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Description:	Provides the Applicant's Supplemental Petition submittal for Post-certification Amendment Appendices F through H, which include the Noise and Vibration Study provided as Appendix F, the Vehicle Miles Traveled (VMT) Technical Memorandum provided as Appendix G, and the Fire Safety discussion provided as Appendix H.
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APPENDIX F

NOISE AND VIBRATION STUDY

Enterprise Battery Energy Storage System (BESS) Project

Noise and Vibration Study

prepared for

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1 Project Description and Impact Summary

1.1 Introduction

This study analyzes the potential noise and vibration impacts associated with the construction, and operation of the Enterprise Battery Energy Storage System (BESS) Project in the City of Escondido within San Diego County, California. The purpose of this study is to analyze the noise and vibration levels related to both temporary construction activity and long-term operation of the Project. This study was originally submitted to the California Energy Commission (CEC) in March 2024 as part of the Petition for Post-Certification Amendment (Petition) to add a nominal 52 megawatt (MW) BESS to the existing Enterprise Emergency Peaker Project (EEPP). The layout of the proposed Enterprise BESS Project was modified following submittal of the March 2024 Petition, and this supplemental study analyzes the revised Project. This revised study supersedes the previous study.

Table 1 provides a summary of Project impacts.

Table 1 Summary of Impacts

Issue	Proposed Project's Level of Significance	Applicable Recommendations
Would the project result in 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?	Less-than-significant impact with mitigation (Construction) Less-than-significant impact with mitigation (Operation)	Mitigation Measure NOI-1 Mitigation Measure NOI-2
Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	Less-than-significant impact with mitigation (Construction) Less-than-significant impact (Operation)	Mitigation Measure NOI-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 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	No impact	None

1.2 Project Summary

Project Location

The proposed Enterprise BESS Project is located in Escondido, California. The BESS Project includes interconnection-related facilities that are co-located with the existing CalPeak Power EEPP within Assessor's Parcel Number 232-410-45-00 at 201 Enterprise Street. The Project also includes 52 MW of BESS facilities to be installed on an approximately 0.82-acre site located at 2361 Auto Park Way on Assessor's Parcel Numbers 232-410-21-00, 232-410-20-00, and 232-410-19-00. The BESS facilities would be connected to the low side of the existing generation step-up (GSU) transformer at the EEPP via an approximately 350-foot-long, generation tie line (gen-tie) to be installed on an above ground cable tray.

The Project area is located generally west of Interstate 15 and south of Ronald Packard Parkway [State Route 78] in Escondido, California (Figure 1 and Figure 2). The northern portion of the EEPP property is located approximately 300 feet east of Citracado Parkway and 200 feet south of Auto Park Way. The BESS facilities, including modular battery and power conversion system (PCS) containers and associated equipment are located adjacent to and south of Auto Park Way. The approximately 0.82-acre BESS site was most recently used as the Auto Art Paint & Body business up until January 2025. The Project area is surrounded by industrial/commercial land uses to the north, northwest, east, and south. The area between Citracado Parkway to the west and the EEPP and the Auto Park Way parcels to the east is undeveloped land with the exception of transmission infrastructure. Other land uses in the area include single-family residential approximately 0.5 mile to the northeast and 0.25 mile to the northwest.

Project Description

The Project includes the development of a nominal 52 MW BESS with interconnection facilities on the northern portion of the existing EEPP site and BESS facilities to be installed on three parcels to the north of the EEPP on the south side of Auto Park Way. See Figure 2 and Figure 3 for the Project area analyzed within this report and proposed Project components, respectively. The Project would be constructed to support California's current need for additional electrical energy supply capacity during high peak load demand periods. The key components of the Project are listed below.

- Interconnection related facilities to be installed on the northern portion of the existing EEPP site include the following:
  - Approximately 350-foot-long, 13.8 kilovolt (kV) generation tie line ("gen-tie") to be installed on an elevated cable tray between the BESS facilities south of Auto Park Way and the low side of the existing EEPP generation step-up (GSU) transformer in the switchyard area on the northern portion of the EEPP site. The high side of the existing EEPP GSU is connected at 69 kV to the San Diego Gas & Electric (SDG&E) Escondido Substation to the north, thus the BESS gen-tie connection to the low side of the GSU will allow the BESS to be connected to the electrical grid via the SDG&E facilities.
  - Elevated BESS switchgear platform to be installed on northern portion of EEPP site, including BESS switchgear, auxiliary switchgear, meter enclosures, and a control enclosure.
  - Communication lines/infrastructure connecting the BESS and the EEPP operations on the northern portion of the EEPP site to facilitate coordinated operation of the EEPP and the BESS.
  - Site access via the existing EEPP site entrance at 201 Enterprise Street.
- BESS facility to be installed on an approximately 0.8 acre site adjacent to the south side of Auto Park Way. BESS facilities to include:
  - Twenty four (24) modular, containerized battery systems with internal heating, ventilation, and air conditioning (HVAC) and internal fire detection and suppression systems, battery management systems (BMS), and 24 PCS shelters (also called inverters), transformers, and electrical conductors. A retaining wall up to approximately 18-feet tall will be constructed along the southern site area boundary to stabilize the vertical cut near the property line that is associated with the needed creation of a level area for the Project. The Project development plan includes the installation of sheet piles along the southern property line to stabilize the cut slope associated with the installation of the retaining wall.
  - Onsite stormwater management facilities.

- On-site stormwater management facilities
- On-site access roads
- Security fencing
- Site access via Auto Park Way

The Enterprise BESS Project would interconnect to the SDG&E grid by connecting to the existing GSU at the EEPP, which is connected to the SDG&E Escondido Substation to the north via an existing underground 69 kV, 834-foot-long transmission line. The BESS Project would not require any high voltage modifications at the EEPP switchyard or the offsite 69 kV line. Operation of the BESS facility would be integrated with the existing EEPP, but the BESS would be charged from the electrical grid and not the EEPP. The BESS and the EEPP may be operated simultaneously in accordance with the market-optimized dispatch instructions received from the California Independent System Operator's Automated Dispatching System, but the combined output would be control-limited to never exceed a net of 52 MW per the Generator Interconnection Agreement.

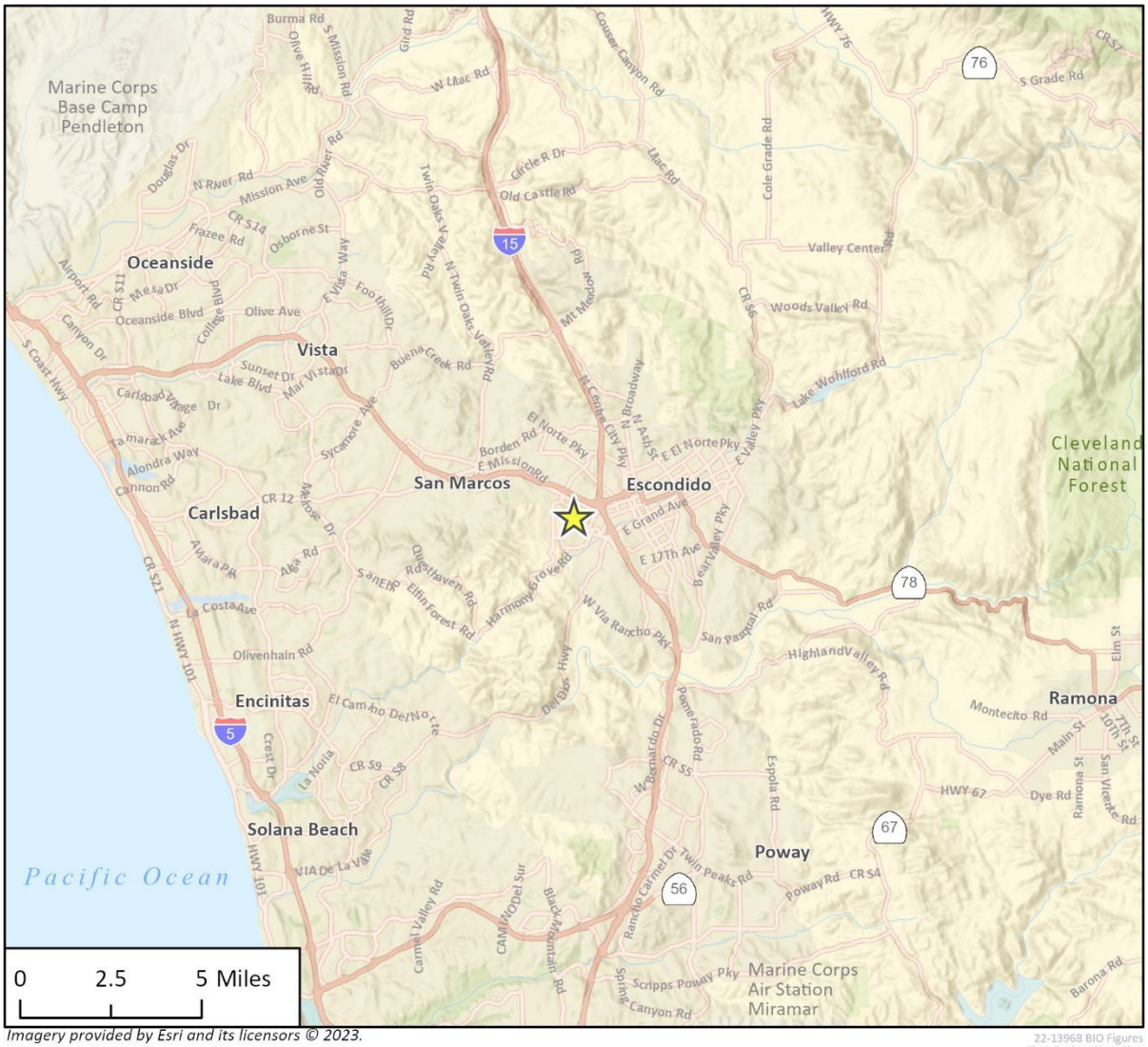
Construction

Construction site mobilization is currently anticipated to begin in the fourth quarter of 2025 and construction activities with associated noise generation are planned to end in the fourth quarter of 2026. Typical construction hours are expected to be from 7:00 a.m. to 6:00 p.m. on Mondays through Fridays and 9:00 a.m. to 5:00 p.m. on Saturdays. Grading activity is expected to occur between 7:00 a.m. and 6:00 p.m. on Mondays through Fridays and 10:00 a.m. and 5:00 p.m. on Saturdays. Construction equipment to be used include the following: backhoes, bore/drill rigs, compactors, compressors, cranes, dozers, graders, excavators, forklifts, loaders (front-end, rubber-tired, and skid steer), pavers, portable electric generators, rough terrain forklifts, sweepers, welders, dump trucks, and water trucks. A percussion pile driver may also be needed for construction of the retaining wall, including installation of sheet piles.

Operation

Operation of the Enterprise BESS facility would be integrated with the existing EEPP, but the BESS would be charged from the electrical grid and not the EEPP. Commercial operation is currently anticipated for the fourth quarter of 2026. The facilities would be expected to require regular maintenance visits by two workers up to twice per week on average. The planned Project life is up to 30-40 years.

Figure 1 Regional Location



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22-13968 BIO Figures
Fig 1 Regional Location

Figure 2 Study Area Map

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Fig 2 Study Area

Figure 3 Project Components

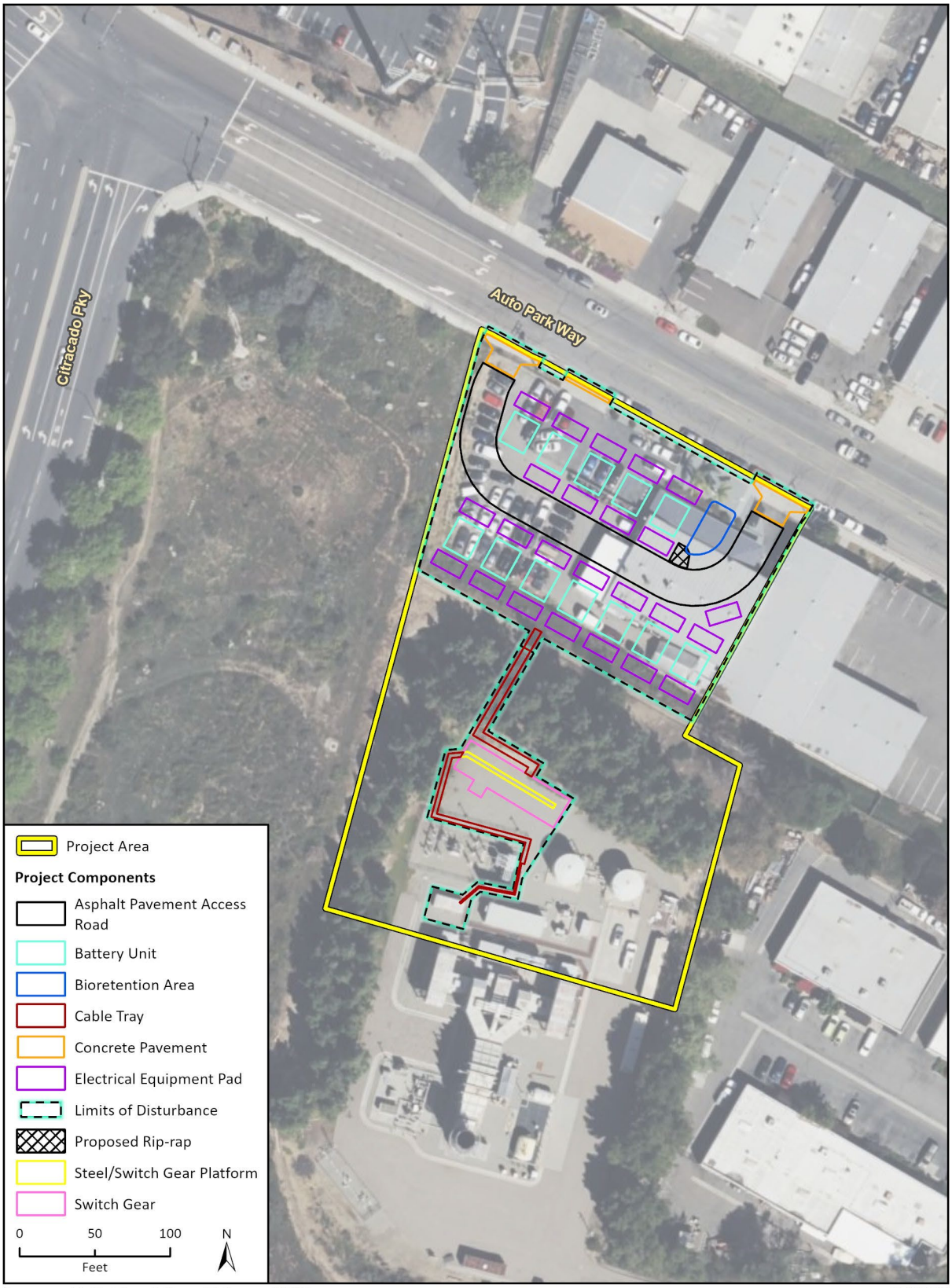

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Fig X Project Components

Enterprise Emergency Peaker Project Noise Conditions of Certification

The EEPP was licensed by the CEC in 2001 (CEC Docket No. 01-EP-10), and the Commission Decision included Conditions of Certification to minimize or avoid noise impacts from the EEPP. The following CEC Conditions related to noise that are in place for the existing EEPP shall also apply for the proposed Enterprise BESS Project, as applicable.

NOISE-1: The Project permitted under this emergency process shall be required to comply with applicable community noise standards.

Verification: Within 30 days of the Project first achieving a sustained output of 80 percent or greater of rated capacity, the Project owner shall conduct a 25-hour community noise survey, using the same monitoring sites employed in the pre-Project ambient noise survey as a minimum. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. Steam relief valves shall be adequately muffled to preclude noise that draws legitimate complaints. If the results from the survey indicate that the Project noise levels at the closest sensitive receptor are in excess of 45 decibels adjusted to human hearing (dBA) between the hours of 10:00 p.m. and 7:00 a.m., additional mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

NOISE-2: Prior to the start of rough grading, the Project owner shall notify all residents within 1 mile of the site of the start of construction and would provide a complaint resolution process.

Verification: The Project owner shall provide the CPM with a statement, attesting that the above notification has been performed.

NOISE-3: Throughout the construction and operation of the Project, the Project owner shall document, investigate, evaluate, and attempt to resolve all Project related noise complaints.

Verification: Within 30 days of receiving a noise complaint, the Project owner shall file a copy of the Noise Complaint Resolution Form, or similar instrument approved by the CPM, with the County Environmental Health Department, and with the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 30-day period, the Project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is finally implemented.

NOISE-4: Night construction activities may be authorized by the CPM if they are consistent with local noise ordinances. Night construction, or specific night construction activities may be disallowed by the CPM if it results in significant impact to the surrounding community.

Verification: Noise monitoring and surveys may be conducted if complaints are reported by residence in the surrounding area of the Project site.

2 Background

2.1 Overview of Sound Measurement

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with spoken communication, sleep disturbance, and, in the extreme, hearing impairment (California Department of Transportation [Caltrans] 2013).

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response, which is most sensitive to frequencies around 4,000 Hertz (Hz) and less sensitive to frequencies around and below 100 Hz (Kinsler et. al. 1999). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; dividing the energy in half would result in a 3 dB decrease (Crocker 2007).

Human perception of noise has no simple correlation with sound energy: the perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not "sound twice as loud" as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy); that a change of 5 dBA is readily perceptible (8 times the sound energy); and that an increase (or decrease) of 10 dBA sounds twice (half) as loud (Crocker 2007).

Sound changes in both level and frequency spectrum as it travels from the source to the receiver. The most obvious change is the decrease in level as the distance from the source increases. The manner by which noise reduces with distance depends on factors such as the type of sources (e.g., point or line, the path the sound will travel, site conditions, and obstructions). Noise levels from a point source typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance (e.g., construction, industrial machinery, ventilation units). Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013). The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site, such as a parking lot or smooth body of water, receives no additional ground attenuation and the changes in noise levels with distance (drop-off rate) result from simply the geometric spreading of the source. An additional ground attenuation value of 1.5 dBA per doubling of distance applies to a soft site (e.g., soft dirt, grass, or scattered bushes and trees) (Caltrans 2013). Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this "shielding" depends on the size of the object and the frequencies of the noise levels. Natural terrain features such as hills and dense woods, and man-made features such as buildings and walls, can significantly alter noise levels. Generally, any large structure blocking the line of sight will provide at least a 5-dBA reduction in source noise levels at the receiver (Federal Highway Administration [FHWA] 2011). Structures can substantially reduce exposure to noise as well. The FHWA's guidelines indicate that modern building construction generally provides an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows.

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important factors of Project noise impacts. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. One of the most frequently used noise metrics is the equivalent noise level (L_{eq}); it considers both duration and sound power level. L_{eq} is defined as the single steady A-weighted level equivalent to the same amount of energy as that contained in the actual fluctuating levels over time.

The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

Noise that occurs at night tends to be more disturbing than that occurring during the day. Community noise is usually measured using Day-Night Average Level (L_{dn}), which is the 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. It is also measured using CNEL, which is the 24-hour average noise level with a +5 dBA penalty for noise occurring from 7:00 p.m. to 10:00 p.m. and a +10 dBA penalty for noise occurring from 10:00 p.m. to 7:00 a.m. (Caltrans 2013). Noise levels described by L_{dn} and CNEL usually differ by about 1 dBA. The relationship between the peak-hour L_{eq} value and the L_{dn}/CNEL depends on the distribution of traffic during the day, evening, and night.

2.2 Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent structures. The number of cycles per second of oscillation makes up the vibration frequency, described in terms of Hz. The frequency of a vibrating object describes how rapidly it oscillates. The normal frequency range of most groundborne vibration that can be felt by the human body starts from a low frequency of less than 1 Hz and goes to a high of about 200 Hz (Crocker 2007).

While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings, such as from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle. Vibration of building components can also take the form of an audible low-frequency rumbling noise, referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz), or when foundations or utilities, such as sewer and water pipes, physically connect the structure and the vibration source (Federal Transit Administration [FTA] 2018). Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern of vibration is that it can be intrusive and annoying to building occupants and vibration-sensitive land uses.

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared vibration velocity. The PPV and root mean squared velocity are normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a

vibration signal. PPV is often used in monitoring of blasting vibration, because it is related to the stresses that are experienced by buildings (Caltrans 2020a).

2.3 Sensitive Receivers

Noise-sensitive receivers are land uses that may be subject to stress and/or interference from excessive noise, such as residential dwellings, schools, transient lodging (hotels), hospitals, educational facilities, and libraries. Industrial and commercial land uses are generally not considered sensitive to noise.

Vibration-sensitive receivers, which are similar to noise-sensitive receivers, include residences and institutional uses, such as schools, churches, and hospitals. However, vibration-sensitive receivers also include buildings where vibrations may interfere with vibration-sensitive equipment that is affected by vibration levels that may be well below those associated with human annoyance (e.g., recording studies or medical facilities with sensitive equipment).

The nearest sensitive receivers include residential communities located approximately 0.5 mile northeast and 0.2 mile northwest of the Project Area boundary, the Arch Health Medical Group facility (located approximately 1,060 feet southwest of the Project Area boundary), the Palomar Medical Center Escondido (located approximately 950 feet west of the Project Area boundary), and the Rady Children's Urgent Care Escondido (located approximately 1,650 feet from the Project Area boundary). While not typically considered a sensitive use, the adjacent industrial building located east of the Project Area was also included as a sensitive receiver due to its close proximity to the proposed vibration-generating construction activities associated with the Project (i.e., pile driving) and the potential to exceed the vibration thresholds, as well as to address the City's exterior noise standards for receiving industrial uses.

2.4 Project Noise Setting

The Project Area is located in Escondido, which is an urban, incorporated area of San Diego County that includes industrial and residential development in the surrounding area. The major noise sources in the vicinity of the site are freeways and roadways located near the Project, including State Route 78 and Auto Park Way to the north, Interstate 15 to the east, and Citracado Parkway to the west. To characterize ambient noise levels at and near the EEPP and the Enterprise BESS portions of the parcel, two short term 15-minute sound level measurements were conducted on June 2, 2023, and one long-term 25-hour measurement was conducted on June 1–2, 2023. An Extech, Model 407780A, ANSI Type 2 integrating sound level meter was used to conduct the measurements. The sound meter was calibrated prior to measurements. Short-Term measurement 1 (ST1) was conducted at the southeastern edge of the Project Area boundary at the cul-de-sac of Enterprise Street; Short-Term measurement 2 (ST2) was conducted offsite at the residential area approximately 0.3 mile from the edge of the western Project Area boundary. The long-term measurement (LT1) was conducted in a northwestern portion of the Project Area near the intersection of Auto Park Way and Citracado Parkway. Figure 4 shows the measurement locations, Table 2 summarizes the results of the short-term noise measurements, and Table 3 summarizes the results of the long-term noise measurements.

Figure 4 Noise Measurement Locations

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Fig X Noise Measurement Locations

Table 2 Project Area Noise Monitoring Results – Short Term

Measurement Name	Measurement Location	Sample Times	Primary Noise Sources	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)	L_{10} (dBA)	L_{50} (dBA)	L_{90} (dBA)
ST1	Southeastern portion of Project Area	11:35 – 11:50 a.m.	Auto Park Way	55.8	46.9	69.5	57.6	53.5	51.5
ST2	Off-site at closest residences northwest of Project Area	11:58 a.m. – 12:13 p.m.	Auto Park Way, Citracado Pkwy	51.6	44.2	81.1	54.4	48.4	44.5

dBA = A-weighted decibel; L_{eq} = equivalent continuous sound level; L_{min} = minimum sound level; L_{max} = maximum sound level; L_{10} = sound level exceeded for 10 percent of the measurement period; L_{50} = sound level exceeded for 50 percent of the measurement period; L_{90} = sound level exceeded for 90 percent of the measurement period.

Detailed sound level measurement data are included in Appendix A; measurement locations are shown on Figure 4.

Table 3 Project Area Noise Monitoring Results – Long Term

Sample Time	dBA L_{eq}	Sample Time	dBA L_{eq}
LT1 – Northwestern Portion of Project Area, June 1–2, 2023			
10:22 a.m.	59	11:22 p.m.	54
11:22 a.m.	60	12:22 a.m.	53
12:22 p.m.	60	1:22 a.m.	52
1:22 p.m.	60	2:22 a.m.	52
2:22 p.m.	58	3:22 a.m.	56
3:22 p.m.	57	4:22 a.m.	57
4:22 p.m.	58	5:22 a.m.	57
5:22 p.m.	57	6:22 a.m.	66
6:22 p.m.	58	7:22 a.m.	62
7:22 p.m.	58	8:22 a.m.	59
8:22 p.m.	56	9:22 a.m.	60
9:22 p.m.	55	10:22 a.m.	58
10:22 p.m.	54		
			25-Hour Noise Level
		CNEL	65.2
		L_{eq}	58.8
		L_{min}	50.3
		L_{max}	87.9
		L_{10}	60.7
		L_{50}	56.8
		L_{90}	51.8

dBA = A-weighted decibel; L_{eq} = equivalent continuous sound level; CNEL = Community Noise Equivalent Level; L_{min} = minimum sound level; L_{max} = maximum sound level; L_{10} = sound level exceeded for 10 percent of the measurement period; L_{50} = sound level exceeded for 50 percent of the measurement period; L_{90} = sound level exceeded for 90 percent of the measurement period.

Source: Rincon 2023. Field measurements were conducted on June 1–2, 2023, using ANSI Type II Integrating sound level meter. See Appendix A for measurement data.

2.5 Regulatory Setting

State

The California Code of Regulations, Title 20, Division 2, Chapter 5, Appendix B includes the following noise regulations applicable to the Project:

(4) Noise

(A) A land use map which identifies residences, hospitals, libraries, schools, places of worship, or other facilities where quiet is an important attribute of the environment within the area impacted by the proposed Project. The area potentially impacted by the proposed Project is that area where, during either construction or operation, there is a potential increase of 5 dBA or more, over existing background levels.

(B) A description of the ambient noise levels at those sites identified under subsection (g)(4)(A) which the applicant believes provide a representative characterization of the ambient noise levels in the Project vicinity, and a discussion of the general atmospheric conditions, including temperature, humidity, and the presence of wind and rain at the time of the measurements. The existing noise levels shall be determined by taking noise measurements for a minimum of 25 consecutive hours at a minimum of one site. Other sites may be monitored for a lesser duration at the applicant's discretion, preferably during the same 25-hour period. The results of the noise level measurements shall be reported as hourly averages in L_{eq} (equivalent sound or noise level), L_{dn} (day-night sound or noise level) or CNEL (Community Noise Equivalent Level) in units of dB(A). The L_{10}, L_{50}, and L_{90} values (noise levels exceeded 10 percent, 50 percent, and 90 percent of the time, respectively) shall also be reported in units of dBA.

(C) A description of the major noise sources of the Project, including the range of noise levels and the tonal and frequency characteristics of the noise emitted.

(D) An estimate of the Project noise levels, during both construction and operation, at residences, hospitals, libraries, schools, places of worship, or other facilities where quiet is an important attribute of the environment, within the area impacted by the proposed Project.

(E) An estimate of the Project noise levels within the Project site boundary during both construction and operation and the impact to the workers at the site due to the estimated noise levels.

(F) The audible noise from existing switchyards and overhead transmission lines that would be affected by the Project and estimates of the future audible noise levels that would result from existing and proposed switchyards and transmission lines. Noise levels shall be calculated at the property boundary for switchyards and at the edge of the rights-of-way for transmission lines.

Local

The Enterprise BESS Project Area is located in Escondido (San Diego County). Applicable noise standards are codified in the following City regulations.

City of Escondido Municipal Code

Section 17-229 of the City of Escondido Municipal Codes specifies noise level limits for various land use types, shown in Table 4. The Municipal Code prohibits the creation of any noise so as to exceed the one-hour average sound level, at any point on or beyond the boundaries of the property on which the sound is produced, shown in Table 4.

Table 4 Applicable Sound Level Limits by Zoning

Zone	Time	Applicable Limit One-Hour Average Sound Level (dB)
Residential zones	7:00 a.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
Multi-residential zones	7:00 a.m. to 10:00 p.m.	55
	10:00 p.m. to 7:00 a.m.	50
Commercial zones	7:00 a.m. to 10:00 p.m.	60
	10:00 PM to 7:00 a.m.	55
Light industrial/industrial park zones	Anytime	70
General industrial zones	Anytime	75

dB = decibel

Source: *City of Escondido Municipal Code*, Section 17-229, Sound Level Limits

The Project Area is located in a light industrial zone and is surrounded by other light industrial and industrial park zones; therefore, an average hourly noise level of 70 dB is the maximum threshold not to be exceeded at or beyond the Project property line.

Section 17-234 of the City's Municipal Code defines time and noise limits on construction activity, prohibiting operation of construction equipment at any time except Mondays through Fridays between 7:00 a.m. and 6:00 p.m. and on Saturdays between 9:00 a.m. and 5:00 p.m. It is not permitted for construction equipment to be operated at any time on Sundays or on public holidays. Additionally, Section 17-238 specifies limits on grading of a construction site (defined as, but not limited to, compacting, drilling, rock crushing or splitting, bulldozing, clearing, dredging, digging, filling, and blasting). Grading of a construction site cannot occur unless performed on Mondays through Fridays between 7:00 a.m. and 6:00 p.m. or on Saturdays between 10:00 a.m. and 5:00 p.m. Performing construction work outside these hours would require a variance to be obtained in advance from the City Manager.

Section 17-234 also places a noise level limit on operation of construction equipment, specifying it is unlawful for construction equipment or any combination of equipment to be operated so as to exceed a one-hour average noise level of 75 dB. While not explicitly stated, it is assumed that this standard applies to the noise level at any adjacent or receiving noise-sensitive property lines.

3 Methodology

3.1 Construction Noise

Construction activity would result in temporary noise in the Project Area vicinity, exposing surrounding nearby receivers to increased noise levels. Construction noise associated with the Project would be generated by heavy-duty diesel construction equipment used for demolition, site preparation, grading, foundation and retaining wall installation, modules, inverters, and switchgear installation, electrical wire installation, commissioning, and testing. Each phase of construction has a specific equipment mix, depending on the work to be accomplished during that phase. Construction noise would typically be higher during the more equipment-intensive phases of initial construction (i.e., site preparation, grading, and foundation installation) and would be lower during the later construction phases (i.e., material placement, components installation, commissioning, and testing).

During construction, equipment goes through varying load cycles and is operated intermittently to allow for non-equipment tasks such as measurement. Power variation is accounted for by describing the noise at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the L_{eq} of the operation (FTA 2018). Reference noise levels for heavy-duty construction equipment were estimated using the FHWA Roadway Construction Noise Model (RCNM) (FHWA 2006). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical propagation formulas. Using RCNM, construction noise levels were estimated at noise-sensitive receptors near the Project Area based on the equipment list expected for each construction phase provided by the applicant. For a conservative estimate of potential Project noise impacts, all equipment in each phase of construction was assumed to be operating simultaneously.

Construction equipment would continually move around the Project Area over the course of a typical workday. Due to the complex and mobile nature of construction activity within a project site, the FTA *Transit Noise and Vibration Impact Assessment Manual* document recommends evaluating construction noise impacts from the center of the construction site, stating that the distance variable in its recommended construction noise calculation "assumes that all equipment operates at the center of the project" (FTA 2018). Therefore, construction noise impacts were evaluated from the approximate center of the Project Area.

3.2 Groundborne Vibration

The Project would not include any substantial vibration sources associated with operation. Thus, the most substantial vibration sources with the potential to affect nearby receivers would be associated with activity during construction of the Project, especially during construction of the retaining wall. The greatest vibratory source during construction in the vicinity of the BESS site would be pile driving along the eastern, southern, and western Project Area boundaries during construction of the retaining wall. A pile driver may also be used for equipment foundations if a pile foundation is selected instead of a concrete pad foundation. Blasting would not be required for construction of the Project. Construction vibration estimates are based on vibration levels reported by the FTA and distances to nearby sensitive structures. Table 5 shows typical vibration levels for various pieces of construction equipment used in the assessment of construction vibration (FTA 2018).

Table 5 Vibration Levels Measured during Construction Activities

Equipment	PPV at 25 Feet. (in/sec)
Impact Pile Driver	1.518 (upper range)
	0.644 (typical)
Vibratory Roller	0.032
Large Earthmoving Equipment (Bulldozer, Excavator, Backhoe, etc.) rated at 100 hp or more	0.089
Loaded Trucks	0.076

PPV = peak particle velocity; in/sec = inches per second; hp = horsepower

Source: Federal Transit Administration 2018

Vibration limits used in this analysis to determine a potential impact to local land uses from construction activities, such pile-driving, vibratory compaction, demolition, drilling, or excavation, are based on information contained in Caltrans' *Transportation and Construction Vibration Guidance Manual* and the FTA's *Transit Noise and Vibration Impact Assessment Manual* (Caltrans 2020a, FTA 2018). Maximum recommended vibration limits by the American Association of State Highway and Transportation Officials are identified in Table 6.

Table 6 American Association of State Highway and Transportation Officials Maximum Vibration Levels for Preventing Damage

Type of Situation	Limiting Velocity (in/sec)
Historic sites or other critical locations	0.1
Residential buildings, plastered walls	0.2–0.3
Residential buildings in good repair with gypsum board walls	0.4–0.5
Engineered structures, without plaster	1.0–1.5

Source: Caltrans 2020a

3.3 Operational Noise

Under normal operation, the BESS site would be remotely monitored with no personnel on-site except for periodic maintenance (provided by two workers up to twice per week) and battery augmentation activities. Maintenance and battery augmentation activities would not generate substantial noise. The noise sources on the Project Area after completion of construction would include stationary outdoor equipment such as BESS units and PCS skids.

Noise level modeling for the BESS Project's operational sources was developed using SoundPLAN, Version 9.0. SoundPLAN is a three-dimensional noise modeling program that incorporates noise propagation algorithms and reference sound levels published by various government agencies and the scientific community. Object types such as noise sources, receivers, and intervening obstacles (such as topography, buildings, and other structures which may affect noise propagation throughout the immediate environment) are input into the model and the resulting noise levels are calculated at specified receivers and/or throughout a user-defined study area.

On-site noise sources were modeled based on information provided by the Project applicant. Each PCS skid would consist of two inverters and one transformer. Inverters would be Power Electronics units (or similar) and generate a noise level of 79 dBA at 1 meter based on manufacturer's

specifications. Transformers would be Power Electronics units (or similar) and generate a noise level of 72 dBA at 1 meter based on manufacturer's specifications. BESS units would be Contemporary Amperex Technology Co., Limited (CATL) units (or similar) and generate a noise level of 75 dBA at 1 meter based on manufacturer's specifications. For a conservative scenario, all equipment was assumed to operate at 100 percent of an hour for 24 hours. All noise sources were modeled as point sources of noise, which have a characteristic noise reduction of 6 dBA per doubling of distance away from the source.

Existing surrounding topography and proposed site topography (including the retaining wall feature along the eastern, southern, and western Project Area boundaries) were also included in the model to account for how these features affect noise propagation. Existing buildings near the site were conservatively not modeled so that any additional noise reduction these structures may provide to nearby sensitive receptors was not accounted for. All receivers were modeled at the average height of the human ear, which is five feet above ground elevation.

Propagation of modeled stationary noise sources was based on ISO Standard 9613-2, "Attenuation of Sound during Propagation Outdoors, Part 2: General Method of Calculation." The assessment methodology assumes that all receivers would be downwind of stationary sources. This is a worst-case assumption for total noise impacts since only some receivers would be downwind at any one time.

3.4 Traffic Noise

It is assumed that construction traffic would directly access the Project Area via Auto Park Way. Existing traffic volumes are compared with proposed construction traffic along this roadway logarithmically to estimate the potential Project-related traffic noise increase. Caltrans does not publish traffic volumes for non-highway roadways in the vicinity of the Project Area; therefore, traffic volumes were based on most recent forecasted volumes published in the San Diego Association of Governments (SANDAG) Transportation Forecast Information Center (SANDAG 2019). All forecasted volumes were from the year 2016, taken from SANDAG's activity based regional transportation model for the 2019 Regional Transportation Plan.

All roadway vehicle trips generated by Project construction activities are based on estimates provided by the Project applicant. It is estimated that up to 50 worker roundtrips and 35 truck roundtrips per day would occur during peak construction periods. Therefore, Project construction would generate a maximum of 85 vehicle trips per day. Table 7 shows the estimated number of existing and construction-generated vehicle trips on the roadway segments. All construction trips were conservatively assumed to occur on Auto Park Way, which is located near the existing residences and the Palomar Health Rehabilitation Institute closest to the Project Area.

To assess the increase in ambient noise levels at the nearby residences, per California Code of Regulations requirements, a version of the FHWA traffic noise prediction model (FHWA-RD-77-108) is used. Appendix C contains the traffic noise modeling inputs and outputs.

Table 7 Estimated Existing and Construction Vehicle Trips

Roadway Segment	Existing Daily Vehicle Trips[1]	Construction Daily Vehicle Trips	Existing + Construction Daily Vehicle Trips
Auto Park Way – Alpine Way to Citracado Parkway	15,300	85	15,385
Auto Park Way – Citracado Parkway to Enterprise Street	12,535	85	12,620

[1] Existing average daily vehicle trips obtained from San Diego Association of Governments Transportation Forecast Information Center activity based regional transportation model 2019 Regional Transportation Plan forecasts (San Diego Association of Governments 2019).

3.5 Significance Thresholds

To determine whether a project would have a significant noise impact, Appendix G of the *CEQA Guidelines* requires consideration of whether a project would result in:

1. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
2. Generation of excessive groundborne vibration or groundborne noise levels
3. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels

Construction Noise

As stated previously, the City of Escondido Municipal Code specifies time limits for construction equipment operation, stating that it is unlawful for operation of any construction equipment except on Monday through Friday between 7:00 a.m. and 6:00 p.m. and on Saturdays between 9:00 a.m. and 5:00 p.m. Furthermore, no construction activity may occur on Sundays and on public holidays.

Additionally, the Municipal Code places an operational noise limit for construction noise, prohibiting the operation of any construction equipment or combination of equipment to exceed a one-hour average sound level of 75 dB, assumed to be assessed at any adjacent or noise-sensitive receiving property lines. Therefore, if noise levels from construction activity associated with the Enterprise BESS Project exceed an hourly L_{eq} of 75 dBA at an adjacent property line or the property line of nearby noise-sensitive receivers, a significant noise impact would occur.

On-Site Operational Noise

The Project Area is located in an industrial area of the city with the closest residential property located approximately 1,050 feet to the northwest of the western Project boundary. The City of Escondido Municipal Code does not have quantified limits for operational stationary noise. Per the NOISE-1 requirement from the Enterprise Emergency Project Noise Conditions of Certification, Project operational noise shall not exceed 45 dBA at the closest sensitive receiver between the hours of 10:00 p.m. and 7:00 a.m. Therefore, on-site operational noise could be significant if it exceeds this threshold at the nearest single-family residences.

Additionally, per the City of Escondido Municipal Code's noise limit for industrial uses, the Project must not generate noise levels that exceed 70 dBA L_{eq} at the property line.

Off-Site Traffic Noise

A project would normally have a significant effect on the environment related to noise if it would substantially increase the ambient noise levels for adjoining areas. Most people with average hearing ability can detect changes in sound levels of approximately 3 dBA under normal, quiet conditions, and changes of 1 to 3 dBA are detectable under quiet, controlled conditions. Changes of less than 1 dBA are usually indiscernible. A change of 5 dBA is readily discernible to most people in an exterior environment. Based on this, the following thresholds of significance similar to those recommended by the Federal Aviation Administration (FAA) are used to assess traffic noise impacts at sensitive receptor locations (Federal Aviation Administration 2020). A significant impact would occur if Project-related traffic noise increases the existing noise environment by the following:

- Greater than 1.5 dBA for ambient noise environments of 65 dBA CNEL and higher
- Greater than 3 dBA for ambient noise environments of 60 to 64 dBA CNEL
- Greater than 5 dBA for ambient noise environments of less than 60 dBA CNEL

Construction Vibration

The City of Escondido has not adopted standards to assess vibration impacts during construction and operation. Therefore, vibration limits used in this analysis are based on those outlined in Caltrans *Transportation and Construction Vibration Guidance Manual* (2020) to evaluate potential construction vibration impacts related to both potential building damage and human annoyance. Based on the Caltrans criteria shown above in Table 6, construction vibration impacts would be significant if vibration levels exceed 0.2 in/sec. PPV for residential structures and 1 in/sec PPV at commercial/engineered structures, which are the limits where minor cosmetic (i.e., non-structural) damage may occur to these buildings.

4 Impact Analysis

4.1 Issue 1

Issue:	Would the project result in 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? **LESS THAN SIGNIFICANT WITH MITIGATION**

Construction

Construction Equipment

General construction activities are expected to typically occur between 7:00 a.m. and 6:00 p.m. on Mondays through Fridays and between 9:00 a.m. and 5:00 p.m. on Saturdays, with grading activity expected to occur between 7:00 a.m. and 6:00 p.m. on Mondays through Fridays and between 10:00 a.m. and 5:00 p.m. on Saturdays, which is in compliance with the City's time restrictions on construction activity. Additionally, prior to and during the construction period, the existing CEC Noise Conditions of Certification NOISE-2, NOISE-3, and NOISE-4 would apply.

Following the methodology discussed in Section 3.1, construction noise levels were estimated at nearby sensitive receptors per phase of construction. Construction noise levels generated during each phase of construction were determined assuming simultaneous operation of the four loudest pieces of equipment. Estimated construction noise levels are presented in Table 8. Note that noise levels presented in Table 8 conservatively do not account for shielding from intervening buildings, topography, or other structures in the vicinity of the Project Area.

Table 8 Estimated Construction Noise Levels at Sensitive Receptors by Phase

Construction Phase	Construction Noise Level (dBA L_{eq})					
	RCNM Reference Noise Level	Adjacent Industrial Use to the East	Nearest Industrial Use to the North	Palomar Medical Center Escondido to the Southwest	Arch Health Medical Group to the Southwest	Nearest Single-Family Residence to the Northwest
Distance (feet)	**50**	**115**	**175**	**1,065**	**1,150**	**1,175**
Demolition[1]	87	80	76	60	60	59
Site Preparation and Grading[2]	87	80	76	60	60	59
Retaining Wall Construction[3]	90	83	80	64	63	63
Foundations and Equipment Installation[4]	90	83	79	63	63	63
Set Modules, Inverters, and Switchgear[5]	83	76	73	57	56	56
Electrical Wire Installation/Finish Grading[6]	85	78	75	59	58	58
Commissioning and Testing[7]	80	73	69	54	53	53

RCNM = Roadway Construction Noise Model; dBA = A-weighted decibel; L_{eq} = equivalent continuous sound level

[1] Demolition phase was evaluated assuming simultaneous operation of a backhoe, concrete saw, dozer, and excavator.

[2] Site Preparation and Grading phase was evaluated assuming simultaneous operation of a backhoe, mounted impact hammer (hoe ram), dozer, and excavator.

[3] Retaining Wall Construction phase was evaluated assuming simultaneous operation of an impact pile driver, mounted impact hammer (hoe ram), auger drill rig, and a concrete saw.

[4] Foundations and Equipment Installation phase was evaluated assuming simultaneous operation of a backhoe, mounted impact hammer (hoe ram), dozer, and impact pile driver.

[5] Set Modules, Inverters, and Switchgear phase was evaluated assuming simultaneous operation of a compressor, crane, dozer, and pickup truck.

[6] Electrical Wire Installation and Finish Grading phase was evaluated assuming simultaneous operation of a backhoe, crane, dozer, and grader.

[7] Commissioning and Testing phase was evaluated assuming simultaneous operation of a compactor, pickup truck, generator, and welder/torch.

See Appendix B for construction noise modeling outputs.

As shown in Table 8, noise levels generated during most phases of construction would exceed the City's construction noise threshold of 75 dBA L_{eq} at adjacent and nearby industrial uses to the east and north. During the loudest phase (retaining wall construction), construction noise levels at the adjacent industrial use to the east and the nearest industrial use to the north (across from Auto Park Way) would reach up to 83 and 80 dBA L_{eq}, respectively. Temporary construction noise impacts upon these receptors would be potentially significant. Note that during the later phases of construction (set modules, inverters, and switchgear, electrical wire installation, finish grading, and commissioning and testing), construction noise levels at the nearest industrial use to the north would not exceed the City's noise limit of 75 dBA L_{eq}. Therefore, temporary construction noise impacts upon this property to the north would be less than significant during these later phases of construction and construction noise reduction measures would not be needed during these phases.

Conversely, noise levels during all phases of construction would not exceed the City's threshold of 75 dBA L_{eq} at the nearest residential and medical uses located to the northwest and southwest. Construction noise levels at these uses would be maintained at 64 dBA L_{eq} and below due to the large distances between proposed construction activity and these receptors. Temporary construction noise impacts upon these farther receptors would be less than significant.

The California Code of Regulations, Title 20, Division 2, Chapter 5, Article 6, Section B, Appendix B requires an estimate of worker noise exposure during Project construction. As shown above, construction noise could reach as high as 90 dBA L_{eq} at 50 feet from equipment during the retaining wall construction and foundations and equipment installation phases. The federal government regulates occupational noise exposure common in the workplace through the Occupational Health and Safety Administration (OSHA) under the United States Environmental Protection Agency. Noise limitations would apply to the operation of construction equipment. Noise exposure of this type is addressed through a facility's Health and Safety Plan, as required under OSHA.

Construction Vehicles

The Project would generate new vehicle trips that would increase noise levels on nearby roadways during construction. The Project is anticipated to generate a maximum of 85 daily vehicle trips between workers and deliveries of equipment during the peak phases of construction. The Project would not make alterations to roadway alignments or substantially change the vehicle classifications mix on local roadways. Therefore, the primary factor affecting off-site noise levels would be increased traffic volumes. A temporary increase of 85 daily vehicle trips would result in a daily traffic noise level increase of less than 0.1 dBA CNEL on Auto Park Way. As a result, noise increases due to Project construction traffic would not exceed the 1.5 dBA CNEL impact criterion for off-site traffic noise. Therefore, impacts would be less than significant.

Operation

Following the methodology discussed in Section 3.3, Project operational noise levels were modeled at various receivers, and noise contours were calculated throughout the Project Area and surroundings. Project operational noise levels are shown in Table 9 and noise contours are shown on Figure 5. As shown in Table 9 and on Figure 5, noise levels at the nearest residential receptors to the northwest (represented as R1) would be 29 dBA L_{eq}, noise levels at the Palomar Medical Center Escondido to the southwest (represented as R2) would be 39 dBA L_{eq}, and noise levels at the Arch Health Medical Group facility to the southwest (represented as R3) would be 39 dBA L_{eq}. Therefore, noise levels at the nearest sensitive receptors would be maintained below the City's nighttime noise limit of 45 dBA L_{eq}. Noise levels at the southern Project Area boundary (represented as R4), western

Project Area boundary (represented as R5), and eastern Project Area boundary (represented as R6) would be 43, 69, and 73 dBA L_{eq}, respectively. Therefore, noise levels at the southern and western Project property lines would be maintained below the City's noise limit of 70 dBA L_{eq} for light industrial zones; however, noise levels at the eastern Project property line would exceed the City's 70 dBA L_{eq} threshold, and operational noise impacts would be potentially significant. Note that once operational, the Project applicant would be required to comply with Noise Conditions of Certification NOISE-1.

Table 9 Operational Noise Levels at Sensitive Receptors (Unmitigated)

Receptor Name	Receptor Description	Modeled Noise Level (dBA L_{eq})	City Noise Threshold (dBA L_{eq})	Exceeds City Noise Threshold?
R1	Nearest residential properties to northwest	29	45[1]	No
R2	Palomar Medical Center Escondido to southwest	39	45[1]	No
R3	Arch Health Medical Group to southwest	39	45[1]	No
R4	Southern Project Area boundary	43	70[2]	No
R5	Western Project Area boundary	69	70[2]	No
R6	Eastern Project Area boundary	73	70[2]	Yes

dBA = A-weighted decibel; L_{eq} = equivalent continuous sound level

[1] Pursuant to Section 17-229 of the City of Escondido Municipal Code, the applicable nighttime (10:00 p.m. to 7:00 a.m.) noise threshold is 45 dBA L_{eq} at residential zones (also applied to nearby medical centers, which are considered noise-sensitive receptors for purposes of this analysis). The nighttime threshold was used because the project's equipment may operate continuously during nighttime hours.

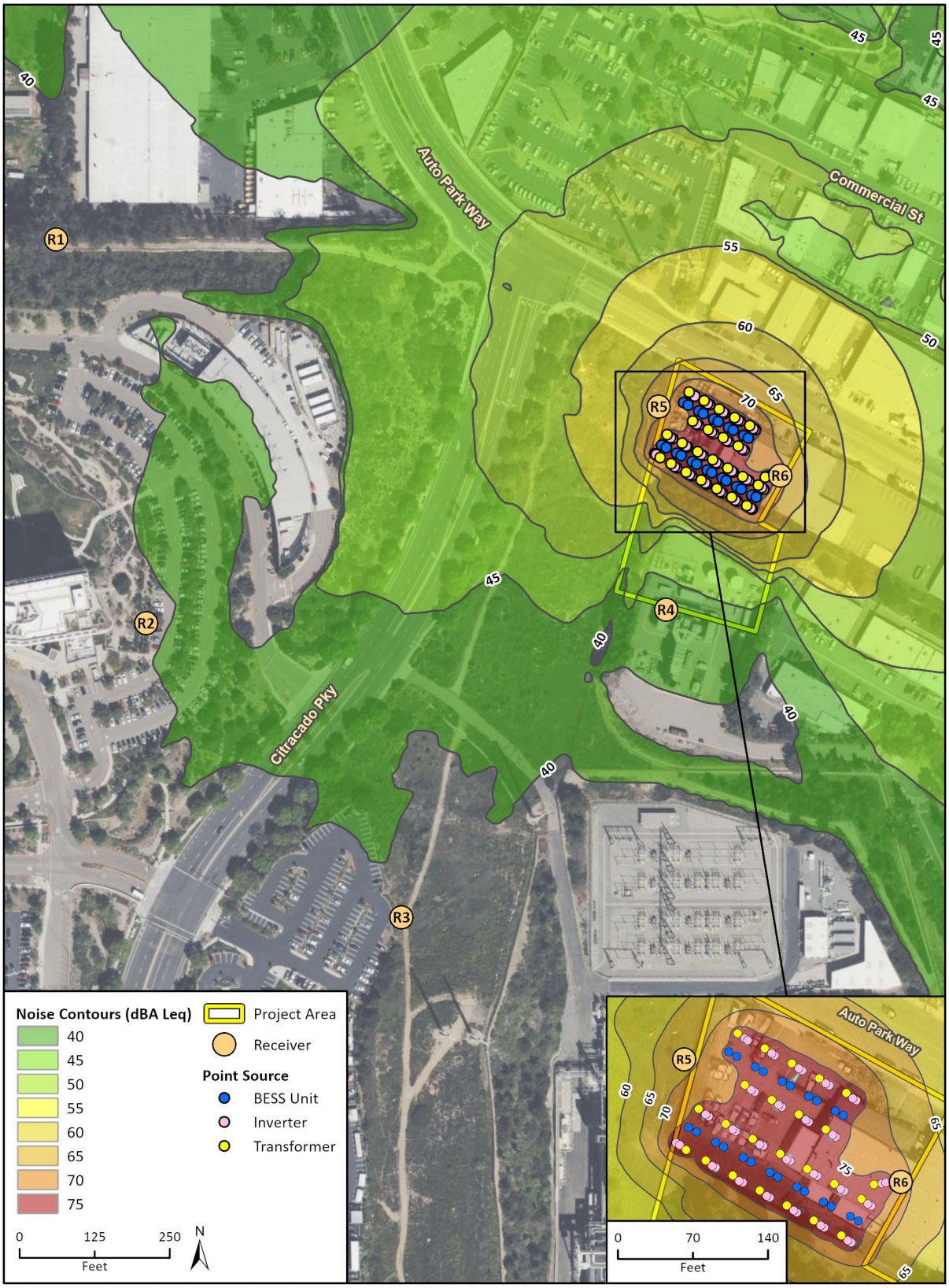
[2] Pursuant to Section 17-229 of the City of Escondido Municipal Code, the applicable noise limit at the Project property line (adjacent to nearby light industrial uses) is 70 dBA L_{eq}.

The California Code of Regulations, Title 20, Division 2, Chapter 5, Article 6, Section B, Appendix B requires an estimate of worker noise exposure during Project operation. Operational noise levels at the site could reach up to 76 dBA L_{eq}. The federal government regulates occupational noise exposure common in the workplace through OSHA under the United States Environmental Protection Agency. Noise limitations would apply to the operation of industrial equipment as part of the Project. Noise exposure of this type is addressed through a facility's Health and Safety Plan, as required under OSHA.

Off-Site Traffic Noise

The Project would be expected to require regular maintenance visits by two workers, twice per week on average. However, when compared with the existing daily traffic volumes of 12,535–15,300 on Auto Park Way, these maintenance worker trips would cause a negligible traffic noise increase (less than 0.1 dBA CNEL) along this roadway. Therefore, impacts would be less than significant as this increase is below the threshold of impact (1.5 dBA CNEL increase) for ambient noise environments of 65 dBA CNEL. Similarly, infrequent battery augmentation activities involving addition of new batteries on existing foundations would result in negligible, less-than-significant traffic noise increases.

Figure 5 Enterprise BESS Project Operational Noise Contours (Unmitigated)



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24-16971 EPS
Fig X Noise Contours - Unmitigated

Mitigation Measures

Without the proposed avoidance and mitigation measures, the Enterprise BESS project could create significant noise and vibration impacts. Prior to and during the construction period, the existing CEC Noise Conditions of Certification NOISE-1, NOISE-2, NOISE-3, and NOISE-4 shall be implemented. In addition, the following recommended mitigation Noise Conditions are proposed by the applicant to reduce potential significant localized noise impacts during the construction phase. With implementation of these two measures in addition to the four existing CEC Noise Conditions, impacts would be less than significant.

NOISE-5: Construction Noise Reduction Measures

The Project Owner shall ensure that noise control measures described in this Condition are implemented to reduce construction noise impacts to the extent feasible.

Verification:

- All construction equipment, stationary and mobile, shall be equipped with properly operating and maintained mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features that meet or exceed original factory specifications.
- Construction equipment shall be equipped with shrouds and noise-control features that are supplied as standard accessories from the original equipment manufacturer.
- Routine field inspection of mufflers to ensure proper function shall be performed by the construction manager.
- Locate stationary noise-generating equipment such as portable power generators as far as possible from sensitive receptors.

NOISE-6: Operational Noise Reduction Measure

In order to reduce operational noise levels associated with the Project to below the City's required limit of 70 dBA L_{eq} along the Project boundary, a noise barrier with a minimum height of 8 feet shall be installed along the eastern Project boundary.

Verification: The noise barrier shall be constructed of a solid material with no gaps or openings. Suitable barrier materials may include one or more of the following: masonry block, concrete panels, 0.125-inch-thick steel sheets, 1.5-inch wood fencing, or 0.25-inch glass panels. If wood is used as the primary barrier material, the fence boards shall overlap or be of "tongue and groove" construction with a joining compound between the boards to ensure there would be no gaps or holes in the barrier, and annual inspection and maintenance shall be conducted for the life of the Project to ensure the barrier continues to perform to the minimum requirements.

Significance After Mitigation

Construction Noise

It is estimated that implementation of recommended mitigation measure Condition NOISE-5 (including the use of equipment silencers and optimal mufflers systems) would be expected to provide up to 10 dBA of noise reduction (FHWA 2017), reducing noise generated during construction activities to 73 dBA L_{eq} and below, which would not exceed the City's construction noise limit of 75 dBA L_{eq} at nearby receiving properties. Therefore, temporary noise impacts associated with construction of the proposed Project would be less than significant with mitigation.

Operational Noise

Implementation of recommended mitigation measure Condition NOISE-6 would require at least an 8-foot-tall noise barrier along the eastern Project boundary. Operational noise levels and contours were recalculated with the presence of an 8-foot-tall barrier, presented in Table 10 and Figure 6, respectively. As shown in Table 10 and Figure 6, implementation of recommended mitigation measure Condition NOISE-6 would reduce operational noise levels to below the City's respective limits at nearby sensitive receptors and the Project boundary. Therefore, long-term noise impacts associated with operation of the proposed Project would be less than significant with mitigation.

Table 10 Operational Noise Levels at Sensitive Receptors (Mitigated)

Receptor Name	Receptor Description	Modeled Noise Level (dBA L_{eq})[1]	City Noise Threshold (dBA L_{eq})	Exceeds City Noise Threshold?
R6	Eastern Project property line	60	70[3]	No

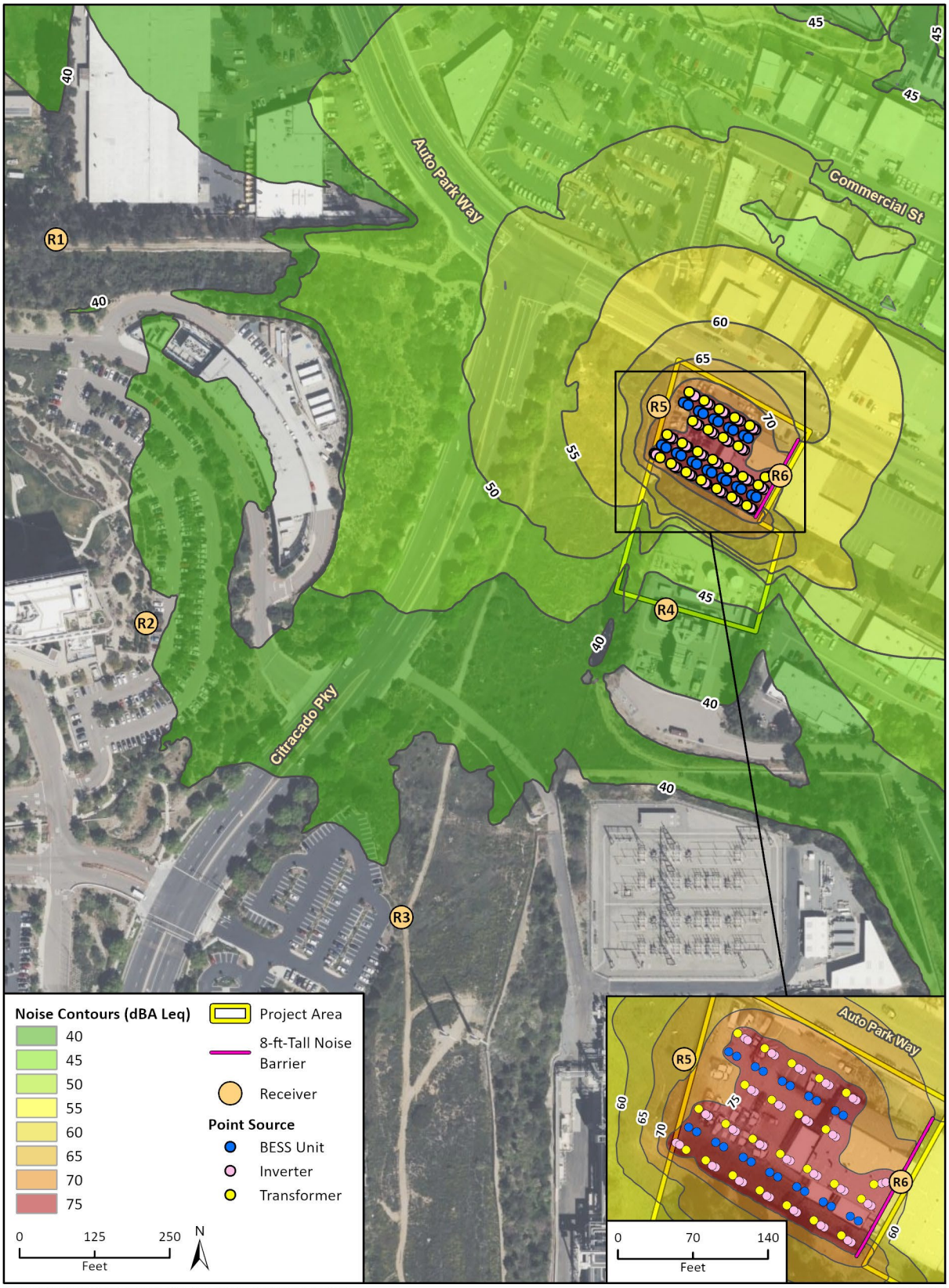
dBA = A-weighted decibel; L_{eq} = equivalent continuous sound level

[1] Note that all modeled noise levels shown account for the presence of an 8-foot-tall noise barrier along the eastern Project boundary.

[2] Pursuant to Section 17-229 of the City of Escondido Municipal Code, the applicable nighttime (10:00 p.m. to 7:00 a.m.) noise threshold is 45 dBA L_{eq} at residential zones (also applied to nearby medical centers, which are considered noise-sensitive receptors for purposes of this analysis). The nighttime threshold was used because the project's equipment may operate continuously during nighttime hours.

[3] Pursuant to Section 17-229 of the City of Escondido Municipal Code, the applicable noise limit at the Project property line (adjacent to nearby light industrial uses) is 70 dBA L_{eq}.

Figure 6 Enterprise BESS Project Operational Noise Contours (Mitigated)



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24-16971 EP5
Fig X Noise Contours

4.2 Issue 2

Issue: Would the project result in generation of excessive ground-borne vibration or ground-borne noise levels? **LESS THAN SIGNIFICANT WITH MITIGATION**

Construction activities known to generate excessive ground-borne vibration, such as pile driving, would be conducted along the eastern, southern, and western Project boundaries on the northern portion of the Project Area during construction. Pile driving construction equipment may be used as close as within 5 feet of the nearest off-site structure (i.e., the adjacent Reece Plumbing Supply Store) located directly east of the Project Area. Impact pile driving generates a vibration level of approximately 1.518 in/sec PPV at a distance of 25 feet (FTA 2018). At a distance of 5 feet, impact pile driving would generate vibration levels up to approximately 16.972 in/sec PPV, which would exceed the threshold of 1 in/sec PPV at engineered structures. Vibration impacts upon this adjacent structure to the east would be potentially significant. At the nearest industrial structure to the north, located as close as approximately 85 feet from proposed pile driving activity at the Project Area, vibration levels would reach approximately 0.242 in/sec PPV, which would not exceed the threshold of 1 in/sec PPV at engineered structures. Vibration impacts to industrial structures to the north would be less than significant. Note that construction vibration impacts associated with pile driving activity would not exceed the 1 in/sec PPV threshold at structures located 33 feet or farther from pile driving activity. Vibration levels would be much lower at the nearest medical use (i.e., the Palomar Medical Center Escondido) located approximately 950 feet southwest and the nearest residences located approximately 1,250 feet northwest of the nearest pile driving activity at the Project Area, reaching 0.006 and 0.004 in/sec PPV at these structures, respectively. Therefore, temporary vibration impacts associated with construction would be less than significant at these farther receptors.

Additional vibration-generating activities would include use of large earthmoving equipment (dozer, excavator, backhoe) and a vibratory roller as close as approximately 5 and 10 feet, respectively, from the nearest offsite structure to the east (i.e., Reece Plumbing Supply Store). Large earthmoving equipment generates vibration levels up to 0.089 in/sec PPV at a reference distance of 25 feet (FTA 2018), which would result in vibration levels up to approximately 0.995 in/sec PPV at the nearest commercial structure located approximately 5 feet away. This would not exceed the FTA's 1 in/sec PPV threshold for engineered structures. A vibratory roller generates a vibration level of 0.21 in/sec PPV at a reference distance of 25 feet (FTA 2018), which would result in vibration levels up to approximately 0.830 in/sec PPV at the nearest commercial structure located approximately 10 feet away. This would not exceed the FTA's 1 in/sec PPV threshold for engineered structures. Vibration impacts associated with use of large earthmoving and paving equipment would continue to reduce with distance at receptors located farther away. Therefore, vibration impacts associated with earthwork and paving activities during construction would be less than significant.

Operation of the Project would not include any substantial vibration sources. Therefore, operational vibration impacts would also be less than significant.

Mitigation Measures

NOISE-7: Prepare and Implement a Vibration Control Plan During Construction

The Vibration Control Plan shall be prepared by a qualified acoustical consultant or engineer and shall include methods required to minimize vibration during construction:

Verification:

- Use of alternative construction equipment for pile driving activities (e.g., use of a sonic, oscillating, or rotating pile driver in lieu of an impact pile driver) occurring within 33 feet of off-site buildings to reduce vibration impacts to these structures
- Vibration monitoring prior to and during pile driving activities occurring within 33 feet of off-site buildings
- Avoiding the use of vibrating equipment when allowed by best engineering practices

The Vibration Control Plan shall include a preconstruction survey letter establishing baseline conditions at nearby buildings where potential impacts cannot be avoided using alternative equipment and construction techniques. The survey letter shall determine conditions that exist prior to the commencement of construction activities for use in evaluating potential damages caused by construction. Fixtures and finishes susceptible to damage shall be documented photographically and in writing prior to construction. The survey letter shall provide a shoring design to protect such buildings and structures from potential damage. At the conclusion of vibration-causing activities, the qualified acoustical consultant or engineer shall issue a follow-up letter describing damage, if any, to impacted buildings and structures.

Significance After Mitigation

Recommended mitigation measure Condition NOISE-7 would require implementation of a Vibration Control Plan that would include use of alternative construction equipment and techniques that produce lower vibration levels and vibration monitoring of nearby off-site buildings to limit vibration impacts to below applicable thresholds at these structures. Vibration impacts would be less than significant with mitigation.

4.3 Issue 3

Issue:	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 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? **NO IMPACT**

The closest airport to the Project Area is the McClellan-Palomar Airport, located approximately 9 miles to the west. The Project Area is located well outside of the 60 dBA CNEL noise contour of the airport, according to Figure 7-1 of the McClellan-Palomar Airport Federal Aviation Regulation Part 150 Study Update (McClellan-Palomar Airport 2005). In addition, the Enterprise BESS is a utility-use project and does not include any noise-sensitive outdoor use areas (e.g., courtyards, outdoor recreation areas) and the Project would not include any interior spaces. Therefore, no substantial noise exposure from airport noise would occur to users of the Project, and no impact would occur.

5 Conclusion

The proposed Enterprise BESS Project would generate both temporary construction-related noise and long-term noise associated with operation. Construction noise would exceed the City's noise standards at nearby industrial uses in the vicinity of the Project Area. However, with implementation of recommended mitigation measure Condition NOISE-5, construction noise impacts would be less than significant with mitigation.

The Project's stationary noise sources (BESS units and inverters) would exceed applicable exterior noise standards at the nearest land use to the east. However, with implementation of recommended mitigation measure Condition NOISE-6, operational noise impacts associated with the Project would be less than significant with mitigation.

Project-generated traffic would result in an increase of less than 0.1 dBA CNEL on Auto Park Way near noise-sensitive receivers during construction of the Project, and less during Project operation. This is below the threshold of 1.5 dBA CNEL; therefore, the off-site traffic noise increase would be less than significant.

The Project would generate levels of groundborne vibration exceeding applicable thresholds at the adjacent commercial structure located to the east of the Project Area during construction. However, with implementation of recommended mitigation measure Condition NOISE-7, construction-related vibration impacts would be less than significant with mitigation.

Due to the large distance between the Project Area and nearest airport, no substantial noise exposure from airport noise would occur to construction workers, maintenance workers, or infrequent visitors to the facility, and no impacts would occur.

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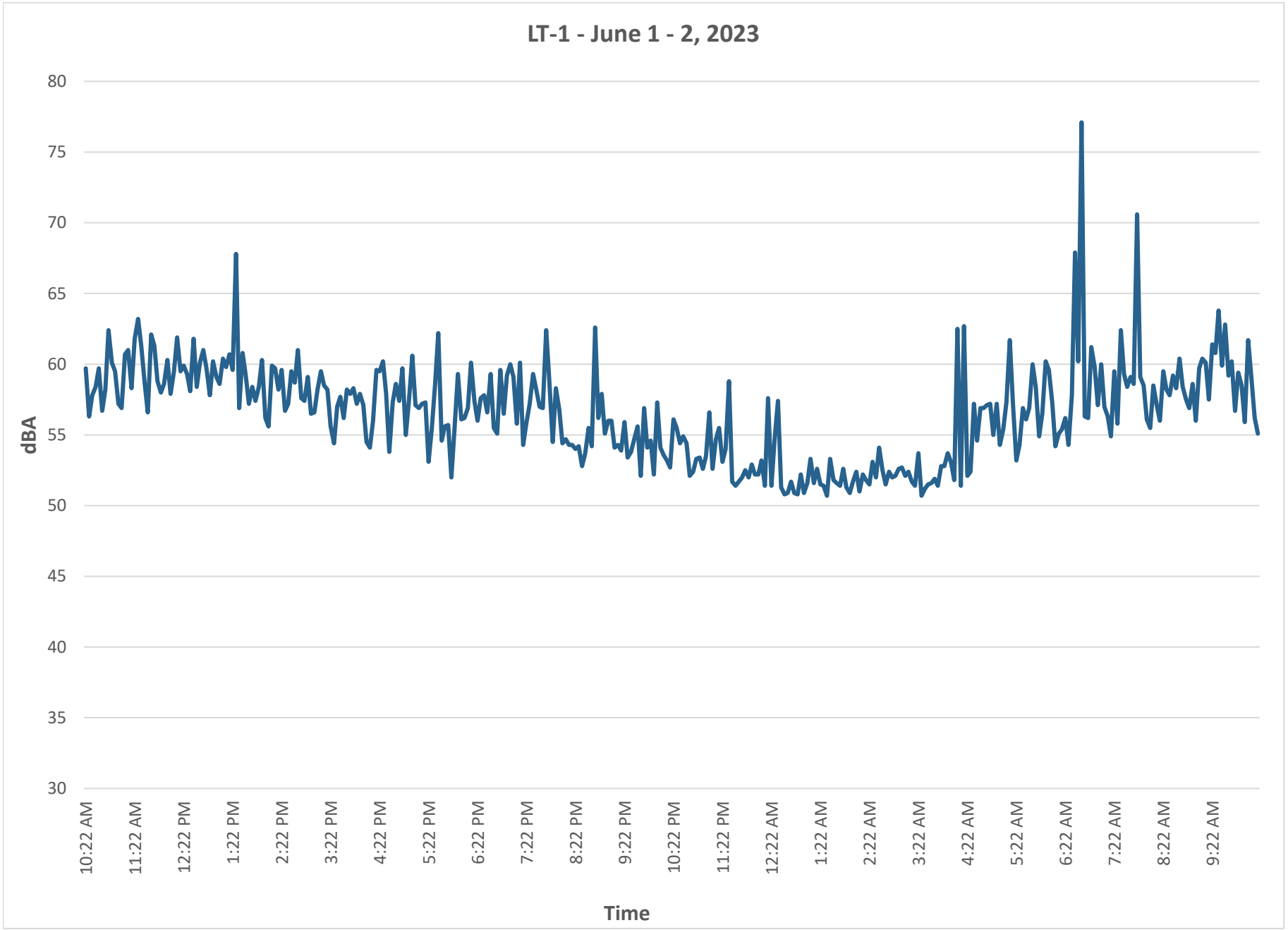
Appendix A

Noise Measurement Data


LT-1 - June 1 - 2, 2023
80
75
70
65
60
55
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45
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35
30
dBA
10:22 AM
11:22 AM
12:22 PM
1:22 PM
2:22 PM
3:22 PM
4:22 PM
5:22 PM
6:22 PM
7:22 PM
8:22 PM
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3:22 AM
4:22 AM
5:22 AM
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8:22 AM
9:22 AM
Time

Appendix B

Construction Noise Modeling Results

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/07/2025
Case Description: Enterprise BESS 2025

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Demolition	Industrial	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40	80.0		50.0	0.0
Concrete Saw	No	20	90.0		50.0	0.0
Dozer	No	40	85.0		50.0	0.0
Excavator	No	40	85.0		50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Backhoe	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	90.0	83.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	90.0	86.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/07/2025
Case Description: Enterprise BESS 2025

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Site Preparation & Grading	Industrial	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40	80.0		50.0	0.0
Mounted Impact Hammer (hoe ram)	Yes	20	90.0		50.0	0.0
Dozer	No	40	85.0		50.0	0.0
Excavator	No	40	85.0		50.0	0.0

Results

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Backhoe	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mounted Impact Hammer (hoe ram)	90.0	83.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	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				85.0	81.0	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Excavator				85.0	81.0	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	90.0	86.9	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/07/2025
Case Description: Enterprise BESS 2025

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Retaining Wall	Industrial	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Impact Pile Driver	Yes	20	95.0		50.0	0.0
Mounted Impact Hammer (hoe ram)	Yes	20	90.0		50.0	0.0
Auger Drill Rig	No	20	85.0		50.0	0.0
Concrete Saw	No	20	90.0		50.0	0.0

Results

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Impact Pile Driver	95.0	88.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mounted Impact Hammer (hoe ram)	90.0	83.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Auger Drill Rig				85.0	78.0	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Concrete Saw				90.0	83.0	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	95.0	90.4	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/07/2025
Case Description: Enterprise BESS 2025

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Foundations & Equipment	Industrial	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40	80.0		50.0	0.0
Mounted Impact Hammer (hoe ram)	Yes	20	90.0		50.0	0.0
Dozer	No	40	85.0		50.0	0.0
Impact Pile Driver	Yes	20	95.0		50.0	0.0

Results

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Backhoe	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mounted Impact Hammer (hoe ram)	90.0	83.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	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				85.0	81.0	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Impact Pile Driver				95.0	88.0	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	95.0	90.0	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/07/2025
Case Description: Enterprise BESS 2025

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Modules, Inverters, & Switchgear	Industrial	60.0	55.0	50.0

Description	Impact Device	Usage (%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40	80.0		50.0	0.0
Crane	No	16	85.0		50.0	0.0
Dozer	No	40	85.0		50.0	0.0
Pickup Truck	No	40	55.0		50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Compressor (air)	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	85.0	77.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	55.0	51.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	83.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/07/2025
Case Description: Enterprise BESS 2025

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Elec Wire Install & Finish Grading	Industrial	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40	80.0		50.0	0.0
Crane	No	16	85.0		50.0	0.0
Dozer	No	40	85.0		50.0	0.0
Grader	No	40	85.0		50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Calculated (dBA) Day Evening Night

Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	85.0	77.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	85.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/07/2025
Case Description: Enterprise BESS 2025

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Commissioning & Testing	Industrial	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compactor (ground)	No	20	80.0		50.0	0.0
Pickup Truck	No	40	55.0		50.0	0.0
Generator	No	50	82.0		50.0	0.0
Welder / Torch	No	40	73.0		50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Compactor (ground)	80.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	55.0	51.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	82.0	79.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	73.0	69.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	82.0	80.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix C

Traffic Modeling Results

Traffic Noise Calculator: FHWA 77-108 **Project Number: 24-16971_Enterprise BESS 2025**

	Output						Inputs														Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																		
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	70.4	74.1	74.45	139	440	1393	Auto Park Way (Existing Trips)	Auto Park Way to Citracado Pkwy	15,300	40	8.0%	90.0%	4.0%	6.0%	75.0%	10.0%	15.0%	4	Hard	50	0	44
2	70.4	74.1	74.47	140	443	1400	Auto Park Way (Existing + Proj Construction Trips)	Auto Park Way to Citracado Pkwy	15,385	40	8.0%	90.0%	4.0%	6.0%	75.0%	10.0%	15.0%	4	Hard	50	0	44
3	70.4	74.1	74.45	139	441	1393	Auto Park Way (Existing + Proj Operation Trips)	Auto Park Way to Citracado Pkwy	15,308	40	8.0%	90.0%	4.0%	6.0%	75.0%	10.0%	15.0%	4	Hard	50	0	44
4	69.4	73.1	73.50	112	354	1119	Auto Park Way (Existing Trips)	Citracado Pkwy to Enterprise St	12,535	40	8.0%	90.0%	4.0%	6.0%	75.0%	10.0%	15.0%	2	Hard	50	0	20
5	69.4	73.1	73.53	113	356	1126	Auto Park Way (Existing + Proj Construction Trips)	Citracado Pkwy to Enterprise St	12,620	40	8.0%	90.0%	4.0%	6.0%	75.0%	10.0%	15.0%	2	Hard	50	0	20
6	69.4	73.1	73.50	112	354	1119	Auto Park Way (Existing + Proj Operation Trips)	Citracado Pkwy to Enterprise St	12,543	40	8.0%	90.0%	4.0%	6.0%	75.0%	10.0%	15.0%	2	Hard	50	0	20

Appendix D

SoundPLAN Modeling Information

Enterprise BESS
Run info
Operational Noise_Single Points

Project info

Project title: Enterprise BESS
Project No.: 22-13968
Project engineer: Kyle Pritchard
Customer:

Description:
Noise modeling of battery energy storage system (BESS) for revised Enterprise project.

Run description

Calculation type: Single Point Sound
Title: Operational Noise_Single Points
Calculation group
Run file: RunFile.runx
Result number: 5
Local calculation (ThreadCount=12)
Calculation start: 3/3/2025 7:59:53 AM
Calculation end: 3/3/2025 7:59:59 AM
Calculation time: 00:00:582 [m:s:ms]
No. of points: 6
No. of calculated points: 6
Kernel version: SoundPLANnoise 9.0 (4/18/2024) - 64 bit

Run parameters

Reflection order: 3
Maximum reflection distance to receiver 200 m
Maximum reflection distance to source 50 m
Search radius 5000 m
Weighting: dB(A)
Allowed tolerance (per individual source): 0.100 dB
Create ground effect areas from road surfaces: Yes
Treat roads as terrain following: No

Standards:
- Industry: ISO 9613-2: 1996
- Air absorption: ISO 9613-1
- regular ground effect (chapter 7.3.1), for sources without a spectrum automatically alternative ground effect
- Limitation of screening loss:
  - single/multiple 20.0 dB /25.0 dB
- Side diffraction: ISO/TR 17534-3:2015 compliant: no side diffraction if terrain blocks line of sight
- Use Eqn (Abar=Dz-Max(Agr,0)) instead of Eqn (12) (Abar=Dz-Agr) for insertion loss
- Environment:
  - Air pressure 1013.3 mbar
  - rel. humidity 70.0 %
  - Temperature 10.0 °C
  - Meteo. corr. C0(7-22h)[dB]=0.0; C0(22-7h)[dB]=0.0;
  - Ignore Cmet for Lmax industry calculation: No
- Parameter for screening: C2=20.0

Dissection parameters:

Distance to diameter factor	8
Minimal distance	1 m
Max. difference ground effect + diffraction	1.0 dB
Max. number of iterations	4

Attenuation

Foliage:	ISO 9613-2
Built-up area:	ISO 9613-2
Industrial site:	ISO 9613-2

Assessment: CNEL (CA)
Reflection of "own" facade is suppressed

Geometry data

Enterprise BESS Noise Impact.sit 2/26/2025 6:42:44 AM
- contains:

Building References.geo	2/4/2025 1:57:06 PM	
Calculation Area_grid.geo	10/20/2023 10:39:20 AM	
Existing Topo_02042025.geo	2/4/2025 11:15:52 AM	
Future Topo_02042025.geo	2/4/2025 11:15:52 AM	
General.geo	2/4/2025 11:02:28 AM	
Ground Absorption.geo	2/4/2025 1:57:06 PM	
LOD.geo	2/4/2025 11:02:52 AM	
Noise Sources-BESS Units_02042025.geo		2/28/2025 8:21:26 AM
Noise Sources-Inverters_020242025.geo		2/28/2025 8:21:26 AM
Noise Sources-Transformers_020242025.geo		2/28/2025 8:21:26 AM
Reference Lines_BESS Units.geo		2/4/2025 11:09:48 AM
Reference Lines_PCS Skids.geo		2/4/2025 11:09:50 AM
Sensitive Receptors.geo	2/26/2025 9:11:58 AM	
RDGM0002.dgm	2/4/2025 11:17:54 AM	

Enterprise BESS
Run info
Operational Noise_Contours

Project info

Project title: Enterprise BESS
Project No.: 22-13968
Project engineer: Kyle Pritchard
Customer:

Description:
Noise modeling of battery energy storage system (BESS) for revised Enterprise project.

Run description

Calculation type: Grid Map
Title: Operational Noise_Contours
Calculation group
Run file: RunFile.runx
Result number: 7
Local calculation (ThreadCount=12)
Calculation start: 3/3/2025 12:39:41 PM
Calculation end: 3/3/2025 12:40:11 PM
Calculation time: 00:24:029 [m:s:ms]
No. of points: 56840
No. of calculated points: 56840
Kernel version: SoundPLANnoise 9.0 (4/18/2024) - 64 bit

Run parameters

Reflection order: 3
Maximum reflection distance to receiver 200 m
Maximum reflection distance to source 50 m
Search radius 5000 m
Weighting: dB(A)
Allowed tolerance: 0.100 dB
Create ground effect areas from road surfaces: Yes
Treat roads as terrain following: No

Standards:
- Industry: ISO 9613-2: 1996
- Air absorption: ISO 9613-1
- regular ground effect (chapter 7.3.1), for sources without a spectrum automatically alternative ground effect
- Limitation of screening loss:
  - single/multiple 20.0 dB /25.0 dB
- Side diffraction: ISO/TR 17534-3:2015 compliant: no side diffraction if terrain blocks line of sight
- Use Eqn (Abar=Dz-Max(Agr,0)) instead of Eqn (12) (Abar=Dz-Agr) for insertion loss
- Environment:
  - Air pressure 1013.3 mbar
  - rel. humidity 70.0 %
  - Temperature 10.0 °C
  - Meteo. corr. C0(7-22h)[dB]=0.0; C0(22-7h)[dB]=0.0;
  - Ignore Cmet for Lmax industry calculation: No
- Parameter for screening: C2=20.0

Dissection parameters:		
Distance to diameter factor		8
Minimal distance		1 m
Max. difference ground effect + diffraction		1.0 dB
Max. number of iterations		4
Attenuation		
Foliage:	ISO 9613-2	
Built-up area:	ISO 9613-2	
Industrial site:	ISO 9613-2	
Assessment:	CNEL (CA)	
Grid Noise Map:		
Grid space:	3.00 m	
Height above ground:	1.500 m	
Grid interpolation:		
	Field size =	9x9
	Min/Max =	10.0 dB
	Difference =	0.2 dB
	Limit level=	40.0 dB

Geometry data

Enterprise BESS Noise Impact.sit	2/26/2025 6:42:44 AM	
- contains:		
Building References.geo	2/4/2025 1:57:06 PM	
Calculation Area_grid.geo	10/20/2023 10:39:20 AM	
Existing Topo_02042025.geo	2/4/2025 11:15:52 AM	
Future Topo_02042025.geo	2/4/2025 11:15:52 AM	
General.geo	2/4/2025 11:02:28 AM	
Ground Absorption.geo	2/4/2025 1:57:06 PM	
LOD.geo	2/4/2025 11:02:52 AM	
Noise Sources-BESS Units_02042025.geo		2/28/2025 8:21:26 AM
Noise Sources-Inverters_020242025.geo		2/28/2025 8:21:26 AM
Noise Sources-Transformers_020242025.geo		2/28/2025 8:21:26 AM
Reference Lines_BESS Units.geo		2/4/2025 11:09:48 AM
Reference Lines_PCS Skids.geo		2/4/2025 11:09:50 AM
Sensitive Receptors.geo	2/26/2025 9:11:58 AM	
RDGM0002.dgm	2/4/2025 11:17:54 AM	

Enterprise BESS
Run info
Operational Noise_Single Points (mitigated 8' barrier)

Project info

Project title: Enterprise BESS
Project No.: 22-13968
Project engineer: Kyle Pritchard
Customer:

Description:
Noise modeling of battery energy storage system (BESS) for revised Enterprise project.

Run description

Calculation type: Single Point Sound
Title: Operational Noise_Single Points (mitigated 8' barrier)
Calculation group
Run file: RunFile.runx
Result number: 8
Local calculation (ThreadCount=12)
Calculation start: 2/26/2025 9:12:03 AM
Calculation end: 2/26/2025 9:12:09 AM
Calculation time: 00:00:553 [m:s:ms]
No. of points: 6
No. of calculated points: 6
Kernel version: SoundPLANnoise 9.0 (4/18/2024) - 64 bit

Run parameters

Reflection order: 3
Maximum reflection distance to receiver 200 m
Maximum reflection distance to source 50 m
Search radius 5000 m
Weighting: dB(A)
Allowed tolerance (per individual source): 0.100 dB
Create ground effect areas from road surfaces: Yes
Treat roads as terrain following: No

Standards:
- Industry: ISO 9613-2: 1996
- Air absorption: ISO 9613-1
- regular ground effect (chapter 7.3.1), for sources without a spectrum automatically alternative ground effect
- Limitation of screening loss:
  - single/multiple 20.0 dB /25.0 dB
- Side diffraction: ISO/TR 17534-3:2015 compliant: no side diffraction if terrain blocks line of sight
- Use Eqn (Abar=Dz-Max(Agr,0)) instead of Eqn (12) (Abar=Dz-Agr) for insertion loss
- Environment:
  - Air pressure 1013.3 mbar
  - rel. humidity 70.0 %
  - Temperature 10.0 °C
  - Meteo. corr. C0(7-22h)[dB]=0.0; C0(22-7h)[dB]=0.0;
  - Ignore Cmet for Lmax industry calculation: No
- Parameter for screening: C2=20.0

Dissection parameters:

Distance to diameter factor	8
Minimal distance	1 m
Max. difference ground effect + diffraction	1.0 dB
Max. number of iterations	4

Attenuation

Foliage:	ISO 9613-2
Built-up area:	ISO 9613-2
Industrial site:	ISO 9613-2

Assessment: Day Night Level LDN
Reflection of "own" facade is suppressed

Geometry data

Enterprise BESS Noise Impact_Mitigated.sit		2/26/2025 9:11:58 AM
- contains:		
Barrier.geo	2/26/2025 8:29:26 AM	
Building References.geo	2/4/2025 1:57:06 PM	
Calculation Area_grid.geo	10/20/2023 10:39:20 AM	
Existing Topo_02042025.geo	2/4/2025 11:15:52 AM	
Future Topo_02042025.geo	2/4/2025 11:15:52 AM	
General.geo	2/4/2025 11:02:28 AM	
Ground Absorption.geo	2/4/2025 1:57:06 PM	
LOD.geo	2/4/2025 11:02:52 AM	
Noise Sources-BESS Units_02042025.geo		2/12/2025 8:51:20 AM
Noise Sources-Inverters_020242025.geo		2/12/2025 8:51:20 AM
Noise Sources-Transformers_020242025.geo		2/12/2025 8:51:20 AM
Reference Lines_BESS Units.geo		2/4/2025 11:09:48 AM
Reference Lines_PCS Skids.geo		2/4/2025 11:09:50 AM
Sensitive Receptors.geo	2/26/2025 9:11:58 AM	
Property Line.geo	2/26/2025 9:00:10 AM	
RDGM0002.dgm	2/4/2025 11:17:54 AM	

Enterprise BESS
Run info
Operational Noise_Grid Map (with 8' barrier)

Project info

Project title: Enterprise BESS
Project No.: 22-13968
Project engineer: Kyle Pritchard
Customer:

Description:
Noise modeling of battery energy storage system (BESS) for revised Enterprise project.

Run description

Calculation type: Grid Map
Title: Operational Noise_Grid Map (with 8' barrier)
Calculation group
Run file: RunFile.runx
Result number: 9
Local calculation (ThreadCount=12)
Calculation start: 2/26/2025 9:00:18 AM
Calculation end: 2/26/2025 9:02:57 AM
Calculation time: 02:31:240 [m:s:ms]
No. of points: 507969
No. of calculated points: 507969
Kernel version: SoundPLANnoise 9.0 (4/18/2024) - 64 bit

Run parameters

Reflection order: 3
Maximum reflection distance to receiver 200 m
Maximum reflection distance to source 50 m
Search radius 5000 m
Weighting: dB(A)
Allowed tolerance: 0.100 dB
Create ground effect areas from road surfaces: Yes
Treat roads as terrain following: No

Standards:
- Industry: ISO 9613-2: 1996
- Air absorption: ISO 9613-1
- regular ground effect (chapter 7.3.1), for sources without a spectrum automatically alternative ground effect
- Limitation of screening loss:
  - single/multiple 20.0 dB /25.0 dB
- Side diffraction: ISO/TR 17534-3:2015 compliant: no side diffraction if terrain blocks line of sight
- Use Eqn (Abar=Dz-Max(Agr,0)) instead of Eqn (12) (Abar=Dz-Agr) for insertion loss
- Environment:
  - Air pressure 1013.3 mbar
  - rel. humidity 70.0 %
  - Temperature 10.0 °C
  - Meteo. corr. C0(7-22h)[dB]=0.0; C0(22-7h)[dB]=0.0;
  - Ignore Cmet for Lmax industry calculation: No
- Parameter for screening: C2=20.0

Dissection parameters:		
Distance to diameter factor		8
Minimal distance		1 m
Max. difference ground effect + diffraction		1.0 dB
Max. number of iterations		4
Attenuation		
Foliage:	ISO 9613-2	
Built-up area:	ISO 9613-2	
Industrial site:	ISO 9613-2	
Assessment:	CNEL (CA)	
Grid Noise Map:		
Grid space:	1.00 m	
Height above ground:	1.500 m	
Grid interpolation:		
	Field size =	9x9
	Min/Max =	10.0 dB
	Difference =	0.2 dB
	Limit level=	40.0 dB

Geometry data

Enterprise BESS Noise Impact_Mitigated.sit		2/26/2025 9:00:12 AM
- contains:		
Barrier.geo	2/26/2025 8:29:26 AM	
Building References.geo	2/4/2025 1:57:06 PM	
Calculation Area_grid.geo	10/20/2023 10:39:20 AM	
Existing Topo_02042025.geo	2/4/2025 11:15:52 AM	
Future Topo_02042025.geo	2/4/2025 11:15:52 AM	
General.geo	2/4/2025 11:02:28 AM	
Ground Absorption.geo	2/4/2025 1:57:06 PM	
LOD.geo	2/4/2025 11:02:52 AM	
Noise Sources-BESS Units_02042025.geo		2/12/2025 8:51:20 AM
Noise Sources-Inverters_020242025.geo		2/12/2025 8:51:20 AM
Noise Sources-Transformers_020242025.geo		2/12/2025 8:51:20 AM
Reference Lines_BESS Units.geo		2/4/2025 11:09:48 AM
Reference Lines_PCS Skids.geo		2/4/2025 11:09:50 AM
Sensitive Receptors.geo	2/13/2025 10:59:46 AM	
Property Line.geo	2/26/2025 9:00:10 AM	
RDGM0002.dgm	2/4/2025 11:17:54 AM	

APPENDIX G

VEHICLE MILES TRAVELED (VMT) TECHNICAL MEMORANDUM

Rincon Consultants, Inc.
8825 Aero Drive
San Diego, California 92126
760-918-9444

March 6, 2025
Rincon Project No. 24-16971

Enterprise BESS LLC
201 Enterprise Street
Escondido, California 92029

Subject: Revised Vehicle Miles Travelled Technical Memorandum for the Enterprise Battery Energy Storage System Project, City of Escondido, San Diego County, California Supplemental Petition for Post Certification Amendment, Enterprise Emergency Peaker Project (CEC Docket No. 01-EP-10C)

Enterprise BESS LLC:

Rincon Consultants, Inc. (Rincon) is pleased to provide this revised vehicle miles traveled (VMT) technical memorandum for the Enterprise Battery Energy Storage System (BESS) Project (project) in the City of Escondido (City), San Diego County, California. Please note this VMT Memorandum supersedes the original assessment dated March 5, 2024, as part of the Petition for Post-Certification Amendment (Petition) to add a nominal 52 megawatt (MW) BESS to the existing Enterprise Emergency Peaker Project (EEPP). The layout of the proposed Enterprise BESS Project was modified following submittal of the March 2024 Petition, and this supplemental assessment analyzes the revised Project. This revised assessment supersedes the previous study.

The purpose of this memorandum is to analyze the potential for the project to screen out of the requirement to prepare a detailed transportation VMT analysis, as identified by the applicability of VMT screening criteria adopted by the City of Escondido in their "Escondido: Transportation Impact Analysis Guidelines," dated April 2021. This memorandum is not intended to support a California Environmental Quality Act (CEQA) analysis; rather, this memorandum and its findings will serve to support an assumed California Energy Commission (CEC) post-certification amendment for the project.

Project Description

The project proposes to install a BESS project in the City of Escondido in San Diego County, California. The BESS Project includes interconnection related facilities that are co-located with the existing CalPeak Power EEPP within Assessor's Parcel Number (APN) APN 232-410-45-00 at 201 Enterprise Street. The Project also includes 52 MW of BESS facilities to be installed on an adjacent approximately 0.82-acre site located at 2361 Auto Park Way on APNs 232-410-21-00, 232-410-20-00, and 232-410-19-00. The BESS facilities would be connected to the low side of the existing generation step-up (GSU) transformer at the EEPP via an approximately 350-foot-long gen-tie to be installed on an above ground cable tray.

The Project Area is located generally west of Interstate 15 (I 15) and south of Ronald Packard Parkway (State Route [SR] 78) in Escondido, California (Figure 1 and Figure 2). The EEPP property is located approximately 300 feet east of Citracado Parkway and 200 feet south of Auto Park Way. The BESS facilities including modular battery containers and associated equipment are located adjacent to and south of Auto Park Way. The approximately 0.82-acre BESS site was most recently used as the Auto Art Paint & Body business, up until January 2025. The combined Project Area encompassing all four APNs is bound by industrial/commercial land uses to the north, northwest, east, and south. The area between Citracado Parkway to the west and the EEPP and the Auto Park Way parcels to the east is

undeveloped land with the exception of transmission infrastructure. Access to the EEPP site is provided via the existing peaker plant entrance on Enterprise Street and the access to the northern BESS parcels is via the adjacent Auto Park Way.

The project would be constructed in part to support California's current need for additional electrical supply capacity during peak load demand time periods. The proposed BESS facilities project would utilize approximately 0.1 acre of available open area within the northern portion of the overall 2.94-acre EEPP parcel, plus approximately 0.82 acre on the adjacent parcels to the north on the south side of Auto Park Way. New development at the previously disturbed project site area south of Auto Park Way would consist of containerized battery systems with internal heating, ventilation and air conditioning and internal fire detection and fire suppression systems, battery management systems, power conversion systems (i.e., inverters), transformers, and electrical conductors. The Project includes an approximately 350-foot-long, 13.8 kilovolt (kV) gen-tie connection to be installed on an elevated cable tray between the BESS facility and the low side of the GSU transformer at the EEPP which would connect the Enterprise BESS to the electrical grid.

Due to its age, the licensing for EEPP in 2001 (CEC Docket No. 01-EP-10) did not include a VMT analysis. The CEC has requested that a VMT analysis be provided as part of the post-certification amendment for the Enterprise BESS project. The discussion of VMT screening thresholds presented herein is consistent with City of Escondido requirements, although the City of Escondido does not have lead agency jurisdiction for the project given the CEC's jurisdiction.

Regulatory Setting

Senate Bill 743 (SB 743) was signed into law by Governor Jerry Brown in 2013 and tasked the State Office of Planning and Research (OPR) with establishing new criteria and metrics for identifying and mitigating transportation impacts under CEQA. SB 743 changed the way that public agencies evaluate transportation, recognizing that roadway congestion, while an inconvenience to drivers, is not itself an environmental impact. Under SB 743, the OPR established VMT as the preferred metric for measuring transportation impacts of most projects in place of vehicle level of service (LOS) or related measures of congestion as the primary metric. The use of VMT for determining significance of transportation impacts has become commonplace since the certification of this provision and the release of OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA in December 2018.

CEQA Guidelines Section 15064.3 implements SB 743 and establishes VMT as the most appropriate measure of transportation impacts for environmental analysis. CEQA lead agencies were required to comply with CEQA Guidelines Section 15064.3 no later than July 1, 2020. In response, the City of Escondido adopted specific guidance and thresholds for evaluating VMT impacts of projects within their jurisdiction in the Escondido: Transportation Impact Analysis Guidelines, published in April 2021. The Transportation Impact Analysis Guidelines contain metrics and methodologies for calculating VMT, screening criteria for VMT analysis, and suggested mitigation measures for projects that are found to have a significant VMT impact. The City's guidelines and screening criteria contained in the Transportation Impact Analysis Guidelines are used as the basis for discussion herein related to the Enterprise BESS project.

VMT Screening Thresholds

For land use projects, SB 743 provides opportunities to streamline transportation analysis under CEQA based on specific screening thresholds adopted by each individual jurisdiction. As described above, the City of Escondido's 2021 Transportation Impact Analysis Guidelines contain screening criteria specific to the City. The requirement to prepare a detailed transportation VMT analysis applies to all

land development projects in Escondido, except for those that meet at least one screening criterion provided in the City's Transportation Impact Analysis Guidelines. A project that meets one of the screening criteria would be presumed to have a less than significant VMT impact due to project characteristics and/or location (City of Escondido 2021). The following screening criteria are identified in the City's Transportation Impact Analysis Guidelines:

- **Small Residential and Employment Projects.** Projects generating 200 or fewer net new daily vehicle trips may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. Trips are based on the number of vehicle trips calculated using SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region or Institute of Transportation Engineers (ITE) trip generation rates with any alternative modes/location-based adjustments applied.
- **Projects Located in a Transit-Accessible Area.** Projects located within a half-mile walking distance of an existing major transit stop or an existing stop along a high-quality transit corridor may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. Distance to transit should be determined along an Americans with Disabilities Act (ADA)-accessible path of travel, not "as the crow flies" measurements.
- **Projects in a VMT-Efficient Area.** A VMT-efficient area is any area within the City with an average VMT/capita or VMT/employee below the thresholds as compared to the baseline regional average for the census tract it is located within, as provided on the SANDAG website.
- **Locally-Serving Retail Projects.** Local serving retail projects less than 50,000 square feet that are expected to draw at least 75% of customers from the local area (based on a market study and/or qualitative information provided by the applicant) may be presumed to have a less than significant impact absent substantial evidence to the contrary. Local serving retail generally improves the convenience of shopping close to home and has the effect of reducing vehicle travel.
- **Locally-Serving Public Facility.** Public facilities that serve the surrounding community or public facilities that are passive use may be presumed to have a less-than-significant impact absent substantial evidence to the contrary.
- **Redevelopment Projects with Lower Total VMT.** A redevelopment project may be presumed to have a less-than-significant impact absent substantial evidence to the contrary if the proposed project's total project VMT is less than the existing land use's total VMT and the CEQA action includes closing the existing land use.

VMT Screening Analysis

The project would function as an unmanned utilities facility and would be controlled remotely from an off-site location. Therefore, no daily operational trips would be generated by the project. Required maintenance of the Enterprise BESS project would be expected to typically require two maintenance workers to visit the site on two days of each week, resulting in approximately four round trips per week on average during the operational lifespan of the project. Therefore, the project would qualify for a streamlined transportation analysis without being subject to the detailed transportation VMT analysis requirements under the City of Escondido's "Small Residential and Employment Projects." Furthermore, the Enterprise BESS project may be categorized as a public utility with passive use, which would qualify for a streamlined transportation analysis without being subject to the detailed transportation VMT analysis requirements under the City of Escondido's "Locally-Serving Public Facility" screening criteria.

Conclusion

As described above, the Enterprise BESS project would screen out of the requirement to prepare a detailed transportation VMT analysis, pursuant to the "Small Residential and Employment Projects" and "Locally Serving Public Facility" screening criteria identified in the City of Escondido's "Escondido Transportation Impact Analysis Guidelines" (2021). Furthermore, given that the Enterprise BESS project is considered a "Small Residential and Employment Project" and/or a "Locally Serving Public Facility", the project is presumed to have a less-than-significant impact related to VMT.

Sincerely,
Rincon Consultants, Inc.

Taylor Freeman
Senior Environmental Planner

Kimberly M. Avila AICP ENV SP
Principal, Transportation Planning

Attachments

Attachment 1 Figures

References

Escondido, City of. 2021. Escondido: Transportation Impact Analysis Guidelines. https://www.escondido.org/Data/Sites/1/media/Engineering/TIACRAIG/EscondidoTransportationImpactAnalysisGuidelines2021.pdf (accessed November 2023).

State Office of Planning and Research (OPR). 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf (accessed June 2022).

Attachment 1

Figures

Figure 1 Regional Location

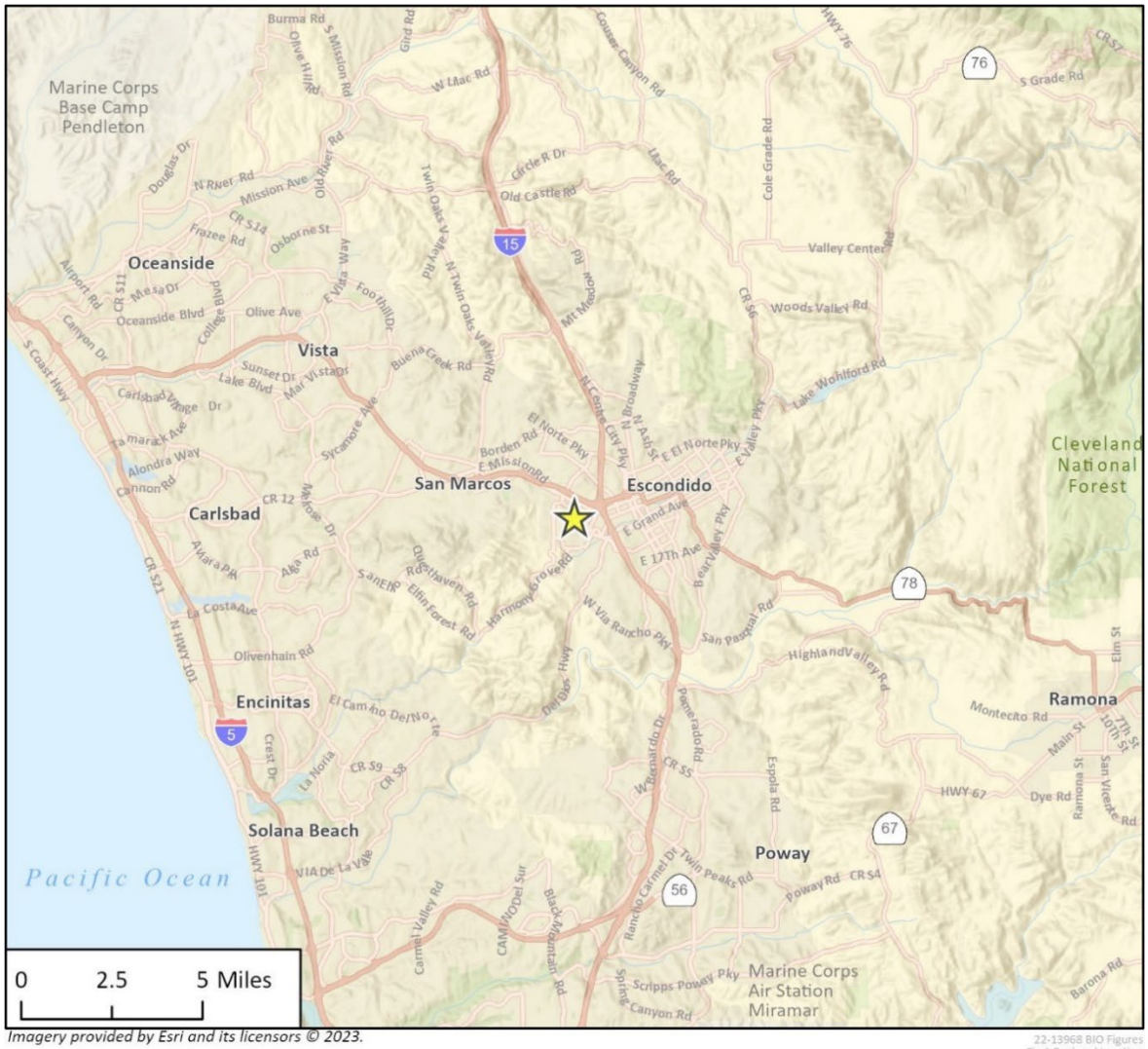


Figure 2 Project Area Map

Imagery provided by Microsoft Bing and its licensors © 2025.

24-16971 Bio
Fig 2 Study Area

APPENDIX H
FIRE SAFETY

This appendix discusses fire safety related issues for the proposed Enterprise BESS Project.

H.1 BACKGROUND

On October 9, 2024, the Escondido City Council voted to approve an Interim Ordinance prohibiting the City from issuing any use permit, variance, building permit, business license, or any other entitlement for use shall be approved or issued for the establishment, construction, or operation of a commercial BESS facility for any location or property within the City of Escondido. On October 20, 2024, the City of Escondido extended their current moratorium on the issuance of any City entitlements for use for new battery energy storage systems through the close of business on October 5, 2025. (Escondido Ordinance No. 2024-14R.) At the end of the moratorium, there is no statutory requirement that the local government act, or refuse to act, in any specified manner. Consequently, it is important to note that the moratorium itself is not a substantive local land use ordinance; it is a statutory process which may or may not result in a later enactment. Moreover, as a matter of law, the California Energy Commission's exclusive jurisdiction pursuant to Public Resources Code Section 25500 et seq. cannot be preempted by local ordinance, and the Commission retains all of its legal authorities under the Public Resources Code.

Since the interim ordinance was adopted, City staff have reportedly taken preliminary steps to study and consider the hazards associated with commercial BESS facilities, land use development policies, and standards relating to commercial BESS facilities to evaluate the potential development of such facilities within the City. The City's evaluation was still in progress at the time this supplemental Petition for Post Certification for Amendment to the Commission was prepared.

The proposed Enterprise BESS Project is located in an appropriate location for interconnecting to the CAISO-controlled electrical grid via the existing interconnection facilities at the collocated Enterprise Emergency Peaker Plant (EEPP). The Enterprise BESS and the EEPP will be operated in a coordinated manner. In addition to the co-located and shared facilities, the operational outputs of the EEPP and the BESS will be coordinated to not exceed the CAISO Aggregate Capability Constraint of 52 MW at the common point of interconnect (POI).

Enterprise BESS LLC and CalPeak Power-Enterprise, LLC (CalPeak) are committed to designing, constructing, and operating the Enterprise BESS Project in a safe and responsible manner. Enterprise BESS LLC and CalPeak are managed by Middle River Power (MRP). Given potential concerns regarding BESS safety and more specifically fire hazards and impacts, this appendix summarizes the key fire safety related measures that the applicant has incorporated into the proposed BESS project.

H.2 PROJECT OVERVIEW

The Project will utilize containerized battery systems with internal heating ventilation and air conditioning and internal fire detection and fire suppression systems in each container, battery management systems, power conversion systems (also called inverters), transformers, and electrical conductors. The modular battery storage system enclosures and inverters will be installed on concrete pad foundations. In addition, the proposed BESS development on the northern parcels area includes a 20-foot-wide, bidirectional double swing gate at the northwest entrance at Auto Park Way and 20-foot-wide internal access roads. The Project also includes an approximately 350-foot-long above ground 13.8 kilovolt (kV) gen-tie line installed on an elevated cable tray assembly to connect the BESS to the existing EEPP switchyard GSU transformer. Associated electrical interconnection facilities to be installed on the EEPP site include an elevated steel platform with switchgear and metering equipment as well as additional cable tray connections from the switchgear to the low side of the existing GSU at the EEPP and communication line connections. The Enterprise BESS Project will connect to the grid through the low side of the existing 13.8 kV/69 kV GSU at the EEPP. The high side of the existing GSU at the EEPP is connected to an existing 69 kV line that connects to an SDG&E substation located approximately 0.5 mile to the north of the EEPP.

The planned battery technology being considered is lithium iron phosphate (LFP). Batteries will be installed in enclosures that are electrically connected together to reach the desired output of BESS. The medium voltage transformers and inverters will be located adjacent to the enclosures they serve. Approximate dimensions for the battery enclosures are typically in the range of 8 feet wide by 20 feet long by 9.5 feet high. It is possible that enclosure dimensions could vary. Technology selection post-Certification will not affect the BESS's potential impacts or footprint, given that all technologies are enclosed, housed systems. The BESS systems will be certified to UL 9540 safety standards for BESS enclosures.

The Enterprise BESS Project is located in area that is classified by the City of Escondido[1] as being in a "Moderate Danger Severity Zone" related to risk for wildfire.

[1] City of Escondido. 2010. City of Escondido Fire Severity Zones (map). August.

H.3 KEY FAILURE MODES AND HAZARDS

According to the National Fire Protection Association[2], the key potential failure modes that can cause batteries to fail leading to thermal runaway and subsequent fires and explosions are:

- Mechanical Abuse – can happen when a battery is physically compromised by either being dropped, crushed, or penetrated
- Thermal Abuse – can occur when a battery is exposed to external heat sources
- Electrical Abuse – can happen when the battery is overcharged, charged too rapidly or at high voltage, or discharged too rapidly
- Environmental Impacts – hazards that can lead to battery failure include seismic activity, extreme heat and floods, and rodent damage to wiring

Key hazards associated with battery energy storage systems can include the following:

- Thermal Runaway -- thermal runaway is a term used for the rapid uncontrolled release of heat energy from a battery cell; it is a condition when a battery creates more heat than it can effectively dissipate. Thermal runaway in a single cell can result in a chain reaction that heats up neighboring cells. As this process continues, it can result in a battery fire or explosion. This can often be the ignition source for larger battery fires.
- Stranded Energy -- As with most electrical equipment there is a shock hazard present, but what is unique about BESS is that often, even after being involved in a fire, there is still energy within the BESS. This is difficult to discharge since the terminals are often damaged and presents a hazard to those performing overhaul after a fire. Stranded energy can also cause reignition of the fire hours, days, or even weeks later.
- Toxic and Flammable Gases Generated -- most batteries create toxic and flammable gases when they undergo thermal runaway. If the gases do not ignite before the lower explosive limit is reached, it can lead to the creation of an explosive atmosphere inside of the BESS room or container.

[2] National Fire Protection Association. 2024. Energy Storage Systems Safety Fact Sheet. February.

- Deep Seated Fires -- BESS are usually comprised of batteries that are housed in a protective metal or plastic casing within larger cabinets. These layers of protection help prevent damage to the system but can also block water from accessing the seat of the fire. This means that it takes large amounts of water to effectively dissipate the heat generated from BESS fires since cooling the hottest part of the fire is often difficult.

H.4 BESS DESIGN AND MITIGATION

Separate from recent battery fires in California, MRP has always exceeded design and code requirements in furtherance of safety at our BESS installations.

It is important to highlight that recent fires have been attributed to the following factors that MRP has mitigated for in the Enterprise BESS design:

(1) Use of lithium nickel manganese cobalt ("NMC"), which is more prone to thermal runaway, a hazardous and rapid exothermic reaction that triggers sudden fires.

(2) BESS installations inside of a building with minimal spacing between each battery and difficult access for containment.

(3) Air-cooled battery containers limiting cooling and thermal management safety margin.

Below is a series of differences that make MRP's installation, operation, and technology selection superior and safer than the NMC batteries witnessed in recent incidents.

1. **MRP uses lithium iron phosphate ("LFP"), a modern chemistry and technology with minimal thermal runaway risk and history.**

    a. MRP sources batteries from CATL & SYL, the world's largest Tier 1 BESS suppliers backed by a strong performance history.

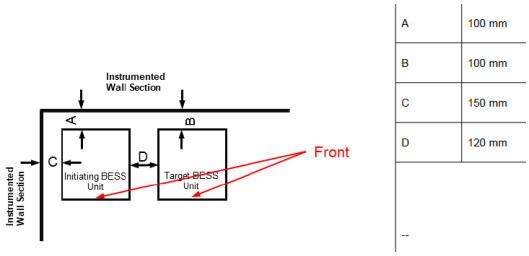
    b. LFP technology is the new standard in utility-scale storage with a lower energy density and chemistry less likely to release flammable gasses in the event of overheating.

    c. The Battery containers themselves have at least a 1-hour fire rating to minimize heat transfer and propagation of thermal events.

d. The battery containers contain internal aerosols that are event activated to extinguish any fires as soon as they are detected.

2. MRP BESS installations are outside with significant separation for more convenient and safer firefighting access.

a. MRP far exceeds the required spacing between battery blocks. MRP installations include battery blocks that are spaced 10.33 feet apart (OEM recommendation is 8 feet). The unit level 9540A test was tested at a distance of 150 mm of separation and even at this close proximity thermal propagation did not occur.



A	100 mm
B	100 mm
C	150 mm
D	120 mm

The Power Control System ("PCS") does not present a fire risk. This configuration far exceeds NFPA 855 standards, reduces fire propagation risk, and should an event occur allows safe access to neighboring containers to contain the spread of a thermal event. The BESS containers are placed back to back which is a tested configuration via the UL9540A test. The 1-hour fire rating protects the adjacent container.

b. The BESS installation contains 20-foot-wide vehicular access with gates and knox boxes at each entrance. An existing City fire hydrant is located 75 feet to the east of the eastern site entrance on Auto Park Way.

3. MRP containers are liquid-cooled which have significantly improved heat transfer ability compared to air-cooled configurations, keeping cells cool during charge/discharge.

a. Liquid cooling has a higher heat transfer coefficient than air cooling. The liquid cooling system's ability to absorb heat and remove it from a location is far superior to direct air-cooled installations.

b. As a safety mechanism any failure in the liquid cooling system will result in an automatic derate and in certain cases a shutdown of the container.

c. Beyond internal fire suppression in each container, MRP has fire water available to deluge the adjacent containers to avoid propagation should an event occur.

H.5 EMERGENCY RESPONSE PLAN (SB38)

In early October 2023, California's governor signed into law Senate Bill 38, which amends Section 761.3 of the California Public Utilities Code to address safety issues for the BESS industry in the state. The law requires that every battery energy storage facility located in California establish an emergency response and emergency action plan that covers the facility. The owner/operator of the facility must coordinate with local emergency management agencies, unified program agencies, and local first responders to develop the response and action plan and must submit the plan to the county and, if applicable, the city where the facility is located. Specifically, under the new law, the emergency response and action plans shall:

- Be consistent with Sections 142.3 and 6401 of the Labor Code and any related regulations;
- Be consistent with the regulatory requirements applicable to emergency action plans pursuant to Section 3220 of Title 8 and California Code of Regulations;
- Establish response procedures for an equipment malfunction or failure;
- Include procedures that provide for the safety of surrounding residents, neighboring properties, emergency responders, and the environment (procedures to be established in consultation with local emergency management agencies); and
- Establish notification and communication procedures between the battery storage facility and local emergency management agencies.

Additionally, a facility's emergency response and emergency action plan may consider responses to potential offsite impacts (e.g., poor air quality, threats to municipal water supplies, water runoff, and threats to natural waterways) and may include procedures for the local emergency response agency to establish shelter-in-place orders and road closure notifications (where appropriate).

Prior to operation of the Enterprise BESS Project, MRP will develop an Emergency Response Plan in coordination with the City of Escondido Fire Department that complies with the requirements of SB38.

H.6 TRAINING AND EMERGENCY RESPONSE

Prior to the start of BESS operations, an Emergency Operations Plan will be developed in coordination with the City of Escondido Fire Department. The Emergency Operations Plan will also be coordinated and integrated with the existing Emergency Response Plan for the Enterprise Emergency Peaker Plant. Considerations to be addressed in the Emergency Operations Plan include procedures for BESS personnel and emergency response personnel to safely shut down the systems, procedures to remove damaged equipment, general emergency procedures, and annual staff training.

Coordination with the City of Escondido Fire Department is planned to include development of a pre-incident plan for responding to potential accidental fires, explosions, and other emergency conditions associated with the BESS installation, and the pre-incident plan is expected to include the following elements:

- Understanding the procedures included in the facility operation and emergency response plan
- Identifying the types of BESS technologies present, the potential hazards associated with the systems, and methods for responding to fires and incidents associated with the particular BESS
- Identifying the location of all electrical disconnects at the facility and understanding that electrical energy stored in BESS equipment cannot always be removed or isolated
- Understanding the procedures for shutting down and de-energizing or isolating equipment to reduce the risk of fire, electric shock, and personal injury hazards
- Understanding the procedures for dealing with damaged BESS equipment in a post-fire incident, including the following:
  - Recognizing that stranded electrical energy in fire-damaged storage batteries and other BESS has the potential for reignition long after initial extinguishment
  - Contacting personnel qualified to safely remove damaged BESS equipment from the facility (this contact information will be included in the facility operation and emergency response plan.)