BURNS McDONNELL

ILLINOIS GENERATION LLC

SOUND STUDY

HERITAGE PRAIRIE WIND PROJECT – LIVINGSTON COUNTY

PROJECT NO. 132138

REVISION 0
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CONTENTS

TABLES

List of Abbreviations

Abbreviation	Term/Phrase/Name
ANSI	American National Standards Institute
CadnaA	Computer Aided Noise Abatement
dB	decibel
dBA	A-weighted decibels
Developer	Illinois Generation LLC
EPA	Environmental Protection Agency
GE	General Electric
Hz	hertz
IEC	International Electrotechnical Commission
IPCB	Illinois Pollution Control Board
ISO	International Organization for Standardization
kv	kilovolt
L_{eq}	equivalent sound level
LNTE	low-noise trailing edge
MVA	mega-volt-ampere
NRO	noise reduced operating
Project	proposed Heritage Prairie Wind Farm in Livingston County, IL
Sound Study	Acoustical Analysis of Project
STE	serrated trailing edges
the Act	Noise Control Act of 1972
WTG	Wind Turbine Generator

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1.0 Introduction

Burns & McDonnell was retained by Developer to conduct an acoustical analysis ("Sound Study") for the proposed Heritage Prairie Wind Farm in Livingston County, IL ("Project"). The objective of the Sound Study was to estimate the expected sound impacts generated by Project wind turbines on neighboring landowner properties and residences. There were several objectives in this study, including:

- Identification of applicable county, city, state, or federal noise ordinances and other applicable sound guidelines
- Estimation of the operational sound levels from the proposed Project using the three-dimensional sound modeling program Computer Aided Noise Abatement ("CadnaA")
- Determination of whether the Project can operate in compliance with the identified applicable regulatory standards

1.1 Project Overview

The Project will be located in Livingston County, Illinois, southeast of the city of Dwight, Illinois. The Project is designed to include a quantity of 71 wind turbine generators ("WTG") in Livingston County to be constructed as part of the Livingston L12R Layout. The Sound Study analyzed both the General Electric ("GE") 3.8-154 wind turbine generators with low-noise trailing edge ("LNTE") blades and the Vestas V163-4.5 wind turbine generators. The GE 3.8-154 WTG has an optional noise reduced operating (NRO) mode and the Vestas V163-4.5 WTG has optional serrated trailing edges (STE) to improve acoustical performance. The low-noise options can be included on specific turbines, if required to meet the identified limits. The wind turbine properties for the GE 3.8-154 and Vestas V163-4.5 are shown in Table 1-1.

Table 1-1: Wind Turbine Generator Properties

Turbine Generator Manufacturer	Turbine Generator Model	Rotor Diameter (meters)	Hub Height (meters)	Turbine Abbreviation in Report
GE	3.8-154	154	98	GE 3.8-154
Vestas	163-4.5	163	113	V163-4.5

The following sections describe the Sound Study completed for the Project.

2.0 Background Information

2.1 Acoustical Terminology

The term “sound level” is often used to describe two different sound characteristics: sound power and sound pressure. Every source that produces sound has a sound power level. The sound power level is the acoustical energy emitted by a sound source and is an absolute number that is not affected by the surrounding environment. The acoustical energy produced by a source propagates through media as pressure fluctuations. These pressure fluctuations, also called sound pressure, are what human ears hear and microphones measure.

Sound is physically characterized by amplitude and frequency. The amplitude of sound is measured in decibels (“dB”) as the logarithmic ratio of a sound pressure to a reference sound pressure (20 microPascals). The reference sound pressure corresponds to the typical threshold of human hearing. To the average listener, a 3-dB change in a continuous broadband sound is generally considered “just barely perceptible”; a 5-dB change is generally considered “clearly noticeable”; and a 10-dB change is generally considered a doubling (or halving, if the sound is decreasing) of the apparent loudness.

Sound waves can occur at many different frequencies, which correspond to the sound’s wavelength. Frequency is measured in hertz (“Hz”), which is the number of wave cycles per second that occur. The typical human ear can hear frequencies ranging from approximately 20 to 20,000 Hz. Normally, the human ear is most sensitive to sounds in the middle frequencies (1,000 to 8,000 Hz) and is less sensitive to sounds in the lower and higher frequencies. As such, the A-weighting scale was developed to simulate the frequency response of the human ear to sounds at typical environmental levels. The A-weighting scale emphasizes sounds in the middle frequencies and de-emphasizes sounds in the low and high frequencies. Any sound level to which the A-weighting scale has been applied is expressed in A-weighted decibels, or dBA. For reference, the A-weighted sound pressure level and subjective loudness associated with some common sound sources are listed in Table 2-1.

Sound in the environment is constantly fluctuating, as when a car drives by, a dog barks, or a plane passes overhead. Therefore, sound metrics have been developed to quantify fluctuating environmental sound levels. These metrics include the exceedance sound level. The exceedance sound level is the sound level exceeded during “x” percent of the sampling period and is also referred to as a statistical sound level. The equivalent-continuous sound level (L_{eq}) is the arithmetic average of the varying sound over a given time period and is the most common metric used to describe sound.

Table 2-1: Typical Sound Pressure Levels Associated with Common Sound Sources

Sound Pressure Level (dBA)	Subjective Evaluation	Environment
140	Deafening	Jet aircraft at 75 feet
130	Threshold of pain	Jet aircraft during takeoff at a distance of 300 feet
120	Threshold of feeling	Elevated train
110	Very loud	Jet flyover at 1,000 feet
100		Motorcycle at 25 feet
90	Moderately loud	Propeller plane flyover at 1,000 feet
80		Diesel truck (40 mph) at 50 feet
70	Loud	B-757 cabin during flight
60	Moderate	Air-conditioner condenser at 15 feet
50	Quiet	Private Office
40		Farm field with light breeze, birdcalls
30	Very quiet	Quiet residential neighborhood
20		Rustling leaves
10	Just audible	--
0	Threshold of hearing	--

Source: Adapted from *Architectural Acoustics*, M. David Egan, 1988, and *Architectural Graphic Standards*, Ramsey and Sleeper, 1994.

2.2 Wind Turbine Sound Characteristics

The sound commonly associated with a wind turbine is described as a rhythmic “whoosh” caused by aerodynamic processes. This sound is created as air flow interacts with the surface of rotor blades. As air flows over the rotor blade, turbulent eddies form in the surface boundary layer and wake of the blade. These eddies are where most of the “whooshing” sound is formed. Additional sound is generated from vortex shedding produced by the tip of the rotor blade. Air flowing past the rotor tip creates alternating low-pressure vortices on the downstream side of the tip causing sound generation to occur. Older wind turbines, built with rotors which operate downwind of the tower (downwind turbines), often have higher aerodynamic impulse sound levels. This is caused by the interaction between the aerodynamic lift created on the rotor blades and the turbulent wake vortices produced by the tower. Modern wind turbine rotors are mostly built to operate upwind of the tower (upwind turbines). Upwind turbines are not impacted by wake vortices generated by the tower and, therefore, overall sound levels can be as much as 10 dBA less for similarly sized turbines. The rhythmic fluctuations of the overall sound level are less perceivable farther from the turbine. Additionally, multiple turbines operating at the same time will create the whooshing sound at different times. These non-synchronized sounds will blend together to create a more constant sound to an observer at most distances from the turbines. Another phenomenon that reduces perceivable noise from turbines is the wind itself. Higher wind speed produces noise that tends to mask (or drown out) the sounds created by wind turbines.

Advancement in wind turbine technology has reduced pure tonal emissions of modern wind turbines. Manufacturers have reduced distinct tonal sounds by reshaping turbine blades and adjusting the angle at which air contacts the blade. Pitching technology allows the angle of the blade to adjust when the maximum rotational speed is achieved, which allows the turbine to maintain a constant rotational velocity. Therefore, sound emission levels remain constant as the velocity remains the same.

Wind turbines can create noise in other ways as well. Wind turbines have a nacelle where the mechanical portions of the turbine are housed. The current generation of wind turbines use multiple techniques to reduce the noise from this portion of the turbine: vibration isolating mounts, special gears, and acoustic insulation. In general, all moving parts and the housing of the current generation wind turbines have been designed to minimize the noise they generate.

3.0 Regulations

Federal, State of Illinois, and County regulations were reviewed to determine the applicable overall sound level limits for the Project.

3.1 Federal Regulations

The Noise Control Act of 1972 ("the Act") mandated a national policy:

> *"…to promote an environment for all Americans free from noise that jeopardizes their health or welfare, to establish a means for effective coordination of Federal research activities in noise control, to authorize the establishment of Federal noise emission standards for products distributed in commerce, and to provide information to the public respecting the noise emission and noise reduction characteristics of such products." (U.S.C. 4901)*

As required by the Act, the Environmental Protection Agency ("EPA") established criteria for protecting the public health and wellbeing. However, these criteria do not constitute enforceable Federal regulations or standards. The EPA has since delegated regulatory authority to local entities. Therefore, no Federal noise regulations apply to this Project.

3.2 State Regulations

The State of Illinois has regulations that appear in the Illinois Administrative Code *Title 35, Subtitle H, Chapter I, Part 901 Sound Emissions Standards and Limitations for Property-Line Noise-Sources*. These regulations are enacted through the Illinois Pollution Control Board ("IPCB") and serve as the governing limits for the Project. The complete regulation is readily available on the internet.[1]

The IPCB standards regulate sound according to different categories of land use where the sound is produced (emanating) and where the sound is received. Specifically, IPCB lists the sound level limits for different land classifications according to use. Class A land is considered a residence or equally sensitive area. Class B land is of mixed use. Class C land is considered an industrial area. Agricultural land is also classified as Class C. There are no limits set for sound emanating from a Class C land onto a receiving Class C land. It is standard practice to treat the residence on agricultural land as Class A, and the surrounding land as Class C.

The unweighted permissible sound levels for daytime and nighttime for sound emanating from a Class C land to a receiving Class A land are presented in Table 3-1. Sound levels received at a residence are considered in compliance if they are below the regulatory thresholds listed in Table 3-1.

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[1] https://pcb.illinois.gov/SLR/IPCBandIEPAEnvironmentalRegulationsTitle35

Table 3-1: IPCB Permissible Sound Levels, Class C to Class A

Octave Band Center Frequency (Hz)	Daytime Sound Level (dB)	Nighttime Sound Level (dB)
31.5	75	69
63	74	67
125	69	62
250	64	54
500	58	47
1,000	52	41
2,000	47	36
4,000	43	32
8,000	40	32

Source: IAC Title 35, Subtitle H, Chapter I, Part 901, Section 901.102 Sound Emitted Class A Land

Additionally, the regulation states that no source shall project prominent discrete tones onto any other type of land. Prominent discrete tones are defined in *Title 35, Subtitle H, Chapter I, Part 951* (Definitions).

3.3 Livingston County Regulations

The Project is located in Livingston County, Illinois. The Livingston County Code has an ordinance pertaining to the wind turbine projects, Section 56-620.[2] The applicable noise standard for Livingston County is defined as follows:

> *Noise levels from each WECS or WECS project shall comply at all times with applicable Illinois Pollution Control Board (IPCB) regulations and requirements of this section. The applicant, through the use of a qualified professional, as part of the siting approval application process, shall appropriately demonstrate compliance with the noise requirements of this siting section and provide contour maps and at intervals of not greater than five feet. Sound pressure levels shall be measured using the measurement procedures set forth in the IPCB regulations, except that sound pressure levels for purposes of establishing a violation of this section may be measured at any point on the property not more than 150 feet from any portion of the edge of the primary structure. No portion of the property shall exceed the noise levels set by the IPCB. To the extent any property has multiple uses or classifications, all the land utilized for a particular use must not exceed the IPCB noise regulations for the classification of use. The owner of the receiving land may waive compliance with local measuring points requirements pertaining to the IPCB regulations for the owner's property.*

3.4 Regulation Summary

The applicable noise regulation for Livingston County requires the Project to comply with IPCB limits defined within Title 35, Subtitle H, Chapter I, Part 901 Sound Emissions Standards and Limitations for Property-Line Noise-Sources. Project compliance was analyzed at modeled receivers placed 150 feet radially from the edge of the primary structure in

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[2] https://library.municode.com/il/livingston_county/codes/code_of_ordinances?nodeId=PTIILAUSPLUT_CH56ZO_ARTVIIIWIEN_S56-620NOLE

accordance with Livingston County regulations. The Project was designed to meet the IPCB nighttime limits at non-participating residences.

4.0 Sound Modeling

Industry-accepted sound modeling software, CadnaA (Version 2023, published by DataKustik, Ltd., Munich, Germany) was used to estimate expected sound pressure levels from the Project. The model inputs and assumptions are described in this section.

4.1 Model Inputs and Settings

The CadnaA program is a scaled, three-dimensional program that takes into account air absorption, terrain, ground absorption, and ground reflection for each piece of noise-emitting equipment and predicts downwind sound pressure levels. The model calculates sound propagation based on International Organization for Standardization ("ISO") 9613-2:1996, General Method of Calculation. ISO 9613, and therefore CadnaA, assesses the sound pressure levels based on the octave-band center-frequency range from 31.5 to 8,000 Hz. Predicted compliance with the regulations for all turbines operating implies predicted compliance for any combination of the turbines operating.

4.1.1 Project Layout

The Project includes 71 wind turbines, all of which were evaluated in this study to estimate future Project sound level impacts. The turbine locations for the Project layout are listed in Table A-1 of Appendix A for the GE 3.8-154 scenario and Table A-2 of Appendix A for the Vestas V163-4.5 scenario. A map showing the turbine locations and configuration of the Project site for both scenarios is included in Appendix B.

4.1.2 Terrain and Vegetation

Terrain and attenuation from ground absorption can have a significant impact on sound transmission. U.S. Geological Survey Digital Elevation Model contours were imported into the model to account for topographic variations around the Project. The contours were overlaid onto high-resolution, digital ortho imagery obtained from the U.S. Department of Agriculture to visually confirm proper contour positioning. The terrain around the proposed Project is mostly rural with few minor changes in elevation.

The land is primarily used for agricultural purposes. As such, ground attenuation is expected to be fairly high, due to the "soft ground" of the surrounding areas. Ground absorption coefficients range from 0.0 for purely reflective surfaces, such as water bodies, to 1.0 for absorptive surfaces, such as snow-covered ground. The average ground absorption in the model was assumed to be semi-reflective, with a ground absorption coefficient of 0.5. Vegetation in the Project area is mostly low-lying with some areas of dense trees. Areas of dense trees near residential receptors did not have foliage added in the model as a conservative assumption.

4.1.3 Sound Propagation and Directivity

CadnaA calculates downwind sound propagation using ISO 9613 standards, which use omni-directional downwind sound propagation and worst-case directivity factors. In other words, the model assumes that each turbine propagates its maximum sound level in all directions at all times. This will likely over-predict upwind sound levels.

4.1.4 Atmospheric Conditions

Atmospheric conditions were based on program defaults. Layers in the atmosphere often form where temperature increases with height (temperature inversions). Sound waves can reflect off of the temperature inversion layer and return to the surface of the earth. This process can increase sound levels at the surface, especially if the height of the inversion begins near the surface of the earth. Temperature inversions tend to occur mainly at night when winds are light or calm, usually when wind turbines are not operating. ISO 9613-2, and therefore CadnaA, calculates the downwind sound in a manner which is favorable for propagation (worst-case scenario) by assuming a well-developed, moderate ground-based temperature inversion that can occur at night. Therefore, predicted sound levels tend to be higher than would likely occur.

The atmosphere does not flow smoothly and tends to have swirls and eddies, also known as turbulence. Turbulence is generally formed by two processes: thermal turbulence and mechanical turbulence. Thermal turbulence is caused by the interaction of heated air rapidly rising from the heated earth's surface with cooler air descending from the atmosphere. Mechanical turbulence is caused as moving air interacts with objects such as trees, buildings, and wind turbines. Turbulent eddies generated by wind turbines and other objects can cause sound waves to scatter, which in turn, provides sound attenuation between the wind turbine and the receiver. The acoustical model assumes laminar air flow, which minimizes sound attenuation that would occur in a realistic nonhomogeneous atmosphere. This assumption also causes the predicted sound levels to be higher than would likely occur.

4.1.5 Wind Turbine Sound Emission Data

Acoustical modeling was completed for the Project, using wind turbine heights and acoustical emissions for each respective turbine type. The expected worst-case sound power levels were provided by the turbine vendor. The sound emissions data supplied was developed using the International Electrotechnical Commission ("IEC") 61400-11 acoustic measurement standards. IEC 61400-11 is used to determine the max sound power level of the overall turbine assembly. Sound power levels were provided by the manufacturer in confidential documents at various wind speeds for a height of 10 meters (32.8 feet) above grade. The loudest turbine sound levels for each octave band, regardless of corresponding wind speed or power output, were used in the model to predict worst-case impacts by octave band.

The apparent sound power levels provided by the vendors are mean values of representative batches of turbines evaluated. Uncertainty levels are not included in the specified noise levels from the turbine vendor. The uncertainty levels associated with measurements and mean values are described in IEC 61400-11 and IEC/TS 61400-14. The unit-to-unit product variation according to IEC/TS 61400-14 is denoted by σ_P. The typical value of $\sigma_P = 0.8$ dB has been added to the vendor-provided turbine sound levels to conservatively estimate turbine noise emissions. The expected worst-case sound power levels for each respective turbine type, inclusive of σ_P, are displayed in Table 4-1.

Table 4-1: Maximum Wind Turbine Sound Power Levels

Equipment[a,b]	dBA at Octave Band Frequency (Hz)[ab]									Total Sound Level (dBA)
	31.5	63	125	250	500	1000	2000	4000	8000	
V163-4.5 (No STE)	76.5	89.8	98.7	102.9	103.3	101.9	97.5	89.8	78.8	108.5
V163-4.5 (w/ STE)	77.0	89.0	97.0	100.7	101.0	99.7	96.3	90.0	80.9	106.5
GE 3.8-154 (LNTE)	83.6	93.0	97.0	99.0	101.2	104.2	103.2	95.8	79.5	109.0
GE 3.8-154 (NROA)[c]	82.6	92.1	96.1	98.3	100.4	103.2	102.1	94.8	78.6	108.0
GE 3.8-154 (NROB)[c]	81.9	91.5	95.7	98.3	100.1	101.8	100.3	93.3	78.1	107.0
GE 3.8-154 (NROD)[c]	80.0	89.3	93.5	96.8	97.9	99.9	98.8	91.7	75.9	105.2
GE 3.8-154 (NROG)[c]	78.3	87.4	91.7	94.3	95.8	97.7	96.7	89.7	73.7	103.0

(a) Loudest turbine octave-band sound level for any operational wind speed modeled
(b) All provided turbine octave-band sound levels were applied a σ_P of +0.8 dB to their specified sound level
(c) Turbines include GE's Low Noise Trailing Edge (LNTE) technology.

A point source located at the specific hub height of each proposed turbine location was used to model sound emissions from each of the wind turbines. This approach is appropriate for simulating wind turbine noise emissions due to the large distances between the turbines and the receivers as compared to the dimensions of the wind turbines. The sound levels shown in the table above were applied, as appropriate, to each point source.

For both analyzed wind turbine models, various turbines required additional mitigation in the form of NRO or STE to meet the applicable IPCB sound level limits. Table 4-2 provides a summary of the number of turbines requiring mitigation and Appendix A provides a schedule of which turbines require additional mitigation. The specific turbines modeled at each WTG location for the GE 3.8-154 and Vestas V163-4.5 scenarios are listed in Table A-1 and Table A-2 of Appendix A, respectively. The tables note which turbines required NRO or STE mitigation to meet applicable regulations.

Table 4-2: Modeled Wind Turbine Performance

Modeled Turbine Scenario	Total Number of Turbines	Number of Standard Turbines	Number of Turbines Requiring Additional Mitigation
GE 3.8-154	71	39	32
Vestas V163-4.5	71	67	4

(a) Additional mitigation includes various NRO modes for GE 3.8-154 and STE for V163-4.5.

The following assumptions were made to maintain the inherent conservativeness of the model and to estimate the worst-case modeled sound levels:

- Attenuation was not included for sound propagation through wooded areas, existing barriers, or shielding from existing structures.
- All wind turbines were assumed to be operating at the loudest octave-band sound levels at all times to represent worst-case noise impacts from the wind farm as a whole in every direction.

- The unit-to-unit product variation uncertainty level has been added to each vendor-provided turbine sound level to estimate worst-case turbine impacts.

4.1.6 Substation Sound Emission Data

To estimate the sound levels emitted by the substation, individual sound sources were modeled. Two 345 kilovolt ("kV"), 220 mega-volt-ampere ("MVA") transformers were modeled at the substation. According to National Electrical Manufacturers Association (NEMA) TR-1, the 220-MVA transformers would have a standard sound pressure level of 78 dBA, measured in accordance with the IEEE Standard C57.12.90. The IEEE Standard requires sound level measurements be averaged around the unit, measured at distances of 6 feet from fan coolest surfaces and 1 foot from the tank of the transformer. The input frequency spectrum was developed for the model based on historic data from projects of similar size and scope.

4.2 Acoustical Modeling Results

Sound pressure levels were predicted for the identified residential receivers in the CadnaA noise modeling program using the manufacturer-specified sound power levels at each frequency and the assumptions listed above. Noise modeling results have been demonstrated in previous studies to conservatively approximate real-life measured noise from a source when extraneous noises are not present.

As previously mentioned, decibels are a logarithmic ratio of a sound wave's pressure to a reference sound pressure. Therefore, individual sound levels must be logarithmically added to determine a cumulative impact (i.e., logarithmically adding 50 dBA and 50 dBA results in 53 dBA). Logarithmically adding each of the individual turbine's impacts at each receiver provides an overall Project impact at each receiver. These values represent only the noise emitted by the Project, and do not include any extraneous noises (traffic, etc.) that could be present during physical noise measurements. Extraneous sounds (grain dryers, traffic, etc.) are not included in these predictions and may make the overall sound level higher than the limits in some circumstances, but the turbines alone should not cause that to happen.

Noise modeling was completed for the Project with the provided turbine locations. Receivers were provided by Developer, and placed at locations 150 feet in all directions from residential structures in accordance with Livingston County guidance. The Project layout figures are provided in Appendix B, including the identified neighboring residences. Each residence was modeled as a receiver at a height of 1.52 meters (5.0 feet) above ground level. Modeling showed the layout for each turbine modeled (GE and Vestas) had potential exceedances of the IPCB limits at some receiver locations. Low-noise mitigation options, NRO or STE, were applied to specific turbines in order to meet the IPCB limits in all octave bands at all receiver locations. After modeling the Project layout based on the assumptions in Appendix A, all noise-sensitive receivers were modeled to comply with the strictest applicable IPCB regulations.

A detailed octave band analysis was performed for the Project. The 1,000-Hz frequency proved to be the dominant frequency for compliance. In other words, if the Project passes the limits for the 1000-Hz frequency, all other frequencies pass their respective limits as well. Appendix B shows the sound level contours overlaid onto a map to demonstrate how sound is expected to propagate. As shown in the figure, the predicted limiting sound level contour (41 dB for the 1000-Hz octave band, nighttime limit) does not extend to any non-participating landowner residence. The Project layout has been designed to meet the applicable IPCB sound level regulations. A full set of tabulated sound level results for each modeled receiver can be found in Appendix C.

5.0 Conclusion

Burns & McDonnell conducted a Sound Study for the Heritage Prairie Wind Farm. The Sound Study included identification of applicable sound regulations and predictive modeling to estimate Project-related sound levels in the surrounding community. A comparison to the IPCB noise limits for Class C to Class A land was performed at the neighboring residences.

Sound pressure levels were predicted for the Project wind turbines using manufacturer-specified sound power levels for the proposed Project. Various conservative assumptions were applied to estimate sound pressure levels at the neighboring residences. For those residential landowners that are not participating in the Project, the IPCB noise limits are predicted to be met at 150 feet from their residences for all octave bands during both daytime and nighttime hours for the layout and turbines detailed in this report.

APPENDIX A – TURBINE LOCATIONS AND MITIGATION

Table A-1
GE 3.8-154

WIND TURBINE COORDINATES

Turbine Name	Easting [m]	Northing [m]	Turbine Model	Recommended Mitigation	Hub Height [m]
L2	381,361	4,544,257	GE 3.8-154	LNTE	98
L4	381,816	4,546,429	GE 3.8-154	LNTE	98
L5	382,070	4,544,279	GE 3.8-154	LNTE	98
L6	381,925	4,544,708	GE 3.8-154	**LNTE+NROB**	98
L9	382,125	4,547,319	GE 3.8-154	LNTE	98
L11	383,064	4,547,991	GE 3.8-154	LNTE	98
L13	383,452	4,548,337	GE 3.8-154	**LNTE+NROA**	98
L16	384,192	4,549,257	GE 3.8-154	**LNTE+NROA**	98
L17	384,387	4,547,996	GE 3.8-154	**LNTE+NROB**	98
L18	384,583	4,544,166	GE 3.8-154	LNTE	98
L20	385,102	4,550,785	GE 3.8-154	**LNTE+NROA**	98
L21	385,072	4,546,681	GE 3.8-154	LNTE	98
L24	385,327	4,551,792	GE 3.8-154	**LNTE+NROD**	98
L26	385,405	4,544,326	GE 3.8-154	LNTE	98
L27	385,810	4,550,622	GE 3.8-154	**LNTE+NROD**	98
L28	385,885	4,548,362	GE 3.8-154	LNTE	98
L29	385,854	4,545,096	GE 3.8-154	LNTE	98
L30	385,290	4,547,880	GE 3.8-154	**LNTE+NROD**	98
L31	386,221	4,551,806	GE 3.8-154	LNTE	98
L32	386,240	4,551,283	GE 3.8-154	**LNTE+NROA**	98
L33	386,290	4,549,180	GE 3.8-154	LNTE	98
L34	386,391	4,543,056	GE 3.8-154	LNTE	98
L35	386,550	4,548,830	GE 3.8-154	**LNTE+NROD**	98
L37	386,552	4,550,786	GE 3.8-154	**LNTE+NROG**	98
L38	386,432	4,545,114	GE 3.8-154	LNTE	98
L39	386,682	4,547,215	GE 3.8-154	**LNTE+NROD**	98
L40	386,667	4,547,669	GE 3.8-154	**LNTE+NROD**	98
L42	387,356	4,546,536	GE 3.8-154	**LNTE+NROG**	98
L43	387,102	4,549,888	GE 3.8-154	**LNTE+NROD**	98
L46	387,185	4,545,990	GE 3.8-154	LNTE	98
L47	387,424	4,551,680	GE 3.8-154	**LNTE+NROA**	98
L50	387,524	4,545,598	GE 3.8-154	LNTE	98
L56	387,899	4,549,880	GE 3.8-154	LNTE	98
L58	388,251	4,549,619	GE 3.8-154	LNTE	98
L60	388,312	4,546,469	GE 3.8-154	LNTE	98
L61	388,914	4,542,372	GE 3.8-154	LNTE	98
L62	389,166	4,544,738	GE 3.8-154	LNTE	98
L63	388,989	4,548,936	GE 3.8-154	**LNTE+NROG**	98
L64	389,091	4,542,919	GE 3.8-154	LNTE	98
L65	389,017	4,549,550	GE 3.8-154	LNTE	98
L66	389,551	4,543,507	GE 3.8-154	LNTE	98
L68	389,206	4,547,554	GE 3.8-154	LNTE	98
L69	389,369	4,544,246	GE 3.8-154	**LNTE+NROB**	98
L70	389,754	4,549,131	GE 3.8-154	**LNTE+NROA**	98
L71	389,688	4,544,833	GE 3.8-154	**LNTE+NROA**	98
L73	390,552	4,543,981	GE 3.8-154	**LNTE+NROG**	98
L74	389,915	4,547,268	GE 3.8-154	**LNTE+NROB**	98
L76	390,763	4,545,123	GE 3.8-154	LNTE	98
L77	390,635	4,546,473	GE 3.8-154	**LNTE+NROB**	98
L79	390,915	4,544,352	GE 3.8-154	**LNTE+NROG**	98
L80	391,122	4,543,520	GE 3.8-154	LNTE	98
L81	391,172	4,547,434	GE 3.8-154	**LNTE+NROA**	98
L82	391,520	4,548,102	GE 3.8-154	LNTE	98
L86	391,574	4,544,333	GE 3.8-154	LNTE	98
L87	391,593	4,543,155	GE 3.8-154	LNTE	98
L89	392,285	4,544,337	GE 3.8-154	LNTE	98

Table A-1
GE 3.8-154

WIND TURBINE COORDINATES

Turbine Name	Easting [m]	Northing [m]	Turbine Model	Recommended Mitigation	Hub Height [m]
L91	392,388	4,543,159	GE 3.8-154	LNTE	98
L95	393,610	4,547,569	GE 3.8-154	**LNTE+NROD**	98
L97	394,019	4,547,240	GE 3.8-154	LNTE	98
L98	394,441	4,544,333	GE 3.8-154	LNTE	98
L99	385,356	4,548,965	GE 3.8-154	LNTE	98
L104	387,524	4,547,973	GE 3.8-154	**LNTE+NROB**	98
L105	387,748	4,547,426	GE 3.8-154	**LNTE+NROB**	98
L106	388,011	4,548,251	GE 3.8-154	**LNTE+NROA**	98
L107	386,769	4,541,529	GE 3.8-154	LNTE	98
L109	382,048	4,543,186	GE 3.8-154	**LNTE+NROB**	98
L110	384,699	4,547,195	GE 3.8-154	LNTE	98
L111	385,285	4,548,362	GE 3.8-154	LNTE	98
L113	389,700	4,549,714	GE 3.8-154	**LNTE+NROD**	98
L120	381,667	4,545,850	GE 3.8-154	LNTE	98
L121	381,200	4,545,029	GE 3.8-154	**LNTE+NROB**	98

Notes:

[1] All coordinates presented in UTM NAD83 Zone 16N (meters)

[2] Kankakee turbine coordinates were referenced from the provided layout "HP_K3_L05R00BA01_GE_154_with_PMETS_20240109"

[3] Livingston turbine coordinates were referenced from the provided layout "HP_Livingston_L12R00BA06_71WTG_with_PMTs"

[4] LNTE - Low-Noise Trailing Edge

WIND TURBINE COORDINATES

Turbine Name	Easting [m]	Northing [m]	Turbine Model	Recommended Mitigation	Hub Height [m]
L2	381,361	4,544,257	V163-4.5	--	113
L4	381,816	4,546,429	V163-4.5	--	113
L5	382,070	4,544,279	V163-4.5	--	113
L6	381,925	4,544,708	V163-4.5	--	113
L9	382,125	4,547,319	V163-4.5	--	113
L11	383,064	4,547,991	V163-4.5	--	113
L13	383,452	4,548,337	V163-4.5	--	113
L16	384,192	4,549,257	V163-4.5	--	113
L17	384,387	4,547,996	V163-4.5	--	113
L18	384,583	4,544,166	V163-4.5	--	113
L20	385,102	4,550,785	V163-4.5	--	113
L21	385,072	4,546,681	V163-4.5	--	113
L24	385,327	4,551,792	V163-4.5	--	113
L26	385,405	4,544,326	V163-4.5	--	113
L27	385,810	4,550,622	V163-4.5	--	113
L28	385,885	4,548,362	V163-4.5	--	113
L29	385,854	4,545,096	V163-4.5	--	113
L30	385,290	4,547,880	V163-4.5	--	113
L31	386,221	4,551,806	V163-4.5	--	113
L32	386,240	4,551,283	V163-4.5	--	113
L33	386,290	4,549,180	V163-4.5	--	113
L34	386,391	4,543,056	V163-4.5	--	113
L35	386,550	4,548,830	V163-4.5	--	113
L37	386,552	4,550,786	V163-4.5	--	113
L38	386,432	4,545,114	V163-4.5	--	113
L39	386,682	4,547,215	V163-4.5	**STE**	113
L40	386,667	4,547,669	V163-4.5	--	113
L42	387,356	4,546,536	V163-4.5	**STE**	113
L43	387,102	4,549,888	V163-4.5	--	113
L46	387,185	4,545,990	V163-4.5	--	113
L47	387,424	4,551,680	V163-4.5	--	113
L50	387,524	4,545,598	V163-4.5	--	113
L56	387,899	4,549,880	V163-4.5	--	113
L58	388,251	4,549,619	V163-4.5	--	113
L60	388,312	4,546,469	V163-4.5	--	113
L61	388,914	4,542,372	V163-4.5	--	113
L62	389,166	4,544,738	V163-4.5	--	113
L63	388,989	4,548,936	V163-4.5	**STE**	113
L64	389,091	4,542,919	V163-4.5	--	113
L65	389,017	4,549,550	V163-4.5	--	113
L66	389,551	4,543,507	V163-4.5	--	113
L68	389,206	4,547,554	V163-4.5	--	113
L69	389,369	4,544,246	V163-4.5	--	113
L70	389,754	4,549,131	V163-4.5	--	113
L71	389,688	4,544,833	V163-4.5	--	113
L73	390,552	4,543,981	V163-4.5	**STE**	113
L74	389,915	4,547,268	V163-4.5	--	113
L76	390,763	4,545,123	V163-4.5	--	113
L77	390,635	4,546,473	V163-4.5	--	113
L79	390,915	4,544,352	V163-4.5	--	113
L80	391,122	4,543,520	V163-4.5	--	113
L81	391,172	4,547,434	V163-4.5	--	113
L82	391,520	4,548,102	V163-4.5	--	113
L86	391,574	4,544,333	V163-4.5	--	113
L87	391,593	4,543,155	V163-4.5	--	113
L89	392,285	4,544,337	V163-4.5	--	113

Table A-2
Vestas V163-4.5

WIND TURBINE COORDINATES

Turbine Name	Easting [m]	Northing [m]	Turbine Model	Recommended Mitigation	Hub Height [m]
L91	392,388	4,543,159	V163-4.5	--	113
L95	393,610	4,547,569	V163-4.5	--	113
L97	394,019	4,547,240	V163-4.5	--	113
L98	394,441	4,544,333	V163-4.5	--	113
L99	385,356	4,548,965	V163-4.5	--	113
L104	387,524	4,547,973	V163-4.5	--	113
L105	387,748	4,547,426	V163-4.5	--	113
L106	388,011	4,548,251	V163-4.5	--	113
L107	386,769	4,541,529	V163-4.5	--	113
L109	382,048	4,543,186	V163-4.5	--	113
L110	384,699	4,547,195	V163-4.5	--	113
L111	385,285	4,548,362	V163-4.5	--	113
L113	389,700	4,549,714	V163-4.5	--	113
L120	381,667	4,545,850	V163-4.5	--	113
L121	381,200	4,545,029	V163-4.5	--	113

Notes:

[1] All coordinates presented in UTM NAD83 Zone 16N (meters)

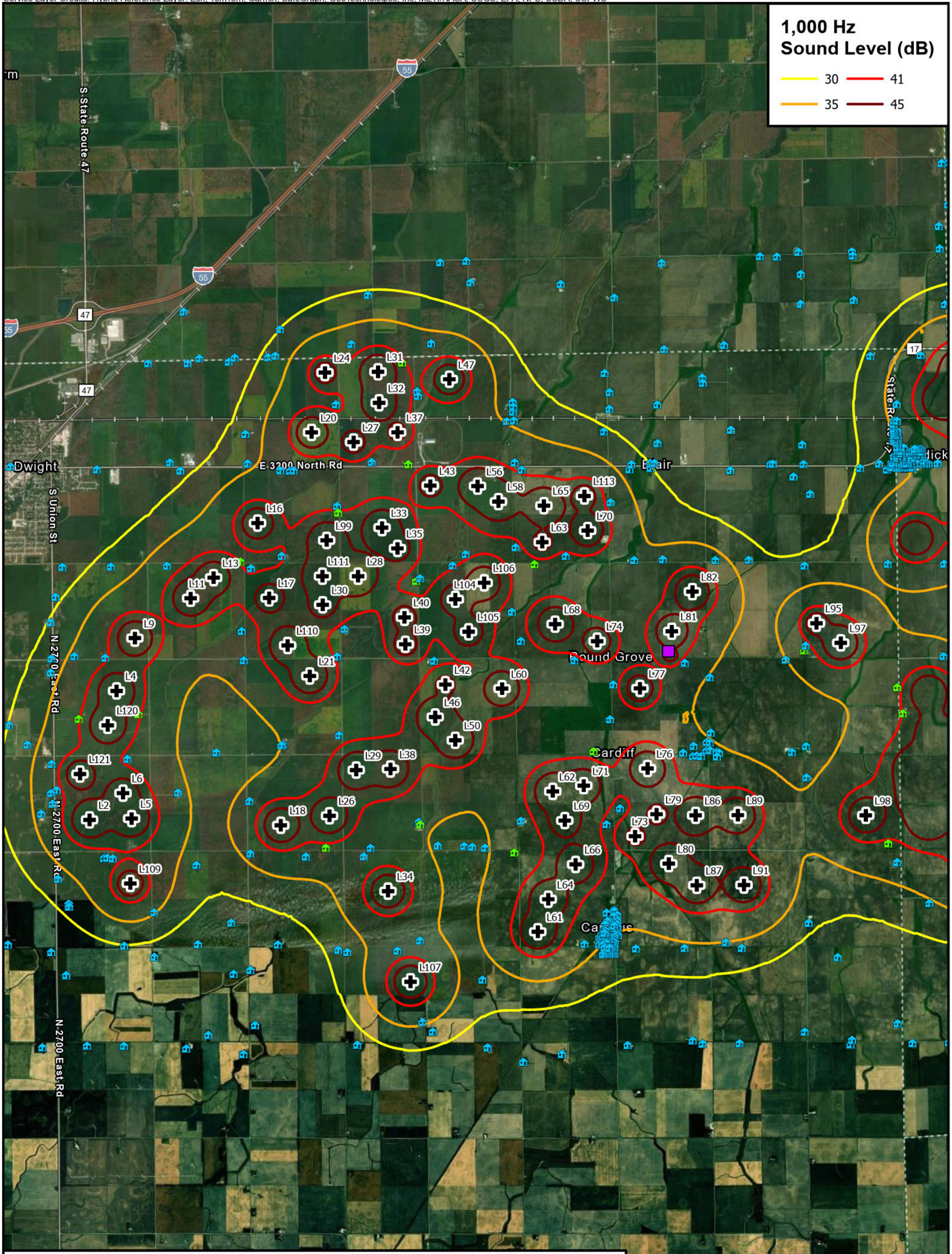
[2] Kankakee turbine coordinates were referenced from the provided layout "HP_K3_L06R00BA02_V163-4.5_66WTG_with_PMETS_20240109"

[3] Livingston turbine coordinates were referenced from the provided layout "HP_Livingston_L12R00BA06_71WTG_with_PMTs"

[4] STE - Serrated-Trailing Edges

APPENDIX B – PROJECT LAYOUT AND SOUND CONTOURS

Path: Z:\Clients\ENS\ILGeneration\132138_HPWindSUP\Studies\Noise\GIS\HP Wind GIS 2024-01-17 FINAL.aprx rjgurreri 2/19/2024
Service Layer Credits: Hybrid Reference Layer: Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS



Modeled Livingston Layout: HP_Livingston_L12R00BA06_71WTG_with_PMTs
Modeled Livingston Turbine: GE 3.8-154 at 98 meter hub height
Modeled Kankakee Layout: HP_K3_L05R00BA01_GE_154_with_PMETS_20240109
Modeled Kankakee Turbine: GE 3.8-154 at 98 meter hub height
Modeled Transformers: 78 dBA per IEEE

✚ Turbine
⌂ Non-Participating Receptor
⌂ Participating Receptor
■ Substation

IPCB - 1000 Hz dB Contour
— 41

NORTH

5,000 2,500 0 5,000
Scale in Feet

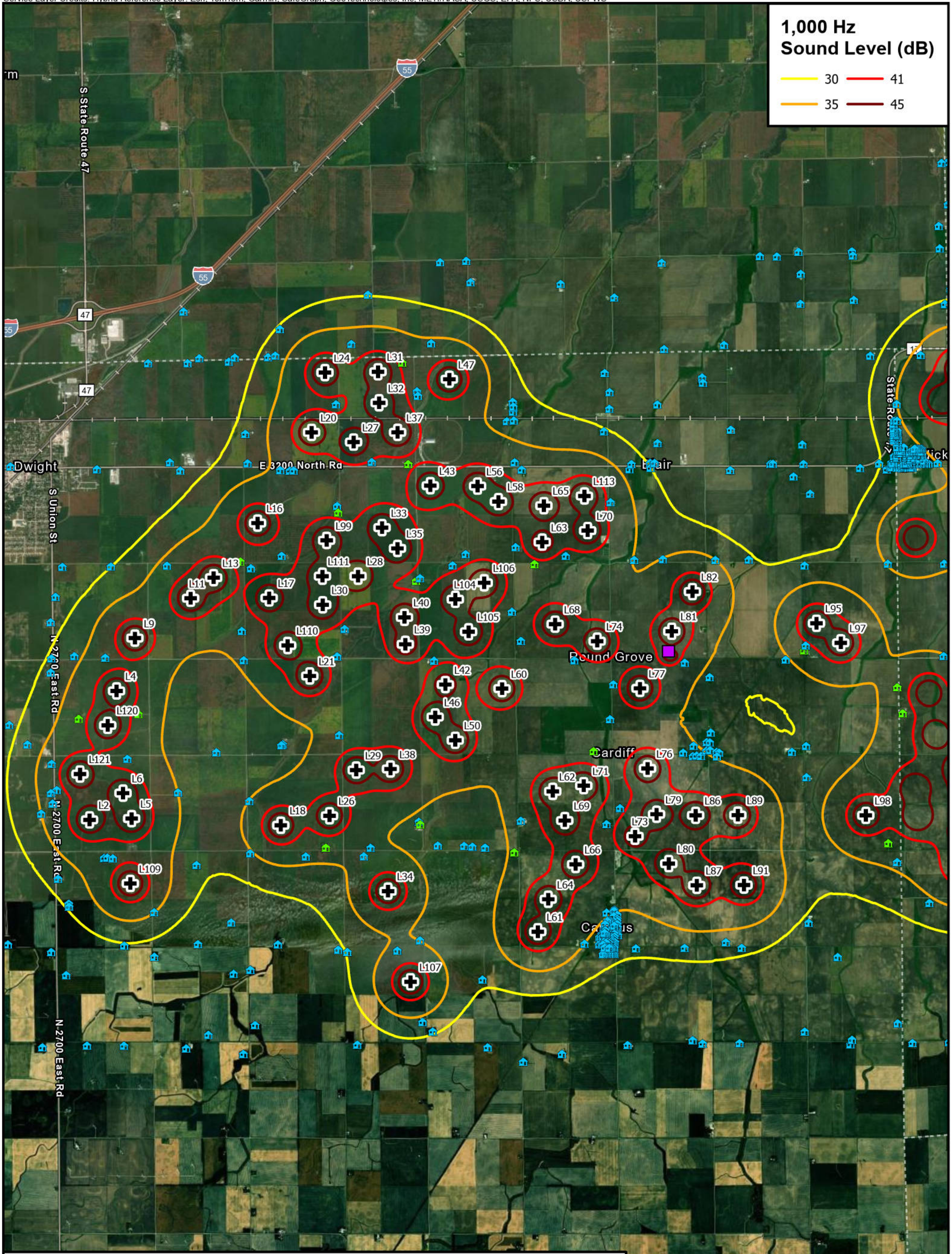
BURNS McDONNELL

Figure B-1
Heritage Prairie Wind
Livingston L12R Layout
GE 3.8-154 Turbine
L(GE) / K(GE)

Source:

Issued: 2/19/2024

Path: Z:\Clients\ENS\ILGeneration\132138_HPWindSUP\Studies\Noise\GIS\HP Wind GIS 2024-01-17 FINAL.aprx rjgurreri 2/19/2024
Service Layer Credits: Hybrid Reference Layer: Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS



Modeled Livingston Layout: HP_Livingston_L12R00BA06_71WTG_with_PMTs
Modeled Livingston Turbine: Vestas V163-4.5 at 113 meter hub height
Modeled Kankakee Layout: HP_K3_L06R00BA02_V163-4.5_66WTG_with_PMETS_20240109
Modeled Kankakee Turbine: Vestas V163-4.5 at 113 meter hub height
Modeled Transformers: 78 dBA per IEEE

✚ Turbine
⌂ Non-Participating Receptor
⌂ Participating Receptor
🟪 Substation

IPCB - 1000 Hz dB Contour
— 41

NORTH

5,000 2,500 0 5,000
Scale in Feet

BURNS McDONNELL

Figure B-2
Heritage Prairie Wind
Livingston L12R Layout
Vestas 163-4.5 Turbine
L(V) / K(V)

Source:

Issued: 2/19/2024

APPENDIX C – TABULATED SOUND LEVEL RESULTS

NOISE MODELING RESULTS - GE 3.8-154

Noise Modeling Results:
GE 3.8-154

IPCB Individual Octave Band Frequency Sound Pressure Level Limits (Nighttime)								
31.5 (Hz) dB	63 (Hz) dB	125 (Hz) dB	250 (Hz) dB	500 (Hz) dB	1000 (Hz) dB	2000 (Hz) dB	4000 (Hz) dB	8000 (Hz) dB
69	67	62	54	47	41	36	32	32

Participating Exceedance

Non-Participating Exceedance

Receiver ID	Status	UTM Coordinates (Zone 16)		Overall (dBA)	Frequency Spectra Level								
		Easting (m)	Northing (m)		31.5 (Hz) dB	63 (Hz) dB	125 (Hz) dB	250 (Hz) dB	500 (Hz) dB	1000 (Hz) dB	2000 (Hz) dB	4000 (Hz) dB	8000 (Hz) dB
REC-0001		1,247,750	14,913,138	38	60	56	45	38	35	33	23	-	-
REC-0002		1,248,508	14,909,314	41	62	58	47	40	37	37	29	1	-
REC-0003		1,249,033	14,919,892	36	58	54	43	36	32	31	19	-	-
REC-0004		1,249,031	14,917,113	38	60	56	45	38	34	34	24	-	-
REC-0005		1,249,073	14,917,890	38	59	56	45	37	34	33	22	-	-
REC-0006		1,249,086	14,912,071	43	63	59	50	42	39	39	32	12	-
REC-0007		1,249,302	14,921,298	35	57	53	43	35	31	29	17	-	-
REC-0008		1,249,141	14,909,871	43	63	59	49	42	39	39	32	9	-
REC-0009		1,249,065	14,901,660	31	54	50	39	32	28	25	10	-	-
REC-0010		1,249,369	14,910,620	44	64	60	51	43	40	40	34	14	-
REC-0011		1,249,678	14,922,955	33	57	53	42	34	30	28	14	-	-
REC-0012		1,249,443	14,905,707	38	59	55	45	38	34	33	23	-	-
REC-0013		1,249,892	14,900,389	30	53	50	39	31	26	23	8	-	-
REC-0014		1,250,035	14,904,336	37	58	54	44	37	33	32	21	-	-
REC-0015		1,250,049	14,904,174	36	58	54	44	37	33	31	21	-	-
REC-0016		1,250,345	14,918,016	40	61	58	47	40	36	36	28	-	-
REC-0017	Signed	1,250,583	14,914,552	45	65	61	51	44	41	41	35	16	-
REC-0018		1,251,043	14,896,493	21	45	41	30	23	18	13	-	-	-
REC-0019		1,252,050	14,917,933	45	65	61	51	43	40	41	35	14	-
REC-0020		1,251,984	14,906,862	44	64	60	50	43	40	40	34	11	-
REC-0021		1,252,359	14,922,974	37	59	55	44	37	33	32	21	-	-
REC-0022		1,252,166	14,906,880	44	64	60	50	43	40	40	34	11	-
REC-0023		1,252,468	14,906,845	45	64	61	51	44	41	41	34	13	-
REC-0024		1,253,102	14,902,017	35	57	53	42	35	32	30	20	-	-
REC-0025		1,253,275	14,912,341	45	65	61	51	44	41	41	34	12	-
REC-0026		1,253,086	14,896,484	22	45	41	31	23	18	14	-	-	-
REC-0028	Signed	1,253,884	14,914,818	46	66	62	52	44	41	**42**	36	16	-
REC-0029		1,254,421	14,934,209	25	49	45	34	26	21	17	-	-	-
REC-0030		1,254,765	14,901,402	33	56	52	41	34	30	28	16	-	-
REC-0031		1,255,464	14,923,021	43	63	59	49	42	39	39	32	8	-
REC-0032		1,255,621	14,928,727	34	57	53	42	34	30	28	13	-	-
REC-0033		1,256,200	14,928,279	35	58	54	43	36	31	29	15	-	-
REC-0034		1,256,377	14,937,064	27	51	47	36	28	23	19	-	-	-
REC-0035		1,256,073	14,910,484	41	62	59	48	41	37	37	28	-	-
REC-0036		1,256,605	14,934,210	30	54	50	38	31	26	22	5	-	-
REC-0037		1,256,526	14,896,335	21	45	41	30	22	17	13	-	-	-
REC-0038		1,257,249	14,934,483	30	54	50	39	31	26	23	6	-	-
REC-0039		1,257,094	14,906,473	38	60	56	46	38	34	33	22	-	-
REC-0040		1,257,175	14,902,101	33	57	53	42	34	30	27	13	-	-
REC-0042		1,257,752	14,897,085	24	48	44	33	25	20	15	-	-	-
REC-0043		1,258,195	14,912,702	38	61	57	46	39	35	33	19	-	-
REC-0044		1,258,880	14,934,291	33	56	52	41	34	29	27	13	-	-
REC-0045		1,259,212	14,934,520	33	56	52	41	34	29	27	14	-	-
REC-0046		1,259,012	14,903,293	34	57	53	42	35	30	28	13	-	-
REC-0047		1,259,145	14,900,459	31	55	51	40	32	27	24	5	-	-
REC-0048	Signed	1,259,523	14,923,248	46	66	62	52	44	41	41	35	14	-
REC-0049		1,259,602	14,919,409	44	65	61	50	43	40	39	32	5	-
REC-0050		1,259,794	14,930,301	38	60	56	45	38	34	33	22	-	-
REC-0051		1,259,709	14,917,792	43	64	60	49	42	39	38	30	3	-
REC-0052		1,259,917	14,928,678	39	61	57	47	39	35	34	24	-	-
REC-0053		1,260,105	14,922,877	45	66	62	52	45	41	41	34	12	-
REC-0054		1,259,691	14,896,027	24	48	44	33	25	20	16	-	-	-
REC-0055		1,260,020	14,910,013	42	63	59	49	41	38	38	31	8	-
REC-0056		1,260,067	14,907,119	41	62	58	48	40	37	37	30	6	-
REC-0057		1,260,076	14,900,674	31	55	51	40	32	27	24	6	-	-
REC-0058		1,260,334	14,897,628	28	52	48	37	28	23	20	0	-	-
REC-0059		1,261,054	14,934,546	37	58	55	44	37	33	31	21	-	-
REC-0060		1,261,449	14,934,629	37	59	55	44	38	33	32	23	-	-
REC-0061		1,261,706	14,936,091	36	58	54	43	36	32	30	20	-	-
REC-0062		1,261,724	14,928,293	42	63	59	48	41	38	37	28	0	-
REC-0063		1,261,803	14,923,563	46	66	62	52	45	41	41	34	9	-
REC-0064		1,261,596	14,902,082	34	57	53	42	34	30	27	12	-	-
REC-0065		1,261,861	14,913,145	40	63	59	48	40	37	35	25	-	-
REC-0066		1,262,259	14,928,268	42	63	60	49	42	38	38	29	3	-
REC-0067		1,262,473	14,928,276	42	64	60	49	42	38	38	30	5	-
REC-0068		1,263,139	14,906,946	43	63	59	49	42	39	39	32	8	-
REC-0069	Signed	1,264,245	14,907,432	44	64	60	50	43	40	40	34	13	-
REC-0070		1,264,809	14,931,941	45	65	61	51	44	41	41	35	12	-
REC-0071		1,264,869	14,926,318	45	66	62	51	44	41	41	34	11	-
REC-0072	Signed	1,264,926	14,925,952	46	66	62	52	45	42	**42**	36	15	-
REC-0073		1,264,875	14,918,006	45	66	62	52	44	41	41	34	12	-
REC-0074		1,264,985	14,913,654	44	65	61	50	43	40	39	32	8	-
REC-0075		1,264,931	14,901,789	37	59	55	44	36	33	32	21	-	-
REC-0076		1,265,282	14,919,520	45	66	62	52	45	41	41	33	9	-
REC-0078		1,265,653	14,935,275	43	63	59	49	42	39	39	32	10	-
REC-0079		1,265,435	14,901,665	37	59	55	44	37	33	33	23	-	-
REC-0080		1,266,574	14,937,996	36	58	54	43	36	32	31	20	-	-
REC-0081		1,265,986	14,896,544	33	55	51	40	32	29	28	17	-	-
REC-0082		1,266,346	14,906,953	43	63	59	49	42	38	38	31	6	-
REC-0083		1,266,786	14,928,749	45	65	61	51	44	41	40	33	14	-
REC-0084		1,266,720	14,907,426	42	63	59	49	42	38	38	31	4	-
REC-0085	Signed	1,268,467	14,934,240	46	65	62	52	44	42	**42**	**37**	19	-
REC-0086		1,268,198	14,901,744	43	63	59	49	41	38	39	33	12	-
REC-0087	Signed	1,268,804	14,928,632	44	65	61	51	44	40	40	33	12	-
REC-0088		1,269,282	14,932,656	45	65	61	51	44	41	41	35	13	-
REC-0089		1,269,334	14,932,407	45	65	61	51	44	41	41	35	12	-
REC-0090	Signed	1,269,236	14,922,173	45	66	62	52	45	41	41	33	9	-

NOISE MODELING RESULTS - GE 3.8-154

Noise Modeling Results:
GE 3.8-154

IPCB Individual Octave Band Frequency Sound Pressure Level Limits (Nighttime)								
31.5 (Hz) dB	**63 (Hz) dB**	**125 (Hz) dB**	**250 (Hz) dB**	**500 (Hz) dB**	**1000 (Hz) dB**	**2000 (Hz) dB**	**4000 (Hz) dB**	**8000 (Hz) dB**
69	67	62	54	47	41	36	32	32

Participating Exceedance

Non-Participating Exceedance

Receiver ID	Status	UTM Coordinates (Zone 16)		Overall (dBA)	Frequency Spectra Level								
		Easting (m)	Northing (m)		31.5 (Hz) dB	63 (Hz) dB	125 (Hz) dB	250 (Hz) dB	500 (Hz) dB	1000 (Hz) dB	2000 (Hz) dB	4000 (Hz) dB	8000 (Hz) dB
REC-0091		1,269,452	14,922,330	45	66	62	52	45	41	41	33	9	-
REC-0092		1,269,387	14,908,865	41	63	59	48	41	37	36	26	-	-
REC-0093	Signed	1,269,463	14,908,721	41	63	59	48	40	37	36	26	-	-
REC-0094		1,269,451	14,902,309	42	62	58	48	40	37	37	30	6	-
REC-0095		1,270,067	14,935,314	42	62	58	48	41	37	37	30	6	-
REC-0096		1,269,595	14,897,794	40	60	56	46	38	35	36	29	6	-
REC-0097		1,270,564	14,939,794	31	55	51	40	32	28	25	10	-	-
REC-0098		1,270,229	14,917,772	46	66	62	52	45	42	41	34	14	-
REC-0099		1,270,155	14,897,270	37	58	54	43	36	33	33	25	-	-
REC-0100		1,271,253	14,923,037	46	66	62	52	45	42	41	34	12	-
REC-0101		1,272,009	14,939,870	30	53	49	39	31	26	24	9	-	-
REC-0102		1,271,970	14,923,660	45	66	62	52	45	41	41	33	11	-
REC-0103		1,272,241	14,938,685	32	55	51	40	33	28	26	13	-	-
REC-0104		1,271,890	14,907,528	39	62	58	47	39	36	34	21	-	-
REC-0105		1,272,347	14,907,487	39	62	58	47	40	36	34	21	-	-
REC-0106		1,272,906	14,900,142	38	59	55	45	37	34	33	23	-	-
REC-0107		1,273,049	14,907,438	40	62	58	48	40	36	35	23	-	-
REC-0108		1,273,190	14,896,395	32	55	51	40	33	29	27	13	-	-
REC-0109		1,274,253	14,931,006	40	62	58	47	40	36	35	25	-	-
REC-0110		1,274,577	14,932,074	38	61	57	46	39	35	33	22	-	-
REC-0111		1,274,593	14,931,524	39	61	57	46	39	35	34	23	-	-
REC-0112		1,274,610	14,931,810	39	61	57	46	39	35	34	22	-	-
REC-0113		1,274,643	14,931,044	39	61	57	47	39	36	34	24	-	-
REC-0114		1,274,534	14,920,474	45	66	62	51	44	41	40	33	9	-
REC-0115	Signed	1,274,662	14,907,176	42	64	60	49	42	38	38	29	-	-
REC-0116		1,275,074	14,928,326	45	65	61	51	44	41	41	34	10	-
REC-0117		1,275,030	14,918,864	45	65	62	51	44	41	40	33	9	-
REC-0118		1,275,025	14,908,920	44	65	61	50	43	40	39	31	6	-
REC-0119		1,275,161	14,895,599	30	54	50	39	31	26	24	8	-	-
REC-0120	Signed	1,275,781	14,923,103	45	65	61	51	44	41	40	33	15	-
REC-0121		1,277,227	14,938,593	27	51	47	36	28	23	19	1	-	-
REC-0122		1,277,507	14,923,559	45	65	61	51	44	41	41	34	14	-
REC-0123		1,277,303	14,896,028	30	54	50	39	31	27	24	8	-	-
REC-0124		1,277,990	14,917,789	45	65	61	51	44	41	40	34	14	-
REC-0125		1,278,547	14,902,115	42	63	59	48	41	37	37	29	2	-
REC-0126	Signed	1,279,046	14,912,765	44	65	61	51	43	40	40	33	10	-
REC-0127		1,279,660	14,933,668	31	55	51	40	32	28	25	7	-	-
REC-0128		1,279,620	14,930,443	36	59	55	44	37	33	31	20	-	-
REC-0129		1,279,930	14,932,613	33	56	52	41	33	29	26	11	-	-
REC-0130		1,279,921	14,931,691	34	57	53	42	35	30	28	14	-	-
REC-0131		1,279,986	14,926,525	44	64	60	50	43	40	40	34	15	-
REC-0132		1,280,189	14,937,843	22	47	43	31	24	18	14	-	-	-
REC-0133		1,279,765	14,908,732	45	66	62	52	45	41	41	34	11	-
REC-0134		1,279,961	14,914,532	42	64	60	49	42	39	38	29	3	-
REC-0135		1,280,139	14,916,459	45	65	61	51	44	41	40	34	15	-
REC-0136		1,280,509	14,909,617	45	66	62	52	45	41	41	34	11	-
REC-0137		1,281,037	14,928,354	38	60	56	45	38	34	33	24	-	-
REC-0138		1,281,139	14,928,634	38	59	56	45	38	34	32	22	-	-
REC-0139		1,281,294	14,923,337	41	62	58	48	41	37	36	27	-	-
REC-0140		1,280,929	14,896,525	30	54	50	39	31	26	23	5	-	-
REC-0141		1,281,388	14,901,867	38	61	57	46	38	34	33	21	-	-
REC-0142		1,282,176	14,928,703	36	58	54	43	36	32	30	18	-	-
REC-0143		1,282,197	14,928,428	36	58	54	44	36	32	31	19	-	-
REC-0144		1,282,416	14,928,697	35	58	54	43	36	32	30	17	-	-
REC-0145		1,282,571	14,931,926	31	55	51	40	32	27	24	7	-	-
REC-0146		1,282,586	14,929,793	34	57	53	42	34	30	28	14	-	-
REC-0147		1,282,811	14,939,763	-80	-	-	-	-	-	-	-	-	-
REC-0148		1,282,946	14,934,991	26	50	46	35	27	22	18	-	-	-
REC-0149		1,282,879	14,923,373	41	62	58	48	41	37	37	30	4	-
REC-0150		1,284,000	14,912,682	43	64	60	50	42	39	39	32	8	-
REC-0151		1,284,092	14,917,655	45	64	60	51	43	42	40	34	18	-
REC-0152		1,284,079	14,901,894	39	61	57	46	39	35	34	24	-	-
REC-0153		1,284,538	14,912,495	43	64	60	49	42	39	38	30	3	-
REC-0154		1,284,578	14,913,064	42	63	59	49	41	38	37	28	-	-
REC-0155		1,285,050	14,933,421	26	51	47	35	27	22	18	-	-	-
REC-0156		1,284,745	14,912,523	42	64	60	49	42	38	38	29	0	-
REC-0157		1,284,525	14,896,785	30	54	50	39	31	26	23	3	-	-
REC-0158		1,285,092	14,933,123	26	51	47	35	27	22	18	-	-	-
REC-0159		1,284,988	14,912,502	42	63	59	49	42	38	37	29	-	-
REC-0161		1,285,282	14,912,791	41	63	59	48	41	37	36	27	-	-
REC-0162		1,285,306	14,913,269	41	62	59	48	40	37	36	26	-	-
REC-0164		1,285,076	14,896,605	29	53	49	38	30	25	22	3	-	-
REC-0165		1,285,464	14,916,858	40	62	58	47	40	37	35	25	-	-
REC-0166		1,285,473	14,913,254	40	62	59	48	40	37	36	25	-	-
REC-0167		1,285,491	14,912,820	41	63	59	48	41	37	36	27	-	-
REC-0168		1,285,525	14,913,796	40	62	58	47	40	36	35	24	-	-
REC-0169		1,285,781	14,923,334	41	62	58	48	40	37	37	31	8	-
REC-0170		1,285,848	14,912,724	41	63	59	48	41	37	36	26	-	-
REC-0171		1,286,260	14,935,221	17	42	38	26	19	13	8	-	-	-
REC-0172		1,285,984	14,912,686	41	63	59	48	41	37	36	26	-	-
REC-0174		1,286,602	14,928,298	32	55	51	40	33	28	25	8	-	-
REC-0175		1,286,635	14,930,535	30	54	50	39	30	25	22	1	-	-
REC-0176		1,286,361	14,902,205	40	61	57	46	39	36	35	26	-	-
REC-0177		1,287,120	14,896,627	28	51	47	36	28	24	21	2	-	-
REC-0178		1,287,238	14,901,897	38	60	56	45	38	34	34	24	-	-
REC-0179		1,287,624	14,923,349	37	59	55	44	37	33	32	23	-	-
REC-0181		1,288,239	14,940,129	-80	-	-	-	-	-	-	-	-	-
REC-0182		1,288,823	14,928,645	32	56	52	41	32	28	24	5	-	-
REC-0183		1,288,961	14,928,652	32	56	52	41	33	28	24	5	-	-
REC-0184		1,289,181	14,940,111	20	45	41	29	21	16	11	-	-	-
REC-0185		1,289,666	14,917,824	40	61	57	47	40	36	35	27	-	-
REC-0186		1,290,099	14,927,950	33	57	53	41	33	29	26	8	-	-
REC-0187		1,290,377	14,940,370	24	49	44	33	25	19	15	-	-	-
REC-0188		1,290,012	14,912,726	39	62	58	47	39	35	33	20	-	-
REC-0189		1,290,500	14,939,150	26	51	46	35	27	22	18	-	-	-
REC-0190		1,290,490	14,937,494	27	51	47	36	28	23	20	0	-	-
REC-0191		1,290,585	14,929,719	32	56	52	41	33	28	25	7	-	-
REC-0192		1,290,651	14,928,643	32	56	52	41	33	28	26	8	-	-
REC-0193		1,290,711	14,923,031	37	59	55	44	37	33	32	22	-	-

NOISE MODELING RESULTS - GE 3.8-154

Noise Modeling Results:
GE 3.8-154

IPCB Individual Octave Band Frequency Sound Pressure Level Limits (Nighttime)								
31.5 (Hz) dB	63 (Hz) dB	125 (Hz) dB	250 (Hz) dB	500 (Hz) dB	1000 (Hz) dB	2000 (Hz) dB	4000 (Hz) dB	8000 (Hz) dB
69	67	62	54	47	41	36	32	32

Participating Exceedance

Non-Participating Exceedance

Receiver ID	Status	UTM Coordinates (Zone 16)		Overall (dBA)	Frequency Spectra Level								
		Easting (m)	Northing (m)		31.5 (Hz) dB	63 (Hz) dB	125 (Hz) dB	250 (Hz) dB	500 (Hz) dB	1000 (Hz) dB	2000 (Hz) dB	4000 (Hz) dB	8000 (Hz) dB
REC-0194	Signed	1,290,685	14,918,332	44	64	60	50	43	39	39	33	13	-
REC-0195		1,290,775	14,918,607	45	64	60	51	43	40	40	35	17	-
REC-0196		1,290,797	14,913,050	39	62	58	47	39	35	33	20	-	-
REC-0197		1,291,019	14,926,996	33	57	53	42	34	30	27	11	-	-
REC-0198		1,290,817	14,911,324	40	62	58	47	40	36	35	23	-	-
REC-0199		1,290,720	14,897,268	27	51	47	36	27	23	19	0	-	-
REC-0200		1,290,934	14,903,280	37	60	56	45	37	33	32	20	-	-
REC-0201		1,292,544	14,901,388	34	58	53	42	34	30	27	10	-	-
REC-0202		1,293,332	14,940,392	27	51	47	36	28	23	20	2	-	-
REC-0203		1,293,381	14,940,163	28	52	48	36	28	24	21	2	-	-
REC-0204		1,293,434	14,937,709	31	54	50	39	31	27	25	10	-	-
REC-0205		1,293,250	14,896,563	21	46	42	30	22	17	13	-	-	-
REC-0206		1,293,780	14,928,419	36	58	54	44	36	32	31	18	-	-
REC-0207		1,293,337	14,896,814	21	46	42	31	22	17	14	-	-	-
REC-0208		1,294,342	14,934,621	36	58	54	43	36	32	31	20	-	-
REC-0209		1,294,836	14,928,663	37	59	55	44	37	33	32	21	-	-
REC-0210		1,295,315	14,923,126	42	62	58	48	41	37	38	31	9	-
REC-0211	Signed	1,295,340	14,907,679	45	65	61	51	44	41	41	34	11	-
REC-0213	Signed	1,295,836	14,916,298	45	65	61	51	43	40	40	34	13	-
REC-0214		1,295,828	14,906,638	42	64	60	49	42	38	38	30	0	-
REC-0215		1,295,863	14,897,723	28	52	48	37	28	23	19	-	-	-
REC-0219		1,298,131	14,941,798	31	54	50	39	31	27	24	6	-	-
REC-0221		1,298,184	14,940,556	32	55	51	40	32	28	26	10	-	-
REC-0223		1,298,474	14,937,476	38	59	55	44	37	34	33	23	-	-
REC-0773		1,251,588	14,928,346	29	53	49	38	30	25	22	3	-	-
REC-0774		1,274,684	14,928,735	44	65	61	50	43	40	40	33	8	-
REC-0775		1,285,870	14,912,480	41	63	59	48	41	37	37	27	-	-
REC-0776		1,261,793	14,913,091	40	63	59	48	40	36	35	24	-	-
REC-0777		1,246,747	14,914,218	36	58	54	43	36	32	30	18	-	-
REC-0778		1,249,047	14,910,449	43	63	59	49	42	39	39	32	10	-
REC-0779		1,270,436	14,907,551	40	62	58	47	40	36	35	23	-	-
REC-0780		1,246,668	14,902,081	29	53	49	38	30	26	22	5	-	-
REC-0781		1,248,578	14,896,398	20	44	40	29	22	16	12	-	-	-
REC-0782		1,254,754	14,903,867	40	60	57	47	40	36	35	28	7	-
REC-0796		1,298,284	14,945,280	24	49	45	33	25	20	16	-	-	-
REC-0876		1,279,767	14,903,840	42	63	59	48	41	38	37	28	-	-
REC-0878		1,274,737	14,924,043	45	66	62	52	45	41	41	34	12	-
REC-0879		1,280,186	14,904,004	42	63	59	48	41	38	37	28	-	-
REC-0880		1,280,185	14,903,939	42	63	59	48	41	38	37	28	-	-
REC-0881		1,280,361	14,903,727	41	63	59	48	41	37	37	27	-	-
REC-0882		1,280,169	14,903,647	41	63	59	48	41	37	37	27	-	-
REC-0883		1,280,359	14,903,502	41	62	58	48	40	37	36	26	-	-
REC-0884		1,280,356	14,903,396	41	62	58	48	40	37	36	26	-	-
REC-0885		1,280,164	14,903,379	41	62	58	48	40	37	36	26	-	-
REC-0886		1,279,967	14,903,398	41	62	59	48	41	37	36	27	-	-
REC-0887		1,279,904	14,903,384	41	62	59	48	41	37	37	27	-	-
REC-0888		1,279,814	14,903,386	41	63	59	48	41	37	37	27	-	-
REC-0889		1,279,683	14,903,202	41	62	59	48	41	37	37	27	-	-
REC-0890		1,280,354	14,903,213	40	62	58	47	40	37	36	26	-	-
REC-0891		1,280,381	14,903,033	40	62	58	47	40	36	36	25	-	-
REC-0892		1,280,182	14,903,042	40	62	58	47	40	36	36	25	-	-
REC-0893		1,280,136	14,902,863	40	62	58	47	40	36	35	25	-	-
REC-0894		1,280,094	14,903,015	40	62	58	47	40	37	36	26	-	-
REC-0895		1,280,042	14,902,872	40	62	58	47	40	36	36	25	-	-
REC-0896		1,279,974	14,902,869	40	62	58	47	40	36	36	26	-	-
REC-0897		1,279,615	14,902,837	41	62	58	48	40	37	36	27	-	-
REC-0898		1,280,363	14,902,780	40	62	58	47	40	36	35	24	-	-
REC-0899		1,280,362	14,902,694	40	62	58	47	40	36	35	24	-	-
REC-0900		1,280,393	14,902,603	40	62	58	47	39	36	35	24	-	-
REC-0901		1,280,197	14,902,681	40	62	58	47	40	36	35	25	-	-
REC-0902		1,279,897	14,902,662	40	62	58	47	40	36	35	25	-	-
REC-0903		1,279,925	14,902,518	40	62	58	47	40	36	35	25	-	-
REC-0904		1,279,707	14,902,866	41	62	58	48	40	37	36	26	-	-
REC-0905		1,279,490	14,902,656	41	62	58	47	40	37	36	27	-	-
REC-0906		1,279,373	14,902,482	41	62	58	47	40	37	36	27	-	-
REC-0907		1,279,464	14,902,469	40	62	58	47	40	36	36	26	-	-
REC-0908		1,279,566	14,902,512	40	62	58	47	40	36	36	26	-	-
REC-0909		1,279,715	14,902,506	40	62	58	47	40	36	35	26	-	-
REC-0910		1,279,707	14,902,408	40	62	58	47	40	36	35	25	-	-
REC-0911		1,279,746	14,902,350	40	62	58	47	40	36	35	25	-	-
REC-0912		1,279,740	14,902,315	40	62	58	47	40	36	35	25	-	-
REC-0913		1,279,893	14,902,272	40	61	57	47	39	36	35	24	-	-
REC-0914		1,279,918	14,902,335	40	62	58	47	39	36	35	24	-	-
REC-0915		1,279,917	14,902,443	40	62	58	47	40	36	35	25	-	-
REC-0916		1,279,992	14,902,527	40	62	58	47	40	36	35	25	-	-
REC-0917		1,280,078	14,902,523	40	62	58	47	40	36	35	24	-	-
REC-0918		1,280,133	14,902,522	40	62	58	47	40	36	35	24	-	-
REC-0919		1,280,210	14,902,523	40	62	58	47	39	36	35	24	-	-
REC-0920		1,280,194	14,902,383	39	61	57	47	39	36	35	24	-	-
REC-0921		1,280,182	14,902,275	39	61	57	47	39	36	35	24	-	-
REC-0922		1,280,229	14,902,216	39	61	57	47	39	35	34	23	-	-
REC-0923		1,280,194	14,902,098	39	61	57	46	39	35	34	23	-	-
REC-0924		1,280,110	14,902,076	39	61	57	46	39	35	34	23	-	-
REC-0925		1,279,917	14,902,168	39	61	57	47	39	36	35	24	-	-
REC-0926		1,279,915	14,902,063	39	61	57	47	39	35	34	24	-	-
REC-0927		1,279,741	14,902,067	39	61	57	47	39	36	35	24	-	-
REC-0928		1,279,732	14,902,182	40	61	58	47	39	36	35	25	-	-
REC-0929		1,279,360	14,902,083	40	62	58	47	40	36	35	26	-	-
REC-0930		1,279,497	14,902,075	40	62	58	47	39	36	35	25	-	-
REC-0931		1,279,572	14,902,073	40	61	58	47	39	36	35	25	-	-
REC-0932		1,279,627	14,901,707	39	61	57	46	39	35	34	24	-	-
REC-0933		1,279,746	14,901,741	39	61	57	46	39	35	34	24	-	-
REC-0934		1,279,982	14,901,705	39	61	57	46	39	35	34	23	-	-
REC-0935		1,280,062	14,901,701	39	61	57	46	39	35	34	23	-	-
REC-0936		1,280,158	14,901,708	39	61	57	46	39	35	34	22	-	-
REC-0937		1,280,198	14,901,559	38	61	57	46	38	35	33	22	-	-
REC-0938		1,280,104	14,901,566	38	61	57	46	38	35	33	22	-	-
REC-0939		1,279,997	14,901,561	39	61	57	46	38	35	34	22	-	-
REC-0940		1,279,905	14,901,561	39	61	57	46	39	35	34	23	-	-

NOISE MODELING RESULTS - GE 3.8-154

Noise Modeling Results:
GE 3.8-154

IPCB Individual Octave Band Frequency Sound Pressure Level Limits (Nighttime)								
31.5 (Hz) dB	**63 (Hz) dB**	**125 (Hz) dB**	**250 (Hz) dB**	**500 (Hz) dB**	**1000 (Hz) dB**	**2000 (Hz) dB**	**4000 (Hz) dB**	**8000 (Hz) dB**
69	67	62	54	47	41	36	32	32

Participating Exceedance

Non-Participating Exceedance

Receiver ID	Status	UTM Coordinates (Zone 16)		Overall (dBA)	Frequency Spectra Level								
		Easting (m)	Northing (m)		31.5 (Hz) dB	63 (Hz) dB	125 (Hz) dB	250 (Hz) dB	500 (Hz) dB	1000 (Hz) dB	2000 (Hz) dB	4000 (Hz) dB	8000 (Hz) dB
REC-0941		1,279,778	14,901,564	39	61	57	46	39	35	34	23	-	-
REC-0942		1,279,653	14,901,553	39	61	57	46	39	35	34	23	-	-
REC-0943		1,279,562	14,901,552	39	61	57	46	39	35	34	24	-	-
REC-0944		1,280,192	14,901,907	39	61	57	46	39	35	34	23	-	-
REC-0945		1,280,054	14,901,916	39	61	57	46	39	35	34	23	-	-
REC-0946		1,279,991	14,901,913	39	61	57	46	39	35	34	23	-	-
REC-0947		1,279,767	14,901,916	39	61	57	46	39	35	34	24	-	-
REC-0948		1,279,665	14,901,912	39	61	57	47	39	35	35	24	-	-
REC-0952		1,279,726	14,902,688	40	62	58	47	40	36	36	26	-	-
REC-0953		1,279,919	14,901,899	39	61	57	46	39	35	34	23	-	-
REC-0954		1,280,188	14,903,119	40	62	58	47	40	37	36	26	-	-
REC-0955		1,295,257	14,928,339	38	60	56	45	38	34	33	22	-	-
REC-0956		1,295,461	14,928,464	38	60	56	45	38	34	33	23	-	-
REC-0957		1,295,540	14,928,460	38	60	56	45	38	34	34	23	-	-
REC-1016		1,295,518	14,928,722	38	60	56	45	38	34	33	23	-	-
REC-1017		1,295,601	14,928,689	38	60	56	45	38	34	34	23	-	-
REC-1018		1,295,679	14,928,962	38	60	56	45	38	35	34	23	-	-
REC-1019		1,295,656	14,929,065	38	60	56	45	38	35	34	23	-	-
REC-1031		1,295,644	14,929,949	39	60	57	46	39	35	35	25	-	-
REC-1032		1,295,659	14,930,106	39	61	57	46	39	35	35	25	-	-
REC-1034		1,295,658	14,930,223	39	61	57	46	39	35	35	26	-	-
REC-1037		1,295,651	14,930,352	39	61	57	46	39	35	35	26	-	-
REC-1039		1,295,653	14,930,478	40	61	57	46	39	36	35	26	-	-
REC-1040		1,295,642	14,930,604	40	61	57	46	39	36	35	27	-	-
REC-1041		1,295,635	14,930,862	40	61	57	46	39	36	36	27	-	-
REC-1042		1,295,665	14,931,027	40	61	57	47	39	36	36	28	-	-
REC-1178		1,279,655	14,902,727	40	62	58	47	40	37	36	26	-	-
REC-1780		1,246,811	14,928,503	20	45	41	30	21	16	11	-	-	-

NOISE MODELING RESULTS - Vestas V163-4.5

Noise Modeling Results:
Vestas V163-4.5

IPCB Individual Octave Band Frequency Sound Pressure Level Limits (Nighttime)								
31.5 (Hz) dB	63 (Hz) dB	125 (Hz) dB	250 (Hz) dB	500 (Hz) dB	1000 (Hz) dB	2000 (Hz) dB	4000 (Hz) dB	8000 (Hz) dB
69	67	62	54	47	41	36	32	32

Participating Exceedance

Non-Participating Exceedance

Receiver ID	Status	UTM Coordinates (Zone 16)		Overall (dBA)	Frequency Spectra Level								
		Easting (m)	Northing (m)		31.5 (Hz) dB	63 (Hz) dB	125 (Hz) dB	250 (Hz) dB	500 (Hz) dB	1000 (Hz) dB	2000 (Hz) dB	4000 (Hz) dB	8000 (Hz) dB
REC-0001		1,247,750	14,913,138	39	53	53	48	42	37	32	19	-	-
REC-0002		1,248,508	14,909,314	42	55	55	50	44	39	35	24	-	-
REC-0003		1,249,033	14,919,892	36	51	51	45	40	34	28	13	-	-
REC-0004		1,249,031	14,917,113	39	53	53	47	42	37	32	18	-	-
REC-0005		1,249,073	14,917,890	38	53	53	47	41	36	31	17	-	-
REC-0006		1,249,086	14,912,071	44	57	57	52	47	42	38	29	9	-
REC-0007		1,249,302	14,921,298	36	51	51	45	39	33	27	11	-	-
REC-0008		1,249,141	14,909,871	44	57	57	52	46	42	38	28	4	-
REC-0009		1,249,065	14,901,660	33	48	48	42	36	30	24	7	-	-
REC-0010		1,249,369	14,910,620	45	58	58	53	48	43	39	30	11	-
REC-0011		1,249,678	14,922,955	34	50	50	44	38	32	26	8	-	-
REC-0012		1,249,443	14,905,707	39	53	53	47	42	37	32	19	-	-
REC-0013		1,249,892	14,900,389	32	47	47	41	35	29	23	5	-	-
REC-0014		1,250,035	14,904,336	38	52	52	46	41	36	31	18	-	-
REC-0015		1,250,049	14,904,174	38	52	52	46	41	36	31	17	-	-
REC-0016		1,250,345	14,918,016	41	55	54	49	44	39	34	22	-	-
REC-0017	Signed	1,250,583	14,914,552	45	58	58	53	48	43	39	30	9	-
REC-0018		1,251,043	14,896,493	24	40	39	33	27	21	14	-	-	-
REC-0019		1,252,050	14,917,933	45	58	58	53	47	43	39	29	8	-
REC-0020		1,251,984	14,906,862	45	58	58	53	47	43	39	29	6	-
REC-0021		1,252,359	14,922,974	38	52	52	46	41	36	30	16	-	-
REC-0022		1,252,166	14,906,880	45	58	58	53	48	43	39	30	7	-
REC-0023		1,252,468	14,906,845	46	58	58	53	48	43	40	30	9	-
REC-0024		1,253,102	14,902,017	37	51	51	45	40	35	30	17	-	-
REC-0025		1,253,275	14,912,341	46	59	59	54	48	44	40	30	7	-
REC-0026		1,253,086	14,896,484	24	40	40	34	28	21	14	-	-	-
REC-0028	Signed	1,253,884	14,914,818	46	59	59	54	48	44	40	31	10	-
REC-0029		1,254,421	14,934,209	27	44	43	37	31	25	17	-	-	-
REC-0030		1,254,765	14,901,402	35	50	50	44	38	33	27	13	-	-
REC-0031		1,255,464	14,923,021	43	57	56	51	46	41	37	26	2	-
REC-0032		1,255,621	14,928,727	35	51	51	45	39	33	26	8	-	-
REC-0033		1,256,200	14,928,279	37	52	52	46	40	34	28	11	-	-
REC-0034		1,256,377	14,937,064	29	46	45	39	33	26	19	-	-	-
REC-0035		1,256,073	14,910,484	42	56	56	50	45	40	35	23	-	-
REC-0036		1,256,605	14,934,210	32	48	48	42	36	29	22	1	-	-
REC-0037		1,256,526	14,896,335	23	39	39	33	27	20	13	-	-	-
REC-0038		1,257,249	14,934,483	33	48	48	42	36	30	23	3	-	-
REC-0039		1,257,094	14,906,473	39	54	54	48	42	37	32	18	-	-
REC-0040		1,257,175	14,902,101	35	50	50	44	38	32	26	10	-	-
REC-0042		1,257,752	14,897,085	25	42	42	35	29	22	15	-	-	-
REC-0043		1,258,195	14,912,702	39	54	54	48	43	37	31	14	-	-
REC-0044		1,258,880	14,934,291	35	51	50	44	39	33	27	10	-	-
REC-0045		1,259,212	14,934,520	36	51	51	45	39	33	27	11	-	-
REC-0046		1,259,012	14,903,293	35	51	51	44	39	33	26	9	-	-
REC-0047		1,259,145	14,900,459	32	48	48	42	36	30	22	1	-	-
REC-0048	Signed	1,259,523	14,923,248	46	59	59	54	49	44	40	30	9	-
REC-0049		1,259,602	14,919,409	45	58	58	53	48	43	38	27	1	-
REC-0050		1,259,794	14,930,301	40	54	54	48	43	37	32	18	-	-
REC-0051		1,259,709	14,917,792	43	57	57	52	46	41	36	24	-	-
REC-0052		1,259,917	14,928,678	41	55	55	49	44	39	33	20	-	-
REC-0053		1,260,105	14,922,877	46	60	60	54	49	44	40	30	7	-
REC-0054		1,259,691	14,896,027	25	41	41	35	29	22	14	-	-	-
REC-0055		1,260,020	14,910,013	42	56	56	50	45	40	35	25	1	-
REC-0056		1,260,067	14,907,119	41	55	55	49	44	39	35	24	-	-
REC-0057		1,260,076	14,900,674	32	48	48	41	36	29	22	1	-	-
REC-0058		1,260,334	14,897,628	29	45	45	38	32	26	18	-	-	-
REC-0059		1,261,054	14,934,546	39	53	53	47	42	37	32	19	-	-
REC-0060		1,261,449	14,934,629	40	54	54	48	43	38	33	21	-	-
REC-0061		1,261,706	14,936,091	38	53	52	47	41	36	31	18	-	-
REC-0062		1,261,724	14,928,293	43	57	57	51	46	41	36	24	-	-
REC-0063		1,261,803	14,923,563	46	60	60	54	49	44	40	29	4	-
REC-0064		1,261,596	14,902,082	34	50	50	44	38	32	25	7	-	-
REC-0065		1,261,861	14,913,145	41	56	56	50	44	39	33	19	-	-
REC-0066		1,262,259	14,928,268	44	58	58	52	47	41	37	25	-	-
REC-0067		1,262,473	14,928,276	44	58	58	52	47	42	37	25	-	-
REC-0068		1,263,139	14,906,946	43	56	56	51	46	41	37	26	2	-
REC-0069	Signed	1,264,245	14,907,432	44	57	57	52	47	42	38	28	7	-
REC-0070		1,264,809	14,931,941	47	60	60	55	50	45	41	32	9	-
REC-0071		1,264,869	14,926,318	46	60	59	54	49	44	39	28	5	-
REC-0072	Signed	1,264,926	14,925,952	47	60	60	55	49	44	40	30	9	-
REC-0073		1,264,875	14,918,006	46	59	59	54	49	44	39	29	6	-
REC-0074		1,264,985	14,913,654	44	58	58	52	47	42	37	26	2	-
REC-0075		1,264,931	14,901,789	37	51	51	46	40	35	30	16	-	-
REC-0076		1,265,282	14,919,520	47	60	60	55	49	44	40	30	7	-
REC-0078		1,265,653	14,935,275	44	57	57	52	47	42	38	28	5	-
REC-0079		1,265,435	14,901,665	38	52	52	46	41	35	30	17	-	-
REC-0080		1,266,574	14,937,996	38	52	52	46	41	35	30	15	-	-
REC-0081		1,265,986	14,896,544	33	47	47	41	36	31	25	11	-	-
REC-0082		1,266,346	14,906,953	43	56	56	51	45	41	36	25	-	-
REC-0083		1,266,786	14,928,749	47	60	60	55	50	45	41	32	12	-
REC-0084		1,266,720	14,907,426	43	56	56	51	45	40	36	25	-	-
REC-0085	Signed	1,268,467	14,934,240	47	59	59	54	49	44	40	31	13	-
REC-0086		1,268,198	14,901,744	43	56	56	51	45	40	37	27	6	-
REC-0087	Signed	1,268,804	14,928,632	47	60	60	55	50	45	41	31	10	-
REC-0088		1,269,282	14,932,656	46	59	59	54	49	44	40	31	8	-
REC-0089		1,269,334	14,932,407	46	59	59	54	49	44	40	30	7	-
REC-0090	Signed	1,269,236	14,922,173	47	61	61	55	50	45	41	30	7	-

NOISE MODELING RESULTS - Vestas V163-4.5

Noise Modeling Results:
Vestas V163-4.5

IPCB Individual Octave Band Frequency Sound Pressure Level Limits (Nighttime)								
31.5 (Hz) dB	63 (Hz) dB	125 (Hz) dB	250 (Hz) dB	500 (Hz) dB	1000 (Hz) dB	2000 (Hz) dB	4000 (Hz) dB	8000 (Hz) dB
69	67	62	54	47	41	36	32	32

Participating Exceedance

Non-Participating Exceedance

Receiver ID	Status	UTM Coordinates (Zone 16)		Overall (dBA)	Frequency Spectra Level								
		Easting (m)	Northing (m)		31.5 (Hz) dB	63 (Hz) dB	125 (Hz) dB	250 (Hz) dB	500 (Hz) dB	1000 (Hz) dB	2000 (Hz) dB	4000 (Hz) dB	8000 (Hz) dB
REC-0091		1,269,452	14,922,330	47	61	61	55	50	45	41	30	6	-
REC-0092		1,269,387	14,908,865	41	56	56	50	45	39	34	21	-	-
REC-0093	Signed	1,269,463	14,908,721	41	56	56	50	44	39	34	20	-	-
REC-0094		1,269,451	14,902,309	42	55	55	50	44	39	35	25	-	-
REC-0095		1,270,067	14,935,314	43	56	56	51	45	40	36	25	1	-
REC-0096		1,269,595	14,897,794	40	53	53	47	42	37	33	24	-	-
REC-0097		1,270,564	14,939,794	33	49	49	43	37	31	24	6	-	-
REC-0098		1,270,229	14,917,772	47	61	61	55	50	45	41	32	13	-
REC-0099		1,270,155	14,897,270	37	51	51	45	40	35	31	19	-	-
REC-0100		1,271,253	14,923,037	47	60	60	55	50	45	41	30	8	-
REC-0101		1,272,009	14,939,870	32	48	48	42	36	30	23	4	-	-
REC-0102		1,271,970	14,923,660	46	60	60	54	49	44	40	29	6	-
REC-0103		1,272,241	14,938,685	34	50	49	43	38	32	25	8	-	-
REC-0104		1,271,890	14,907,528	40	55	55	49	44	38	32	16	-	-
REC-0105		1,272,347	14,907,487	40	55	55	49	44	38	32	16	-	-
REC-0106		1,272,906	14,900,142	38	52	52	46	41	36	31	17	-	-
REC-0107		1,273,049	14,907,438	41	56	56	50	44	39	33	18	-	-
REC-0108		1,273,190	14,896,395	33	48	48	42	36	31	25	8	-	-
REC-0109		1,274,253	14,931,006	41	56	56	50	45	39	34	20	-	-
REC-0110		1,274,577	14,932,074	40	55	55	49	43	38	32	18	-	-
REC-0111		1,274,593	14,931,524	40	55	55	49	44	38	33	18	-	-
REC-0112		1,274,610	14,931,810	40	55	55	49	43	38	32	18	-	-
REC-0113		1,274,643	14,931,044	41	56	55	49	44	39	33	19	-	-
REC-0114		1,274,534	14,920,474	46	60	60	54	49	44	39	29	3	-
REC-0115	Signed	1,274,662	14,907,176	43	57	57	51	46	41	36	24	-	-
REC-0116		1,275,074	14,928,326	45	59	59	53	48	43	39	29	4	-
REC-0117		1,275,030	14,918,864	45	59	59	54	48	43	39	28	3	-
REC-0118		1,275,025	14,908,920	44	58	58	52	47	42	38	27	1	-
REC-0119		1,275,161	14,895,599	31	46	46	40	35	28	22	2	-	-
REC-0120	Signed	1,275,781	14,923,103	47	61	60	55	49	44	40	31	15	-
REC-0121		1,277,227	14,938,593	28	45	45	38	32	26	18	-	-	-
REC-0122		1,277,507	14,923,559	47	60	60	55	49	44	40	31	12	-
REC-0123		1,277,303	14,896,028	31	47	47	41	35	29	22	2	-	-
REC-0124		1,277,990	14,917,789	46	59	59	54	49	44	40	30	10	-
REC-0125		1,278,547	14,902,115	42	56	56	50	45	40	35	24	-	-
REC-0126	Signed	1,279,046	14,912,765	45	59	59	53	48	43	38	28	5	-
REC-0127		1,279,660	14,933,668	34	49	49	43	37	31	24	4	-	-
REC-0128		1,279,620	14,930,443	39	53	53	47	42	36	31	17	-	-
REC-0129		1,279,930	14,932,613	35	50	50	44	38	32	26	7	-	-
REC-0130		1,279,921	14,931,691	36	51	51	45	40	34	28	11	-	-
REC-0131		1,279,986	14,926,525	46	59	59	54	49	44	40	31	12	-
REC-0132		1,280,189	14,937,843	25	41	41	35	29	22	14	-	-	-
REC-0133		1,279,765	14,908,732	47	61	60	55	49	45	41	31	9	-
REC-0134		1,279,961	14,914,532	44	58	58	52	47	42	37	25	-	-
REC-0135		1,280,139	14,916,459	46	59	59	54	49	44	40	31	12	-
REC-0136		1,280,509	14,909,617	47	61	60	55	50	45	41	31	10	-
REC-0137		1,281,037	14,928,354	40	54	54	49	43	38	33	21	-	-
REC-0138		1,281,139	14,928,634	40	54	54	48	43	37	32	20	-	-
REC-0139		1,281,294	14,923,337	42	56	56	50	45	40	35	22	-	-
REC-0140		1,280,929	14,896,525	31	48	47	41	35	29	21	-	-	-
REC-0141		1,281,388	14,901,867	39	54	54	48	42	37	31	16	-	-
REC-0142		1,282,176	14,928,703	38	53	52	46	41	35	30	15	-	-
REC-0143		1,282,197	14,928,428	38	53	53	47	41	36	30	16	-	-
REC-0144		1,282,416	14,928,697	37	52	52	46	41	35	29	15	-	-
REC-0145		1,282,571	14,931,926	33	49	49	42	37	30	24	5	-	-
REC-0146		1,282,586	14,929,793	36	51	51	45	39	33	27	11	-	-
REC-0147		1,282,811	14,939,763	-80	-	-	-	-	-	-	-	-	-
REC-0148		1,282,946	14,934,991	28	45	44	38	32	25	17	-	-	-
REC-0149		1,282,879	14,923,373	42	56	56	50	45	40	35	24	-	-
REC-0150		1,284,000	14,912,682	44	58	58	52	47	42	37	26	2	-
REC-0151		1,284,092	14,917,655	45	58	58	53	47	43	39	31	17	-
REC-0152		1,284,079	14,901,894	40	54	54	48	43	37	32	18	-	-
REC-0153		1,284,538	14,912,495	43	57	57	52	46	41	36	25	-	-
REC-0154		1,284,578	14,913,064	43	57	57	51	46	40	35	23	-	-
REC-0155		1,285,050	14,933,421	28	45	44	38	32	25	17	-	-	-
REC-0156		1,284,745	14,912,523	43	57	57	51	46	41	36	24	-	-
REC-0157		1,284,525	14,896,785	31	47	47	41	35	28	20	-	-	-
REC-0158		1,285,092	14,933,123	28	45	44	38	32	25	18	-	-	-
REC-0159		1,284,988	14,912,502	43	57	57	51	46	41	36	23	-	-
REC-0161		1,285,282	14,912,791	42	57	56	51	45	40	35	22	-	-
REC-0162		1,285,306	14,913,269	42	56	56	50	45	39	34	20	-	-
REC-0164		1,285,076	14,896,605	30	46	46	40	34	27	19	-	-	-
REC-0165		1,285,464	14,916,858	41	56	55	50	44	39	34	21	-	-
REC-0166		1,285,473	14,913,254	42	56	56	50	45	39	34	20	-	-
REC-0167		1,285,491	14,912,820	42	56	56	50	45	40	35	21	-	-
REC-0168		1,285,525	14,913,796	41	56	56	50	44	39	33	19	-	-
REC-0169		1,285,781	14,923,334	42	55	55	50	44	39	35	25	2	-
REC-0170		1,285,848	14,912,724	42	56	56	50	45	40	34	21	-	-
REC-0171		1,286,260	14,935,221	21	38	38	31	25	18	9	-	-	-
REC-0172		1,285,984	14,912,686	42	56	56	50	45	39	34	21	-	-
REC-0174		1,286,602	14,928,298	33	49	49	43	37	31	24	3	-	-
REC-0175		1,286,635	14,930,535	31	48	47	41	35	28	20	-	-	-
REC-0176		1,286,361	14,902,205	40	54	54	48	43	38	33	20	-	-
REC-0177		1,287,120	14,896,627	28	44	44	38	32	26	18	-	-	-
REC-0178		1,287,238	14,901,897	39	53	53	47	42	37	32	18	-	-
REC-0179		1,287,624	14,923,349	38	53	53	47	42	36	31	17	-	-
REC-0181		1,288,239	14,940,129	-80	-	-	-	-	-	-	-	-	-
REC-0182		1,288,823	14,928,645	33	49	49	43	37	30	22	-	-	-
REC-0183		1,288,961	14,928,652	33	50	49	43	37	30	23	-	-	-
REC-0184		1,289,181	14,940,111	21	38	37	31	25	17	9	-	-	-
REC-0185		1,289,666	14,917,824	41	55	55	50	44	39	35	23	-	-
REC-0186		1,290,099	14,927,950	34	50	50	44	38	31	24	2	-	-
REC-0187		1,290,377	14,940,370	24	41	41	34	28	21	13	-	-	-
REC-0188		1,290,012	14,912,726	40	55	55	49	43	37	31	14	-	-
REC-0189		1,290,500	14,939,150	27	43	43	37	31	24	16	-	-	-
REC-0190		1,290,490	14,937,494	28	44	44	38	32	25	17	-	-	-
REC-0191		1,290,585	14,929,719	33	49	49	43	37	30	23	1	-	-
REC-0192		1,290,651	14,928,643	34	50	49	43	37	31	24	2	-	-
REC-0193		1,290,711	14,923,031	39	53	53	47	42	37	32	19	-	-

NOISE MODELING RESULTS - Vestas V163-4.5

Noise Modeling Results:
Vestas V163-4.5

IPCB Individual Octave Band Frequency Sound Pressure Level Limits (Nighttime)								
31.5 (Hz) dB	63 (Hz) dB	125 (Hz) dB	250 (Hz) dB	500 (Hz) dB	1000 (Hz) dB	2000 (Hz) dB	4000 (Hz) dB	8000 (Hz) dB
69	67	62	54	47	41	36	32	32

Participating Exceedance

Non-Participating Exceedance

Receiver ID	Status	UTM Coordinates (Zone 16)		Overall (dBA)	Frequency Spectra Level								
		Easting (m)	Northing (m)		31.5 (Hz) dB	63 (Hz) dB	125 (Hz) dB	250 (Hz) dB	500 (Hz) dB	1000 (Hz) dB	2000 (Hz) dB	4000 (Hz) dB	8000 (Hz) dB
REC-0194	Signed	1,290,685	14,918,332	45	58	58	53	47	43	39	30	10	-
REC-0195		1,290,775	14,918,607	46	59	59	54	48	44	40	32	14	-
REC-0196		1,290,797	14,913,050	39	55	55	49	43	37	31	14	-	-
REC-0197		1,291,019	14,926,996	35	50	50	44	38	32	25	6	-	-
REC-0198		1,290,817	14,911,324	40	55	55	49	44	38	32	18	-	-
REC-0199		1,290,720	14,897,268	28	44	44	37	31	25	17	-	-	-
REC-0200		1,290,934	14,903,280	38	53	53	46	41	35	29	14	-	-
REC-0201		1,292,544	14,901,388	34	50	50	44	38	32	25	5	-	-
REC-0202		1,293,332	14,940,392	28	44	44	38	32	26	18	-	-	-
REC-0203		1,293,381	14,940,163	29	44	44	38	32	26	19	-	-	-
REC-0204		1,293,434	14,937,709	32	47	47	41	35	29	23	4	-	-
REC-0205		1,293,250	14,896,563	24	41	41	35	28	21	13	-	-	-
REC-0206		1,293,780	14,928,419	37	51	51	45	40	34	28	12	-	-
REC-0207		1,293,337	14,896,814	25	41	41	35	28	22	13	-	-	-
REC-0208		1,294,342	14,934,621	37	51	51	45	40	34	29	14	-	-
REC-0209		1,294,836	14,928,663	38	52	52	46	41	36	30	15	-	-
REC-0210		1,295,315	14,923,126	42	55	55	50	45	40	35	25	3	-
REC-0211	Signed	1,295,340	14,907,679	45	58	58	53	48	43	39	29	6	-
REC-0213	Signed	1,295,836	14,916,298	44	57	57	52	47	42	38	28	7	-
REC-0214		1,295,828	14,906,638	43	57	57	51	46	41	36	25	-	-
REC-0215		1,295,863	14,897,723	29	45	45	39	32	26	17	-	-	-
REC-0219		1,298,131	14,941,798	31	47	47	41	35	29	21	0	-	-
REC-0221		1,298,184	14,940,556	33	48	48	42	36	30	24	4	-	-
REC-0223		1,298,474	14,937,476	38	52	52	46	41	36	31	18	-	-
REC-0773		1,251,588	14,928,346	30	46	46	40	34	28	20	-	-	-
REC-0774		1,274,684	14,928,735	45	58	58	53	48	43	38	28	2	-
REC-0775		1,285,870	14,912,480	42	56	56	50	45	40	35	22	-	-
REC-0776		1,261,793	14,913,091	41	56	56	50	44	39	33	19	-	-
REC-0777		1,246,747	14,914,218	37	52	51	46	40	35	29	13	-	-
REC-0778		1,249,047	14,910,449	44	57	57	52	47	42	38	28	6	-
REC-0779		1,270,436	14,907,551	40	55	55	49	44	38	32	18	-	-
REC-0780		1,246,668	14,902,081	31	47	47	41	35	28	21	1	-	-
REC-0781		1,248,578	14,896,398	22	39	39	32	26	19	12	-	-	-
REC-0782		1,254,754	14,903,867	41	55	54	49	44	39	35	25	3	-
REC-0796		1,298,284	14,945,280	25	41	41	35	29	22	14	-	-	-
REC-0876		1,279,767	14,903,840	42	57	56	51	45	40	35	23	-	-
REC-0878		1,274,737	14,924,043	47	61	60	55	49	44	40	31	12	-
REC-0879		1,280,186	14,904,004	42	57	56	51	45	40	35	23	-	-
REC-0880		1,280,185	14,903,939	42	56	56	50	45	40	35	22	-	-
REC-0881		1,280,361	14,903,727	42	56	56	50	45	40	35	21	-	-
REC-0882		1,280,169	14,903,647	42	56	56	50	45	40	35	22	-	-
REC-0883		1,280,359	14,903,502	42	56	56	50	45	39	34	21	-	-
REC-0884		1,280,356	14,903,396	41	56	56	50	45	39	34	21	-	-
REC-0885		1,280,164	14,903,379	42	56	56	50	45	39	34	21	-	-
REC-0886		1,279,967	14,903,398	42	56	56	50	45	40	35	21	-	-
REC-0887		1,279,904	14,903,384	42	56	56	50	45	40	35	22	-	-
REC-0888		1,279,814	14,903,386	42	56	56	50	45	40	35	22	-	-
REC-0889		1,279,683	14,903,202	42	56	56	50	45	40	35	22	-	-
REC-0890		1,280,354	14,903,213	41	56	55	50	44	39	34	20	-	-
REC-0891		1,280,381	14,903,033	41	55	55	49	44	39	34	20	-	-
REC-0892		1,280,182	14,903,042	41	56	55	49	44	39	34	20	-	-
REC-0893		1,280,136	14,902,863	41	55	55	49	44	39	34	20	-	-
REC-0894		1,280,094	14,903,015	41	56	55	49	44	39	34	20	-	-
REC-0895		1,280,042	14,902,872	41	55	55	49	44	39	34	20	-	-
REC-0896		1,279,974	14,902,869	41	55	55	49	44	39	34	20	-	-
REC-0897		1,279,615	14,902,837	41	56	55	50	44	39	34	21	-	-
REC-0898		1,280,363	14,902,780	41	55	55	49	44	38	33	19	-	-
REC-0899		1,280,362	14,902,694	41	55	55	49	44	38	33	19	-	-
REC-0900		1,280,393	14,902,603	40	55	55	49	44	38	33	18	-	-
REC-0901		1,280,197	14,902,681	41	55	55	49	44	38	33	19	-	-
REC-0902		1,279,897	14,902,662	41	55	55	49	44	39	33	20	-	-
REC-0903		1,279,925	14,902,518	41	55	55	49	44	38	33	19	-	-
REC-0904		1,279,707	14,902,866	41	56	55	50	44	39	34	21	-	-
REC-0905		1,279,490	14,902,656	41	55	55	49	44	39	34	21	-	-
REC-0906		1,279,373	14,902,482	41	55	55	49	44	39	34	21	-	-
REC-0907		1,279,464	14,902,469	41	55	55	49	44	39	34	21	-	-
REC-0908		1,279,566	14,902,512	41	55	55	49	44	39	34	20	-	-
REC-0909		1,279,715	14,902,506	41	55	55	49	44	39	33	20	-	-
REC-0910		1,279,707	14,902,408	41	55	55	49	44	38	33	20	-	-
REC-0911		1,279,746	14,902,350	41	55	55	49	44	38	33	19	-	-
REC-0912		1,279,740	14,902,315	41	55	55	49	44	38	33	19	-	-
REC-0913		1,279,893	14,902,272	40	55	55	49	44	38	33	19	-	-
REC-0914		1,279,918	14,902,335	40	55	55	49	44	38	33	19	-	-
REC-0915		1,279,917	14,902,443	41	55	55	49	44	38	33	19	-	-
REC-0916		1,279,992	14,902,527	41	55	55	49	44	38	33	19	-	-
REC-0917		1,280,078	14,902,523	41	55	55	49	44	38	33	19	-	-
REC-0918		1,280,133	14,902,522	40	55	55	49	44	38	33	19	-	-
REC-0919		1,280,210	14,902,523	40	55	55	49	44	38	33	19	-	-
REC-0920		1,280,194	14,902,383	40	55	55	49	43	38	33	18	-	-
REC-0921		1,280,182	14,902,275	40	55	55	49	43	38	33	18	-	-
REC-0922		1,280,229	14,902,216	40	55	55	49	43	38	32	18	-	-
REC-0923		1,280,194	14,902,098	40	55	54	48	43	38	32	18	-	-
REC-0924		1,280,110	14,902,076	40	55	54	48	43	38	32	18	-	-
REC-0925		1,279,917	14,902,168	40	55	55	49	43	38	33	19	-	-
REC-0926		1,279,915	14,902,063	40	55	55	49	43	38	32	18	-	-
REC-0927		1,279,741	14,902,067	40	55	55	49	43	38	33	19	-	-
REC-0928		1,279,732	14,902,182	40	55	55	49	44	38	33	19	-	-
REC-0929		1,279,360	14,902,083	41	55	55	49	44	38	33	20	-	-
REC-0930		1,279,497	14,902,075	40	55	55	49	44	38	33	20	-	-
REC-0931		1,279,572	14,902,073	40	55	55	49	44	38	33	19	-	-
REC-0932		1,279,627	14,901,707	40	54	54	48	43	38	32	18	-	-
REC-0933		1,279,746	14,901,741	40	54	54	48	43	38	32	18	-	-
REC-0934		1,279,982	14,901,705	40	54	54	48	43	37	32	17	-	-
REC-0935		1,280,062	14,901,701	39	54	54	48	43	37	32	17	-	-
REC-0936		1,280,158	14,901,708	39	54	54	48	43	37	32	17	-	-
REC-0937		1,280,198	14,901,559	39	54	54	48	43	37	31	16	-	-
REC-0938		1,280,104	14,901,566	39	54	54	48	43	37	31	16	-	-
REC-0939		1,279,997	14,901,561	39	54	54	48	43	37	32	17	-	-
REC-0940		1,279,905	14,901,561	39	54	54	48	43	37	32	17	-	-

NOISE MODELING RESULTS - Vestas V163-4.5

Noise Modeling Results:
Vestas V163-4.5

IPCB Individual Octave Band Frequency Sound Pressure Level Limits (Nighttime)								
31.5 (Hz) dB	63 (Hz) dB	125 (Hz) dB	250 (Hz) dB	500 (Hz) dB	1000 (Hz) dB	2000 (Hz) dB	4000 (Hz) dB	8000 (Hz) dB
69	67	62	54	47	41	36	32	32

Participating Exceedance

Non-Participating Exceedance

Receiver ID	Status	UTM Coordinates (Zone 16)		Overall (dBA)	Frequency Spectra Level								
		Easting (m)	Northing (m)		31.5 (Hz) dB	63 (Hz) dB	125 (Hz) dB	250 (Hz) dB	500 (Hz) dB	1000 (Hz) dB	2000 (Hz) dB	4000 (Hz) dB	8000 (Hz) dB
REC-0941		1,279,778	14,901,564	40	54	54	48	43	37	32	17	-	-
REC-0942		1,279,653	14,901,553	40	54	54	48	43	37	32	18	-	-
REC-0943		1,279,562	14,901,552	40	54	54	48	43	37	32	18	-	-
REC-0944		1,280,192	14,901,907	40	54	54	48	43	37	32	17	-	-
REC-0945		1,280,054	14,901,916	40	54	54	48	43	38	32	18	-	-
REC-0946		1,279,991	14,901,913	40	54	54	48	43	38	32	18	-	-
REC-0947		1,279,767	14,901,916	40	55	54	48	43	38	32	18	-	-
REC-0948		1,279,665	14,901,912	40	55	54	49	43	38	33	19	-	-
REC-0952		1,279,726	14,902,688	41	55	55	49	44	39	34	20	-	-
REC-0953		1,279,919	14,901,899	40	54	54	48	43	38	32	18	-	-
REC-0954		1,280,188	14,903,119	41	56	55	50	44	39	34	20	-	-
REC-0955		1,295,257	14,928,339	38	53	53	47	42	36	31	16	-	-
REC-0956		1,295,461	14,928,464	39	53	53	47	42	36	31	17	-	-
REC-0957		1,295,540	14,928,460	39	53	53	47	42	36	31	17	-	-
REC-1016		1,295,518	14,928,722	39	53	53	47	42	36	31	17	-	-
REC-1017		1,295,601	14,928,689	39	53	53	47	42	37	31	17	-	-
REC-1018		1,295,679	14,928,962	39	53	53	47	42	37	32	17	-	-
REC-1019		1,295,656	14,929,065	39	53	53	47	42	37	32	17	-	-
REC-1031		1,295,644	14,929,949	39	53	53	48	42	37	32	19	-	-
REC-1032		1,295,659	14,930,106	40	54	53	48	43	37	33	20	-	-
REC-1034		1,295,658	14,930,223	40	54	54	48	43	38	33	20	-	-
REC-1037		1,295,651	14,930,352	40	54	54	48	43	38	33	20	-	-
REC-1039		1,295,653	14,930,478	40	54	54	48	43	38	33	21	-	-
REC-1040		1,295,642	14,930,604	40	54	54	48	43	38	33	21	-	-
REC-1041		1,295,635	14,930,862	40	54	54	48	43	38	33	21	-	-
REC-1042		1,295,665	14,931,027	40	54	54	48	43	38	34	22	-	-
REC-1178		1,279,655	14,902,727	41	55	55	49	44	39	34	21	-	-
REC-1780		1,246,811	14,928,503	21	38	37	31	25	18	9	-	-	-

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