ATTACHMENT O: OPERATIONAL AND CONSTRUCTION NOISE ANALYSIS

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MEMORANDUM

To:	Goldeneye Energy Storage, LLC (Applicant)
From:	Carson Wong (Dudek); Mark Storm, INCE Bd. Cert. (Dudek)
Subject:	Goldeneye Energy Storage Project **Goldeneye Energy Storage Project – Operational and Construction Noise Analysis**
Date:	April 9, 2024
cc:	Bradley Cole (Dudek)
Attachments:	Figure 1A – Predicted Overall) Operation Noise Levels -- 8'-tall Perimeter Noise Walls Figure 2A – Predicted Overall Operation Noise Levels – 16'-tall northwest island wall and 14'-tall west main project area wall; Attachment A – Operation Noise Model Input Parameter Tables Attachment B – Construction Noise Prediction Worksheets

Dudek has prepared the following summary of aggregate operational noise level predictions for the proposed Goldeneye Energy Storage Project (project) and offers a discussion with respect to relevant noise thresholds from Chapter 9.50 (Noise Control) of the Skagit County Code and correspondingly referenced and applicable Washington Administrative Code (WAC) noise receptor classifications and exterior noise level standards. This technical memorandum also includes a predictive assessment of project construction noise, studied as sequential phases and evaluated as 8-hour noise exposure levels at the nearest offsite residential receptors per Federal Transit Administration (FTA) guidance.

Executive Summary

As currently designed with respect to proposed project site layout and anticipated major onsite noise-producing equipment, and with battery container thermal management systems operating at capacities as disclosed herein for purposes of assessment, predicted aggregate operational noise emission is anticipated to exceed the nighttime noise level limit of 50 dBA hourly L_{eq} at a few receiving property line locations. Raising the planned perimeter solid fence height of eight feet to twelve, fourteen, or sixteen feet along selected extents is predicted to eliminate these exceedances.dered.

Project construction noise emission during daytime hours (7 a.m. to 10 p.m.) would be exempt from Skagit County noise limits and is anticipated to result in temporary noise exposure levels that are compliant with relevant federal guidance.

Introduction

The following subsections should help acquaint the reader with technical terms used to frame the presentation and discussion of noise assessment, summarize the project under study, and highlight relevant regulations and standards upon which project construction and operation noise levels are assessed to determine predicted compliance.

Acoustical Fundamentals

The following paragraphs provide the reader a summary of acoustical terminology and concepts that the foregoing analyses will use to evaluate potential noise and vibration impacts associated with the proposed project.

Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receptor determine the sound level and characteristics of the noise perceived by the receptor. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this huge range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 mPa.

Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

A-weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz, and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an “A-weighted” sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in conjunction with highway-traffic noise. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels or dBA.

Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3-dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels, when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency (1,000 Hz–8,000 Hz) range (Caltrans 2013). In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound, would generally be perceived as barely detectable by average healthy human hearing.

Noise Descriptors

Noise in our daily environment fluctuates over time at varying rates. Various noise descriptors have been developed to describe time-varying noise levels. Equivalent Sound Level (L_{eq}) represents an energy-average of the sound level occurring over a specified period. For example, the 1-hour A-weighted equivalent sound level (L_{eq1h}) is the energy average of A-weighted sound levels occurring during a one-hour period. In this study, an 8-hour L_{eq} (L_{eq8h}) is used to assess construction noise compliance with FTA-based guidance. Note that L_{eq} is not an arithmetic average of varying dB levels over a period of time, it accounts for greater sound energy represented by higher decibel contributions.

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors.

- Geometric Spreading – Sound from a localized source (i.e., an ideal point source) propagates uniformly outward in a spherical pattern (or hemispherical when near a surface). The sound level attenuates (or decreases) at a rate of 6 decibels for each doubling of distance from a point source. Roadways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 decibels for each doubling of distance from a line source.
- Ground Absorption – The propagation path of noise from a sound emission source to a receptor is usually horizontal and proximate to the ground. Under these conditions, noise attenuation from ground absorption and reflective-wave canceling can add to the attenuation associated with geometric spreading. For acoustically "hard" paths over which sound may traverse (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or "soft" sites (i.e., those sites with an absorptive ground surface between the source and the receptor, such as fresh-fallen snow, soft dirt, or dense vegetative ground cover), an additional ground-attenuation value of 1.5 decibels per doubling of distance is normally assumed. When added to cylindrical spreading for line source sound propagation, the excess ground attenuation results in an overall drop-off rate of 4.5 decibels per doubling of distance.
- Atmospheric Effects – Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound pressure levels can also be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects when distances between a source and receptor are large.
- Shielding by Natural or Human-Made Features – A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receptor specifically to reduce noise. A barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. While a line of trees may visually occlude the direct line between a source and a receptor, its actual noise-reducing effect is usually negligible because it does not create a solid barrier. Deep expanses of dense wooded areas, on the other hand, can offer noise reduction under the right conditions.

Project Background

The project site is east of the city limits of Sedro-Wooley (City of Sedro-Woolley 2019) in Skagit County, Washington and consists of approximately 8.7 acres. The site is located on the eastern portion of the parcel P40030 in Skagit

County. Parcel P40030 includes the western-adjoining residences associated with 25080 Minkler Road. There are no highways within the project vicinity. The project site is surrounded by single family residential homes to the west, northwest, and north. The project would consist of modular battery energy storage enclosures, inverters, and transformers.

Regulatory Setting

Federal Guidance

In its Transit Noise and Vibration Impact Assessment (TNaVIA) guidance manual, the Federal Transit Administration (FTA) recommends a daytime construction noise level threshold of 80 dBA L_{eq} over an 8-hour period (FTA 2018) when detailed construction noise assessments are performed to evaluate potential impacts to community residences surrounding a project. Although this FTA guidance is not a regulation, it can serve as a quantified standard in the absence of such noise limits at the state and local jurisdictional levels.

State of Washington

Section 173-60-40 of the Washington Administrative Code (WAC) identifies "maximum permissible environmental noise levels" that vary with time of day, the "class" of the land use on which the noise is being produced, and the class of the land use that receives the noise being produced. For Environmental Designation for Noise Abatement (EDNA) class A receiving zones that represent the offsite residential land uses surrounding the EDNA class C industrial zone that exemplifies the operating project equipment (post-construction), the exterior noise thresholds are 60 dBA hourly L_{eq} during daytime hours and 50 dBA L_{eq} during nighttime hours (10 p.m. to 7 a.m.). For EDNA class C receiving zones, when the source is from EDNA class C, the daytime and nighttime noise limit would be 70 dBA hourly L_{eq}.

WAC 173-60-50(3)(a) specifically exempts construction noise during daytime hours from these exterior noise limits.

Skagit County

Skagit County, the location of the proposed project site and its adjoining offsite property parcels, adopts the aforementioned WAC 173-60-40 noise limits and 173-60-50 exemptions per its Section 9.50.040(1) of the Skagit County Code: "It is unlawful for any person to cause, or for any person in possession or control of property to allow, sound to originate from the property that exceeds the noise levels permitted by Chapter 173-60 WAC (Maximum Environmental Noise Levels), as that chapter now exists or as it may hereafter be amended. The provisions of this subsection shall not apply to sounds exempted under Chapter 173-60 WAC, as that chapter now exists or as it may hereafter be amended." (Skagit County 2024)

Impact Assessment

Methodology

Onsite Equipment Operation

Using DataKustik's CadnaA software, which models three-dimensional outdoor sound propagation based on International Organization for Standardization (ISO) 9613-2 algorithms and relevant reference data, an operational scenario of the proposed project was modeled for purposes of this analysis. The modeled scenario included the following operating assumptions for the anticipated noise sources: 260 battery energy storage enclosures (each with five [5] cooling system fans operating at 40% capacity[1]; 65 MV transformers; and 1 HV transformer operating nominally at 300 MVA. Under the with-Augmentation scenarios, an additional 48 BESS units and 12 MV transformers are also onsite and emitting noise. Facilities are expected to operate at any time, either discharging or charging onsite batteries, up to 24 hours a day, 365 days a year. The predictive analysis assumes that all the above equipment is operating under a charging or discharging condition that may last up to a full continuous hour. For purposes of this preliminary analysis, the overall A-weighted levels appearing in Table 1 were used to define the individual project sound sources.

Table 1. Sound Power Levels for the Modeled Individual Sources of Outdoor Noise Emission

Source	Sound Power Level (PWL) per Octave Band Center Frequency (OBCF, Hz)									Overall Sound Level (dBA)
	31.5	63	125	250	500	1,000	2,000	4,000	8,000	
BESS unit[a]	36	54	63	77	71	75	72	70	56	84.9
HV transformer[b]	80	86	88	83	83	77	72	67	60	83.4
MV transformer	30	49	61	63	69	66	62	57	48	72.4

Notes: OBCF = Octave Band Center Frequency in cycles per second (Hertz [Hz]); dBA = A-weighted decibels; BESS = battery energy storage system; HV = high voltage; MV = medium voltage.
[a] Reference A-weighted sound power level data shown herein, based upon data provided by the Applicant's candidate supplier of on-site equipment, represents the aforementioned 40% capacity setting for cooling fan operation.
[b] Unweighted sound power levels, based on the Applicant-provided sound pressure level, converted to sound power and with OBCF granularity based on the Electric Power Plant Environmental Noise Guide (Edison Electric Institute 1984).

Attachment A, Operation Noise Model Input Parameter Tables, details all the sources and obstructions considered in the CadnaA model space for the project operational noise analysis.

The sound propagation model conservatively neglects terrain and thus assumes flat topography, since the planned grade for the site is meant to be comparable to that of Minkler Road and its surroundings. Additional modeling assumptions and parameters are as follows: reflection order = 1 (i.e., one "bounce" of a direct sound ray on an encountered structure or barrier is considered); ground absorption = 0.8 (on the 0-1 spectrum for this coefficient, intends to reflect the surrounding desert landscape; calm winds (less than 0.5 meters per second in any direction);

[1] This cooling system fan capacity setting is consistent with past project experience and/or confidential operational data provided by the Applicant's candidate supplier of on-site equipment, which accounts for expected seasonal environmental conditions in the vicinity of the proposed project site. Prior to facility construction and operation, the Applicant should confirm such operational data with the supplier, as fan capacity setting relates directly to noise emission.

temperature = 68 degrees Fahrenheit; and 70% relative humidity. In addition, per the current layout of equipment, an 8-foot-tall wall surrounds the site. Predictive analysis of a second operation scenario is included herein, which raises this perimeter wall height to 12 feet, 14 feet, or 16 feet along some defined extents of the wall but leaves all other model features as-is (i.e., same site plan and arrangement of operating equipment).

As the gen-tie lines planned for the proposed project will be subsurface, they will not contribute potential audible noise (due to corona discharge) to the outdoor environment and are thus not considered further herein.

Construction

Although exempt from Skagit County and Washington State noise regulations as a potential noise disturbance, daytime construction noise is evaluated herein as a potential temporary environmental noise impact with respect to nearest apparent residential land uses, such as homes on the north side of Minkler Road across from the proposed project site that are as close as approximately 160 feet (25135 Minkler Road) and 225 feet (25263 Minkler Road) to the boundary of anticipated project construction activities. However, some project features such as the onsite collector substation are considerably more distant: ranging between 840 feet and 1,100 feet from the same two offsite receptors, respectively. Although additional residences and other noise-sensitive receivers are further afield, the construction noise assessment herein has focused on project-attributed noise exposure levels predicted to occur at these two nearest existing residences. Construction noise levels at more distant receivers would be substantially lower, consistent with established acoustical principles of attenuation with geometric divergence and other factors.

Project-generated construction noise will vary depending on the construction process, the type of equipment involved, the location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week), and the duration of the construction work. Using information for this type and size of development from comparable studies performed by Dudek, project construction noise per each of seven (7) distinct phases was calculated using a spreadsheet-based model emulating the Federal Highway Administration (FHWA) Roadway Construction Noise Model (FHWA 2008). Table 2 presents the equipment list used for the construction noise analysis.

Table 2. Construction Equipment Roster Assumptions by Phase/Activity

Construction Activity/Phase	Equipment Type	Total Equipment Quantity	Allowable Operation Time (hours)
Site Preparation	grader	2	8
	front end loader	2	8
	backhoe	2	8
	skid-steer	2	8
Collector Substation Site Preparation	dozer	2	8
	backhoe	2	8
Grading	grader	2	8
	compactor (ground)	2	8
	roller	2	8
	front end loader	2	8

Table 2. Construction Equipment Roster Assumptions by Phase/Activity

Construction Activity/Phase	Equipment Type	Total Equipment Quantity	Allowable Operation Time (hours)
	backhoe	2	8
	skid-steer	2	8
Collector Substation Grading	dozer	2	8
	roller	2	8
	backhoe	2	8
Battery Container Installation	crane	2	8
	compressor (air)	2	8
	excavator	2	8
	generator	2	8
	compactor (ground)	2	8
	roller	2	8
	gradall	2	8
	backhoe	2	8
	skid-steer	2	8
Collector Substation Installation	man lift	2	8
	compressor (air)	2	8
	auger drill rig	2	8
	crane	2	8
	excavator	2	8
	generator	2	8
	roller	2	8
	gradall	2	8
	slurry trenching machine	2	8
	backhoe	2	8
	dozer	2	8
	skid-steer	2	8
Decommissioning	concrete saw	2	8
	crane	2	8
	dozer	2	8
	backhoe	2	8

Source: Dudek 2022

Using the provided construction information appearing in Table 2, aggregate construction noise exposure levels at the nearest sensitive receivers are predicted per the following assumption: usage of the shortest activity-to-receptor distance for the loudest equipment type and quantity associated with the studied construction phase, with less noisy equipment types at successively more distant increments of 100 feet towards the geographic center of the project site. This method is considered a conservative approach to assess what might be characterized as a peak exposure level, applicable to not more than approximately 10%–15% of the total construction period and when the studied construction activity is taking place with loudest equipment along the property boundary closest to these nearest off-site receivers.

Prediction Results

Onsite Equipment Operation

As shown on Figure 1A (Predicted Overall Battery Energy Storage System (BESS) Operation Noise Levels – 8'-tall Perimeter Noise Walls; includes Augmentation) and Table 3, the predicted aggregate sound emission from a 1-hour-long period of all operating battery energy storage enclosures, MV transformers, and the HV transformer stays below 58.2 dBA L_{eq} at all studied receiving property line positions, which is less than the daytime limit of 60 dBA for EDNA class A but may exceed the nighttime limit associated with EDNA Class A receiving land uses. Figure 1A displays the predicted aggregate project operational noise as concentric bands of different colors, representing 5-decibel-wide ranges of sound pressure level and consistent with the color band legend appearing at the bottom right of the image, across a horizontal plane positioned five feet above grade.

Table 3. Predicted Operational Sound Levels at Modeled Receptors (8'-tall Walls)

Modeled Receptor (Figure 1A Location Tag)	Receiving Land Use	Hourly Sound Pressure Level (dBA L_{eq})	Nighttime Exterior Noise Limit (dBA L_{eq}) and Compliance?	Noise Reduction Need (dB)
Western Stream PL (WSPL)	EDNA Class A	47.0	50 - yes	n/a
25135 Minkler Rd (PLN)	EDNA Class A	51.8	50 - no	1.8
25263 Minkler Rd (PLNE)	EDNA Class A	48.6	50 - yes	n/a
PL - East North (PLEN)	EDNA Class C	57.9	70 - yes	n/a
PL - East – South (PLES)	EDNA Class C	58.2	70 - yes	n/a
PL - South East (PLSE)	EDNA Class C	51.9	70 - yes	n/a
25097 Minkler Rd (PLNW)	EDNA Class A	51.2	50 - no	1.2
PL - South West (PLSW)	EDNA Class A	48.2	50 - yes	n/a

Notes: dBA = A-weighted decibels; L_{eq} = energy-equivalent level; n/a = not applicable; PL = property line.

Figure 2A displays predicted aggregate project operational noise comparable to what appears in Figure 1A, but includes the effect of raising the perimeter solid fence heights to a top edge of 12 feet above grade (not 8 feet per the original modeled scenario). Additionally, the northwest wall that spans 222 feet long has an increased height of 16 feet, and the western wall that spans 607 feet is increased to 14 feet tall. By increasing the wall height, all receptors comply with the nighttime exterior noise limit. Specific sound pressure levels for each receptors are listed in Table 4.

Table 4. Predicted Operational Sound Levels at Modeled Receptors (16'-tall northwest island Wall and 14'-tall western wall)

Modeled Receptor (Figure 2A Location Tag)	Receiving Land Use	Hourly Sound Pressure Level (dBA L_{eq})	Nighttime Exterior Noise Limit (dBA L_{eq}) and Compliance?	Noise Reduction Need (dB)
Western Stream PL (WSPL)	EDNA Class A	46.5	50 - yes	n/a
25135 Minkler Rd (PLN)	EDNA Class A	49.9	50 - yes	n/a
25263 Minkler Rd (PLNE)	EDNA Class A	48.6	50 - yes	n/a
PL - East North (PLEN)	EDNA Class C	54.5	70 - yes	n/a
PL - East – South (PLES)	EDNA Class C	54.8	70 - yes	n/a
PL - South East (PLSE)	EDNA Class C	47.1	70 - yes	n/a
25097 Minkler Rd (PLNW)	EDNA Class A	46.9	50 - yes	n/a
PL - South West (PLSW)	EDNA Class A	48.2	50 - yes	n/a

Notes: dBA = A-weighted decibels; L_{eq} = energy-equivalent level; n/a = not applicable; PL = property line.

Project Construction

Attachment B (Construction Noise Prediction Worksheets) displays the construction noise model worksheets that emulates the FHWA RCNM methodology and includes energy-averaging construction noise exposure over an 8-hour period as expected by the FTA guidelines. Table 5 shows the predicted 8-hour L_{eq} values at the nearest noise sensitive offsite residential receptors do not exceed the aforesaid FTA threshold of 80 dBA.

Table 5. Predicted Construction Noise at Modeled Receptors

Construction Activity/Phase	Noise Exposure Level (8-hour dBA L_{eq}) at nearest Offsite Residential Receptor Location	
	25135 Minkler Road	25263 Minkler Road
Site Preparation	70.7	67.4
Collector Substation Site Preparation	52.2	49.6
Grading	70.6	67.3
Collector Substation Grading	52.7	50.2
Battery Container Installation	68.9	65.7
Collector Substation Installation	57.6	55.3
Decommissioning	72.6	69.2

Notes: dBA = A-weighted decibels; L_{eq} = energy-equivalent level.

References

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Attachment A

Operation Noise Model Input Parameter Tables

CadnaA model (as-is, per client site plan, with augmentation) as of 2/27/24

Receivers

Name	M.	ID	Level Lr Day (dBA)	Level Lr Night (dBA)	Limit. Value Day (dBA)	Limit. Value Night (dBA)	Land Use Type	Auto	Noise Type	Height (ft)		Coordinates X (ft)	Y (ft)	Z (ft)
Western Stream PL		WSPL	47	47	0	0		x	Total	5	r	1308317	552848	5
25135 Minkler Rd		PLN	51.8	51.8	0	0		x	Total	5	r	1308655	553305	5
25263 Minkler Rd		PLNE	48.6	48.6	0	0		x	Total	5	r	1309359	553800	5
PL - East North		PLEN	57.9	57.9	0	0		x	Total	5	r	1309337	553363	5
PL - East - South		PLES	58.2	58.2	0	0		x	Total	5	r	1309333	552971	5
PL - South East		PLSE	51.9	51.9	0	0		x	Total	5	r	1309210	552618	5
25097 Minkler Rd		PLNW	51.2	51.2	0	0		x	Total	5	r	1308444	553157	5
PL - South West		PLSW	48.2	48.2	0	0		x	Total	5	r	1308621	552618	5

CadnaA model (16' and 14'-tall noise walls at northwest wall of island BESS and western wall of main project area) as of 3/7/24

Name	M.	ID	Level Lr Day (dBA)	Level Lr Night (dBA)	Limit. Value Day (dBA)	Limit. Value Night (dBA)	Land Use Type	Auto	Noise Type	Height (ft)		Coordinates X (ft)	Y (ft)	Z (ft)
Western Stream PL		WSPL	46.5	46.5	0	0		x	Total	5	r	1308317	552848	5
25135 Minkler Rd		PLN	49.9	49.9	0	0		x	Total	5	r	1308655	553305	5
25263 Minkler Rd		PLNE	48.6	48.6	0	0		x	Total	5	r	1309359	553800	5
PL - East North		PLEN	54.5	54.5	0	0		x	Total	5	r	1309337	553363	5
PL - East - South		PLES	54.8	54.8	0	0		x	Total	5	r	1309333	552971	5
PL - South East		PLSE	47.1	47.1	0	0		x	Total	5	r	1309210	552618	5
25097 Minkler Rd		PLNW	46.9	46.9	0	0		x	Total	5	r	1308444	553157	5
PL - South West		PLSW	48.2	48.2	0	0		x	Total	5	r	1308621	552618	5

CadnaA model (12'-tall walls) as of 2/27/24

Buildings

Name	M.	ID	RB	Residents	Absorptio	Height Begin (ft)		
BESS units		XREF		0	0.1	9	r	typical of 308
		inverters		0	0.1	7	r	typical of 77

Barriers

Name	M.	ID	Absorption left	Absorption right	Z-Ext. (ft)	Cantilever horz. (ft)	Cantilever vert. (ft)	Height Begin (ft)		Height End (ft)
		FENCE	0.1	0.1				12	r	
		FENCE	0.1	0.1				12	r	
		FENCE	0.1	0.1				12	r	
		FENCE	0.1	0.1				12	r	
		FENCE	0.1	0.1				12	r	

CadnaA model (16' and 14'-tall noise walls at northwest wall of island BESS and western wall of main project area) as of 3/7/24

Name	M.	ID	Absorption left	Absorption right	Z-Ext. (ft)	Cantilever horz. (ft)	Cantilever vert. (ft)	Height Begin (ft)		Height End (ft)
		FENCE	0.1	0.1				12	r	12
		FENCE	0.1	0.1				12	r	12
		FENCE	0.1	0.1				12	r	12
		FENCE	0.1	0.1				12	r	12
		FENCE	0.1	0.1				12	r	12

CadnaA model (as-is, per client site plan) as of 2/27/24

Area Sources

Name	M.	ID	Result. PWL Day (dBA)	Evening (dBA)	Night (dBA)	Result. PWL'' Day (dBA)	Evening (dBA)	Night (dBA)	Lw / Li Type	Value	norm. dB(A)	K0 (dB)
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		inverters	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		augment inverter	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		augment inverter	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		augment inverter	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		augment inverter	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		augment inverter	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		augment inverter	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		augment inverter	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		augment inverter	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		augment inverter	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		augment inverter	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		augment inverter	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0
		augment inverter	72.4	72.4	72.4	61.9	61.9	61.9	Lw	MV4MP		0

Point Sources

Name	M.	ID	Result. PWL Day (dBA)	Evening (dBA)	Night (dBA)	Lw / Li Type	Value	norm. dB(A)	Correction Day dB(A)	Evening dB(A)	Night dB(A)	K0 (dB)	Freq. (Hz)	Direct.	Height (ft)	Coordinates X (ft)	Y (ft)	Z (ft)
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309105	552814	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309105	552809	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	552814	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	552807	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309218	552814	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309218	552806	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309265	552814	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309265	552807	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309266	552835	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309265	552828	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309219	552835	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309218	552828	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309150	552836	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309150	552830	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309107	552836	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309106	552828	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309150	552858	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309150	552853	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309106	552857	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309106	552851	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309218	552858	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309219	552850	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309264	552857	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309264	552851	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309265	552879	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309265	552873	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309220	552879	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309220	552872	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	552880	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309151	552873	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309105	552879	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309107	552873	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309108	552902	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309108	552895	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	552902	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309151	552897	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309217	552901	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309217	552895	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309265	552901	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309265	552895	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309266	552924	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309266	552918	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309219	552922	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309219	552917	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	552923	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	552918	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309105	552922	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309106	552917	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309105	552946	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309105	552939	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	552946	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	552941	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309220	552944	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309220	552940	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309264	552945	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309264	552939	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309264	552968	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309264	552962	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309220	552968	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309219	552960	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	552969	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	552961	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309105	552967	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309105	552961	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309107	552989	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309106	552983	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	552990	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	552983	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309220	552989	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309220	552982	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309266	552988	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309265	552984	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309266	553011	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309266	553003	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309220	553012	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309219	553006	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309221	553033	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309220	553027	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309266	553033	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309267	553026	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309151	553012	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309151	553005	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309107	553012	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309107	553005	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309107	553033	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309108	553028	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	553033	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	553027	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309220	553055	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309220	553049	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309266	553056	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309266	553049	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309153	553055	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309153	553050	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309109	553056	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309111	553050	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309265	553077	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309266	553072	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	553076	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309153	553071	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309106	553078	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309106	553073	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309107	553100	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309107	553094	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309153	553100	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309153	553094	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309222	553099	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309222	553093	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309267	553099	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309268	553093	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309265	553120	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309265	553115	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309220	553121	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309220	553116	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309154	553121	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309154	553116	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309106	553121	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309106	553115	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309107	553143	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309107	553138	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309153	553143	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309154	553138	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309219	553142	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309218	553136	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309267	553143	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309267	553135	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309265	553166	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309266	553159	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309221	553164	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309220	553160	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309152	553165	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309153	553160	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309106	553165	9.5
			84.9	84.9	84.9	Lw	MP2XL540		0	0	0	2		(none)	9.5	1309106	553159	9.5

	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553187	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553180	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309152	553187	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309152	553182	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309221	553188	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309221	553182	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309266	553187	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309266	553181	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309266	553209	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309266	553202	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309219	553210	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309219	553202	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309153	553208	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309153	553204	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553209	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553203	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553231	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309108	553225	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309153	553231	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309152	553227	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309221	553230	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309222	553225	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309266	553231	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309266	553225	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309266	553252	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309266	553246	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309220	553253	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309220	553248	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309154	553254	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309154	553248	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553253	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553248	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553276	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553270	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309153	553276	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309154	553268	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309221	553275	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309222	553268	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309267	553276	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309267	553269	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309267	553297	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309268	553292	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309222	553297	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309223	553293	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309154	553296	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309154	553291	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309109	553298	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309109	553291	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553319	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553315	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309154	553319	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309155	553313	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309220	553319	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309221	553312	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309266	553319	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309267	553313	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309267	553341	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309268	553333	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309221	553341	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309221	553335	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309152	553341	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309152	553336	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309108	553342	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309108	553336	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553364	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553357	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309152	553364	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309154	553357	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309221	553363	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309221	553357	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309268	553364	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309268	553358	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309267	553385	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309266	553379	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309219	553385	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309220	553379	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309154	553385	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309154	553379	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553386	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309107	553379	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309108	553407	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309108	553402	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309152	553409	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309152	553402	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309221	553408	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309221	553400	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309267	553407	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309266	553401	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309266	553430	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309267	553423	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309221	553430	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309221	553424	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309221	553452	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309222	553446	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309267	553450	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309267	553444	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309220	553496	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309219	553489	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309268	553495	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309268	553490	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309267	553474	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309267	553467	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309220	553474	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309220	553467	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308563	553029	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308567	553024	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308545	553054	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308548	553049	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308582	553082	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308586	553078	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308601	553055	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308605	553050	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308633	553079	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308637	553072	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308671	553105	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308675	553100	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308617	553105	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308620	553101	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308653	553132	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308656	553128	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308655	552955	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308659	552951	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308669	552937	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1308672	552932	9.5
Substation HV transf	83.4	83.4	83.4	Lw	SUB	0	0	0	0	(none)	5	1309208	552688	5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309220	553076	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309220	553071	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309027	552829	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309028	552833	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309028	552851	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309028	552858	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309028	552872	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309027	552880	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309028	552895	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309027	552904	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	552917	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	552925	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	552939	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309028	552946	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309028	552961	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309028	552968	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309030	552983	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309030	552989	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553004	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309028	553011	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309030	553027	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553033	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553049	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553056	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553071	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553078	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553092	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553100	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553116	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553123	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309028	553136	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553144	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553159	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553165	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309030	553182	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309030	553188	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309030	553204	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553210	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553224	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309030	553231	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309030	553246	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309030	553253	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309030	553269	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309030	553276	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553291	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553296	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309030	553312	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309029	553319	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309030	553334	9.5
	84.9	84.9	84.9	Lw	MP2XL540	0	0	0	2	(none)	9.5	1309030	553340	9.5

Attachment B

Construction Noise Prediction Worksheets

To User: bordered cells are inputs, unbordered cells have formulae

noise level limit for construction phase at residential land use, per FTA guidance = 80

allowable hours over which Leq is to be averaged = 8

= temporary barrier (TB) of input height inserted between source and receptor

Construction Activity	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	*Temporary Barrier Insertion Loss (dB)*	*Additional Noise Reduction*	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq	Source Elevation (ft)	Receiver Elevation (ft)	Barrier Height (ft)	Source to Barr. ("A") Horiz. (ft)	Rcvr. to Barr. ("B") Horiz. (ft)	Source to Rcvr. ("C") Horiz. (ft)	"A" (ft)	"B" (ft)	"C" (ft)	Path Length Diff. "P" (ft)	Abarr (dB)	Heff (with barrier)	Heff (wout barrier)	G (with barrier)	G (without barrier)	ILbarr (dB)
Site Preparation	grader	1	40	85		160	0.1		71.3	8	480	67	5	5	0	5	155	160	7.1	155.1	160.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	grader	1	40	85		160	0.1		71.3	8	480	67	5	5	0	5	155	160	7.1	155.1	160.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	front end loader	1	40	79		260	0.1		60.4	8	480	56	5	5	0	105	155	260	105.1	155.1	260.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	front end loader	1	40	79		360	0.1		57.2	8	480	53	5	5	0	205	155	360	205.1	155.1	360.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		460	0.1		53.8	8	480	50	5	5	0	305	155	460	305.0	155.1	460.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		560	0.1		51.9	8	480	48	5	5	0	405	155	560	405.0	155.1	560.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		660	0.1		52.3	8	480	48	5	5	0	505	155	660	505.0	155.1	660.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		760	0.1		51.0	8	480	47	5	5	0	605	155	760	605.0	155.1	760.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for Site Preparation Phase:			**70.7**																
Collector Substation Site Preparation	dozer	1	40	82		840	0.1		52.0	8	480	48	5	5	0	5	835	840	7.1	835.0	840.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	dozer	1	40	82		840	0.1		52.0	8	480	48	5	5	0	5	835	840	7.1	835.0	840.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		940	0.1		46.9	8	480	43	5	5	0	105	835	940	105.1	835.0	940.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		940	0.1		46.9	8	480	43	5	5	0	105	835	940	105.1	835.0	940.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for Phase:			**52.2**																
Grading	grader	1	40	85		160	0.1		71.3	8	480	67	5	5	0	5	155	160	7.1	155.1	160.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	grader	1	40	85		160	0.1		71.3	8	480	67	5	5	0	5	155	160	7.1	155.1	160.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compactor (ground)	1	20	80		260	0.1		61.4	8	480	54	5	5	0	105	155	260	105.1	155.1	260.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compactor (ground)	1	20	80		360	0.1		58.2	8	480	51	5	5	0	205	155	360	205.1	155.1	360.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	1	20	80		460	0.1		55.8	8	480	49	5	5	0	305	155	460	305.0	155.1	460.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	1	20	80		560	0.1		53.9	8	480	47	5	5	0	405	155	560	405.0	155.1	560.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	front end loader	1	40	79		660	0.1		51.3	8	480	47	5	5	0	505	155	660	505.0	155.1	660.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	front end loader	1	40	79		760	0.1		50.0	8	480	46	5	5	0	605	155	760	605.0	155.1	760.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		860	0.1		47.8	8	480	44	5	5	0	705	155	860	705.0	155.1	860.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		960	0.1		46.7	8	480	43	5	5	0	805	155	960	805.0	155.1	960.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		1060	0.1		47.7	8	480	44	5	5	0	905	155	1060	905.0	155.1	1060.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		1160	0.1		46.8	8	480	43	5	5	0	1005	155	1160	1005.0	155.1	1160.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for Grading Phase:			**70.6**																
Collector Substation Grading	dozer	1	40	82		840	0.1		52.0	8	480	48	5	5	0	5	835	840	7.1	835.0	840.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	dozer	1	40	82		840	0.1		52.0	8	480	48	5	5	0	5	835	840	7.1	835.0	840.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	1	20	80		940	0.1		48.9	8	480	42	5	5	0	105	835	940	105.1	835.0	940.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	1	20	80		1040	0.1		47.9	8	480	41	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1040	0.1		45.9	8	480	42	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1040	0.1		45.9	8	480	42	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for Collector Substation Grading Phase:			**52.7**																
Battery Container Installation	gradall	1	40	83		160	0.1		69.3	8	480	65	5	5	0	5	155	160	7.1	155.1	160.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	gradall	1	40	83		160	0.1		69.3	8	480	65	5	5	0	5	155	160	7.1	155.1	160.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compressor (air)	1	40	78		260	0.1		59.4	8	480	55	5	5	0	105	155	260	105.1	155.1	260.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compressor (air)	1	40	78		360	0.1		56.2	8	480	52	5	5	0	205	155	360	205.1	155.1	360.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	excavator	1	40	81		460	0.1		56.8	8	480	53	5	5	0	305	155	460	305.0	155.1	460.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	excavator	1	40	81		560	0.1		54.9	8	480	51	5	5	0	405	155	560	405.0	155.1	560.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	generator	1	50	72		660	0.1		44.3	8	480	41	5	5	0	505	155	660	505.0	155.1	660.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	generator	1	50	72		760	0.1		43.0	8	480	40	5	5	0	605	155	760	605.0	155.1	760.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	crane	1	16	81		860	0.1		50.8	8	480	43	5	5	0	705	155	860	705.0	155.1	860.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	crane	1	16	81		960	0.1		49.7	8	480	42	5	5	0	805	155	960	805.0	155.1	960.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1060	0.1		45.7	8	480	42	5	5	0	905	155	1060	905.0	155.1	1060.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1160	0.1		44.8	8	480	41	5	5	0	1005	155	1160	1005.0	155.1	1160.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		1160	0.1		46.8	8	480	43	5	5	0	1005	155	1160	1005.0	155.1	1160.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		1160	0.1		46.8	8	480	43	5	5	0	1005	155	1160	1005.0	155.1	1160.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for Battery Container Installation Phase:			**68.9**																
Collector Substation Instillation	auger drill rig	1	20	84		840	0.1		54.0	8	480	47	5	5	0	5	835	840	7.1	835.0	840.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	auger drill rig	1	20	84		840	0.1		54.0	8	480	47	5	5	0	5	835	840	7.1	835.0	840.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	man lift	1	20	75		940	0.1		43.9	8	480	37	5	5	0	105	835	940	105.1	835.0	940.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	man lift	1	20	75		1040	0.1		42.9	8	480	36	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compressor (air)	1	40	78		1040	0.1		45.9	8	480	42	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compressor (air)	1	40	78		1040	0.1		45.9	8	480	42	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	gradall	1	40	83		1040	0.1		50.9	8	480	47	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	gradall	1	40	83		1040	0.1		50.9	8	480	47	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	crane	1	16	81		1040	0.1		48.9	8	480	41	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	crane	1	16	81		1040	0.1		48.9	8	480	41	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	excavator	1	40	81		1040	0.1		48.9	8	480	45	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	excavator	1	40	81		1040	0.1		48.9	8	480	45	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	generator	1	50	72		1040	0.1		39.9	8	480	37	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	generator	1	50	72		1040	0.1		39.9	8	480	37	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	1	20	80		1040	0.1		47.9	8	480	41	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	1	20	80		1040	0.1		47.9	8	480	41	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	slurry trenching machine	1	50	80		1040	0.1		47.9	8	480	45	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	slurry trenching machine	1	50	80		1040	0.1		47.9	8	480	45	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1040	0.1		45.9	8	480	42	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1040	0.1		45.9	8	480	42	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	dozer	1	40	82		1040	0.1		49.9	8	480	46	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	dozer	1	40	82		1040	0.1		49.9	8	480	46	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		1040	0.1		47.9	8	480	44	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		1040	0.1		47.9	8	480	44	5	5	0	205	835	1040	205.1	835.0	1040.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for Collector Substation Instillation Phase:			**57.6**																
Decommisioning	concrete saw	1	20	90		160	0.1		76.3	8	480	69	5	5	0	5	155	160	7.1	155.1	160.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	concrete saw	1	20	90		160	0.1		76.3	8	480	69	5	5	0	5	155	160	7.1	155.1	160.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	crane	1	16	81		260	0.1		62.4	8	480	54	5	5	0	105	155	260	105.1	155.1	260.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	crane	1	16	81		360	0.1		59.2	8	480	51	5	5	0	205	155	360	205.1	155.1	360.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	dozer	1	40	82		460	0.1		57.8	8	480	54	5	5	0	305	155	460	305.0	155.1	460.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	dozer	1	40	82		560	0.1		55.9	8	480	52	5	5	0	405	155	560	405.0	155.1	560.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		660	0.1		50.3	8	480	46	5	5	0	505	155	660	505.0	155.1	660.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		760	0.1		49.0	8	480	45	5	5	0	605	155	760	605.0	155.1	760.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for Decommisioning Phase:			**72.6**																

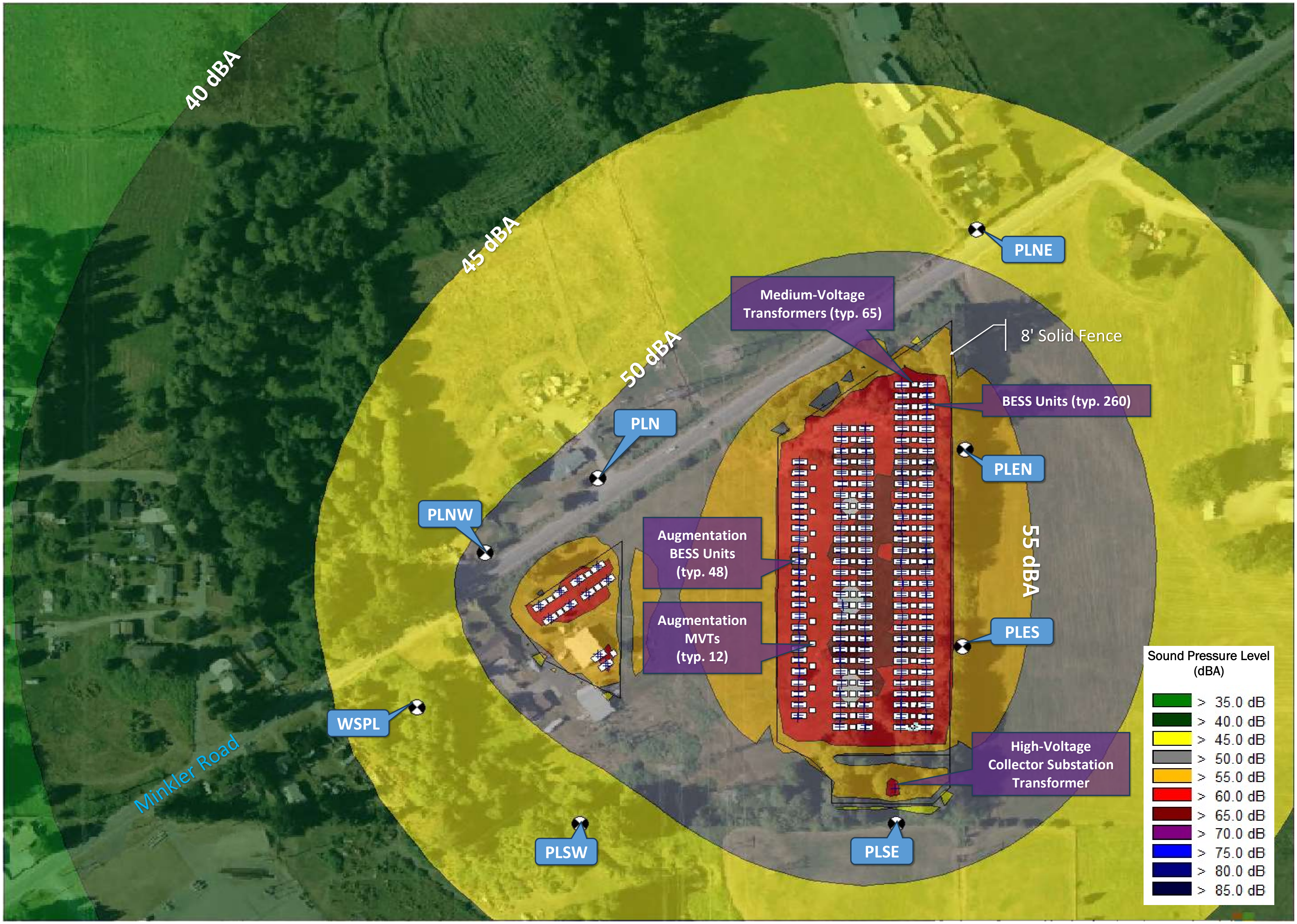
To User: bordered cells are inputs, unbordered cells have formulae

noise level limit for construction phase at residential land use, per FTA guidance = 80

allowable hours over which Leq is to be averaged = 8

= temporary barrier (TB) of input height inserted between source and receptor

Construction Activity	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	*Temporary Barrier Insertion Loss (dB)*	*Additional Noise Reduction*	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq	Source Elevation (ft)	Receiver Elevation (ft)	Barrier Height (ft)	Source to Barr. ("A") Horiz. (ft)	Rcvr. to Barr. ("B") Horiz. (ft)	Source to Rcvr. ("C") Horiz. (ft)	"A" (ft)	"B" (ft)	"C" (ft)	Path Length Diff. "P" (ft)	Abarr (dB)	Heff (with barrier)	Heff (wout barrier)	G (with barrier)	G (without barrier)	ILbarr (dB)
Site Preparation	grader	1	40	85		225	0.1		67.8	8	480	64	5	5	0	5	220	225	7.1	220.1	225.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	grader	1	40	85		225	0.1		67.8	8	480	64	5	5	0	5	220	225	7.1	220.1	225.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	front end loader	1	40	79		325	0.1		58.2	8	480	54	5	5	0	105	220	325	105.1	220.1	325.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	front end loader	1	40	79		425	0.1		55.6	8	480	52	5	5	0	205	220	425	205.1	220.1	425.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		525	0.1		52.5	8	480	49	5	5	0	305	220	525	305.0	220.1	525.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		625	0.1		50.9	8	480	47	5	5	0	405	220	625	405.0	220.1	625.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		725	0.1		51.4	8	480	47	5	5	0	505	220	725	505.0	220.1	725.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		825	0.1		50.2	8	480	46	5	5	0	605	220	825	605.0	220.1	825.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
										Total for Site Preparation Phase:		**67.4**																
Collector Substation Site Preparation	dozer	1	40	82		1100	0.1		49.4	8	480	45	5	5	0	5	1095	1100	7.1	1095.0	1100.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	dozer	1	40	82		1100	0.1		49.4	8	480	45	5	5	0	5	1095	1100	7.1	1095.0	1100.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1200	0.1		44.5	8	480	41	5	5	0	105	1095	1200	105.1	1095.0	1200.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1200	0.1		44.5	8	480	41	5	5	0	105	1095	1200	105.1	1095.0	1200.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
										Total for Phase:		**49.6**																
Grading	grader	1	40	85		225	0.1		67.8	8	480	64	5	5	0	5	220	225	7.1	220.1	225.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	grader	1	40	85		225	0.1		67.8	8	480	64	5	5	0	5	220	225	7.1	220.1	225.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compactor (ground)	1	20	80		325	0.1		59.2	8	480	52	5	5	0	105	220	325	105.1	220.1	325.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compactor (ground)	1	20	80		425	0.1		56.6	8	480	50	5	5	0	205	220	425	205.1	220.1	425.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	1	20	80		525	0.1		54.5	8	480	48	5	5	0	305	220	525	305.0	220.1	525.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	1	20	80		625	0.1		52.9	8	480	46	5	5	0	405	220	625	405.0	220.1	625.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	front end loader	1	40	79		725	0.1		50.4	8	480	46	5	5	0	505	220	725	505.0	220.1	725.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	front end loader	1	40	79		825	0.1		49.2	8	480	45	5	5	0	605	220	825	605.0	220.1	825.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		925	0.1		47.1	8	480	43	5	5	0	705	220	925	705.0	220.1	925.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1025	0.1		46.1	8	480	42	5	5	0	805	220	1025	805.0	220.1	1025.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		1125	0.1		47.1	8	480	43	5	5	0	905	220	1125	905.0	220.1	1125.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		1225	0.1		46.3	8	480	42	5	5	0	1005	220	1225	1005.0	220.1	1225.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
										Total for Grading Phase:		**67.3**																
Collector Substation Grading	dozer	1	40	82		1100	0.1		49.4	8	480	45	5	5	0	5	1095	1100	7.1	1095.0	1100.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	dozer	1	40	82		1100	0.1		49.4	8	480	45	5	5	0	5	1095	1100	7.1	1095.0	1100.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	1	20	80		1200	0.1		46.5	8	480	39	5	5	0	105	1095	1200	105.1	1095.0	1200.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	1	20	80		1300	0.1		45.7	8	480	39	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1300	0.1		43.7	8	480	40	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1300	0.1		43.7	8	480	40	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
										Total for Collector Substation Grading Phase:		**50.2**																
Battery Container Installation	gradall	1	40	83		225	0.1		65.8	8	480	62	5	5	0	5	220	225	7.1	220.1	225.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	gradall	1	40	83		225	0.1		65.8	8	480	62	5	5	0	5	220	225	7.1	220.1	225.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compressor (air)	1	40	78		325	0.1		57.2	8	480	53	5	5	0	105	220	325	105.1	220.1	325.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compressor (air)	1	40	78		425	0.1		54.6	8	480	51	5	5	0	205	220	425	205.1	220.1	425.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	excavator	1	40	81		525	0.1		55.5	8	480	52	5	5	0	305	220	525	305.0	220.1	525.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	excavator	1	40	81		625	0.1		53.9	8	480	50	5	5	0	405	220	625	405.0	220.1	625.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	generator	1	50	72		725	0.1		43.4	8	480	40	5	5	0	505	220	725	505.0	220.1	725.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	generator	1	50	72		825	0.1		42.2	8	480	39	5	5	0	605	220	825	605.0	220.1	825.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	crane	1	16	81		925	0.1		50.1	8	480	42	5	5	0	705	220	925	705.0	220.1	925.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	crane	1	16	81		1025	0.1		49.1	8	480	41	5	5	0	805	220	1025	805.0	220.1	1025.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1125	0.1		45.1	8	480	41	5	5	0	905	220	1125	905.0	220.1	1125.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1225	0.1		44.3	8	480	40	5	5	0	1005	220	1225	1005.0	220.1	1225.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		1225	0.1		46.3	8	480	42	5	5	0	1005	220	1225	1005.0	220.1	1225.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		1225	0.1		46.3	8	480	42	5	5	0	1005	220	1225	1005.0	220.1	1225.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
										Total for Battery Container Installation Phase:		**65.7**																
Collector Substation Instillation	auger drill rig	1	20	84		1100	0.1		51.4	8	480	44	5	5	0	5	1095	1100	7.1	1095.0	1100.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	auger drill rig	1	20	84		1100	0.1		51.4	8	480	44	5	5	0	5	1095	1100	7.1	1095.0	1100.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	man lift	1	20	75		1200	0.1		41.5	8	480	34	5	5	0	105	1095	1200	105.1	1095.0	1200.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	man lift	1	20	75		1300	0.1		40.7	8	480	34	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compressor (air)	1	40	78		1300	0.1		43.7	8	480	40	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compressor (air)	1	40	78		1300	0.1		43.7	8	480	40	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	gradall	1	40	83		1300	0.1		48.7	8	480	45	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	gradall	1	40	83		1300	0.1		48.7	8	480	45	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	crane	1	16	81		1300	0.1		46.7	8	480	39	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	crane	1	16	81		1300	0.1		46.7	8	480	39	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	excavator	1	40	81		1300	0.1		46.7	8	480	43	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	excavator	1	40	81		1300	0.1		46.7	8	480	43	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	generator	1	50	72		1300	0.1		37.7	8	480	35	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	generator	1	50	72		1300	0.1		37.7	8	480	35	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	1	20	80		1300	0.1		45.7	8	480	39	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	1	20	80		1300	0.1		45.7	8	480	39	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	slurry trenching machine	1	50	80		1300	0.1		45.7	8	480	43	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	slurry trenching machine	1	50	80		1300	0.1		45.7	8	480	43	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1300	0.1		43.7	8	480	40	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1300	0.1		43.7	8	480	40	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	dozer	1	40	82		1300	0.1		47.7	8	480	44	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	dozer	1	40	82		1300	0.1		47.7	8	480	44	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		1300	0.1		45.7	8	480	42	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skidsteer*	1	40	80		1300	0.1		45.7	8	480	42	5	5	0	205	1095	1300	205.1	1095.0	1300.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
										Total for Collector Substation Instillation Phase:		**55.3**																
Decommisioning	concrete saw	1	20	90		225	0.1		72.8	8	480	66	5	5	0	5	220	225	7.1	220.1	225.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	concrete saw	1	20	90		225	0.1		72.8	8	480	66	5	5	0	5	220	225	7.1	220.1	225.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	crane	1	16	81		325	0.1		60.2	8	480	52	5	5	0	105	220	325	105.1	220.1	325.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	crane	1	16	81		425	0.1		57.6	8	480	50	5	5	0	205	220	425	205.1	220.1	425.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	dozer	1	40	82		525	0.1		56.5	8	480	53	5	5	0	305	220	525	305.0	220.1	525.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	dozer	1	40	82		625	0.1		54.9	8	480	51	5	5	0	405	220	625	405.0	220.1	625.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		725	0.1		49.4	8	480	45	5	5	0	505	220	725	505.0	220.1	725.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		825	0.1		48.2	8	480	44	5	5	0	605	220	825	605.0	220.1	825.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
										Total for Decommisioning Phase:		**69.2**																



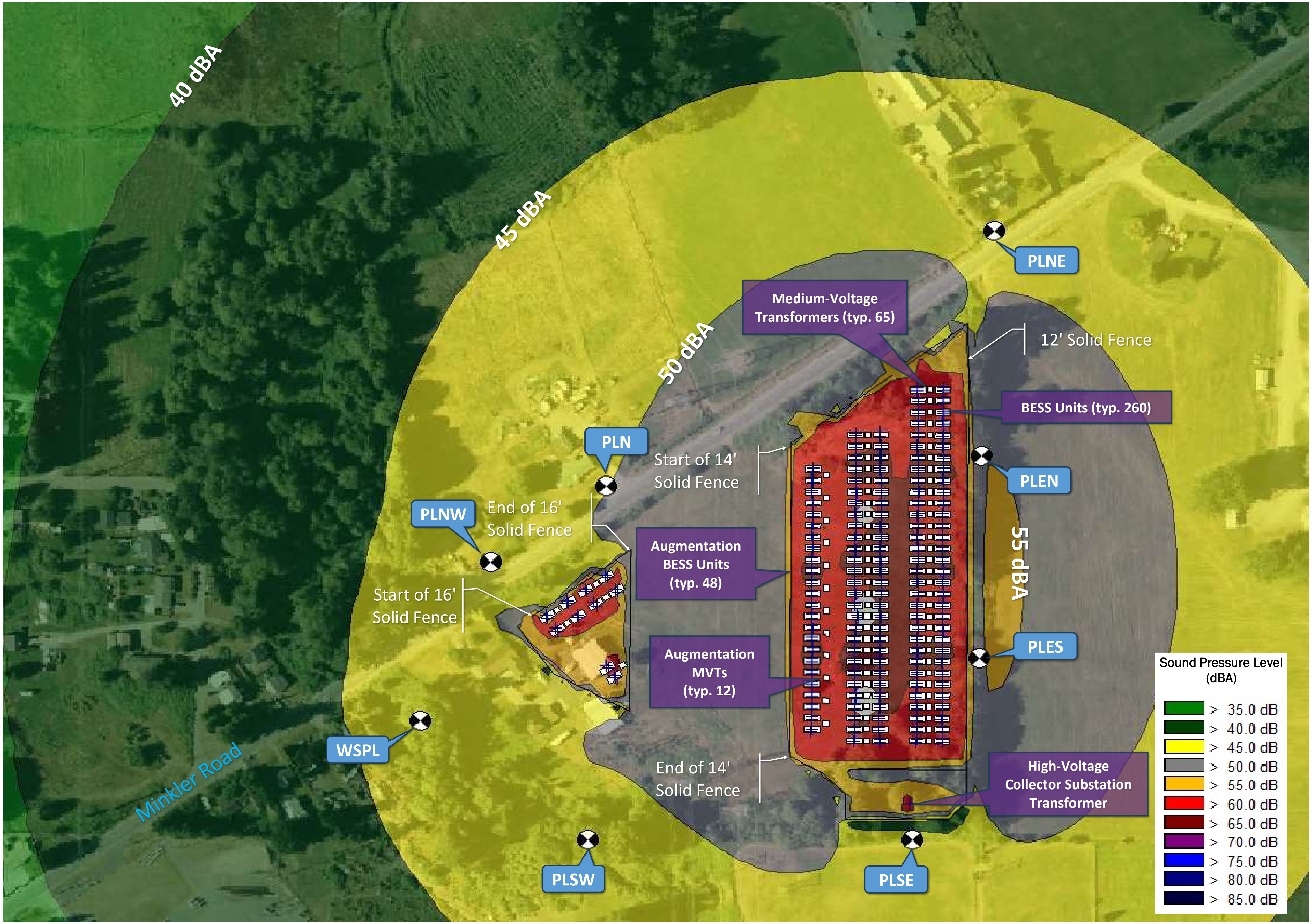
SOURCE: Dudek 2024

DUDEK

FIGURE 1A

Predicted Overall Operation Noise Levels

Goldeneye Sedro Battery Energy Storage System Project



SOURCE: Dudek 2024

DUDEK

0 89 178 Feet

FIGURE 2A

Predicted Overall Operation Noise Levels

Goldeneye Sedro Battery Energy Storage System Project