Appendix 5.10-1 Noise Analysis

Appendices

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NOISE ANALYSIS TECHNICAL REPORT
INLAND VALLEY MEDICAL CENTER PROJECT

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A. EXECUTIVE SUMMARY

This Noise Report is intended to provide the City of Wildomar (City) with an evaluation of potential noise impacts associated with the Inland Valley Medical Center Project (Project). This Noise Report describes the existing environment in the Project area and estimates future noise levels at surrounding land uses resulting from construction and operation of the Project. The study discusses applicable federal, State, and local noise regulations; monitoring data; applicable noise thresholds; the methodology used to analyze potential noise impacts; and the modeled on-site uses. The finding of the analyses are as follows:

- Construction noise levels would not exceed the single-family and multifamily residential noise standards.
- Exterior noise levels from the proposed flight paths would not result in noticeable changes of above 3 dBA at noise sensitive uses.
- The results determine the proposed emergency medical services (EMS) landing site will comply with all applicable governmental noise standards.

B. PROJECT DESCRIPTION

The Inland Valley Medical Center (IVMC) is located on a 22.24-acre site in the City of Wildomar, as shown in **Figure 1: Regional and Local Vicinity Map**. The north side boundary is a well-preserved natural ravine and the east edge is Inland Valley Drive, which provides access to the campus. The west and south side edges are bounded by Interstate 15 (I-15). The existing uses at the IVMC include several one and two-story structures:

Buildings A, B-H, C, I, a Central Utility Plant (CUP), and an Administration building. Buildings A and I house patient rooms and building B-H houses the diagnostic and treatment areas. Buildings C will be demolished and the three-story Administration building houses nonclinical functions.

Demolition of existing Building C will allow new construction on the 7-story, 232,626-square-foot new tower to commence. The podium area of the new tower will connect to existing buildings I and A, unifying the hospital campus. The ground level will be the emergency department with direct entry/access for walk-in patients and ambulance, with Operating Rooms on the 2nd floor above. The bed tower will be above the podium and centered on axis with building A. The new tower is placed to allow the existing hospital building B-H, and the existing CUP, to remain operational during construction.

Modifications to Building I, which currently houses patient rooms on the second floor over open parking stalls, will enclose the first floor for a new loading dock and Materials Management department. Modifications to Building A, which currently houses patient rooms on the second floor, includes a new main entry canopy and lobby renovation, which will be the new front door to the medical center; a connecting corridor that links the new entry with public elevators in the new tower; and renovation of spaces for relocated departments once the new hospital is completed.

A new Conditional Use Permit (CUP) will serve the new tower and backfeed, existing Buildings I and A that are to remain. The project will conclude with demolition of existing hospital building B-H and the creation of new surface parking lots. The existing helipad will remain in its current location.

Construction would occur in three (3) phases which include the following:

Phase 1: Enable and Make Ready

- This phase will allow the continual operation of the IVMC through the renovation of Buildings A & I and the construction of a new tower. The construction activities during this phase include site grading, utility upgrades, and the demolition of Building C.

Phase 2: Hospital Expansion, Renovation of Existing Buildings, Central Utility Plant

- This phase is considered the primary new building construction phase. It includes construction of the new hospital expansion podium/bed tower and renovating of existing buildings. The south surface parking and the south section of the ring road can be finished after the tower expansion is complete. The central utility plant can be finished at this time with the required utility connections.

Phase 3: Demolition of Building B – H, Eastern Parking Area and Associated Landscape

- This phase would include demolition of the existing Building B–H and the existing central utility plan and remaining renovations for Building A. The east surface parking lot will be constructed, the existing ground level helipad will become a surface stormwater retention basin, landscaping installed, and the east façade of Building A would be refreshed.

Long-term master plans for the IVMC campus include an eventual build-out to 600 beds, including expanded ancillary support and infrastructure facilities. This will include the addition of two more patient towers; one to be constructed on the east surface parking lot and the other to replace existing Building I. The Central Utility Plant will expand to support the new buildings, the hospital helipad will be relocated to a rooftop structure, and the new parking structures will be constructed on the existing north and south surface parking lots to support the increase in staff, visitor, and patient demand.

The existing helipad is located in the northeast portion of the site adjacent to Inland Valley Drive. As shown in the Caltrans HeliPlates database, the current approved flight path includes approach from and depart back toward to the northwest along the I-15 freeway.[1] Helicopter flight patterns of the relocated helipad would be regulated by a CUP. Pilots would be encouraged to use the specified approach/departure paths (flight paths), as illustrated in **Figure 2: Heliport Layout Plan**, unless conditions favored alternate approaches or departures. All flights would approach the Project Site from the north and south following the I-15 freeway corridor and would not operate directly over residential uses. It is anticipated the most common type of helicopters that would utilize the helistop would include the Airbus H135 and H145, Bell 407, Bell 429, and other routine EMS helicopters. Additionally, it is anticipated that 95 percent of flights would be from the routine EMS helicopters whereas the 5 percent may include the larger weight-class helicopters such as the Blackhawk during a catastrophic event.

1 Caltrans, Division of Aeronautics, Caltrans HeliPlates, accessed November 2021, https://heliplates.dot.ca.gov/

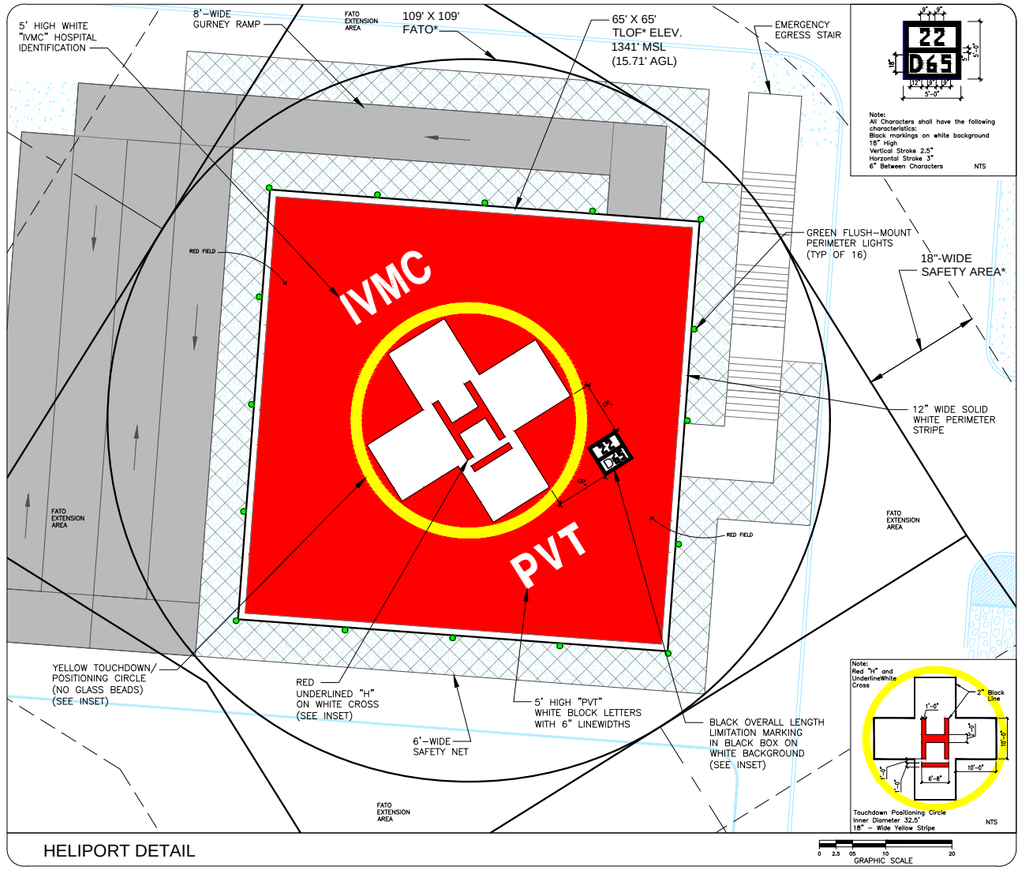
SOURCE: Google Earth - 2020; Meridian Consultants, LLC - 2020

FIGURE **1**

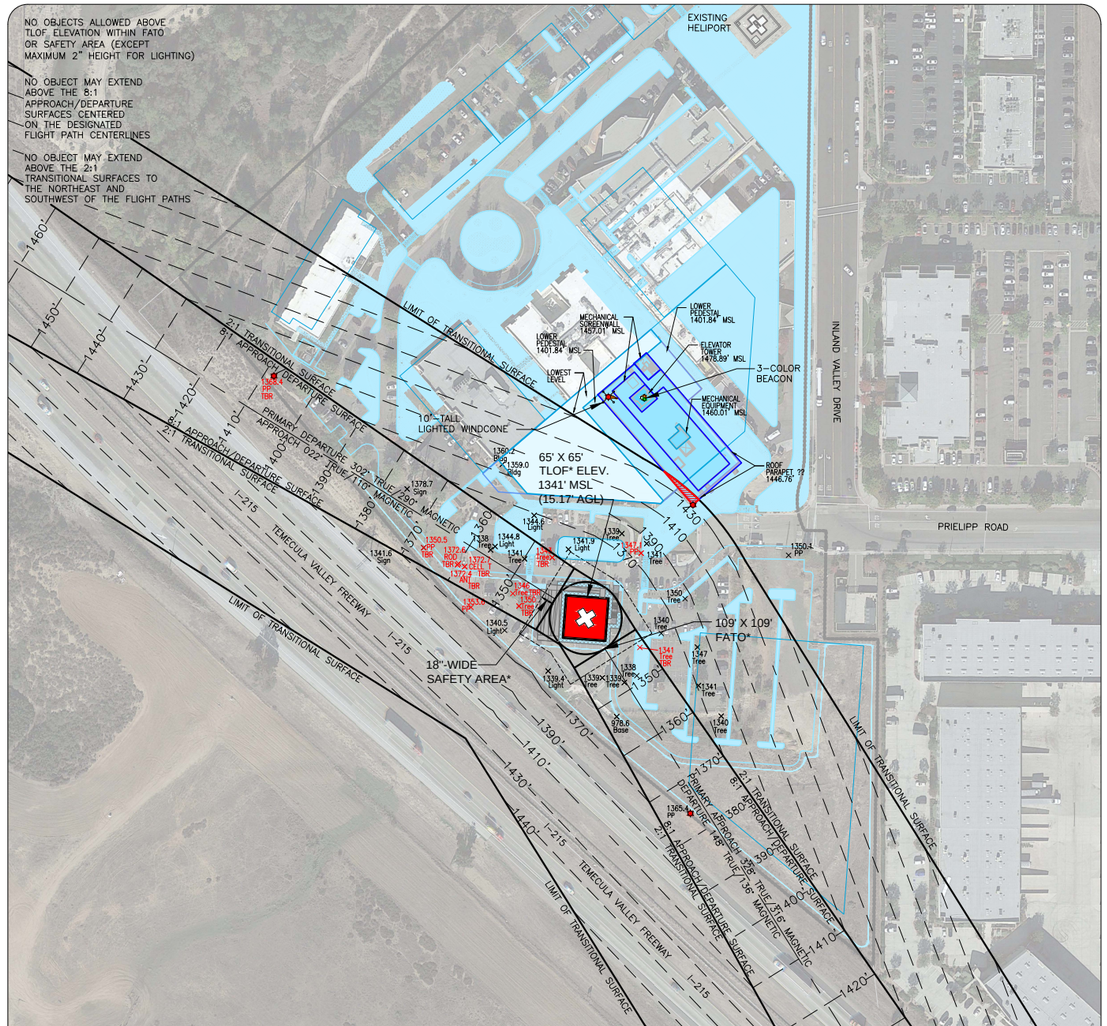
Meridian Consultants

Regional and Local Vicinity Map

291-001-20



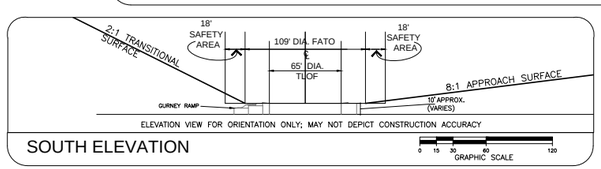
HELIPORT DETAIL



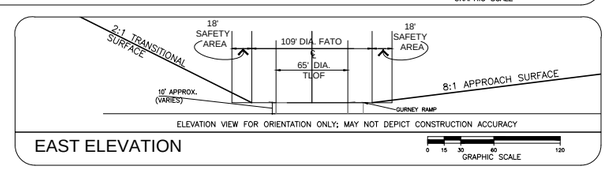
SITE LAYOUT

HELIPORT DATA PANEL

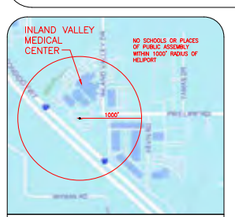
Heliport name		Inland Valley Medical Center Heliport		Elevation	Above mean sea level (MSL) 1341' (rounded)
Street Address		36485 Inland Valley Drive, Wildomar, CA 92595			Above ground level (AGL) 15.17'
Usage (public/private)		Private (Public safety use only)	Composite design helicopter	Model(s)	Sikorsky UH-60 Blackhawk
FAA airspace case number		--		Maximum main rotor diameter	54'
FAA airspace determination letter date		--		Maximum overall length	65'
FAA Heliport Design advisory circular in effect at time of design		AC 150/5390-2C		Maximum gross takeoff weight	22,000 lbs
FAA Heliport Design advisory circular heliport classification		PPR		Maximum fuel capacity	354 gallons
NFPA Publication #418, Heliports, heliport classification		H-2		FATO (final approach & takeoff area) length & width (or diameter)*	109'
State permit	Heliport Site Approval Permit number & date	--	Heliport design criteria	TLOF (touchdown & liftoff area) length & width	65'
	Heliport Permit number & date	--		Safety area width*	18'
Local Agency Planning Case Number & Date		--		Total unobstructed width (FATO plus safety area on each side)*	145'
Geographic coordinates (NAD 83) at heliport center	Latitude	33° 35' 24.43"		Fuel/water separator: minimum fuel retention capacity	N/A
	Longitude	117° 14' 17.02"		TLOF surface material	Metal
Local magnetic declination (to nearest degree)		12°		TLOF surface gradient & direction	--
Approach course alignments (magnetic)		110° & 316°		Center-to-center TLOF separation (where applicable)	N/A
Departure course alignments (magnetic)		290° & 136°		Lighting Activation - Aviation Lighting ()	
				Lighting Activation - Walkway Area Lighting	
				*No objects allowed above TLOF elevation within FATO or Safety Area (except maximum 2" height for lighting)	



SOUTH ELEVATION



EAST ELEVATION



VICINITY MAP
NOT TO SCALE

LEGEND

	3-color (green-white-yellow) LED heliport beacon (FEC Heliports Model HP0683 or Equivalent)		Green LED perimeter light equipped with infrared emitters for NVG compatibility, (FEC Heliports Model HP1771FC or equivalent)
	Externally lit windcone w/red obstruction light and 4 floodlights (FEC Heliports Model HP 0907-LED or equivalent)	-1360-	Elevations and airspace contours expressed as feet above Mean Sea Level (MSL)
	Dual LED red obstruction light w/auto backup, equipped w/ infrared emitters for NVG compatibility	TBR	To Be Removed, Lowered or Relocated For Obstruction Clearance, As Appropriate
FE	Portable Fire Extinguisher (Rating 10-A: 120-BC Per Combined NFPA 418 and California Fire Code Standards)		White Floodlight Maximum 2" Above Adjacent Surface Elevation.(Separately Switched)

SOURCE: Heliplanners - August 2020

FIGURE **2**

Meridian Consultants

Heliport Layout Plan

291-002-20

C. ENVIRONMENTAL SETTING

1. Fundamentals of Sound

Sound is the quickly varying pressure wave travelling through a medium. When sound travels through air, the atmospheric pressure varies periodically. The number of pressure variations per second is called the frequency of sound and is measured in Hertz (Hz), which is defined as cycles per second. "Sound" and "noise" will be used interchangeably throughout this report.

The sounds we hear are composed of various frequencies. A normal human ear is able to hear sounds with frequencies from 20 Hz to 20,000 Hz. The range of 20 Hz to 20,000 Hz is called the audible frequency range. The entire audible frequency range can be divided into 10 or 24 frequency bands, known as octave bands or 1/3 octave bands, respectively. A particular sound or noise can be seen to have different strengths or sound pressure levels (SPLs) in the frequency bands. The higher the frequency, the higher pitched a sound is perceived. For example, the sounds produced by drums have much lower frequencies than those produced by a whistle.

A single SPL is often used to describe a sound. This can be done by adding the contribution from all octave bands or 1/3 octave bands together to yield one single SPL. SPL alone is not a reliable indicator of loudness because the human ear does not respond uniformly to sounds at all frequencies. For example, the human ear is less sensitive to low and high frequencies than it is to the medium frequencies that more closely correspond to human speech. In response to this sensitivity of the human ear to different frequencies, the A-weighted noise level, referenced in units of dB(A), was developed to better correspond with the subjective judgment of sound levels by individuals.

A doubling of sound energy results in a 3 dB(A) increase in sound, which means that a doubling of sound wave energy (e.g., doubling the volume of traffic on a roadway) would result in a barely perceptible change in sound level. In general, changes in a noise level of less than 3 dB(A) are not noticed by the human ear.[2] Changes from 3 to 5 dB(A) may be noticed by some individuals who are extremely sensitive to changes in noise. An increase of greater than 5 dB(A) is readily noticeable, while the human ear perceives a 10 dB(A) increase in sound level to be a doubling of sound volume. To support the assessment of community reaction to noise, scales have been developed that average SPLs over time and quantify the result in terms of a single numerical descriptor. Several scales have been developed that address community noise levels. Leq is the average A-weighted sound level measured over a given time interval. Leq can be measured over any period but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods.

2 US Department of Transportation, Federal Highway Administration, Fundamentals and Abatement of Highway Traffic Noise (Springfield, VA: U.S. Department of Transportation, Federal Highway Administration, September 1980), 81.

Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dB(A), whereas a solid wall or berm reduces noise levels by 5 to 10 dB(A).[3] Vegetative barriers, such as shrubs up to 8 feet in height and 15 feet in width, typically attenuate noise levels 1 dB(A) and can attenuate noise levels from 1 to 3 dB(A), depending on the type and amount of vegetation.[4]

Decibel readings are weighted to reflect sensitivities to different frequencies. As discussed above, the A weighting is intended to reflect human sensitivity to higher frequencies, while the C weighting incorporates low frequencies. Some common sounds on the dBA scale, relative to ordinary conversation, are provided in **Table 1: Common Sounds on the A-Weighted Decibel Scale**.

TABLE 1
COMMON SOUNDS ON THE A-WEIGHTED DECIBEL SCALE

Sound	Sound Level (dBA)	Subjective Evaluations
Near Jet Engine	140	Deafening
Threshold of Pain	130	
Rock music, with amplifier	120	
Thunder, snowmobile (operator)	110	Very Loud
Boiler shop, power mower	100	
Orchestral crescendo at 25 feet, noisy kitchen	90	
Busy street	80	Loud
Interior of department store	70	
Ordinary conversation, 3 feet away	60	Moderate
Quiet automobiles at low speed	50	
Average office	40	Faint
City residence	30	
Quiet country residence	20	Very Faint
Rustle of leaves	10	
Threshold of hearing	0	

Source: U.S. Department of Housing and Urban Development, Aircraft Noise Impact – Planning Guidelines for Local Agencies, 1972

Note:

[1] Continuous exposure above 85 dB is likely to degrade the hearing of most people (hearing protection recommended).

[2] Range of Speech: 50 – 70 dB

3 State of California Department of Transportation (Caltrans), Technical Noise Supplement, 1998, pp. 33-40, 123-131.

4 Caltrans, Traffic Noise Attenuation as a Function of Ground and Vegetation (Final Report), 1995, pp. 65.

As shown in **Table 1**, the relative perceived loudness of sound doubles for each increase of 10 dBA, although a 10 dBA change corresponds to a factor of 10 in relative sound energy. Generally, sounds with differences of 2 dBA or less are not perceived to be noticeably different by most listeners. A noise event produced by a helicopter flyover is usually characterized by a build up to a maximum noise levels as the helicopter approaches, and then a decrease in the noise level through a series of lesser peaks or pulses after the aircraft passes and the noise recedes.

The sound level averages, Leq, were measured as A-weighted, slow-time-weighted (1-minute period) sound-level variables, commonly used for measuring environmental sounds. The maximum 1-minute recorded measurement is commonly referred to as Lmax. The minimum 1-minute recorded measurement is commonly referred to as Lmin. The day-night level (Ldn) is the 24-hour average sound level that recognizes the increased sensitivity to nighttime noise by adding 10 dB to noise occurring between 10:00 PM and 7:00 AM. The Community Noise Equivalent Level (CNEL) is similar to the Ldn except that CNEL also adds 5 dB to noise occurring between 7:00 PM and 10:00 PM. Sound levels presented in this report represent an average Leq, the Lmax, and the Lmin expressed in terms of dB(A).

Table 2: Noise Descriptors identifies various noise descriptors developed to measure sound levels over different periods of time.

TABLE 2
NOISE DESCRIPTORS

Term	Definition
Decibel (dB)	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measure sound to a reference pressure.
A-Weighted Decibel [dB(A)]	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).
Hertz (Hz)	The frequency of the pressure vibration which is measured in cycles per second.
Kilohertz (kHz)	One thousand cycles per second.
Equivalent Sound Level (Leq)	The sound level containing the same total energy as a time varying signal over a given time period. The Leq is the value that expresses the time averaged total energy of a fluctuating sound level. Leq can be measured over any time period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods.
Community Noise Equivalent Level (CNEL)	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments add 5 dB(A) for the evening, 7:00 PM to 10:00 PM, and add 10 dB(A) for the night, 10:00 PM to 7:00 AM. The 5- and-10 decibel penalties are applied to account for increased noise sensitivity during the evening and nighttime hours. The logarithmic effect of adding these penalties to the 1-hour Leq measurements typically results in a CNEL measurement that is within approximately 3 dB(A) of the peak-hour Leq.[a]

TABLE 2 NOISE DESCRIPTORS	
Term	**Definition**
Daytime (Lday)	Lday is the average noise exposure during the hourly periods from 7:00 AM to 10:00 PM.
Nighttime (Lnight)	Lnight is the average noise exposure during the hourly periods from 10:00 PM to 7:00 AM.
Day-Night Level (Ldn)	24-hour average sound level, with a penalty of 10 dB added for noise during the nighttime hours of 10:00 PM to 7:00 AM.
Sound Pressure Level (SPL)	The sound pressure is the force of sound on a surface area perpendicular to the direction of the sound. The SPL is expressed in dB.
Ambient Noise	The level of noise that is all encompassing within a given environment, being usually a composite of sounds from many and varied sources near to and far from the observer. No specific source is identified in the ambient environment.

[a] *California Department of Transportation, Technical Noise Supplement: A Technical Supplement to the Traffic Noise Analysis Protocol (Sacramento: November 2009), pp. N51–N54.*

2. Existing Conditions

Noise within Riverside County is generated by numerous sources found near places where people live and work. Different types of noise include mobile, stationary, and construction-related, that affect noise-sensitive receptors such as residences, schools, and hospitals.[5] The Project site is bound to open space (Oak Springs Ranch Specific Plan area) to the north; Inland Urgent Care, Kaiser Permanente Wildomar Medical Center, and industrial uses to the east, and Interstate 15 (I-15) to the south and west.

a. Ambient Noise Levels

To assess the existing noise level environment, eight (8) noise level measurements were taken at sensitive receiver locations in the Project study area. The existing ambient noise environment throughout the City was determined by conducting noise measurements by sensitive receptors that would potentially be impacted by the proposed Project. Noise monitoring was conducted with a Larson Davis 831 Type 1 Sound Level Meter. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013.

The ambient noise results conducted on November 14, 2020, are provided in **Table 3: Existing Noise Measurements in Project Vicinity**, and their locations are shown on **Figures 3-10: Noise Monitoring Locations**. These measured noise levels represent day-to-day noise from sources near the Project Site,

5 *County of Riverside General Plan, "*Noise Element," accessed October 2021, https://p1cdn4static.civiclive.com/UserFiles/Servers/Server_9894739/File/Government/Departments/Planning/General%20Plan.pdf

including traffic along local streets. As shown, average ambient noise levels (Leq) ranged from 47.7 dBA at the single-family residential uses along Timber Lane and Villa Del Sol (Site 5) to 65.8 dBA along Inland Valley Drive (Site 1).

TABLE 3
EXISTING NOISE MEASUREMENTS IN PROJECT VICINITY

Measurement Site	Locations	Time Period	Leq (15-minute)	Lmax	Lmin
			(dB[A])		
Site 1	IVMC Campus – along Inland Valley Drive	11:34 AM – 11:49 AM	65.8	83.9	54.8
Site 2	Santa Rosa Apartments to the east of the Project Site along Prielipp Road	11:53 AM – 12:08 PM	55.5	63.1	50.8
Site 3	Oak Springs Ranch Apartment Homes north of the Project Site	11:11 AM – 11:26 AM	58.5	84.2	48.7
Site 4	Single-family residential uses along Madison Avenue and Breckin Court to the southeast of the Project Site	12:16 PM – 12:31 PM	59.9	67.1	55.1
Site 5	Single-family residential uses along Timber Lane and Villa Del Sol to the west of the Project Site	1:14 PM – 1:29 PM	47.7	59.1	40.0
Site 6	Single-family residential uses along Jefferson Avenue and Grizzly Ridge Drive to the south of the Project Site	12:51 PM – 1:06 PM	48.1	68.3	34.7
Site 7	Single-family residential uses along Depasquale Road and Glazebrook Road to the north of the Project Site	10:19 AM – 10:34 AM	59.2	64.1	52.8
Site 8	Single-family residential uses along Twinflower Avenue and Trillium Drive north of the Project Site	1:43 PM – 1:58 PM	51.9	65.0	44.2

*Source: Refer to **Appendix A** for noise monitoring worksheets*

North

West

South

East

SOURCE: Google Earth - 2020

FIGURE **3**

Meridian Consultants

Noise Monitoring Location (Site 1)

291-002-20

North

West

South

East

SOURCE: Google Earth - 2020

FIGURE **4**

Meridian Consultants

Noise Monitoring Location (Site 2)

291-002-20

North

West

South

East

SOURCE: Google Earth - 2020

FIGURE **5**

Meridian Consultants

Noise Monitoring Location (Site 3)

291-002-20

North

West

South

East

SOURCE: Google Earth - 2020

FIGURE **6**

Meridian Consultants

Noise Monitoring Location (Site 4)

291-002-20

North

West

South

East

SOURCE: Google Earth - 2020

FIGURE **7**

Meridian Consultants

Noise Monitoring Location (Site 5)

291-002-20

North

West

South

East

SOURCE: Google Earth - 2020

FIGURE **8**

Meridian Consultants

Noise Monitoring Location (Site 6)

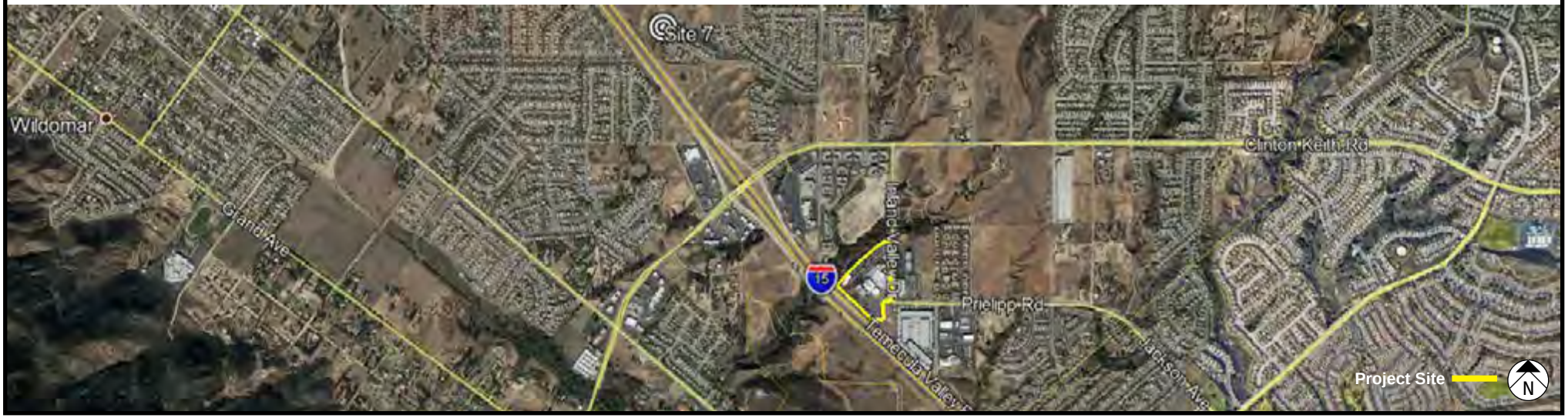
291-002-20

North

West

South

East



SOURCE: Google Earth - 2020

FIGURE **9**

Meridian Consultants

Noise Monitoring Location (Site 7)

291-002-20

North

West

South

East

SOURCE: Google Earth - 2020

FIGURE **10**

Meridian Consultants

Noise Monitoring Location (Site 8)

291-002-20

b. Roadway Noise Levels

In addition to the ambient noise measurements near the Project Site, the existing traffic noise on local roadways in the surrounding areas was calculated to quantify the daytime and nighttime noise levels using information provided in the transportation impact analysis prepared by LLG. The transportation impact analysis analyzed four segments within the Project vicinity. Traffic noise levels were calculated using the Federal Highway Administration Traffic Noise Model (FHWA TNM).

Table 4: Existing Roadway Noise Levels provides the calculated 24-hour CNEL noise levels for the analyzed local roadway segments based on existing traffic volumes. 24-hour CNEL levels attributed to roadway traffic range from a low of 59.1 dBA along George Avenue/Wildomar Trail north of Clinton Keith Road to a high of 68.9 dBA along Clinton Keith Road from Hidden Springs Road to I-15 southbound.

TABLE 4
EXISTING ROADWAY NOISE LEVELS

Roadway Segment	Adjacent Land Use	Existing Roadway Noise Level dBA CNEL	Existing Noise Exposure Compatibility Category
Clinton Keith Road			
Hidden Springs Road to I-15 SB	Commercial	68.9	Normally Acceptable
I-15 SB to I-15 NB	Commercial	68.8	Normally Acceptable
I-15 NB to Arya Road	Commercial	68.2	Normally Acceptable
Arya Road to George Avenue	Commercial	68.2	Normally Acceptable
George Avenue to Inland Valley Drive	Residential	67.9	Conditionally Acceptable
Inland Valley Drive to Smith Ranch Road	Residential	66.9	Conditionally Acceptable
East of Smith Ranch Road	Residential	66.9	Conditionally Acceptable
Inland Valley Drive			
Clinton Keith to Prielipp Road	Commercial/Residential/Hospital	63.8	Normally Acceptable
Prielipp Road			
East of Inland Valley Road	Commercial/Residential	61.5	Normally Acceptable
George Avenue/Wildomar Trail			
North of Clinton Keith Road	Residential	59.1	Normally Acceptable

*Source: Refer to **Appendix B.1** for Roadway Noise Worksheets.*

In terms of the City's land use noise compatibility categories based on roadway traffic only, most locations are classified as normally acceptable, with others classified as conditionally acceptable. Specifically, the noise exposure compatibility categories based on roadway traffic only are summarized as follows:

- Normally Acceptable: Locations where commercial uses are dominant along Clinton Keith Road and where residential uses are dominant along Inland Valley Drive, Prielipp Road and George Avenue/Wildomar Trail.
- Conditionally Acceptable: Locations where residential uses are dominant along Clinton Keith Road.
- Normally Unacceptable: None.
- Clearly Unacceptable: None.

D. REGULATORY SETTING

1. Federal Regulations

a. US Environmental Protection Agency

The Federal Noise Control Act of 1972 establishes programs and guidelines to identify and address the effects of noise on public health and welfare and the environment.[6] The US Environmental Protection Agency (USEPA) administrators determined in 1981 that subjective issues such as noise would be better addressed at more local levels of government. Consequently, in 1982, responsibilities for regulating noise-control policies were transferred to State and local governments. However, noise-control guidelines and regulations contained in the rulings of the USEPA in prior years remain in place, enforced by designated federal agencies where relevant.

b. FAA Advisory Circular

The Federal Aviation Administration (FAA) regulates noise from aircraft. The Aviation Safety and Noise Abatement Act of 1979 required that the FAA establish a single system for measuring and evaluating noise impacts. The FAA chose the Sound Exposure Level (SEL). The individual values of the SEL for each helicopter takeoff, landing, and flyovers are combined and compared against the community noise levels.

The FAA Advisory Circular Number 150-5020-2, entitled "Noise Assessment Guidelines for New Helicopters," recommends the use of a cumulative noise measure, the 24-hour equivalent sound level [Leq(24)], so that the relative contributions of the heliport and other sound sources within the community may be compared. The Leq(24) is similar to the Ldn used in assessing the impacts of fixed wing aircraft. The helicopter Leq(24) values are obtained by logarithmically adding the single-event SEL values over a 24-hour period.

Public Law 96-193 also directs the FAA to identify land uses which are "normally compatible" with various levels of noise from aircraft operations. Because of the size and complexity of many major hub airports

6 Noise Control Act of 1972, sec. 2 (1972).

and their operations, FAR Part 150 identifies a large number of land uses and their attendant noise levels. However, since the operations of most heliports and helistops tend to be much simpler and the impacts more restricted in area, Part 150 does not apply to heliports/helistops not located on airport property. Instead, the FAA recommends exterior noise criteria for individual heliports based on the types of surrounding land uses. These recommended noise levels are included in **Table 5: Normally Compatible Community Sound Levels**.

The maximum recommended cumulative sound level [Leq(24)] from the operations of helicopters at any new site should not exceed the ambient noise already present in the community at the site of the proposed heliport or the sound levels in **Table 5**, whichever is lower.

TABLE 5
NORMALLY COMPATIBLE COMMUNITY SOUND LEVELS

Type of Area	Leq(24)
Residential	
Suburban	57
Urban	67
City	72
Commercial	72
Industrial	77

Source: FAA Advisory Circular Number 150-5020-2, 1983

2. State Regulations

a. State of California Building Code

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

b. California Noise Insulation Standards

The California Noise Insulation Standards[7] require that interior noise levels from exterior sources be 45 dB(A) or less in any habitable room of a multiresidential-use facility (e.g., hotels, motels, dormitories, long-term care facilities, and apartment houses, except detached single-family dwellings) with doors and

7 California Code of Regulation, tit. 24, sec. 3501 et seq.

windows closed. Measurements are based on CNEL or Ldn, whichever is consistent with the noise element of the local general plan. Where exterior noise levels exceed 60 dB(A) CNEL, an acoustical analysis for new development may be required to show that the proposed construction will reduce interior noise levels to 45 dB(A) CNEL. If the interior 45 dB(A) CNEL limit can be achieved only with the windows closed, the residence must include mechanical ventilation that meets applicable Uniform Building Code requirements.

c. California Department of Health Services

The State of California Department of Health Services, Environmental Health Division, has published recommended guidelines for noise and land use compatibility, referred to as the *State Land Use Compatibility Guidelines for Noise* (State Noise Guidelines). The State Noise Guidelines indicate that commercial and industrial land uses generally should be located in areas where outdoor ambient noise levels do not exceed 70 to 75 dB(A) CNEL. According to the State Noise Guidelines, an exterior noise level of 65 dB(A) CNEL is considered "normally acceptable" for office buildings, business commercial, and professional uses involving normal, conventional construction without any special noise insulation requirements. Exterior noise levels up to 80 dB(A) CNEL are typically considered "normally acceptable" for industrial and manufacturing utility uses without any special noise insulation requirements. Between these values and 80 dB(A) CNEL, exterior noise levels are typically considered "conditionally acceptable," and commercial and industrial construction should only occur after a detailed analysis of the noise reduction requirements and needed noise attenuation features have been included in the project design. Exterior noise attenuation features include but are not limited to requiring setbacks to place structures outside the conditionally acceptable noise contour, orienting structures so no windows open to the noise source, and/or installing noise barriers such as berms and/or solid walls.

3. Local Regulations

a. City of Wildomar General Plan Noise Element

The City has adopted the State Noise Guidelines and defines sensitive noise receptors by land uses, which include schools, playgrounds, athletic facilities, hospitals, rest homes, rehabilitation centers, and long-term care and mental care facilities, as well as day care centers, single-family dwellings, mobile home parks, churches, and libraries. Current land uses located within the City that are sensitive to intrusive noise include residential uses, schools, hospitals, churches, and parks.

The Noise Element contains goals and policies to maintain noise levels that are compatible with various types of land uses, as well as prevent high noise levels in sensitive areas. The applicable goals to this Project include:

Policy N 1.1: Protect noise-sensitive land uses from high levels of noise by restricting noise-producing land uses from these areas. If the noise-producing land use cannot be relocated, then noise buffers such as setbacks, landscaping, or block walls shall be used.

Policy N 1.3: Consider the following uses as noise-sensitive and discourage these uses in areas in excess of 65 CNEL.

- Schools;
- Hospitals;
- Rest Homes;
- Long Term Care Facilities;
- Libraries;
- Passive Recreation Uses; and
- Places of Worship.

Policy N 1.5: Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Riverside County.

Policy N 1.7: Require proposed land uses, affected by unacceptable high noise levels, to have an acoustical specialist prepare a study of the noise problems and recommend structural and site design features that will adequately mitigate the noise problem.

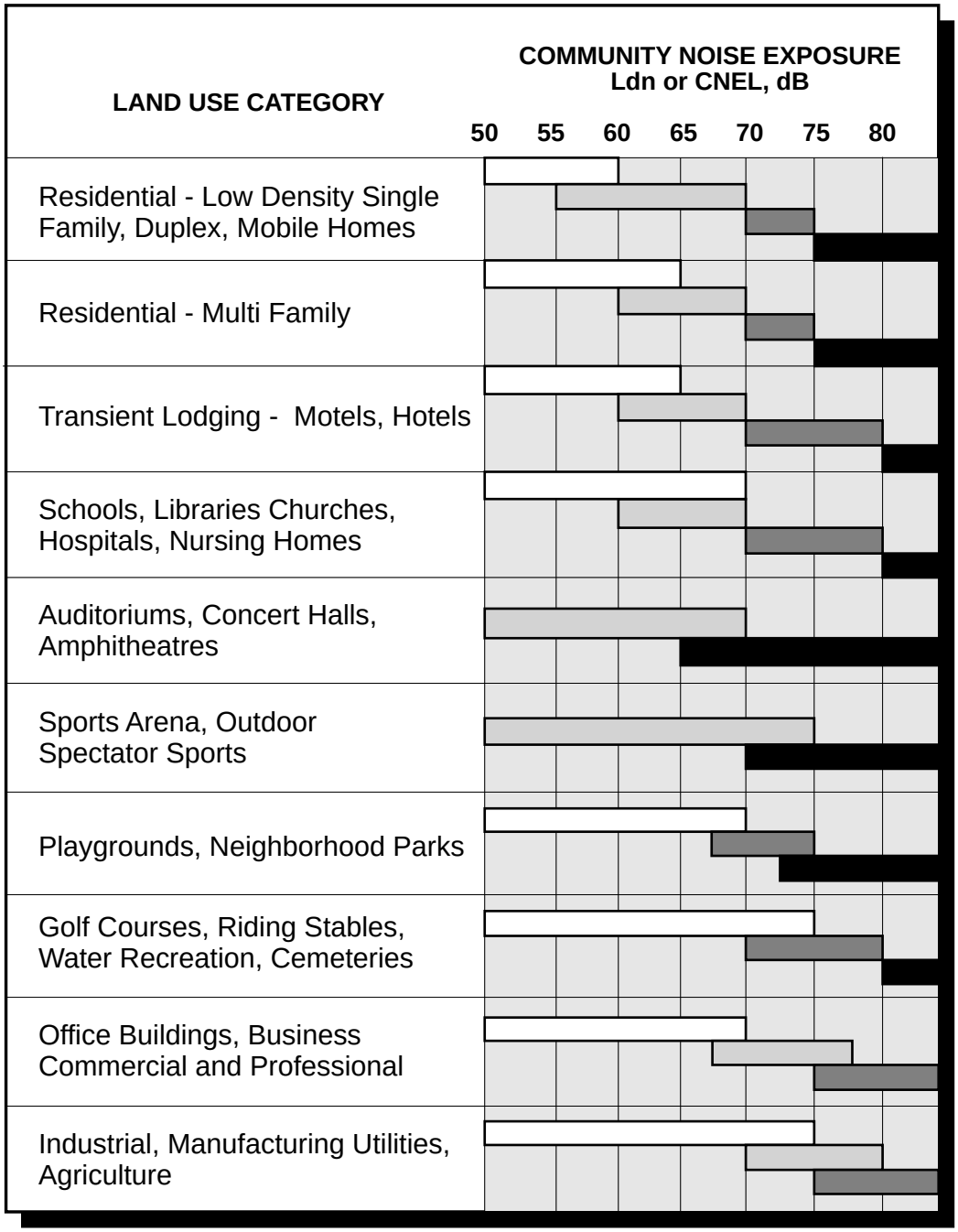
Policy N 12.1: Minimize the impacts of construction noise on adjacent uses within acceptable standards.

Policy N 12.2: Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse impacts on surrounding areas.

Policy N 12.3: Condition subdivision approval adjacent to developed/occupied noise-sensitive land uses (refer to policy N1.3) by requiring the developer to submit a construction-related noise mitigation plan to the City for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as:

1. Temporary noise attenuation fences;
2. Preferential location and equipment; and
3. Use of current noise suppression technology and equipment.

To ensure noise-sensitive land uses are protected from high levels of noise (Policy N 1.1), **Figure 11: Land Use Compatibility for Noise**, identifies guidelines to evaluate proposed developments based on exterior and interior noise level limits for land uses and requires a noise analysis to determine needed mitigation measures if necessary.



NORMALLY ACCEPTABLE
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise reduction features included in the design.

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

SOURCE: California Governor's Office of Planning and Research, State of California General Plan Guidelines, Appendix C: Guidelines for the Preparation and Content of Noise Elements of the General Plan, October 2003.

FIGURE **11**

Meridian Consultants

Land Use Compatibility for Noise

291-002-20

The Noise Element identifies residential use as a noise-sensitive land use (Policy N 1.3), which when located in an area of 60 CNEL or greater, may require an acoustical analysis. To prevent and mitigate noise impacts for its residents (Policy N 1.5), the City requires noise attenuate measures for any land use exposed to noise levels higher than 65 CNEL. The intent of Policy N 1.7 is to require a noise analysis for land uses impacted by unacceptably high noise levels and include mitigation measures in design. To prevent high levels of construction noise from impacting noise-sensitive land uses, Policies N 12.1 through 12.3 identify construction noise mitigation requirements for new development located near existing noise-sensitive land uses.

b. City of Wildomar General Plan Noise Element EIR

The City of Wildomar General Plan Environmental Impact Report (EIR) describes the impacts and mitigation measures required as a result of the General Plan Noise Element. Three potentially significant impacts are identified that potentially apply to the Project, and the General Plan EIR recommends mitigation measures based on policies found in the Noise Element to reduce the impacts to less than significant levels. The recommended noise mitigation measures included in this analysis are consistent with those identified in the City of Wildomar General Plan Noise Element EIR.

i. Impact 4.13.1: Short-term Construction Noise Impacts

The General Plan EIR identifies construction noise as a potentially significant impact resulting in noise levels approaching 91 dBA Lmax at off-site locations 50 feet from the Project site boundary. In accordance with the City's Noise Ordinance, adopted from the County of Riverside Code of Ordinances, the General Plan EIR states that compliance with the County's noise ordinance construction hours would be required to reduce construction-related noise impacts to a less than significant level. In addition to adherence to Policies N 12.1 through N 12.3, the following mitigation measures are required by the General Plan EIR to reduce impacts to construction noise:

4.13.1A: Prior to the issuance of any grading plans, the County shall condition approval of subdivisions adjacent to any developed/occupied noise-sensitive land uses by requiring applicants to submit a construction-related noise mitigation plan to the County for review and approval. The plan should depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of the project through the use of such methods as:

- The construction contractor shall use temporary noise attenuation fences where feasible, to reduce construction noise impacts on adjacent noise-sensitive land uses.
- 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 manufacturers' standards. The construction

contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.

- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise sensitive receptors nearest the project site during all project construction.
- The construction contractor shall limit all construction-related activities that would result in high noise levels to between the hours of 7:00 AM and 7:00 PM Monday through Saturday. No construction shall be allowed on Sundays and public holidays.

4.13.1B: The construction-related noise mitigation plan required shall also specify that haul truck deliveries be subject to the same hours specified for construction equipment. Additionally, the plan shall denote any construction traffic haul routes where heavy trucks would exceed 100 daily trips (counting those both to and from the construction site). To the extent feasible, the plan shall denote haul routes that do not pass sensitive land uses or residential dwellings. Lastly, the construction-related noise mitigation plan shall incorporate any other restrictions imposed by County staff.

ii. Impact 4.13.2: Long-term Vehicular Traffic Noise Impacts

Noise-sensitive land uses along roadways in the City of Wildomar are expected to be affected by long-term vehicular traffic noise due to the General Plan. All new developments require a careful review of the potential noise impacts before City approval, in accordance with Policies N 6.1 through N 6.4 and N 8.1 through N 8.7 of the Noise Element. Policies 6.1 to 6.4 address mobile noise sources in relation to City owned vehicles, and restrictions on truck deliveries and motorized off-road vehicles. To reduce traffic noise, Policies N 8.1 through N 8.7 contain noise analysis requirements and noise mitigation measures for: new roadway projects; new developments that generate increased traffic; and loading and shipping facilities. The General Plan EIR identifies mitigation measures to further reduce the impacts from traffic noise to a less than significant level. The mitigation measures are as follows:

4.13.2A: All new residential developments within the County shall conform to a noise exposure standard of 65 dBA CNEL for outdoor noise in noise-sensitive outdoor activity areas and 45 dBA CNEL for indoor noise in bedrooms and living/family rooms. New development, which does not and cannot be made to conform to this standard, shall not be permitted.

4.13.2B: Acoustical studies, describing how the exterior and interior noise standards will be met, shall be required for all new residential developments with a noise exposure greater than 65 dBA CNEL. The studies shall also satisfy the requirements set forth in Title 24, Part 2, or the California Administrative Code, Noise Insulation Standards, for multiple family attached homes, hotels, motels, etc., regulated by Title 24. No development permits or

approval of land use applications shall be issued until an acoustic analysis is received and approved by the County Planning Department.

4.13.2C: The County shall require that proposed new commercial and industrial developments prepare acoustical studies, analyzing potential noise impacts on adjacent properties, when these developments about noise-sensitive land uses. The County will require that all identified impacts to noise-sensitive land uses be mitigated to a less than significant level.

4.13.2D: Ensure that all new schools, particularly in subdivisions and specific plans, are sited more than two miles away from an airport.

With the adoption and implementation of these policies and mitigation measures, the Project would result in a less than significant impact on ambient noise relative to existing noise conditions.

c. City of Wildomar Municipal Code Noise Ordinance

The City's regulations with respect to noise are included in Chapter 9.48 of the Development Code, also known as the Noise Ordinance. Construction-related and operational noise restrictions are discussed below.

i. Construction

To control noise impacts associated with the construction of the proposed Project, the City has established limits to the hours of operation. Section 9.48.020 (I) of the City's Noise Ordinance indicates that noise sources associated with private construction projects located within one quarter of a mile from an inhabited dwelling, are permitted between the hours of 6:00 AM and 6:00 PM during the months of June through September, and between the hours of 7:00 AM and 6:00 PM during the months of October through May. While the City establishes limits to the hours during which construction activity may take place, neither the City's General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a substantial temporary or periodic noise increase.

ii. Operation

The City of Wildomar Noise Ordinance included in the Municipal Code (Chapter 9.48) establishes the maximum permissible noise level from stationary sources that may intrude into a neighbor's property as shown in **Table 6: City of Wildomar Sound Level Standards**. The Noise Ordinance (Section 9.48.040) establishes the exterior noise level criteria for residential properties affected by stationary noise sources. For residential properties, the exterior noise level shall not exceed 55 dBA during daytime hours (7:00 AM to 10:00 PM) and shall not exceed 45 dBA during the nighttime hours (10:00 PM to 7:00 AM).

TABLE 6
CITY OF WILDOMAR SOUND LEVEL STANDARDS

General Plan Foundation Component	General Plan Land Use Designation	General Plan Land Use Designation Name	Density	Maximum Decibel Level	
				7:00 AM – 10:00 PM	10:00 PM – 7:00 AM
Community Development	EDR	Estate Density Residential	2 AC	55	45
	VLDR	Very Low Density Residential	1 AC	55	45
	LDR	Low Density Residential	1/2 AC	55	45
	MDR	Medium Density Residential	2 – 5	55	45
	MHDR	Medium High Density Residential	5 – 8	55	45
	HDR	High Density Residential	8 – 14	55	45
	VHDR	Very High Density Residential	14 – 20	55	45
	HTDR	Highest Density Residential	20+	55	45
	CR	Retail Commercial		65	55
	CO	Office Commercial		65	55
	CT	Tourist Commercial		65	55
	CC	Community Center		65	55
	LI	Light Industrial		75	55
	HI	Heavy Industrial		75	75
	BP	Business Park		65	45
	PF	Public Facility		65	45
	SP	Specific Plan-Residential		55	45
		Specific Plan-Commercial		65	55
		Specific Plan-Light Industrial		75	55
		Specific Plan-Heavy Industrial		75	75
Rural Community	EDR	Estate Density Residential	2 AC	55	45
	VLDR	Very Low Density Residential	1 AC	55	45
	LDR	Low Density Residential	1/2 AC	55	45
Rural	RR	Rural Residential	5 AC	45	45
	RM	Rural Mountainous	10 AC	45	45
	RD	Rural Desert	10 AC	45	45
Agriculture	AG	Agriculture	10 AC	45	45
Open Space	C	Conservation		45	45
	CH	Conservation Habit		45	45
	REC	Recreation		45	45
	RUR	Rural	20 AC	45	45
	W	Watershed		45	45
	MR	Mineral Resources		75	45

Source: City of Wildomar Chapter 9.48.040 General Sound Level Standards.

E. METHODOLOGY

1. Ambient Noise Measurements

To establish baseline noise conditions, existing ambient noise levels, as described above, were monitored at the eight representative locations within the vicinity of the Project Site. These monitored noise levels serve as the baseline for the analysis of proposed Project impacts. The baseline noise-monitoring was conducted on November 14, 2020, using a Larson Davis 831 Type 1 Sound Level Meter.

2. Construction Noise

a. On-Site Construction Activities

Construction activities typically generate noise from the operation of equipment required for construction of various facilities. Noise impacts from on-site construction and staging of construction trucks were evaluated by determining the noise levels generated by different types of construction activity, calculating the construction-related noise level at nearby noise-sensitive receptor locations, and comparing these construction-related noise levels to existing ambient noise levels (i.e., noise levels without project-related construction noise). The actual noise level would vary, depending upon the equipment type, model, the type of work activity being performed, and the condition of the equipment.

In order to calculate a construction noise levels, hourly activity or utilization factors (i.e., the percentage of normal construction activity that would occur, or construction equipment that would be active, during each hour of the day) are estimated based on the temporal characteristics of other previous and current construction projects. The hourly activity factors express the percentage of time that construction activities would emit average noise levels. Typical noise levels for each type of construction equipment were obtained from the FHWA Roadway Construction Noise Model. Calculated noise levels associated with construction at noise-sensitive receptor locations were then compared to estimated existing noise levels and the construction noise significance thresholds identified below.

Table 7: Construction Phase and Schedule summarizes the anticipated construction schedule and phases. As shown, construction will include 15 phases spanning from March 30, 2021, through April 21, 2026. Overlaps of various phases during construction will occur during the following periods.

Between February 23, 2022, through March 10, 2022

- Building C Demolition
- Central Utility Plant Site Clearing

Between March 11, 2022, through March 24, 2022

- Central Utility Plant Site Clearing
- New Tower Site Preparation

Between March 25, 2022, through March 31, 2022

- New Tower Site Preparation

- Central Utility Plant Construction

Between April 1, 2022, through May 12, 2022

- Central Utility Plant Construction
- New Tower Grading
- Building I Renovation
- New Tower Construction

Between May 19, 2022, through August 9, 2024

- New Tower Construction
- Building A Canopy
- Building A Renovations
- New Tower Architectural Coatings

Between May 29, 2025, through September 19, 2025

- Building A Construction
- Building B-H Demolition

TABLE 7
CONSTRUCTION PHASE AND SCHEDULE

Phase	Schedule
Building A Remodel for Building C Construction	March 30, 2021 – September 24, 2021
Building C Demolition	November 1, 2021 – March 10, 2022
Central Utility Plant Site Clearing	February 23, 2022 – March 24, 2022
New Tower Site Preparation	March 11, 2022 – March 31, 2022
Central Utility Plant Construction	March 25, 2022 – May 8, 2023
New Tower Grading	April 1, 2022 – May 12, 2022
Building I Renovation	April 23, 2022 – November 28, 2022
New Tower Construction	May 19, 2022 – August 9, 2024
Building A Canopy	February 27, 2023 – September 20, 2023
Building A Renovations	February 27, 2023 – September 20, 2023
New Tower Architectural Coatings	April 14, 2023 – August 9, 2024
South Parking Lot	October 4, 2024 – January 30, 2025
Building A Construction	May 29, 2025 – September 19, 2025
Building B-H Demolition	June 6, 2025 – December 12, 2025
East Parking Lot	December 15, 2025 – April 21, 2026

b. Construction Traffic Noise

The analysis of construction traffic noise impacts focuses on off-site areas by: (1) identifying major roadways that may be used for construction worker commute routes or truck haul routes; (2) generally identifying the nature and location of noise-sensitive receptors along those routes; and (3) evaluating the traffic characteristics along those routes, specifically as related to existing traffic volumes. Construction traffic volume and road parameter data would be input into the FHWA TNM model to calculate average noise levels for these trips. Construction trucks staging and hauling route noise impacts

would be evaluated by determining the noise levels generated by different types of construction activity, calculating the construction-related noise levels, and comparing against existing ambient noise levels (i.e., noise levels without construction noise) and exterior standards.

c. Construction Equipment Vibration

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. While ground vibrations from construction activities do not often reach the levels that can damage structures, fragile buildings must receive special consideration.

Impacts due to construction activities were evaluated by identifying vibration sources (i.e., construction equipment), measuring the distance between vibration sources and surrounding structure locations, and making a significance determination.

For quantitative construction vibration assessments related to building damage and human annoyance, vibration source levels for construction equipment is taken from the FTA *Transit Noise and Vibration Impact Assessment Manual*.[8] Building damage would be assessed for each piece of equipment individually and assessed in terms of peak particle velocity. Ground-borne vibration related to human annoyance is assessed in terms of rms velocity levels.

The vibration source levels for various types of equipment are based on data provided by the FTA.

3. Operational Noise

a. Roadway Noise

Traffic noise levels were modeled using the FHWA TNM. The FHWA TNM calculates noise associated with a specific line source and the results characterize noise generated by motor vehicle travel along a specific roadway segment. The traffic noise impact analysis is based on the 24-hour CNEL noise descriptor and incorporates traffic volumes, vehicle mix, posted speed limits, roadway geometry, and site conditions. Noise levels were evaluated with respect to the following traffic scenarios:

- Existing (2020) Conditions;
- Existing (2020) plus Project Conditions;

8 FTA, Transit Noise and Vibration Impact Assessment Manual, September 2018, accessed December 2020, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

- Opening Year (2026) without proposed Project Conditions; and
- Opening Year (2026) plus proposed Project Conditions.

Noise impacts due to off-site motor vehicle travel were analyzed by comparing the projected increase in traffic noise levels from without Project conditions to plus proposed Project to the applicable significance criteria. Opening Year (2026) plus Project conditions include traffic volumes from future ambient growth, related projects, and the proposed Project.

b. Helicopter Noise

Noise-level calculations at the location of noise-sensitive land uses in the Project vicinity were assessed using the SoundPLAN noise model. The SoundPLAN model depicts noise contours at varying distances and accounts for various inputs to analyze topography, vegetation, propagation from buildings, and existing- and proposed-noise sources and barriers. The SoundPLAN model takes into account the varying slant distances between the helicopter and the receiver. The software uses various inputs to analyze the topography, vegetation, vehicle traffic, existing- and proposed-noise sources, and existing- and proposed-barriers to depict noise contours at varying distances. The software utilizes algorithms (based on the inverse square law) to calculate noise level projections. Accuracy has been validated in published studies to be +/- 2.7 dBA with an 85 percent confidence level. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations. Helicopter flight profiles were modeled based on the flight paths shown in **Figure 2** above and were programmed into the SoundPLAN noise modeling system.

4. Vibration

The majority of the Project's operational-related vibration sources, such as mechanical and electrical equipment, would incorporate vibration attenuation mounts, as required by the particular equipment specifications. Therefore, operation of the Project would not increase the existing vibration levels in the immediate vicinity of the Project and, as such, vibration impacts associated with the Project would be minimal. Therefore, the ground borne vibration analysis is limited to Project-related construction activities.

F. THRESHOLDS OF SIGNIFICANCE

Noise Sensitive Receivers

There is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment (ambient) to which one has adapted.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. As such, the Federal Interagency Committee on Noise (FICON) developed guidance to be used for the assessment of project-generated increases in noise levels that take into account the ambient noise level. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (i.e., CNEL). FICON identifies a readily perceptible 5 dBA or greater project-related noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. According to the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA barely perceptible noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance.

Non-Noise Sensitive Receivers

As mentioned above, the City's General Plan Noise Element (refer to **Figure 11**) is used to establish satisfactory noise levels of significance for non-noise sensitive land uses in the Project study area. As shown in **Figure 11** the exterior noise level criteria for normally acceptable non-noise-sensitive land use, such as industrial use, is 70 dBA CNEL. Noise levels greater than 70 dBA CNEL are considered conditionally acceptable. To determine if Project-related traffic noise level increases are significant at off-site non-noise sensitive land uses, a readily perceptible 5 dBA and barely perceptible 3 dBA criteria are used. When the without Project noise levels at the non-noise-sensitive land uses are below the normally acceptable 70 dBA CNEL compatibility criteria, a readily perceptible 5 dBA or greater noise level increase is considered a significant impact. When the without Project noise levels are greater than the normally acceptable 70 dBA CNEL land use compatibility criteria, a barely perceptible 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses are generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on the City of Wildomar General Plan Noise Element.

Significance Summary

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed Project.

Off-Site Traffic Noise

When the noise levels at existing and future noise-sensitive land uses (e.g., residential, etc.):

- Are less than 60 dBA and the Project creates a readily perceptible 5 dBA or greater Project-related noise level increase; or
- Range from 60 to 65 dBA and the Project creates a barely perceptible 3 dBA or greater Project-related noise level increase; or

- Already exceed 65 dBA, and the Project creates a community noise level impact of greater than 1.5 dBA.

When the noise levels at existing and future non-noise-sensitive land uses (e.g., industrial, etc.):

- Are less than the City's General Plan Noise Element (refer to **Figure 11**), 70 dBA and the Project creates a readily perceptible 5 dBA or greater Project-related noise level increase; or
- Are greater than the City's General Plan Noise Element (refer to **Figure 11**), 70 dBA and the Project creates a barely perceptible 3 dBA or greater Project-related noise level increase.

Operational Noise

- If Project-related operational (stationary-source) noise levels exceed the exterior 55 dBA Leq daytime or 45 dBA Leq nighttime noise level standards at nearby sensitive receiver locations (City of Wildomar Municipal Code, Section 9.48.040).
- If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:

– Are less than 60 dBA and the Project creates a readily perceptible 5 dBA or greater Project-related noise level increase; or

– range from 60 to 65 dBA and the Project creates a barely perceptible 3 dBA or greater Project-related noise level increase; or

– already exceed 65 dBA, and the Project creates a community noise level impact of greater than 1.5 dBA.

Construction Noise and Vibration

If Project-related construction activities:

- Occur at any time other than the permitted hours of 6:00 a.m. and 6:00 p.m. from June to September, and 7:00 AM to 6:00 PM from October to May (City of Wildomar Municipal Code, Section 9.48.020 (I);
- Create noise levels which exceed the 85 dBA Leq acceptable noise level threshold at the nearby sensitive receiver locations (NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure).

Additionally, project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. With regard to increases in A-weighted noise levels, a 10 dBA change is subjectively heard as approximately doubling in loudness and can cause adverse response.[9] As such, in addition to the NIOSH Criteria for Recommended Standard, an increases of 10 dBA or more above ambient noise levels is considered significant.

9 California Department of Transportation, Technical Nosie Supplement, September 2013, accessed September 2021, https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf

The City has not adopted a significance threshold to assess vibration impacts during construction. Thus, the Caltrans *Transportation and Construction Vibration Guidance Manual*[10] is used as a screening tool to assess the potential for adverse vibration effects related to structural damage. Impacts related to vibration would be considered significant if it exceeds the following standards:

- Project construction activities cause ground-borne vibration levels to exceed 0.5 PPV at the nearest off-site reinforced-concrete, steel, or timber building.
- Project construction activities cause ground-borne vibration levels to exceed 0.3 PPV at the nearest off-site engineered concrete and masonry building.
- Project construction activities cause ground-borne vibration levels to exceed 0.2 PPV at the nearest off-site nonengineered timber and masonry building.
- Project construction activities cause ground-borne vibration levels to exceed 0.12 PPV at buildings extremely susceptible to vibration damage, such as historic buildings.

If short-term Project generated construction vibration levels exceed the FTA maximum acceptable vibration standard of 80 VdB at sensitive receiver locations.

Table 8: Significance Criteria Summary provides the criteria summary matrix.

10 Caltrans, Transportation and Construction Vibration Guidance Manual *(September 2018),* accessed November 2021, http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf.

TABLE 8
SIGNIFICANCE CRITERIA SUMMARY

Analysis	Land Use	Source	Condition(s)	Significance Criteria	
				Daytime	Nighttime
Off-Site Traffic Noise	Noise-Sensitive[1]	All	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
			If ambient is 60 – 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
			If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
	Non-Noise-Sensitive[2]		If ambient is < 70 dBA CNEL	≥ 5 dBA CNEL Project increase	
			If ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational Noise	Noise Sensitive	Wildomar[3]	Exterior Noise Level Standard (Stationary Source)	55 dBA (Lmax)	45 dBA (Lmax)
		All	If ambient is < 60 dBA	≥ 5 dBA Project increase	
			If ambient is 60 – 65 dBA	≥ 3 dBA Project increase	
			If ambient is > 65 dBA	1.5 dBA Project increase	
Construction Noise & Vibration	Noise Sensitive	Wildomar[3]	Permitted hours between 6:00 AM and 6:00 PM during the months of June through September, and between the hours of 7:00 AM and 6:00 PM during the months of October through May		
		All	Noise Level Threshold[4]	85 dBA Leq	N/A
			Vibration Level Threshold[5]	72 VdB	N/A
			Building Damage Threshold	0.12 ips PPV	N/A

Note:

[1] Source: FICON, 1992.

[2] Source: City of Wildomar General Plan Noise Element, Table N-1

[3] Source: City of Wildomar Municipal Code, Chapter 9.48

[4] Source: NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure, June 1998.

[5] Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, 2018.

"Daytime" = 7:00 AM – 10:00 PM; "Nighttime" = 10:00 PM – 7:00 AM; "N/A" = No nighttime construction activity is permitted and therefore, no nighttime construction noise level threshold is identified.

Threshold 5.7-1: Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction Noise

To evaluate whether the Project will generate a substantial periodic increase in short-term noise levels at off-site sensitive receiver locations, a construction-related noise level threshold is adopted from the Criteria for Recommended Standard: Occupational Noise Exposure prepared by the National Institute for Occupational Safety and Health (NIOSH). A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The construction related noise level threshold starts at 85 dBA for more than eight hours per day, and for every 3 dBA increase, the exposure time is cut in half. This results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. For the purposes of this analysis, the lowest, more

conservative construction noise level threshold of 85 dBA Leq is used as an acceptable threshold for construction noise at the nearby sensitive receiver locations. Since this construction-related noise level threshold represents the energy average of the noise source over a given time period, they are expressed as Leq noise levels. Therefore, the noise level threshold of 85 dBA Leq over a period of eight hours or more is used to evaluate the potential Project-related construction noise level impacts at the nearby sensitive receiver locations.

Operational Noise

To result in a significant impact from operational roadway noise, the proposed Project would have to cause the ambient noise level measured at the property line of affected uses to increase by 3 dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" category, or any 5 dBA CNEL or greater noise increase.

The Noise Ordinance does not regulate noise from transportation sources, such as aircraft. Consequently, the FICON recommendations were used to determine whether or not increases in operational noise would be considered significant. **Table 9: Significance of Change in Operational Noise Exposure**, shows the significance thresholds for increases in operational noise levels caused by the Project or by cumulative development. If residential development or other sensitive receptors would be exposed to operational noise increases exceeding these criteria, impacts would be considered significant.

TABLE 9
SIGNIFICANCE OF CHANGE IN OPERATIONAL NOISE EXPOSURE

Ambient Noise Level with Project (Ldn or CNEL)	Significant Impact
< 60 dB	+ 5.0 dB or more
60–65 dB	+ 3.0 dB or more
> 65 dB	+ 1.5 dB or more

Threshold 5.7-2: Generation of excessive groundborne vibration or groundborne noise levels?

The City currently does not have a significance threshold to assess vibration impacts. However, the FTA guidelines set forth in FTA's *Transit Noise and Vibration Assessment guidance document*,[11] are used to evaluate potential impacts related to construction vibration. According to FTA guidelines, impacts relative to ground-borne vibration associated with potential building damage would be considered significant if any of the following future events were to occur:

11 FTA, Transit Noise and Vibration Impact Manual, September 2018, accessed September 2020, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf.

- Project construction activities cause ground-borne vibration levels to exceed 0.5 PPV at the nearest off-site reinforced-concrete, steel, or timber building.
- Project construction activities cause ground-borne vibration levels to exceed 0.3 PPV at the nearest off-site engineered concrete and masonry building.
- Project construction activities cause ground-borne vibration levels to exceed 0.2 PPV at the nearest off-site nonengineered timber and masonry building.
- Project construction activities cause ground-borne vibration levels to exceed 0.12 PPV at buildings extremely susceptible to vibration damage, such as historic buildings.

Based on FTA guidance, construction vibration impacts associated with human annoyance would be significant if the following were to occur (applicable to frequent events; 70 or more vibration events per day):

- Project construction activities cause ground-borne vibration levels to exceed 72 VdB at off-site sensitive uses (i.e., residential and hotel uses).

Threshold 5.7-3: For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project are to excessive noise levels?

The Project Site is not located within the vicinity of a private airstrip. The nearest airport is the French Valley Airport, which is located approximately six miles to the east; the Project Site is outside the Airport Influence Area Boundary for French Valley Airport.[12] Therefore, the Project Site is not located within an airport land use plan or within two miles of a public airport. No impact related to the exposure of people residing or working in the area to excessive noise levels would occur.

G. IMPACT ANALYSIS

1. Construction

Noise from Project construction activities would be affected by the amount of construction equipment, the location of this equipment, the timing and duration of construction activities, and the relative distance to noise-sensitive receptors. Construction activities that would occur during the construction phases would generate both steady-state and episodic noise that would be heard both on and off the Project Site. Each phase involves the use of different types of construction equipment and, therefore, has its own distinct noise characteristics. The Project would be constructed using typical construction techniques; no blasting or impact pile driving would be required.

12 Riverside County Airport Land Use Commission, Compatibility Plan, accessed September 2020, http://www.rcaluc.org/Plans/New-Compatibility-Plan

a. On-Site Construction Noise

Individual pieces of construction equipment that would be used during construction produce maximum noise levels of 73 dBA to 85 dBA at a reference distance of 50 feet from the noise source, as shown in **Table 10: Typical Maximum Noise Levels for Project Construction Equipment**.

TABLE 10
TYPICAL MAXIMUM NOISE LEVELS FOR PROJECT CONSTRUCTION EQUIPMENT

Equipment Description	Typical Duty Cycle (%)	Spec Lmax (dBA)[a]	Actual Lmax (dBA)[a]
Air Compressor	40	80.0	77.7
Backhoe	40	80.0	77.6
Crane	16	85.0	80.6
Dozer	40	85.0	81.7
Forklift	40	85.0	N/A
Generator	50	82.0	80.6
Grader	40	85.0	N/A
Loader	40	80.0	79.1
Paver	50	85.0	77.2
Roller	20	85.0	80.0
Tractor	40	84.0	N/A
Welder	40	73.0	74.0

Source: FHWA Roadway Construction Noise Model (RCNM) version 1.1
Note: N/A = not available.
[a] *Lmax sound levels are measured 50 feet from the source of the equipment.*

These construction equipment reference noise levels are based on measured noise data compiled by the FHWA and would occur when equipment is operating under full power conditions. However, equipment used on construction sites typically operate at less than full power. The acoustical usage factor is the percentage of time that each type of construction equipment is anticipated to be in full power operation during a typical construction day. These values are estimates and will vary based on the actual construction process and schedule.

Construction equipment operates at its noisiest levels for certain percentages of time during operation. It is important to note, equipment would operate at different percentages over the course of an hour.[13] During a construction day, the highest noise levels would be generated when multiple pieces of construction equipment are operated concurrently.

To characterize construction-period noise levels, the average (hourly Leq) noise level associated with each construction stage was calculated based on the quantity, type, and usage factors for each type of

13 Federal Highway Administration, Traffic Noise Model (2006).

equipment that would be used during each construction stage. These noise levels are typically associated with multiple pieces of equipment operating simultaneously.

The estimated construction noise levels were calculated for a scenario in which a reasonable number of construction equipment was assumed to be operating simultaneously, given the physical size of the Project Site and logistical limitations, and with the noise equipment located at the construction area nearest to the affected receptors to present a conservative impact analysis. This is considered a worst-case evaluation because construction of the Project would typically use fewer pieces of equipment simultaneously at any given time and, as such, would likely generate lower noise levels than reported herein.

Construction Noise by Phase

Separate forecasts of construction noise levels from on-site construction at each of the noise monitoring sites within the immediate vicinity were completed. The forecast noise levels at the nearest sensitive uses to the Project Site from construction activity are shown in **Table 11: Project Construction Noise Estimates**. Distance from construction activity to the nearest sensitive uses (refer to **Appendix C.1** through **C.9**) would range from 700 feet (Site 2) to a high of 5,250 feet (Site 8). Average noise levels for each construction phase would range between 33.3 dBA Leq during the new tower architectural coatings phase (Site 8) to a maximum 65.9 dBA Leq during New Tower Construction (Site 2). Noise levels due to construction would not exceed the 85 dBA Leq threshold.

As mentioned previously, a 10 dBA change is subjectively heard as approximately doubling in loudness and can cause adverse response. Construction noise levels would result in a maximum increase of 10.4 dBA above ambient at multi-family uses to the east of the Project site along Prielipp Road (Site 2). Adherence to Policy N 12.3 of the City's General Plan, **Mitigation Measure MM N-1** includes implementation of a Construction-related Noise Mitigation Plan which proactively addresses the potential effects of noise during construction. The measures required by the Construction Noise Mitigation plan can reduce noise levels by 10 dBA or more. For example, using optimal muffler systems on all equipment would reduce construction noise levels by 10 dBA or more.[14] Temporary abatement techniques such as the use of a noise barrier can achieve a 5-dBA noise level reduction when it is tall enough to break the line-of-sight to the receiver. Modifications such as dampening of metal surfaces or the redesign of a particular piece of equipment can achieve noise reduction of up to 5 dBA.[15] Moving stationary equipment away from sensitive receptors will reduce noise levels at the receptor as every doubling of distance will reduce noise by 4 to 6 dBA. Thus, adherence to Policy N 12.3 and the measures required by the

14 FHWA, Special Report—Measurement, Prediction, and Mitigation, updated June 2017, https://www.fhwa.dot.gov/Environment/noise/construction_noise/special_report/hcn04.cfm, Accessed January 2021.

15 FHWA, Special Report—Measurement, Prediction, and Mitigation, updated June 2017, accessed July 2019, https://www.fhwa.dot.gov/Environment/noise/construction_noise/special_report/hcn04.cfm.

Construction-related Noise Mitigation Plan, construction noise will not increase ambient noise levels by more than 10 dBA. Furthermore, the Construction-related Noise Mitigation Plan would include a monitoring plan during construction activities to ensure noise levels are below the specified limits. With implementation of **MM N-1**, construction noise levels would not be considered significant.

TABLE 11
PROJECT CONSTRUCTION NOISE ESTIMATES

Construction Activity	Sound Level at Various Receptor Distances from Construction Activities, dBA													
	Site 2		Site 3		Site 4		Site 5		Site 6		Site 7		Site 8	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Building A Remodel	62.1	63.6	58.7	60.2	51.6	53.1	52.6	54.1	49.8	51.3	45.0	46.5	44.6	46.1
CUP Site Clearing	61.1	59.1	57.7	55.7	50.6	48.6	51.6	49.6	48.8	46.8	44.0	42.0	43.6	41.6
Building C Demolition	66.7	63.5	63.3	60.2	56.2	53.0	57.2	54.0	54.3	51.2	49.6	46.4	49.2	46.0
CUP Construction	62.1	64.2	58.7	60.8	51.6	53.7	52.6	54.7	49.8	51.9	45.0	47.1	44.6	46.7
Building I Renovation	62.1	63.6	58.7	60.2	51.6	53.1	52.6	54.1	49.8	51.3	45.0	46.5	44.6	46.1
New Tower Site Prep	61.1	64.7	57.7	61.3	50.6	54.2	51.6	55.2	48.8	52.4	44.0	47.6	43.6	47.2
New Tower Grading	62.1	64.4	58.7	61.0	51.6	53.9	52.6	54.9	49.8	52.0	45.0	47.3	44.6	46.8
New Tower Construction	62.1	65.9	58.7	62.5	51.6	55.4	52.6	56.4	49.8	53.6	45.0	48.8	44.6	48.4
Building A Canopy	62.1	64.2	58.7	60.8	51.6	53.7	52.6	54.7	49.8	51.9	45.0	47.1	44.6	46.7
Building A Renovations	62.1	60.0	58.7	56.6	51.6	49.5	52.6	50.5	49.8	47.6	45.0	42.9	44.6	42.5
New Tower Architectural Coatings	54.7	50.8	51.4	47.4	44.2	40.3	45.3	41.3	42.4	38.5	37.7	33.7	37.2	33.3
South Parking Lot	57.1	58.7	53.7	55.3	46.6	48.2	47.6	49.2	44.8	46.4	40.0	41.6	39.6	41.2
Building A Construction Post Occupancy	62.1	63.6	58.7	60.2	51.6	53.1	52.6	54.1	49.8	51.3	45.0	46.5	44.6	46.1
Buildings B – H Demolition	66.7	63.5	63.3	60.2	56.2	53.0	57.2	54.0	54.3	51.2	49.6	46.4	49.2	46.0
East Parking Lot	57.1	58.7	53.7	55.3	46.6	48.2	47.6	49.2	44.8	46.4	40.0	41.6	39.6	41.2

Source: RCNM Version 1.1
*Refer to **Appendix C.1** through **C.9** for construction noise worksheets.*

Construction Overlap Noise

As mentioned previously, overlaps of various phases during construction will occur between February 23, 2022, through September 19, 2025. The forecast noise levels at the nearest sensitive uses to the Project Site from overlapping construction activity are shown in **Table 12: Project Overlap Construction Noise Estimates**. Average noise levels would range between 47.3 dBA Leq during the overlap of the CUP Site Clearing and Building C Demolition (Site 8) to a maximum of 70.6 dBA Leq during the overlap of the CUP Construction, New Tower Grading, Building I Renovation and New Tower Construction (Site 2). Noise levels due to construction would not exceed the 85 dBA Leq threshold.

Construction noise levels would result in a maximum increase of 15.1 dBA above ambient at multi-family uses to the east of the Project site along Prielipp Road (Site 2). Adherence to Policy N 12.3 of the City's General Plan, **Mitigation Measure MM N-1** includes implementation of a Construction-related Noise Mitigation Plan which proactively addresses the potential effects of noise during construction. The measures required by the Construction Noise Mitigation plan can reduce noise levels by 10 dBA or more. For example, using optimal muffler systems on all equipment would reduce construction noise levels by 10 dBA or more.[16] Temporary abatement techniques such as the use of a noise barrier can achieve a 5-dBA noise level reduction when it is tall enough to break the line-of-sight to the receiver. Modifications such as dampening of metal surfaces or the redesign of a particular piece of equipment can achieve noise reduction of up to 5 dBA.[17] Moving stationary equipment away from sensitive receptors will reduce noise levels at the receptor as every doubling of distance will reduce noise by 4 to 6 dBA. Thus, adherence to Policy N 12.3 and the measures required by the Construction-related Noise Mitigation Plan, construction noise will not increase ambient noise levels by more than 10 dBA. Furthermore, the Construction-related Noise Mitigation Plan would include a monitoring plan during construction activities to ensure noise levels are below the specified limits. With implementation of **MM N-1**, construction noise levels would not be considered significant.

16 FHWA, Special Report—Measurement, Prediction, and Mitigation, updated June 2017, https://www.fhwa.dot.gov/Environment/noise/construction_noise/special_report/hcn04.cfm, Accessed January 2021.

17 FHWA, Special Report—Measurement, Prediction, and Mitigation, updated June 2017, accessed July 2019, https://www.fhwa.dot.gov/Environment/noise/construction_noise/special_report/hcn04.cfm.

TABLE 12
PROJECT OVERLAP CONSTRUCTION NOISE ESTIMATES

Construction Activity	Sound Level at Various Receptor Distances from Construction Activities, dBA													
	Site 2		Site 3		Site 4		Site 5		Site 6		Site 7		Site 8	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
CUP Site Clearing	61.1	59.1	57.7	55.7	50.6	48.6	51.6	49.6	48.8	46.8	44.0	42.0	43.6	41.6
Building C Demolition	66.7	63.5	63.3	60.2	56.2	53.0	57.2	54.0	54.3	51.2	49.6	46.4	49.2	46.0
SUM	**69.4**	**64.8**	**64.4**	**61.5**	**57.3**	**54.3**	**58.3**	**55.3**	**55.4**	**52.5**	**50.7**	**47.7**	**50.3**	**47.3**
CUP Site Clearing	61.1	59.1	57.7	55.7	50.6	48.6	51.6	49.6	48.8	46.8	44.0	42.0	43.6	41.6
New Tower Site Prep	61.1	64.7	57.7	61.3	50.6	54.2	51.6	55.2	48.8	52.4	44.0	47.6	43.6	47.2
SUM	**64.1**	**65.8**	**60.7**	**62.4**	**53.6**	**55.3**	**54.6**	**56.3**	**51.8**	**53.5**	**47.0**	**48.7**	**46.6**	**48.3**
New Tower Site Prep	61.1	64.7	57.7	61.3	50.6	54.2	51.6	55.2	48.8	52.4	44.0	47.6	43.6	47.2
CUP Construction	62.1	64.2	58.7	60.8	51.6	53.7	52.6	54.7	49.8	51.9	45.0	47.1	44.6	46.7
SUM	**64.6**	**67.5**	**61.2**	**64.1**	**54.1**	**57.0**	**55.1**	**58.0**	**52.3**	**55.2**	**47.5**	**50.4**	**47.1**	**50.0**
CUP Construction	62.1	64.2	58.7	60.8	51.6	53.7	52.6	54.7	49.8	51.9	45.0	47.1	44.6	46.7
New Tower Grading	62.1	64.4	58.7	61.0	51.6	53.9	52.6	54.9	49.8	52.0	45.0	47.3	44.6	46.8
Building I Renovation	62.1	63.6	58.7	60.2	51.6	53.1	52.6	54.1	49.8	51.3	45.0	46.5	44.6	46.1
New Tower Construction	62.1	65.9	58.7	62.5	51.6	55.4	52.6	56.4	49.8	53.6	45.0	48.8	44.6	48.4
SUM	**68.1**	**70.6**	**64.7**	**67.2**	**57.6**	**60.1**	**58.6**	**61.3**	**55.8**	**58.3**	**51.0**	**53.5**	**50.6**	**53.1**
New Tower Construction	62.1	65.9	58.7	62.5	51.6	55.4	52.6	56.4	49.8	53.6	45.0	48.8	44.6	48.4
Building A Canopy	62.1	64.2	58.7	60.8	51.6	53.7	52.6	54.7	49.8	51.9	45.0	47.1	44.6	46.7
Building A Renovations	62.1	60.0	58.7	56.6	51.6	49.5	52.6	50.5	49.8	47.6	45.0	42.9	44.6	42.5
New Tower Architectural Coatings	54.7	50.8	51.4	47.4	44.2	40.3	45.3	41.3	42.4	38.5	37.7	33.7	37.2	33.3
SUM	**67.1**	**68.8**	**63.7**	**65.4**	**56.6**	**58.3**	**57.6**	**59.3**	**54.8**	**56.5**	**50.0**	**51.7**	**49.6**	**51.3**
Building A Construction Post Occupancy	62.1	63.6	58.7	60.2	51.6	53.1	52.6	54.1	49.8	51.3	45.0	46.5	44.6	46.1
Buildings B – H Demolition	66.7	63.5	63.3	60.2	56.2	53.0	57.2	54.0	54.3	51.2	49.6	46.4	49.2	46.0
SUM	**68.0**	**66.6**	**64.6**	**63.2**	**57.5**	**56.1**	**58.5**	**57.1**	**55.6**	**54.3**	**50.9**	**49.5**	**50.5**	**49.1**

Source: RCNM Version 1.1
*Refer to **Appendix C.1** through **C.9** for construction noise worksheets.*

b. Off-Site Construction Noise

Construction of the Project would require haul and vendor truck trips to and from the site to export soil and delivery supplies to the site. Trucks traveling to and from the Project Site would be required to travel along a haul route approved by the City. Proposed haul route includes travel along Inland Valley Drive and Clinton Keith Road. At the maximum, 140 worker trips per day and 64 vendor trips per day would occur during various phases including Building A remodel, CUP Construction, Building I Renovation, New Tower Construction, Building A Canopy, Building A Renovations, and Building A Construction Post Occupancy phase (refer to CalEEMod outputs provided in the Air Quality Study). Additionally, 3,188 total hauling trips (106 hauling trips per day) would occur during the New Tower Grading phase.

Noise associated with construction trips were estimated using the Caltrans FHWA Traffic Noise Model based on the maximum number of worker and hauling trips in a day. 140 worker trips per day and 64 vendor trips per day would generate roadway noise levels of 47.8 dBA measured at a distance of 25 feet. The 106 hauling trips per day would generate roadway noise levels ranging from 54.4 dBA to 61.8 dBA at a distance of 25 feet, depending on the use of medium or heavy duty trucks. Additionally, as shown in **Table 4**, existing roadway noise levels at the proposed haul route along Inland Valley Drive and Clinton Keith Road range from 67.9 dBA CNEL at George Avenue to Inland Valley Drive to a high of 68.9 dBA CNEL at Hidden Springs Road to I-15 SB. Off-site construction noise levels would be below the existing ambient noise environment. As such, off-site construction noise impacts would not be considered significant.

2. Construction Vibration

a. On-Site Construction Vibration

Table 13: On-Site Construction Vibration Impacts-Building Damage and **Table 14: On-Site Construction Vibration Impacts-Human Annoyance** presents the construction vibration impacts associated with on-site construction in terms of building damage and human annoyance, respectively. As shown in **Table 13**, the forecasted vibration levels due to on-site construction activities would not exceed the building damage significance threshold of 0.12 PPV ips for all sites surrounding the Project area during construction. Due to the distance of the Project-identified sensitive receptors, changes in elevations, and intervening structures, such as buildings and walls, on-site construction vibration would not result in a significant vibration impact with regard to building damage. Impacts related to building damage from on-site construction vibration would not be considered significant.

TABLE 13
ON-SITE CONSTRUCTION VIBRATION IMPACTS – BUILDING DAMAGE

Nearest Off-Site Building Structures	Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from the Project Construction Equipment						Significance Threshold (PPV ips)	Exceeds Threshold?
	Vibratory Roller	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small bulldozer		
FTA Reference Vibration Levels at 25 feet								
	0.210	*0.089*	*0.089*	*0.076*	*0.035*	*0.003*	—	
Site 1 (110 feet)	0.023	0.010	0.010	0.008	0.004	0.000	0.12	**No**
Site 2 (700 feet)	0.001	0.001	0.001	0.001	0.000	0.000	0.12	**No**
Site 3 (1,030 feet)	0.001	0.000	0.000	0.000	0.000	0.000	0.12	**No**
Site 4 (2,345 feet)	0.000	0.000	0.000	0.000	0.000	0.000	0.12	**No**
Site 5 (2,085 feet)	0.000	0.000	0.000	0.000	0.000	0.000	0.12	**No**
Site 6 (2,890 feet)	0.000	0.000	0.000	0.000	0.000	0.000	0.12	**No**
Site 7 (5,000 feet)	0.000	0.000	0.000	0.000	0.000	0.000	0.12	**No**
Site 8 (5,250 feet)	0.000	0.000	0.000	0.000	0.000	0.000	0.12	**No**

Source: US Department of Transportation, Federal Transportation Authority, Transit Noise and Vibration Impact Assessment.
Note: Refer to ***Appendix D*** *for construction vibration worksheets.*

As shown in **Table 14**, the forecasted vibration levels due to on-site construction activities would range from a low of -12 VdB to a high of 51 VdB and would not exceed human annoyance significance threshold of 72 VdB. Due to the distance of the Project-identified sensitive receptors, changes in elevations, and intervening structures, such as buildings and walls, on-site construction vibration would not result in a significant vibration impact with regard to human annoyance. Impacts related to human annoyance from on-site construction vibration would be less than significant.

TABLE 14
ON-SITE CONSTRUCTION VIBRATION IMPACTS – HUMAN ANNOYANCE

Nearest Off-Site Building Structures	Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from the Project Construction Equipment						Significance Threshold (VdB)	Exceeds Threshold?
	Vibratory Roller	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small bulldozer		
FTA Reference Vibration Levels at 25 feet								
	94	*87*	*87*	*86*	*79*	*58*	—	
Site 1 (110 feet)	51	44	44	42	35	14	72	**No**
Site 2 (700 feet)	51	44	44	42	35	14	72	**No**
Site 3 (1,030 feet)	46	38	38	37	30	9	72	**No**
Site 4 (2,345 feet)	35	28	28	26	20	--	72	**No**
Site 5 (2,085 feet)	37	29	29	28	21	--	72	**No**
Site 6 (2,890 feet)	33	25	25	24	17	--	72	**No**
Site 7 (5,000 feet)	25	18	18	18	10	--	72	**No**
Site 8 (5,250 feet)	25	17	17	16	9	--	72	**No**

Source: US Department of Transportation, Federal Transportation Authority, Transit Noise and Vibration Impact Assessment.
Note: Refer to ***Appendix D*** *for construction vibration worksheets.*
(--) : Due to increases in distance from construction activities, vibration levels are negligible.

b. Off-Site Construction Vibration

In addition to on-site construction activities, construction delivery/haul trucks would generate ground-borne vibration as they travel along the Projects anticipated off-site truck travel routes. Based on the FTA data, the vibration generated by a typical loaded truck would be approximately 0.0076 PPV at a distance of 25 feet from the truck.[18] This forecasted vibration level would be well below the most stringent building damage criteria of 0.12 PPV. The nearest vibration sensitive uses (e.g., residential) are located to the east of the IVMC campus along Prielipp Road. These are located more than 25 feet from the truck travel pathway which would occur along Inland Valley Drive to the I-15 Freeway. Therefore, vibration impacts with respect to building damage and human annoyance from off-site construction truck travel on public roadways would not be considered significant.

18 FTA, Transit Noise and Vibration Impact Assessment Manual, September 2018, accessed May 2020, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

3. Operation

a. Roadway Noise

Table 15: Existing plus Project illustrates the change in noise levels from traffic volumes and from traffic generated by the Project. The difference in traffic noise between existing conditions and existing plus Project conditions represents the increase in noise attributable to Project-related traffic. As shown in **Table 15**, the maximum noise level increase during the daytime period along the analyzed roadways would range from a low of 0.0 dBA CNEL at various roadway segments to a high of 0.7 dBA CNEL along Inland Valley Drive from Clinton Keith Road to Prielipp Road. Consequently, Project-related traffic would not cause noise levels along the analyzed roadways to increase by more than 3.0 dBA. Thus, the proposed Project would not result in a permanent increase in noise levels above ambient levels in the vicinity of the Project Site in excess of the City's Noise Element and Noise Ordinance. Vehicular related noise impacts would not be considered significant.

TABLE 15
EXISTING PLUS PROJECT

Roadway Segment	Time Period	Existing, dBA CNEL		Difference	Significant Impact?
		Without Project	With Project		
Clinton Keith Road					
Hidden Springs Road to I-15 SB	24-hour	68.9	68.9	0.0	**No**
I-15 SB to I-15 NB	24-hour	68.8	68.8	0.0	**No**
I-15 NB to Arya Road	24-hour	68.2	68.3	+0.1	**No**
Arya Road to George Avenue	24-hour	68.2	68.3	+0.1	**No**
George Avenue to Inland Valley Drive	24-hour	67.9	68.1	+0.2	**No**
Inland Valley Drive to Smith Ranch Road	24-hour	66.9	67.0	+0.1	**No**
East of Smith Ranch Road	24-hour	66.9	67.0	+0.1	**No**
Inland Valley Drive					
Clinton Keith Road to Prielipp Road	24-hour	63.8	64.5	+0.7	**No**
Prielipp Road					
East of Inland Valley Road	24-hour	61.5	61.5	0.0	**No**
George Avenue/Wildomar Trail					
North of Clinton Keith Road	24-hour	59.1	59.1	0.0	**No**

*Source: Refer to **Appendix B** for roadway noise worksheets*

b. Helicopter Noise

For the helicopter approach, once a ground speed of 0 is reached, the helicopter begins vertical descent to the landing pad, which takes approximately 15 seconds. Once on the helipad surface, the helicopter undergoes a 30-second ground idle. Following the idle period, the helicopter is shut down. Overall, the entire duration of the helicopter approach takes under 2 minutes.

For the helicopter departure, start-up and flight checks are performed during the ground-idle phase, which typically lasts up to 3 minutes. Following the flight checks and start-up, the rotor blades begin turning at full power, hover is initiated, and the aircraft ascends vertically above the pad, which lasts approximately 15 seconds. Once desired altitude is reached, the helicopter accelerates horizontally and departs the Project Site. Overall, the main noise-producing portion of the departure to altitude and cruising speed from initial start-up takes under 1 minute, with surrounding land uses exposed to maximum sound levels for less than 15 seconds during this period.

Based on previous data provided regarding flight operations, a maximum of two (2) flights have taken place from IVMC between the daytime hours of 7:00 AM to 10:00 PM on any given day and a maximum of one (1) flight has taken place between the nighttime hours of 10:00 PM to 7:00 AM on any given day. Therefore, to simulate worst-case scenario helicopter approach/departure impacts, it was assumed four (4) events (2 approach and 2 departure) would take place during the daytime period and two (2) events (1 approach and 1 departure) would take place during the nighttime period on the same day.

Helicopters are designated with maximum takeoff weight (MTOW) classes. The smaller routine EMS helicopters have a MTOW ranging from 3,400 kilograms (7,495 pounds) to 4,300 kilograms (9,480 pounds) and the larger weight class helicopters such as the Blackhawk range between 5,300 kilograms (11,685 pounds) to 5,400 kilograms (11,905 pounds).

Helicopter Approach/Departure (East)

As shown in **Table 16: Exterior Noise Levels – Flight Path to the East**, the smaller routine EMS helicopters would not result in increases in sound level standards at any of the nearby sensitive receptors and thus would be below the FICON-recommended 3.0 dB threshold for ambient noise of 60–65 dBA CNEL, and the 1.5 dB threshold for ambient noise greater than 65 dBA CNEL. The Project would not exceed the land use compatibility criteria. For information and illustrative purposes, noise levels during the daytime and nighttime period for the routine EMS helicopter are shown graphically in **Figure 6: Routine EMS Helicopters Flight Path to the East Contour Map (Daytime)** and **Figure 7: Routine EMS Helicopters Flight Path to the East (Nighttime)**.

Additionally, the Blackhawk helicopter would not result in increases in sound level standards at any of the nearby sensitive receptors and thus would be below the FICON-recommended 3.0 dB threshold for ambient noise of 60–65 dB CNEL, and the 1.5 dB threshold for ambient noise greater than 65 dB CNEL. For information and illustrative purposes, noise levels during the daytime and nighttime period for the EC 145 helicopter are shown graphically in **Figure 8: Blackhawk Helicopters Flight Path to the East**

Contour Map (Daytime) and **Figure 9: Blackhawk Helicopters Flight Path to the East Contour Map (Nighttime)**.

No increases would result for both the routine EMS and Blackhawk helicopters flight path to the east. Residential development or other sensitive receptors would not be exposed to operational noise increases exceeding the FAA Advisory Circular criteria identified in **Table 5** above. As such, impacts would not be considered significant.

TABLE 16
EXTERIOR NOISE LEVELS – FLIGHT PATH TO THE EAST

ID	Time Period	Ambient Noise Levels	Modeled Noise Levels (Leq)	Increase Above Ambient	Significant Impact?
		dBA			
Routine EMS Helicopters					
Site 2	24-hour	56	36	0	**No**
Site 3	24-hour	59	26	0	**No**
Site 4	24-hour	60	40	0	**No**
Site 5	24-hour	48	26	0	**No**
Site 6	24-hour	48	33	0	**No**
Site 7	24-hour	59	18	0	**No**
Site 8	24-hour	52	14	0	**No**
Blackhawk					
Site 2	24-hour	56	38	0	**No**
Site 3	24-hour	59	28	0	**No**
Site 4	24-hour	60	42	0	**No**
Site 5	24-hour	48	28	0	**No**
Site 6	24-hour	48	35	0	**No**
Site 7	24-hour	52	20	0	**No**
Site 8	24-hour	59	16	0	**No**

Note: Source: SoundPLAN version 8.2
*Refer to **Appendix E** for SoundPLAN Output Sheets.*

Helicopter Approach/Departure (West)

As shown in **Table 17: Exterior Noise Levels –Flight Path to the West**, the smaller routine EMS helicopters would not result in increases in sound level standards at any of the nearby sensitive receptors and thus would be below the FICON-recommended 3.0 dB threshold for ambient noise of 60–65 dBA CNEL, and the 1.5 dB threshold for ambient noise greater than 65 dBA CNEL. The Project would not exceed the land use compatibility criteria. For information and illustrative purposes, noise levels during the daytime and nighttime period for the routine EMS helicopter are shown graphically in **Figure 12: Routine EMS Helicopter Flight Path to the West Contour Map (Daytime)** and **Figure 13: Routine EMS Helicopter Flight Path to the West Contour Map (Nighttime)**.

Additionally, the Blackhawk helicopter would not result in increases in sound level standards at any of the nearby sensitive receptors and thus would be below the FICON-recommended 3.0 dB threshold for ambient noise of 60–65 dBA CNEL, and the 1.5 dB threshold for ambient noise greater than 65 dBA CNEL. The Project would not exceed the land use compatibility criteria. For information and illustrative purposes, noise levels during the daytime and nighttime period for the EC 145 helicopter are shown graphically in **Figure 14: Blackhawk Helicopter Flight Path to the West Contour Map (Daytime)** and **Figure 15: Blackhawk Helicopter Flight Path to the West Contour Map (Nighttime)**.

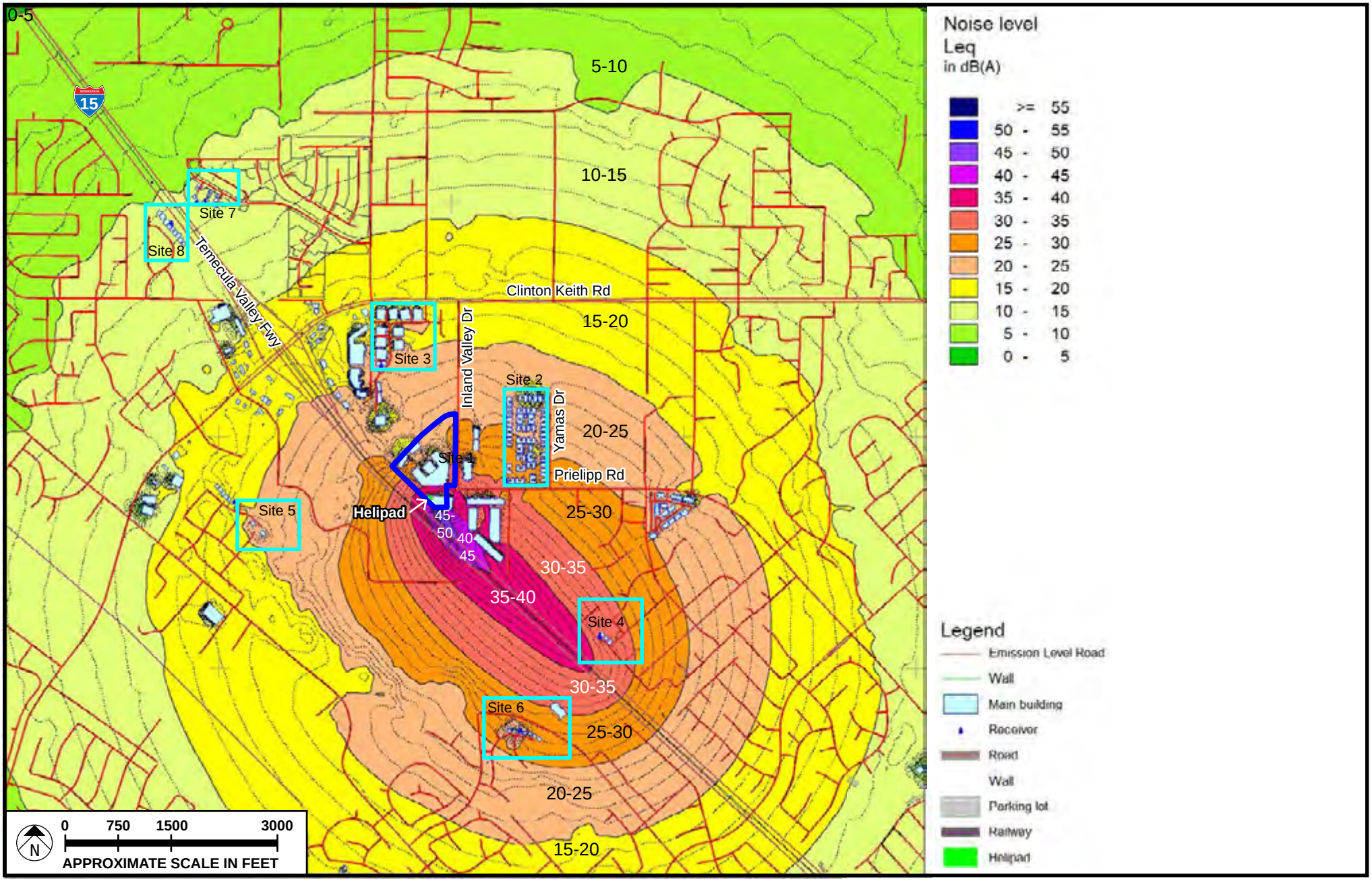
No increases would result for both the smaller routine EMS and Blackhawk helicopters flight path to the west. Residential development or other sensitive receptors would not be exposed to operational noise increases exceeding the FAA Advisory Circular criteria identified in **Table 5** above. As such, impacts would not be considered significant

The hospital would be required to comply with California's noise insulation standards which are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, California Building Code. These noise standards are applied to new construction in California for the purpose of interior noise compatibility from exterior noise sources. As mentioned previously, the regulations specify buildings shall be designed to limit interior noise in habitable rooms to acceptable noise levels. For hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL. As the EMS Landing Site would be relocated from the ground landing pad near Inland Valley Drive to a rooftop structure on the southern portion of the site facing toward the I-15 Freeway, interior noise levels would be further be reduced as the landing site would not be located within a direct line of sight. As such, interior noise levels would remain within acceptable limits.

TABLE 17
EXTERIOR NOISE LEVELS – FLIGHT PATH TO THE WEST

ID	Time Period	Ambient Noise Levels	Modeled Noise Levels	Increase Above Ambient	Significant Impact?
		dBA			
Routine EMS Helicopters					
Site 2	24-hour	56	33	0	**No**
Site 3	24-hour	59	36	0	**No**
Site 4	24-hour	60	24	0	**No**
Site 5	24-hour	48	33	0	**No**
Site 6	24-hour	48	19	0	**No**
Site 7	24-hour	52	42	0	**No**
Site 8	24-hour	59	42	0	**No**
Blackhawk					
Site 2	24-hour	56	35	0	**No**
Site 3	24-hour	59	39	0	**No**
Site 4	24-hour	60	26	0	**No**
Site 5	24-hour	48	35	0	**No**
Site 6	24-hour	48	22	0	**No**
Site 7	24-hour	52	44	0	**No**
Site 8	24-hour	59	44	0	**No**

Note: Source: SoundPLAN version 8.2
*Refer to **Appendix E** for SoundPLAN Output Sheets.*



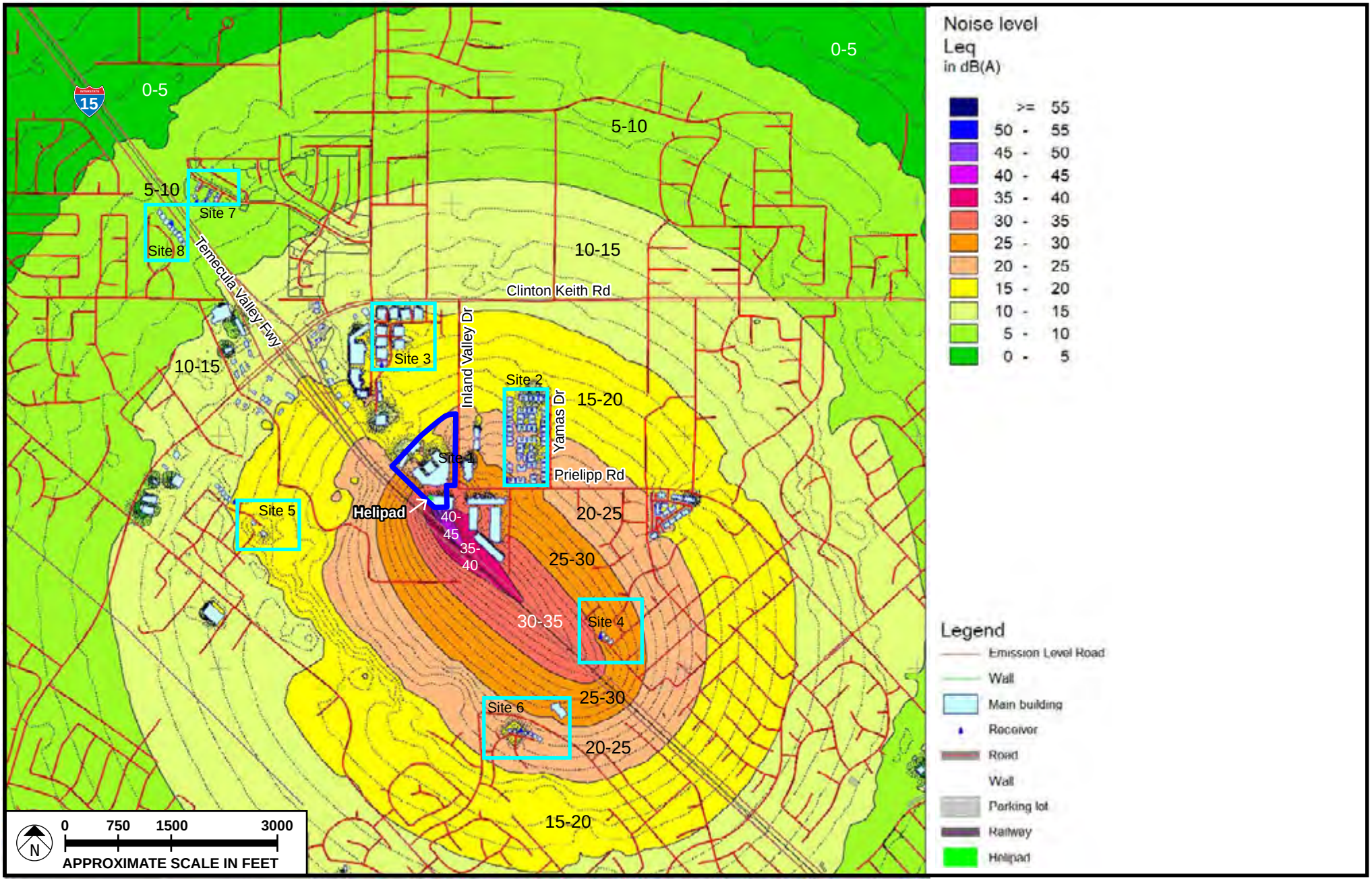
SOURCE: Google Earth - 2020

FIGURE **12**

Meridian Consultants

Routine EMS Helicopter Flight Path to the East Contour Map (Daytime)

291-002-20



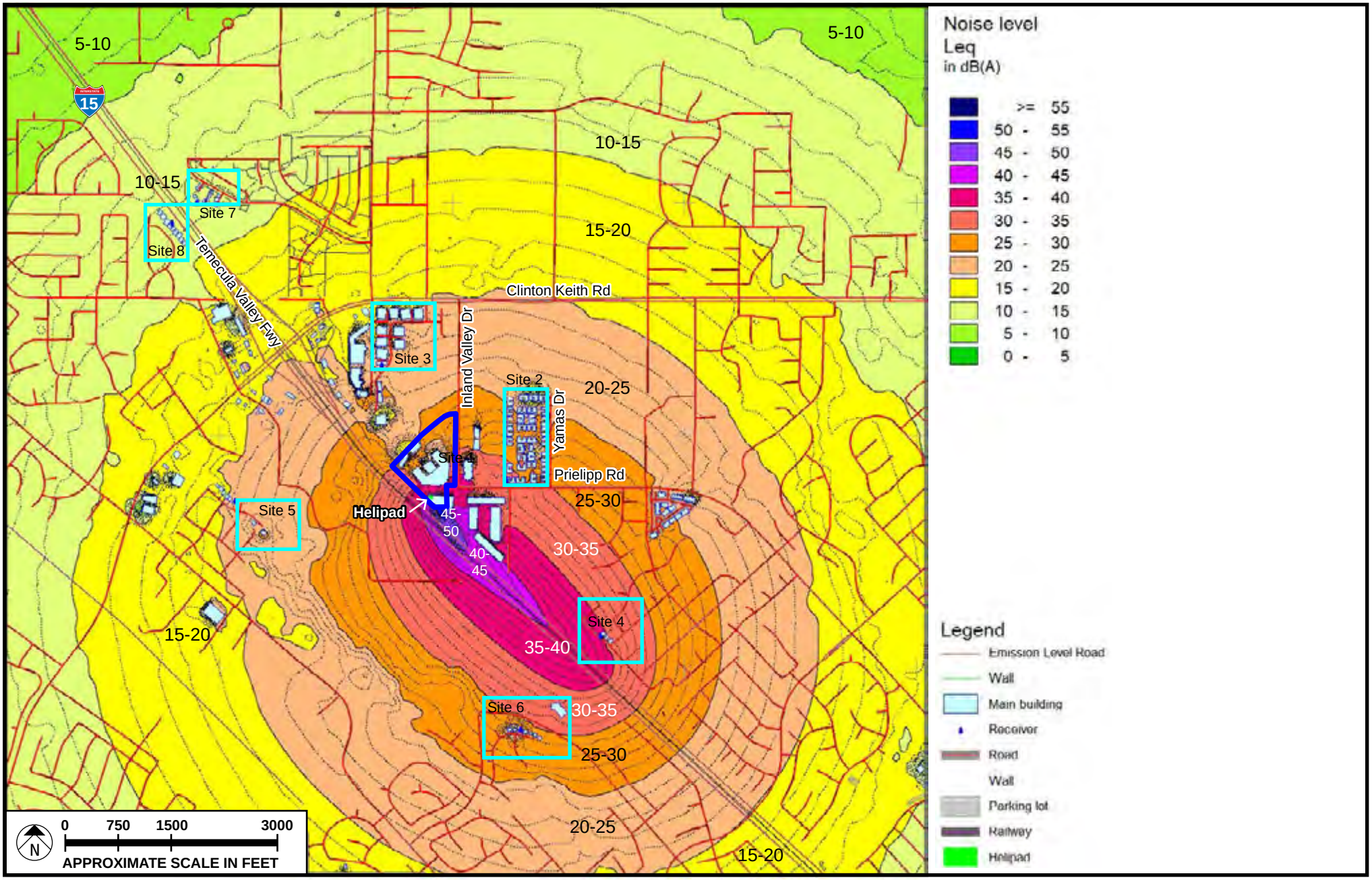
SOURCE: Google Earth - 2020

FIGURE **13**

Meridian Consultants

Routine EMS Helicopter Flight Path to the East Contour Map (Nighttime)

291-002-20



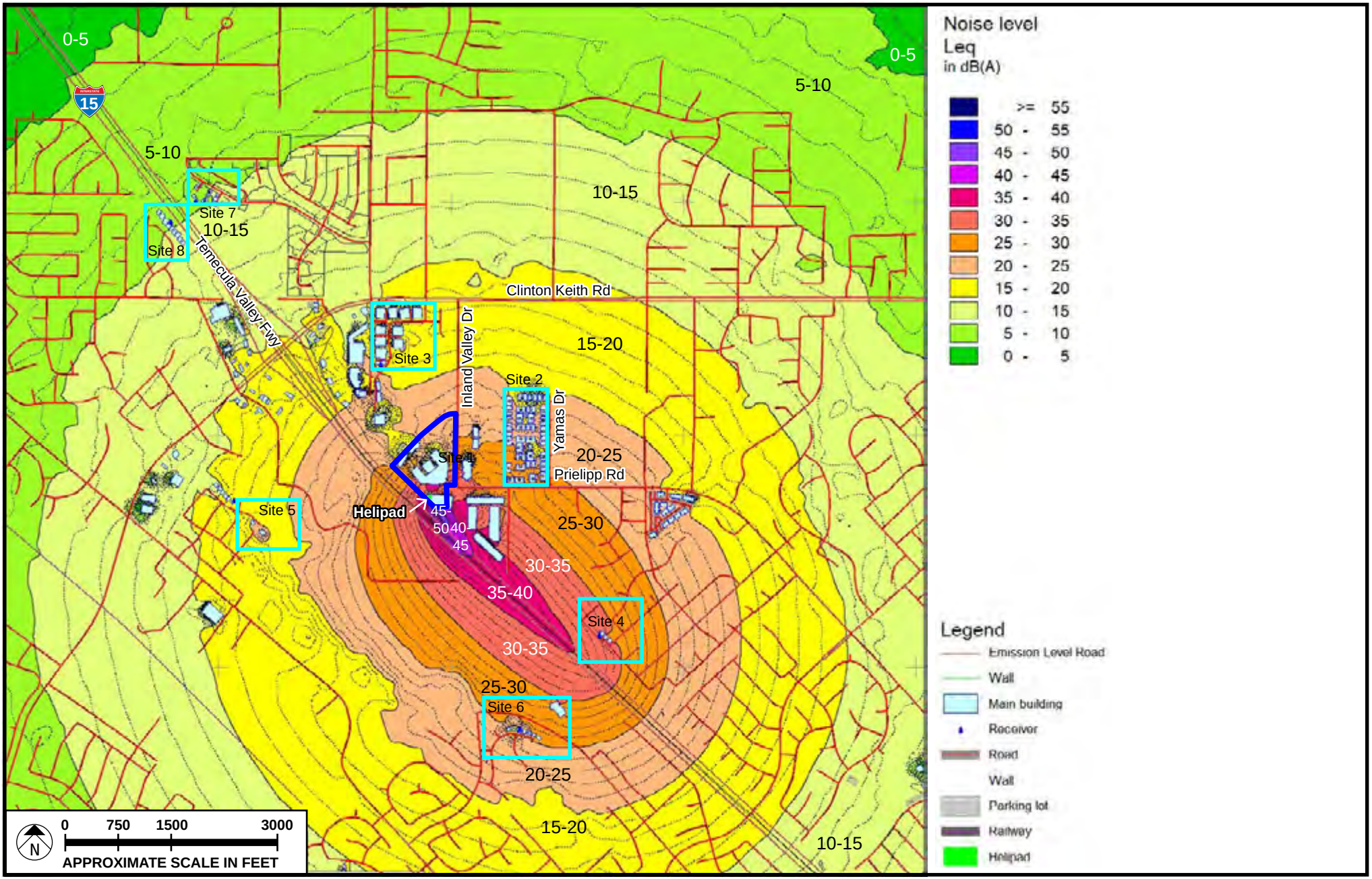
SOURCE: Google Earth - 2020

FIGURE **14**

Meridian Consultants

Blackhawk Helicopter Flight Path to the East Contour Map (Daytime)

291-002-20



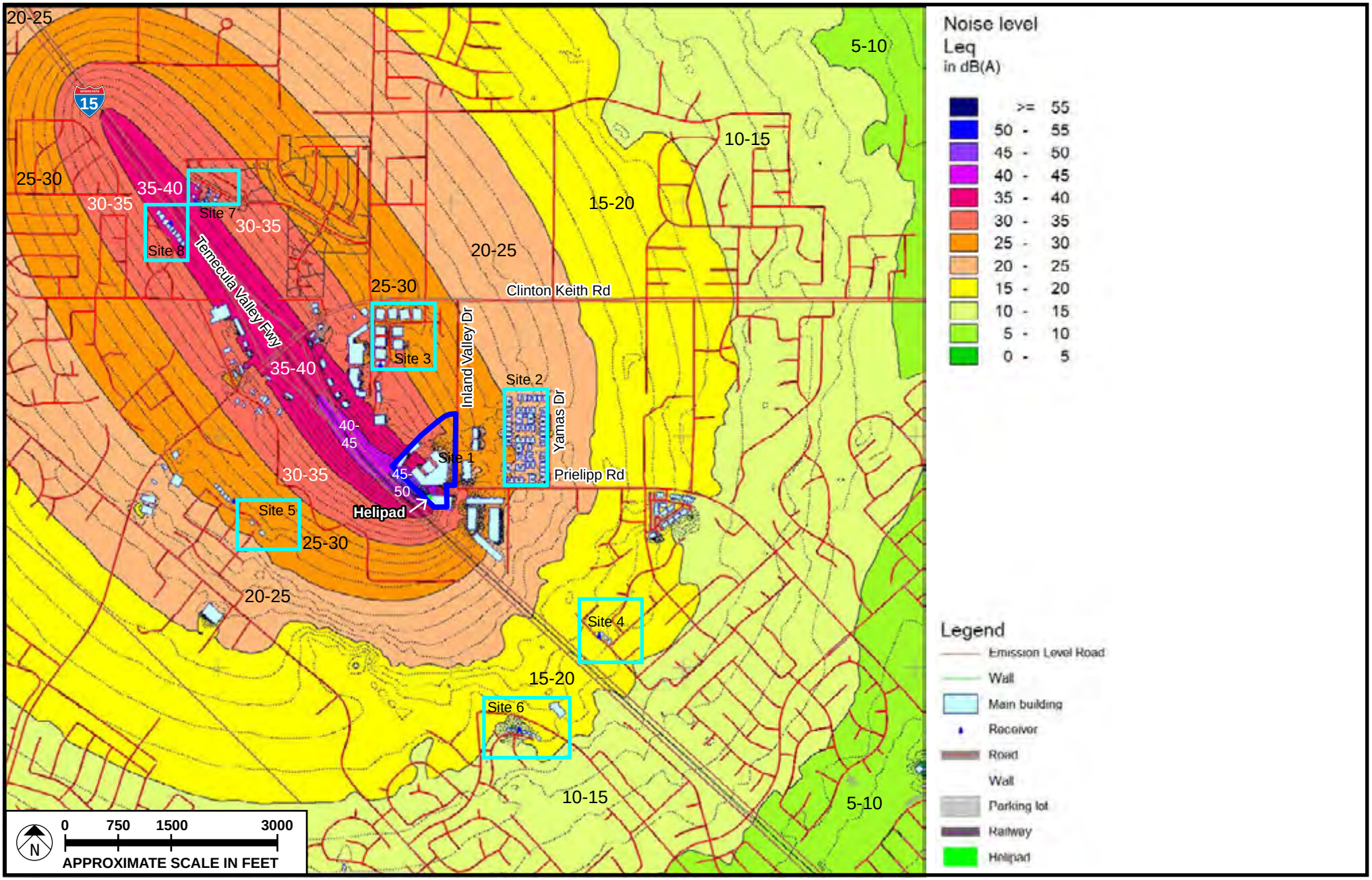
SOURCE: Google Earth - 2020

FIGURE **15**

Meridian Consultants

Blackhawk Helicopter Flight Path to the East Contour Map (Nighttime)

291-002-20



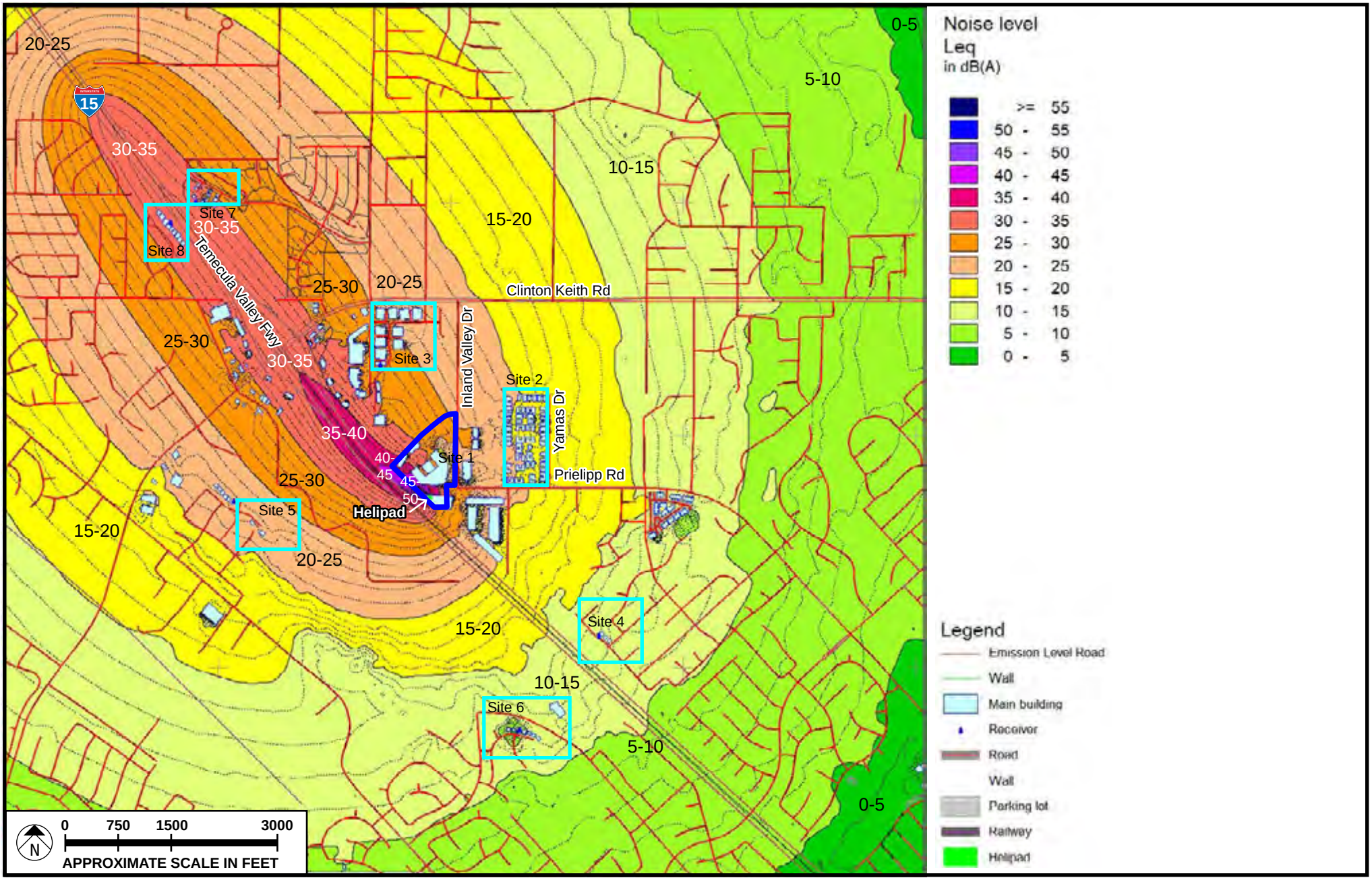
SOURCE: Google Earth - 2020

FIGURE **16**

Meridian Consultants

Routine EMS Helicopter Flight Path to the West Contour Map (Daytime)

291-002-20



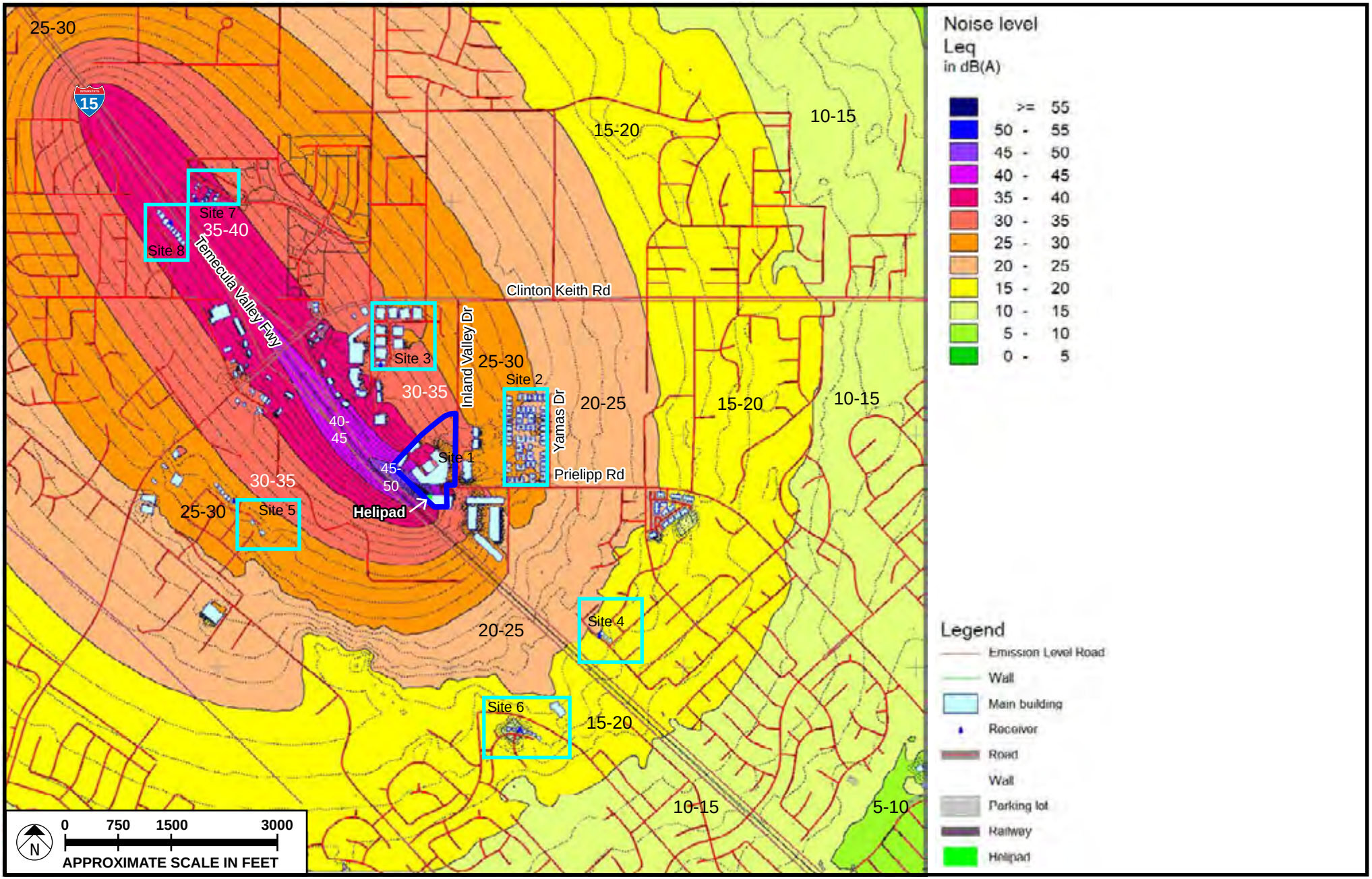
SOURCE: Google Earth - 2020

FIGURE **17**

Meridian Consultants

Routine EMS Helicopter Flight Path to the West Contour Map (Nighttime)

291-002-20



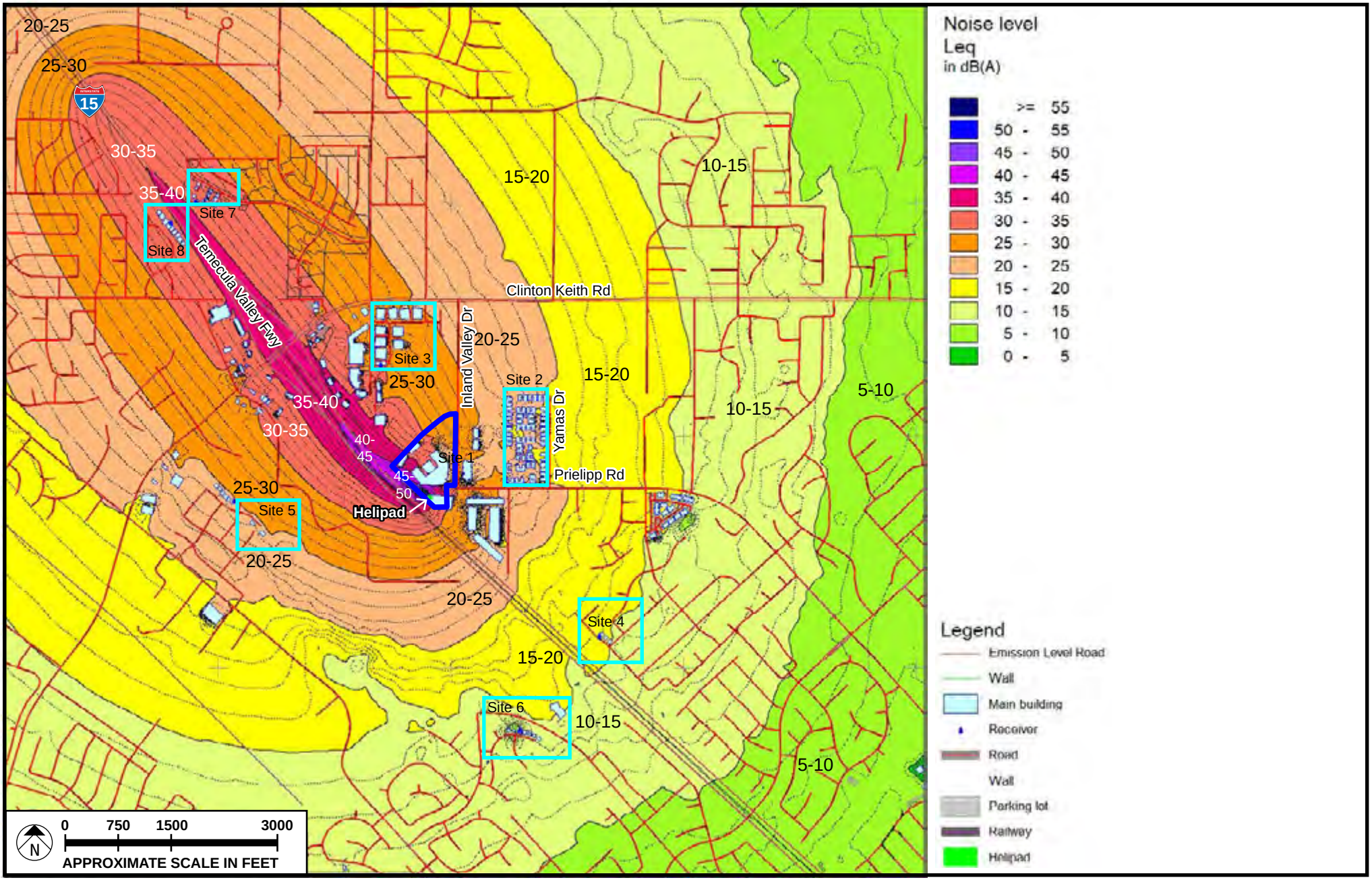
SOURCE: Google Earth - 2020

FIGURE **18**

Meridian Consultants

Blackhawk Helicopter Flight Path to the West Contour Map (Daytime)

291-002-20



SOURCE: Google Earth - 2020

FIGURE **19**

Meridian Consultants

Blackhawk Helicopter Flight Path to the West Contour Map (Nighttime)

291-002-20

4. General Plan Consistency

The Project would be consistent with the policies identified in the City's Noise Element, as identified in **Table 18: General Plan Noise Element Applicable Policies**.

TABLE 18
GENERAL PLAN NOISE ELEMENT APPLICABLE POLICIES

Policies	Consistency
N-1.1 Protect noise-sensitive land uses from high levels of noise by restricting noise-producing land uses from these areas. If the noise-producing land use cannot be relocated, then noise buffers such as setbacks, landscaping, or block walls shall be used	**Consistent.** As indicated in **Table 17** and **Table 18**, the helicopter approach and departure from the east and west would not result in an increase in sound level standards at any of the nearby sensitive receptors and thus would be below the FICON-recommended 3.0 dB threshold for ambient noise of 60–65 dB CNEL, and the 1.5 dB threshold for ambient noise greater than 65 dB CNEL. The Project would not exceed the land use compatibility criteria.
N-1.3 Consider residential use as noise-sensitive and discourage this use in areas in excess of 65 CNEL	**Consistent.** The Project would not generate noise levels in excess of the City's sound level standards. Overall, the noise generated by the helicopter approach/departure from the east/west would occur for a relatively short period of time and would be infrequent; therefore, noise levels would not exceed the City's Noise Ordinance thresholds at any period of time.
N-1.5 Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Riverside County	**Consistent.** Flight paths would be approved by the City through the CUP. Pilots would be committed to use only the prescribed flight paths from the east and west to prevent new noise/land use impacts to residents, employees, visitors, and other noise-sensitive uses within the flight path.
N-1.7 Require proposed land uses, affected by unacceptable high noise levels, to have an acoustical specialist prepare a study of the noise problems and recommend structural and site design features that will adequately mitigate the noise problem	**Consistent.** The use of the helipad was analyzed and summarized in this noise report. As indicated in **Table 17** and **Table 18**, the helicopter approach and departure from the east and west would not result in an increase in sound level standards at any of the nearby sensitive receptors and thus would be below the FICON-recommended 3.0 dB threshold for ambient noise of 60–65 dB CNEL, and the 1.5 dB threshold for ambient noise greater than 65 dB CNEL. The Project would not exceed the land use compatibility criteria. The proposed Project would not conflict with surrounding land uses and land uses along the proposed flight paths. Pilots would be committed to use only the prescribed flight paths from the northeast and southeast to prevent exceedance of City standards.
N-12.1 Minimize the impacts of construction noise on adjacent uses within acceptable standards	**Consistent.** As indicated in **Table 11**, average noise levels for each construction phase would range between 33.3 dBA Leq during the new tower architectural coatings phase (Site 8) to a maximum 66.7 dBA Leq during both the Building C Demolition and Building B – H demolition phase (Site 2). The loudest anticipated phase is demolition, where receptors could be exposed to noise levels of up to an average of 63.5 dBA Leq 1-hour (Site 2). Noise levels due to construction would not exceed the 85 dBA Leq threshold.
N-12.2 Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse impacts on surrounding areas	**Consistent**. Adherence to Section 9.48 of the City's Municipal Code, construction would occur within the permitted hours of 6:00 AM and 6:00 PM during the month of June through September and between the hours of 7:00 AM and 6:00 PM during the months of October through May. Additionally, as indicated in **Table 11**, average noise levels for each construction phase would range between 33.3 dBA Leq during the new tower architectural coatings phase (Site 8) to a maximum 66.7 dBA Leq during both the Building C Demolition and Building B – H demolition phase (Site 2). The loudest

TABLE 18 GENERAL PLAN NOISE ELEMENT APPLICABLE POLICIES		
Policies		**Consistency**
		anticipated phase is demolition, where receptors could be exposed to noise levels of up to an average of 63.5 dBA Leq 1-hour (Site 2). Noise levels due to construction would not exceed the 85 dBA Leq threshold.
N-12.3	Condition subdivision approval adjacent to developed/occupied noise-sensitive land uses (refer to policy N1.3) by requiring the developer to submit a construction-related noise mitigation plan to the City for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as: - Temporary noise attenuation fences; - Preferential location and equipment; and - Use of current noise suppression technology and equipment.	**Consistent**. As indicated in **Table 11**, average noise levels for each construction phase would range between 33.3 dBA Leq during the new tower architectural coatings phase (Site 8) to a maximum 66.7 dBA Leq during both the Building C Demolition and Building B – H demolition phase (Site 2). The loudest anticipated phase is demolition, where receptors could be exposed to noise levels of up to an average of 63.5 dBA Leq 1-hour (Site 2). Noise levels due to construction would not exceed the 85 dBA Leq threshold. Construction of the project would not require mitigation to reduce impacts.

H. CUMULATIVE

The analysis of changes to the community noise environment based on cumulative conditions considers development of the proposed Project in combination with ambient growth and other development projects located near the Project area. The potential for cumulative noise impacts is primarily related to the distance between each related project's stationary noise sources, as well as both the presence of existing structures in the Project area and the cumulative traffic that the cumulative development would add to the surrounding roadway network.

1. Construction Noise

Noise, by definition, is a localized phenomenon and drastically reduces as distance from the source increases. As a result, only related projects, and growth in the general area of the Project site (within 500 feet) would contribute to cumulative noise impacts. Cumulative construction-noise impacts have the potential to occur when multiple construction projects in the local area generate noise within the same time frame and contribute to the local ambient noise environment. It is expected that, as with the Project, the related projects would implement noise reduction techniques such as mufflers, shields, and sound barriers, which would minimize any noise-related nuisances during construction. In addition, distance attenuation and intervening structures would further reduce construction noise levels and not result in noticeable increases. Therefore, the combined construction-noise impacts of related projects within 500 feet and the Project's contribution would not cause a significant cumulative impact.

2. Stationary Noise

With regard to stationary sources, cumulative significant noise impacts may result from cumulative development. Stationary sources of noise that could be introduced in the area by cumulative projects could include mechanical equipment, loading docks, and parking lots. Given that these projects would be required to adhere to the City's noise standards, all stationary sources would be required to have shielding or other noise-abatement measures so as not to cause a substantial increase in ambient noise levels. Moreover, due to distance, it is unlikely that noise from multiple cumulative projects would interact to create a significant combined noise impact. As such, it is not anticipated that a significant cumulative increase in permanent ambient noise levels would occur.

3. Roadway Noise

Table 19: Opening Year (2026) plus Project illustrates the change in noise levels from traffic volumes and from traffic generated by the Project. The difference in traffic noise between Future (Year 2023) conditions and Future (Year 2023) plus Project conditions represents the increase in noise attributable to Project-related traffic. As shown in **Table 19**, the maximum noise level increase along the analyzed roadways would range from a low of 0.0 dBA at various roadway segments to a high of 0.6 dBA along Inland Valley Drive from Clinton Keith Road to Prielipp Road. Additionally, the maximum noise level increase from existing conditions would range from a low of 0.6 dBA CNEL along George Avenue/Wildomar Trail north of Clinton Keith Road to a high of 1.2 dBA CNEL along Inland Valley Drive from Clinton Keith to Prielipp Road. Consequently, Project-related traffic would not cause noise levels along the analyzed roadways to increase by more than 3.0 dBA at roadway segments ranging from 60 to 65 dBA. Additionally, roadway noise levels increases of 1.2 dBA CNEL would be within the normally acceptable compatibility category for the hospital uses along Inland Valley Drive. Thus, the proposed Project would not result in a permanent increase in noise levels above ambient levels in the vicinity of the Project Site in excess of the City's Noise Element and Noise Ordinance. Vehicular related noise impacts would not be considered significant.

TABLE 19
OPENING YEAR (2026) PLUS PROJECT

Roadway Segment	Time Period	Existing	Opening Year (2023) Without Project	Opening Year (2023) With Project	Change from Existing	Change from Opening Year	Significant Impact?
		dBA CNEL					
Clinton Keith Road							
Hidden Springs Road to I-15 SB	24-hour	68.9	69.6	69.6	+0.7	0.0	**No**
I-15 SB to I-15 NB	24-hour	68.8	69.5	69.5	+0.7	0.0	**No**
I-15 NB to Arya Road	24-hour	68.2	68.9	69.1	+0.9	+0.2	**No**
Arya Road to George Avenue	24-hour	68.2	68.9	69.1	+0.9	+0.2	**No**
George Avenue to Inland Valley Drive	24-hour	67.9	68.7	68.8	+0.9	+0.1	**No**
Inland Valley Drive to Smith Ranch Road	24-hour	66.9	67.8	67.9	+1.0	+0.1	**No**
East of Smith Ranch Road	24-hour	66.9	67.7	67.8	+0.9	+0.1	**No**
Inland Valley Drive							
Clinton Keith to Prielipp Road	24-hour	63.8	64.4	65.0	+1.2	+0.7	**No**
Prielipp Road							
East of Inland Valley Road	24-hour	61.5	62.1	62.2	+0.7	+0.1	**No**
George Avenue/Wildomar Trail							
North of Clinton Keith Road	24-hour	59.1	59.7	59.7	+0.6	0.0	**No**

*Source: Refer to **Appendix B** for roadway noise worksheets*

I. MITIGATION MEASURES

Adherence to Policy N 12.3 of the City's General Plan, the developer is required to submit a Construction-related Noise Mitigation Plan for review and approval prior to issuance of a grading permit. As mentioned previously, construction noise levels would result in increases of 10 dBA or more above ambient.

MM N-1 Construction-related Noise Mitigation Plan

A Construction-related Noise Mitigation Plan (Plan) shall be developed in coordination with an acoustical consultant and shall be approved by the City prior to issuance of a grading permit. The Plan shall include measures demonstrating construction noise levels would be below the NIOSH established criteria of 85 dBA Leq and will not result in increases of 10 dBA or more above ambient. The following construction noise reduction measures shall be incorporated into the Plan:

Install temporary noise barriers that reduce sound at receptors;

For any idling that is expected to take longer than five minutes, the engine shall be shut off;

All equipment shall be equipped with optimal muffler systems;

Locate staging areas as far away from sensitive receptors as feasible;

Locate stationary noise sources as far away from sensitive receptors as feasible;

Enclose stationary noise sources, such as diesel-or gasoline-powered generators, with acoustical barriers where necessary and required;

- If stationary equipment cannot be enclosed within a shed or barrier, such equipment must be muffled and located at least 100 feet from sensitive land uses (e.g., residences, schools, childcare centers, hospitals, parks, or similar uses), whenever possible.

In order to ensure that construction noise levels will be below the established standards, the following shall be incorporated into the Plan:

A monitoring plan shall be implemented during demolition and construction activities. Warning thresholds shall be defined that are 5 dBA below the specified noise limits to allow sufficient time for the Contractor to take actions to reduce noise. A monitoring record that documents all alarms and actions taken to comply with these measures shall be provided to the City upon request.

In the event the warning level (dBA) is exceeded, construction activities shall be temporarily halted in the vicinity of the area where the exceedance occurs. The source of the noise exceeding the warning level shall be identified followed by actions to be implemented to reduce noise levels below the established standards. Noise measurements shall be gathered after actions are taken to verify noise levels are below the warning level before construction activities restart. The following are examples of actions that can be taken to reduce construction noise levels:

- Halting/staggering concurrent construction activities in certain locations;
- Reducing the speed or intensity of the heavy-duty construction equipment being operated simultaneously;
- Operating equipment at the lowest possible power levels;
- Modifying equipment, such as dampening of metal surfaces or other redesign to minimize metal-to-metal impacts.

J. CONCLUSIONS

As shown in **Table 11**, average noise levels for each construction phase would range between 33.3 dBA Leq during the new tower architectural coatings phase (Site 8) to a maximum 66.7 dBA Leq during both the Building C Demolition and Building B – H demolition phase (Site 2). The loudest anticipated phase is demolition, where receptors could be exposed to noise levels of up to an average of 63.5 dBA Leq 1-hour (Site 2). As shown in **Table 12**, average noise levels from overlapping construction activity would range between 47.3 dBA Leq during the overlap of the CUP Site Clearing and Building C Demolition (Site 8) to a maximum of 70.6 dBA Leq during the overlap of the CUP Construction, New Tower Grading, Building I Renovation and New Tower Construction (Site 2). Noise levels due to construction would not exceed the 85 dBA Leq threshold. Construction noise levels would result in a maximum increase of 10 dBA or more above ambient at the multi-family uses to the east of the Project site along Prielipp Road (Site 2). Adherence to Policy N 12.3 of the City's General Plan, **Mitigation Measure MM N-1** includes implementation of a Construction-related Noise Mitigation Plan which proactively addresses the potential effects of noise during construction. The measures required by the Construction Noise Mitigation plan can reduce noise levels by 10 dBA or more. For example, using optimal muffler systems on all equipment would reduce construction noise levels by 10 dBA or more. Temporary abatement techniques such as the use of a noise barrier can achieve a 5-dBA noise level reduction when it is tall enough to break the line-of-sight to the receiver. Modifications such as dampening of metal surfaces or the redesign of a particular piece of equipment can achieve noise reduction of up to 5 dBA. Moving stationary equipment away from sensitive receptors will reduce noise levels at the receptor as every doubling of distance will reduce noise by 4 to 6 dBA. Thus, adherence to Policy N 12.3 and the measures required by the Construction-related Noise Mitigation Plan, construction noise will not increase ambient noise levels by more than 10 dBA. Furthermore, the Construction-related Noise Mitigation Plan would include a monitoring plan during construction activities to ensure noise levels are below the specified limits. With implementation of **MM N-1**, construction noise levels would not be considered significant.

As shown in **Table 13** and **Table 14**, the forecasted vibration levels due to on-site construction activities would not exceed the building damage significance threshold of 0.12 PPV ips and human annoyance significance threshold of 72 VdB for all sites surrounding the Project area during construction.

As shown in **Table 15** and **Table 19**, Project-related traffic would not cause noise levels along the analyzed roadways to increase by more than 3.0 dBA. Vehicular related noise impacts would not be considered significant.

As shown in **Table 16** and **Table 17**, residential development or other sensitive receptors would not be exposed to operational noise increases exceeding the criteria identified in **Table 5** above. Helicopter noise impacts would not be considered significant.

K. CERTIFICATION

The contents of this noise study represent an accurate depiction of the noise environment and impacts associated with the proposed Inland Valley Medical Center Project. The information contained in this noise study is based on the best available information at the time of preparation. If you have any questions, please contact me directly at (805) 413-4187.

Christ Kirikian, INCE Associate
Principal, Director of Air Quality & Acoustics
ckirikian@meridianconsultantsllc.com

APPENDIX A

Noise Monitoring Data Sheets

Monitoring Location: Site 1
Monitoring Date: 11/14/2020

Monitoring Period

Time	LAeq	LASmax	LASmin
11:34:42	66.2	77.7	56.4
11:35:42	62.4	69.3	57.5
11:36:42	68.9	83.9	55.8
11:37:42	61.3	69.9	55.0
11:38:42	59.2	64.4	55.6
11:39:42	58.4	62.5	54.8
11:40:42	67.0	78.0	58.4
11:41:42	64.0	68.8	59.3
11:42:42	61.0	65.4	58.8
11:43:42	66.9	76.1	59.2
11:44:42	63.3	67.8	60.7
11:45:42	63.6	69.5	60.2
11:46:42	62.3	70.2	59.4
11:47:42	66.5	77.6	60.1
11:48:42	64.4	68.8	60.5
11:49:42	72.4	71.5	66.7

Monitoring Location: Site 2
Monitoring Date: 11/14/2020

Monitoring Period

Time	LAeq	LASmax	LASmin
11:53:40	54.4	57.0	52.3
11:54:40	55.0	57.6	52.2
11:55:40	55.0	60.3	52.2
11:56:40	55.6	60.7	52.3
11:57:40	54.1	56.6	50.8
11:58:40	53.8	56.8	52.2
11:59:40	55.4	57.3	53.6
12:00:40	56.3	63.1	53.6
12:01:40	56.7	59.3	54.3
12:02:40	55.3	58.3	52.6
12:03:40	55.9	58.7	53.6
12:04:40	55.2	57.0	53.5
12:05:40	55.2	57.0	53.7
12:06:40	55.9	59.6	53.1
12:07:40	56.2	59.7	54.0
12:08:40	56.2	57.2	54.3

Monitoring Location: Site 3
Monitoring Date: 11/14/2020

Monitoring Period

Time	LAeq	LASmax	LASmin
11:11:58	52.3	59.5	49.2
11:12:58	51.8	52.9	49.1
11:13:58	69.0	84.2	50.6
11:14:58	53.8	56.1	51.4
11:15:58	54.5	61.9	51.0
11:16:58	50.6	51.7	49.7
11:17:58	56.1	64.7	49.9
11:18:58	56.2	66.0	51.6
11:19:58	57.6	69.6	50.9
11:20:58	52.4	54.9	50.7
11:21:58	51.2	53.0	49.3
11:22:58	51.2	53.1	49.3
11:23:58	51.0	53.1	48.9
11:24:58	51.2	54.1	48.7
11:25:58	51.0	54.2	49.1
11:26:58	51.2	52.3	51.1

Monitoring Location: Site 4
Monitoring Date: 11/14/2020

Monitoring Period

Time	LAeq	LASmax	LASmin
12:16:24	60.4	66.2	56.6
12:17:24	59.5	65.2	55.2
12:18:24	60.1	62.9	56.9
12:19:24	59.0	62.3	55.1
12:20:24	59.5	63.0	56.8
12:21:24	60.3	63.8	55.6
12:22:24	60.7	65.6	57.3
12:23:24	60.5	64.4	57.6
12:24:24	59.4	62.2	55.9
12:25:24	60.6	63.7	56.7
12:26:24	60.1	63.7	56.7
12:27:24	59.8	63.4	56.9
12:28:24	59.6	62.3	56.4
12:29:24	60.3	67.1	55.3
12:30:24	58.6	61.5	56.4
12:31:24	58.7	60.6	55.8

15-minute LAeq	**59.9**
	67.1
	55.1

Monitoring Location: Site 5
Monitoring Date: 11/14/2020

Monitoring Period

Time	LAeq	LASmax	LASmin
13:14:32	49.1	56.3	44.0
13:15:32	50.7	56.3	44.6
13:16:32	46.4	54.8	40.6
13:17:32	43.5	48.2	41.3
13:18:32	47.1	56.8	41.5
13:19:32	44.5	48.0	41.7
13:20:32	48.0	53.4	44.6
13:21:32	52.0	59.1	43.1
13:22:32	45.3	49.8	41.8
13:23:32	47.3	52.8	42.6
13:24:32	41.8	45.1	40.0
13:25:32	44.5	49.6	40.9
13:26:32	48.9	53.9	42.5
13:27:32	45.1	50.4	41.9
13:28:32	48.7	53.1	44.2
13:29:32	48.5	49.1	47.9

15-minute LAeq	**47.7**
	59.1
	40.0

Monitoring Location: Site 6
Monitoring Date: 11/14/2020

Monitoring Period

Time	LAeq	LASmax	LASmin
12:51:29	49.4	57.0	39.2
12:52:29	49.0	56.8	38.1
12:53:29	49.7	60.6	37.3
12:54:29	39.2	59.2	35.7
12:55:29	43.6	51.8	37.0
12:56:29	47.9	55.7	38.7
12:57:29	44.8	52.3	39.0
12:58:29	45.7	54.1	36.6
12:59:29	46.4	52.4	38.9
13:00:29	38.6	48.3	35.4
13:01:29	43.6	52.6	35.3
13:02:29	36.3	40.1	34.7
13:03:29	40.6	43.8	35.4
13:04:29	55.8	68.3	36.5
13:05:29	51.1	63.1	36.0
13:06:29	40.3	44.6	39.8

15-minute LAeq	**48.1**
	68.3
	34.7

Monitoring Location: Site 7
Monitoring Date: 11/14/2020

Monitoring Period

Time	LAeq	LASmax	LASmin
10:19:10	59.4	64.1	57.4
10:20:10	59.2	61.8	56.2
10:21:10	59.1	61.3	56.9
10:22:10	58.6	61.3	56.3
10:23:10	57.9	59.8	55.4
10:24:10	56.3	58.9	53.7
10:25:10	55.3	57.9	52.8
10:26:10	58.4	61.8	53.5
10:27:10	58.6	61.9	54.9
10:28:10	61.4	63.7	57.4
10:29:10	61.0	62.6	59.3
10:30:10	59.7	61.3	58.5
10:31:10	60.5	62.2	58.9
10:32:10	59.3	61.5	58.2
10:33:10	59.2	61.0	56.7
10:34:10	60.3	60.4	59.7

15-minute LAeq	**59.2**
	64.1
	52.8

Monitoring Location: Site 8
Monitoring Date: 11/14/2020

Monitoring Period

Time	LAeq	LASmax	LASmin
13:43:00	54.4	63.7	50.2
13:44:00	52.0	57.9	49.2
13:45:00	53.2	56.6	49.3
13:46:00	53.7	57.2	50.0
13:47:00	52.5	58.3	48.2
13:48:00	54.5	65.0	49.3
13:49:00	51.9	56.0	48.1
13:50:00	51.1	54.5	49.0
13:51:00	51.3	53.9	49.2
13:52:00	48.9	51.7	44.2
13:53:00	50.3	55.3	46.0
13:54:00	49.5	53.1	45.1
13:55:00	51.6	54.6	48.4
13:56:00	50.6	53.4	45.5
13:57:00	51.6	55.0	48.8
13:58:00	48.1	49.2	48.3

15-minute LAeq	**51.9**
	65.0
	44.2

APPENDIX B

Roadway Noise Worksheets

Meridian Consultants LLC
Date:

Inland Valley Medical Center
On-Site Noise Contours Using Riverside County 24-Hour Traffic Distribution
Existing

ROADWAY NAME Segment	Number of Lanes in Each Direction	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor (1)	Vehicle Mix Medium Trucks	 Heavy Trucks	Distance from Center of Roadway CNEL at 75 Feet	 DISTANCE TO CONTOUR 75 CNEL	 70 CNEL	 65 CNEL	 60 CNEL
Clinton Keith Road												
Hidden Springs Road to I-15 SB	4	0	37,360	35	0	1.8%	0.7%	68.9	-	-	181	564
I-15 SB to I-15 NB	4	0	36,260	35	0	1.8%	0.7%	68.8	-	-	176	547
I-15 NB to Arya Road	4	0	31,650	35	0	1.8%	0.7%	68.2	-	-	154	479
Arya Road to George Avenue	4	0	31,650	35	0	1.8%	0.7%	68.2	-	-	154	479
George Avenue to Inland Valley Drive	4	0	29,790	35	0	1.8%	0.7%	67.9	-	-	145	451
Inland Valley Drive to Smith Ranch Road	2	0	23,440	35	0	1.8%	0.7%	66.9	-	-	115	356
East of Smith Ranch Road	2	0	23,440	35	0	1.8%	0.7%	66.9	-	-	115	356
Inland Valley Drive												
Clinton Keith to Prielipp Road	2	0	11,760	35	0	1.8%	0.7%	63.8	-	-	-	179
Prielipp Road												
East of Inland Valley Road	2	0	6,860	35	0	1.8%	0.7%	61.5	-	-	-	105
George Avenue/Wildomar Trail												
North of Clinton Keith Road	2	0	4,000	35	0	1.8%	0.7%	59.1	-	-	-	-

Notes:

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site, such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such, as heavily vegetated ground cover.

"-" = contour is located within the roadway lanes or within 75 feet of the roadway centerline.

Noise levels and distances to contours do not assume any natural or constructed barriers that may attenuate noise.

24-Hour Traffic Distribution for Roadways Designated as "Major," "Arterial" Highways or "Expressways" by Riverside County

Source: Riverside County Department of Public Health, 15 January 2004.

	Weighted Traffic Distribution (%)				Riverside County Traffic Distribution			
	Day	Evening	Night	Totals	Day	Evening	Night	Totals
Auto	77.50%	12.90%	9.60%	100.00%	77.50%	12.90%	9.60%	100.00%
Medium-Duty Trucks	84.80%	4.90%	10.30%	100.00%	84.80%	4.90%	10.30%	100.00%
Heavy-Duty Trucks	86.50%	2.70%	10.80%	100.00%	86.50%	2.70%	10.80%	100.00%

Meridian Consultants LLC
Date:

Inland Valley Medical Center
On-Site Noise Contours Using Riverside County 24-Hour Traffic Distribution
Existing plus Project

ROADWAY NAME Segment	Number of Lanes in Each Direction	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor (1)	Vehicle Mix Medium Trucks	 Heavy Trucks	Distance from Center of Roadway CNEL at 75 Feet	 DISTANCE TO CONTOUR 75 CNEL	 70 CNEL	 65 CNEL	 60 CNEL
Clinton Keith Road												
Hidden Springs Road to I-15 SB	4	0	37,543	35	0	1.8%	0.7%	68.9	-	-	182	566
I-15 SB to I-15 NB	4	0	36,901	35	0	1.8%	0.7%	68.8	-	-	179	557
I-15 NB to Arya Road	4	0	32,748	35	0	1.8%	0.7%	68.3	-	-	159	495
Arya Road to George Avenue	4	0	32,748	35	0	1.8%	0.7%	68.3	-	-	159	495
George Avenue to Inland Valley Drive	4	0	30,888	35	0	1.8%	0.7%	68.1	-	-	150	467
Inland Valley Drive to Smith Ranch Road	2	0	24,081	35	0	1.8%	0.7%	67.0	-	-	118	366
East of Smith Ranch Road	2	0	24,081	35	0	1.8%	0.7%	67.0	-	-	118	366
Inland Valley Drive												
Clinton Keith to Prielipp Road	2	0	13,590	35	0	1.8%	0.7%	64.5	-	-	-	206
Prielipp Road												
East of Inland Valley Road	2	0	6,952	35	0	1.8%	0.7%	61.5	-	-	-	106
George Avenue/Wildomar Trail												
North of Clinton Keith Road	2	0	4,000	35	0	1.8%	0.7%	59.1	-	-	-	-

Notes:

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site, such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such, as heavily vegetated ground cover.

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Noise levels and distances to contours do not assume any natural or constructed barriers that may attenuate noise.

24-Hour Traffic Distribution for Roadways Designated as "Major," "Arterial" Highways or "Expressways" by Riverside County

Source: Riverside County Department of Public Health, 15 January 2004.

	Weighted Traffic Distribution (%)				Riverside County Traffic Distribution			
	Day	Evening	Night	Totals	Day	Evening	Night	Totals
Auto	77.50%	12.90%	9.60%	100.00%	77.50%	12.90%	9.60%	100.00%
Medium-Duty Trucks	84.80%	4.90%	10.30%	100.00%	84.80%	4.90%	10.30%	100.00%
Heavy-Duty Trucks	86.50%	2.70%	10.80%	100.00%	86.50%	2.70%	10.80%	100.00%

Meridian Consultants LLC
Date:

Inland Valley Medical Center
On-Site Noise Contours Using Riverside County 24-Hour Traffic Distribution
Future

ROADWAY NAME / Segment	Number of Lanes in Each Direction	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor (1)	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Center of Roadway: CNEL at 75 Feet	DISTANCE TO CONTOUR: 75 CNEL	70 CNEL	65 CNEL	60 CNEL
Clinton Keith Road												
Hidden Springs Road to I-15 SB	4	0	43,604	35	0	1.8%	0.7%	69.6	-	-	211	656
I-15 SB to I-15 NB	4	0	42,650	35	0	1.8%	0.7%	69.5	-	-	207	642
I-15 NB to Arya Road	4	0	37,665	35	0	1.8%	0.7%	68.9	-	-	183	568
Arya Road to George Avenue	4	0	37,734	35	0	1.8%	0.7%	68.9	-	-	183	569
George Avenue to Inland Valley Drive	4	0	35,665	35	0	1.8%	0.7%	68.7	-	-	173	538
Inland Valley Drive to Smith Ranch Road	2	0	28,785	35	0	1.8%	0.7%	67.8	-	-	140	436
East of Smith Ranch Road	2	0	28,337	35	0	1.8%	0.7%	67.7	-	-	138	429
Inland Valley Drive												
Clinton Keith to Prielipp Road	2	0	13,543	35	0	1.8%	0.7%	64.4	-	-	-	205
Prielipp Road												
East of Inland Valley Road	2	0	7,914	35	0	1.8%	0.7%	62.1	-	-	-	121
George Avenue/Wildomar Trail												
North of Clinton Keith Road	2	0	4,595	35	0	1.8%	0.7%	59.7	-	-	-	-

Notes:

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site, such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such, as heavily vegetated ground cover.

"-" = contour is located within the roadway lanes or within 75 feet of the roadway centerline.

Noise levels and distances to contours do not assume any natural or constructed barriers that may attenuate noise.

24-Hour Traffic Distribution for Roadways Designated as "Major," "Arterial" Highways or "Expressways" by Riverside County

Source: Riverside County Department of Public Health, 15 January 2004.

	Weighted Traffic Distribution (%)				Riverside County Traffic Distribution			
	Day	Evening	Night	Totals	Day	Evening	Night	Totals
Auto	77.50%	12.90%	9.60%	100.00%	77.50%	12.90%	9.60%	100.00%
Medium-Duty Trucks	84.80%	4.90%	10.30%	100.00%	84.80%	4.90%	10.30%	100.00%
Heavy-Duty Trucks	86.50%	2.70%	10.80%	100.00%	86.50%	2.70%	10.80%	100.00%

Meridian Consultants LLC
Date:

Inland Valley Medical Center
On-Site Noise Contours Using Riverside County 24-Hour Traffic Distribution
Future plus Project

ROADWAY NAME Segment	Number of Lanes in Each Direction	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor (1)	Vehicle Mix Medium Trucks	 Heavy Trucks	Distance from Center of Roadway CNEL at 75 Feet	 DISTANCE TO CONTOUR 75 CNEL	 70 CNEL	 65 CNEL	 60 CNEL
Clinton Keith Road												
Hidden Springs Road to I-15 SB	4	0	43,787	35	0	1.8%	0.7%	69.6	-	-	212	659
I-15 SB to I-15 NB	4	0	43,291	35	0	1.8%	0.7%	69.5	-	-	210	652
I-15 NB to Arya Road	4	0	38,763	35	0	1.8%	0.7%	69.1	-	-	188	584
Arya Road to George Avenue	4	0	38,832	35	0	1.8%	0.7%	69.1	-	-	188	585
George Avenue to Inland Valley Drive	4	0	36,763	35	0	1.8%	0.7%	68.8	-	-	179	555
Inland Valley Drive to Smith Ranch Road	2	0	29,426	35	0	1.8%	0.7%	67.9	-	-	143	445
East of Smith Ranch Road	2	0	28,978	35	0	1.8%	0.7%	67.8	-	-	141	439
Inland Valley Drive												
Clinton Keith to Prielipp Road	2	0	15,373	35	0	1.8%	0.7%	65.0	-	-	-	233
Prielipp Road												
East of Inland Valley Road	2	0	8,006	35	0	1.8%	0.7%	62.2	-	-	-	122
George Avenue/Wildomar Trail												
North of Clinton Keith Road	2	0	4,595	35	0	1.8%	0.7%	59.7	-	-	-	-

Notes:

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site, such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such, as heavily vegetated ground cover.

"-" = contour is located within the roadway lanes or within 75 feet of the roadway centerline.

Noise levels and distances to contours do not assume any natural or constructed barriers that may attenuate noise.

24-Hour Traffic Distribution for Roadways Designated as "Major," "Arterial" Highways or "Expressways" by Riverside County

Source: Riverside County Department of Public Health, 15 January 2004.

	Weighted Traffic Distribution (%)				Riverside County Traffic Distribution			
	Day	Evening	Night	Totals	Day	Evening	Night	Totals
Auto	77.50%	12.90%	9.60%	100.00%	77.50%	12.90%	9.60%	100.00%
Medium-Duty Trucks	84.80%	4.90%	10.30%	100.00%	84.80%	4.90%	10.30%	100.00%
Heavy-Duty Trucks	86.50%	2.70%	10.80%	100.00%	86.50%	2.70%	10.80%	100.00%

APPENDIX C

Construction Noise Worksheets

C.1

Building A Remodel

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descı Building A Remodel

---- Receptor #1 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 2	Residentia	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		700	0
Forklift	No	40	85		700	0
Forklift	No	40	85		700	0
Generator	No	50		80.6	700	0
Welder / Torch	No	40		74	700	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	57.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	51.1	47.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	62.1	63.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		1030	0
Forklift	No	40	85		1030	0
Forklift	No	40	85		1030	0
Generator	No	50		80.6	1030	0
Welder / Torch	No	40		74	1030	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	58.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	58.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	58.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	54.4	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	47.7	43.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	58.7	60.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		2345	0
Forklift	No	40	85		2345	0
Forklift	No	40	85		2345	0
Generator	No	50		80.6	2345	0
Welder / Torch	No	40		74	2345	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	47.2	44.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	40.6	36.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	51.6	53.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		2085	0
Forklift	No	40	85		2085	0
Forklift	No	40	85		2085	0
Generator	No	50		80.6	2085	0
Welder / Torch	No	40		74	2085	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	48.2	45.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	41.6	37.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	52.6	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		2890	0
Forklift	No	40	85		2890	0
Forklift	No	40	85		2890	0
Generator	No	50		80.6	2890	0
Welder / Torch	No	40		74	2890	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	49.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	49.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	49.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	45.4	42.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	38.8	34.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.8	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		5000	0
Forklift	No	40	85		5000	0
Forklift	No	40	85		5000	0
Generator	No	50		80.6	5000	0
Welder / Torch	No	40		74	5000	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	45	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	45	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	45	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	40.6	37.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	34	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	45	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 8	Residentia	51.9	51.9	51.9

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		5250	0
Forklift	No	40	85		5250	0
Forklift	No	40	85		5250	0
Generator	No	50		80.6	5250	0
Welder / Torch	No	40		74	5250	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	44.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	44.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	44.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	40.2	37.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	33.6	29.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	44.6	46.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

C.2

CUP Site Clearing

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Desc CUP Site Clearing

				---- Receptor #1 ----
		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 2	Residentia	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	700	0
Tractor	No	40	84		700	0

Calculated (dBA)

Equipment		*Lmax	Leq
Dozer		58.7	54.8
Tractor		61.1	57.1
	Total	61.1	59.1

*Calculated Lmax is the Loudest value.

				---- Receptor #2 ----
		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	1030	0
Tractor	No	40	84		1030	0

Calculated (dBA)

Equipment		*Lmax	Leq
Dozer		55.4	51.4
Tractor		57.7	53.7
	Total	57.7	55.7

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	2345	0
Tractor	No	40	84		2345	0

Calculated (dBA)

Equipment	*Lmax	Leq
Dozer	48.2	44.3
Tractor	50.6	46.6
Total	50.6	48.6

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	2085	0
Tractor	No	40	84		2085	0

Calculated (dBA)

Equipment	*Lmax	Leq
Dozer	49.3	45.3
Tractor	51.6	47.6
Total	51.6	49.6

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	2890	0
Tractor	No	40	84		2890	0

Calculated (dBA)

Equipment	*Lmax	Leq
Dozer	46.4	42.5
Tractor	48.8	44.8
Total	48.8	46.8

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	5000	0
Tractor	No	40	84		5000	0

Calculated (dBA)

Equipment	*Lmax	Leq
Dozer	41.7	37.7
Tractor	44	40
Total	44	42

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Site 8	Residentia	51.9	51.9	51.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	5250	0

Tractor	No	40	84	5250	0

Calculated (dBA)

Equipment	*Lmax	Leq
Dozer	41.2	37.3
Tractor	43.6	39.6
Total	43.6	41.6

*Calculated Lmax is the Loudest value.

C.3

Building C Demolition

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Desc Building C Demolition

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 2	Residentia	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	700	0
Excavator	No	40		80.7	700	0
Excavator	No	40		80.7	700	0
Excavator	No	40		80.7	700	0
Dozer	No	40		81.7	700	0
Dozer	No	40		81.7	700	0

Calculated (dBA)

Equipment		*Lmax	Leq
Concrete Saw		66.7	59.7
Excavator		57.8	53.8
Excavator		57.8	53.8
Excavator		57.8	53.8
Dozer		58.7	54.8
Dozer		58.7	54.8
	Total	66.7	63.5

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	1030	0
Excavator	No	40		80.7	1030	0
Excavator	No	40		80.7	1030	0
Excavator	No	40		80.7	1030	0

Dozer	No	40	81.7	1030	0
Dozer	No	40	81.7	1030	0

Calculated (dBA)

Equipment	*Lmax	Leq
Concrete Saw	63.3	56.3
Excavator	54.4	50.5
Excavator	54.4	50.5
Excavator	54.4	50.5
Dozer	55.4	51.4
Dozer	55.4	51.4
Total	63.3	60.2

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Baselines (dBA)

Descriptio	Land Use	Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	2345	0
Excavator	No	40		80.7	2345	0
Excavator	No	40		80.7	2345	0
Excavator	No	40		80.7	2345	0
Dozer	No	40		81.7	2345	0
Dozer	No	40		81.7	2345	0

Calculated (dBA)

Equipment	*Lmax	Leq
Concrete Saw	56.2	49.2
Excavator	47.3	43.3
Excavator	47.3	43.3
Excavator	47.3	43.3
Dozer	48.2	44.3
Dozer	48.2	44.3
Total	56.2	53

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	2085	0
Excavator	No	40		80.7	2085	0
Excavator	No	40		80.7	2085	0
Excavator	No	40		80.7	2085	0
Dozer	No	40		81.7	2085	0
Dozer	No	40		81.7	2085	0

Calculated (dBA)

Equipment	*Lmax	Leq
Concrete Saw	57.2	50.2
Excavator	48.3	44.3
Excavator	48.3	44.3
Excavator	48.3	44.3
Dozer	49.3	45.3
Dozer	49.3	45.3
Total	57.2	54

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	2890	0
Excavator	No	40		80.7	2890	0
Excavator	No	40		80.7	2890	0
Excavator	No	40		80.7	2890	0
Dozer	No	40		81.7	2890	0
Dozer	No	40		81.7	2890	0

Calculated (dBA)

Equipment	*Lmax	Leq

Concrete Saw		54.3	47.4
Excavator		45.5	41.5
Excavator		45.5	41.5
Excavator		45.5	41.5
Dozer		46.4	42.5
Dozer		46.4	42.5
	Total	54.3	51.2

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	5000	0
Excavator	No	40		80.7	5000	0
Excavator	No	40		80.7	5000	0
Excavator	No	40		80.7	5000	0
Dozer	No	40		81.7	5000	0
Dozer	No	40		81.7	5000	0

Calculated (dBA)

Equipment		*Lmax	Leq
Concrete Saw		49.6	42.6
Excavator		40.7	36.7
Excavator		40.7	36.7
Excavator		40.7	36.7
Dozer		41.7	37.7
Dozer		41.7	37.7
	Total	49.6	46.4

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Site 8	Residentia	51.9	51.9	51.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)

Concrete Saw	No	20	89.6	5250	0
Excavator	No	40	80.7	5250	0
Excavator	No	40	80.7	5250	0
Excavator	No	40	80.7	5250	0
Dozer	No	40	81.7	5250	0
Dozer	No	40	81.7	5250	0

Calculated (dBA)

Equipment	*Lmax	Leq
Concrete Saw	49.2	42.2
Excavator	40.3	36.3
Excavator	40.3	36.3
Excavator	40.3	36.3
Dozer	41.2	37.3
Dozer	41.2	37.3
Total	49.2	46

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descı CUP Construction

---- Receptor #1 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 2	Residentia	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	700	0
Forklift	No	40	85		700	0
Generator	No	50		80.6	700	0
Tractor	No	40	84		700	0
Welder / Torch	No	40		74	700	0
Tractor	No	40	84		700	0
Tractor	No	40	84		700	0
Forklift	No	40		0	700	0
Forklift	No	40		0	700	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	57.6	49.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	57.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	51.1	47.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-22.9	-26.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-22.9	-26.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	62.1	64.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	1030	0
Forklift	No	40	85		1030	0
Generator	No	50		80.6	1030	0
Tractor	No	40	84		1030	0
Welder / Torch	No	40		74	1030	0
Tractor	No	40	84		1030	0
Tractor	No	40	84		1030	0
Forklift	No	40		0	1030	0
Forklift	No	40		0	1030	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	54.3	46.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	58.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	54.4	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	57.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	47.7	43.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	57.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	57.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-26.3	-30.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-26.3	-30.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	58.7	60.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	2345	0
Forklift	No	40	85		2345	0
Generator	No	50		80.6	2345	0
Tractor	No	40	84		2345	0
Welder / Torch	No	40		74	2345	0
Tractor	No	40	84		2345	0
Tractor	No	40	84		2345	0
Forklift	No	40		0	2345	0
Forklift	No	40		0	2345	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	47.1	39.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	47.2	44.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	50.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	40.6	36.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	50.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	50.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-33.4	-37.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-33.4	-37.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	51.6	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	2085	0
Forklift	No	40	85		2085	0
Generator	No	50		80.6	2085	0
Tractor	No	40	84		2085	0
Welder / Torch	No	40		74	2085	0
Tractor	No	40	84		2085	0
Tractor	No	40	84		2085	0
Forklift	No	40		0	2085	0
Forklift	No	40		0	2085	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	48.1	40.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	48.2	45.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	41.6	37.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-32.4	-36.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-32.4	-36.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	52.6	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	2890	0
Forklift	No	40	85		2890	0
Generator	No	50		80.6	2890	0
Tractor	No	40	84		2890	0
Welder / Torch	No	40		74	2890	0
Tractor	No	40	84		2890	0
Tractor	No	40	84		2890	0
Forklift	No	40		0	2890	0
Forklift	No	40		0	2890	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	45.3	37.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	49.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	45.4	42.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	38.8	34.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-35.2	-39.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-35.2	-39.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.8	51.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	5000	0
Forklift	No	40	85		5000	0
Generator	No	50		80.6	5000	0
Tractor	No	40	84		5000	0
Welder / Torch	No	40		74	5000	0
Tractor	No	40	84		5000	0
Tractor	No	40	84		5000	0
Forklift	No	40		0	5000	0
Forklift	No	40		0	5000	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	40.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	45	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	40.6	37.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	44	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	34	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	44	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	44	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-40	-44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-40	-44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	45	47.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 8	Residentia	51.9	51.9	51.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	5250	0
Forklift	No	40	85		5250	0
Generator	No	50		80.6	5250	0
Tractor	No	40	84		5250	0
Welder / Torch	No	40		74	5250	0
Tractor	No	40	84		5250	0
Tractor	No	40	84		5250	0
Forklift	No	40		0	5250	0
Forklift	No	40		0	5250	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	40.1	32.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	44.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	40.2	37.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	43.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	33.6	29.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	43.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	43.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-40.4	-44.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-40.4	-44.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	44.6	46.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

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---- Receptor #1 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 2	Residentia	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		700	0
Forklift	No	40	85		700	0
Forklift	No	40	85		700	0
Generator	No	50		80.6	700	0
Welder / Torch	No	40		74	700	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	57.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	51.1	47.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	62.1	63.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		1030	0
Forklift	No	40	85		1030	0
Forklift	No	40	85		1030	0
Generator	No	50		80.6	1030	0
Welder / Torch	No	40		74	1030	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	58.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	58.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	58.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	54.4	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	47.7	43.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	58.7	60.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		2345	0
Forklift	No	40	85		2345	0
Forklift	No	40	85		2345	0
Generator	No	50		80.6	2345	0
Welder / Torch	No	40		74	2345	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	47.2	44.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	40.6	36.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	51.6	53.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		2085	0
Forklift	No	40	85		2085	0
Forklift	No	40	85		2085	0
Generator	No	50		80.6	2085	0
Welder / Torch	No	40		74	2085	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	48.2	45.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	41.6	37.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	52.6	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		2890	0
Forklift	No	40	85		2890	0
Forklift	No	40	85		2890	0
Generator	No	50		80.6	2890	0
Welder / Torch	No	40		74	2890	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	49.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	49.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	49.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	45.4	42.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	38.8	34.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.8	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		5000	0
Forklift	No	40	85		5000	0
Forklift	No	40	85		5000	0
Generator	No	50		80.6	5000	0
Welder / Torch	No	40		74	5000	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	45	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	45	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	45	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	40.6	37.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	34	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	45	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 8	Residentia	51.9	51.9	51.9

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		5250	0
Forklift	No	40	85		5250	0
Forklift	No	40	85		5250	0
Generator	No	50		80.6	5250	0
Welder / Torch	No	40		74	5250	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	44.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	44.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	44.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	40.2	37.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	33.6	29.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	44.6	46.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

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Case Descı New Tower Site Prep

---- Receptor #1 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 2	Residentia	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	700	0
Dozer	No	40		81.7	700	0
Dozer	No	40		81.7	700	0
Tractor	No	40	84		700	0
Tractor	No	40	84		700	0
Tractor	No	40	84		700	0
Tractor	No	40	84		700	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		58.7	54.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		58.7	54.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		58.7	54.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	61.1	64.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	1030	0
Dozer	No	40		81.7	1030	0
Dozer	No	40		81.7	1030	0
Tractor	No	40	84		1030	0
Tractor	No	40	84		1030	0
Tractor	No	40	84		1030	0
Tractor	No	40	84		1030	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		55.4	51.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		55.4	51.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		55.4	51.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		57.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		57.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		57.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		57.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	57.7	61.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	2345	0
Dozer	No	40		81.7	2345	0
Dozer	No	40		81.7	2345	0
Tractor	No	40	84		2345	0
Tractor	No	40	84		2345	0
Tractor	No	40	84		2345	0
Tractor	No	40	84		2345	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	48.2	44.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	48.2	44.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	48.2	44.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	50.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	50.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	50.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	50.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	50.6	54.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	2085	0
Dozer	No	40		81.7	2085	0
Dozer	No	40		81.7	2085	0
Tractor	No	40	84		2085	0
Tractor	No	40	84		2085	0
Tractor	No	40	84		2085	0
Tractor	No	40	84		2085	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	49.3	45.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	49.3	45.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	49.3	45.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	51.6	55.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	2890	0
Dozer	No	40		81.7	2890	0
Dozer	No	40		81.7	2890	0
Tractor	No	40	84		2890	0
Tractor	No	40	84		2890	0
Tractor	No	40	84		2890	0
Tractor	No	40	84		2890	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	46.4	42.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	46.4	42.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	46.4	42.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	48.8	52.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	5000	0
Dozer	No	40		81.7	5000	0
Dozer	No	40		81.7	5000	0
Tractor	No	40	84		5000	0
Tractor	No	40	84		5000	0
Tractor	No	40	84		5000	0
Tractor	No	40	84		5000	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	41.7	37.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	41.7	37.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	41.7	37.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	44	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	44	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	44	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	44	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	44	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 8	Residentia	51.9	51.9	51.9

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	5250	0
Dozer	No	40		81.7	5250	0
Dozer	No	40		81.7	5250	0
Tractor	No	40	84		5250	0
Tractor	No	40	84		5250	0
Tractor	No	40	84		5250	0
Tractor	No	40	84		5250	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	41.2	37.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	41.2	37.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	41.2	37.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	43.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	43.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	43.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	43.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	43.6	47.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

C.7

New Tower Grading

Roadway Construction Noise Model (RCNM),Version 1.1

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Case Descı New Tower Grading

---- Receptor #1 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 2	Residentia	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	700	0
Grader	No	40	85		700	0
Dozer	No	40		81.7	700	0
Tractor	No	40	84		700	0
Tractor	No	40	84		700	0
Tractor	No	40	84		700	0

Results

		Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		57.8	53.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader		62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		58.7	54.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	62.1	64.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	1030	0
Grader	No	40	85		1030	0
Dozer	No	40		81.7	1030	0
Tractor	No	40	84		1030	0
Tractor	No	40	84		1030	0
Tractor	No	40	84		1030	0

Results

		Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		54.4	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader		58.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		55.4	51.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		57.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		57.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		57.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	58.7	61	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	2345	0

Grader	No	40	85		2345	0
Dozer	No	40		81.7	2345	0
Tractor	No	40	84		2345	0
Tractor	No	40	84		2345	0
Tractor	No	40	84		2345	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	47.3	43.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	48.2	44.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	50.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	50.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	50.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	51.6	53.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	2085	0
Grader	No	40	85		2085	0
Dozer	No	40		81.7	2085	0
Tractor	No	40	84		2085	0
Tractor	No	40	84		2085	0
Tractor	No	40	84		2085	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	48.3	44.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	49.3	45.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	52.6	54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	2890	0
Grader	No	40	85		2890	0
Dozer	No	40		81.7	2890	0
Tractor	No	40	84		2890	0
Tractor	No	40	84		2890	0
Tractor	No	40	84		2890	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	45.5	41.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	49.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	46.4	42.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Tractor		48.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	49.8	52	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	5000	0
Grader	No	40	85		5000	0
Dozer	No	40		81.7	5000	0
Tractor	No	40	84		5000	0
Tractor	No	40	84		5000	0
Tractor	No	40	84		5000	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	40.7	36.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	45	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	41.7	37.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	44	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	44	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	44	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	45	47.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 8	Residentia	51.9	51.9	51.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	5250	0
Grader	No	40	85		5250	0
Dozer	No	40		81.7	5250	0
Tractor	No	40	84		5250	0
Tractor	No	40	84		5250	0
Tractor	No	40	84		5250	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	40.3	36.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	44.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	41.2	37.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	43.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	43.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	43.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	44.6	46.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

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Report dat ########
Case Desc New Tower Construction

---- Receptor #1 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 2	Residentia	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	700	0
Forklift	No	40	85		700	0
Forklift	No	40	85		700	0
Forklift	No	40	85		700	0
Generator	No	50		80.6	700	0
Tractor	No	40	84		700	0
Tractor	No	40	84		700	0
Tractor	No	40	84		700	0

Calculated (dBA)

Equipment		*Lmax	Leq
Crane		57.6	49.7
Forklift		62.1	58.1
Forklift		62.1	58.1
Forklift		62.1	58.1
Generator		57.7	54.7
Tractor		61.1	57.1
Tractor		61.1	57.1
Tractor		61.1	57.1
	Total	62.1	65.9

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)

Crane	No	16		80.6	1030	0
Forklift	No	40	85		1030	0
Forklift	No	40	85		1030	0
Forklift	No	40	85		1030	0
Generator	No	50		80.6	1030	0
Tractor	No	40	84		1030	0
Tractor	No	40	84		1030	0
Tractor	No	40	84		1030	0

Calculated (dBA)

Equipment	*Lmax	Leq
Crane	54.3	46.3
Forklift	58.7	54.7
Forklift	58.7	54.7
Forklift	58.7	54.7
Generator	54.4	51.3
Tractor	57.7	53.7
Tractor	57.7	53.7
Tractor	57.7	53.7
Total	58.7	62.5

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	2345	0
Forklift	No	40	85		2345	0
Forklift	No	40	85		2345	0
Forklift	No	40	85		2345	0
Generator	No	50		80.6	2345	0
Tractor	No	40	84		2345	0
Tractor	No	40	84		2345	0
Tractor	No	40	84		2345	0

Calculated (dBA)

Equipment	*Lmax	Leq
Crane	47.1	39.2

Forklift		51.6	47.6
Forklift		51.6	47.6
Forklift		51.6	47.6
Generator		47.2	44.2
Tractor		50.6	46.6
Tractor		50.6	46.6
Tractor		50.6	46.6
	Total	51.6	55.4

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	2085	0
Forklift	No	40	85		2085	0
Forklift	No	40	85		2085	0
Forklift	No	40	85		2085	0
Generator	No	50		80.6	2085	0
Tractor	No	40	84		2085	0
Tractor	No	40	84		2085	0
Tractor	No	40	84		2085	0

Calculated (dBA)

Equipment		*Lmax	Leq
Crane		48.1	40.2
Forklift		52.6	48.6
Forklift		52.6	48.6
Forklift		52.6	48.6
Generator		48.2	45.2
Tractor		51.6	47.6
Tractor		51.6	47.6
Tractor		51.6	47.6
	Total	52.6	56.4

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	2890	0
Forklift	No	40	85		2890	0
Forklift	No	40	85		2890	0
Forklift	No	40	85		2890	0
Generator	No	50		80.6	2890	0
Tractor	No	40	84		2890	0
Tractor	No	40	84		2890	0
Tractor	No	40	84		2890	0

Calculated (dBA)

Equipment	*Lmax	Leq
Crane	45.3	37.4
Forklift	49.8	45.8
Forklift	49.8	45.8
Forklift	49.8	45.8
Generator	45.4	42.4
Tractor	48.8	44.8
Tractor	48.8	44.8
Tractor	48.8	44.8
Total	49.8	53.6

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	5000	0
Forklift	No	40	85		5000	0
Forklift	No	40	85		5000	0
Forklift	No	40	85		5000	0
Generator	No	50		80.6	5000	0
Tractor	No	40	84		5000	0
Tractor	No	40	84		5000	0
Tractor	No	40	84		5000	0

Calculated (dBA)

Equipment	*Lmax	Leq
Crane	40.6	32.6
Forklift	45	41
Forklift	45	41
Forklift	45	41
Generator	40.6	37.6
Tractor	44	40
Tractor	44	40
Tractor	44	40
Total	45	48.8

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

Baselines (dBA)

Descriptio	Land Use	Daytime	Evening	Night
Site 8	Residentia	51.9	51.9	51.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	5250	0
Forklift	No	40	85		5250	0
Forklift	No	40	85		5250	0
Forklift	No	40	85		5250	0
Generator	No	50		80.6	5250	0
Tractor	No	40	84		5250	0
Tractor	No	40	84		5250	0
Tractor	No	40	84		5250	0

Calculated (dBA)

Equipment	*Lmax	Leq
Crane	40.1	32.2
Forklift	44.6	40.6
Forklift	44.6	40.6
Forklift	44.6	40.6
Generator	40.2	37.2
Tractor	43.6	39.6
Tractor	43.6	39.6
Tractor	43.6	39.6
Total	44.6	48.4

*Calculated Lmax is the Loudest value.

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Report dat ########
Case Descı CUP Construction

---- Receptor #1 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 2	Residentia	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	700	0
Forklift	No	40	85		700	0
Generator	No	50		80.6	700	0
Tractor	No	40	84		700	0
Welder / Torch	No	40		74	700	0
Tractor	No	40	84		700	0
Tractor	No	40	84		700	0
Forklift	No	40		0	700	0
Forklift	No	40		0	700	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	57.6	49.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	57.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	51.1	47.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-22.9	-26.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-22.9	-26.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	62.1	64.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	1030	0
Forklift	No	40	85		1030	0
Generator	No	50		80.6	1030	0
Tractor	No	40	84		1030	0
Welder / Torch	No	40		74	1030	0
Tractor	No	40	84		1030	0
Tractor	No	40	84		1030	0
Forklift	No	40		0	1030	0
Forklift	No	40		0	1030	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	54.3	46.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	58.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	54.4	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	57.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	47.7	43.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	57.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	57.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-26.3	-30.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-26.3	-30.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	58.7	60.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	2345	0
Forklift	No	40	85		2345	0
Generator	No	50		80.6	2345	0
Tractor	No	40	84		2345	0
Welder / Torch	No	40		74	2345	0
Tractor	No	40	84		2345	0
Tractor	No	40	84		2345	0
Forklift	No	40		0	2345	0
Forklift	No	40		0	2345	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	47.1	39.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	47.2	44.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	50.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	40.6	36.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	50.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	50.6	46.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-33.4	-37.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-33.4	-37.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	51.6	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	2085	0
Forklift	No	40	85		2085	0
Generator	No	50		80.6	2085	0
Tractor	No	40	84		2085	0
Welder / Torch	No	40		74	2085	0
Tractor	No	40	84		2085	0
Tractor	No	40	84		2085	0
Forklift	No	40		0	2085	0
Forklift	No	40		0	2085	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	48.1	40.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	48.2	45.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	41.6	37.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-32.4	-36.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-32.4	-36.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	52.6	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	2890	0
Forklift	No	40	85		2890	0
Generator	No	50		80.6	2890	0
Tractor	No	40	84		2890	0
Welder / Torch	No	40		74	2890	0
Tractor	No	40	84		2890	0
Tractor	No	40	84		2890	0
Forklift	No	40		0	2890	0
Forklift	No	40		0	2890	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	45.3	37.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	49.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	45.4	42.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	38.8	34.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	48.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-35.2	-39.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-35.2	-39.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.8	51.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	5000	0
Forklift	No	40	85		5000	0
Generator	No	50		80.6	5000	0
Tractor	No	40	84		5000	0
Welder / Torch	No	40		74	5000	0
Tractor	No	40	84		5000	0
Tractor	No	40	84		5000	0
Forklift	No	40		0	5000	0
Forklift	No	40		0	5000	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	40.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	45	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	40.6	37.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	44	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	34	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	44	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	44	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-40	-44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-40	-44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	45	47.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 8	Residentia	51.9	51.9	51.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	5250	0
Forklift	No	40	85		5250	0
Generator	No	50		80.6	5250	0
Tractor	No	40	84		5250	0
Welder / Torch	No	40		74	5250	0
Tractor	No	40	84		5250	0
Tractor	No	40	84		5250	0
Forklift	No	40		0	5250	0
Forklift	No	40		0	5250	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	40.1	32.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	44.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	40.2	37.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	43.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	33.6	29.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	43.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	43.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-40.4	-44.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	-40.4	-44.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	44.6	46.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Building A Renovation

---- Receptor #1 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 2	Residentia	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		700	0
Generator	No	50		80.6	700	0
Welder / Torch	No	40		74	700	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	57.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	51.1	47.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	62.1	60	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		1030	0
Generator	No	50		80.6	1030	0
Welder / Torch	No	40		74	1030	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	58.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	54.4	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	47.7	43.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	58.7	56.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		2345	0
Generator	No	50		80.6	2345	0
Welder / Torch	No	40		74	2345	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	47.2	44.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	40.6	36.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	51.6	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		2085	0
Generator	No	50		80.6	2085	0
Welder / Torch	No	40		74	2085	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	48.2	45.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	41.6	37.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	52.6	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		2890	0
Generator	No	50		80.6	2890	0
Welder / Torch	No	40		74	2890	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	49.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	45.4	42.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	38.8	34.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.8	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		5000	0
Generator	No	50		80.6	5000	0
Welder / Torch	No	40		74	5000	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	45	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	40.6	37.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	34	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	45	42.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night

Site 8	Residentia	51.9	51.9	51.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		5250	0
Generator	No	50		80.6	5250	0
Welder / Torch	No	40		74	5250	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	44.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	40.2	37.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	33.6	29.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	44.6	42.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Desc New Tower Architectural Coatings

---- Receptor #1 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 2	Residentia	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	700	0

Calculated (dBA)

Equipment	*Lmax	Leq
Compressor (air)	54.7	50.8
Total	54.7	50.8

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	1030	0

Calculated (dBA)

Equipment	*Lmax	Leq
Compressor (air)	51.4	47.4
Total	51.4	47.4

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	2345	0

Calculated (dBA)

Equipment	*Lmax	Leq
Compressor (air)	44.2	40.3
Total	44.2	40.3

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Baselines (dBA)

Descriptio	Land Use	Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	2085	0

Calculated (dBA)

Equipment	*Lmax	Leq
Compressor (air)	45.3	41.3
Total	45.3	41.3

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

Baselines (dBA)

Descriptio	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	2890	0

Calculated (dBA)

Equipment	*Lmax	Leq
Compressor (air)	42.4	38.5
Total	42.4	38.5

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	5000	0

Calculated (dBA)

Equipment	*Lmax	Leq
Compressor (air)	37.7	33.7
Total	37.7	33.7

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Site 8	Residentia	51.9	51.9	51.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	5250	0

Calculated (dBA)

Equipment	*Lmax	Leq
Compressor (air)	37.2	33.3
Total	37.2	33.3

*Calculated Lmax is the Loudest value.

C.12

South Parking Lot

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descı South Parking Lot

---- Receptor #1 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 2	Residentia	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	700	0
Paver	No	50		77.2	700	0
Paver	No	50		77.2	700	0
Paver	No	50		77.2	700	0
Roller	No	20		80	700	0
Roller	No	20		80	700	0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	54.3	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	54.3	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	54.3	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	54.3	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	57.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	57.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	57.1	58.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	1030	0
Paver	No	50		77.2	1030	0
Paver	No	50		77.2	1030	0
Paver	No	50		77.2	1030	0
Roller	No	20		80	1030	0
Roller	No	20		80	1030	0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	50.9	47.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	50.9	47.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	50.9	47.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	50.9	47.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	53.7	46.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	53.7	46.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	53.7	55.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	2345	0

Paver	No	50	77.2	2345	0
Paver	No	50	77.2	2345	0
Paver	No	50	77.2	2345	0
Roller	No	20	80	2345	0
Roller	No	20	80	2345	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	43.8	40.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	43.8	40.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	43.8	40.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	43.8	40.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	46.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	46.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	46.6	48.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	2085	0
Paver	No	50		77.2	2085	0
Paver	No	50		77.2	2085	0
Paver	No	50		77.2	2085	0
Roller	No	20		80	2085	0
Roller	No	20		80	2085	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	44.8	41.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	44.8	41.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	44.8	41.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	44.8	41.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	47.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	47.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	47.6	49.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	2890	0
Paver	No	50		77.2	2890	0
Paver	No	50		77.2	2890	0
Paver	No	50		77.2	2890	0
Roller	No	20		80	2890	0
Roller	No	20		80	2890	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	42	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	42	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	42	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	42	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	44.8	37.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roller		44.8	37.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	44.8	46.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	5000	0
Paver	No	50		77.2	5000	0
Paver	No	50		77.2	5000	0
Paver	No	50		77.2	5000	0
Roller	No	20		80	5000	0
Roller	No	20		80	5000	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	37.2	34.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	37.2	34.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	37.2	34.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	37.2	34.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	40	33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	40	33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	40	41.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 8	Residentia	51.9	51.9	51.9

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	5250	0
Paver	No	50		77.2	5250	0
Paver	No	50		77.2	5250	0
Paver	No	50		77.2	5250	0
Roller	No	20		80	5250	0
Roller	No	20		80	5250	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	36.8	33.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	36.8	33.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	36.8	33.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	36.8	33.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	39.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	39.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	39.6	41.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descı Building A Remodel

---- Receptor #1 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 2	Residentia	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		700	0
Forklift	No	40	85		700	0
Forklift	No	40	85		700	0
Generator	No	50		80.6	700	0
Welder / Torch	No	40		74	700	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	57.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	51.1	47.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	62.1	63.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		1030	0
Forklift	No	40	85		1030	0
Forklift	No	40	85		1030	0
Generator	No	50		80.6	1030	0
Welder / Torch	No	40		74	1030	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	58.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	58.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	58.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	54.4	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	47.7	43.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	58.7	60.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		2345	0
Forklift	No	40	85		2345	0
Forklift	No	40	85		2345	0
Generator	No	50		80.6	2345	0
Welder / Torch	No	40		74	2345	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	51.6	47.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	47.2	44.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	40.6	36.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	51.6	53.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		2085	0
Forklift	No	40	85		2085	0
Forklift	No	40	85		2085	0
Generator	No	50		80.6	2085	0
Welder / Torch	No	40		74	2085	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	52.6	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	48.2	45.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	41.6	37.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	52.6	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		2890	0
Forklift	No	40	85		2890	0
Forklift	No	40	85		2890	0
Generator	No	50		80.6	2890	0
Welder / Torch	No	40		74	2890	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	49.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	49.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	49.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	45.4	42.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	38.8	34.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.8	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		5000	0
Forklift	No	40	85		5000	0
Forklift	No	40	85		5000	0
Generator	No	50		80.6	5000	0
Welder / Torch	No	40		74	5000	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	45	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	45	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	45	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	40.6	37.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	34	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	45	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 8	Residentia	51.9	51.9	51.9

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40	85		5250	0
Forklift	No	40	85		5250	0
Forklift	No	40	85		5250	0
Generator	No	50		80.6	5250	0
Welder / Torch	No	40		74	5250	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Forklift	44.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	44.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	44.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	40.2	37.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	33.6	29.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	44.6	46.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Desc Building B-H Demolition

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 2	Residentia	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	700	0
Excavator	No	40		80.7	700	0
Excavator	No	40		80.7	700	0
Excavator	No	40		80.7	700	0
Dozer	No	40		81.7	700	0
Dozer	No	40		81.7	700	0

Calculated (dBA)

Equipment		*Lmax	Leq
Concrete Saw		66.7	59.7
Excavator		57.8	53.8
Excavator		57.8	53.8
Excavator		57.8	53.8
Dozer		58.7	54.8
Dozer		58.7	54.8
	Total	66.7	63.5

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	1030	0
Excavator	No	40		80.7	1030	0
Excavator	No	40		80.7	1030	0
Excavator	No	40		80.7	1030	0

Dozer	No	40	81.7	1030	0
Dozer	No	40	81.7	1030	0

Calculated (dBA)

Equipment	*Lmax	Leq
Concrete Saw	63.3	56.3
Excavator	54.4	50.5
Excavator	54.4	50.5
Excavator	54.4	50.5
Dozer	55.4	51.4
Dozer	55.4	51.4
Total	63.3	60.2

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Baselines (dBA)

Descriptio	Land Use	Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	2345	0
Excavator	No	40		80.7	2345	0
Excavator	No	40		80.7	2345	0
Excavator	No	40		80.7	2345	0
Dozer	No	40		81.7	2345	0
Dozer	No	40		81.7	2345	0

Calculated (dBA)

Equipment	*Lmax	Leq
Concrete Saw	56.2	49.2
Excavator	47.3	43.3
Excavator	47.3	43.3
Excavator	47.3	43.3
Dozer	48.2	44.3
Dozer	48.2	44.3
Total	56.2	53

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	2085	0
Excavator	No	40		80.7	2085	0
Excavator	No	40		80.7	2085	0
Excavator	No	40		80.7	2085	0
Dozer	No	40		81.7	2085	0
Dozer	No	40		81.7	2085	0

Calculated (dBA)

Equipment	*Lmax	Leq
Concrete Saw	57.2	50.2
Excavator	48.3	44.3
Excavator	48.3	44.3
Excavator	48.3	44.3
Dozer	49.3	45.3
Dozer	49.3	45.3
Total	57.2	54

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	2890	0
Excavator	No	40		80.7	2890	0
Excavator	No	40		80.7	2890	0
Excavator	No	40		80.7	2890	0
Dozer	No	40		81.7	2890	0
Dozer	No	40		81.7	2890	0

Calculated (dBA)

Equipment	*Lmax	Leq

Concrete Saw		54.3	47.4
Excavator		45.5	41.5
Excavator		45.5	41.5
Excavator		45.5	41.5
Dozer		46.4	42.5
Dozer		46.4	42.5
	Total	54.3	51.2

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	5000	0
Excavator	No	40		80.7	5000	0
Excavator	No	40		80.7	5000	0
Excavator	No	40		80.7	5000	0
Dozer	No	40		81.7	5000	0
Dozer	No	40		81.7	5000	0

Calculated (dBA)

Equipment		*Lmax	Leq
Concrete Saw		49.6	42.6
Excavator		40.7	36.7
Excavator		40.7	36.7
Excavator		40.7	36.7
Dozer		41.7	37.7
Dozer		41.7	37.7
	Total	49.6	46.4

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Site 8	Residentia	51.9	51.9	51.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)

Concrete Saw	No	20	89.6	5250	0
Excavator	No	40	80.7	5250	0
Excavator	No	40	80.7	5250	0
Excavator	No	40	80.7	5250	0
Dozer	No	40	81.7	5250	0
Dozer	No	40	81.7	5250	0

Calculated (dBA)

Equipment	*Lmax	Leq
Concrete Saw	49.2	42.2
Excavator	40.3	36.3
Excavator	40.3	36.3
Excavator	40.3	36.3
Dozer	41.2	37.3
Dozer	41.2	37.3
Total	49.2	46

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descı South Parking Lot

---- Receptor #1 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 2	Residentia	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	700	0
Paver	No	50		77.2	700	0
Paver	No	50		77.2	700	0
Paver	No	50		77.2	700	0
Roller	No	20		80	700	0
Roller	No	20		80	700	0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	54.3	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	54.3	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	54.3	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	54.3	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	57.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	57.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	57.1	58.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 3	Residentia	58.5	58.5	58.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	1030	0
Paver	No	50		77.2	1030	0
Paver	No	50		77.2	1030	0
Paver	No	50		77.2	1030	0
Roller	No	20		80	1030	0
Roller	No	20		80	1030	0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	50.9	47.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	50.9	47.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	50.9	47.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	50.9	47.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	53.7	46.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	53.7	46.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	53.7	55.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Site 4	Residentia	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	2345	0

Paver	No	50	77.2	2345	0
Paver	No	50	77.2	2345	0
Paver	No	50	77.2	2345	0
Roller	No	20	80	2345	0
Roller	No	20	80	2345	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	43.8	40.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	43.8	40.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	43.8	40.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	43.8	40.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	46.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	46.6	39.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	46.6	48.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 5	Residentia	47.7	47.7	47.7

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	2085	0
Paver	No	50		77.2	2085	0
Paver	No	50		77.2	2085	0
Paver	No	50		77.2	2085	0
Roller	No	20		80	2085	0
Roller	No	20		80	2085	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	44.8	41.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	44.8	41.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	44.8	41.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	44.8	41.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	47.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	47.6	40.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	47.6	49.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 6	Residentia	48.1	48.1	48.1

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	2890	0
Paver	No	50		77.2	2890	0
Paver	No	50		77.2	2890	0
Paver	No	50		77.2	2890	0
Roller	No	20		80	2890	0
Roller	No	20		80	2890	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	42	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	42	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	42	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	42	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	44.8	37.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roller		44.8	37.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	44.8	46.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 7	Residentia	59.2	59.2	59.2

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	5000	0
Paver	No	50		77.2	5000	0
Paver	No	50		77.2	5000	0
Paver	No	50		77.2	5000	0
Roller	No	20		80	5000	0
Roller	No	20		80	5000	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	37.2	34.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	37.2	34.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	37.2	34.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	37.2	34.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	40	33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	40	33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	40	41.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Site 8	Residentia	51.9	51.9	51.9

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	5250	0
Paver	No	50		77.2	5250	0
Paver	No	50		77.2	5250	0
Paver	No	50		77.2	5250	0
Roller	No	20		80	5250	0
Roller	No	20		80	5250	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	36.8	33.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	36.8	33.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	36.8	33.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	36.8	33.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	39.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	39.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	39.6	41.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

APPENDIX D

Construction Vibration Worksheets

Construction Vibration Model
(110 feet)

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	110	0.010	0.002	68
Jackhammer		1	0.035	110	0.004	0.001	60
Large bulldozer		1	0.089	110	0.010	0.002	68
Loaded trucks		1	0.076	110	0.008	0.002	66
Pile Drive (impact)		1	0.644	110	0.070	0.017	85
Vibratory Roller		1	0.210	110	0.023	0.006	75
Small bulldozer		1	0.003	110	0.000	0.000	38

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment**

Meridian Consultants LLC **IVMC** **Rev: 11/12/2012**

Construction Vibration Model
(700 feet)

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	700	0.001	0.000	44
Jackhammer		1	0.035	700	0.000	0.000	35
Large bulldozer		1	0.089	700	0.001	0.000	44
Loaded trucks		1	0.076	700	0.001	0.000	42
Pile Drive (impact)		1	0.644	700	0.004	0.001	61
Vibratory Roller		1	0.210	700	0.001	0.000	51
Small bulldozer		1	0.003	700	0.000	0.000	14

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment**

Meridian Consultants LLC **IVMC** **Rev: 11/12/2012**

Construction Vibration Model
(1,030 feet)

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	1030	0.000	0.000	38
Jackhammer		1	0.035	1030	0.000	0.000	30
Large bulldozer		1	0.089	1030	0.000	0.000	38
Loaded trucks		1	0.076	1030	0.000	0.000	37
Pile Drive (impact)		1	0.644	1030	0.002	0.001	56
Vibratory Roller		1	0.210	1030	0.001	0.000	46
Small bulldozer		1	0.003	1030	0.000	0.000	9

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment**

Meridian Consultants LLC

IVMC
Construction Vibration Model
(2,345 feet)

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	2345	0.000	0.000	28
Jackhammer		1	0.035	2345	0.000	0.000	20
Large bulldozer		1	0.089	2345	0.000	0.000	28
Loaded trucks		1	0.076	2345	0.000	0.000	26
Pile Drive (impact)		1	0.644	2345	0.001	0.000	45
Vibratory Roller		1	0.210	2345	0.000	0.000	35
Small bulldozer		1	0.003	2345	0.000	0.000	-2

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment**

Meridian Consultants LLC

IVMC
Construction Vibration Model
(2,085 feet)

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	2085	0.000	0.000	29
Jackhammer		1	0.035	2085	0.000	0.000	21
Large bulldozer		1	0.089	2085	0.000	0.000	29
Loaded trucks		1	0.076	2085	0.000	0.000	28
Pile Drive (impact)		1	0.644	2085	0.001	0.000	47
Vibratory Roller		1	0.210	2085	0.000	0.000	37
Small bulldozer		1	0.003	2085	0.000	0.000	0

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment**

Meridian Consultants LLC

IVMC
Construction Vibration Model
(2,890 feet)

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	2890	0.000	0.000	25
Jackhammer		1	0.035	2890	0.000	0.000	17
Large bulldozer		1	0.089	2890	0.000	0.000	25
Loaded trucks		1	0.076	2890	0.000	0.000	24
Pile Drive (impact)		1	0.644	2890	0.001	0.000	42
Vibratory Roller		1	0.210	2890	0.000	0.000	33
Small bulldozer		1	0.003	2890	0.000	0.000	-4

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment**

Meridian Consultants LLC

IVMC
Construction Vibration Model
(5,000 feet)

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	5000	0.000	0.000	18
Jackhammer		1	0.035	5000	0.000	0.000	10
Large bulldozer		1	0.089	5000	0.000	0.000	18
Loaded trucks		1	0.076	5000	0.000	0.000	17
Pile Drive (impact)		1	0.644	5000	0.000	0.000	35
Vibratory Roller		1	0.210	5000	0.000	0.000	25
Small bulldozer		1	0.003	5000	0.000	0.000	-12

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment**

Meridian Consultants LLC

IVMC
Construction Vibration Model
(5,250 feet)

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	5250	0.000	0.000	17
Jackhammer		1	0.035	5250	0.000	0.000	9
Large bulldozer		1	0.089	5250	0.000	0.000	17
Loaded trucks		1	0.076	5250	0.000	0.000	16
Pile Drive (impact)		1	0.644	5250	0.000	0.000	34
Vibratory Roller		1	0.210	5250	0.000	0.000	25
Small bulldozer		1	0.003	5250	0.000	0.000	-12

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment**

APPENDIX E

SoundPLAN Output Worksheets

Routine EMS Helicopters East Approach/Departure

Receiver	Fl	Ldn/dB(A)	Leq,d/dB(A)	Leq,n/dB(A)	Time slice	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
Site 2	G	34.4	31	27.2	Ldn	12.4	13.6	24.6	31.5	29.3	22.4	6.3	-25.8
					Leq,d	9	10.2	21.2	28.1	25.9	19	2.9	-29.2
					Leq,n	5.2	6.4	17.4	24.3	22.1	15.2	-0.9	-33
Site 2	F2	36	32.6	28.8	Ldn	12.9	15.4	27.6	32.9	30.5	23.3	6.7	-25.8
					Leq,d	9.5	12	24.2	29.5	27.1	19.9	3.3	-29.2
					Leq,n	5.7	8.2	20.4	25.7	23.3	16.1	-0.5	-33
Site 3	G	26.2	22.8	19	Ldn	6.3	6.3	17.4	23.7	20.3	10	-17.3	-81.3
					Leq,d	2.9	2.9	14	20.3	16.9	6.6	-20.7	-84.7
					Leq,n	-0.9	-0.9	10.2	16.5	13.1	2.8	-24.5	-88.5
Site 4	G	39.5	36.1	32.3	Ldn	18	18.4	29.3	36.5	34.3	28.1	14.8	-6.1
					Leq,d	14.6	15	25.9	33.1	30.9	24.7	11.4	-9.5
					Leq,n	10.8	11.2	22.1	29.3	27.1	20.9	7.6	-13.3
Site 5	G	25.5	22.1	18.3	Ldn	4.9	5	16.6	23.1	19.5	8.2	-22.5	-102.3
					Leq,d	1.5	1.6	13.2	19.7	16.1	4.8	-25.9	-105.7
					Leq,n	-2.3	-2.2	9.4	15.9	12.3	1	-29.7	-109.5
Site 6	G	33.1	29.7	25.9	Ldn	12	12.2	23.4	30.4	27.8	20	1	-40.1
					Leq,d	8.6	8.8	20	27	24.4	16.6	-2.4	-43.5
					Leq,n	4.8	5	16.2	23.2	20.6	12.8	-6.2	-47.3
Site 7	G	18.1	14.7	10.9	Ldn	0.6	-0.5	10.4	16	10.8	-5.9	-56.6	
					Leq,d	-2.8	-3.9	7	12.6	7.4	-9.3	-60	
					Leq,n	-6.6	-7.7	3.2	8.8	3.6	-13.1	-63.8	
Site 8	G	13.7	10.3	6.5	Ldn	-1.1	-2	7.1	11.4	4.8	-13.6	-66.6	
					Leq,d	-4.5	-5.3	3.7	8	1.4	-17	-70	
					Leq,n	-8.3	-9.2	-0.1	4.2	-2.4	-20.9	-73.8	

Routine EMS Helicopters West Approach/Departure

Receiver	Fl	Ldn/dB(A)	Leq,d/dB(A)	Leq,n/dB(A)	Time slice	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
Site 2	G	32	28.6	24.8	Ldn	9.7	11.2	22.5	29.3	26.7	18.6	0	-36.1
					Leq,d	6.3	7.8	19.1	25.9	23.3	15.2	-3.4	-39.5
					Leq,n	2.5	4	15.3	22.1	19.5	11.4	-7.2	-43.3
Site 2	F2	32.5	29.1	25.3	Ldn	10.3	12.4	24.5	29.6	26.9	18.9	0.2	-36
					Leq,d	6.9	9	21.1	26.2	23.5	15.5	-3.2	-39.4
					Leq,n	3.1	5.2	17.3	22.4	19.7	11.7	-7	-43.2
Site 3	G	36.3	32.9	29.1	Ldn	15.6	15.7	26.5	33.5	31.1	24.1	7.9	-23.5
					Leq,d	12.2	12.3	23.1	30.1	27.7	20.7	4.5	-26.9
					Leq,n	8.4	8.5	19.3	26.3	23.9	16.9	0.7	-30.7
Site 4	G	23.6	20.2	16.4	Ldn	3.6	4.6	15.5	21.4	16.9	4.1	-31.2	
					Leq,d	0.2	1.2	12.1	18	13.5	0.7	-34.6	
					Leq,n	-3.6	-2.7	8.3	14.2	9.7	-3.1	-38.4	
Site 5	G	32.9	29.5	25.7	Ldn	12.5	12	23.5	30.4	27.4	18.5	-4.4	-58.1
					Leq,d	9.1	8.6	20.1	27	24	15.1	-7.8	-61.5
					Leq,n	5.3	4.8	16.3	23.2	20.2	11.3	-11.6	-65.3
Site 6	G	19.4	16	12.2	Ldn	1.2	3.3	12.8	16.7	12.2	-1.1	-37.9	
					Leq,d	-2.2	-0.1	9.4	13.3	8.8	-4.5	-41.3	
					Leq,n	-6	-3.9	5.6	9.5	5	-8.3	-45.1	
Site 7	G	41.7	38.3	34.5	Ldn	20.3	20.8	31.6	38.7	36.6	30.4	17.7	-0.3
					Leq,d	16.9	17.4	28.2	35.3	33.2	27	14.3	-3.7
					Leq,n	13.1	13.6	24.4	31.5	29.4	23.2	10.5	-7.5
Site 8	G	41.8	38.4	34.6	Ldn	20.4	21	31.8	38.8	36.6	30.5	18	0.3
					Leq,d	17	17.6	28.4	35.4	33.2	27.1	14.6	-3.1
					Leq,n	13.2	13.8	24.6	31.6	29.4	23.3	10.8	-6.9

Blackhawk Helicopters East Approach/Departure

Receiver	Fl	Ldn/dB(A)	Leq,d/dB(A	Leq,n/dB(A)	Time slice	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
Site 2	G	36.6	33.2	29.4	Ldn	14.6	15.8	26.8	33.7	31.5	24.6	8.5	-23.6
					Leq,d	11.2	12.4	23.4	30.3	28.1	21.2	5.1	-27
					Leq,n	7.4	8.6	19.6	26.5	24.3	17.4	1.3	-30.8
Site 2	F2	38.2	34.8	31	Ldn	15.1	17.6	29.8	35.1	32.7	25.5	8.9	-23.6
					Leq,d	11.7	14.2	26.4	31.7	29.3	22.1	5.5	-27
					Leq,n	7.9	10.4	22.6	27.9	25.5	18.3	1.7	-30.8
Site 3	G	28.4	25	21.2	Ldn	8.5	8.5	19.6	25.9	22.5	12.2	-15.1	-79.1
					Leq,d	5.1	5.1	16.2	22.5	19.1	8.8	-18.5	-82.5
					Leq,n	1.3	1.3	12.4	18.7	15.3	5	-22.3	-86.3
Site 4	G	41.7	38.3	34.5	Ldn	20.2	20.6	31.5	38.7	36.5	30.3	17	-3.9
					Leq,d	16.8	17.2	28.1	35.3	33.1	26.9	13.6	-7.3
					Leq,n	13	13.4	24.3	31.5	29.3	23.1	9.8	-11.1
Site 5	G	27.7	24.3	20.5	Ldn	7.1	7.2	18.8	25.3	21.7	10.4	-20.3	-100.1
					Leq,d	3.7	3.8	15.4	21.9	18.3	7	-23.7	-103.5
					Leq,n	-0.1	0	11.6	18.1	14.5	3.2	-27.5	-107.3
Site 6	G	35.3	31.9	28.1	Ldn	14.2	14.4	25.6	32.6	30	22.2	3.2	-37.9
					Leq,d	10.8	11	22.2	29.2	26.6	18.8	-0.2	-41.3
					Leq,n	7	7.2	18.4	25.4	22.8	15	-4	-45.1
Site 7	G	20.3	16.9	13.1	Ldn	2.8	1.7	12.6	18.2	13	-3.7	-54.4	
					Leq,d	-0.6	-1.7	9.2	14.8	9.6	-7.1	-57.8	
					Leq,n	-4.4	-5.5	5.4	11	5.8	-10.9	-61.6	
Site 8	G	15.9	12.5	8.7	Ldn	1.1	0.2	9.3	13.6	7	-11.4	-64.4	
					Leq,d	-2.3	-3.1	5.9	10.2	3.6	-14.8	-67.8	
					Leq,n	-6.1	-7	2.1	6.4	-0.2	-18.7	-71.6	

Blackhawk Helicopters West Approach/Departure

Receiver	Fl	Ldn/dB(A)	Leq,d/dB(A)	Leq,n/dB(A)	Time slice	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
Site 2	G	34.2	30.8	27	Ldn	11.9	13.4	24.7	31.5	28.9	20.8	2.2	-33.9
					Leq,d	8.5	10	21.3	28.1	25.5	17.4	-1.2	-37.3
					Leq,n	4.7	6.2	17.5	24.3	21.7	13.6	-5	-41.1
Site 2	F2	34.7	31.3	27.5	Ldn	12.5	14.6	26.7	31.8	29.1	21.1	2.4	-33.8
					Leq,d	9.1	11.2	23.3	28.4	25.7	17.7	-1	-37.2
					Leq,n	5.3	7.4	19.5	24.6	21.9	13.9	-4.8	-41
Site 3	G	38.5	35.1	31.3	Ldn	17.8	17.9	28.7	35.7	33.3	26.3	10.1	-21.3
					Leq,d	14.4	14.5	25.3	32.3	29.9	22.9	6.7	-24.7
					Leq,n	10.6	10.7	21.5	28.5	26.1	19.1	2.9	-28.5
Site 4	G	25.8	22.4	18.6	Ldn	5.8	6.8	17.7	23.6	19.1	6.3	-29	-119.2
					Leq,d	2.4	3.4	14.3	20.2	15.7	2.9	-32.4	
					Leq,n	-1.4	-0.5	10.5	16.4	11.9	-0.9	-36.2	
Site 5	G	35.1	31.7	27.9	Ldn	14.7	14.2	25.7	32.6	29.6	20.7	-2.2	-55.9
					Leq,d	11.3	10.8	22.3	29.2	26.2	17.3	-5.6	-59.3
					Leq,n	7.5	7	18.5	25.4	22.4	13.5	-9.4	-63.1
Site 6	G	21.6	18.2	14.4	Ldn	3.4	5.5	15	18.9	14.4	1.1	-35.7	
					Leq,d	0	2.1	11.6	15.5	11	-2.3	-39.1	
					Leq,n	-3.8	-1.7	7.8	11.7	7.2	-6.1	-42.9	
Site 7	G	43.9	40.5	36.7	Ldn	22.5	23	33.8	40.9	38.8	32.6	19.9	1.9
					Leq,d	19.1	19.6	30.4	37.5	35.4	29.2	16.5	-1.5
					Leq,n	15.3	15.8	26.6	33.7	31.6	25.4	12.7	-5.3
Site 8	G	44	40.6	36.8	Ldn	22.6	23.2	34	41	38.8	32.7	20.2	2.5
					Leq,d	19.2	19.8	30.6	37.6	35.4	29.3	16.8	-0.9
					Leq,n	15.4	16	26.8	33.8	31.6	25.5	13	-4.7