Noise Assessment Report

10/14/2025

Tri-County Solar

Tri-County Solar LLC

Paxwood Acoustics

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1.0 Introduction

Tri-County Solar, LLC (“Applicant”) is planning to develop a 5MW (AC) photovoltaic solar project in Kane County, Illinois (“Project”) on a capped landfill in South Elgin. Paxwood Acoustics was retained by the Applicant to conduct a noise assessment of the Project.

Based on the information provided in this report, the Project is expected to produce sound levels that are below the Illinois Pollution Control Board noise limits meeting the noise requirements of the Kane County Ordinance.

This report includes:

- A description of the Project,
- A discussion of noise standards,
- Sound propagation modeling procedure and results, and
- Conclusions

In addition, an introduction to acoustics is provided in Appendix A, supporting information is provided in Appendices B through D, including information about Paxwood Acoustics in Appendix D.

2.0 Project Description

The proposed Project is a 5 MW (AC) photovoltaic solar project that would be located on the west side of Illinois Route 25 ("IL-25") in South Elgin, IL, approximately 1,500 feet north of Stearns Road (IL-29/25). The site was previously used as a landfill which is capped.

The area around the Project is a mixture of commercial, recreational, transportation, and residential. The closest residences are on South Pointe Avenue approximately 820 feet northwest of the solar array and 1,900 feet northwest of the Project's inverters and transformers. On the eastern side of IL-25, across from the Project, is the James "Pate" Philip State Park which has a trail loop for hiking and biking. At its closest point, the trail loop is approximately 835 feet east of the solar array and 860 feet east of the Project's inverters and transformers.

While solar panels themselves do not produce sound, some equipment associated with solar projects can generate some noise. The primary equipment that has the potential to produce sound includes inverters and transformers. String inverters, which will be grouped together with two medium voltage transformers in a central area, convert the direct-current (DC) electricity produced by the solar panels into alternating current (AC) that is transmitted to the electrical grid. This Project would have 20 string inverters and two medium voltage transformers located on the eastern side of the solar array, setback approximately 190 feet west of IL-25.

Secondary sound sources include trackers which would be located throughout the solar arrays. Trackers generally produce lower sound levels relative to inverters, and they typically only operate for a few minutes per hour as they rotate the panels to track the sun throughout the day. More information on the sound sources included in this assessment is provided in Section 4.2.

A map of the proposed Project showing the solar array, the locations of the string inverters and medium voltage transformers, and the surrounding area is provided in Figure 1.

Figure 1: Map of the Project and Surrounding Area

3.0 Noise Standards

3.1 Local Standards

Noise from commercial solar facilities is regulated in Section 25-5-4-9 of the Kane County Code of Ordinances which applies the Illinois Pollution Control Board (IPCB) regulations. Item E.11 states:

> *Noise levels from Commercial Solar Energy Facilities shall be in compliance with applicable Illinois Pollution Control Board (IPCB) regulations. The Applicant shall submit manufacturer's sound power level characteristics and other relevant data regarding noise characteristics necessary for a competent noise analysis. The Applicant, through the use of a qualified professional, shall appropriately demonstrate compliance with the applicable noise requirements in its Special Use application.*

3.2 IPCB Regulations

The relevant IPCB noise regulations are contained in Parts 900, 901, and 910 of Title 35, Subtitle H of the Illinois Administrative Code. Sound level limits that are applicable to the Project are defined in Section 901.102. The limits are specified by the emitting land classification to the receiving land classification, by daytime and nighttime periods, and by octave band center frequency. The Project equipment that emits sound is described in the regulation as property-line noise sources. For this Project, the property-line noise sources would be located on Class C land as defined in Appendix A of Part 901, and nearby residential land use is defined as Class A. Recreational park use is also defined as Class A. Given this, the Class C to Class A limits are provided here in Table 1.

Table 1: IPCB Sound Level Limits (L_{eq}) for Class C to Class A Lands

Octave Band Center Frequency	Daytime Limit (dB)	Nighttime Limit (dB)
31.5 Hz	75	69
63 Hz	74	67
125 Hz	69	62
250 Hz	64	54
500 Hz	58	47
1 kHz	52	41
2 kHz	47	36
4 kHz	43	32
8 kHz	40	32

The limits in Table 1 are based on the equivalent continuous sound pressure level or L_{eq} as defined in Part 900.

In addition to the specific limits by octave band frequency, Section 901.106 of the regulations prohibit prominent discrete tones. A prominent discrete tone is defined by the following conditions:

- A 1/3 octave band with a center frequency between 500 Hz and 10 kHz that exceeds the arithmetic average of the sound pressure levels of the two adjacent 1/3 octave bands by 5 dB.
- A 1/3 octave band with a center frequency between 160 Hz and 400 Hz that exceeds the arithmetic average of the sound pressure levels of the two adjacent 1/3 octave bands by 8 dB.
- A 1/3 octave band with a center frequency between 25 Hz and 125 Hz that exceeds the arithmetic average of the sound pressure levels of the two adjacent 1/3 octave bands by 15 dB.

However, the regulation provides that the prohibition of prominent discrete tones does not apply if the one-third octave band sound pressure level is 10 dB or more below the corresponding octave band sound pressure level limits from Table 1.

Lastly, sound from construction of the Project is exempt from these limits per Section 901.107(d) of the regulations.

4.0 Sound Propagation Modeling

4.1 Modeling Procedure & Settings

Sound propagation modeling was completed using the modeling software CadnaA made by DataKustik GmbH. CadnaA implements the international sound propagation standard, ISO 9613-2 "Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation." Both CadnaA and the ISO 9613-2 standard are used by noise control professionals across the United States and are regularly relied upon by local and state jurisdictions. The model takes into account source sound emissions, topography, receptor locations, and several other factors. It calculates sound levels for meteorological conditions that are favorable for sound propagation, assuming that all receptors are downwind of the sound sources.

For this assessment, USGS terrain data was used for the Project to create the three-dimensional topography throughout the surrounding area. Other site features, including the proposed locations of equipment were provided by the Applicant.

Model input data and parameters are provided in Appendix B.

The model was used to calculate sound levels (L_{eq}) throughout the area at a grid of receptors that were spaced every 20 feet (6.1 meters). Each receptor was placed 5 feet (1.5 meters) above ground level representing the approximate ear height of a listener. Based on the grid of receptors, sound level iso-lines are generated throughout the area so that the projected sound levels can be shown all along the Project boundary and at nearby land uses. In addition to the grid of receptors used to generate sound level iso-lines, discrete receptors were modeled at the nearest residence and the nearest location along the trail loop at the state park.

4.2 Modeled Sound Sources

The model included sound emissions from 20 string inverters (CPS SCH275KTL 250 kW) located on two centralized pads next to two medium voltage transformers (4200 kVA, KNAN[1]). The medium voltage transformer's rated sound pressure level based on its size and the NEMA TP 80050 standard[2] is 65 dBA at one foot. Sound emissions from the inverters were based on manufacturer sound data which indicates that each string inverter is less than 80 dBA at 1 meter.

[1] KNAN: Fluid-natural convection, Air-natural convection (In layman's terms, no operating fans)
[2] NEMA TP 80050-2013 (R2024), Transformers, Regulators, and Reactors (formerly NEMA TR-1).

As minor sources of sound that only operate for a few minutes each hour and typically contribute less than a decibel to the total sound level at residences, trackers are typically not included in sound propagation modeling.

Manufacturer sound emission data at 1/3 octave band frequencies was not available for the modeled equipment, but transformers are typically tonal at 120 Hz and a test report[3] of a similar CPS string inverter model indicated that it produced a prominent discrete tone at 800 Hz which is within the 1 kHz octave band. As such, this assessment has assumed the sources to be tonal. However, as discussed in the model results in the following section, projected sound levels at the nearest residence are well enough below the IPCB limits such that the prominent discrete tone clause of the IPCB regulations does not apply at that location.

4.3 Model Results

The inverters and transformers may produce sound during the day, but typically only the transformers would produce sound at night as they remain energized. As such, two model scenarios are included in this assessment:

- Daytime Scenario: Includes all inverters and transformers.
- Nighttime Scenario: Only includes the two medium voltage transformers.

Model results for each octave band center frequency are presented in map and tabular formats in the following sections and in Appendix C. In each map sound levels are represented by sound level isolines in 5 dB intervals with solid color lines and the sound level equal to the Class C to Class A IPCB limit is represented by a yellow dashed line.

Daytime Results

The daytime model results for each discrete receptor are presented in Table 2. The overall sound level at the nearest residence is 38 dBA while the overall sound level at the closest point of the state park trail loop is 48 dBA.

As shown in Table 2, the octave band that results in projected sound levels closest to the daytime IPCB limits is 1 kHz. The closest model results come to the daytime IPCB limits at the nearest residence is 14 dB below the limit with the model result of 38 dB at 1 kHz. The closest model results come to the daytime limits at the nearest point along the state park trail loop is 4 dB below the limit with the model result of 48 dB. As discussed in Section 4, the prominent discrete tone clause of the IPCB rules does not apply when the 1/3 octave band sound levels are expected to be 10 dB or more below the IPCB octave band limits.

[3] WSP, *Community Noise and Attenuation Design Assessment*, DG Connecticut Solar III, LLC, April 2024.

The projected sound levels are within the limits at the nearest residential receptor and low enough that the prominent discrete tone clause does not apply. However, while the projected sound levels at the state park trail loop are below the IPCB sound level limits in each octave band, the projected sound level in the 1 kHz octave band is only 4 dB below the limit which means that the prominent discrete tone clause may apply at that location should it be deemed a Class A land use. If that were the case, mitigation may be needed to reduce sound levels to 42 dB or less (in the 1 kHz octave band) at that location. A mitigation option that would achieve this is discussed in Section 5.0.

A map of the model results for 1 kHz is presented in Figure 2. Maps of the daytime models results for the remaining octave bands are provided in Appendix C.

Table 2: Daytime Model Results by Receptor

Receptor[4]	Full Octave Band Center Frequency									Overall Level (dBA)
	31.5 Hz	*63 Hz*	*125 Hz*	*250 Hz*	*500 Hz*	*1 kHz*	*2 kHz*	*4 kHz*	*8 kHz*	
Nearest Residence (S Pointe Ave)	29	29	23	23	30	38	25	8	<1	38
State Park Trail Loop (Closest Location)	36	36	31	30	37	48	38	30	<1	48
Daytime Limits										
Class C to Class A	75	74	69	64	58	52	47	43	40	

[4] The location of each receptor is identified in Figure 2 after Table 2.

Figure 2: Model Results Map for the 1 kHz Octave Band

Nighttime Results

The nighttime model results for each discrete receptor are provided in Table 3.[5] The overall sound level at the nearest residence is 16 dBA while the overall sound level at the closest point of the state park trail loop is 24 dBA.

As shown in Table 3, the octave band that results in projected sound levels closest to the nighttime IPCB limits is 500 Hz. The closest model results come to the nighttime IPCB limits is 21 dB below the limit at the state park trail loop. Given this the Project is expected to comply with the nighttime IPCB limits for Class C to Class A, and the prominent discrete tone clause does not apply.

Table 3: Nighttime Model Results by Receptor

Receptor	Full Octave Band Center Frequency									Overall Level (dBA)
	31.5 Hz	*63 Hz*	*125 Hz*	*250 Hz*	*500 Hz*	*1kHz*	*2 kHz*	*4 kHz*	*8 kHz*	
Nearest Residence (S Pointe Ave)	<1	<1	16	15	19	4	<1	<1	<1	16
State Park Trail Loop (Closest Location)	6	6	24	21	26	14	3	<1	<1	24
Nighttime Limits										
Class C to Class A	69	67	62	54	47	41	36	32	32	

[5] Given that the projected nighttime sound levels are so low, no sound level contour maps are provided for the nighttime model results in this report.

5.0 Potential Mitigation

As discussed in the previous section, projected sound levels are below the IPCB limits at both the nearest residential receptor and the trail loop at the James “Pate” Philip State Park. However, Section 901.106 of the IPCB regulations prohibits prominent discrete tones, unless the one-third octave band sound pressure level is 10 dB or more below the corresponding octave band sound pressure level limits. Test data[3] indicates that the inverters could be tonal at 800 Hz which is in the 1 kHz octave band. While the projected sound level of the 1 kHz octave band is more than 10 dB below the limit at the nearest residence, this is not the case at the trail loop in the state park which is only 4 dB below the limit. If the trail loop is considered a Class A land, then the prominent discrete tone clause map apply. To reduce sound levels below which the prominent discrete tone clause would apply, mitigation may be needed.

It is worth noting however, as discussed in Section 2.0 that the area around the Project is a mixture of commercial, recreational, transportation, and residential which is also expected to have traffic noise associated from IL- 25, adjacent to the Project and State Park, and from Stearns Road (IL-25/29) to the south. Given the existing land uses in the area and the transportation noise, mitigation for a relatively small portion of the trail loop in the state park, may not be merited. Nonetheless, a potential noise barrier has been investigated to reduce sound levels to 10 dB or more below the IPCB limits at the trail loop, if needed.

The potential noise barrier and mitigated model results at 1 kHz are provided in Figure 3. The barrier that is included in this mitigated model run is 12 feet tall with a total length of 121 feet. It is located on a portion of the northern side of the inverter area, down along the eastern side of the inverter area, and along a portion of the southern side of the inverter area. It is setback from the inverter pad by approximately 10 feet.

There are a variety of commercial noise barrier options available or it could be constructed from standard materials. A specific design has not yet been developed, but for purposes of controlling the sound, the barrier would be of the dimensions described above, made of a solid material free from air gaps, and have a surface weight of at least 4 pounds per square foot.

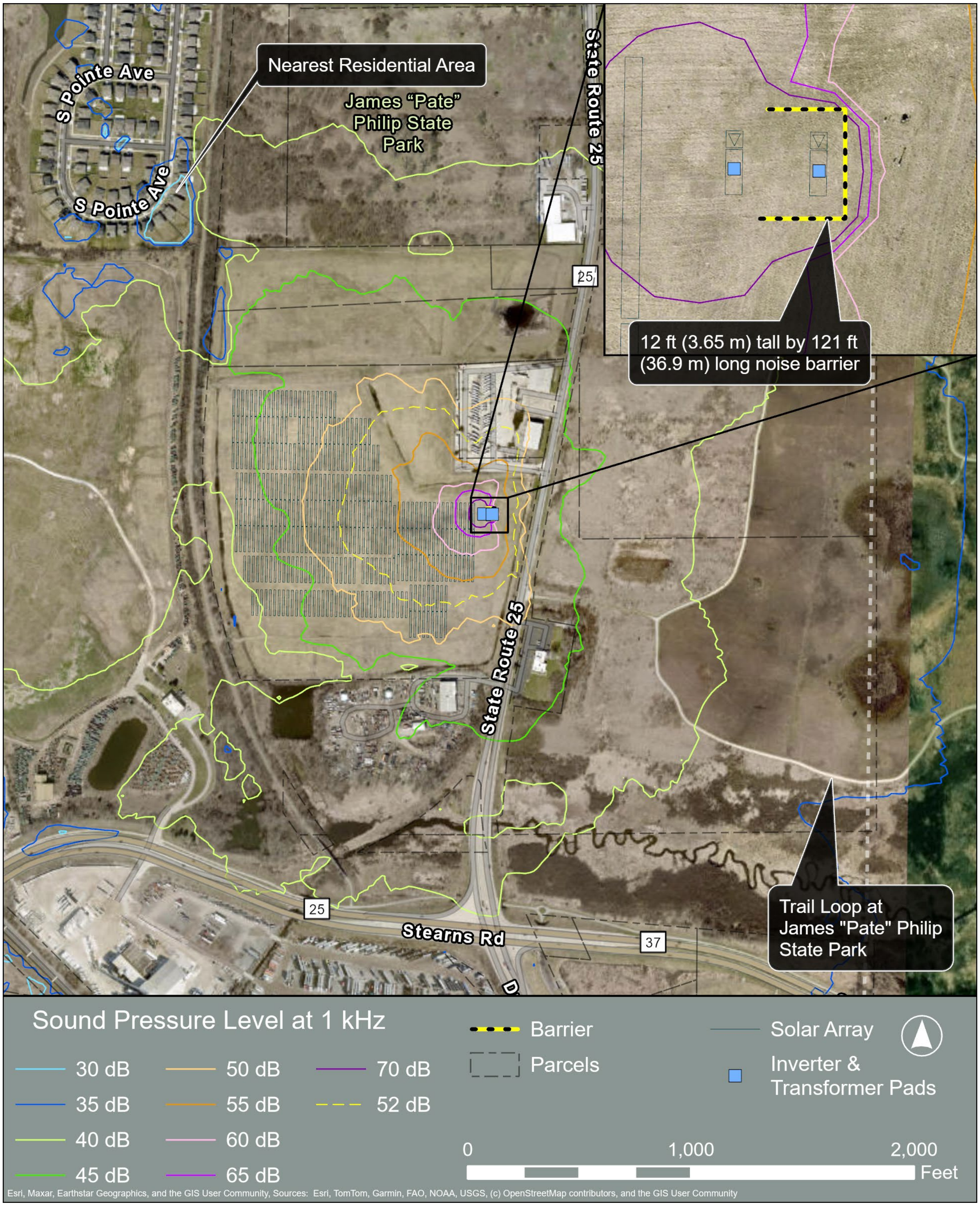

Figure 3: Mitigated Model Results Map for the 1 kHz Octave Band Showing a Potential Noise Barrier

6.0 Conclusions

Paxwood Acoustics conducted a noise assessment of the proposed Tri-County Solar Project located in Kane County, Illinois. This noise assessment included identification of the primary and secondary Project equipment that can create sound, a discussion of the local and IPCB noise standards, and sound propagation modeling to project sound levels throughout the Project and the surrounding area.

Model results are provided for two scenarios including regular daytime operations and nighttime operations. As discussed in Section 4.3, daytime operations include all 20 string inverters and two medium voltage transformers. Nighttime operations include just the energized medium voltage transformers.

Model results presented in Section 4.3 indicate that projected sound levels for both scenarios are below the IPCB limits in all octave bands at the nearest residential receptor and the nearest trail loop receptor in the James “Pate” Philip State Park. The proposed sources are considered tonal, particularly for the inverters at approximately 800 Hz which is within the 1 kHz octave band. At the nearest residential receptor, the projected sound level at 1 kHz is 14 dB below the limit. At 10 dB more below the limit, the prominent discrete tone clause of the IPCB rules does not apply. At the nearest trail loop receptor, the projected sound level at 1 kHz is just 4 dB below the limit which means that the prominent discrete tone clause may apply should that location be deemed a Class A land use.

If needed, to further reduce sound levels along the trail loop to 10 dB or more below the IPCB limit, an optional noise barrier is identified and discussed Section 5.0.

While not directly regulated by the IPCB limits, for context, the overall projected sound level caused by the Project at the nearest residence is 38 dBA during the day and 16 dBA at night. From a perception standpoint, those projected overall sound levels would generally be considered three to sixteen times quieter than conversational speech and consistent with typical background sound levels in a remote farm area as indicated in Figure 4 in Appendix A.

Given the information provided in this report, the Project is expected to produce sound levels that are below the Illinois Pollution Control Board noise limits meeting the noise requirements of the Kane County Ordinance.

Appendix A: Introduction to Acoustics

Sound, Sources, and Perception

Sound in air is caused by fluctuations in air pressure which can be due to a variety of sources. The sources of sound can generally be grouped into three major categories: anthropogenic, biogenic, and geophonic. Anthropogenic sounds are human caused sounds such as voices, instruments, vehicles, and mechanical and electrical equipment. Biogenic sounds are those that are caused by organisms such as animal calls or animal interaction with the environment. And lastly geophonic sounds are those caused by the environment itself such as waves hitting a shoreline or wind interacting with plants or other objects.

There are three primary characteristics of sound that affect human perception: frequency which may also be referred to as pitch or tone, amplitude which relates to perceived loudness or volume, and temporal fluctuations, which is to say that sound can change with time.

Frequency

Humans can hear sound over a range of frequencies typically from 20 Hz to 20,000 Hz. While not strictly defined, this range can be divided into three subranges which are described as low frequency (20 Hz to around 250 Hz), mid frequency (around 250 Hz to around 4,000 Hz), and high frequency (around 4,000 Hz to 20,000 Hz). The mid frequency range is where most human speech occurs. More defined ranges of frequency are divided into octave bands (31.5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, and 16 kHz), or even further into 1/3 octave bands which are three smaller bands within each octave band. Sound below 20 Hz is referred to infrasound and is not typically audible to the human ear. Sound above 20,000 Hz is referred to as ultrasound and is also not audible to the human ear.

Most sounds are broadband in nature and contain energy at a range of frequencies. If however, a sound contains notably more energy at a specific frequency compared to the adjacent frequencies, then the sound can be perceived as a tone, such as a note in music.

Amplitude

Humans can hear sound over a wide range of pressures, from approximately 20 micropascals to over 20 million micropascals. Sound can occur outside of this range, but below 20 micropascals is typically inaudible to humans and above 20 million micropascal can cause pain. In acoustics, this wide range of audible sound pressures is compressed using a logarithmic scale to create a range of sound pressure levels from 0 dB (20 micropascals) to 120 dB (20 million micropascals). It is in this logarithmic scale, denoted as decibel or dB, that acousticians and environmental regulations quantify the amplitude of sound.

Temporal Changes

Both frequency and amplitude can change with time. A sound may be constant in both frequency and level, but this is fairly uncommon. If one considers the fluctuation in sounds from people having conversations, birds chirping, or vehicles passing by, it becomes apparent how much sound can change from one instance to the next. It is for this reason that acousticians use a variety of metrics to define and describe sound. These metrics are discussed further below.

Weighting Networks, Sound Pressure Level, and Metrics

Weighting Networks

Humans are most sensitive to sound between 500 Hz and 5 kHz. Our sensitivity with sound decreases below 500 Hz and above 5 kHz. In order to account for this varying sensitivity, the A-weighting network or filter was developed to mimic the sensitivity of the human ear and how we perceive loudness. A-weighting discounts sound in varying degrees by frequency below 500 Hz and above 5,000 Hz. Between 1,000 Hz and 4,000 Hz, the A-weighting network amplifies sound slightly to account for the increased sensitivity of the human ear in that range. Since the A-weighting network accounts for human sensitivity at differenct frequencies, it is widely used in environmental acoustics and most environmental regulations. When a sound level is A-weighted, an “A” is typically added to the end of the abbreviation for decibel: dBA.

There are other weighting networks with different purposes, such as C, G, or Z, but A-weighting is most used in environmental acoustics. If a sound is not weighted or sometimes referred to as unweighted, it is considered Z-weighted or dBZ.

Sound Pressure Level

As was discussed previously, in acoustics, the amplitude of sound is often referred to in terms of sound pressure level. Representative sound pressure levels of some common sound sources and environments are shown in Figure 4. The sound levels presented in Figure 4 are meant to be illustrative, so any specific source or environment may be similar to or fall outside of the ranges shown in the graphic.

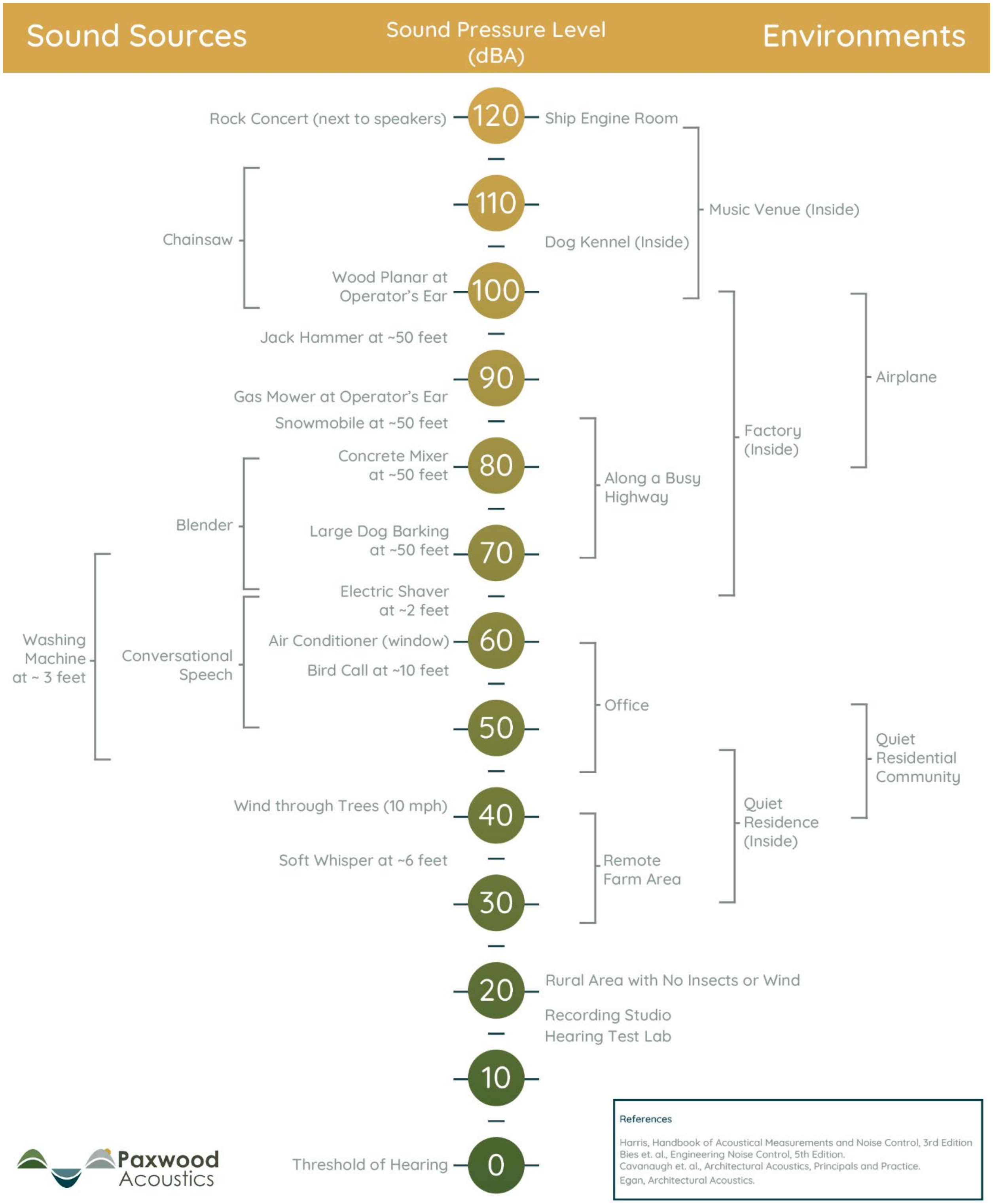

Figure 4: Representative Sound Pressure Levels (dBA) of Common Sound Sources & Environments

Since sound is a logarithmic function, one cannot use regular arithmetic operations to add and subtract sound levels. So, for example, conversational speech typically occurs at a level between 55 dBA and 65 dBA. If one person is speaking at a level of 60 dBA and another person is also speaking at a level of 60 dBA, the total sound level is not 120 dBA. (And a good thing too, otherwise, two people talking at the same time would quickly approach the threshold of pain, 120 dBA.) Instead, two voices at the same level only causes an increase of 3 dB, so 60 dBA plus 60 dBA equals 63 dBA.

In terms of perception of sound level there are two helpful rules of thumb to be aware of: 1) A change in broadband sound level of 10 dB is perceived as a halving or doubling of loudness, depending on if the amplitude of the sound decreased or increased, and 2) Changes in sound level of less than 3 dB are generally considered not perceptible.

Sound Level Metrics

With sound levels in an environment continuously changing, different sound level metrics are used to describe the sound level versus time. Some common sound level metrics are briefly described below:

- Equivalent Continuous Sound Level (L_{eq}): The L_{eq} is the level of the average sound pressure over a specified period of time. It takes into account quieter, long-term sound levels along with louder, short-duration sound levels to provide an overall sound level for a given time period. The louder sound levels, even with a short-duration, can have a strong influence on the L_{eq}. The L_{eq} is often used in environmental acoustics to convey an average representation of the acoustical environment, even though it is influenced more strongly by higher sound levels that occur over the specified interval. An L_{eq} may be as short as 1-second or up to an hour or more depending on the purpose of the quantification.
- Statistical Sound Levels (L_n): Statistical sound levels or percentile sound levels describe the level that is exceeded for a specified percentage of time. The L_{10}, for example, is the level that is exceeded 10% of the time. The L_{50}, is the median sound level: half the time the sound level is above the L_{50} and half the time the sound level is below the L_{50}. And the L_{90} is the sound level that is exceeded 90% of the time.
- Maximum Sound Level (L_{max}): The phrase "maximum sound level" may be used to describe the maximum L_{eq} or L_n over a given time period, but it can also be used to describe the sound level over a very short-duration typically using either a 1-second time constant which is referred to as slow-response, or a 125-millisecond time constant which is referred to as a fast-response. If the L_{max} metric is being used, it is good practice to note which time constant is being applied by adding the

notation S or F to the abbreviation: L_{Smax} or L_{Fmax}. The most appropriate time constant to use depends on the specific context of the quantification.

- Day-Night Level (L_{dn}): The L_{dn} is similar to the L_{eq} except that it is specifically applied over an entire day or 24-hour period with a 10 dB penalty applied to sound levels between 10 PM and 7 AM to account for greater sensitivity at night.

Appendix B: Model Settings & Input

Table 4: Sound Propagation Model Settings

Model Parameter	Setting
Ground Attenuation	ISO 9613-2 spectral ground attenuation with a ground factor of 0.0 at the inverter/transformer pads and 0.5 elsewhere.
Topography	USGS terrain.
Foliage Attenuation	No attenuation due to forest was taken into account in the model.
Atmospheric Attenuation	Based on 70% relative humidity and 10° C.
Search Radius	6,562 feet (2,000 meters).
Receptor Grid	20 feet by 20 feet (6.1 meters by 6.1 meters) throughout the Project and surrounding area at a height of 5 feet (1.5 meters).

Table 5: Modeled Point Source

Source	Sound Power Level (dBA)		Relative Height (m)	Coordinates (NAD83 Z16N)		Elevation (m)
	Day Scenario	Night Scenario		X (m)	Y (m)	
MVT[6] KNAN[1]	82	82	1.9	394846	4648668	235
MVT KNAN	82	82	1.9	394857	4648668	235
String Inverter	94		1.5	394857	4648661	234
String Inverter	94		1.5	394857	4648662	234
String Inverter	94		1.5	394857	4648663	234
String Inverter	94		1.5	394857	4648664	234
String Inverter	94		1.5	394858	4648665	234
String Inverter	94		1.5	394858	4648666	234
String Inverter	94		1.5	394857	4648661	234
String Inverter	94		1.5	394857	4648662	234
String Inverter	94		1.5	394857	4648663	234
String Inverter	94		1.5	394857	4648664	234
String Inverter	94		1.5	394857	4648665	234
String Inverter	94		1.5	394857	4648666	234
String Inverter	94		1.5	394846	4648661	235
String Inverter	94		1.5	394846	4648662	235
String Inverter	94		1.5	394846	4648663	235
String Inverter	94		1.5	394846	4648664	235
String Inverter	94		1.5	394846	4648665	235

[6] Medium Voltage Transformer

Source	Sound Power Level (dBA)		Relative Height (m)	Coordinates (NAD83 Z16N)		Elevation (m)
	Day Scenario	Night Scenario		X (m)	Y (m)	
String Inverter	94		1.5	394846	4648666	235
String Inverter	94		1.5	394845	4648661	235
String Inverter	94		1.5	394845	4648662	235
String Inverter	94		1.5	394845	4648663	235
String Inverter	94		1.5	394845	4648664	235
String Inverter	94		1.5	394845	4648665	235
String Inverter	94		1.5	394845	4648666	235

Table 6: Modeled Sound Power Level (dBZ) by Octave Band Frequency[7]

Source	Full Octave Band Center Frequency (Hz)									Overall Sound Power Level (dBA)
	31.5	63	125	250	500	1000	2000	4000	8000	
String Inverters (CPS SCH275KTL 250 kW)	78	77	75	80	86	93	84	82	74	94
MVT[8] (4,200 kVA, KNAN)	58	58	80	82	84	69	60	48	52	82

[7] Spectral levels for the transformers were derived from the *Handbook of Acoustical Measurements and Noise Control, Third Edition*, Cyril M. Harris (ed.), 1998. Spectral levels for the inverters were based on data from a field test report, WSP, *Community Noise and Attenuation Design Assessment*, DG Connecticut Solar III, LLC, April 2024.

[8] Medium Voltage Transformer

Appendix C: Daytime Model Results Maps

Appendix C contains the daytime model results in map format for each octave band center frequency except for 1 kHz, which is provided in Figure 2 in Section 4.3. The daytime IPCB Class C to Class A limit is shown as a yellow dashed line in each map. In some of the maps this line is not visible because that sound level only occurs immediately adjacent to the equipment.

Figure 5: Daytime Model Results Map for the 31.5 Hz Octave Band

Figure 6: Daytime Model Results Map for the 63 Hz Octave Band

Figure 7: Daytime Model Results Map for the 125 Hz Octave Band

Figure 8: Daytime Model Results Map for the 250 Hz Octave Band

Figure 9: Daytime Model Results Map for the 500 Hz Octave Band

Figure 10: Daytime Model Results Map for the 2 kHz Octave Band

Figure 11: Daytime Model Results Map for the 4 kHz Octave Band

Figure 12: Daytime Model Results Map for the 8 kHz Octave Band

Appendix D: Qualifications

Paxwood Acoustics provides professional consulting services in acoustics and noise control engineering with a focus on environmental permitting and compliance. Eddie Duncan, Principal Consultant, is a Board-Certified Noise Control Engineer (#09002) through the Institute of Noise Control Engineering and is a member of the Acoustical Society of America. Mr. Duncan has been practicing acoustic consulting for over 20 years. In that time, he has managed over 400 acoustics projects and has worked on 120+ wind power projects, 85+ solar projects, and 70+ transmission projects. He has also managed noise assessments for a growing portfolio of BESS projects which have often been a component of other renewable energy projects. Mr. Duncan's resume is provided on the following page.