

4.14 Noise

Presented within this section is information on ambient noise conditions in the vicinity of the proposed Project and applicable regulations pertaining to noise and vibration. Noise and vibration impacts associated with construction and operation of the proposed Project are based on evaluating the exposure of persons to Project-related increases in noise and vibration levels in excess of defined thresholds.

4.14.1 Environmental Setting

Fundamentals of Noise

The LWEP EIR described the environmental setting for noise, including: definitions of acoustical terminology and fundamental descriptors, measurement and analysis of sound, examples of comparative noise levels, and typical sound levels measured in the environment. The most common metric is the overall A-weighted sound level measurement (dBA).

The effects of noise on people can be grouped into three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction
- Interference with activities such as speech, sleep, learning
- Physiological effects such as startling and hearing loss

In most cases, environmental noise produces effects in the first two categories only. However, workers in industrial plants might experience noise effects in the last category.

The LWEP EIR summarized how a person's subjective reaction may vary depending on the individual's habituation to noise. Thus, an important way of determining a person's subjective reaction to a new noise is by comparison with the existing or "ambient" environment to which that person has adapted. In general, the more the level or the tonal (frequency) variations of a noise exceed the previously existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual. When comparing sound levels from similar sources (for example, changes in traffic noise levels), a 3-dBA change is considered a just-perceivable difference; 5 dBA is clearly perceivable, and 10 dBA is considered a doubling in loudness.

Measuring the noise environment involves three variables to establish the characteristics of the noise: magnitude, frequency and duration. Loudness captures the magnitude of the variations in air pressure associated with sound waves. Loudness refers to how people judge the volume of sound. As a rule of thumb when comparing sounds with similar frequency and duration characteristics, a 1-dB change in sound level requires close attention to notice a change in loudness, a 3-dB change is clearly noticeable, and a 10-dB change will be nearly twice (or one-half) as loud. For example, a noise of 70 dB sound is about twice as loud as 60 dB (County, 2018).

The frequency characteristics of environmental noise sources are normally evaluated using the A-weighted sound levels (expressed as dBA). This is because the way the human ear perceives sound correlates well with the A-weighted scale (Brennan, 2018), and the applicable threshold criteria and planning policies for community noise analysis are in terms of dBA (County, 2018). Other weighting scales can be used to characterize sources of noise source. For example, C-weighting highlights sounds at lower-frequencies, which are a concern for hearing loss in loud settings.

Existing Conditions

The primary existing land use at the site is cattle grazing, although scattered residences are present within the Project boundary. Residences within the Project boundary are considered to be “participating” residences. Nearby private residences are also located on nonparticipating properties outside the perimeter of the Project boundary and near the proposed power line route along San Miguelito Road and in the City of Lompoc.

Baseline Noise Levels

The LWEP EIR included a narrative description of the existing conditions at the site. In the absence of actual noise measurements at the time, background literature was used to describe existing ambient noise levels. Background noise levels in the vicinity of the Project boundaries were assumed to be approximately 40 dBA CNEL.

The ambient noise levels on the Project site are characterized as low, which is typical of rural areas. At the site, little traffic noise occurs because of the infrequency of use of San Miguelito Road. Ambient noise levels also increase as wind speeds increase in strength. The Applicant sponsored measurements in 2017 to determine the existing background noise levels at three locations, one (LT-1) near the Project boundary at the nearest nonparticipating residential property line and two (LT-2 and LT-3) near residences and San Miguelito Road (Brennan, 2018). Table 4.14-1 shows the existing measured noise levels.

Table 4.14-1. Existing Background Noise Level Measurements

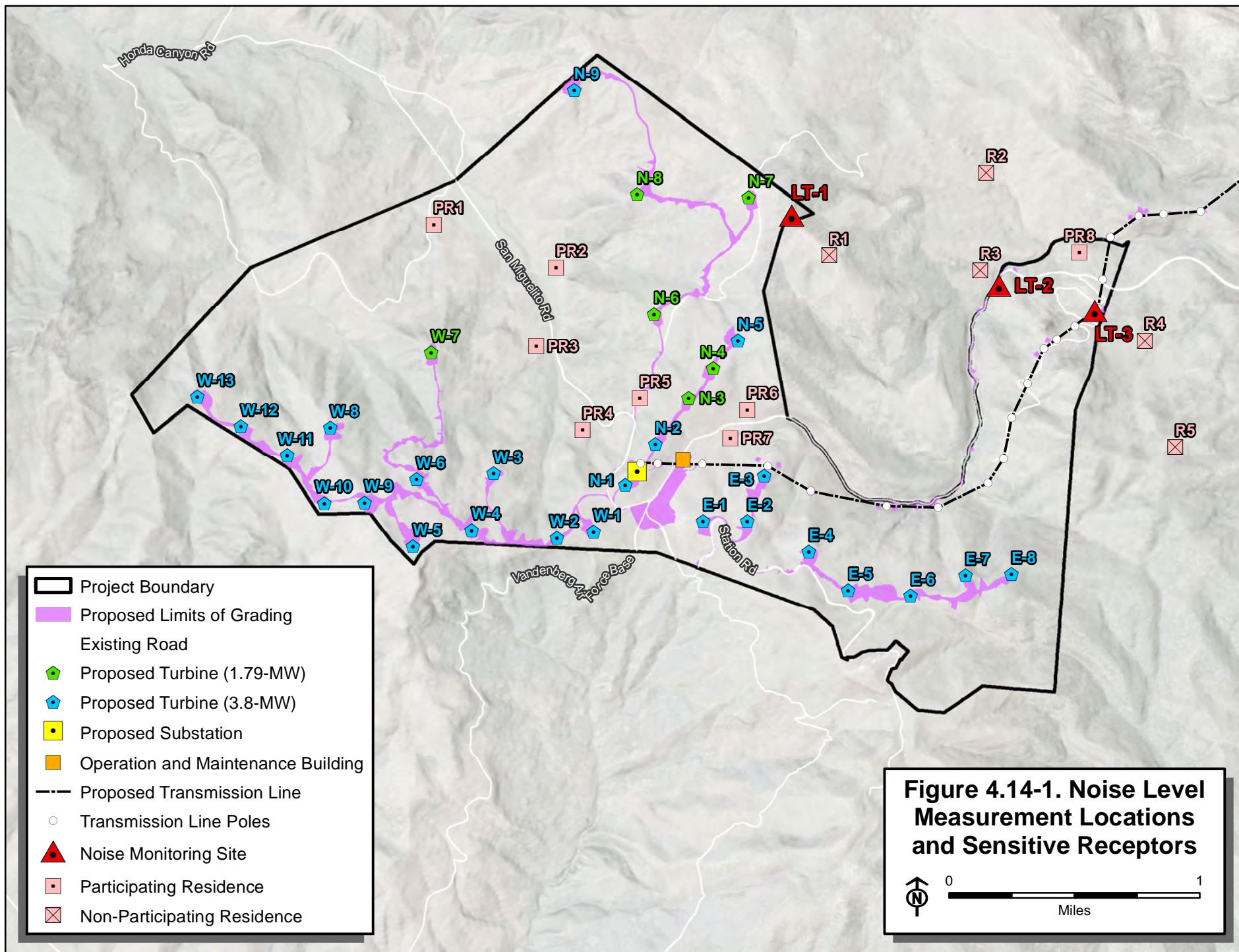
Location	Description	Minimum L ₉₀ (dBA)	Minimum Leq (dBA)	Daytime Average Leq (dBA)	Nighttime Average Leq (dBA)	Ldn (dBA)
LT-1	Property line, northwest of R1, east of WTG #20 (Turbine N-7)	37	45	62	57	65
LT-2	Property line, east of R3, near San Miguelito Road	42	43	51	48	55
LT-3	Property line, west of R4 near San Miguelito Road	42	47	59	54	62

Source: Measurements taken March 30 and 31, 2017; J.C. Brennan & Associates, Inc., 2018.

Notes: The “average” values shown are the average of the 1-hour duration measurements in the daytime or nighttime period. Daytime: 7:00 a.m. to 10:00 p.m. (15 one-hour measurements). Nighttime: 10:00 p.m. to 7:00 a.m. (9 one-hour measurements).

Off-site baseline noise levels depend on proximity to the major transportation noise sources in the County or airports. Between Lompoc and the lower end of the San Miguelito Canyon where San Miguelito Road leads to the entrance of the Imerys Mine, noise levels have been modeled to occur up to 70 dBA CNEL along San Miguelito Road, due to a railroad that serves the diatomaceous-earth-mining operation. The railroad is part of a branch that connects the mine on San Miguelito Road through Lompoc to Surf along the coastal railroad mainline (County, 2009).

The County’s Comprehensive Plan Noise Element includes a map of noise contours for Lompoc (1986) showing some locations north of Highway 246 as being influenced by noise from aircraft operations at VAFB, over 60 dBA Ldn. The Project site is located outside the 60 Ldn aircraft noise contour caused by VAFB operations (County, 2009).



Sensitive Receptors

Noise-sensitive receptors include all residences, including nonparticipating properties near the Project site and those participating properties scattered within the Project boundary. Sensitive receptors also include residences outside the Project boundary. Rural residences, including approximately 12 single-family residences or mobile homes, would be within roughly one mile of the proposed Project wind turbine generators (WTGs), residences also occur along upper San Miguelito Road near the Project site and along the approximately two-mile segment of San Miguelito Road south of the City of Lompoc that would be roughly parallel to and near the proposed transmission line corridor. Approximately 20 homes would be within 1,600 feet of the proposed transmission line corridor along San Miguelito Road and north of Miguelito Park. County parks are not defined as noise-sensitive locations (County, 2018).

Residences occur at the highest densities in the City of Lompoc along Project traffic access routes and in the neighborhoods in southeastern Lompoc. Homes east of South 7th Street and near the southeastern City Limits would be within 1,600 feet of the proposed Project switchyard location, that would be on the Imerys Mine property. Specifically, about 30 homes along Sheffield Drive and within the southern City Limits would be adjacent to the construction access road for the proposed Project switchyard location. Three of these homes would be less than 150 feet from the switchyard.

The private residence that is closest to a proposed WTG site and on a nonparticipating residential property (R1) is located 2,000 feet from the proposed wind turbine site for N-7 (WTG#20), and this residence is approximately 1,000 feet outside the perimeter of the Project boundary. The nearest sensitive receptor (R1) is on elevated terrain that overlooks portions of the Project site.

Table 4.14-2 summarizes the locations of the residences nearest to the proposed Project WTGs. The locations of these sensitive receptors are shown on Figure 4.14-1.

Table 4.14-2. Summary of Noise-Sensitive Receptor Locations

Residence	Latitude, North (degrees)	Longitude, West (degrees)	Base Elevation (feet)	Distance to Nearest Proposed Turbine (feet)
R1	34.589320°	-120.504502°	1,746	2,000
R2	34.594273°	-120.493334°	873	4,900
R3	34.587956°	-120.493817°	846	5,150
R4	34.585261°	-120.481853°	1,015	5,650
R5	34.578752°	-120.479687°	1,658	4,370
PR1	34.590216°	-120.532367°	828	2,470
PR2	34.588597°	-120.523619°	771	2,400
PR3	34.583495°	-120.524945°	894	2,150
PR4	34.578617°	-120.521180°	1,082	1,350
PR5	34.580664°	-120.517624°	1,186	900
PR6	34.579971°	-120.510202°	1,237	1,150
PR7	34.578469°	-120.511191°	1,221	900
PR8	34.589627°	-120.486515°	788	7,150

Source: Applicant, Noise Receptor Locations & Elevations, October 10, 2018.

Notes: R: Nonparticipating Residence
PR: Participating Residence

4.14.2 Regulatory Setting

Santa Barbara County, Comprehensive Plan, Noise Element. The Santa Barbara County Board of Supervisors adopted the Noise Element of the Comprehensive Plan on March 5, 1979. The Noise Element includes amendments through 1997 and was republished in May 2009 (County, 2009). The Noise Element policies have not changed since the LWEP EIR. The maximum exterior noise exposure compatible with noise-sensitive uses is 65 dBA Ldn. For additional description of the Noise Element, see Section 3.11.2.1 of the LWEP EIR.

Santa Barbara County Land Use and Development Code (LUDC), County Code Chapter 35. The County Code includes development standards for Wind Energy Conversion Systems (LUDC Section 35.57.050) that do not specify noise limits. This provides the County flexibility in the review of large wind energy developments in order to consider the site-specific setting and context of each proposal. Therefore, the standards for reviewing noise impacts rely on those adopted with the Noise Element, County Environmental Thresholds and Guidelines Manual (2018), and State CEQA Guidelines.

City of Lompoc, 2030 General Plan, Noise Element (Adopted September 23, 2014). Because certain project-related activities may occur within the City of Lompoc, ~~three~~ one “implementation measures” from the City’s General Plan Noise Element would be relevant:

NOISE-1. The City shall amend the Noise Ordinance to include the following provisions:

- Establish noise limits which cannot be exceeded at the property line; [Policies 1.1 and 1.2]
- Require an acoustical study to demonstrate compliance with Noise Standards prior to approval of: new commercial or industrial projects near existing residential areas and new residential developments within the 60 Ldn contour of existing stationary noise sources; [Policy 2.1]
- Require development projects in areas having noise levels which exceed the Noise Standards for the proposed land use to add noise attenuation measures during the development review process to meet the Noise Standards. These attenuation measures may include: landscaped-sound buffers, berms, setbacks or open space, building design or orientation, prohibiting window openings, door openings, or bedrooms on the sides of residential units facing noise sources which exceed the Noise Standards, enhanced wall or roof insulation, placement of air conditioning units in locations which minimize noise exposure, or other measures; [Policy 2.2]
- Require noise insulation of residential units constructed within the 60 dBA Ldn contour; [Policy 2.2]
- Add provisions which restrict noise from landscape maintenance devices, auto alarms and stereos, stationary sources, and the hours of operation of noise sources. Expand provisions restricting radios in parks and other non-residential areas; and [Policies 1.2 and 1.3]
- Establish guidelines for conducting acoustical studies, monitoring noise sources, and providing noise attenuation. [Policy 2.3]

NOISE-2. The City should investigate noise impacts from stationary sources in response to noise complaints and then enforce existing noise standards if City noise standards are being exceeded. [Policies 1.4 and 1.6]

NOISE-4. The City shall amend the Noise Ordinance to include the following measures:

- For construction near sensitive receptors, require that noisy construction activities be scheduled for periods, such as between 8 a.m. and 6 p.m. on weekdays and 9 a.m. to 6 p.m. on Saturday, when loud noises would have the least impact on adjacent residents or other sensitive receptors [Policy 2.4].
- Develop a construction schedule that minimizes potential cumulative construction noise impacts and accommodates particularly noise-sensitive periods for nearby land uses (e.g., for schools, churches, etc.).
- Where feasible, require use of caissons instead of driven piles to reduce the intensity level and duration of noise impacts [Policy 2.4].
- Where feasible, construct temporary, solid noise barriers between source and sensitive receptor(s) to reduce off-site propagation of construction noise [Policy 2.5].
- Require internal combustion engines used for construction purposes to be equipped with a properly operating muffler of a type recommended by the manufacturer. Also, require impact tools to be shielded per manufacturer's specifications [Policy 2.4].

City of Lompoc, Municipal Code, Noise Ordinance. The City of Lompoc (Section 8.08.030) prohibits certain noisy construction activities in residential zones or within 500 feet during nighttime hours (9:00 p.m. to 7:00 a.m.).

4.14.3 Significance Thresholds

Thresholds of Significance

Noise Thresholds. The following are thresholds of significance for assisting in the determination of significant noise impacts. The thresholds are intended to be used with flexibility, as each project must be viewed in its specific circumstances (County, 2018). The noise thresholds described here and in the LWEP EIR were approved by the Board of Supervisors in August 1993 (County, 2018).

- (a) A proposed development that would generate noise levels in excess of 65 dBA CNEL and could affect sensitive receptors would generally be presumed to have a significant impact.
- (b) Outdoor living areas of noise sensitive uses that are subject to noise levels in excess of 65 dBA CNEL would generally be presumed to be significantly impacted by ambient noise. A significant impact would also generally occur where interior noise levels cannot be reduced to 45 dBA CNEL or less.
- (c) A project will generally have a significant effect on the environment if it will increase substantially the ambient noise levels for noise-sensitive receptors adjoining areas. Per item (a), this may generally be presumed when ambient noise levels affecting sensitive receptors are increased to 65 dBA CNEL or more. However, a significant effect may also occur when ambient noise levels affecting sensitive receptors increase substantially but remain less than 65 dBA CNEL, as determined on a case-by-case level.
- (d) Noise from grading and construction activity proposed within 1,600 feet of sensitive receptors, including schools, residential development, commercial lodging facilities, hospitals or care facilities, would generally result in a potentially significant impact. According to U.S. EPA

guidelines (referenced in County Environmental Thresholds and Guidelines Manual; 2018), average construction noise is 95 dBA at a 50-foot distance from the source. A 6-dB drop occurs with a doubling of the distance from the source. Therefore, locations within 1,600 feet of the construction site would be affected by noise levels over 65 dBA. To mitigate this impact, construction within 1,600 feet of sensitive receptors shall be limited to weekdays between the hours of 8 a.m. to 5 p.m. only. Noise attenuation barriers and muffling of grading equipment may also be required. Construction equipment generating noise levels above 95 dBA may require additional mitigation.

The County Environmental Thresholds and Guidelines Manual (2018) recommends that all noise studies evaluating ambient noise levels and changes resulting from project development should be prepared by licensed acoustical engineers. The noise thresholds approved by the County in 1993 have not changed since the publication of the LWEP EIR. Accordingly, this analysis follows with the same approach and guidelines as set forth in the LWEP EIR.

The LWEP EIR used the following approach in determining whether ambient noise levels would increase “substantially.” For new projects in quiet rural areas, addressing a “substantial increase” is normally the controlling noise criterion or threshold. Assuming an existing background noise level of 40 dBA CNEL, an increase of 10 dBA, resulting in an absolute threshold of 50 dBA CNEL at any nonparticipating residence is a reasonable threshold of significance. Although a 10-dBA increase represents a doubling of perceived noise levels, outdoor noise levels at 50 dBA CNEL are still considered quiet and are well below the sound levels considered to be requisite for protecting public health and welfare (U.S. EPA, 1978), and far below the County-established noise threshold of 65 dBA CNEL (County, 2018).

The thresholds for evaluating the magnitude of WTG operational noise apply over the durations of one-hour and 24-hour periods, with time-weighting factors applied to nighttime and evening Leq values. Due to the 10-dBA penalty applied to nighttime noise levels and the 5-dBA penalty for evening noise in computing CNEL, an outdoor noise level threshold of 50 dBA CNEL translates to a steady or continuous noise level of 43.3 dBA hourly Leq from the Project, which is within the limits of accurate measurement. WTG noise levels that exceed 43.3 dBA Leq (1-hour) or cause an increase of more than 10 dBA at nonparticipating residences would be considered significant.

Because Project participants (those residents within the 2,950-acre WTG area) do so willingly and receive benefit from the Project, the 65 dBA CNEL County threshold applies at participating residences. The County believes establishing a more protective threshold of 50 dBA CNEL is reasonable and prudent to ensure that residents who are not part of the Project and who value their quiet rural setting are not affected by intrusive noise levels. In contrast, Project participants willingly enter into contracts to have turbines on their land, they are financially compensated by the Project, and their contracts include provisions for accepting a certain level of noise.

The LWEP EIR focused on use of the CNEL metric from the County Environmental Thresholds and Guidelines Manual and the Leq (1-hour) metric for WTG specification rather than the Ldn metric of the County Comprehensive Plan Noise Element. The rationale for doing so in the LWEP EIR was that, for equivalent noise sources, the CNEL metric is a slightly more stringent threshold than Ldn. In practice, general community noise levels in terms of CNEL and Ldn are virtually identical, and the two measures consistently agree within approximately 1.0 dB. For this reason, the County thresholds use CNEL and Ldn interchangeably (2018).

Impact Assessment Methodology

The Applicant sponsored and prepared a noise impact analysis for the proposed Project (Brennan, 2018) that updates and replaces the noise analysis for the LWEF EIR. The updated noise analysis is based on the proposed layout of 30 WTGs located in three corridors, with each turbine modeled at a hub-height of 80 meters. Subsequent to the updated noise analysis, the Applicant refined slightly the locations and hub heights of the proposed Project WTGs to result in proposed hub-heights at either 80 meters or 81.5 meters (Dudek, 2018).

The proposed WTGs would consist of 6 each GE 1.79-MW WTGs and 24 each GE 3.8-MW WTGs. The 1.79-MW WTGs would be 427 feet (130 meters) in total height from foundation to blade tip and the 3.8-MW WTGs would be 493 feet (150 meters) from foundation to blade tip. Published noise data from GE indicates this turbine has a maximum sound power level of 107 dBA between 10 m/s and the cut-out wind speed of 14 m/s at the hub height (GE, 2016). Additionally, a +2-dB adjustment was made to account for the uncertainty of the manufacturer provided sound-power-level data (Brennan, 2018).

The frequency characteristics of the WTGs are modeled in terms of the A-weighted decibel scale (dBA) for comparison with the County's threshold criteria and planning policies that are in terms of dBA (County, 2018). The County recognizes the community concerns, expressed during the scoping period, regarding infrasound (less than 20 hertz [Hz]), low-frequency noise (between 10 and 200 Hz), and potentially disturbing "whooshing" or "concussive" thumping noise or vibration. Modern WTGs avoid creating problematic levels of infrasound or low-frequency noise because the upwind blades of the turbines do not pass through the turbulence generated by the wind shadow downwind of the tower. According to the frequency spectra within the proposed WTG vendor specifications, the WTGs would produce apparent sound levels of 80 dBA or lower at frequencies of 31.5 Hz or below (GE, 2016). This low-frequency noise would be more than 20 decibels below the total sound power level (107 dBA) considered in this analysis. With no specific threshold applicable to infrasound or audible low-frequency noise, these topics are not discussed further.

Transformers are expected to have a National Electrical Manufacturers Association (NEMA) sound rating of 87 dBA and would not be audible off the Project site. The off-site high-voltage power lines and switchyard associated with the Project would be 115 kilovolts (kV) or less and would not include any notable stationary sources of noise, other than occasional switching of circuit breakers. Audible noise from switchyard equipment or foul-weather corona is typically associated with higher-voltage transmission lines and is not anticipated to be present (Brennan, 2018).

The impact analysis used standard acoustical engineering methods for modeling complex industrial plants, using proprietary software (DataKustik GmbH: CadnaA Noise Prediction Model (CadnaA)) to determine the operational noise from the proposed SWEF. The sound propagation factors used in the model were adopted from International Organization for Standardization (ISO) 9613. The ISO 9613 standard used in the modeling software assumes each receptor is downwind from each source or that the wind is flowing radially from each WTG in all directions at the same time.

The Applicant's consultant modelled for simultaneous operation of all 30 WTGs, at the highest wind speed (and therefore the greatest noise generation level). Noise levels reported for the modelled sensitive receiver locations therefore include contributions from all wind turbines combined. This results in a conservative hourly noise level that is assumed to be maintained over a 24-hour period to calculate the 24-hour average Ldn. Each WTG was considered as a point source at the 80-m hub height over the existing ground topography with no vegetation shielding corrections (Brennan, 2018).

4.14.4 Environmental Impacts and Mitigation Measures

Table 4.14-3 below lists the impacts and mitigation measures identified for noise in the LWEF EIR. These same impacts are addressed in this section for the SWEF. The right-hand column of the table below indicates whether the LWEF impacts or mitigation measures have been modified for the SWEF.

Table 4.14-3. LWEF Impacts and Mitigation Measures – Noise

Impact No.	LWEF Impact Statements	LWEF Mitigation Measures	SWEF Changes
NOI-1	Short-term Construction Noise. Some types of construction equipment would generate short-term noise impacts to nonparticipating residences less than 2,000 feet from a construction area.	NOI-2: Construction Hours. NOI-3: Telephone Number for Noise Complaints. NOI-4: Noise Complaint Resolution Plan. NOI-5: Maintenance of Construction Equipment. NOI-6: Resident Notification.	Modified impact statement. Updated impact discussion. Updated Mitigation Measure NOI-2.
NOI-2	Long-term Wind Turbine Generator Noise. Adjacent nonparticipating residences would be exposed to noise levels greater than 43.3 dBA Leq (50 dBA CNEL); and four of the nine participating residences would be exposed to noise levels at or greater than 65 dBA CNEL.	NOI-1: WTG Maintenance. NOI-3: Telephone Number for Noise Complaints. NOI-4: Noise Complaint Resolution Plan. NOI-7: Acoustical Analysis. NOI-8: Noise Monitoring and Control Plan. NOI-9: Maintenance Hours.	Modified impact statement. Updated impact discussion.

The noise impacts of the proposed SWEF are discussed below.

NOI-1 Short-term Construction Noise. Some types of construction equipment could generate short-term noise impacts to residences less than ~~2,000~~1,600 feet from a construction area.

The LWEF EIR included Impact NOI-1, which addressed short-term construction noise. Construction activities for the proposed Project would be typical of comparable large construction projects. The noise levels would vary during the construction period, depending upon the construction phase and types of equipment in use. Construction would be anticipated to take approximately 10 months. Within the duration of construction, the Applicant anticipates that construction would normally occur during daylight hours, Monday through Saturday; however, some activities could require extended hours because of scheduling constraints or other time-sensitive matters, or to maintain structural integrity of concrete placement. The Applicant's noise impact analysis assumes that all construction activity would occur between 7:00 a.m. to 10:00 p.m. (Brennan, 2018) hours.

Table 4.14-4 shows the typical noise levels that would be expected to occur within the site.

Table 4.14-4. Typical Construction Noise Levels

Construction Phase	Construction Phase Noise Level at 50 feet, Leq (dBA)
Ground Clearing (Grading)	84
Excavation or Road Construction	89
Foundations	78
Erection (Installation)	87
Finishing (Clean-up)	89

Source: Brennan, 2018.

On-site Construction Noise

Site preparation and construction activities would temporarily increase noise levels at residences in and around the Project site. The noise would occur mainly from heavy-duty construction equipment (e.g., heavy-duty trucks, graders, bulldozers, backhoes, drill rigs). For the proposed Project, the upper range of construction noise levels would occur during scraping, grading, crane pad development, and excavation for turbine foundations. Road construction would also entail use of heavy equipment and the noise levels would be similar to those of excavation and grading. Grading, ground clearing, and tree removal would cause lower levels of noise. Once the pads are constructed and the foundations excavated, the loudest source of noise would be the cranes lifting the turbines into place. Decommissioning the facility at the end of its useful life would cause noise levels comparable with those of construction.

The construction noise levels around on-site activities are predicted considering only the attenuating mechanism of divergence of the sound waves in open air where a 6-dB reduction per doubling of distance is applied. The potential attenuation or shielding effects of topography or vegetation were not considered; intervening topography or terrain would result in additional reductions.

The short-term noise levels at residences in and around the Project site could increase by more than 5 dBA above the existing minimum ambient noise levels (43 to 45 dBA Leq) at nonparticipating sensitive receptors R1 and R3, if construction activities were to take place when ambient noise levels are the lowest. This potentially significant impact would be limited to the duration of on-site construction activities that occur nearest to the receptors. Additionally, the participating resident at PR5 could be exposed to periods of construction noise exceeding 65 dBA Leq, which could also exceed the County's 65 dBA CNEL exterior noise level standard if the construction noise were to persist during all daytime hours. This impact would occur during construction of the access road, which passes in close proximity to PR5.

Mitigating the potentially significant on-site construction noise impact involves limiting the duration of the noise by limiting the hours of construction and avoiding annoyance, nuisance, or sleep interference at nearby sensitive receptors through a complaint resolution plan and advance notification. Through the recommended mitigation, the on-site construction noise impact can be reduced to a less-than-significant level with the application of Mitigation Measures (MMs) NOI-2 (Construction Hours), NOI-3 (Telephone Numbers for Noise Complaints), NOI-4 (Noise Complaint Resolution Plan), NOI-5 (Maintenance of Construction Equipment), and NOI-6 (Resident Notification) (Class II).

Table 4.14-5 shows the predicted construction noise levels that would be expected to occur within the site.

Table 4.14-5. Predicted Construction Noise Levels at Sensitive Receptors

Residence	Approximate Distance to Nearest Construction Spread (feet)	Lower-Range Construction Noise Level, Leq (dBA)	Upper-Range Construction Noise Level, Leq (dBA)
R1	1,824	46	58
R2	4,344	38	49
R3	2,554	38	49
R4	1,753	37	48
R5	2,711	39	50

Residence	Approximate Distance to Nearest Construction Spread (feet)	Lower-Range Construction Noise Level, Leq (dBA)	Upper-Range Construction Noise Level, Leq (dBA)
PR1	2,337	44	56
PR2	1,257	44	57
PR3	1,978	45	57
PR4	1,493	49	63
PR5	889	53	87
PR6	1,188	51	63
PR7	1,112	53	65
PR8	2,483	35	47

Source: Table 5 of Brennan, 2018.

Notes: R: Nonparticipating Residence

PR: Participating Residence

Off-site Construction Noise

Construction activities would occur off site. Locations of concern for off-site construction noise impacts include the sites of the proposed Project transmission line (7.3 miles), the Project switchyard south of Sheffield Drive, cut-and-fill work along San Miguelito Road, tree trimming and removal along San Miguelito Road, and removing trees and obstructions for on-road transport of Project components. For example, within the City of Lompoc, street trees would need to be removed or trimmed, and transport may require removal and replacement of street lights, signs, traffic signals, and overhead utilities. Additionally, light-duty helicopter use could be necessary to pull a sock line for stringing the transmission line.

The Project participants would not experience substantial exposure to off-site construction noise that mostly impacts the nonparticipating residences. Construction noise levels at the nonparticipating residences would vary widely depending on the proximity of the work at the various locations near the Project transmission line, switchyard, access road improvements or activities to remove obstructions along the transport route. Receptors near the Project site would experience up to 58 dBA Leq, based on the noise from typical on-site activities (Brennan, 2018), and off-site receptors could briefly experience higher noise levels of 89 to 95 dBA Leq if within 50 feet of off-site work for the transmission line, switchyard, access road modifications or activities to remove obstructions along the transport route.

Durations of the higher noise levels along the transportation routes, at the switchyard site, or along the alignment of the proposed Project transmission line would be limited to the periods while the proposed Project components are being trucked and while the transmission line and Project switchyard are being installed. The noise levels associated with passing trucks and commuting worker vehicles would be approximately 71 to 76 dBA at 50 feet, and construction traffic noise would be concentrated along San Miguelito Road and other access roads leading to the site, transmission line, and switchyard. Within the 10 months of construction, the passing trucks of construction traffic would increase the daytime noise levels for receptors along all access routes. This impact would be most noticeable for approximately 20 homes along San Miguelito Road and about 30 homes along Sheffield Drive within the southeastern Lompoc City Limits. These locations would be adjacent to construction travel routes and construction access roads for the proposed Project transmission line and switchyard. Construction of the switchyard would cause increased noise (up to 87 dBA from 7 a.m. to 10 p.m., Monday through Saturday, as proposed by the Applicant) for the homes near Sheffield Drive within

the Lompoc City Limits during the second half of the overall 10-month construction duration. The City of Lompoc Noise Ordinance would prohibit construction noise between 9 p.m. and 7 a.m. at the switchyard site because it would be within 500 feet of several residences.

For the proposed Project transmission line, each helicopter operation could come within 250 feet from the ground and/or residences near the alignment. Residences and other locations adjacent to the transmission alignment would experience approximately 84 dBA Leq (1-hour) during times of nearby helicopter hovering; this result assumes that the helicopter would hover near the work site for a 15-minute period within an hour. At each pole site, construction of the transmission line would create a readily perceptible, but temporary, increase in daytime noise. The construction activities would be limited to a small crew that would move from site to site so that construction would only intermittently affect any one location at a time. While County parks are not defined as noise-sensitive locations, Miguelito Park would experience increased construction noise levels due to traffic and work at roughly five sites of new transmission line poles that would be within 1,600 feet of the park. Homes along the approximately two-mile segment of San Miguelito Road south of the City of Lompoc would experience increased construction noise levels due to traffic and work at approximately 24 pole sites along the proposed transmission line corridor.

These off-site noise levels during construction could occur during the Applicant's proposed hours of construction activity, which include evening hours until 10 p.m. The Applicant anticipates construction occurring normally during daylight hours. The daily duration of the Applicant's proposed construction activities would need to be curtailed to between the hours of 7 a.m. to 10 p.m. in order to mitigate off-site construction noise impacts to nonparticipating residences and to prevent sleep interference. MM NOI-2, regarding construction hours, from the LWEP EIR is revised here to ensure that the potentially significant impact of off-site construction noise can be reduced to a less-than-significant level (Class II), as presented below.

Mitigation Measures

The following mitigation measures (MMs) recommended for the LWEP EIR would remain applicable to the proposed Project:

MM NOI-2 Construction Hours. All Project construction activities within 1,600 feet of non-participating residences, including those that involve use or transit of heavy equipment (i.e., greater than 2-axle vehicles) along San Miguelito Road, shall be limited to between the hours of 87:00 a.m. to 510:00 p.m., Monday through Friday, unless otherwise approved by the County as necessary for emergency repairs. ~~except that construction at the project site at locations at least 1,600 feet from non-participating residences shall be limited to 7:00 a.m. to 6:00 p.m. Work at the switchyard site shall be limited to 7:00 a.m. to 9:00 p.m. Project construction activities subject to this restriction include those at the wind farm site, the switchyard site, and sites along San Miguelito Road. Temporary noise barriers, ensuring that noise is reduced at the nearby Sheffield residences to below 65 dBA Leq, shall be installed at all times at the switch yard site during switchyard construction to shield the nearest residences from on-site switchyard construction noise. Project construction activities at locations at least 1,600 feet from non-participating residences shall be limited to 7:00 a.m. to 10:00 p.m., Monday through Friday. The use of helicopters, blasting, or pile driving shall not occur within 1,600 feet of non-participating residences. If it is not~~

feasible to avoid use of blasting or pile driving within 1,600 feet of non-participating residences, then temporary noise barriers shall be erected to break the line-of-sight and shield the affected residences by providing at least a 5-dBA reduction. The noise barriers shall have a Sound Transmission Class of STC-30 or greater and a Noise Reduction Coefficient rating of NRC-0.85 or greater, as subject to County approval and shown on construction plans.

Work may occur within the WTG sites after hours or on weekends and holidays, subject to at least 48 hours written authorization from the County, and weekend and holiday work shall be limited to 8:00 a.m. to 5:00 p.m. Requests for weekend and holiday work shall be submitted to the County for approval in advance shall include a description of the activity to occur, including equipment usage and duration. All complaints received regarding weekend and holiday work shall be immediately submitted to the County.

Plan Requirements. The Applicant shall prepare a map showing which areas are subject to the limitation on construction hours (i.e., within 1,600 feet of non-participating residences) and include notes on the final plans requiring compliance with the construction time limits for blasting or pile driving. County staff shall review all requests for weekend and holiday work, and issue written approvals or denials as applicable. County staff shall consider all noise complaints when reviewing subsequent requests for weekend/holiday work.

Timing. County staff will approve the map that shows areas subject to limitation on construction hours and confirm that the notification is included on the final plans prior to issuance of the zoning clearance. Prior to ground disturbance at the switchyard location, the Applicant shall demonstrate that the noise barrier reduces noise to the Sheffield residences to below 65 dBA Leq.

Monitoring. County staff will inspect the site during construction to enforce compliance with this condition.

MM NOI-3 Telephone Number for Noise Complaints. The Applicant shall establish a telephone number for use by the public to report any significant undesirable noise conditions associated with the construction and operation of the Project. If the telephone is not staffed 24 hours per day, the Applicant shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the Project site during construction in a manner visible to passersby and the number shall be maintained until the Project has been operational for at least 1 year.

Plan Requirements and Timing. The Applicant shall establish a phone number and required features prior to zoning clearance for construction.

Monitoring. County staff will inspect the site during construction to enforce compliance with this condition.

MM NOI-4 Noise Complaint Resolution Plan. Throughout the construction and operation of the Project, the Applicant shall document, investigate, and evaluate all complaints and attempt to resolve all legitimate Project-related noise complaints.

Plan Requirements. The Applicant shall prepare a noise complaint resolution plan. The plan shall describe the specific steps that will be carried out by the Applicant in response to noise complaints. The final determination as to whether the response is adequate will be made by the County. The noise complaint forms will include instructions for filing the form with the Applicant and with the County.

Timing. The Applicant shall submit a noise complaint resolution plan for approval by the County prior to zoning clearance for construction.

Monitoring. County staff will review any forms submitted and ensure that complaints are being resolved. The County may require further noise analyses and require additional mitigation measures, if appropriate.

MM NOI-5 Maintenance of Construction Equipment. Construction contractors shall be required to ensure that construction equipment is well tuned and maintained according to the manufacturer's specifications, and that the standard noise reduction devices on the equipment are in good working order.

Plan Requirements. The Applicant shall ensure that equipment is maintained in good working order during construction.

Timing. Conditions will be enforced throughout all construction periods.

Monitoring. County staff will inspect the site during construction to enforce compliance with this condition.

MM NOI-6 Resident Notification. In coordination with the County, the Applicant shall hold a pre-construction meeting for residents of Miguelito Canyon to review upcoming construction activities and associated noise and traffic. The Applicant shall notify residences within 1 mile of any unusually loud construction activities, including the use of helicopters, blasting or pile driving, at least 1 week prior to their scheduled occurrence. In addition, the Miguelito Canyon residents shall be notified at least one week prior of any anticipated road/lane closures and property owner ingress/egress restrictions. Such activities shall be limited to between the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise approved by the County.

Plan Requirements and Timing. The Applicant shall provide proof of notification to the County 1 week prior to the schedule occurrence of loud construction activities. An example of the notification shall be provided prior to zoning clearance for construction.

Monitoring. County staff will review the notice and enforce compliance with this condition.

NOI-2 Long-term Wind Turbine Generator Noise. Adjacent residences could be exposed to substantial noise levels during Project operations.

The LWEP EIR included Impact NOI-2, which addressed long-term wind turbine generator noise. Operation of the proposed Project would increase the noise levels of the surroundings above those that occur in the baseline conditions. Changes to the proposed Project, included with SWEP, would generally result in lower noise levels than those presented in the LWEP EIR. That is because, substantially fewer WTGs are proposed for the SWEP compared to the LWEP, and the proposed 1.7-

MW and 3.8-MW WTG units would generate total apparent sound power levels of 107 dBA, lower than the those assumed in the LWEF EIR (up to 112 dBA). Additionally, in order to optimize noise emissions, the 3.8-MW WTG rotor blades come equipped with Low-Noise-Trailing-Edges (LNTEs) at along the blade's rear edge; LNTEs are thin jagged plastic strips, affixed to the rotor blades of the 3.8-MW units at the factory (GE, 2016). The LWEF EIR discussion of infrasound (less than 20 hertz [Hz]) and low-frequency noise (between 10 and 200 Hz) would not change with the SWEF.

The Applicant's environmental noise study (Brennan, 2018) presents the results of modeling each of the proposed Project WTGs. The study summarizes the predicted noise levels of the proposed WTGs at the nonparticipating and participating residences in terms of Leq and Ldn, and a map of Ldn noise level contours is provided based on the currently-proposed layout.

Noise generated by the proposed WTGs would increase with increasing wind speeds at the site. Noise measurements in the Applicant's environmental noise study also show how ambient noise levels increase with increasing wind speeds. Ambient noise measurements were observed to be between 55 dBA to 65 dBA Ldn, during March 30 and 31, 2017, which included periods of moderate to high wind speeds exceeding 15 to 19 meters/second (m/s) or over 40 miles per hour (Brennan, 2018). Normal operation of the WTGs would occur during less-windy conditions between wind speeds at the hub height of 4 to 14 m/s (GE, 2016). WTG noise would likely be most noticeable when wind speed aloft is sufficient to drive the WTGs, but insufficient at the ground surface to create enough ground level wind noise to mask the WTG noise. When compared with the WTGs of the evaluated in the LWEF EIR, the larger WTGs of the proposed Project are capable of efficiently operating with lower wind speeds at the hub-height, which can correlate with calmer conditions at the surface.

The noise level contours modeled by the Applicant's noise study and noise levels at the locations of the nearest sensitive receptors are shown on Figure 4.14-2.

Table 4.14-6 summarizes the noise levels associated with the operational phase of the Project.

Table 4.14-6. Predicted WTG Noise Levels for Nearby Residences

Residence	Distance to Nearest Proposed Turbine (feet)	Predicted Noise Level Leq (dBA)	Nonparticipating Residence over 43.3 dBA Leq?	Predicted Noise Level Ldn (dBA)	Applicable Threshold CNEL or Ldn (dBA)	Substantial Increase in Noise Levels?
R1	2,000	42.4	No	48.9	50	No
R2	4,900	22.2	No	28.7	50	No
R3	5,150	30.9	No	37.5	50	No
R4	5,650	24.3	No	30.9	50	No
R5	4,370	30.0	No	36.6	50	No
PR1	2,470	42.3	---	48.8	65	No
PR2	2,400	44.1	---	50.6	65	No
PR3	2,150	46.6	---	53.2	65	No
PR4	1,350	50.1	---	56.6	65	No
PR5	900	52.0	---	58.5	65	No
PR6	1,150	51.5	---	58.1	65	No
PR7	900	51.9	---	58.5	65	No
PR8	7,150	21.3	---	27.8	65	No

Source: Table 6 of Brennan, 2018.

Notes: R: Nonparticipating Residence

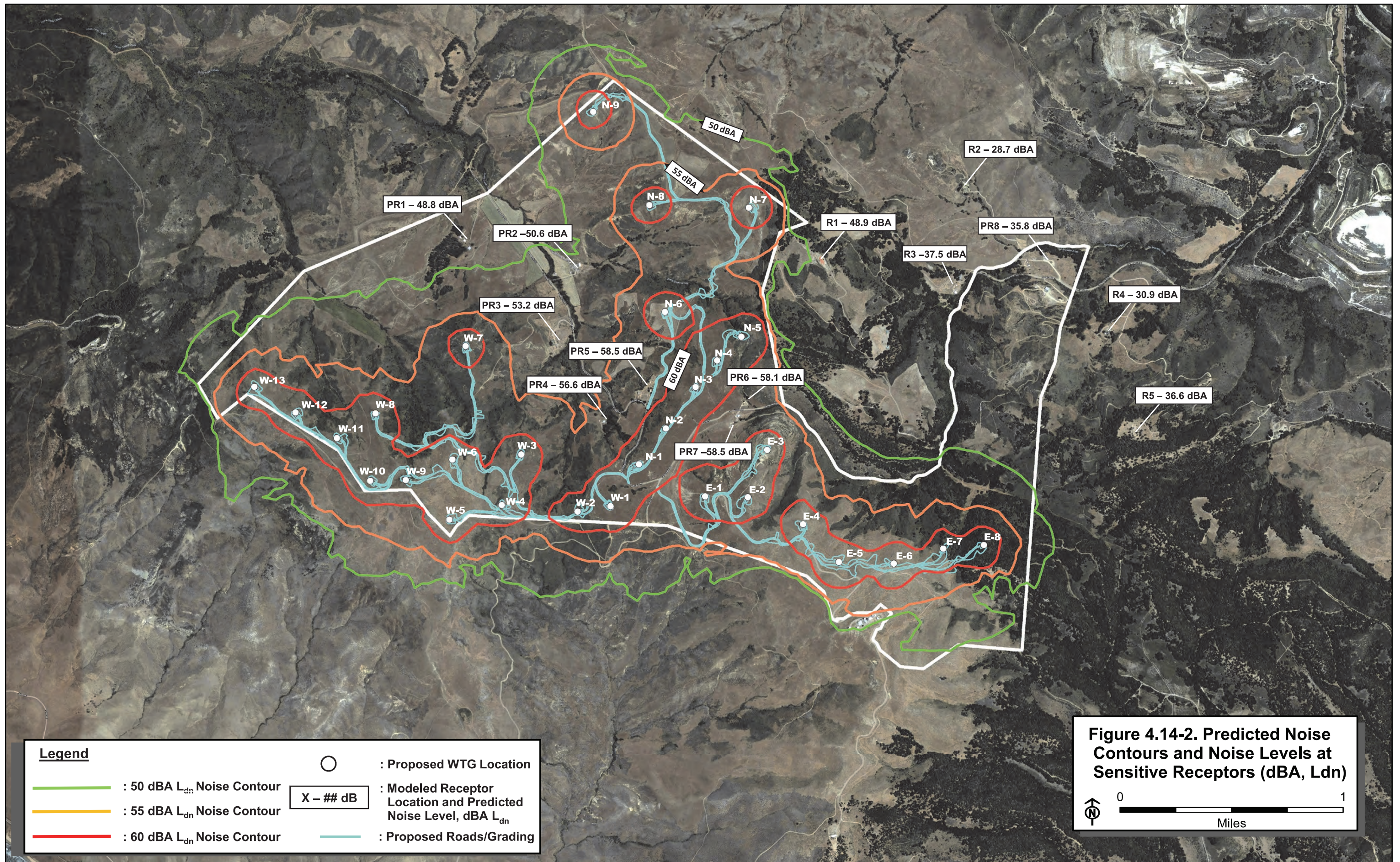
PR: Participating Residence

The results of the Applicant's environmental noise study indicate that the maximum WTG noise levels experienced at a nonparticipating residence would be 42.4 dBA Leq (1-hour) and 48.9 dBA Ldn. As described in Section 4.14.3, a significant impact would occur if WTG noise levels exceed 43.3 dBA Leq (1-hour) at any nonparticipating sensitive receptor. The modeling indicates that in the current configuration, the proposed Project would not exceed the significance threshold of 43.3 dBA Leq (1-hour). The modeled result is within 1-dBA of the significance threshold, and changes in the predicted noise levels would be somewhat sensitive to minor changes that could occur in the final site layout prior to construction.

Additionally, a significant impact could occur if ambient noise levels would increase substantially at any nonparticipating sensitive receptor by causing a predicted impact in excess of 50 dBA CNEL. Ambient noise levels during calm conditions and away from traffic on San Miguelito Road would be substantially less than the measured 55 dBA to 65 dBA Ldn (Table 4.14-1). To account for this, the Applicant's noise study assumed that average daytime and nighttime ambient noise levels could be as low as 40 dBA Leq on days with moderate wind speeds sufficient for turbine operation. This assumption results in a baseline minimum background noise level of 46.4 dBA Ldn or 46.7 dBA CNEL. In contrast, the LWEP EIR assumed 40 dBA CNEL for the baseline. The maximum WTG noise levels experienced at a nonparticipating residence would be approximately 49 dBA Ldn or CNEL. As such, the proposed Project would not exceed the significance threshold of 50 dBA CNEL and the associated increase in ambient noise levels would not be substantial.

Because the predicted noise levels would be sensitive to refinements, revisions or modifications to the proposed WTG sites, the results of the environmental noise study would need to be reevaluated upon determining the final site layout prior to zoning clearance. Mitigation Measures (MMs) NOI-7 and NOI-8, respectively, presented in the LWEP EIR would require County approval of a detailed acoustical analysis prior to zoning clearance along with noise monitoring and control for WTG noise levels. This analysis recommends retaining these mitigation measures to validate the predicted maximum WTG noise levels for the final site layout prior to construction and to confirm the incremental increase in ambient noise levels through a comprehensive noise monitoring program after the startup of commercial operations.

Other activities associated with Project operations would create noise at levels less than WTG noise levels. Traffic associated with long-term operation and maintenance of the proposed Project, the proposed transformers within the on-site Project substation, and the off-site high-voltage power lines and switchyard, and the sporadic use of heavy equipment for occasionally servicing and repairing the facilities could cause noise levels that would be disruptive to surrounding uses, especially if nighttime maintenance becomes necessary. Power transformers would not be sited at the switchyard. The circuit breaker, energy metering devices, disconnect switches, and other switchyard equipment would not create notable levels of noise and would be in compliance with the 60 dBA Ldn standard set by the City of Lompoc General Plan. These Maintenance activities would need to be curtailed to between the hours of 8 a.m. to 5 p.m. in order to mitigate off-site noise impacts of maintenance-related traffic or heavy equipment use activities. With MM NOI-9, regarding maintenance hours, from the LWEP EIR, traffic and equipment noise during routine operation and maintenance would not generate substantial off-site noise that could impact sensitive receptors.



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Mitigation measures from the LWEF EIR are recommended for ensuring that long-term WTG noise levels from proposed Project are avoided, reduced, and controlled to the extent feasible. The LWEF recommended mitigation for WTG maintenance, acoustical analysis, and operational noise monitoring along with a complaint resolution plan to safeguard against substantial noise level increases at nearby sensitive receptors. With recommended mitigation, the operational noise impact can be reduced to a less-than-significant level (Class II).

Mitigation Measures

The following MMs recommended for the LWEF EIR would remain applicable to the proposed Project:

- MM NOI-1** **WTG Maintenance.** The Applicant shall maintain all WTGs in excellent working order to minimize operational noise impacts.
- Plan Requirements.** The Applicant shall provide maintenance records to the County, upon request, demonstrating that the WTGs are being maintained appropriately.
- Timing.** Condition will be enforced throughout the life of the Project.
- Monitoring.** County staff will enforce compliance with this condition.
- MM NOI-3** **Telephone Number for Noise Complaints.** The full text of this measure presented under Impact NOI-1 above.
- MM NOI-4** **Noise Complaint Resolution Plan.** The full text of this measure presented under Impact NOI-1 above.
- MM NOI-7** **Acoustical Analysis.** The Project will be designed and operated to ensure the noise level attributable to the Project does not exceed 43.3 dBA Leq (1 hour) under normal operating conditions at any existing nonparticipating residences, or 58.3 dBA Leq at participating residences. The Applicant shall submit to the County a detailed acoustical analysis of the final site layout and selected WTGs. All calculations or modeling input and output files shall be made available to the County. The analysis shall include all available vendor sound-level data (specified as either guaranteed or expected), including a site-specific analysis of how sound power levels increase with wind speed.
- If a stall-controlled WTG is selected, sound power level data must be sufficient to estimate maximum sound levels under any stall condition because this could fall outside the range reported by IEC 61400-11 (IEC, 2006). Control strategies, if available, to reduce Project noise levels also shall be discussed and evaluated.
- Plan Requirements.** This requirement shall be shown on the final plans. The acoustical analysis and final layout and specification of WTGs shall be submitted to the County for review. County acceptance of the acoustical analysis and WTG layout does not constitute endorsement nor relieve the Applicant from ensuring the actual WTG operating noise levels are in compliance with the limits of 43.3 dBA Leq (1-hour) limit for at nonparticipating residences, and 58.3 dBA Leq at the participating residences.
- Timing.** The County shall approve the acoustical study and final WTG layout prior to zoning clearance.
- Monitoring.** County staff will ensure that the final plans incorporate the WTG layout and turbine specifications, as used for the approved acoustical analysis.

MM NOI-8 **Noise Monitoring and Control Plan.** The Applicant shall prepare and submit a “Noise Monitoring and Control Plan” prior to zoning clearance.

Plan Requirements. The plan shall be authored and implemented under the direction of a County-approved professional acoustical engineer or an engineer who is certified by the Institute of Noise Control Engineering to characterize the existing ambient noise levels in terms of CNEL, Ldn, and Leq (1-hour) and determine the actual noise level generated by the Project at the participating and nonparticipating residences. The Applicant may use the IEC 61400-11 methodology to measure and analyze noise from the wind turbine generators, but the results will need to be presented in terms CNEL, Ldn, and Leq (1-hour) to determine noise levels at nearby residences.

Monitoring existing conditions shall occur for sufficient periods to characterize the existing noise levels during daytime and nighttime conditions and a range of wind speeds that includes calm conditions and wind speeds typical for WTG operation. Operational noise monitoring shall occur at the same locations for a period of at least 72 continuous hours of WTG operation. The Applicant shall be responsible for all expenditures associated with this analysis, including County staff time. If the analysis finds that the noise generated by the WTGs exceeds 43.3 dBA Leq (1-hour) or causes an increase of greater than 10 dBA CNEL at nonparticipating residences or exceeds 58.3 dBA Leq at the participating residences, the Applicant shall develop and implement measures to reduce Project noise levels to comply with this level. One example of a measure that can be implemented depending on the results of noise monitoring after commercial operations would be for the Applicant to engage with the turbine vendor for a control system that continuously adapts wind turbine operations to respond to local wind speeds and wind directions to achieve the targeted noise levels, known as a Wind Farm Noise Management system (GE, 2016). The proposed measures shall be submitted to the County for approval before implementation. Post-mitigation noise monitoring may be conducted by the County’s acoustical consultant. The Applicant shall also reimburse the County for these expenditures.

Timing. The County shall approve the plan prior to zoning clearance. The noise measurements to characterize baseline ambient noise levels shall commence at least 3 months prior to site grading or as otherwise approved by the County. Operational noise monitoring shall commence within 3 months following startup of commercial operations.

Monitoring. County staff will enforce this condition.

MM NOI-9 **Maintenance Hours.** Maintenance or other routine noise-generating operations activities within 1,600 feet of nonparticipating residences shall be limited to weekdays between the hours of 8:00 a.m. to 5:00 p.m. only, unless activities are for emergency repairs or as otherwise approved by the County.

Plan Requirements. This note shall be printed on all final plan sets for Project components that are within 1,600 feet of nonparticipating residences.

Timing. Conditions will be enforced throughout Project operational phases.

Monitoring. County staff will enforce this condition.

4.14.5 Cumulative Effects

Geographic Extent/Context

The geographic context of analysis for cumulative noise impacts considers the geographic area potentially subject to adverse noise impacts of the proposed Project. The geographic context for cumulative impacts would include any project within approximately one mile from the Project site or a sensitive receptor affected by the proposed Project.

The geographic extent of cumulative noise impacts from truck transport during construction is generally limited to the potentially overlapping effects of projects within approximately 0.5 mile of the transportation route. At distances greater than 0.5 mile, the cumulative effects of noise would not be likely to combine with transportation noise and because the traffic noise effects would attenuate to blend in with background noise levels.

Cumulative Effects

As listed in Section 3.3, Table 3-1 and shown in Figure 3-1, no cumulative projects would be near enough to be considered for analysis relative to noise from the site of the proposed Project, although some cumulative projects could be adjacent to proposed Project construction travel routes.

Short-term Construction Noise. Cumulatively adverse noise impacts could occur if nearby projects were to be constructed concurrently with the proposed Project and within 1 mile of a sensitive receptor affected by the proposed Project. The potential for cumulative construction noise would be greatest at any sensitive receptors located proximate to two or more work sites.

Construction activities within the site, along San Miguelito Road, and within the transmission line alignment and switchyard site, and at staging areas would create both intermittent and continuous noises. Construction would also cause noise along the roadways accessing the site and off-site components, primarily from commuting workers and from trucks needed to bring materials to the site. Noise from construction activities would be audible to residences and other noise-sensitive uses near these activities. The duration of construction work for the proposed Project would be approximately 10 months and, after that time, construction noise would cease.

None of the projects listed in Section 3.3, Table 3-1 and shown in Figure 3-1, are located in the immediate vicinity of the proposed Project or off-site components, and because of variable construction schedules, the potential for the combined effects of construction to result in excessive cumulative construction noise is unlikely. Because construction noise reduces rapidly with distance, cumulative projects are not likely to combine with noise generated from the construction of the proposed Project to create significant adverse cumulative effects.

Long-term Wind Turbine Generator Noise. The proposed Project would contribute to a long-term cumulative increase in ambient noise levels for locations within approximately 1 mile of the Project site. The WTGs would be the primary permanent sources of noise that could contribute to an adverse cumulative noise impact. All cumulative project operations would generate noise from employee vehicles or deliveries accessing the cumulative project sites. These vehicles may cause localized cumulative noise levels to increase where multiple projects or shared transportation routes occur adjacent to a sensitive receptor. No cumulative projects would be located such that cumulative noise could impact the residences that are near the proposed Project. As such, noise generated from

operation of the proposed Project would create significant adverse cumulative effects, but the Project's incremental contribution to the cumulative noise impact would not be considerable.

4.14.6 Residual Impacts

With implementation of proposed mitigation measures, residual effects from Impacts NOI-1 and NOI-2 would not be significant.

4.14.7 Impact and Mitigation Summary

Table 4.14-7 below provides a summary of the SWEP's impacts related to noise. The table also indicates the mitigation measures proposed to reduce each significant impact.

Table 4.14-7. SWEP Impact and Mitigation Summary – Noise

Impact No.	Impact Statement	Mitigation Measures	Significance Conclusion
NOI-1	Short-term Construction Noise. Some types of construction equipment could generate short-term noise impacts to residences less than 2,000 <u>1,600</u> feet from a construction area.	NOI-2: Construction Hours. NOI-3: Telephone Number for Noise Complaints. NOI-4: Noise Complaint Resolution Plan. NOI-5: Maintenance of Construction Equipment. NOI-6: Resident Notification.	Class II
NOI-2	Long-term Wind Turbine Generator Noise. Adjacent residences could be exposed to substantial noise levels during Project operations.	NOI-1: WTG Maintenance. NOI-3: Telephone Number for Noise Complaints. NOI-4: Noise Complaint Resolution Plan. NOI-7: Acoustical Analysis. NOI-8: Noise Monitoring and Control Plan. NOI-9: Maintenance Hours.	Class II

Class I. Significant unavoidable adverse impact.

Class II. Significant environmental impacts that can be feasibly mitigated or avoided.

Class III. Adverse impacts found not to be significant.

Class IV. Impacts beneficial to the environment.

4.14.8 References

Brennan (J.C. Brennan & Associates, Inc.) 2018. Strauss Wind Energy Project. Environmental Noise Analysis. Prepared by J.C. Brennan & Associates, Inc. and Saxelby Acoustics. February 28, 2018. [Appendix H of CUP Application]

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County. 2018. Environmental Thresholds and Guidelines Manual. Revised February 2018.

Dudek. 2018. Memo to Strauss Wind, LLC. Subject: Environmental Noise Analysis, Strauss Wind Energy Facility Report Addendum. September 12, 2018. [Appendix H of CUP Application]

GE (General Electric Company). 2016. Technical Documentation, Wind Turbine Generator Systems, 1.7-100 and 3.8-130 - 50/60 Hz. Product Acoustic Specifications. [Appendix M of CUP Application]

IEC (International Electrotechnical Commission). 2006. International Standard IEC 61400-11, Wind Turbine Generator Systems – Part 11: Acoustic Noise Measurement Techniques, Edition 2.1.

Lompoc (City of Lompoc). 2014. City of Lompoc, 2030 General Plan, Noise Element.

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