

## SOUND LEVEL ASSESSMENT REPORT

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### **Dakota Range III Wind Project Roberts & Grant Counties, South Dakota**

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## 1.0 EXECUTIVE SUMMARY

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The Dakota Range III Wind Project (the Project) is a proposed wind power electric generation facility expected to consist of up to 32 wind turbines in Roberts and Grant Counties, South Dakota. Epsilon Associates, Inc. (Epsilon) has been retained by Dakota Range III, LLC (DRIII) to conduct a sound level modeling study for the Project. This report presents results of the study.

A sound level modeling analysis was conducted for 32 proposed wind turbines and a collector substation. All wind turbines for this Project are proposed to be Nordex N149-4.8 units. The purpose of this assessment is to predict worst-case sound levels generated by the facility in Roberts and Grant Counties when the wind turbines are operational and to compare the modeling results to applicable limits. Sound levels from wind energy systems (WES) are limited by ordinance to 50 dBA at the closest principal and accessory structures in Roberts County. In Grant County, WES are limited by ordinance to 45 dBA at non-participating, and 50 dBA at participating, residences, businesses, and buildings owned and/or maintained by a governmental entity. Additionally, as a result of the DRIII permit application to the South Dakota Public Utilities Commission (Commission), a Settlement Stipulation contains commitments from the Project in regard to sound.

Using the Project specific data provided by DRIII, the  $L_{eq}$  sound levels modeled at principal and accessory structures in Roberts County did not exceed 46 dBA. These sound levels are well below the limit of 50 dBA in Roberts County. The  $L_{eq}$  sound levels modeled at non-participating structures in Grant County did not exceed 45 dBA and the  $L_{eq}$  sound levels modeled at participating structures in Grant County did not exceed 48 dBA. Furthermore, the highest  $L_{eq}$  sound level at an occupied structure in Grant County was 45 dBA. These sound levels are below the respective limits of 45 dBA and 50 dBA in Grant County. The Project meets the counties' requirements with respect to sound in the regulations and, also complies with the Settlement Stipulations set forth by the Commission.



## 2.0 INTRODUCTION

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The Dakota Range III Wind Project to be located in Roberts and Grant Counties, South Dakota will consist of 32 wind turbines and a collector substation. The wind turbines will be Nordex N149-4.8 units, two of which will have serrated trailing edge (STE) blades (wind turbines D05 and F03). All wind turbines have a hub height of 108 meters and a rotor diameter of 149 meters. Figure 2-1 shows the locations of the 32 proposed wind turbines over aerial imagery in Roberts and Grant Counties and the substation in Grant County. The two STE wind turbines are separately identified in the figure.

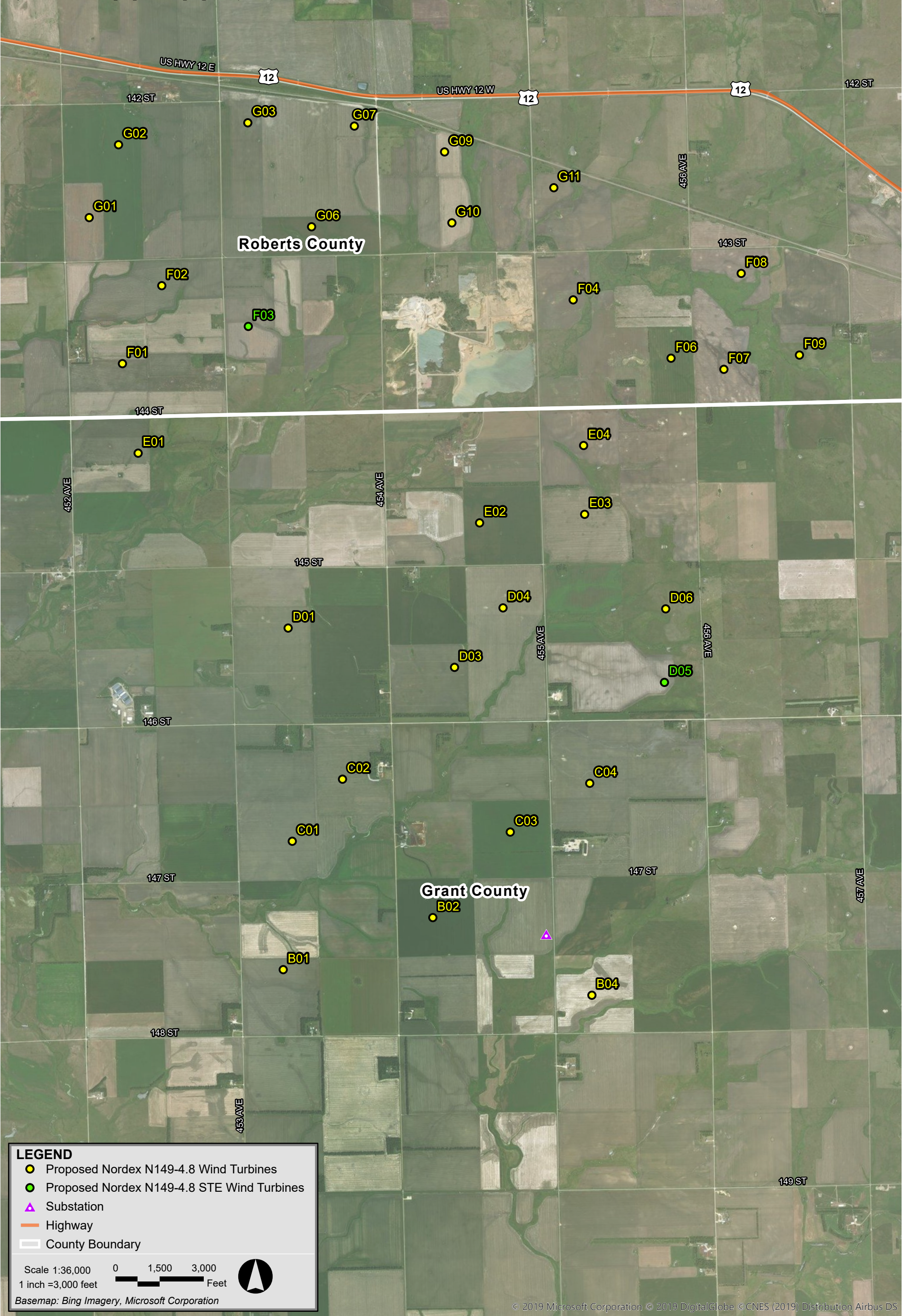
A detailed discussion of sound from wind turbines is presented in a white paper prepared by the Renewable Energy Research Laboratory.<sup>1</sup> A few points are repeated herein. Wind turbine noise can originate from two different sources; mechanical sound from the interaction of turbine components and aerodynamic sound produced by the flow of air over the rotor blades. Prior to the 1990's, both sources were significant contributors to wind turbine noise. However, recent advances in wind turbine design have greatly reduced the contribution of mechanical noise. Aerodynamic noise has also been reduced in modern wind turbines due to slower rotational speeds and changes in materials of construction. Aerodynamic noise, in general, is broadband (has contributions from a wide range of frequencies). It originates from encounters of the wind turbine blades with localized airflow inhomogeneities and wakes from other turbine blades and from airflow across the surface of the blades, particularly the front and trailing edges. Aerodynamic sound generally increases with increasing wind speed up to a certain point, then typically remains constant, even with higher wind speeds. However, sound levels in general also increase with increasing wind speed with or without the presence of wind turbines.

This report presents the results of a sound level modeling analysis for the Project. The wind turbines were modeled with the Cadna/A software package using sound data from a Nordex technical document.

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<sup>1</sup> Renewable Energy Research Laboratory, Department of Mechanical and Industrial Engineering, University of Massachusetts at Amherst, Wind Turbine Acoustic Noise, June 2002, amended January 2006.





Dakota Range III    Roberts County/Grant County, South Dakota



### 3.0 SOUND TERMINOLOGY

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There are several ways in which sound (noise) levels are measured and quantified. All of them use the logarithmic decibel (dB) scale. The following information defines the sound level measurement terminology used in this analysis.

The decibel scale is logarithmic to accommodate the wide range of sound intensities found in the environment. A property of the decibel scale is that the sound pressure levels of two or more separate sounds are not directly additive. For example, if a sound of 50 dB is added to another sound of 50 dB, the total is only a 3-decibel increase (53 dB), which is equal to doubling in sound energy but not equal to a doubling in decibel quantity (100 dB). Thus, every 3-dB change in sound level represents a doubling or halving of sound energy. Relative to this characteristic, a change in sound levels of less than 3 dB is imperceptible to the human ear.

Another mathematical property of decibels is that if one source of noise is at least 10 dB louder than another source, then the total sound level is simply the sound level of the higher-level source. For example, a sound source at 60 dB plus another sound source at 47 dB is equal to 60 dB.

A sound level meter (SLM) that is used to measure sound is a standardized instrument.<sup>2</sup> It contains “weighting networks” (e.g., A-, C-, Z-weightings) to adjust the frequency response of the instrument. Frequencies, reported in Hertz (Hz), are detailed characterizations of sounds, often addressed in musical terms as “pitch” or “tone”. The most commonly used weighting network is the A-weighting because it most closely approximates how the human ear responds to sound at various frequencies. The A-weighting network is the accepted scale used for community sound level measurements; therefore, sounds are frequently reported as detected with a sound level meter using this weighting. A-weighted sound levels emphasize middle frequency sounds (i.e., middle pitched – around 1,000 Hz), and de-emphasize low and high frequency sounds. These sound levels are reported in decibels designated as “dBA”. Sound pressure levels for some common indoor and outdoor environments are shown in Figure 3-1.

Because the sounds in the environment vary with time, many different sound metrics may be used to quantify them. There are two typical methods used for describing variable sounds. These are exceedance levels and equivalent levels, both of which are derived from a large number of moment-to-moment A-weighted sound pressure level measurements. Exceedance levels are values from the cumulative amplitude distribution of all of the sound levels observed during a measurement period. Exceedance levels are designated  $L_n$ , where “n” is a value (typically an integer between 1 and 99) in terms of percentage. Equivalent levels are designated  $L_{eq}$  and quantify a hypothetical steady sound that would have the same energy as the actual

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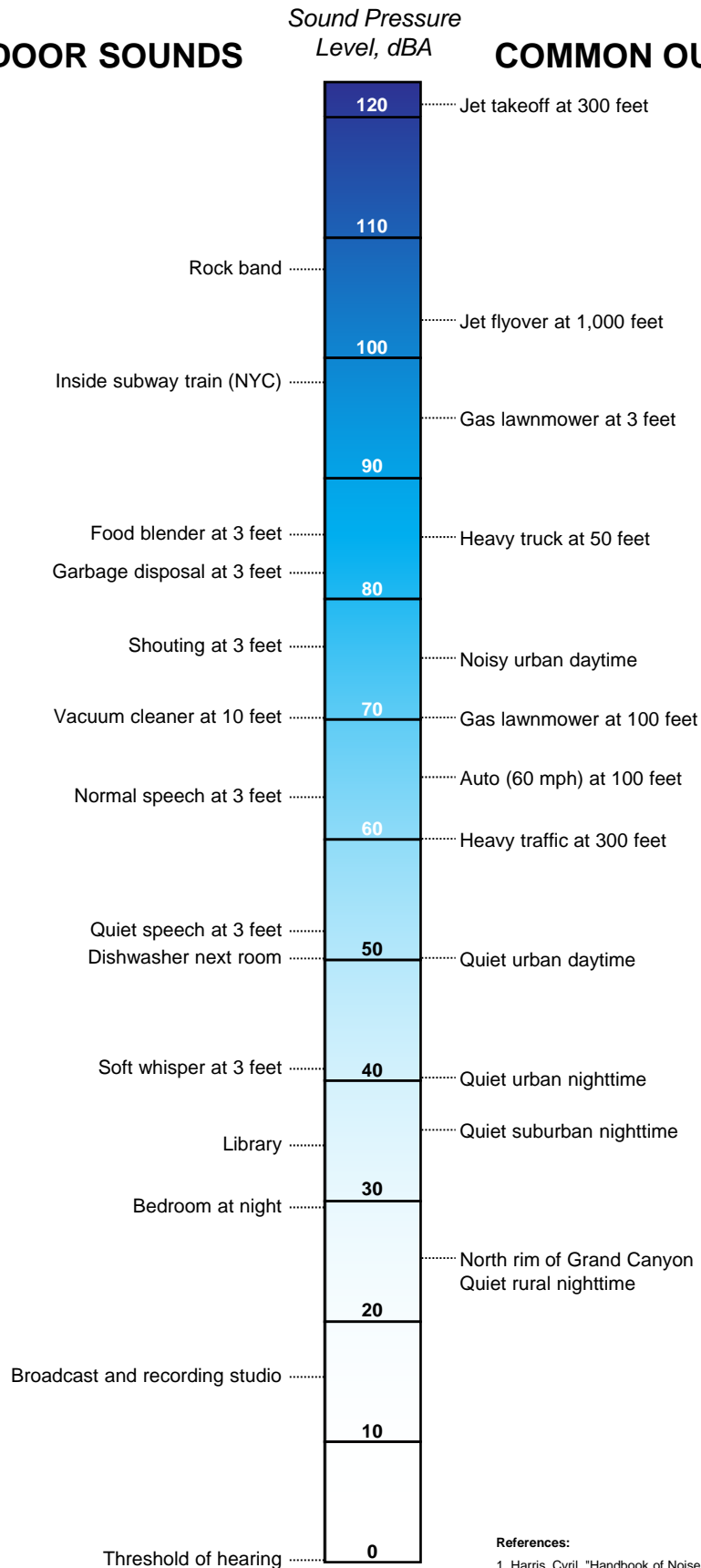
<sup>2</sup> American National Standard Specification for Sound Level Meters, ANSI S1.4-1983 (R2006), published by the Standards Secretariat of the Acoustical Society of America, Melville, NY.

fluctuating sound observed. Three sound level metrics that are commonly reported in community noise monitoring and/or utilized in this report are described below.

- ◆  $L_{10}$  is the sound level exceeded only 10 percent of the time. It is close to the maximum level observed during the measurement period. The  $L_{10}$  is sometimes called the intrusive sound level because it is caused by occasional louder sounds like those from passing motor vehicles.
- ◆  $L_{90}$  is the sound level in dBA exceeded 90 percent of the time during a measurement period. The  $L_{90}$  is close to the lowest sound level observed. It is essentially the same as the residual sound level, which is the sound level observed when there are no obvious nearby intermittent noise sources.
- ◆  $L_{eq}$ , the equivalent level, is the level of a hypothetical steady sound that would have the same energy (*i.e.*, the same time-averaged mean square sound pressure) as the actual fluctuating sound observed. The equivalent level is designated  $L_{eq}$  and is commonly A-weighted. The equivalent level represents the time average of the fluctuating sound pressure, but because sound is represented on a logarithmic scale and the averaging is done with time-averaged mean square sound pressure values, the  $L_{eq}$  is mostly determined by occasional loud noises.

# COMMON INDOOR SOUNDS

## COMMON OUTDOOR SOUNDS



### References:

1. Harris, Cyril, "Handbook of Noise Acoustical Measurements and Noise Control", p 1-10., 1998
2. "Controlling Noise", USAF, AFMC, AFDTTC, Elgin AFB, Fact Sheet, August 1996
3. California Dept. of Trans., "Technical Noise Supplement", Oct, 1998

## **4.0 NOISE REGULATIONS**

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### **4.1 Federal Regulations**

There are no federal noise regulations applicable to this Project.

### **4.2 South Dakota State Regulations**

There are no state noise regulations applicable to this Project. However, as a result of the DRIII permit application to the South Dakota Public Utilities Commission (Commission), a Settlement Stipulation has been adopted which provides the following commitments in regard to sound from the Project under Condition 27:

*The Project, exclusive of all unrelated background noise, shall not generate a long-term average sound pressure level (equivalent continuous sound level, Leq), as measured over a period of at least two weeks, defined by Commission staff, that includes all integer wind speeds from cut in to full power, of more than 45 dBA within 25 feet of any non-participating residence unless the owner of the residence has signed a waiver, or more than 50 dBA within 25 feet of any participating residence unless the owner of the residence has signed a waiver. Applicant shall, upon Commission formal request, conduct field surveys or provide post-construction monitoring data verifying compliance with specified noise level limits using applicable American National Standards Institute (ANSI) methods. If the long-term average level exceeds 45 dBA at any non-participating residence or 50 dBA at any participating residence where the owner of the residence has not signed a waiver, then the Project Owner shall take whatever steps are necessary in accordance with prudent operating standards to rectify the situation. Sound monitoring will not be repeated in a representative area during any five-year period unless operational or maintenance changes result in a reasonable assumption of higher turbine sound levels.*

The Settlement Stipulation defines “Applicant” as Dakota Range III, LLC therein.

### **4.3 Local Regulations**

#### **4.3.1 Roberts County**

The section of the proposed Dakota Range III Wind Project within Roberts County, SD is subject to the following sound level requirements in Section 1603.03(5) of Ordinance #20 of Roberts County, Noise subsection of General Provisions for Wind Energy System (WES) Requirements:

*Noise level shall not exceed 50 dB (A), average A-weighted Sound pressure<sup>3</sup> including constructive interference effects as measured at the exterior wall<sup>4</sup> of the closest principal and accessory structures.*

All receptors were evaluated in this analysis against the 50 dBA limit.

#### **4.3.2 Grant County**

The section of the proposed Dakota Range III Wind Project within Grant County, SD is subject to the following sound level requirements in Section 1211.04(14) of the Grant County Compiled Zoning Ordinances, Noise subsection of General Provisions for Wind Energy Systems (WES):

*Noise level shall not exceed 45 dBA, average A-weighted Sound pressure<sup>5</sup> including constructive interference effects measured at twenty-five (25) feet from the perimeter of the existing non-participating residences, businesses, and buildings owned and/or maintained by a governmental entity.*

*Noise level shall not exceed 50 dBA, average A-weighted Sound pressure<sup>6</sup> including constructive interference effects measured at twenty-five (25) feet from the perimeter of participating residences, businesses, and buildings owned and/or maintained by a governmental entity.*

*Noise level measurements shall be made with a sound level meter using the A-weighting scale, in accordance with standards promulgated by the American National Standards Institute. A L90 measurement shall be used and have a measurement period no less than ten (10) minutes unless otherwise specified by the Board of Adjustment.*

All non-participating and participating receptors were evaluated in this analysis against the 45 dBA and 50 dBA limits, respectively.

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<sup>3</sup> Epsilon assumes the ordinance intends to read “sound pressure level” reported in dBA, whereas “sound pressure” is reported in units of Pascals.

<sup>4</sup> If sound levels were measured directly on or in front of an exterior wall, the sound level would be artificially higher due to reflections. It is assumed that this is not the intent of the ordinance; therefore, it is assumed compliance would be determined approximately 50 feet from the wall in the direction of the source.

<sup>5</sup> Epsilon assumes the ordinance intends to read “sound pressure level” reported in dBA, whereas “sound pressure” is reported in units of Pascals.

<sup>6</sup> Epsilon assumes the ordinance intends to read “sound pressure level” reported in dBA, whereas “sound pressure” is reported in units of Pascals.

## 5.0 FUTURE CONDITIONS

### 5.1 Equipment and Operating Conditions

The sound level analysis includes 32 wind turbines. Global coordinates for the 32 wind turbines are provided in Appendix A. All wind turbines are Nordex N149-4.8 units and two are equipped with STE blades. The N149-4.8 wind turbines have a hub height of 108 meters and a rotor diameter of 149 meters. A technical report from Nordex<sup>7</sup> was provided by DRIII which documented the expected sound power levels associated with the Nordex N149-4.8 wind turbine.<sup>8</sup> Octave band sound power levels, representing the maximum sound power level, were used in the sound modeling.

In addition to the wind turbines, there will be a collector substation associated with the Project. The substation is proposed to be located northwest of wind turbine B04 as shown in Figure 5-1. One 225 megavolt-ampere (MVA) transformer is proposed for the substation. Epsilon has estimated octave-band sound power levels using the MVA rating provided by DRIII and techniques in the Electric Power Plant Environmental Noise Guide (Edison Electric Institute), Table 4.5 Sound Power Levels of Transformers. Table 5-1 below summarizes the sound power level data used in the modeling.

**Table 5-1 Modeled Substation Transformer Sound Power Levels**

Maximum Rating	Broadband dBA	Sound Power Levels per Octave-Band Center Frequency [Hz]								
		31.5	63	125	250	500	1k	2k	4k	8k
		dB	dB	dB	dB	dB	dB	dB	dB	dB
225 MVA	104	100	106	108	103	103	97	92	87	80

### 5.2 Modeling Methodology

The noise impacts associated with the proposed wind turbines were predicted using the Cadna/A noise calculation software developed by DataKustik GmbH. This software uses the ISO 9613-2 international standard for sound propagation (Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation). The benefits of this software are a more refined set of computations due to the inclusion of topography, ground attenuation, multiple building reflections, drop-off with distance, and atmospheric absorption. The Cadna/A

<sup>7</sup> Nordex Energy GmbH, Octave sound power levels Nordex N149/4.0-4.5 Variable Power Curve Modes, January 15, 2019.

<sup>8</sup> Sound power levels provided in the document for an alternate hub height variant were utilized for the N149-4.8 wind turbine at 108 meters per direction from Nordex.



software allows for octave band calculation of sound from multiple sources as well as computation of diffraction.

Inputs and significant parameters employed in the model are described below:

- ◆ *Project Layout:* A project layout dated November 1, 2019 was provided by DRIII. The 32 proposed wind turbines were input into the model. The substation transformer location was provided by DRIII on April 27, 2018. The proposed wind turbines and substation are shown in Figure 5-1.
- ◆ *Modeling Locations:* A modeling receptor dataset was provided by DRIII on March 21, 2019. This dataset included 206 occupied and 367 unoccupied structures.<sup>9</sup> The total 573 receptors from this dataset (210 in Roberts County, 363 in Grant County) were input into the Cadna/A model. These were all conservatively evaluated as sensitive receptors and modeled as discrete points at a height of 1.5 meters above ground level to mimic the ears of a typical standing person. These locations are shown in Figure 5-1. Participation status for each of the 573 modeling receptors was assigned based on information provided in the dataset. The receptors are indicated as either participating or non-participating on Figure 5-1.
- ◆ *Terrain Elevation:* Elevation contours for the modeling domain were directly imported into Cadna/A which allowed for consideration of terrain shielding where appropriate. The terrain height contour elevations for the modeling domain were generated from elevation information derived from the National Elevation Dataset (NED) developed by the U.S. Geological Survey.
- ◆ *Source Sound Levels:* Octave band sound power levels for the Nordex N149-4.8 wind turbines were input to the model. These sound levels represent “worst-case” operational sound level emissions. The substation transformer sound power levels as presented in Table 5-1 were input to the model.
- ◆ *Uncertainty factor:* No uncertainty factor was provided by the wind turbine manufacturer; however, based on experience with other wind turbine manufacturers, an uncertainty factor of 2.0 dBA was assumed and added to the sound power level for each modeled wind turbine.
- ◆ *Ground Attenuation:* Spectral ground absorption was calculated using a G-factor of 0.5 which corresponds to “mixed ground” consisting of both hard and porous ground cover.

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<sup>9</sup> Epsilon was informed on December 12, 2019 that two receptors (#725 and 1031) were recently confirmed to be occupied which differed from the description in the dataset.

The highest wind turbine sound power level including uncertainty was input into Cadna/A to model wind turbine generated sound pressure levels during conditions when worst-case sound power levels are expected. Sound pressure levels due to operation of all 32 wind turbines and the substation transformer were conservatively modeled at 573 receptors in Roberts and Grant Counties. In addition to modeling at discrete points, sound levels were also modeled throughout a large grid of receptor points, each spaced 20 meters apart to allow for the generation of sound level isolines.

Several modeling assumptions inherent in the ISO 9613-2 calculation methodology, or selected as conditional inputs by Epsilon, were implemented in the Cadna/A model to ensure conservative results (i.e., higher sound levels), and are described below:

- ◆ All modeled sources were assumed to be operating simultaneously and at the design wind speed corresponding to the greatest sound level impacts.
- ◆ As per ISO 9613-2, the model assumed favorable conditions for sound propagation, corresponding to a moderate, well-developed ground-based temperature inversion, as might occur on a calm, clear night or equivalently downwind propagation.
- ◆ Meteorological conditions assumed in the model (temperature=10°C & relative humidity=70%) were selected to minimize atmospheric attenuation in the 500 Hz and 1 kHz octave bands where the human ear is most sensitive.
- ◆ No additional attenuation due to tree shielding, air turbulence, or wind shadow effects was considered in the model.

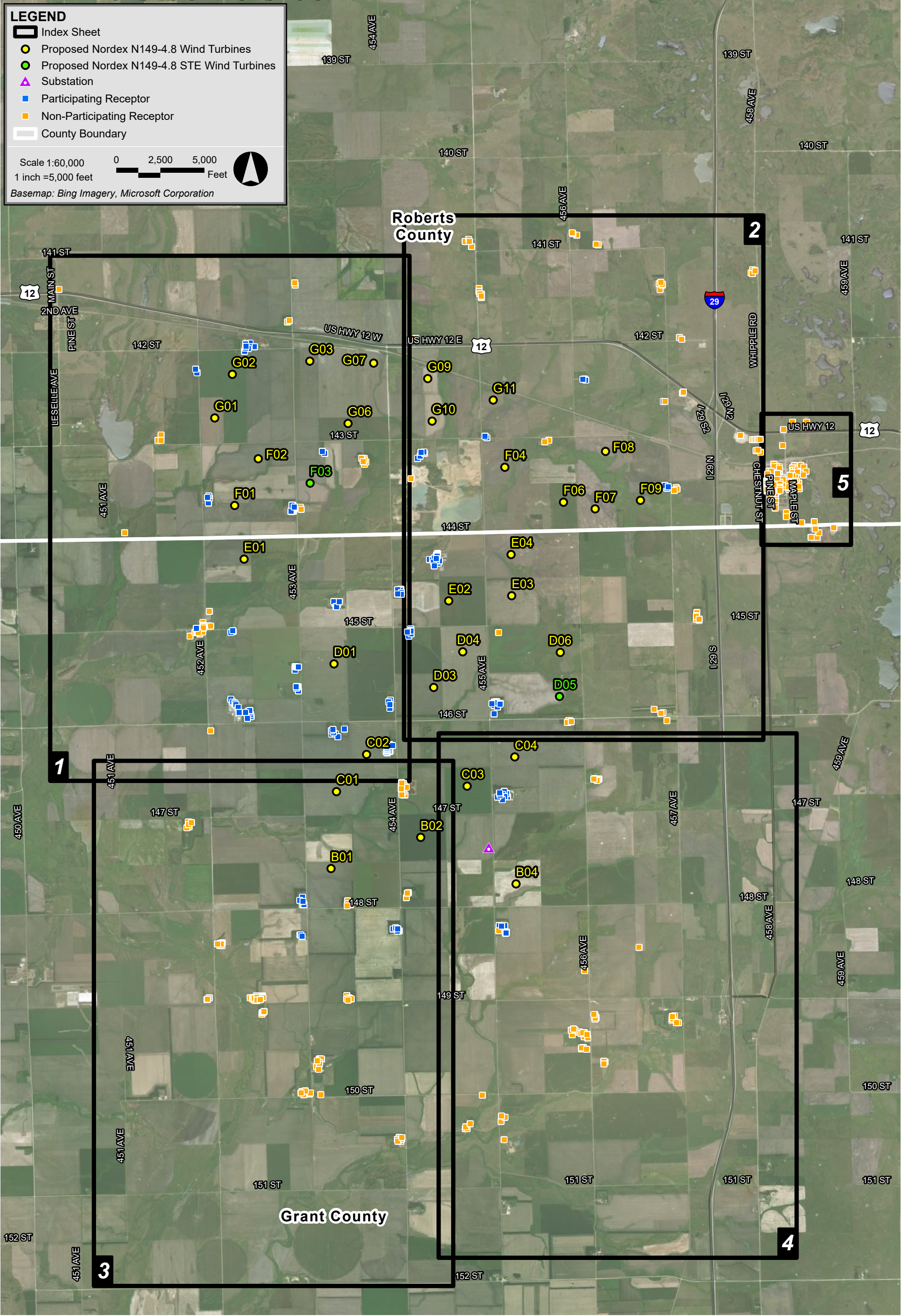
### **5.3 Sound Level Results**

Table B-1 in Appendix B shows the predicted “Project-Only” broadband (dBA)  $L_{eq}$  sound levels under conditions specified in the previous section for the 210 receptors in Roberts County. These sound levels range from 27 to 46 dBA.

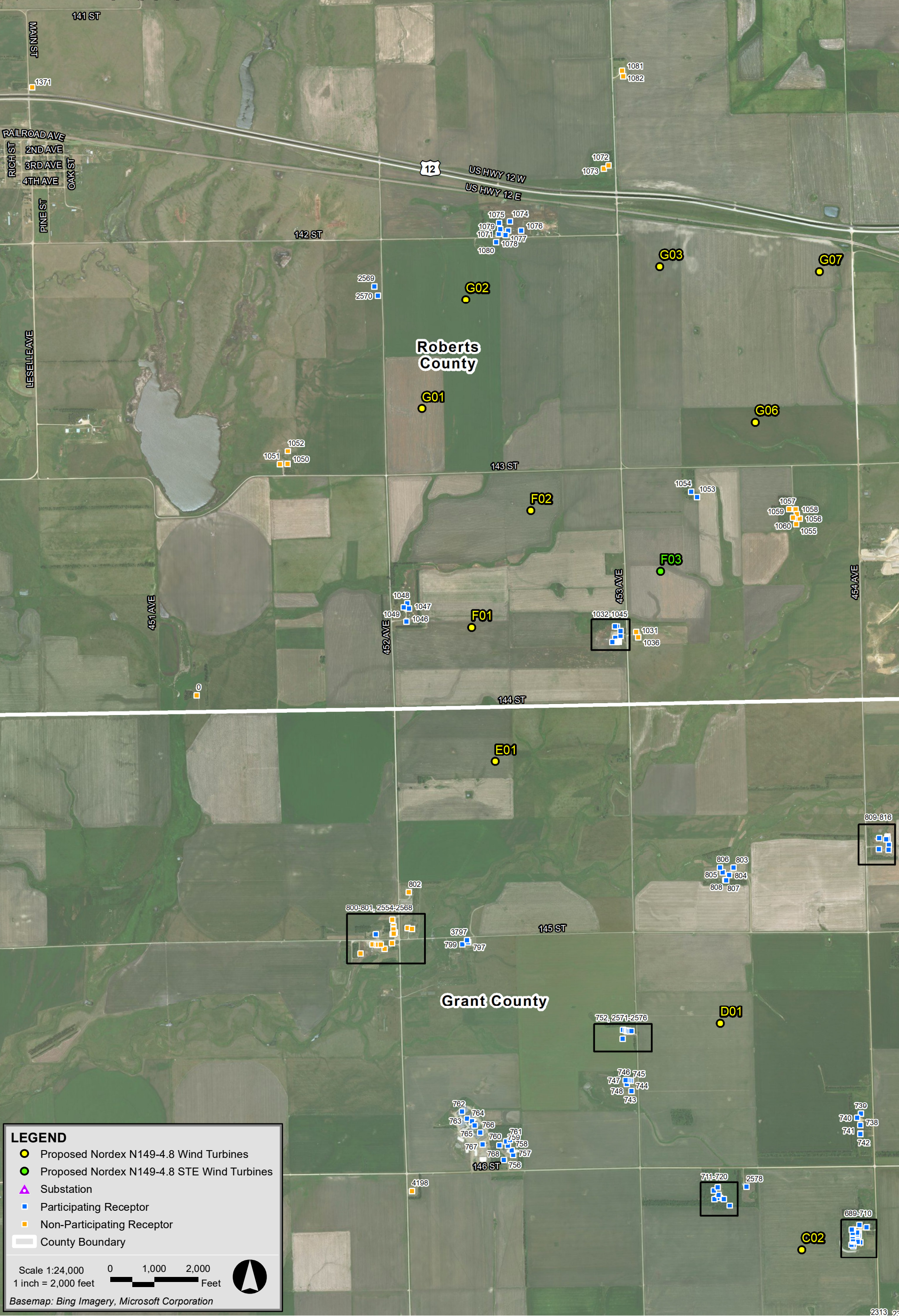
Table B-2 in Appendix B shows the predicted “Project-Only” broadband (dBA)  $L_{eq}$  sound levels for the 363 receptors in Grant County. These sound levels range from 23 to 48 dBA.

In addition to the 573 receptor points,  $L_{eq}$  sound level isolines generated from the modeling grid are presented in Figure 5-2.

















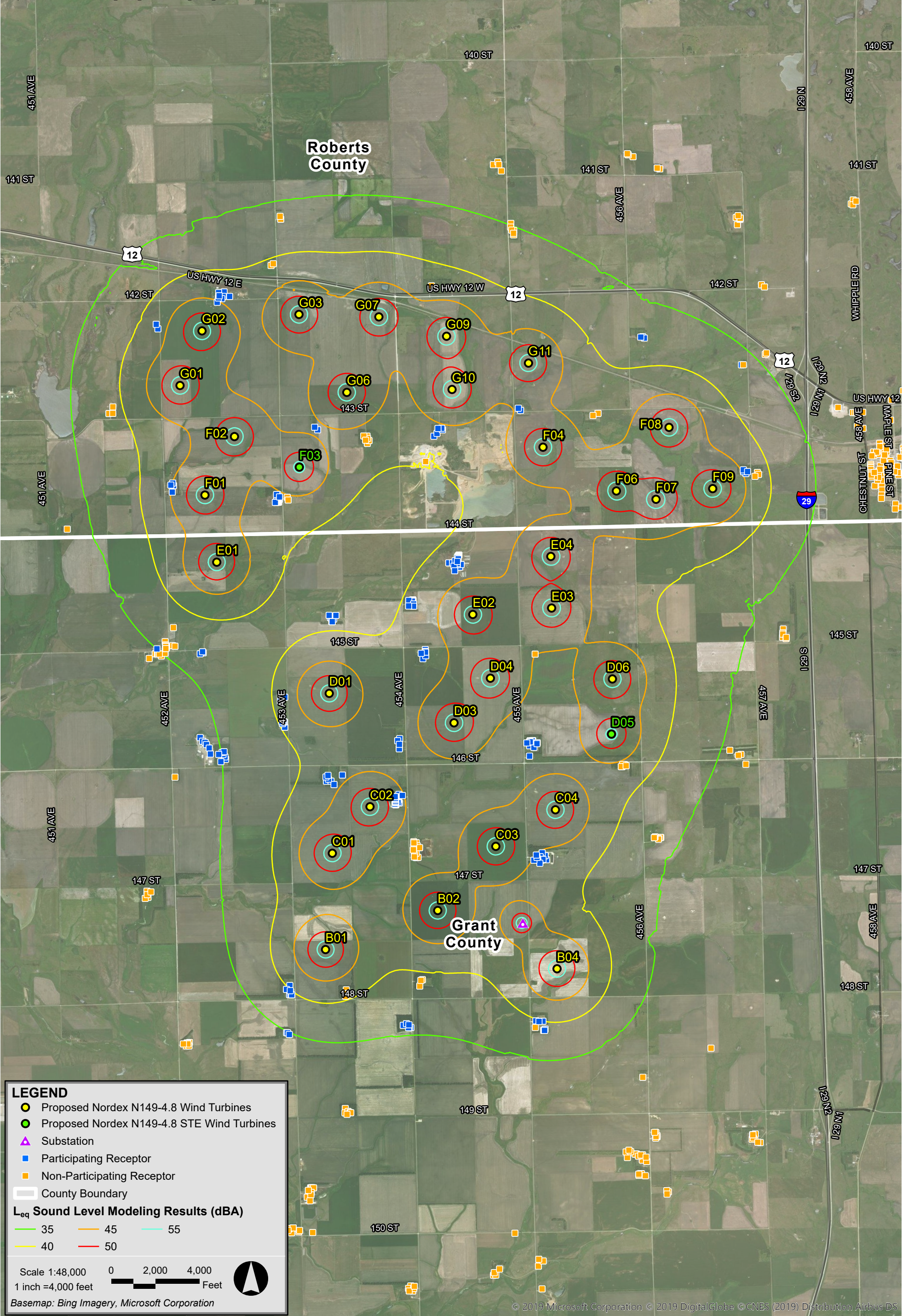












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## 6.0 CONSTRUCTION NOISE

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The majority of the construction activity related to the Dakota Range III Wind Project will occur around each of the wind turbine sites. By its very nature, construction activity moves around the site. Full construction activity will generally occur at one wind turbine site at a time, although there will be some overlap at adjacent sites for maximum efficiency. There are generally three phases of construction at a wind energy project – excavation, foundations, and turbine erection. Table 6-1 presents the equipment sound levels for the louder pieces of construction equipment expected to be used at this site along with their phase of construction. Reference sound source information in Table 6-1 was obtained from either Epsilon field measurements or the FHWA's Roadway Construction Noise Model database.

Construction of the Project is expected to take multiple months. Construction of a single wind turbine from excavation to foundation pouring to turbine erection is roughly a three week process. However, work will not proceed in that order for each wind turbine to be erected. For example, all foundations will typically be poured before any turbine erection work begins. Excavation work is expected to occur from early morning to the evening. Concrete foundation work and turbine erection work could extend into the overnight hours depending on the weather and timing of a concrete pour which must be continuous. Excavation work will typically be daytime only.

**Table 6-1 Sound Levels for Construction Noise Sources**

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Phase	Equipment	Sound Level at 50 feet (dBA)
Excavation	Grader	85
Excavation	Bulldozer	82
Excavation	Front-end loader	79
Excavation	Backhoe	78
Excavation	Dump truck	76
Excavation	Roller	80
Excavation	Excavator	81
Excavation	Rock drill	89
Foundation	Concrete mixer truck	79
Foundation	Concrete pump truck	81
Foundation	Concrete batch plant	83
Turbine erection	Large crane #1	81
Turbine erection	Large crane #2	81
Turbine erection	Component delivery truck	84
Turbine erection	Air compressor	78

## **7.0 EVALUATION OF SOUND LEVELS**

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### **7.1 Modeled Sound Levels**

All modeled sound levels, as output from Cadna/A and presented in Appendix B, are A-weighted equivalent sound levels ( $L_{eq}$ , dBA).

### **7.2 Roberts County Evaluation**

The Project is subject to the requirements contained in the zoning ordinance of Roberts County, South Dakota for WES. The sound level limit in this regulation for a WES is 50 dBA at the closest principal and accessory structures. The predicted worst-case  $L_{eq}$  sound levels from the Dakota Range III Wind Project are below the 50 dBA limit at all modeled structures in Roberts County. A review of Table B-1 in Appendix B shows the highest  $L_{eq}$  sound level for an occupied structure to be 45 dBA. Furthermore, the highest sound level at a non-participating structure is 45 dBA. Therefore, the Project meets the requirements with respect to sound in the county regulation as well as in the Commission Settlement Stipulations.

### **7.3 Grant County Evaluation**

The Project is subject to the requirements contained in the zoning ordinance for Grant County, South Dakota for WES. The sound level limits in this regulation for a WES are 45 dBA at 25 feet from the perimeter of non-participating residences, businesses, and buildings owned and/or maintained by a governmental entity and 50 dBA at 25 feet from the perimeter of participating residences, businesses, and buildings owned and/or maintained by a governmental entity. The predicted  $L_{eq}$  sound levels modeled at non-participating structures in Grant County did not exceed 45 dBA and the  $L_{eq}$  sound levels modeled at participating structures in Grant County did not exceed 48 dBA. These sound levels are below the respective limits of 45 dBA and 50 dBA in Grant County. A review of Table B-2 in Appendix B shows the highest  $L_{eq}$  sound level for an occupied structure to be 45 dBA. Therefore, the Project meets the requirements with respect to sound in the county regulation as well as in the Commission Settlement Stipulations.

## 8.0 CONCLUSIONS

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A comprehensive sound level analysis was conducted for the proposed Dakota Range III Project within Roberts and Grant Counties. A total of 32 wind turbines are proposed for this Project. Sound levels resulting from the operation of all 32 wind turbines were calculated at 573 receptor points (i.e., existing off-site residences, businesses, churches, and buildings owned and/or maintained by a governmental entity), and isolines were generated from a grid encompassing the area surrounding the wind turbines using the proposed layout. The  $L_{eq}$  sound levels modeled at receptors in Roberts County were at or below 46 dBA and the highest sound level at a non-participating structure is 45 dBA. Sound levels modeled at non-participating receptors in Grant County were at or below 45 dBA and sound levels modeled at participating receptors in Grant County were at or below 48 dBA. Furthermore, the highest  $L_{eq}$  sound level at an occupied receptor in Grant County was 45 dBA. All  $L_{eq}$  sound levels are within the respective county limits. Therefore, the Project meets the requirements with respect to sound in the regulations and, also complies with the Settlement Stipulations set forth by the Commission.

## Appendix A

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### Wind Turbine Coordinates

**Table A-1: Wind Turbine Coordinates (Layout Date: November 1, 2019)**

Wind Turbine ID	Coordinates NAD83 UTM Zone 14N (meters)	
	X (Easting)	Y (Northing)
B01	646,078.29	5,011,898.34
B02	647,627.16	5,012,437.01
B04	649,274.15	5,011,633.29
C01	646,172.00	5,013,227.00
C02	646,692.12	5,013,869.38
C03	648,428.99	5,013,322.19
C04	649,252.00	5,013,827.00
D01	646,129.26	5,015,433.54
D03	647,852.00	5,015,027.00
D04	648,354.10	5,015,642.49
D05	650,025.44	5,014,871.27
D06	650,038.45	5,015,632.43
E01	644,576.16	5,017,243.74
E02	648,111.37	5,016,522.39
E03	649,199.33	5,016,610.85
E04	649,188.49	5,017,323.04
F01	644,413.60	5,018,170.33
F02	644,820.83	5,018,977.35
F03	645,716.57	5,018,555.79
F04	649,080.58	5,018,830.64
F06	650,093.66	5,018,226.66
F07	650,640.88	5,018,111.76
F08	650,820.16	5,019,104.17
F09	651,423.03	5,018,259.05
G01	644,069.37	5,019,682.13
G02	644,372.97	5,020,436.04
G03	645,711.50	5,020,663.11
G06	646,372.00	5,019,587.00
G07	646,814.64	5,020,629.19
G09	647,748.85	5,020,361.86
G10	647,824.65	5,019,627.47
G11	648,880.05	5,019,991.34

## **Appendix B**

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### **Predicted Wind Energy System Sound Levels at Receptors**

**Table B-1: Sensitive Receptor Results by Receptor - Roberts County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Occupied?	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)			
0	642512.13	5017700.01	Non-Participating	Yes	34
669	654426.49	5017892.36	Non-Participating	Yes	28
670	654209.18	5017869.34	Non-Participating	Yes	29
956	654009.01	5018003.84	Non-Participating	Yes	30
957	653947.62	5018047.23	Non-Participating	Yes	30
958	653727.49	5018884.37	Non-Participating	Yes	31
959	653644.94	5018764.78	Non-Participating	Yes	31
960	653647.06	5018716.10	Non-Participating	Yes	31
961	653686.22	5018751.02	Non-Participating	Yes	31
962	653727.49	5018733.03	Non-Participating	Yes	31
963	653732.78	5018803.94	Non-Participating	Yes	31
964	653775.12	5018820.87	Non-Participating	Yes	30
965	653779.35	5018775.37	Non-Participating	Yes	30
966	653796.28	5018756.32	Non-Participating	Yes	30
967	653812.16	5018729.86	Non-Participating	Yes	30
968	653789.93	5018684.35	Non-Participating	Yes	30
969	653801.57	5018650.48	Non-Participating	Yes	30
970	653830.15	5018654.72	Non-Participating	Yes	30
971	653872.48	5018648.37	Non-Participating	Yes	30
972	653824.86	5018766.90	Non-Participating	Yes	30
973	653821.68	5018837.81	Non-Participating	Yes	30
974	653773.00	5018844.16	Non-Participating	Yes	30
975	653729.61	5018837.81	Non-Participating	Yes	31
976	654082.03	5018861.09	Non-Participating	Yes	29
977	654097.91	5018818.76	Non-Participating	Yes	29
978	654051.34	5018819.82	Non-Participating	Yes	30
979	654060.87	5018781.72	Non-Participating	Yes	29
980	654100.02	5018783.83	Non-Participating	Yes	29
981	654098.97	5018738.32	Non-Participating	Yes	29
982	654058.75	5018740.44	Non-Participating	Yes	30
983	654134.95	5018784.89	Non-Participating	Yes	29
984	654136.01	5018744.67	Non-Participating	Yes	29
985	654104.26	5018656.83	Non-Participating	Yes	29
986	654054.52	5018682.23	Non-Participating	Yes	30
987	654011.12	5018692.82	Non-Participating	Yes	30
988	654193.16	5018864.27	Non-Participating	Yes	29
989	654247.13	5018830.40	Non-Participating	Yes	29
990	654284.17	5018758.43	Non-Participating	Yes	29
991	654237.61	5018695.99	Non-Participating	Yes	29
992	654160.35	5018557.35	Non-Participating	Yes	29
993	654118.02	5018592.27	Non-Participating	Yes	29
994	654088.38	5018585.92	Non-Participating	Yes	29
995	654096.85	5018546.77	Non-Participating	Yes	29
996	654075.68	5018498.08	Non-Participating	Yes	30
997	654075.68	5018466.33	Non-Participating	Yes	30
998	654167.76	5018458.92	Non-Participating	Yes	29
999	654156.12	5018498.08	Non-Participating	Yes	29



**Table B-1: Sensitive Receptor Results by Receptor - Roberts County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Occupied?	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)			
1000	654013.24	5018454.69	Non-Participating	Yes	30
1001	653986.78	5018446.22	Non-Participating	Yes	30
1002	653980.43	5018480.09	Non-Participating	Yes	30
1003	653975.14	5018568.99	Non-Participating	Yes	30
1004	653933.87	5018491.73	Non-Participating	Yes	30
1005	653876.72	5018492.79	Non-Participating	Yes	30
1006	653880.95	5018543.59	Non-Participating	Yes	30
1007	653833.32	5018607.09	Non-Participating	Yes	30
1008	653789.93	5018604.97	Non-Participating	Yes	31
1009	653789.93	5018572.17	Non-Participating	Yes	31
1010	653785.70	5018529.83	Non-Participating	Yes	31
1011	653792.05	5018446.22	Non-Participating	Yes	31
1012	653793.11	5018411.30	Non-Participating	Yes	31
1013	653755.01	5018415.53	Non-Participating	Yes	31
1014	653746.54	5018463.16	Non-Participating	Yes	31
1015	653702.09	5018464.22	Non-Participating	Yes	31
1016	653707.38	5018314.99	Non-Participating	Yes	31
1017	653758.18	5018316.05	Non-Participating	Yes	31
1018	653751.83	5018374.26	Non-Participating	Yes	31
1019	653660.82	5018297.00	Non-Participating	Yes	31
1020	653758.18	5018239.85	Non-Participating	Yes	31
1021	653751.83	5018171.06	Non-Participating	Yes	31
1022	653750.77	5018124.49	Non-Participating	Yes	31
1023	653942.33	5017978.44	Non-Participating	Yes	30
1024	652007.10	5018428.62	Non-Participating	Yes	43
1025	651904.31	5018493.71	Participating	Yes	44
1026	652040.04	5018481.80	Non-Participating	No	42
1027	652055.92	5018455.21	Non-Participating	No	42
1028	651881.29	5018466.72	Participating	No	44
1029	651848.75	5018492.91	Participating	No	45
1030	651846.37	5018518.31	Participating	No	45
1031	645549.34	5018139.28	Non-Participating	Yes	45
1032	645441.78	5018112.69	Participating	No	44
1033	645405.27	5018099.60	Participating	No	44
1034	645417.57	5018175.80	Participating	No	44
1035	645401.70	5018177.38	Participating	No	44
1036	645562.04	5018101.98	Non-Participating	Yes	44
1037	645441.78	5018144.84	Participating	Yes	44
1038	645429.08	5018071.42	Participating	No	44
1039	645424.32	5018071.42	Participating	No	44
1040	645417.57	5018071.42	Participating	No	44
1041	645412.41	5018071.02	Participating	No	44
1042	645405.27	5018070.62	Participating	No	44
1043	645398.13	5018069.83	Participating	No	43
1044	645391.78	5018069.83	Participating	No	43
1045	645384.63	5018069.43	Participating	No	43
1046	643962.03	5018210.66	Participating	No	45

**Table B-1: Sensitive Receptor Results by Receptor - Roberts County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Occupied?	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)			
1047	643979.49	5018300.61	Participating	No	46
1048	643968.38	5018335.54	Participating	No	45
1049	643942.45	5018308.02	Participating	Yes	45
1050	643141.20	5019297.31	Non-Participating	Yes	39
1051	643087.63	5019295.33	Non-Participating	No	38
1052	643142.39	5019386.61	Non-Participating	No	39
1053	645969.02	5019070.40	Participating	No	45
1054	645928.01	5019106.78	Participating	No	45
1055	646654.96	5018883.21	Non-Participating	No	42
1056	646678.77	5018921.57	Non-Participating	No	43
1057	646650.99	5018984.41	Non-Participating	No	43
1058	646657.60	5018952.66	Non-Participating	No	43
1059	646606.01	5018985.74	Non-Participating	No	43
1060	646631.14	5018927.53	Non-Participating	Yes	43
1061	647630.61	5019088.92	Participating	Yes	44
1062	647573.72	5018982.43	Participating	No	43
1063	647616.72	5019021.46	Participating	No	43
1064	647692.13	5019070.40	Participating	No	44
1065	647682.86	5019092.23	Participating	No	44
1066	648770.30	5019338.96	Participating	No	45
1067	648739.88	5019368.72	Participating	Yes	45
1068	649770.43	5019268.18	Non-Participating	Yes	43
1069	649840.55	5019297.28	Non-Participating	No	43
1071	644598.95	5020889.63	Participating	Yes	44
1072	645356.99	5021362.71	Non-Participating	Yes	41
1073	645326.03	5021338.90	Non-Participating	No	41
1074	644677.53	5020973.77	Participating	No	43
1075	644602.13	5020963.45	Participating	No	43
1076	644754.53	5020911.06	Participating	No	43
1077	644664.04	5020911.86	Participating	No	44
1078	644646.58	5020880.90	Participating	No	44
1079	644610.06	5020920.59	Participating	Yes	44
1080	644582.28	5020830.89	Participating	No	45
1081	645450.73	5022016.36	Non-Participating	Yes	36
1082	645459.86	5021977.07	Non-Participating	No	36
1083	647540.28	5021057.51	Non-Participating	No	43
1084	650455.16	5020356.05	Participating	No	38
1085	650478.98	5020337.00	Participating	No	38
1086	650430.29	5020350.23	Participating	Yes	38
1087	651845.75	5019968.54	Non-Participating	Yes	36
1088	651820.09	5019967.22	Participating	No	36
1089	652148.21	5020111.75	Non-Participating	No	34
1090	652165.41	5020130.93	Non-Participating	No	34
1091	653419.21	5019117.51	Non-Participating	No	32
1092	653498.58	5019091.05	Non-Participating	No	31
1093	653454.27	5019124.78	Non-Participating	Yes	31
1095	653878.92	5019204.82	Non-Participating	Yes	30

**Table B-1: Sensitive Receptor Results by Receptor - Roberts County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Occupied?	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)			
1096	653892.81	5019481.31	Non-Participating	Yes	29
1097	654050.90	5019609.63	Non-Participating	Yes	29
1098	654293.66	5019607.65	Non-Participating	Yes	28
1162	652138.05	5021042.12	Non-Participating	Yes	31
1163	652096.38	5021072.55	Non-Participating	No	31
1164	651763.66	5021900.70	Non-Participating	No	30
1165	651747.13	5021999.92	Non-Participating	No	30
1166	651799.38	5021975.44	Non-Participating	No	30
1167	651800.70	5021983.38	Non-Participating	No	30
1168	651802.69	5021991.98	Non-Participating	No	29
1169	651774.25	5022027.04	Non-Participating	Yes	29
1171	650692.76	5022671.96	Non-Participating	No	29
1172	650657.04	5022683.21	Non-Participating	No	29
1173	650323.00	5022839.31	Non-Participating	No	28
1174	650256.86	5022865.77	Non-Participating	No	29
1175	650244.29	5022880.98	Non-Participating	Yes	29
1177	648505.80	5022642.72	Non-Participating	No	32
1178	648394.67	5022729.51	Non-Participating	No	32
1179	648456.06	5022768.67	Non-Participating	No	32
1180	648470.34	5022730.04	Non-Participating	Yes	32
1181	648648.67	5021826.75	Non-Participating	Yes	35
1182	648635.97	5021919.35	Non-Participating	No	35
1183	648632.80	5021869.08	Non-Participating	No	35
1184	648676.72	5021823.04	Non-Participating	No	35
1185	648673.54	5021782.83	Non-Participating	Yes	35
1186	648675.66	5021761.13	Non-Participating	No	36
1217	653334.91	5022188.01	Non-Participating	No	27
1218	653362.03	5022242.91	Non-Participating	No	27
1219	653358.73	5022176.11	Non-Participating	No	27
1220	653401.72	5022226.38	Non-Participating	Yes	27
1371	641377.12	5021901.76	Non-Participating	No	28
2464	653885.69	5018617.60	Non-Participating	Yes	30
2569	643740.41	5020526.47	Participating	Yes	43
2570	643763.90	5020463.66	Participating	No	43
3369	653357.06	5019308.47	Non-Participating	Yes	32
3370	653386.66	5019309.46	Non-Participating	Yes	31
3371	653412.09	5019310.84	Non-Participating	Yes	31
3372	653442.11	5019311.42	Non-Participating	Yes	31
3373	653467.54	5019311.97	Non-Participating	Yes	31
3374	653494.22	5019312.94	Non-Participating	Yes	31
3769	653603.40	5018596.29	Non-Participating	Yes	31
3770	653604.82	5018578.43	Non-Participating	Yes	31
3771	653605.25	5018559.25	Non-Participating	Yes	31
3772	653606.32	5018544.38	Non-Participating	Yes	31
3773	653606.78	5018519.91	Non-Participating	Yes	31
3774	653738.12	5018572.85	Non-Participating	Yes	31
3775	653833.37	5018573.34	Non-Participating	Yes	30

**Table B-1: Sensitive Receptor Results by Receptor - Roberts County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Occupied?	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)			
3776	653746.30	5018527.91	Non-Participating	Yes	31
3777	653783.39	5018643.52	Non-Participating	Yes	31
3778	653830.24	5018539.59	Non-Participating	Yes	30
3779	653824.23	5018486.98	Non-Participating	Yes	30
3780	653711.74	5018495.32	Non-Participating	Yes	31
3781	653836.59	5018462.57	Non-Participating	Yes	30
3782	653835.10	5018431.80	Non-Participating	Yes	30
3783	653698.14	5018375.86	Non-Participating	Yes	31
3784	653712.83	5018413.97	Non-Participating	Yes	31
3785	653654.57	5018423.59	Non-Participating	Yes	31
3786	653610.61	5018419.39	Non-Participating	Yes	31
3787	653608.95	5018483.21	Non-Participating	Yes	31
3788	653609.72	5018462.71	Non-Participating	Yes	31
3789	653612.12	5018445.52	Non-Participating	Yes	31
3790	653731.26	5018526.38	Non-Participating	Yes	31
3791	653653.83	5018482.45	Non-Participating	Yes	31
3792	653684.55	5018762.40	Non-Participating	Yes	31
3793	653822.23	5018807.10	Non-Participating	Yes	30
3794	653619.64	5018711.28	Non-Participating	Yes	31
3795	653796.87	5018723.96	Non-Participating	Yes	30
3796	653153.96	5019379.44	Non-Participating	Yes	32
3798	647460.57	5018633.20	Non-Participating	Yes	40

**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Occupied?	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)			
569	650655.61	5009314.95	Non-Participating	No	28
570	650655.44	5009322.09	Non-Participating	No	28
571	650655.88	5009328.95	Non-Participating	No	28
572	650812.37	5008555.08	Non-Participating	No	25
573	650357.33	5009074.91	Non-Participating	No	28
574	650361.64	5009076.05	Non-Participating	No	28
575	650367.78	5009075.16	Non-Participating	No	28
576	650373.62	5009074.85	Non-Participating	No	28
577	650353.13	5009075.55	Non-Participating	No	28
578	650418.63	5008803.51	Non-Participating	No	27
579	650424.60	5008803.66	Non-Participating	No	27
580	650430.12	5008803.94	Non-Participating	No	27
581	650435.65	5008803.92	Non-Participating	No	27
582	650440.88	5008804.04	Non-Participating	No	27
584	645856.45	5008543.80	Non-Participating	No	27
585	645863.36	5008543.59	Non-Participating	No	27
586	645872.28	5008610.60	Non-Participating	No	27
587	645881.05	5008610.62	Non-Participating	No	27
588	645893.33	5008612.76	Non-Participating	No	27
589	645913.20	5008609.50	Non-Participating	No	27
590	645825.23	5008480.74	Non-Participating	No	27
591	646381.49	5009661.58	Non-Participating	No	30
592	647256.80	5010821.58	Participating	No	36
593	647235.37	5010818.40	Participating	No	36
594	647223.68	5010820.21	Participating	No	36
595	649109.27	5010799.30	Participating	No	39
596	649089.51	5010782.32	Participating	No	39
597	649095.33	5010782.45	Participating	No	39
598	649102.06	5010781.94	Participating	No	39
638	646364.45	5011342.22	Non-Participating	No	42
639	645581.19	5011275.19	Participating	No	39
640	645600.32	5011274.27	Participating	No	39
641	645611.23	5011274.52	Participating	No	39
667	654477.01	5017621.71	Non-Participating	No	27
668	654369.31	5017619.71	Non-Participating	No	28
671	654440.66	5017764.63	Non-Participating	Yes	27
672	654505.30	5017699.22	Non-Participating	No	24
673	654765.63	5017786.32	Non-Participating	No	27
674	650706.84	5013445.00	Non-Participating	No	36
675	649055.08	5013130.33	Participating	No	44
676	649111.77	5013137.89	Participating	No	44
677	649127.84	5013136.95	Participating	No	44
678	649096.66	5013193.64	Participating	No	44
679	649108.94	5013193.64	Participating	No	44
680	649108.94	5013193.64	Participating	No	44
681	649000.27	5013158.68	Participating	No	45
682	648992.71	5013143.56	Participating	No	45

**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Occupied?	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)			
683	647329.54	5013167.93	Non-Participating	No	43
684	647338.47	5013168.60	Non-Participating	No	43
685	647346.08	5013169.92	Non-Participating	No	43
686	647355.67	5013170.25	Non-Participating	No	43
687	647323.59	5013228.79	Non-Participating	No	43
688	647329.54	5013228.79	Non-Participating	No	43
689	647139.01	5014024.33	Participating	Yes	45
690	647091.06	5014040.04	Participating	No	46
691	647096.85	5013921.81	Participating	No	46
692	647085.68	5013986.57	Participating	No	46
693	647086.24	5013976.65	Participating	No	46
694	647086.79	5013967.83	Participating	No	46
695	647076.86	5013967.83	Participating	No	47
696	647075.21	5013976.65	Participating	No	47
697	647075.21	5013987.12	Participating	No	47
698	647076.86	5013934.76	Participating	No	47
699	647078.52	5013924.84	Participating	No	47
700	647048.75	5013895.07	Participating	No	47
701	647049.30	5013905.54	Participating	No	47
702	647036.63	5013905.54	Participating	No	48
703	647046.55	5013925.94	Participating	No	47
704	647043.79	5013934.76	Participating	No	47
705	647045.45	5013943.03	Participating	No	47
706	647044.89	5013963.97	Participating	No	47
707	647044.34	5013978.86	Participating	No	47
708	647043.79	5013986.57	Participating	No	47
709	647045.45	5014008.62	Participating	No	47
710	647038.28	5014008.62	Participating	No	47
711	646127.95	5014229.11	Participating	No	43
712	646121.88	5014229.11	Participating	No	43
713	646115.27	5014229.11	Participating	No	43
714	646108.65	5014229.66	Participating	No	43
715	646089.91	5014221.39	Participating	No	43
716	646153.85	5014222.49	Participating	No	43
717	646195.19	5014175.09	Participating	No	44
718	646118.02	5014249.50	Participating	No	43
719	646084.40	5014279.82	Participating	No	42
720	646111.96	5014301.87	Participating	Yes	42
721	650227.89	5014434.71	Non-Participating	Yes	44
722	650207.50	5014449.60	Non-Participating	No	44
723	650200.88	5014449.60	Non-Participating	No	44
724	650171.67	5014421.48	Non-Participating	No	44
725	650180.49	5014452.90	Non-Participating	Yes	44
726	650160.64	5014422.59	Non-Participating	No	44
727	648895.05	5014567.56	Participating	Yes	43
728	648857.57	5014749.46	Participating	Yes	43
729	648896.15	5014710.32	Participating	No	43

**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Occupied?	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)			
730	648954.58	5014688.27	Participating	No	43
731	648938.60	5014782.53	Participating	No	43
732	648893.40	5014764.34	Participating	No	43
733	648927.57	5014772.06	Participating	No	43
734	648928.12	5014779.77	Participating	No	43
735	648901.67	5014779.22	Participating	No	43
736	648903.32	5014772.61	Participating	No	43
737	648903.32	5014764.34	Participating	No	43
738	647097.54	5014730.16	Participating	Yes	43
739	647101.94	5014808.44	Participating	No	43
740	647073.83	5014779.77	Participating	No	43
741	647096.43	5014673.39	Participating	No	43
742	647096.43	5014667.88	Participating	No	43
743	645515.54	5014966.64	Participating	No	41
744	645511.35	5015039.18	Participating	Yes	41
745	645500.11	5015039.51	Participating	Yes	41
746	645488.20	5015041.82	Participating	Yes	41
747	645475.97	5015042.48	Participating	Yes	41
748	645483.57	5015016.03	Participating	No	40
752	645456.19	5015387.96	Participating	No	41
756	644633.40	5014490.63	Participating	Yes	35
757	644699.02	5014523.97	Participating	No	35
758	644688.97	5014556.78	Participating	No	35
759	644662.51	5014589.06	Participating	No	35
760	644650.87	5014618.69	Participating	No	35
761	644676.80	5014628.74	Participating	No	35
762	644346.60	5014822.95	Participating	No	34
763	644380.46	5014773.74	Participating	No	34
764	644415.39	5014756.80	Participating	No	34
765	644433.91	5014726.64	Participating	No	34
766	644471.48	5014679.01	Participating	No	34
767	644488.94	5014596.46	Participating	Yes	34
768	644603.24	5014591.17	Participating	No	35
769	647399.27	5015986.51	Participating	Yes	42
770	647454.83	5016038.43	Participating	No	43
771	647445.90	5015956.74	Participating	No	43
772	647422.42	5015911.76	Participating	No	43
773	647459.13	5016012.97	Participating	No	43
774	647461.45	5015953.10	Participating	No	43
775	647457.48	5016001.72	Participating	No	43
776	651813.15	5014591.35	Non-Participating	Yes	34
777	651778.23	5014579.18	Non-Participating	Yes	34
778	651881.15	5014455.09	Non-Participating	Yes	33
779	651659.69	5014649.03	Non-Participating	No	35
797	644388.43	5015993.78	Participating	No	37
799	644347.42	5015979.23	Participating	No	37
800	643969.72	5016091.68	Non-Participating	No	36

**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Occupied?	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)			
801	643999.49	5016084.40	Non-Participating	Yes	36
802	643977.66	5016340.39	Non-Participating	Yes	37
803	646221.99	5016509.06	Participating	Yes	39
804	646190.90	5016458.79	Participating	No	39
805	646145.92	5016476.65	Participating	No	39
806	646127.40	5016510.38	Participating	No	39
807	646163.78	5016423.73	Participating	No	39
808	646171.06	5016423.07	Participating	No	39
809	647283.77	5016724.17	Participating	No	41
810	647284.96	5016717.42	Participating	No	41
811	647286.15	5016710.28	Participating	No	41
812	647276.62	5016705.91	Participating	No	41
813	647227.01	5016714.64	Participating	No	41
814	647294.09	5016667.81	Participating	No	41
815	647292.90	5016636.46	Participating	No	41
816	647225.43	5016639.23	Participating	Yes	41
817	647920.06	5017342.93	Participating	No	42
818	647914.50	5017334.59	Participating	No	42
819	647910.93	5017326.66	Participating	No	42
820	647907.36	5017321.10	Participating	No	42
821	647904.58	5017314.75	Participating	No	42
822	647901.41	5017308.80	Participating	No	42
823	647897.83	5017302.45	Participating	No	42
824	647929.58	5017194.50	Participating	No	43
825	647921.25	5017194.50	Participating	No	43
826	647922.84	5017174.65	Participating	No	43
827	647929.58	5017175.84	Participating	No	43
828	647874.81	5017215.13	Participating	No	42
829	647876.80	5017207.59	Participating	No	42
830	647779.17	5017234.58	Participating	No	42
831	647831.16	5017234.18	Participating	No	42
832	647866.48	5017264.35	Participating	No	42
833	647950.22	5017211.56	Participating	No	43
834	647910.93	5017290.14	Participating	No	42
835	647897.44	5017210.37	Participating	No	42
836	647897.04	5017225.85	Participating	No	42
837	647851.40	5017188.15	Participating	No	42
838	647860.92	5017125.44	Participating	No	43
839	647898.23	5017253.63	Participating	Yes	42
840	648971.54	5015975.43	Non-Participating	No	45
841	652396.31	5016321.44	Non-Participating	No	34
842	652387.85	5016207.14	Non-Participating	No	33
843	652390.49	5016269.05	Non-Participating	No	33
844	652391.55	5016251.06	Non-Participating	No	33
845	652435.47	5016190.20	Non-Participating	No	32
846	652438.65	5016205.55	Non-Participating	Yes	32
1381	644892.87	5009700.02	Non-Participating	No	29



**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Occupied?	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)			
1382	644892.46	5009690.93	Non-Participating	No	29
1383	644892.94	5009681.23	Non-Participating	No	29
1384	644801.52	5009641.13	Non-Participating	No	28
1385	644802.36	5009635.06	Non-Participating	No	28
1976	647303.97	5007251.04	Non-Participating	Yes	25
1977	647254.71	5007256.45	Non-Participating	No	25
1978	647224.09	5007221.18	Non-Participating	No	24
1979	647282.08	5007185.04	Non-Participating	No	24
1980	647295.49	5007219.92	Non-Participating	No	24
1981	647232.96	5007186.75	Non-Participating	No	24
1982	648397.12	5007404.49	Non-Participating	No	24
1983	648429.08	5007405.89	Non-Participating	No	24
1984	648407.50	5007439.13	Non-Participating	No	24
1985	648480.56	5007489.68	Non-Participating	Yes	24
1986	649016.69	5007529.25	Non-Participating	No	25
1987	649083.23	5007600.36	Non-Participating	No	25
1988	649022.20	5007623.82	Non-Participating	No	25
1989	649067.37	5007215.51	Non-Participating	No	24
2186	652004.55	5009315.55	Non-Participating	No	24
2187	652011.48	5009353.67	Non-Participating	No	24
2188	651968.05	5009280.43	Non-Participating	No	24
2189	651984.41	5009299.06	Non-Participating	No	24
2190	652079.70	5009234.35	Non-Participating	No	23
2191	651974.01	5009343.47	Non-Participating	No	24
2192	651978.16	5009341.71	Non-Participating	No	24
2193	652045.23	5009239.11	Non-Participating	Yes	24
2194	650636.03	5009296.62	Non-Participating	No	28
2195	650621.29	5009376.36	Non-Participating	Yes	28
2196	650637.75	5009375.27	Non-Participating	No	28
2197	650640.57	5009319.36	Non-Participating	No	28
2198	650789.37	5008570.83	Non-Participating	No	25
2199	650792.95	5008524.02	Non-Participating	No	26
2200	650451.20	5008993.05	Non-Participating	No	27
2201	650511.28	5008972.89	Non-Participating	No	27
2202	650454.57	5009065.19	Non-Participating	No	28
2203	650397.34	5009047.01	Non-Participating	No	28
2204	650431.62	5009062.71	Non-Participating	No	28
2205	650503.26	5009033.74	Non-Participating	Yes	27
2206	650245.22	5009028.03	Non-Participating	No	28
2207	650227.43	5009105.24	Non-Participating	No	28
2208	650291.19	5009109.20	Non-Participating	No	28
2209	650266.51	5009129.39	Non-Participating	No	28
2210	650404.49	5008782.78	Non-Participating	No	27
2211	650402.75	5008799.12	Non-Participating	No	27
2212	650493.66	5008776.86	Non-Participating	Yes	27
2213	645881.03	5008546.97	Non-Participating	No	27
2214	645840.98	5008574.90	Non-Participating	Yes	27

**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Occupied?	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)			
2215	645876.21	5008512.81	Non-Participating	No	27
2216	645901.09	5007993.08	Non-Participating	No	26
2217	645708.61	5008004.25	Non-Participating	Yes	25
2218	645720.53	5008021.46	Non-Participating	Yes	25
2219	645631.03	5008056.63	Non-Participating	Yes	26
2220	645560.46	5008023.00	Non-Participating	Yes	25
2221	645560.46	5008023.00	Non-Participating	No	25
2222	645561.02	5008023.38	Non-Participating	No	25
2223	645631.03	5008056.63	Non-Participating	No	26
2224	645631.03	5008056.63	Non-Participating	No	26
2225	645608.28	5007990.03	Non-Participating	No	25
2226	645578.93	5008048.55	Non-Participating	No	25
2227	644883.47	5009382.64	Non-Participating	No	28
2228	644887.00	5009408.03	Non-Participating	No	28
2229	644906.27	5009414.05	Non-Participating	No	28
2230	644920.93	5009426.30	Non-Participating	Yes	28
2231	646350.92	5009704.64	Non-Participating	No	31
2232	646346.49	5009644.25	Non-Participating	No	30
2233	646389.71	5009664.22	Non-Participating	No	30
2234	646415.62	5009648.30	Non-Participating	No	30
2235	646427.10	5009646.11	Non-Participating	No	30
2236	646374.72	5009624.58	Non-Participating	Yes	30
2237	647150.23	5010852.56	Participating	No	36
2238	647194.50	5010875.61	Participating	No	36
2239	647229.03	5010859.63	Participating	Yes	36
2240	648982.24	5010914.63	Participating	Yes	40
2241	649080.25	5010909.13	Participating	No	40
2242	648974.09	5010822.91	Non-Participating	Yes	39
2243	650458.09	5010135.55	Non-Participating	Yes	31
2244	651399.84	5010537.19	Non-Participating	Yes	29
2270	645591.52	5011330.52	Participating	Yes	40
2271	646356.26	5011253.61	Non-Participating	Yes	41
2272	645585.78	5011401.80	Participating	No	41
2273	645538.58	5011347.66	Participating	No	40
2274	646389.47	5011293.14	Non-Participating	No	41
2275	646415.18	5011273.33	Non-Participating	No	41
2276	646361.55	5011290.46	Non-Participating	No	41
2277	647415.35	5011482.18	Non-Participating	Yes	39
2278	647379.17	5011394.43	Non-Participating	No	39
2293	650616.12	5013442.16	Non-Participating	Yes	37
2294	650696.44	5013445.94	Non-Participating	No	36
2295	650676.60	5013430.83	Non-Participating	No	36
2296	650673.76	5013421.38	Non-Participating	No	36
2297	650627.46	5013453.50	Non-Participating	No	37
2298	649069.25	5013233.33	Participating	No	45
2299	649041.85	5013179.47	Participating	No	45
2300	649080.59	5013142.62	Participating	No	44

**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Occupied?	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)			
2301	649008.78	5013133.17	Participating	No	44
2302	649037.12	5013089.70	Participating	No	44
2303	648954.91	5013131.28	Participating	No	45
2304	648997.44	5013169.08	Participating	No	45
2305	648987.99	5013202.15	Participating	Yes	45
2306	647290.87	5013273.96	Non-Participating	Yes	43
2307	647329.61	5013373.18	Non-Participating	No	43
2308	647343.79	5013329.72	Non-Participating	No	43
2309	647376.86	5013304.20	Non-Participating	No	43
2310	647304.10	5013205.93	Non-Participating	No	43
2311	647304.10	5013176.64	Non-Participating	No	43
2312	647295.15	5013319.08	Non-Participating	No	43
2313	647295.81	5013385.89	Non-Participating	No	43
2314	647298.12	5013371.00	Non-Participating	No	43
2423	643933.96	5009635.42	Non-Participating	Yes	27
2424	643946.39	5009641.33	Non-Participating	Yes	27
2425	643975.79	5009665.94	Non-Participating	No	27
2426	644853.33	5009638.98	Non-Participating	Yes	29
2427	644862.14	5009641.30	Non-Participating	Yes	29
2428	644848.89	5009672.37	Non-Participating	No	29
2429	644901.25	5009666.58	Non-Participating	No	29
2430	644788.31	5009700.09	Non-Participating	No	29
2431	644753.13	5009673.55	Non-Participating	No	28
2432	644681.23	5009668.07	Non-Participating	No	28
2433	644718.39	5009658.52	Non-Participating	No	28
2434	644728.55	5009671.12	Non-Participating	No	28
2435	644759.74	5009620.13	Non-Participating	No	28
2436	644726.99	5009642.96	Non-Participating	No	28
2437	644749.25	5009654.50	Non-Participating	No	28
2438	644793.42	5009647.29	Non-Participating	No	28
2439	644803.12	5009672.33	Non-Participating	No	29
2440	644801.56	5009619.01	Non-Participating	No	28
2441	644801.96	5009626.88	Non-Participating	No	28
2469	645864.11	5008430.88	Non-Participating	No	26
2495	648692.68	5007983.40	Non-Participating	No	25
2496	643667.62	5012693.36	Non-Participating	Yes	31
2497	643627.55	5012618.92	Non-Participating	No	31
2498	643612.69	5012703.95	Non-Participating	No	31
2499	643588.71	5012604.37	Non-Participating	No	31
2500	643616.37	5012655.62	Non-Participating	No	31
2521	644116.25	5010595.94	Non-Participating	Yes	29
2522	644199.80	5010616.97	Non-Participating	No	29
2523	644157.37	5010568.03	Non-Participating	No	29
2524	644193.15	5010568.01	Non-Participating	No	29
2525	644166.97	5010609.29	Non-Participating	No	29
2526	644177.53	5010608.42	Non-Participating	No	29
2527	644178.38	5010595.40	Non-Participating	No	29

**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Occupied?	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)			
2528	645577.99	5010725.78	Participating	Yes	35
2529	645540.65	5010751.32	Participating	No	35
2530	645554.61	5010749.35	Participating	No	35
2554	643750.44	5016047.80	Participating	Yes	35
2555	643882.17	5016060.13	Non-Participating	No	36
2556	643811.08	5015949.57	Non-Participating	No	35
2557	643861.64	5015986.64	Non-Participating	No	35
2558	643864.12	5016147.92	Non-Participating	No	36
2559	643643.91	5015915.41	Non-Participating	No	34
2560	643872.16	5016102.25	Non-Participating	No	36
2561	643872.81	5016086.78	Non-Participating	No	36
2562	643871.79	5016080.04	Non-Participating	No	36
2563	643866.02	5016051.00	Non-Participating	No	35
2564	643873.30	5016052.04	Non-Participating	No	35
2565	643727.73	5015980.11	Non-Participating	No	35
2566	643755.87	5015975.78	Non-Participating	No	35
2567	643766.66	5015976.32	Non-Participating	No	35
2568	643783.89	5015976.41	Non-Participating	No	35
2571	645455.16	5015327.96	Participating	No	41
2572	645476.01	5015383.27	Participating	Yes	42
2573	645485.86	5015380.02	Participating	Yes	42
2574	645493.52	5015381.73	Participating	Yes	42
2575	645504.71	5015378.12	Participating	Yes	42
2576	645515.66	5015380.47	Participating	Yes	42
2578	646310.24	5014306.02	Participating	Yes	44
2579	649001.28	5014751.92	Participating	No	42
2580	648997.19	5014739.07	Participating	No	42
2972	644922.56	5009429.71	Non-Participating	Yes	28
2973	649025.05	5010906.20	Participating	Yes	40
2974	647394.85	5011472.38	Non-Participating	Yes	39
2975	643939.34	5009639.68	Non-Participating	Yes	27
2976	644856.17	5009637.68	Non-Participating	Yes	29
3797	644380.38	5016007.67	Participating	Yes	37
4198	644000.03	5014277.21	Non-Participating	Yes	33