	
Parking	LrD	28.7					15.7			24.7			11.5			17.4			21.2			21.8			17.4			5.5	
Parking	LrD	22.9					10.8			18.9			4.4			10.9			15.8			16.2			10.4			-7.1	
Parking	LrD	24.9					12.3			20.9			6.7			13.1			17.7			18.3			13.1			-2.0	
Parking	LrD	26.1					13.0			22.0			8.3			14.6			18.9			19.5			14.9			1.7	
Parking	LrD	29.4					15.9			25.1			12.1			18.2			22.0			22.7			18.5			7.1	
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												

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Source	Time slice	Sum dB(A)	25Hz dB(A)	31.5Hz dB(A)	40Hz dB(A)	50Hz dB(A)	63Hz dB(A)	80Hz dB(A)	100Hz dB(A)	125Hz dB(A)	160Hz dB(A)	200Hz dB(A)	250Hz dB(A)	315Hz dB(A)	400Hz dB(A)	500Hz dB(A)	630Hz dB(A)	800Hz dB(A)	1kHz dB(A)	1.25kHz dB(A)	1.6kHz dB(A)	2kHz dB(A)	2.5kHz dB(A)	3.15kHz dB(A)	4kHz dB(A)	5kHz dB(A)	6.3kHz dB(A)	8kHz dB(A)	10kHz dB(A)
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												

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Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP

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Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												

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Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP

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Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Receiver R4 Fl G LrD,lim dB(A) LrD 49.6 dB(A)																													
Alarm	LrD	26.2	-8.1	-6.3	-11.1	2.5	8.8	7.2	0.4	-2.3	-1.0	-6.8	-5.8	-1.1	7.0	-1.0	0.1	8.3	9.0	8.4	10.3	20.2	23.9	6.4	2.0	-2.2	-6.6	-11.5	-22.4
Alarm	LrD	26.5	-7.8	-6.0	-10.8	2.8	9.1	7.5	0.8	-2.0	-0.6	-6.3	-5.3	-0.6	7.5	-0.5	0.5	8.6	9.2	8.7	10.6	20.5	24.2	6.7	2.4	-1.7	-6.0	-10.7	-21.4
Alarm	LrD	26.8	-7.5	-5.7	-10.5	3.1	9.4	7.8	1.2	-1.5	-0.2	-5.8	-4.8	-0.1	8.1	0.0	0.9	8.9	9.6	9.0	10.9	20.8	24.5	7.1	2.8	-1.2	-5.4	-9.9	-20.3
Alarm	LrD	27.1	-7.2	-5.4	-10.2	3.4	9.7	8.1	1.7	-1.1	0.2	-5.3	-4.2	0.5	8.6	0.6	0.9	9.2	9.9	9.4	11.2	21.1	24.9	7.5	3.2	-0.7	-4.8	-9.1	-19.3
Alarm	LrD	25.9	-8.4	-6.6	-11.4	2.2	8.5	6.9	0.0	-2.7	-1.4	-7.3	-6.3	-1.6	6.6	-0.5	-0.2	8.1	8.7	8.2	10.1	19.9	23.6	6.1	1.6	-2.6	-7.2	-12.3	-23.5
Alarm	LrD	25.3	-9.5	-7.7	-12.5	1.1	7.4	5.8	-1.4	-4.2	-5.2	-9.1	-6.3	-1.6	6.6	-1.5	-1.2	7.3	8.2	7.6	9.6	19.4	23.0	5.4	0.7	-3.8	-8.9	-14.7	-27.0
Alarm	LrD	25.3	-9.2	-7.5	-12.3	1.3	7.7	6.1	-1.0	-3.8	-4.9	-8.6	-7.6	-1.4	6.7	-1.3	-1.0	7.5	8.1	7.6	9.5	19.3	23.0	5.4	0.8	-3.7	-8.6	-14.2	-26.2
Alarm	LrD	25.4	-9.0	-7.2	-12.0	1.6	7.9	6.3	-0.7	-3.5	-4.5	-8.2	-7.2	-2.5	7.0	-1.1	-0.8	7.6	8.3	7.7	9.7	19.5	23.2	5.6	1.0	-3.4	-8.2	-13.6	-25.4
Alarm	LrD	25.6	-8.7	-6.9	-11.7	1.9	8.2	6.6	-0.3	-3.1	-4.2	-7.8	-6.8	-2.1	6.1	-0.8	-0.5	7.8	8.5	7.9	9.9	19.7	23.4	5.8	1.3	-3.0	-7.7	-13.0	-24.4
Alarm	LrD	27.6	-6.7	-4.9	-9.7	3.9	10.2	8.6	2.2	1.7	0.7	-4.7	-3.6	1.1	9.2	1.2	1.5	9.6	10.3	9.8	11.6	21.5	25.3	7.9	3.7	-0.1	-4.1	-8.2	-18.1
Alarm	LrD	30.8	-3.3	-1.6	-6.4	7.2	13.6	12.0	7.8	5.1	4.0	-0.2	0.8	5.5	13.6	5.6	5.9	12.6	13.4	13.0	14.6	24.6	28.5	11.3	7.4	4.0	0.7	-2.5	-11.1
Alarm	LrD	31.4	-2.7	-0.9	-5.7	7.9	14.2	12.6	8.4	5.7	4.6	0.6	1.6	6.3	14.4	6.4	6.7	13.2	14.1	13.6	15.2	25.1	29.1	12.0	8.1	4.7	1.5	-1.6	-10.0
Alarm	LrD	32.0	-2.1	-0.3	-5.1	8.5	14.8	15.3	9.0	6.3	5.2	1.4	2.4	7.1	15.2	7.2	7.5	13.8	14.6	14.1	15.7	25.7	29.6	12.5	8.7	5.4	2.3	-0.7	-8.9
Alarm	LrD	32.6	-1.4	0.3	-4.5	9.1	15.5	15.9	9.6	6.9	5.8	2.2	3.2	7.9	16.0	8.0	8.3	14.5	15.2	14.7	16.2	26.2	30.2	13.2	9.4	6.1	3.1	0.2	-7.8
Alarm	LrD	30.2	-3.9	-2.2	-7.0	6.6	13.0	11.3	7.2	4.5	3.4	-1.0	0.0	4.7	12.8	4.8	5.1	11.9	12.9	12.4	14.0	24.0	27.9	10.7	6.7	3.3	-0.1	-3.5	-12.3

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Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Alarm	LrD	28.0	-6.2	-4.4	-9.2	4.4	10.7	9.1	2.7	2.3	1.2	-4.0	-3.0	1.7	9.9	1.8	2.1	10.1	10.7	10.2	12.0	21.9	25.8	8.4	4.3	0.5	-3.3	-7.3	-17.0
Alarm	LrD	28.5	-5.7	-3.9	-8.7	4.9	11.2	9.6	3.2	2.8	1.7	-3.3	-2.3	2.4	10.6	2.5	2.8	10.6	11.2	10.7	12.5	22.4	26.2	9.0	4.9	1.2	-2.5	-6.4	-15.8
Alarm	LrD	29.6	-4.5	-2.8	-7.6	6.0	12.4	10.8	6.7	3.9	2.8	-1.8	-0.8	3.9	12.0	4.0	4.3	11.3	12.3	11.8	13.5	23.4	27.3	10.1	6.1	2.6	-0.9	-4.5	-13.5
Alarm	LrD	29.1	-5.1	-3.4	-8.1	5.5	11.8	10.2	3.8	3.3	2.3	-2.6	-1.5	3.2	11.3	3.2	3.6	10.9	11.7	11.3	13.0	22.9	26.8	9.5	5.5	1.9	-1.7	-5.4	-14.7
HVAC	LrD	14.4	-34.6	-28.8	-25.0	-12.2	-7.4	-13.5	-5.7	-3.9	-5.0	-3.2	-3.2	-1.3	-0.4	0.5	4.4	6.2	3.3	5.1	6.1	3.5	3.6	-0.8	-1.8	-7.0	-11.9	-23.9	-39.1
HVAC	LrD	16.0	-30.0	-24.2	-20.4	-7.6	-2.8	-9.1	-1.4	0.4	-0.9	0.7	0.4	2.1	2.8	3.4	7.0	8.4	3.8	5.7	6.3	3.3	3.2	-1.4	-2.4	-7.2	-10.9	-20.9	-32.7
HVAC	LrD	14.6	-34.6	-28.8	-25.0	-12.2	-7.3	-13.5	-5.7	-3.8	-4.9	-3.0	-3.1	-1.2	-0.2	0.7	4.6	6.3	3.5	5.3	6.3	3.7	3.8	-0.5	-1.6	-6.7	-11.4	-23.4	-38.3
HVAC	LrD	14.6	-34.5	-28.7	-24.9	-12.1	-7.2	-13.4	-5.6	-3.7	-4.8	-3.0	-3.1	-1.2	-0.2	0.7	4.6	6.3	3.5	5.2	6.2	3.6	3.8	-0.6	-1.6	-6.8	-11.5	-23.5	-38.5
HVAC	LrD	15.4	-31.3	-25.5	-21.7	-8.9	-4.0	-10.2	-2.5	-0.7	-1.9	-0.2	-0.4	1.3	2.1	2.7	6.3	7.8	3.2	5.3	5.9	3.0	2.9	-1.7	-2.8	-7.7	-11.8	-22.2	-34.7
HVAC	LrD	14.4	-34.7	-28.9	-25.1	-12.3	-7.4	-13.6	-5.8	-3.9	-5.0	-3.2	-3.2	-1.3	-0.4	0.6	4.5	6.2	3.4	5.1	6.1	3.5	3.7	-0.7	-1.8	-7.0	-11.8	-23.8	-39.0
HVAC	LrD	11.2	-36.1	-30.4	-26.6	-13.8	-9.0	-15.1	-7.4	-5.6	-6.7	-5.0	-5.1	-3.3	-2.5	-1.7	2.0	3.5	-1.0	0.5	2.8	-0.2	-0.5	-5.5	-7.5	-13.8	-20.1	-34.2	-51.9
HVAC	LrD	16.1	-30.5	-24.6	-20.7	-7.7	-2.9	-9.0	-1.1	0.7	-0.5	1.3	1.0	2.7	3.3	3.9	7.4	8.8	4.1	5.4	5.9	2.9	2.7	-1.7	-2.6	-7.0	-10.2	-19.6	-30.6
HVAC	LrD	14.4	-32.5	-26.7	-22.9	-10.1	-5.2	-11.4	-3.6	-1.7	-2.9	-1.2	-1.3	0.5	1.2	2.0	5.6	7.1	2.6	4.0	4.7	1.8	1.6	-3.0	-4.1	-9.0	-13.1	-24.0	-37.1
Loading Dock	LrD	33.8	-18.3	-13.6	-9.4	-7.8	-2.8	2.5	5.9	20.9	11.1	7.0	7.7	10.7	14.2	15.6	16.9	24.4	28.5	23.8	24.8	24.3	21.8	19.1	16.3	13.2	7.5	0.1	-8.4
Loading Dock	LrD	33.5	-18.6	-13.9	-9.7	-8.1	-3.1	2.2	5.5	20.5	10.7	6.5	7.2	10.2	13.7	15.1	16.5	24.2	28.3	23.6	24.5	24.0	21.5	18.8	16.0	12.7	6.9	-0.7	-9.5
Loading Dock	LrD	34.1	-18.0	-13.3	-9.1	-7.5	-2.5	2.8	6.3	21.3	11.5	7.5	8.3	11.2	14.7	16.1	17.3	24.8	28.9	24.2	25.1	24.6	22.1	19.5	16.7	13.7	8.1	0.9	-7.4
Loading Dock	LrD	34.4	-17.7	-13.0	-8.8	-7.2	-2.2	3.1	6.7	21.7	11.9	8.1	8.8	11.8	15.2	16.6	17.3	25.1	29.2	24.5	25.4	24.9	22.4	19.9	17.2	14.2	8.8	1.7	-6.3
Loading Dock	LrD	33.2	-18.9	-14.2	-10.0	-8.4	-3.4	1.9	5.2	20.1	10.3	6.0	6.8	9.7	13.2	15.5	16.2	23.9	28.0	23.3	24.2	23.7	21.2	18.5	15.6	12.3	6.4	-1.5	-10.5
Loading Dock	LrD	32.6	-20.0	-15.3	-11.1	-9.5	-4.5	0.8	1.3	18.7	8.9	4.3	6.7	9.7	13.2	14.6	15.2	23.2	27.5	22.8	23.8	23.2	20.6	17.8	14.7	11.1	4.7	-3.9	-14.0
Loading Dock	LrD	32.6	-19.7	-15.0	-10.8	-9.2	-4.3	1.0	1.6	19.0	9.3	4.7	5.4	9.9	13.4	14.8	15.4	23.3	27.4	22.7	23.7	23.1	20.5	17.8	14.8	11.2	5.0	-3.4	-13.3
Loading Dock	LrD	32.7	-19.5	-14.7	-10.5	-8.9	-4.0	1.3	2.0	19.4	9.6	5.1	5.9	8.8	13.6	15.0	15.6	23.5	27.6	22.9	23.8	23.3	20.7	18.0	15.0	11.5	5.4	-2.8	-12.4
Loading Dock	LrD	32.9	-19.2	-14.5	-10.3	-8.7	-3.7	1.6	2.3	19.7	10.0	5.6	6.3	9.3	12.7	15.2	15.9	23.7	27.8	23.1	24.0	23.5	20.9	18.2	15.3	11.9	5.8	-2.2	-11.5
Loading Dock	LrD	34.9	-17.3	-12.5	-8.3	-6.7	-1.8	5.9	7.2	22.1	12.4	8.7	9.4	12.4	15.8	17.2	17.9	25.5	29.6	24.9	25.8	25.3	22.8	20.3	17.7	14.8	9.5	2.6	-5.2
Loading Dock	LrD	38.1	-14.0	-9.2	-5.1	-3.5	3.8	9.1	10.5	25.5	15.7	13.1	13.8	16.8	20.2	21.6	22.2	28.4	32.7	28.1	28.7	28.3	26.0	23.7	21.3	18.9	14.2	8.2	1.8
Loading Dock	LrD	38.7	-13.4	-8.6	-4.5	-2.9	4.4	9.7	11.1	26.0	16.3	13.9	14.6	17.6	21.0	22.4	23.0	29.0	33.3	28.7	29.3	28.9	26.6	24.3	22.0	19.6	15.0	9.2	2.9
Loading Dock	LrD	39.3	-12.8	-8.0	-3.8	0.0	5.0	10.3	11.7	26.6	16.9	14.6	15.4	18.4	21.8	23.2	23.8	29.6	33.9	29.3	29.8	29.5	27.2	24.9	22.6	20.3	15.8	10.1	4.0
Loading Dock	LrD	39.9	-12.2	-7.4	-3.3	0.6	5.5	10.8	12.3	27.2	17.5	15.4	16.2	19.1	22.5	23.9	24.6	30.2	34.4	29.8	30.3	30.0	27.7	25.5	23.3	21.0	16.6	10.9	5.0
Loading Dock	LrD	37.5	-14.6	-9.8	-5.7	-4.1	3.2	8.6	9.9	24.9	15.1	12.3	13.0	16.0	19.4	20.8	21.5	27.8	32.1	27.5	28.2	27.8	25.4	23.1	20.7	18.1	13.4	7.3	0.6
Loading Dock	LrD	35.3	-16.8	-12.0	-7.8	-6.3	-1.3	6.4	7.7	22.6	12.9	9.3	10.1	13.0	16.5	17.9	18.5	25.9	30.0	25.4	26.2	25.7	23.3	20.8	18.2	15.4	10.2	3.5	-4.0
Loading Dock	LrD	35.8	-16.3	-11.5	-7.3	-5.7	-0.8	6.9	8.2	23.2	13.4	10.0	10.8	13.7	17.2	18.6	19.2	26.4	30.5	25.8	26.6	26.2	23.8	21.4	18.8	16.1	11.0	4.4	-2.9
Loading Dock	LrD	36.3	-15.7	-11.0	-6.8	-5.2	-0.2	7.5	8.8	23.7	14.0	10.8	11.5	14.5	17.9	19.3	19.9	26.8	31.0	26.4	27.1	26.7	24.3	21.9	19.4	16.7	11.8	5.4	-1.7
Loading Dock	LrD	36.9	-15.2	-10.4	-6.2	-4.6	2.7	8.0	9.3	24.3	14.5	11.5	12.2	15.2	18.6	20.0	20.7	27.2	31.6	26.9	27.6	27.2	24.9	22.5	20.0	17.4	12.6	6.3	-0.6
Parking	LrD	2.4					-4.1			0.2			-11.9			-10.3			-11.7			-11.5			-18.9			-41.1	
Parking	LrD	13.4					6.2			11.1			-0.1			1.5			-0.2			1.0			-8.6			-34.5	
Parking	LrD	12.2					5.1			10.0			-0.8			0.8			-1.1			-1.9			-12.8			-38.2	
Parking	LrD	16.3					3.3			10.2			-3.8			1.4			11.2			11.1			3.3			-20.9	

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Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Parking	LrD	3.7					-3.1			1.4			-10.0			-8.5			-10.2			-10.0			-17.7			-41.1	
Parking	LrD	13.5					2.4			7.8			-3.6			-1.5			5.9			9.2			0.8			-25.5	
Parking	LrD	8.5					0.9			6.2			-4.2			-2.4			-4.2			-4.6			-15.7			-44.5	
Parking	LrD	6.7					-0.9			4.3			-6.0			-4.2			-6.1			-6.2			-17.8			-47.5	
Parking	LrD	5.4					-1.7			3.1			-7.6			-6.0			-8.0			-8.6			-19.8			-46.2	
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												

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SoundPLAN 8.2

Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP

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Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "Alarm"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "HVAC"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												

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SoundPLAN 8.2

Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP

23

Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Loading Dock"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												
Remaining contrib. of src "Parking"	LrD																												

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SoundPLAN 8.2

Chartwell Warehouse
Contribution spectra - 001 - Chartwell Warehouse: Outdoor SP

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Source	Time slice	Sum dB(A)	25Hz dB(A)	31.5Hz dB(A)	40Hz dB(A)	50Hz dB(A)	63Hz dB(A)	80Hz dB(A)	100Hz dB(A)	125Hz dB(A)	160Hz dB(A)	200Hz dB(A)	250Hz dB(A)	315Hz dB(A)	400Hz dB(A)	500Hz dB(A)	630Hz dB(A)	800Hz dB(A)	1kHz dB(A)	1.25kHz dB(A)	1.6kHz dB(A)	2kHz dB(A)	2.5kHz dB(A)	3.15kHz dB(A)	4kHz dB(A)	5kHz dB(A)	6.3kHz dB(A)	8kHz dB(A)	10kHz dB(A)
Remaining contrib. of src "Parking"	LrD																												

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SoundPLAN 8.2

Appendix D RCNM Runs

Construction Noise Levels at Senstive Receptors by Phase

Activity	Leq at 145 FT (Res. to the North)	Lmax at 145 FT (Res. to the North)
Paving	70	71
Grading	77	81
Building Construction	74	78
Architectural Coating	70	74

Equipment Summary	Reference (dBA) 50 ft Lmax
Rock Drills	96
Jack Hammers	82
Pneumatic Tools	85
Pavers	80
Dozers	85
Scrapers	87
Haul Trucks	88
Cranes	82
Portable Generators	80
Rollers	80
Tractors	80
Front-End Loaders	86
Hydraulic Excavators	86
Graders	86
Air Compressors	86
Welders	73
Excavators	85
Conc/Ind Saws	90
Concrete Mixer Truck	85
Trucks	86

VIBRATION LEVEL IMPACT

Project:	Chartwell Rider Warehouse	Date: 4/4/22
Source:	Large Bulldozer	
Scenario:	Unmitigated	
Location:	Project Site	
Address:	Redlands Ave and Rider St, Perris CA	

PPV = PPVref(25/D)^n (in/sec)

DATA INPUT

Equipment = Type	2	Large Bulldozer	INPUT SECTION IN BLUE
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	145.00	Distance from Equipment to Receiver (ft)	
n =	1.10	Vibration attenuation rate through the ground	

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

DATA OUT RESULTS

PPV =	**0.013**	IN/SEC	OUTPUT IN RED

Building Construction

Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements										
No.	Equipment Description	Refernce (dBA) 50 ft Lmax	Quantity	Usage Factor[1]	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Calculated (dBA) Lmax	Calculated (dBA) Leq	Energy
1	Forklift/Tractor	80	3	40	145	0.5	0	73.2	69.2	8378685.42
2	Tractor/Backhoe	80	3	40	145	0.5	0	73.2	69.2	8378885.42
3	Cranes	82	2	40	145	0.5	0	70.4	66.5	4426546.15
4	Generator	80	1	40	145	0.5	0	68.4	64.5	2792961.81
5	Welders	73	1	40	145	0.5	0	61.4	57.5	557269.144
								Lmax*	**78**	**Leq**	**74**
								Lw	**110**	**Lw**	**106**

Source: MD Acoustics, LLC - Sept. 2021.
1- Percentage of time that a piece of equipment is operating at full power.
dBA – A-weighted Decibels
Lmax- Maximum Level
Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Leq dBA	1 dBA Shielding Leq dBA	2 dBA Shielding Leq dBA	3 dBA Shielding Leq dBA	4 dBA Shielding Leq dBA	5 dBA Shielding Leq dBA	6 dBA Shielding Leq dBA	7 dBA Shielding Leq dBA	8 dBA Shielding Leq dBA	9 dBA Shielding Leq dBA	10 dBA Shielding Leq dBA	11 dBA Shielding LeqdBA	12 dBA Shielding Leq dBA	13 dBA Shielding Leq dBA	14 dBA Shielding Leq dBA	15 dBA Shielding Leq dBA
50	**15.2**	**0.5**	**74**	**73**	**72**	**71**	**70**	**69**	**68**	**67**	**66**	**65**	**64**	**63**	**62**	**61**	**60**	**59**
60	18.3	0.5	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57
70	21.3	0.5	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55
80	24.4	0.5	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54
90	27.4	0.5	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53
100	30.5	0.5	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51
110	33.5	0.5	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50
120	36.6	0.5	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49
130	39.6	0.5	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49
140	42.7	0.5	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48
150	45.7	0.5	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47
160	48.8	0.5	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46
170	51.8	0.5	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46
180	54.9	0.5	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45
190	57.9	0.5	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44
200	61.0	0.5	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44
210	64.0	0.5	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43
220	67.1	0.5	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43
230	70.1	0.5	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
240	73.1	0.5	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
250	76.2	0.5	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
260	79.2	0.5	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
270	82.3	0.5	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
280	85.3	0.5	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40
290	88.4	0.5	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40
300	91.4	0.5	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39
310	94.5	0.5	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39
320	97.5	0.5	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39
330	100.6	0.5	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38
340	103.6	0.5	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38
350	106.7	0.5	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38
360	109.7	0.5	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37
370	112.8	0.5	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37

Grading

Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements										
No.	Equipment Description	Refernce (dBA) 50 ft Lmax	Quantity	Usage Factor[1]	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Calculated (dBA) Lmax	Calculated (dBA) Leq	Energy
1	Grader	86	1	40	145	0.5	0	74.4	70.5	11119981.2
2	Dozer	85	1	40	145	0.5	0	73.4	69.5	8832120.72
3	Tractor/Backhoe	80	3	40	145	0.5	0	73.2	69.2	8378885.42
4	Scrapers	87	1	40	145	0.5	0	75.4	71.5	13997968
5	Excavators	86	1	40	145	0.5	0	74.4	70.5	11119981.2
								Lmax*	**81**	**Leq**	**77**
								Lw	**109**	**Lw**	**105**

Source: MD Acoustics, LLC - Sept. 2021.
1- Percentage of time that a piece of equipment is operating at full power.
dBA – A-weighted Decibels
Lmax- Maximum Level
Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Leq dBA	1 dBA Shielding Leq dBA	2 dBA Shielding Leq dBA	3 dBA Shielding Leq dBA	4 dBA Shielding Leq dBA	5 dBA Shielding Leq dBA	6 dBA Shielding Leq dBA	7 dBA Shielding Leq dBA	8 dBA Shielding Leq dBA	9 dBA Shielding Leq dBA	10 dBA Shielding Leq dBA	11 dBA Shielding LeqdBA	12 dBA Shielding Leq dBA	13 dBA Shielding Leq dBA	14 dBA Shielding Leq dBA	15 dBA Shielding Leq dBA
50	15.2	0.5	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62
60	18.3	0.5	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60
70	21.3	0.5	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60	59
80	24.4	0.5	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57
90	27.4	0.5	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56
100	30.5	0.5	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55
110	33.5	0.5	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54
120	36.6	0.5	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53
130	39.6	0.5	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52
140	42.7	0.5	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51
150	45.7	0.5	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50
160	48.8	0.5	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50
170	51.8	0.5	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49
180	54.9	0.5	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48
190	57.9	0.5	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48
200	61.0	0.5	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47
210	64.0	0.5	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47
220	67.1	0.5	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46
230	70.1	0.5	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46
240	73.1	0.5	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45
250	76.2	0.5	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45
260	79.2	0.5	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44
270	82.3	0.5	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44
280	85.3	0.5	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44
290	88.4	0.5	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43
300	91.4	0.5	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43
310	94.5	0.5	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
320	97.5	0.5	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
330	100.6	0.5	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
340	103.6	0.5	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
350	106.7	0.5	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
360	109.7	0.5	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
370	112.8	0.5	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41

Paving

Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements										
No.	Equipment Description	Reference (dBA) 50 ft Lmax	Quantity	Usage Factor[1]	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Calculated (dBA) Lmax	Calculated (dBA) Leq	Energy
1	Pavers	80	1	40	145	0.5	0	68.4	64.5	2792961.81
2	Rollers	80	1	40	145	0.5	0	68.4	64.5	2792961.81
3	Concrete Mixer Truck	85	1	20	145	0.5	0	73.4	66.5	4416060.36
								Lmax*	**73**	**Leq**	**70**
								Lw	**107**	**Lw**	**102**

Source: MD Acoustics, LLC - Sept. 2021.
1- Percentage of time that a piece of equipment is operating at full power.
dBA - A-weighted Decibels
Lmax- Maximum Level
Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Leq dBA	1 dBA Shielding Leq dBA	2 dBA Shielding Leq dBA	3 dBA Shielding Leq dBA	4 dBA Shielding Leq dBA	5 dBA Shielding Leq dBA	6 dBA Shielding Leq dBA	7 dBA Shielding Leq dBA	8 dBA Shielding Leq dBA	9 dBA Shielding Leq dBA	10 dBA Shielding Leq dBA	11 dBA Shielding LeqdBA	12 dBA Shielding Leq dBA	13 dBA Shielding Leq dBA	14 dBA Shielding Leq dBA	15 dBA Shielding Leq dBA
50	15.2	0.5	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55
60	18.3	0.5	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53
70	21.3	0.5	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51
80	24.4	0.5	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50
90	27.4	0.5	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49
100	30.5	0.5	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47
110	33.5	0.5	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46
120	36.6	0.5	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45
130	39.6	0.5	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45
140	42.7	0.5	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44
150	45.7	0.5	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43
160	48.8	0.5	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
170	51.8	0.5	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
180	54.9	0.5	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
190	57.9	0.5	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
200	61.0	0.5	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40
210	64.0	0.5	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39
220	67.1	0.5	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39
230	70.1	0.5	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38
240	73.1	0.5	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38
250	76.2	0.5	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38
260	79.2	0.5	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37
270	82.3	0.5	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37
280	85.3	0.5	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36
290	88.4	0.5	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36
300	91.4	0.5	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36
310	94.5	0.5	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35
320	97.5	0.5	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35
330	100.6	0.5	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35
340	103.6	0.5	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34
350	106.7	0.5	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34
360	109.7	0.5	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34
370	112.8	0.5	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33

Architectural Coating

Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements										
No.	Equipment Description	Reference (dBA) 50 ft Lmax	Quantity	Usage Factor[1]	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Calculated (dBA) Lmax	Calculated (dBA) Leq	Energy
1	Air Compressor	86	1	40	145	0.5	0	74.4	70.5	11110981.2
								Lmax*	**74**	**Leq**	**70**
								Lw	**106**	**Lw**	**102**

Source: MD Acoustics, LLC - Sept. 2021.
1- Percentage of time that a piece of equipment is operating at full power.
dBA - A-weighted Decibels
Lmax- Maximum Level
Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Leq dBA	1 dBA Shielding Leq dBA	2 dBA Shielding Leq dBA	3 dBA Shielding Leq dBA	4 dBA Shielding Leq dBA	5 dBA Shielding Leq dBA	6 dBA Shielding Leq dBA	7 dBA Shielding Leq dBA	8 dBA Shielding Leq dBA	9 dBA Shielding Leq dBA	10 dBA Shielding Leq dBA	11 dBA Shielding LeqdBA	12 dBA Shielding Leq dBA	13 dBA Shielding Leq dBA	14 dBA Shielding Leq dBA	15 dBA Shielding Leq dBA
50	**15.2**	**0.5**	**70**	**69**	**68**	**67**	**66**	**65**	**64**	**63**	**62**	**61**	**60**	**59**	**58**	**57**	**56**	**55**
60	18.3	0.5	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53
70	21.3	0.5	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52
80	24.4	0.5	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50
90	27.4	0.5	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49
100	30.5	0.5	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48
110	33.5	0.5	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47
120	36.6	0.5	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46
130	39.6	0.5	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45
140	42.7	0.5	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44
150	45.7	0.5	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44
160	48.8	0.5	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43
170	51.8	0.5	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
180	54.9	0.5	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
190	57.9	0.5	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
200	61.0	0.5	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40
210	64.0	0.5	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40
220	67.1	0.5	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39
230	70.1	0.5	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39
240	73.1	0.5	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38
250	76.2	0.5	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38
260	79.2	0.5	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37
270	82.3	0.5	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37
280	85.3	0.5	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36
290	88.4	0.5	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36
300	91.4	0.5	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36
310	94.5	0.5	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36
320	97.5	0.5	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35
330	100.6	0.5	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35
340	103.6	0.5	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35
350	106.7	0.5	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34
360	109.7	0.5	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34
370	112.8	0.5	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34