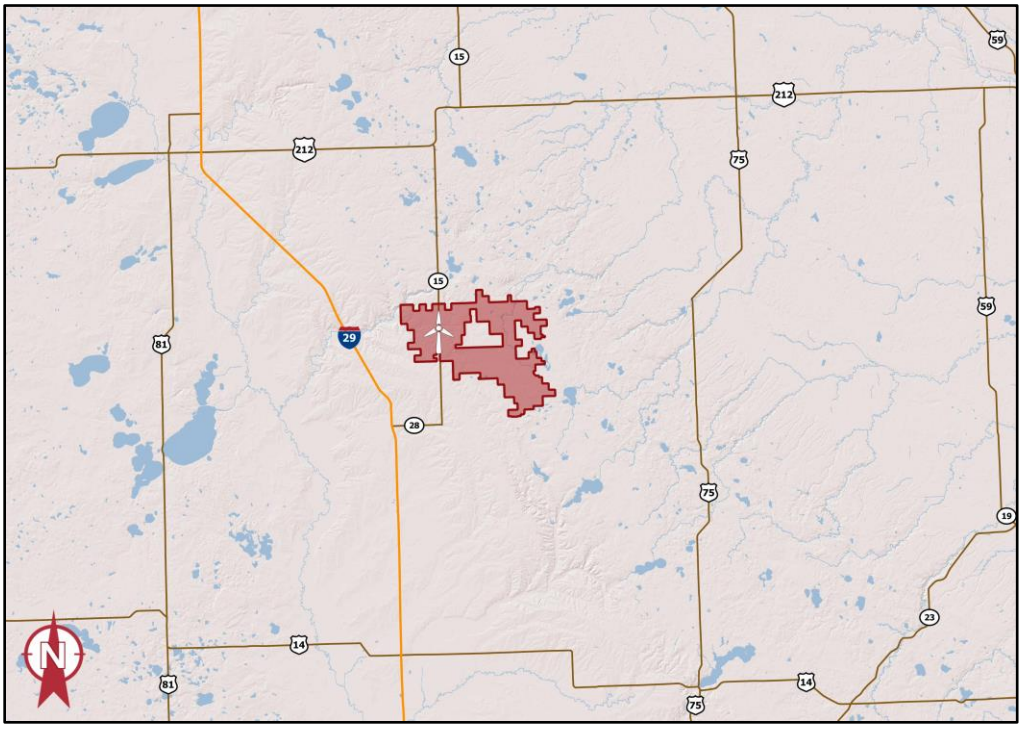
Appendix M – Noise Analysis

Noise Analysis

for the proposed

South Deuel Wind Project

June 20, 2024



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1. Introduction

This report describes a pre-construction noise analysis conducted by Hankard Environmental for the proposed South Deuel Wind Project (Project) in support of its application to the South Dakota Public Utilities Commission for an energy facility permit. Deuel Harvest Wind Energy South LLC (South Deuel Wind), an affiliate of Invenergy LLC (Invenergy), is developing the up to 260-megawatt (MW) Project located in Deuel County, South Dakota. Figure 1-1 shows the general location of the Project.

This report describes the methods and results of a noise analysis that demonstrates that the Project is designed to conform with the Deuel County Zoning Ordinance (Zoning Ordinance). Described herein are the applicable noise standards, the Project and its environs, the methods and data used to predict noise levels, the results of the noise level predictions, and demonstration of compliance with the Zoning Ordinance.

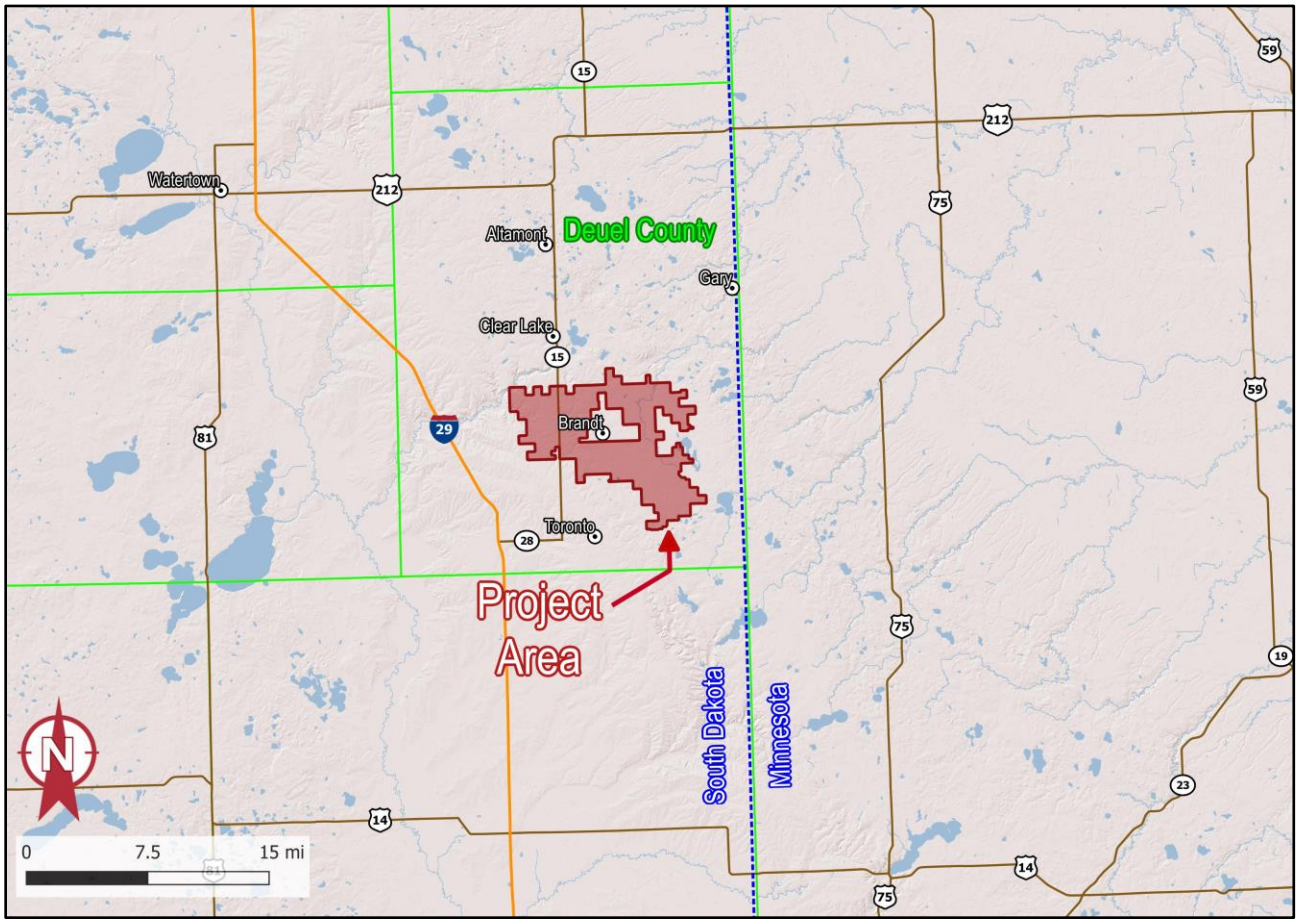

Figure 1-1. General Location of the Proposed South Deuel Wind Project

2. Applicable Noise Standards

Section 1215.03(a) Paragraph 13 of the Deuel County Zoning Ordinance provides:

> *a. Noise level for non-participating residences shall not exceed 45 DBA, average A-Weighted Sound pressure. The noise level is to be measured at the perimeter of existing non-participating residences.*

There are no other *numerical* local, state, or federal noise limits applicable to the Project.

There is one other noise-related requirement at the state level: South Dakota Administrative Rule 20:10:22:33.02(5) requires that an application for an energy facility permit include "Anticipated noise levels at the exterior of all occupied residences located within the affected area during construction and operation." The noise levels reported herein are those expected during operation, construction noise levels were not predicted at individual residences. Noise from construction of the Project will be typical of that produced by standard construction equipment and is not expected to create any significant impacts. Information regarding construction noise levels is provided in Section 6.

The Zoning Ordinance does not specify a time interval associated with assessing noise from wind energy conversion systems. The noise levels predicted in this analysis are in the form of the energy equivalent average noise level (L_{eq}) over a short duration of time (one hour), which is a practical and widely utilized duration for assessing both industrial and community noise levels.

3. Project Description

The Project is located in Brandt, Norden, Clear Lake, Scandinavia, and Blom Townships in Deuel County, South Dakota. Land use in the area is predominantly agricultural. The proposed wind turbines and associated facilities are sited on agricultural lands. An existing wind farm, Tatanka Ridge, is located to the southwest of the Project.

Three different turbine models were analyzed to predict noise at existing residences (receptors). The noise models included up to 73 proposed turbine locations. All proposed turbine locations in the Project layout remained static for each of the three noise models, with the General Electric 3.8-154 model utilizing all 73 proposed turbine locations, while the other two turbine models only utilized 71. Noise from the Project's collector substation and its two step-up transformers was assessed in each noise model.

Table 3-1 lists the turbine models that were analyzed for this Project, which include the following:

- An analysis with Siemens Gamesa (SG) model 4.4-164 wind turbines with a hub-height of 97.5 meters, utilizing 71 proposed turbine locations[1]. All turbines to be equipped with low-noise blades.
- An analysis with Vestas model V163-4.5 wind turbines with a hub-height of 98 meters, utilizing 71 proposed turbine locations[1]. All turbines to be equipped with serrated trailing edge (STE) blades.
- An analysis with General Electric (GE) model 3.8-154 wind turbines with a hub-height of 98 meters, utilizing 73 proposed turbine locations. All turbines to be equipped with low noise trailing edge (LNTE) blades.

Turbine locations are shown graphically in Figures A-1 through A-8 in Appendix A. Also shown in these figures are the locations of all 85 non-participating and 47 participating residences within approximately 1.25 miles of any proposed turbine location or the collector substation. The geographic coordinates of each of the 132 receptor locations are provided in Appendix B. The geographic coordinates of each Project noise source are provided in Appendix C.

Table 3-1. Wind Turbine Models Analyzed

Turbine Model	Blade Type	Rotor Diameter (m)	Hub Height (m)	Number of Turbines
SG 4.4-164	Low noise	164	97.5	71
Vestas V163-4.5	Serrated Trailing Edge (STE)	163	98.0	71
GE 3.8-154	Low Noise Trailing Edge (LNTE)	154	98.0	73

[1] The SG and Vestas turbine models do not include proposed turbine locations 69 and 76 to match the corresponding Shadow Flicker Analysis prepared for the Project. All turbine models at all proposed turbine locations can be constructed in compliance with Deuel County's 45 dBA limit at all non-participating residences.

4. Noise Modeling Method

Noise levels from the Project were predicted using the modeling method set forth in the International Organization for Standardization (ISO) Standard 9613-2:2024: Attenuation of Sound During Propagation Outdoors. The method was implemented using the SoundPLAN (v8.2) acoustical modeling program. A sample three-dimensional view of the SoundPLAN model is shown in Figure 4-1. The selection of ISO 9613-2:2024 modeling parameters and input data used in the analysis are described below.

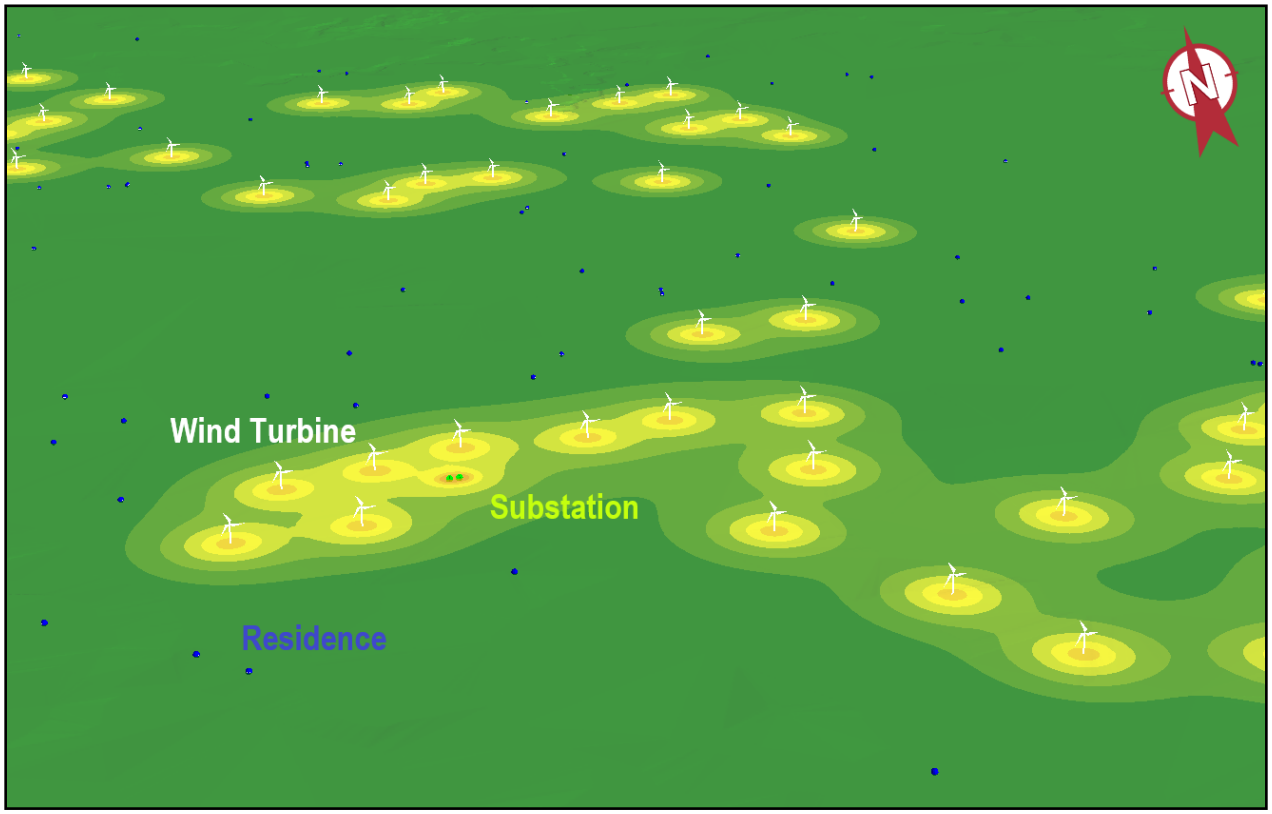

Figure 4-1. Three-Dimensional View of the SoundPLAN Noise Model

Noise Sources

In the SoundPLAN model, each turbine was represented as an acoustical point source located at its hub height, which is 98 meters above the ground for the GE 3.8-154 and V163-4.5 units, 97.5 meters for the SG 4.4-164 units, and three meters for the step-up transformers in the collector substation. No directivity was applied to any noise source, thus assuming maximum acoustic output in all directions. All turbines were assumed to be operating in full, continuous, and normal mode (versus noise-reduction mode). Substation transformers (two 150 MVA) were assumed to be operating fully for all noise analyses. The locations of the turbines and transformers were provided by South Deuel Wind. The proposed turbine locations in each analysis are shown in the figures in Appendix A. The geographic coordinates and elevations of each proposed turbine location and collector substation transformer are listed in Appendix C. The ground elevation for

each turbine location was determined using Digital Elevation Model (DEM) data from the USGS National Elevation Dataset.

Table 4-1 lists the octave band sound power levels for all modeled noise sources in the Project. The levels are expressed in terms of A-weighted decibels (dB) for each of nine standard frequency bands, as defined by the American National Standards Institute (ANSI) Standard S1.11: Specification for Octave-Band and Fractional Octave-Band Analog and Digital Filters. The noise level data for each turbine was provided by the manufacturer and was determined according to International Electrotechnical Commission standard 61400-11. This standard requires wind turbine sound power levels to be reported for a number of wind speed bins across the operating range of the turbine. In general, sound levels increase with increasing wind speeds, up to approximately 10 m/s at hub height. Noise levels do not further increase above this wind speed because the turbines reach a maximum rotational speed. This relationship between wind speed and noise level holds true for each octave band. This analysis used octave band noise levels provided by the manufacturer for the 10 m/s wind speed at hub height, as this is the speed at which the overall noise level reaches its maximum.

The Project's collector substation will contain two 150 megavolt-ampere (MVA) step-up transformers, switch gear, metering, electrical control and communication systems, and other equipment required to increase the electrical collection system voltage to that of the transmission system at the point of interconnection. The only significant noise-producing equipment are the step-up transformers. The sound power levels of the transformers are listed in Table 4-1. The sound level spectrum of the transformers was estimated using the methodology published in the Edison Electric Institute, "Electric Power Plant Environmental Noise Guide," 2nd Edition, BBN, 1984.

Table 4-1. Source Sound Power Levels

Source Type	No. of Units	Octave Band Level (dBA)									Overall Level (dBA)
		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz	8,000 Hz	
SG 4.4-164 low noise	71	78.0	84.3	90.4	94.1	98.5	102.3	102.0	97.3	88.4	107.0
Vestas V163-4.5 STE	71	75.2	87.4	95.6	100.3	101.6	99.9	94.7	86.9	77.0	106.3
GE 3.8-154 LNTE	73	83.6	93.0	97.0	99.0	101.2	104.2	103.2	95.8	79.5	109.0
150 MVA Transformer	2	97.1	103.1	105.1	100.1	100.1	94.1	89.1	84.1	77.1	100.5

Noise Level Metric

The noise levels predicted using this method are in the form of the energy equivalent average noise level (L_{eq}) over a one-hour period of maximum acoustic emissions from the turbines and the transformers at the collector substation.

Receptors

In the SoundPLAN model, receptors were located at each of the non-participating and participating residences located within 1.25 miles of proposed turbine locations or the collector substation. The location of each receptor is shown in Figures A-1 through A-8 in Appendix A. The geographic coordinates of each receptor are listed in Appendix B. In accordance with ANSI ACP 111-1 (2022) and ISO 9613-2:2024, each receptor's height was set to 1.5 meters (5 feet) above the ground.

Terrain and Ground Effect

Terrain in the Project area was modeled by importing DEM data from the USGS National Elevation Dataset into SoundPLAN. The acoustical effect of the ground was modeled using the ISO 9613-2:2024 General Method. This requires the selection of ground absorption factors for the ground near the source, near the receiver, and in between. Ground factors range from 0.0 to 1.0 and represent the proportion of sound that is absorbed or reflected when sound waves interact with the ground. A value of 0.0 represents completely reflective ground material such as pavement or flat water, and results in a higher level of sound reaching a receptor. A value of 1.0 represents absorptive material such as thick grass, crops, or fresh snow, and results in a lower level of sound reaching a receptor. For this noise analysis, we conservatively assumed a ground factor of 0.0 (completely reflective) in accordance with ANSI standards, as described below.

Atmospheric Conditions

The air temperature, relative humidity, and atmospheric pressure were set to 10°C, 70%, and 1 atmosphere, respectively. Per ISO 9613-2:2024, these values result in the least amount of atmospheric sound absorption and the highest levels of sound reaching the receivers.

Validation of Noise Prediction Method

The noise level prediction method employed in this noise analysis is consistent with that described by ANSI/ACP Standard 111-1 (2022): *Wind Turbine Sound Modeling* (Option 1). The noise level prediction method specified by ANSI ACP 111-1 (2022) has been validated by Hankard Environmental and other researchers by comparing predicted noise levels to actual measured levels at operating wind farms. Hankard Environmental analyzed the long-term noise data it collected at 10 operating wind farms consisting of 50 individual measurement locations. The loudest turbine-only noise levels measured at each location, which occur for only a few hours/nights at each site over the course of many weeks of data collection, were compared to the levels predicted at those locations using the methodology employed in this noise analysis. The results show that when the ISO 9613-2:2024 method is used as it is here (with a 0.0 ground factor), the model consistently overpredicts noise levels by approximately 1 to 2 dBA. That is, actual noise levels are expected to be less than those described herein.

5. Predicted Noise Levels

Noise levels from the full, normal, and continuous operation of up to 73 turbines and two 150 MVA transformers were predicted at each non-participating and participating residence within 1.25 miles of any proposed turbine location or the collector substation. The levels are less than the county's 45 dBA limit at all non-participating receptors for the SG, Vestas, and GE turbines. In summary, predicted noise levels at non-participating residences are as follows for each turbine model:

- SG 4.4-164 Low Noise: range of 31 to 42 dBA with an average of 37 dBA,
- V163-4.5 STE: range of 35 to 44 dBA with an average of 40 dBA,
- GE Sierra 3.8-154 LNTE: range of 36 to 45 dBA with an average of 41 dBA.

Predicted noise levels at all non-participating and participating residences included in the analysis are listed in Appendix B. At participating residences, predicted noise levels range from 33 to 45 dBA for the SG 4.4-164 Low Noise, 36 to 46 dBA for the V163-4.5 STE, and from 38 to 48 dBA for the GE 3.8-154 LNTE.

Predicted noise levels are illustrated in the form of noise level contours in Figures D-1 through D-8 in Appendix D. The 45 dBA contours are shown for each turbine model. The area between the source and a contour has a predicted noise level greater than 45 dBA. The area outside of the 45 dBA contour has a predicted level less than 45 dBA. As can be seen, no non-participating residences utilizing any turbine model are located inside the 45 dBA contours.

6. Construction Noise

Construction of a wind energy facility includes construction of the wind turbine sites, collector substation, access roads, and underground collector circuits. Construction will generate temporary noise from a variety of equipment and noise levels at nearby residences will vary greatly depending on the phase of construction, proximity of construction activities, and other factors.

Table 6-1 provides a list of potential construction equipment for each type, phase, and sub-phase for construction of a wind energy facility.

Construction noise at receptors will usually be dependent on the loudest one or two pieces of equipment in operation at a particular time. Noise levels from diesel-powered equipment at 50 feet generally range from 80 dBA to 91 dBA. Noise from construction equipment is often limited in duration as construction activities often only occur for short periods of time. Table 6-2 provides a list of common construction equipment, its maximum noise level expected at 50 feet, the typical duration a particular piece of equipment is used in any one-hour period, and the resulting hourly equivalent noise level ($L_{eq\ (1\ Hr)}$) for the piece of equipment.

Table 6-1. Potential Construction Equipment to be Employed on a Wind Energy Facility

Type	Phase	Sub-Phase	Equipment
Turbines	Site Preparation	Clearing	Chainsaw, Feller Buncher, Grapple Loader, Log Truck
		Road/Site	Dozer, Excavator, Grader, Roller, Dump Trucks
		Foundation	Drill Rig, Track Hoe, Dozer, RT Crane, Concrete Truck
	Installation	Delivery	Forklift, RT Crane, Tractor Trailer
		Components	Crawler Crane
	Site Finishing	---	Dozer, Moto Grader, Skid Steer, Seed Drill
Substation	Site Preparation	Clearing	Chainsaw, Feller Buncher, Grapple Loader, Log Truck
		Road/Site	Dozer, Excavator, Grader, Roller, Dump Truck
		Foundation	Drill Rig, Track Hoe, Dozer, RT Crane, Concrete Truck
	Construction	Delivery	Forklift, RT Crane, Tractor Trailer
		Components	Forklift, Bucket Truck, Truck Crane
	Site Finishing	---	Dozer, Moto Grader, Skid Steer, Seed Drill
Roadways	Site Preparation	---	Chainsaws, Feller Buncher, Grapple Loader, Log Truck
	Construction	---	Dozer, Moto Grader, Backhoe, Dump Truck, Roller
	Site Finishing	---	Dozer, Moto Grader, Skid Steer, Seed Drill
Underground Electrical Collections	Trenching	---	Trencher, Track Hoe, HDD machine
	Installation	---	Cable Layer
	Site Finishing	---	Track Hoe, Skid Steer, Seed Drill

Table 6-2. Noise Source Characteristics of Construction Equipment

Equipment	L_{max} Noise Level at 50 ft (dBA)	Usage Factor (%)	$L_{eq\ (1\ Hr)}$ Noise Level at 50 ft (dBA)
Backhoe	82	40	78
Belly Dump Truck	88	40	84
Bucket Truck	82	20	75
Cable Layer	70	50	67
Chain Saw	91	20	84
Concrete Truck	88	20	81
Crawler Crane	89	16	81
Dozer	86	40	82
Drill Rig	86	20	79
Dump Truck	81	40	77
Excavator	85	40	81
Feller Buncher	89	40	85
Forklift	69	40	65
Grapple Loader	83	40	79
Horizontal Drill	88	25	82
Log Truck	78	40	74
Moto Grader	89	40	85
Roller	84	40	80
RT Crane	89	16	81
Seed Drill	83	50	80
Semi Trucks	78	40	74
Skid Steer	83	40	79
Track Hoe	82	40	78
Tractor Trailer	78	40	74
Trencher	83	50	80
Truck Crane	87	16	81

Construction noise from the Project is not expected to create any significant impact. That said, the following steps should be considered by the Project to minimize the impact of construction noise:

- Limit nighttime work near residences to quiet activities such as finishing, to the degree practicable,
- Maintain equipment to manufacturers' specifications, particularly mufflers,
- Minimize backing up of trucks on site to the degree practicable,
- Provide a 24-hour telephone complaint number for residents to use if needed,
- Attempt to resolve complaints in a prompt manner,
- Notify residents of expected construction schedule.

7. Conclusions

- Noise levels from the full, normal, and continuous operation of the Project were predicted at each non-participating and participating residence located within 1.25 miles of any Project noise source.
- Noise levels are predicted to be less than Deuel County's 45 dBA limit at all non-participating residences.
- Additionally, the noise level prediction method employed for this analysis has been validated by ANSI, Hankard Environmental, and other acoustic professionals by comparing predicted noise levels to those measured at operating wind farms. The results show that the modeling approach employed here is conservative and the model consistently overpredicts measured noise levels. That is, actual noise levels from the Project are expected to be less than those reported herein and lower than the Deuel County limits at all locations using any of the three turbines models analyzed.
- The noise levels reported herein are the highest expected. A majority of the time noise levels will be lower when the turbines are not producing full acoustic output due to low winds, and/or atmospheric conditions are not as conducive to sound propagation as assumed in this analysis.
- During very windy periods, the noise of the wind blowing through vegetation will be louder than that from the turbines and can in many cases render noise from the turbines inaudible.
- The results described herein are valid for the receptor locations provided, the turbine and substation layouts analyzed, and the wind turbine sound power levels as provided by the manufacturers.
- Due to the proximity of Tatanka Ridge Wind, which is located to the southwest of the proposed Project, an analysis was conducted to predict cumulative noise levels (those from the simultaneous operation of all Project and Tatanka Ridge wind turbines, exclusive of background noise). Data for the Tatanka Ridge turbines was obtained from the noise report for that facility filed with the South Dakota Public Utilities Commission, and from the U.S. Wind Turbine Database. The results of the cumulative noise analysis are provided in Appendix E.

APPENDIX A

Receptor and Turbine Location Figures

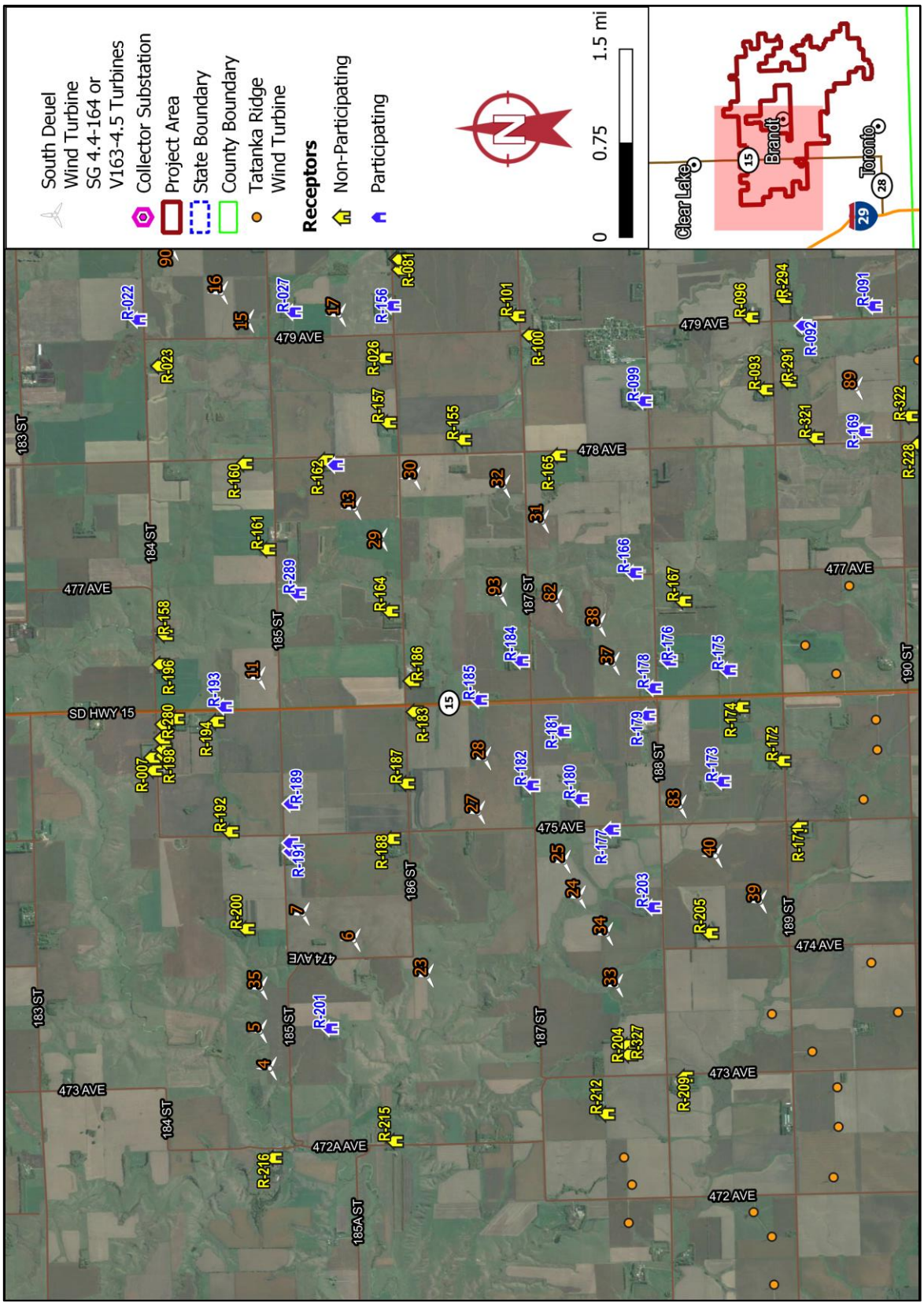

Figure A-1. Modeled Locations – SG 4.4-164 or V163-4.5 Turbines - Northwest Area

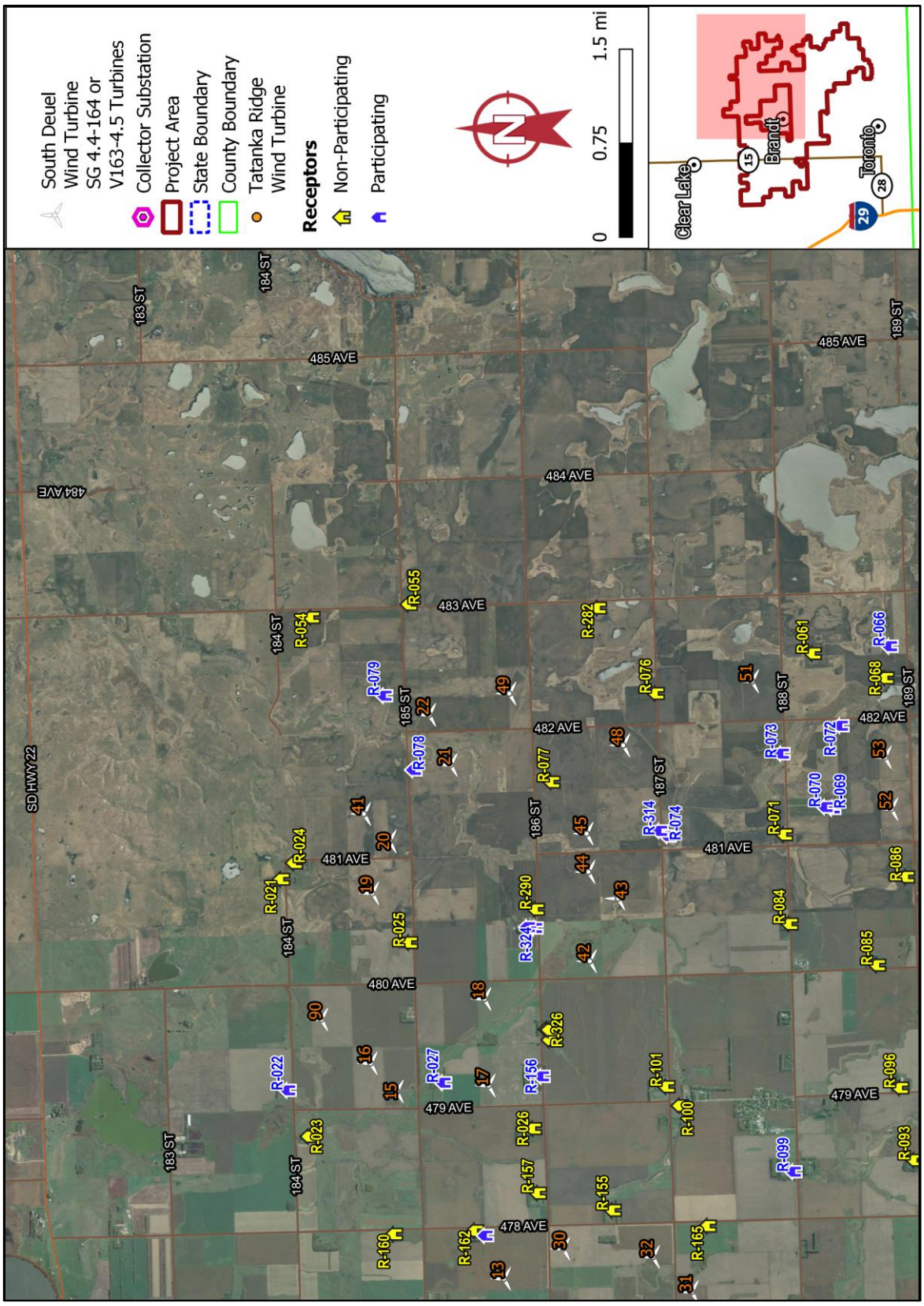

Figure A-2. Modeled Locations – SG 4.4-164 or V163-4.5 Turbines - Northeast Area

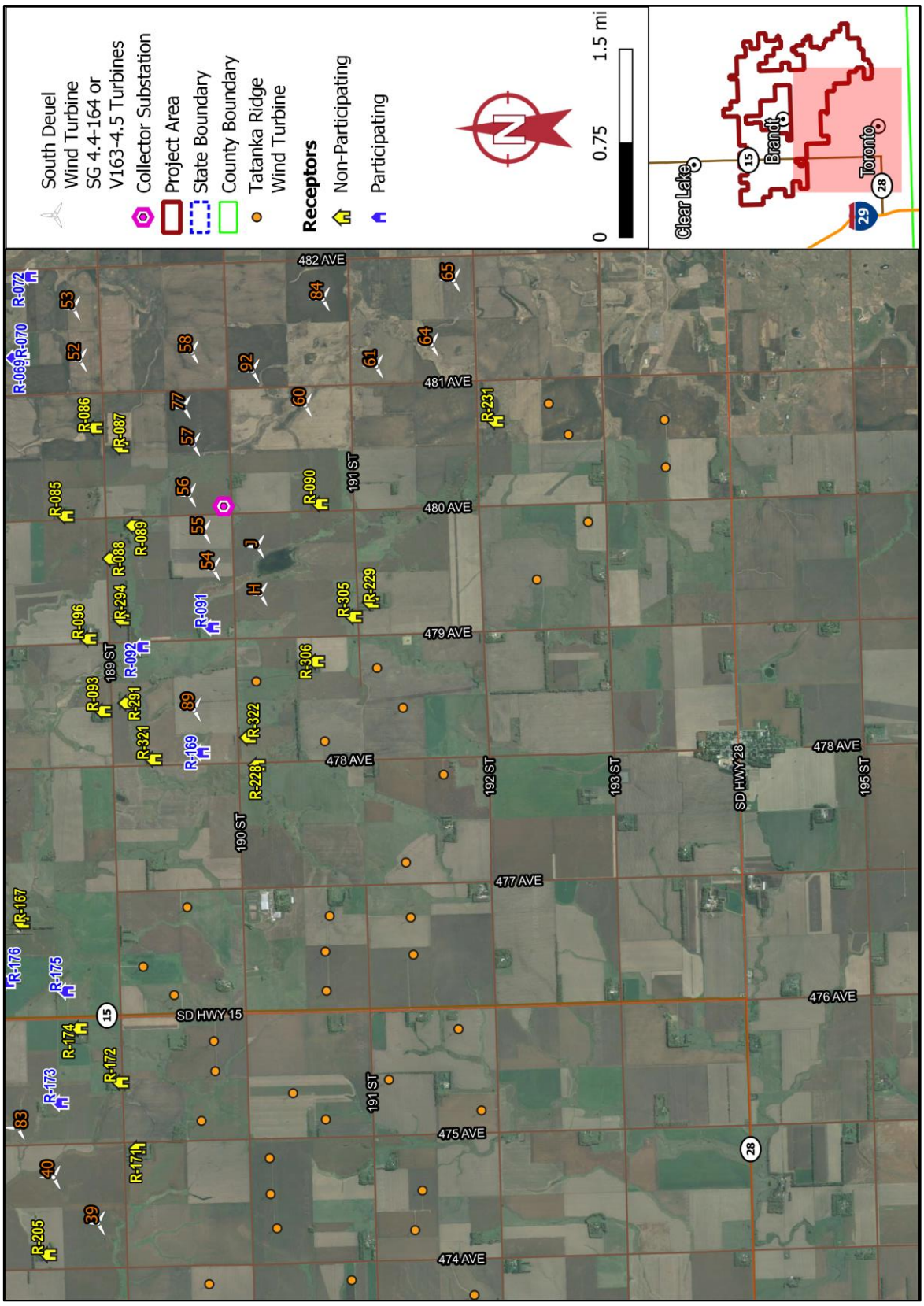

Figure A-3. Modeled Locations – SG 4.4-164 or V163-4.5 Turbines - Southwest Area

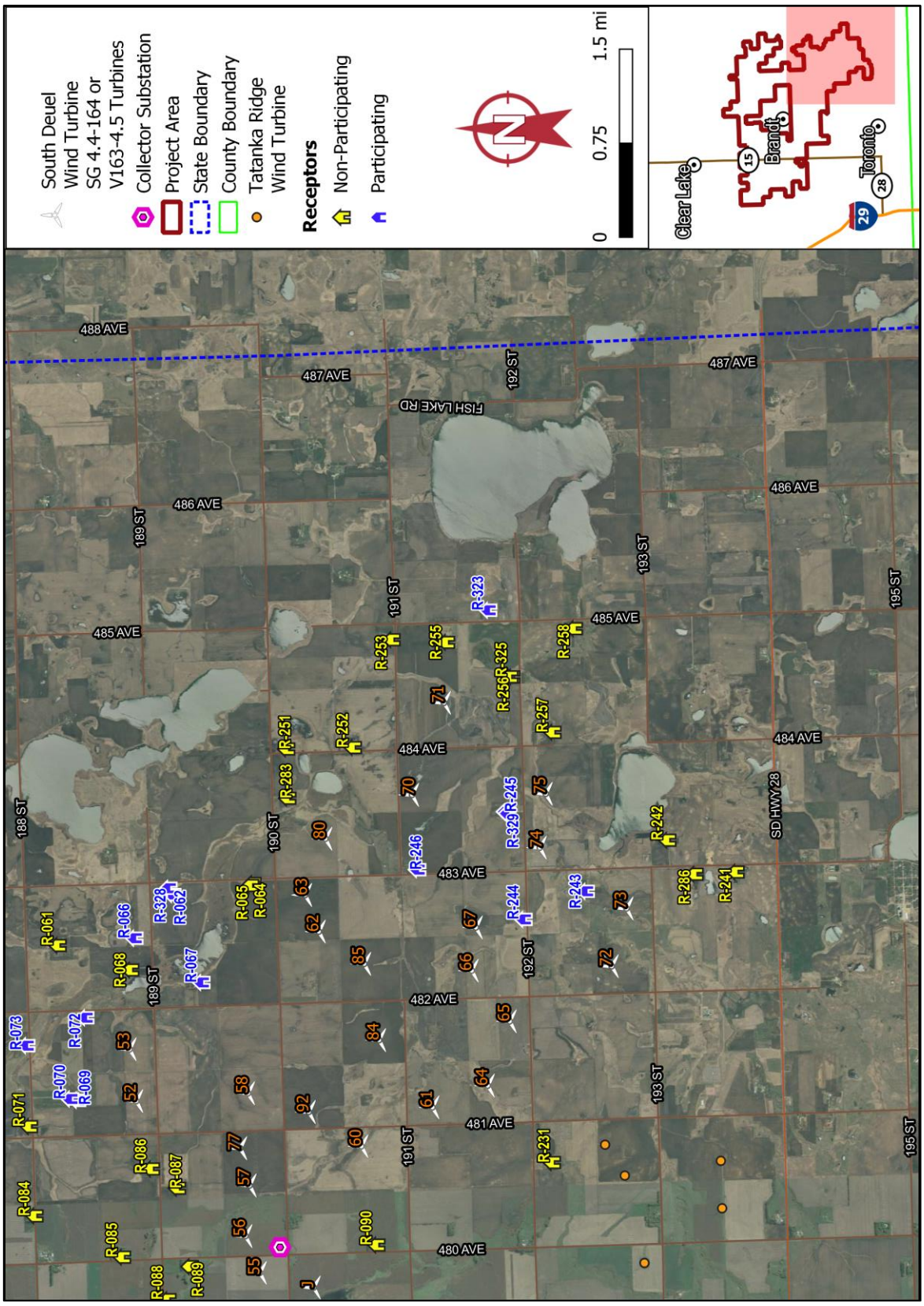

Figure A-4. Modeled Locations – SG 4.4-164 or V163-4.5 Turbines - Southeast Area

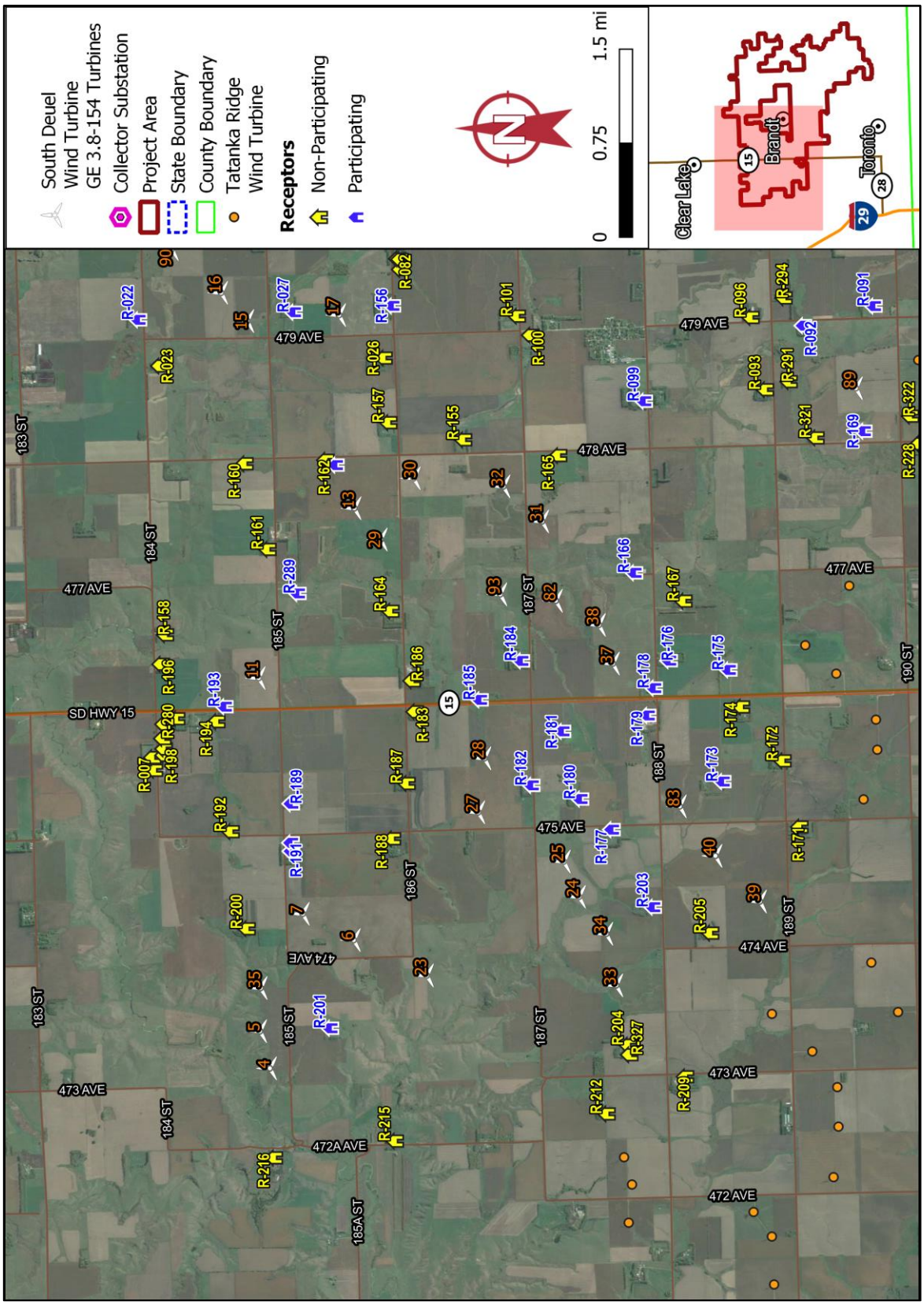

Figure A-5. Modeled Locations – GE 3.8-154 Turbines - Northwest Area

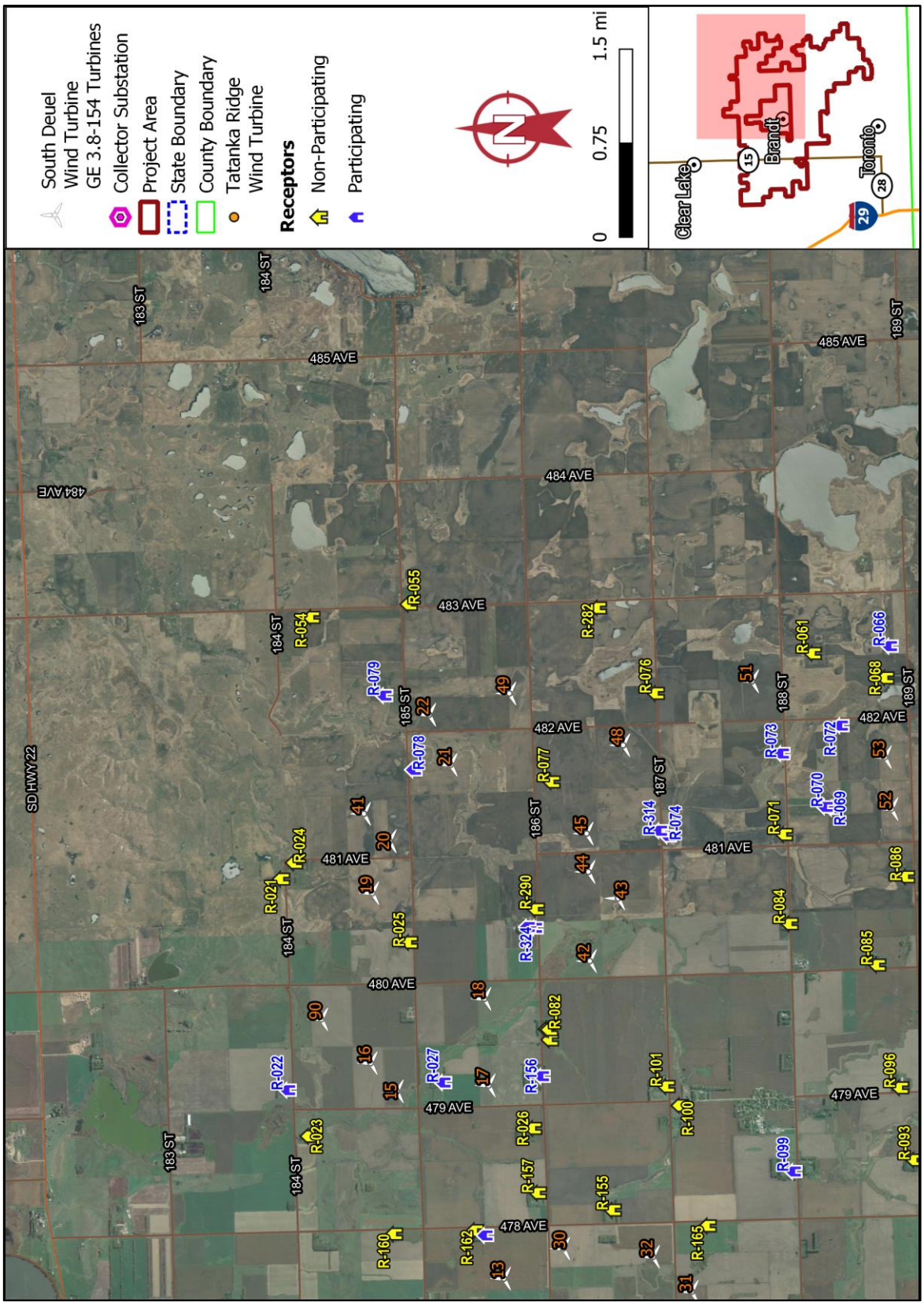

Figure A-6. Modeled Locations – GE 3.8-154 Turbines - Northeast Area

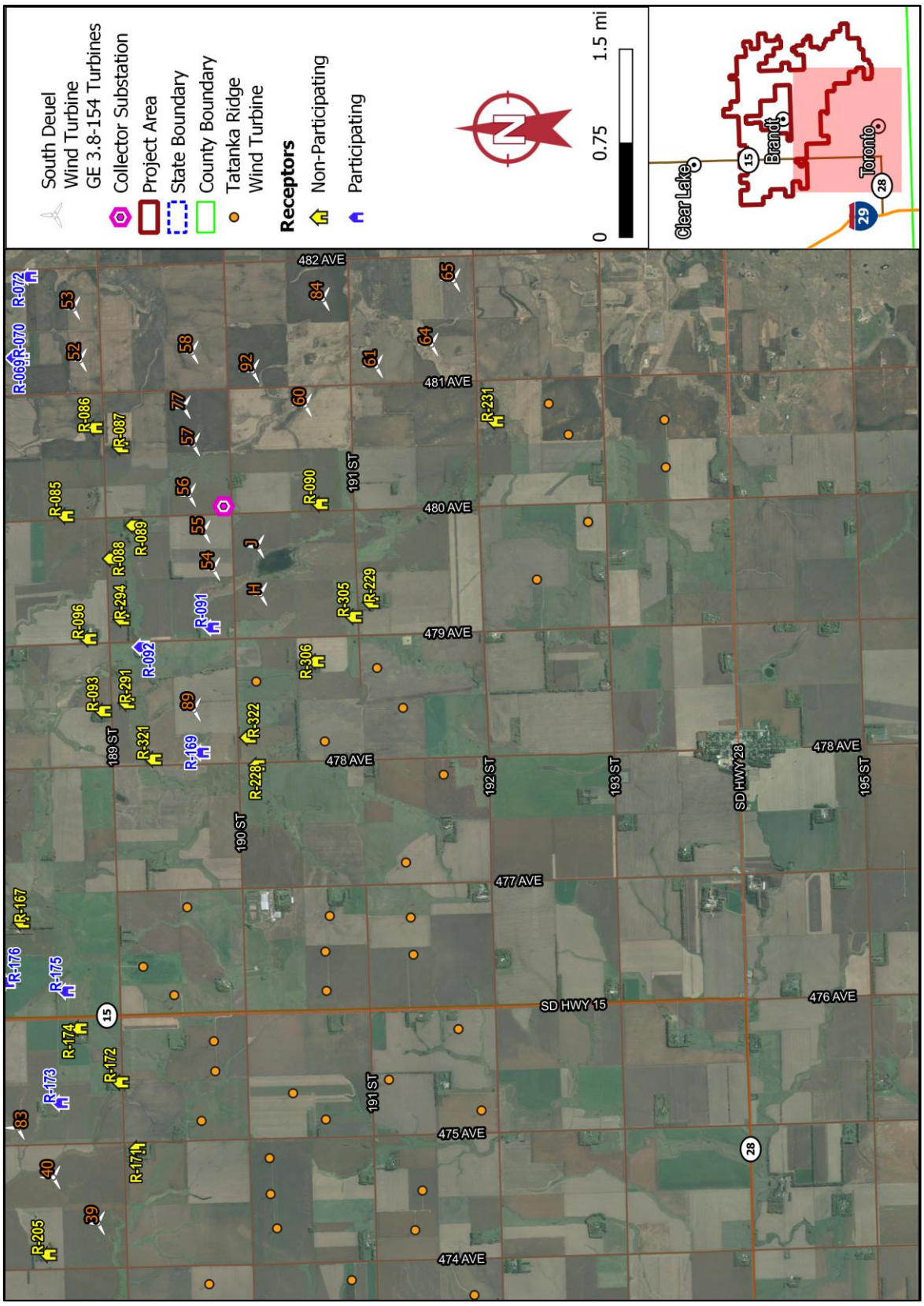

Figure A-7. Modeled Locations – GE 3.8-154 Turbines - Southwest Area

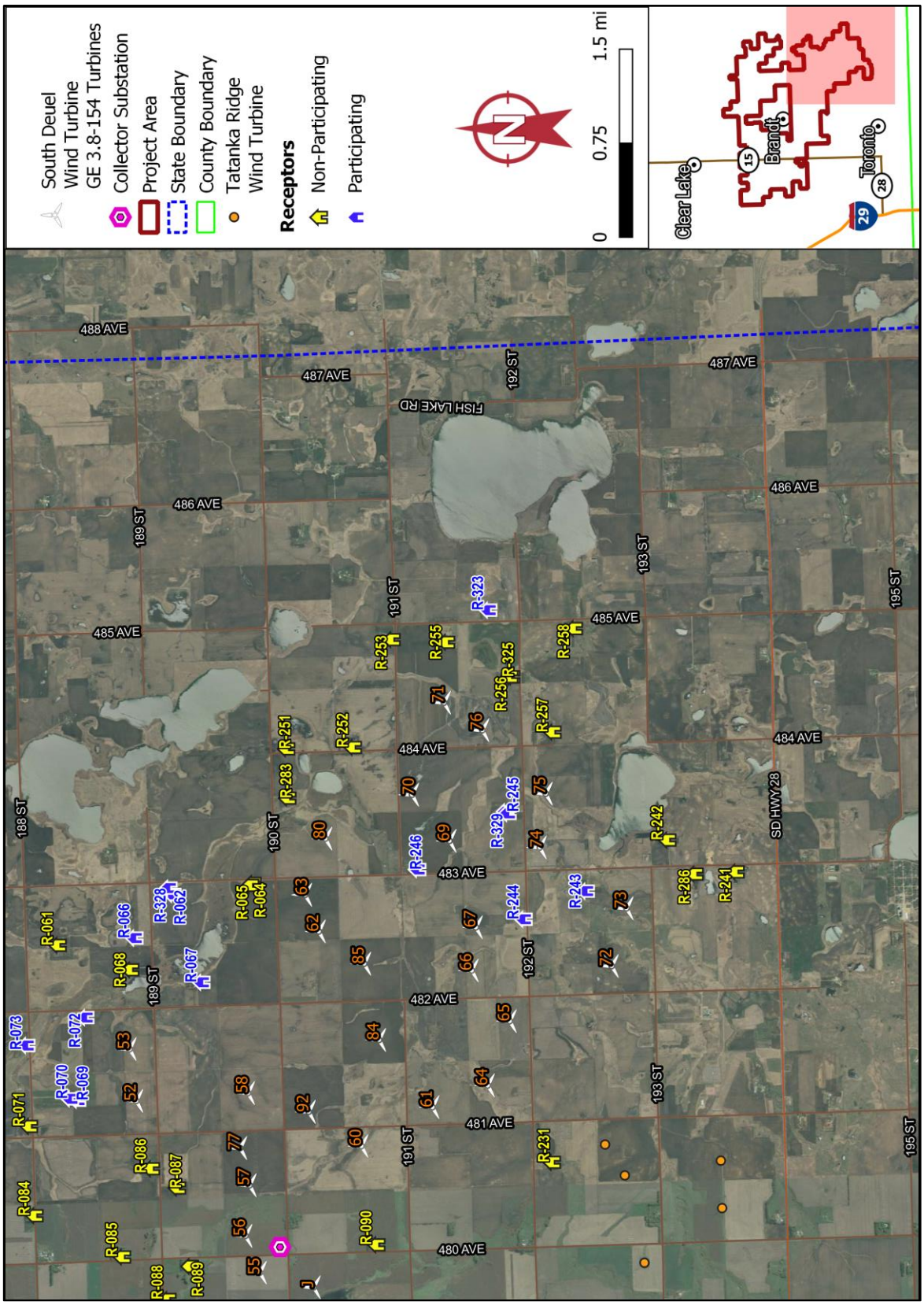

Figure A-8. Modeled Locations – GE 3.8-154 Turbines - Southeast Area

APPENDIX B

Receptor Locations and Predicted Noise Levels

Table B-1. Receptor Locations and Predicted Noise Levels

Receptor	Status	UTM 14N NAD83		Ground Elevation (m asl)	Predicted Noise Level (L_{eq} dBA)		
		Easting (m)	Northing (m)		SG 4.4-164 low noise	V163-4.5 STE	GE 3.8-154 LNTE
R-006	Non-Participating	682782	4954226	570	31.2	35.0	36.0
R-007	Non-Participating	682945	4954249	570	31.3	35.0	36.0
R-021	Non-Participating	691274	4954515	540	36.7	39.6	40.6
R-022	Participating	688565	4954433	540	37.8	40.3	41.5
R-023	Non-Participating	687972	4954158	540	36.5	39.3	40.4
R-024	Non-Participating	691483	4954350	540	38.0	40.6	41.7
R-025	Non-Participating	690460	4952871	540	40.9	43.2	44.4
R-026	Non-Participating	688074	4951279	558	39.9	42.3	43.4
R-027	Participating	688662	4952437	544	44.5	46.1	47.5
R-028	Participating	690648	4951262	541	41.2	43.6	44.7
R-054	Non-Participating	694632	4954128	537	30.9	34.6	35.6
R-055	Non-Participating	694801	4952877	543	33.8	37.1	38.1
R-061	Non-Participating	694171	4947688	550	38.4	40.8	42.0
R-062	Participating	694824	4946215	550	34.9	38.4	39.4
R-064	Non-Participating	694967	4945186	550	40.7	42.9	44.3
R-065	Non-Participating	694940	4945215	550	40.5	42.8	44.0
R-066	Participating	694264	4946704	550	35.6	39.0	40.0
R-067	Participating	693696	4945843	550	38.1	41.1	42.1
R-068	Non-Participating	693857	4946755	550	37.6	40.5	41.5
R-069	Participating	692183	4947439	550	40.0	42.4	43.6
R-070	Participating	692201	4947529	550	39.3	41.8	42.9
R-071	Non-Participating	691847	4948056	550	36.2	39.5	40.4
R-072	Participating	693244	4947334	550	40.2	42.4	43.7
R-073	Participating	692885	4948091	550	38.1	40.8	41.9
R-074	Participating	691829	4949551	541	40.4	42.8	44.0
R-076	Non-Participating	693658	4949704	546	39.5	41.8	43.0
R-077	Non-Participating	692521	4951043	543	41.2	43.5	44.7
R-078	Participating	692677	4952818	540	44.6	46.2	47.6
R-079	Participating	693629	4953195	541	40.5	42.5	43.8
R-081	Non-Participating	689211	4951065	547	40.3	42.7	43.8
R-082	Non-Participating	689348	4951101	546	40.7	43.0	44.2
R-084	Non-Participating	690700	4947986	554	34.7	38.4	39.3
R-085	Non-Participating	690171	4946861	560	36.7	39.8	40.7
R-086	Non-Participating	691303	4946490	560	40.5	43.0	44.1
R-087	Non-Participating	691055	4946155	560	41.5	43.8	44.9
R-088	Non-Participating	689625	4946278	560	38.7	41.4	42.3
R-089	Non-Participating	690050	4945991	560	41.8	43.9	45.0
R-090	Non-Participating	690326	4943594	570	41.1	43.4	44.4
R-091	Participating	688741	4944988	570	42.6	44.5	45.8
R-092	Participating	688490	4945894	565	38.1	40.8	41.8
R-093	Non-Participating	687668	4946381	570	35.3	38.5	39.5
R-096	Non-Participating	688595	4946567	570	35.4	38.7	39.6
R-099	Participating	687520	4947939	568	33.8	37.6	38.4
R-100	Non-Participating	688366	4949394	560	34.5	38.2	39.1

Receptor	Status	UTM 14N NAD83		Ground Elevation (m asl)	Predicted Noise Level (L_{eq} dBA)		
		Easting (m)	Northing (m)		SG 4.4-164 low noise	V163-4.5 STE	GE 3.8-154 LNTE
R-101	Non-Participating	688612	4949567	560	34.7	38.4	39.3
R-155	Non-Participating	687025	4950257	567	41.4	43.6	44.8
R-156	Participating	688744	4951172	550	41.4	43.4	44.7
R-157	Non-Participating	687245	4951218	560	40.1	42.6	43.7
R-158	Non-Participating	684521	4954086	551	32.9	36.2	37.3
R-160	Non-Participating	686717	4953065	556	35.0	38.4	39.3
R-161	Non-Participating	685618	4952770	570	36.1	39.2	40.2
R-162	Non-Participating	686763	4952026	567	40.3	42.6	43.8
R-163	Participating	686700	4951898	569	41.7	43.7	45.0
R-164	Non-Participating	684824	4951192	561	39.1	41.7	42.8
R-165	Non-Participating	686822	4949037	570	40.9	43.1	44.4
R-166	Participating	685317	4948064	580	41.1	43.3	44.5
R-167	Non-Participating	684954	4947428	580	38.1	40.8	41.9
R-169	Participating	687135	4945118	580	41.4	43.0	44.5
R-171	Non-Participating	682055	4945939	603	37.9	40.4	41.5
R-172	Non-Participating	682904	4946157	600	35.5	38.6	39.6
R-173	Participating	682638	4946931	600	42.2	43.9	45.4
R-174	Non-Participating	683595	4946689	590	35.4	38.7	39.6
R-175	Participating	684071	4946852	580	35.4	38.7	39.7
R-176	Participating	684190	4947618	590	41.4	43.4	44.7
R-177	Participating	682021	4948352	590	42.5	44.6	45.8
R-178	Participating	683837	4947810	590	42.4	44.2	45.6
R-179	Participating	683487	4947893	590	40.3	42.7	43.9
R-180	Participating	682414	4948757	598	41.0	43.4	44.5
R-181	Participating	683282	4948989	590	40.0	42.6	43.6
R-182	Participating	682589	4949383	600	43.1	45.0	46.3
R-183	Non-Participating	683533	4950879	580	37.4	40.4	41.4
R-184	Participating	684187	4949516	580	41.4	43.7	44.9
R-185	Participating	683687	4950048	580	40.3	42.7	43.9
R-186	Non-Participating	683931	4950918	580	36.9	40.1	41.0
R-187	Non-Participating	682613	4950984	587	38.4	41.1	42.2
R-188	Non-Participating	681903	4951171	590	38.0	40.9	41.8
R-189	Participating	682353	4952471	583	35.3	38.6	39.5
R-190	Participating	681744	4952469	588	38.7	41.1	42.3
R-191	Participating	681852	4952474	587	37.8	40.4	41.5
R-192	Non-Participating	681994	4953245	582	34.4	37.7	38.7
R-193	Participating	683599	4953325	570	40.2	41.9	43.4
R-194	Non-Participating	683407	4953427	568	37.5	39.7	41.0
R-195	Non-Participating	683444	4953942	565	33.7	36.8	37.9
R-196	Non-Participating	684144	4954141	560	33.0	36.3	37.3
R-197	Non-Participating	682975	4954103	570	31.9	35.5	36.5
R-198	Non-Participating	683057	4954103	570	32.0	35.6	36.6
R-200	Non-Participating	680748	4953038	583	41.1	43.1	44.4
R-201	Participating	679472	4951968	586	41.6	43.7	44.9
R-203	Participating	681026	4947823	594	43.2	45.1	46.4
R-204	Non-Participating	679254	4948141	600	38.8	41.0	42.3

Receptor	Status	UTM 14N NAD83		Ground Elevation (m asl)	Predicted Noise Level (L_{eq} dBA)		
		Easting (m)	Northing (m)		SG 4.4-164 low noise	V163-4.5 STE	GE 3.8-154 LNTE
R-205	Non-Participating	680693	4947086	600	40.8	42.9	44.2
R-209	Non-Participating	678849	4947407	590	33.4	36.7	37.7
R-212	Non-Participating	678372	4948416	600	32.2	35.7	36.7
R-215	Non-Participating	678023	4951135	540	32.5	36.0	36.9
R-216	Non-Participating	677808	4952687	540	35.0	37.7	38.8
R-228	Non-Participating	686974	4944404	580	35.8	38.6	39.7
R-229	Non-Participating	689063	4942940	572	36.2	39.1	40.1
R-231	Non-Participating	691386	4941341	560	36.3	39.3	40.3
R-241	Non-Participating	695113	4938982	565	33.5	36.8	38.0
R-242	Non-Participating	695522	4939858	550	37.4	40.0	41.3
R-243	Participating	694866	4940907	550	43.2	45.0	46.6
R-244	Participating	694506	4941706	550	43.9	45.7	47.3
R-245	Participating	695887	4941939	550	43.4	45.1	47.8
R-246	Participating	695144	4943071	550	41.2	43.6	47.0
R-251	Non-Participating	696692	4944753	550	35.5	38.6	40.0
R-252	Non-Participating	696711	4943897	550	38.3	40.9	42.6
R-253	Non-Participating	698095	4943400	550	35.1	37.9	39.8
R-255	Non-Participating	698060	4942700	550	38.1	40.2	42.5
R-256	Non-Participating	697617	4941862	540	37.7	40.0	44.0
R-257	Non-Participating	696906	4941333	545	39.2	41.4	44.4
R-258	Non-Participating	698237	4941058	542	31.3	34.9	37.3
R-280	Non-Participating	683190	4954120	570	32.2	35.7	36.7
R-281	Non-Participating	683374	4954104	567	32.6	36.0	37.0
R-282	Non-Participating	694754	4950448	550	34.0	37.4	38.4
R-283	Non-Participating	696060	4944738	550	39.7	42.0	43.4
R-286	Non-Participating	695085	4939509	557	37.4	39.9	41.2
R-289	Participating	685053	4952387	560	37.4	40.2	41.3
R-290	Non-Participating	690887	4951244	541	41.3	43.7	44.9
R-291	Non-Participating	687771	4946077	570	37.3	40.0	41.1
R-294	Non-Participating	688845	4946143	563	37.5	40.4	41.3
R-305	Non-Participating	688878	4943160	572	37.0	39.8	40.8
R-306	Non-Participating	688303	4943643	581	37.4	40.1	41.1
R-314	Participating	691894	4949657	541	41.1	43.4	44.6
R-321	Non-Participating	687049	4945733	572	37.4	39.8	41.1
R-322	Non-Participating	687328	4944518	585	39.0	41.1	42.4
R-323	Participating	698473	4942160	550	33.3	36.4	38.8
R-324	Participating	690659	4951356	541	40.8	43.3	44.4
R-325	Non-Participating	697618	4941887	540	37.9	40.2	44.1
R-326	Non-Participating	689340	4951073	547	40.5	42.9	44.1
R-327	Non-Participating	679131	4948124	600	37.5	39.9	41.1
R-328	Participating	694905	4946267	550	34.6	38.2	39.2
R-329	Participating	695864	4941912	550	43.7	45.4	48.0

APPENDIX C

Noise Source Locations and Types

Table C-1. Source Locations and Type

Source ID	UTM 14N NAD83		Ground Elevation (m asl)	SG 4.4-164		V163-4.5 STE		GE 3.8-154 LNTE	
	Easting (m)	Northing (m)		Source Type	Source Height (m agl)	Source Type	Source Height (m agl)	Source Type	Source Height (m agl)
4	678957	4952681	580	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
5	679434	4952808	589	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
6	680604	4951605	590	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
7	680941	4952259	590	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
11	683967	4952826	565	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
13	686146	4951596	580	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
15	688549	4952972	540	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
16	688912	4953308	540	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
17	688626	4951793	547	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
18	689738	4951847	540	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
19	691094	4953287	540	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
20	691760	4953064	540	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
21	692742	4952280	540	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
22	693384	4952556	545	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
23	680149	4950666	577	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
24	681159	4948712	585	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
25	681611	4948907	590	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
27	682244	4950006	590	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
28	682937	4949927	590	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
29	685745	4951258	570	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
30	686531	4950834	564	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
31	685978	4949184	570	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
32	686427	4949682	570	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
33	680023	4948233	592	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
34	680684	4948362	590	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
35	679988	4952801	584	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
37	684153	4948276	585	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
38	684649	4948456	580	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
39	681099	4946388	600	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
40	681685	4946959	599	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
41	692112	4953393	540	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
42	690221	4950492	547	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
43	691027	4950129	544	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
44	691367	4950511	541	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98

Source ID	UTM 14N NAD83		Ground Elevation (m asl)	SG 4.4-164		V163-4.5 STE		GE 3.8-154 LNTE	
	Easting (m)	Northing (m)		Source Type	Source Height (m agl)	Source Type	Source Height (m agl)	Source Type	Source Height (m agl)
45	691859	4950535	540	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
48	692992	4950064	544	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
49	693657	4951527	547	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
51	693814	4948410	549	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
52	692174	4946619	554	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
53	692839	4946704	550	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
54	689493	4944907	565	SG 4.4-165	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
55	689970	4945031	560	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
56	690442	4945217	560	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
57	691091	4945164	560	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
58	692275	4945185	557	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
60	691595	4943728	555	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
61	692094	4942816	558	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
62	694349	4944275	553	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
63	694819	4944451	550	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
64	692373	4942105	555	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
65	693198	4941823	553	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
66	693849	4942311	550	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
67	694403	4942258	550	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
69	695512	4942596	550	n/a	n/a	n/a	98	GE 3.8-154 LNTE	98
70	696104	4943077	548	SG 4.4-164	97.5	V163-4.5 STE	n/a	GE 3.8-154 LNTE	98
71	697286	4942667	546	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
72	693905	4940512	550	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
73	694646	4940323	550	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
74	695427	4941436	550	SG 4.4-165	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
75	696118	4941361	550	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
76	696932	4942174	544	n/a	n/a	n/a	98	GE 3.8-154 LNTE	98
77	691569	4945285	560	SG 4.4-164	97.5	V163-4.5 STE	n/a	GE 3.8-154 LNTE	98
80	695541	4944190	550	SG 4.4-164	97.5	V163-4.5 STE	n/a	GE 3.8-154 LNTE	98
82	684959	4949009	573	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
83	682320	4947417	596	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
84	692957	4943501	550	SG 4.4-165	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
85	693936	4943692	550	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
89	687687	4945155	576	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
90	689473	4953942	540	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98

Source ID	UTM 14N NAD83		Ground Elevation (m asl)	SG 4.4-164		V163-4.5 STE		GE 3.8-154 LNTE	
	Easting (m)	Northing (m)		Source Type	Source Height (m agl)	Source Type	Source Height (m agl)	Source Type	Source Height (m agl)
92	692034	4944404	557	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
93	685042	4949723	570	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
H	689170	4944301	570	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
J	689782	4944340	565	SG 4.4-164	97.5	V163-4.5 STE	98	GE 3.8-154 LNTE	98
Trans-former 1	690298	4944814	560	150 MVA	3	150 MVA	3	150 MVA	3
Trans-former 2	690348	4944816	560	150 MVA	3	150 MVA	3	150 MVA	3

APPENDIX D

Noise Level Contours

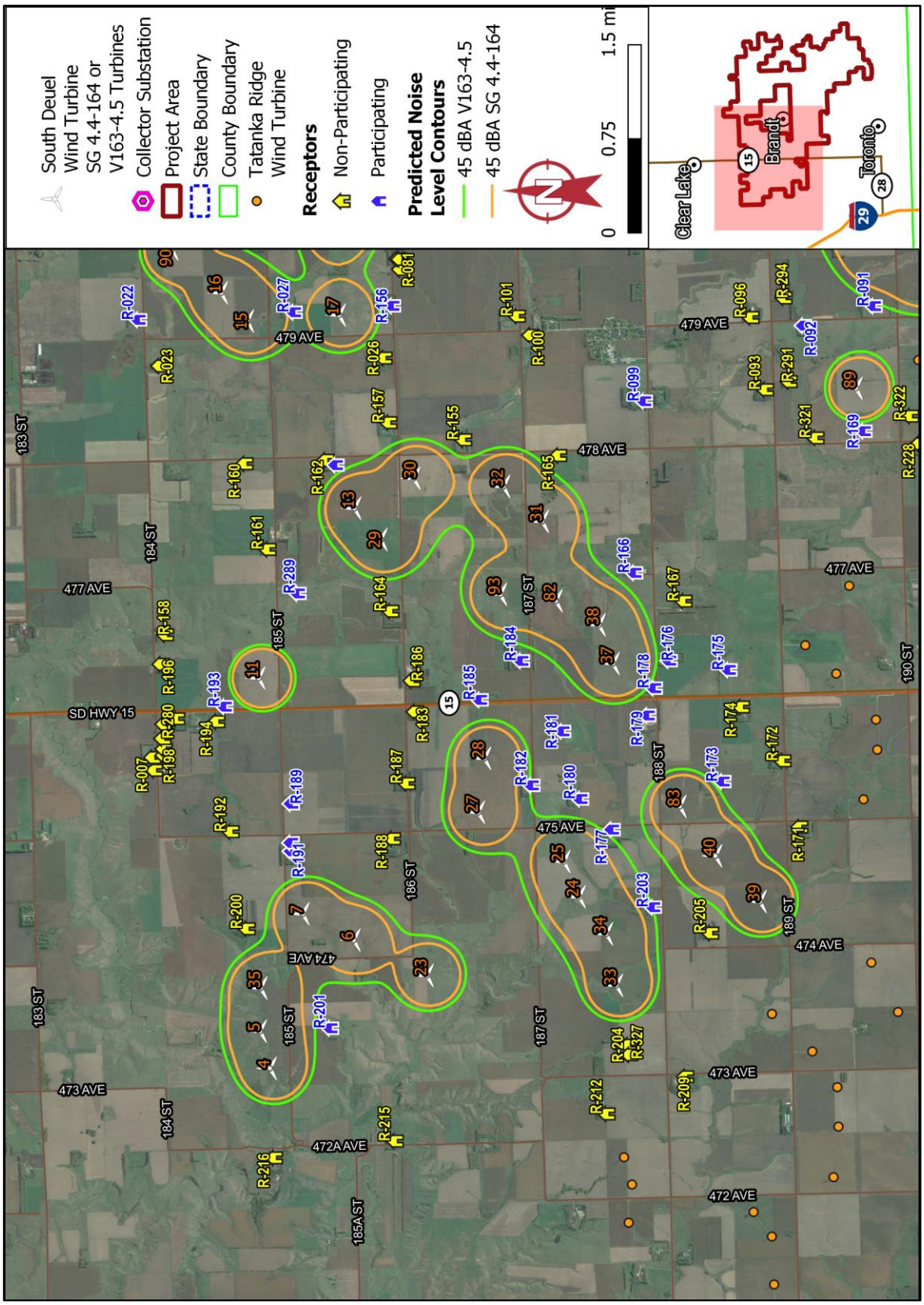

Figure D-1. Noise Level Contours – SG 4.4-164 and V163-4.5 Turbines - Northwest Area

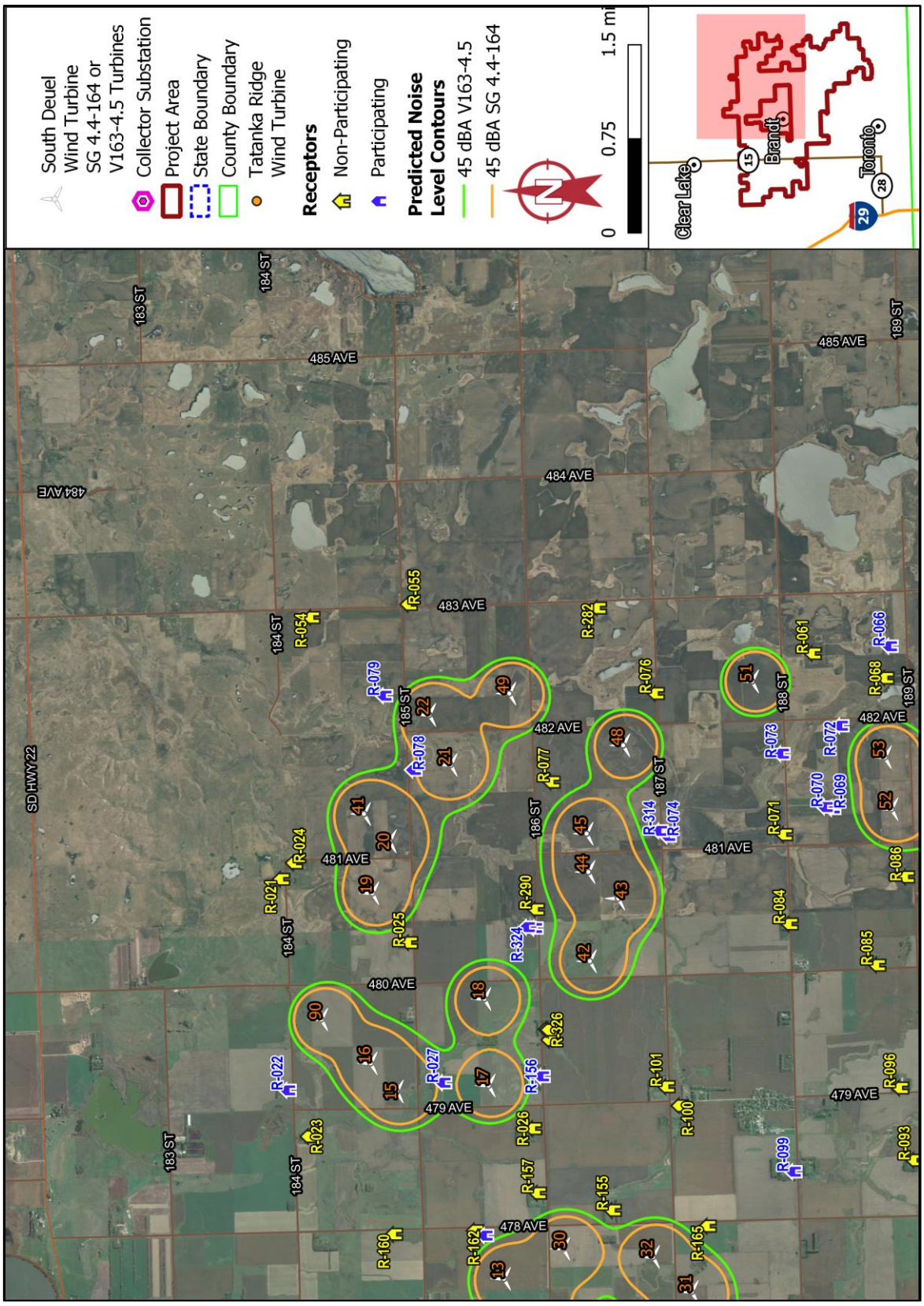

Figure D-2. Noise Level Contours – SG 4.4-164 and V163-4.5 Turbines - Northeast Area

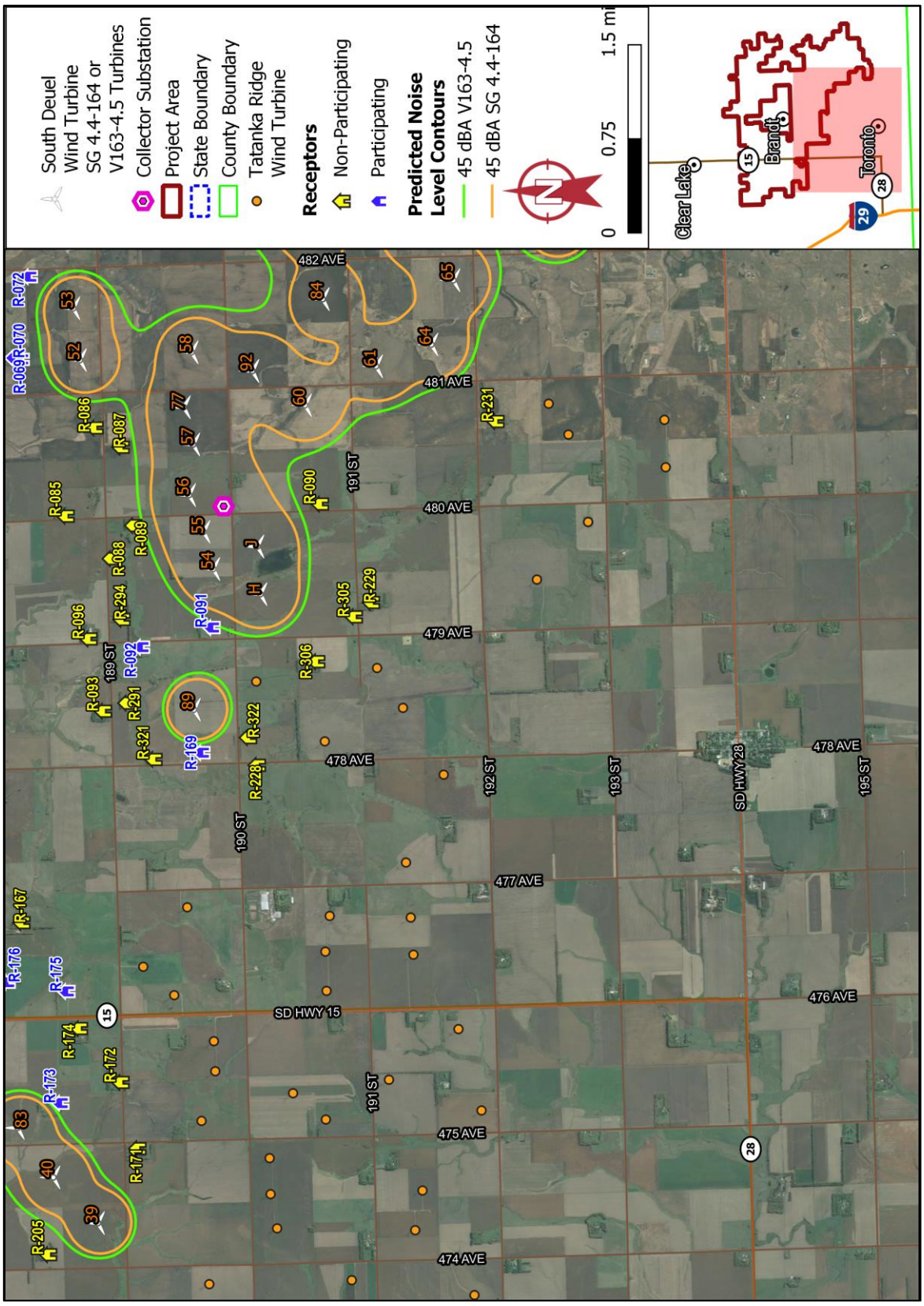

Figure D-3. Noise Level Contours – SG 4.4-164 and V163-4.5 Turbines - Southwest Area

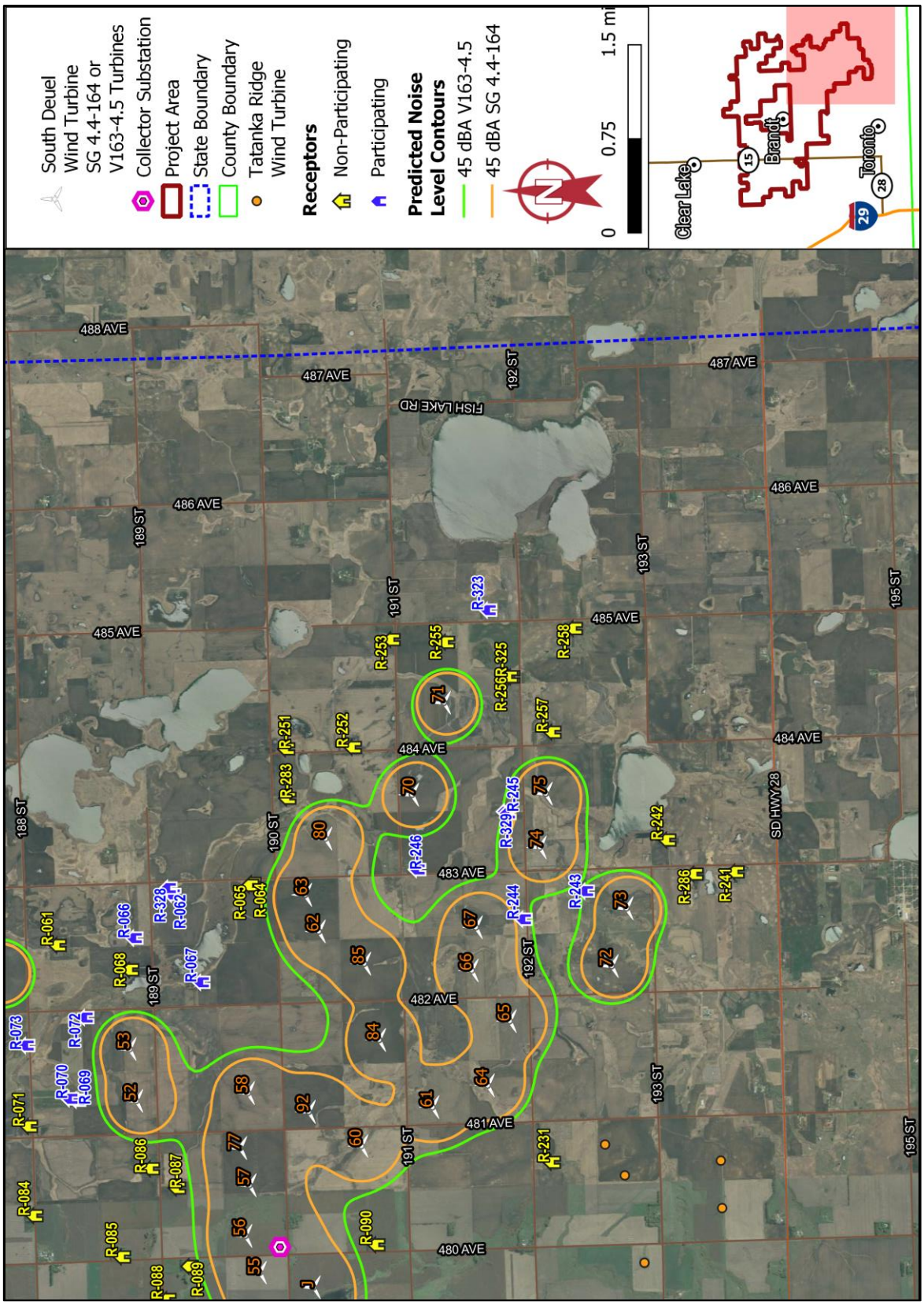

Figure D-4. Noise Level Contours – SG 4.4-164 and V163-4.5 Turbines - Southeast Area

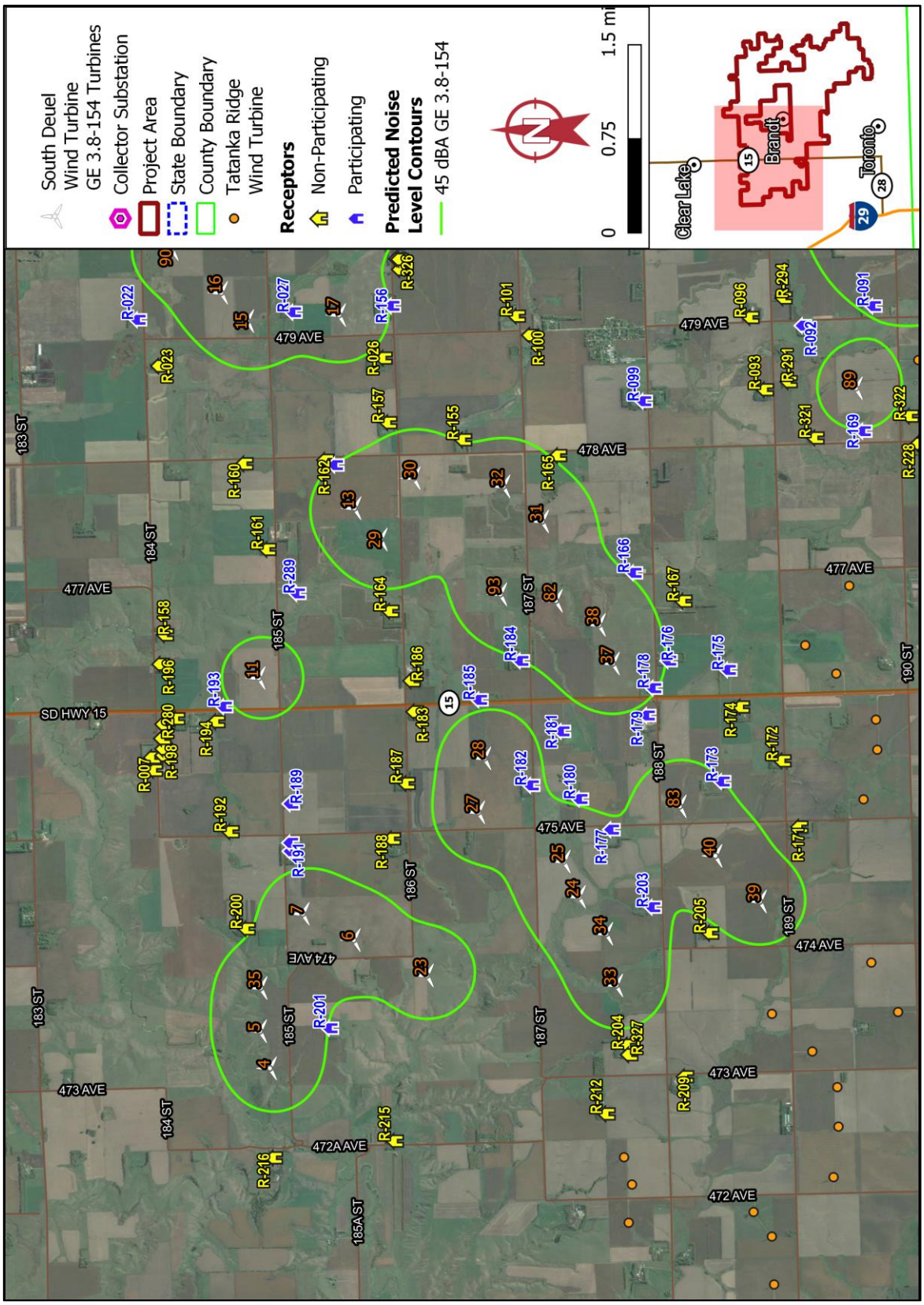

Figure D-5. Noise Level Contours – GE 3.8-154 Turbines - Northwest Area

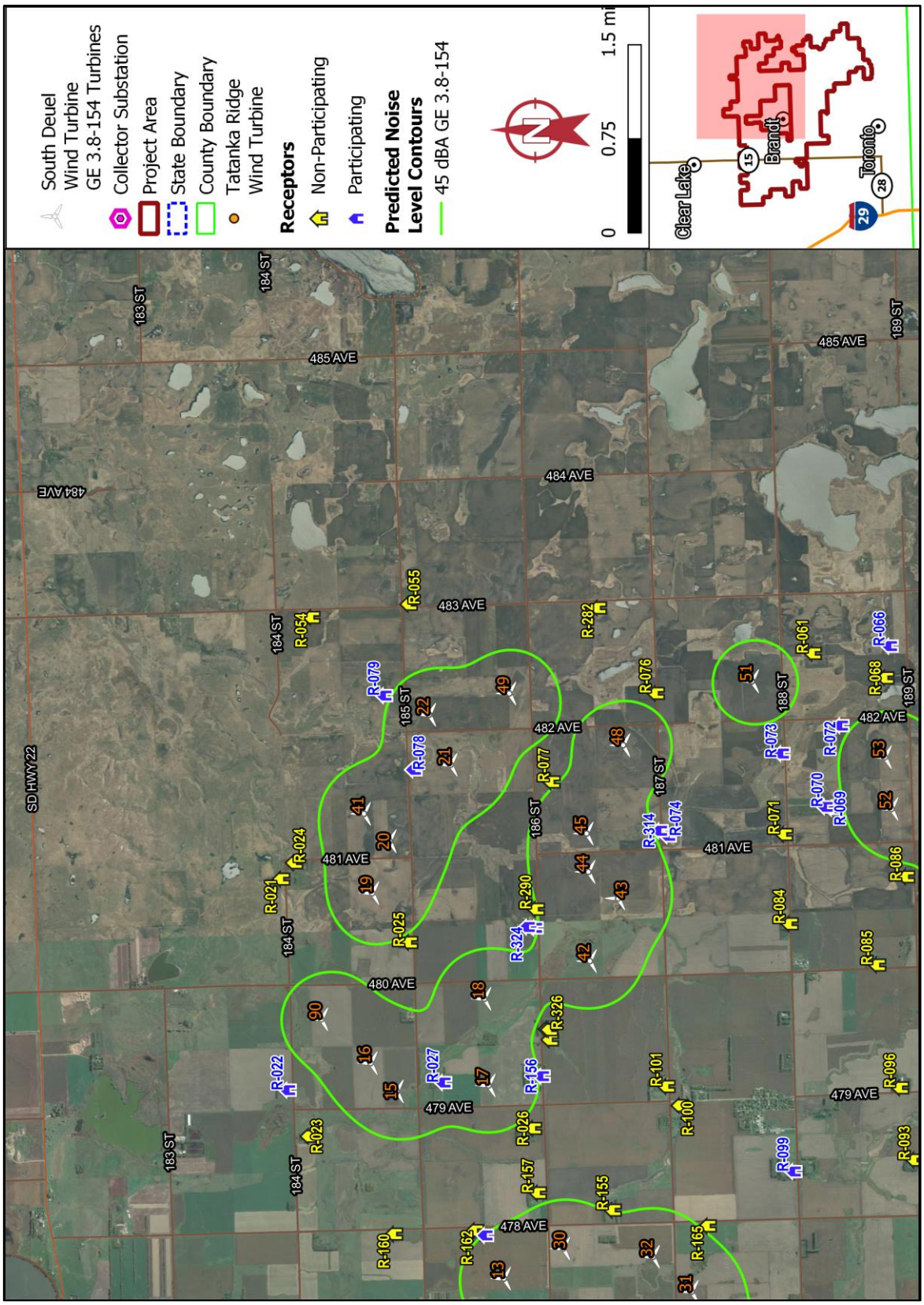

Figure D-6. Noise Level Contours – GE 3.8-154 Turbines - Northeast Area

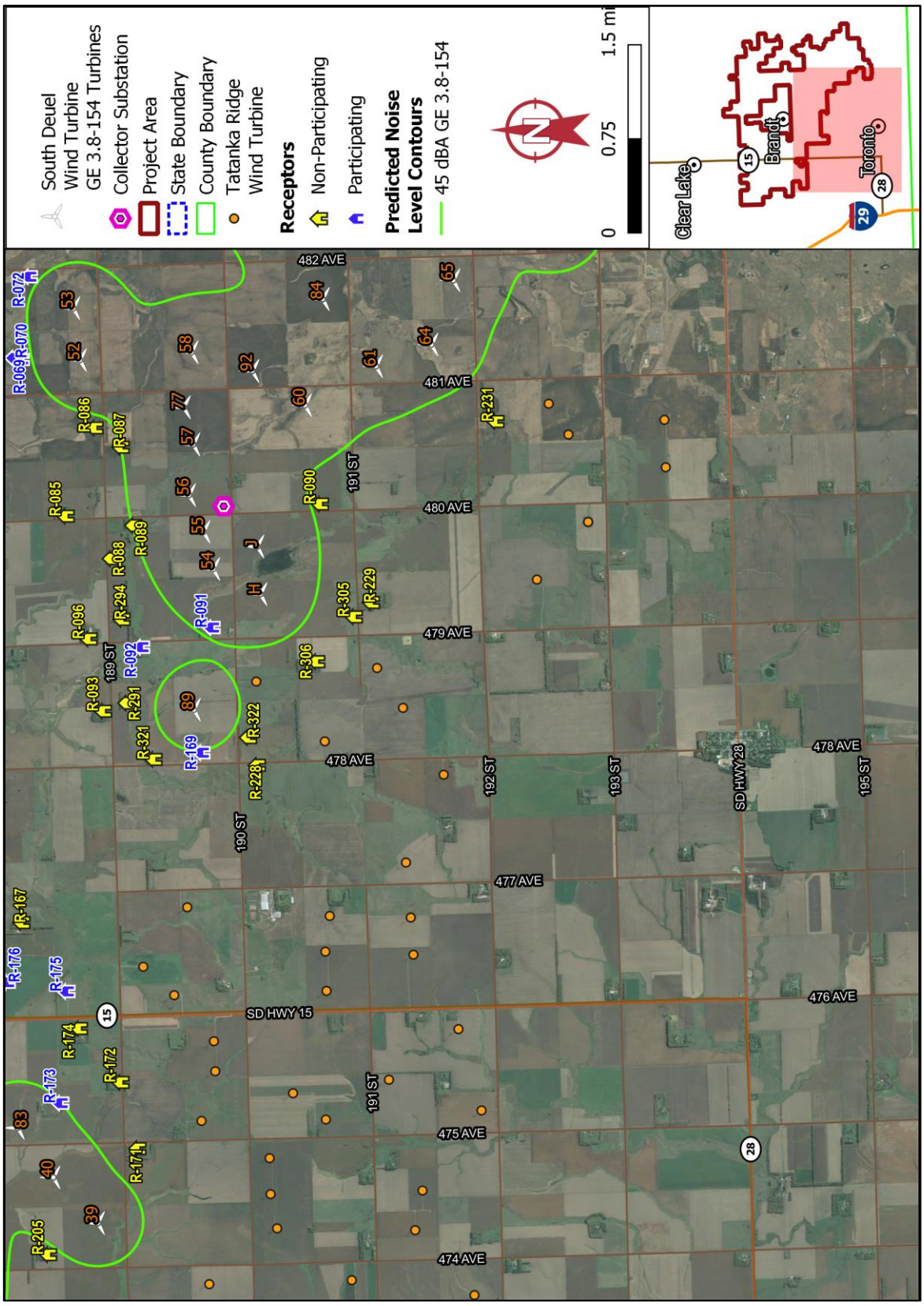

Figure D-7. Noise Level Contours – GE 3.8-154 Turbines - Southwest Area

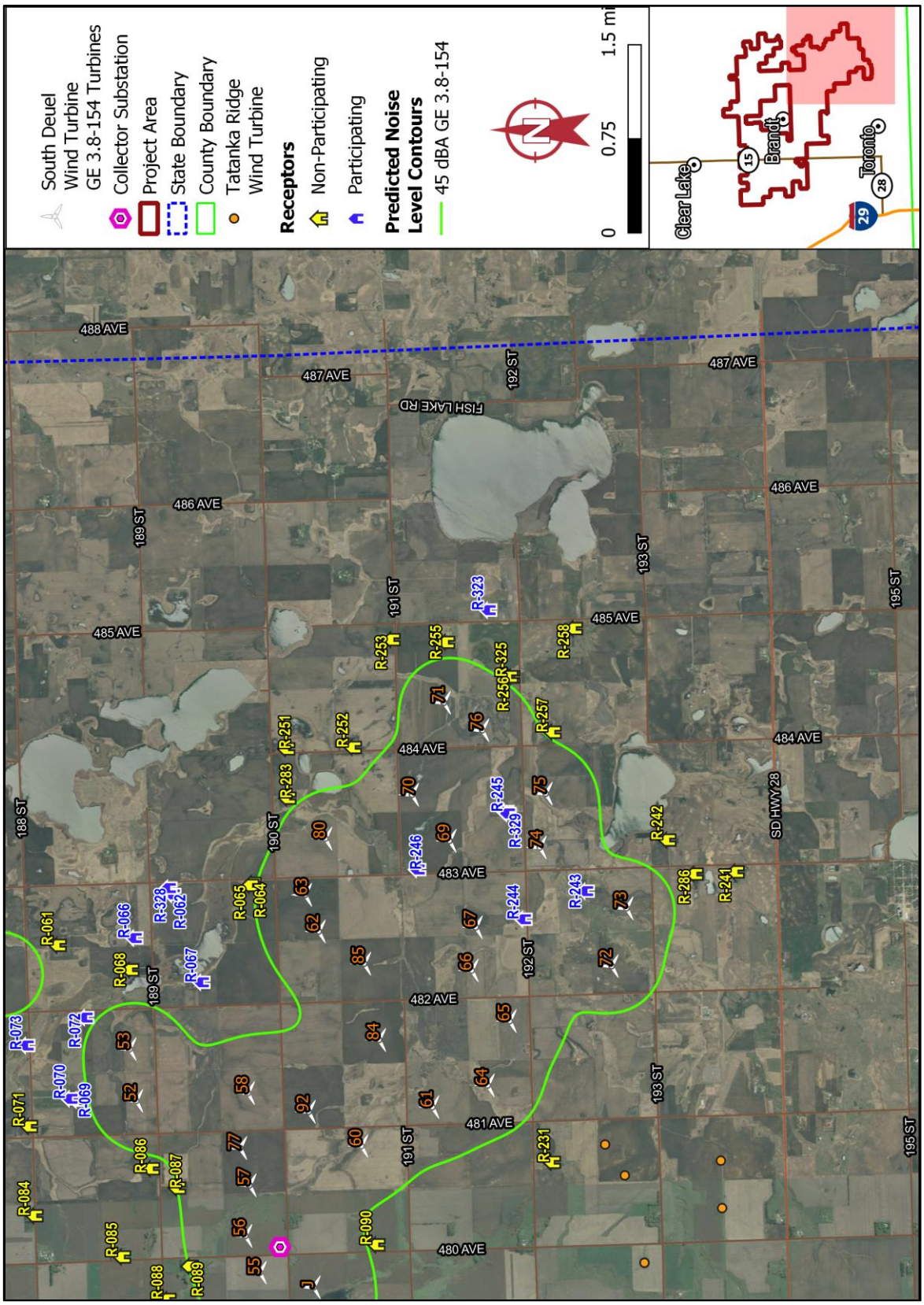

Figure D-8. Noise Level Contours – GE 3.8-154 Turbines - Southeast Area

APPENDIX E

Cumulative Noise Levels

Table E-1. Cumulative Noise Levels, South Deuel Wind + Tatanka Ridge

Receptor	South Deuel Wind Status	Tatanka Ridge Only Noise Level (L_{eq} dBA)	South Deuel Only Predicted Noise Level (L_{eq} dBA)			South Deuel + Tatanka Ridge Predicted Noise Level (L_{eq} dBA)			Dominant Facility
			SG 4.4-164 low noise	V163-4.5 STE	GE 3.8-154 LNTE	SG 4.4-164 low noise	V163-4.5 STE	GE 3.8-154 LNTE	
R-006	Non-Participating	27.1	31.2	35.0	36.0	32.6	35.6	36.5	S. Deuel Wind
R-007	Non-Participating	27.0	31.3	35.0	36.0	32.7	35.7	36.5	S. Deuel Wind
R-021	Non-Participating	23.5	36.7	39.6	40.6	36.9	39.7	40.7	S. Deuel Wind
R-022	Participating	24.8	37.8	40.3	41.5	38.0	40.4	41.5	S. Deuel Wind
R-023	Non-Participating	25.3	36.5	39.3	40.4	36.8	39.5	40.5	S. Deuel Wind
R-024	Non-Participating	23.5	38.0	40.6	41.7	38.2	40.7	41.8	S. Deuel Wind
R-025	Non-Participating	25.2	40.9	43.2	44.4	41.0	43.3	44.4	S. Deuel Wind
R-026	Non-Participating	28.2	39.9	42.3	43.4	40.2	42.4	43.6	S. Deuel Wind
R-027	Participating	26.6	44.5	46.1	47.5	44.5	46.1	47.6	S. Deuel Wind
R-028	Participating	26.5	41.2	43.6	44.7	41.4	43.7	44.8	S. Deuel Wind
R-054	Non-Participating	21.7	30.9	34.6	35.6	31.4	34.8	35.8	S. Deuel Wind
R-055	Non-Participating	22.5	33.8	37.1	38.1	34.2	37.2	38.2	S. Deuel Wind
R-061	Non-Participating	26.4	38.4	40.8	42.0	38.7	41.0	42.2	S. Deuel Wind
R-062	Participating	26.8	34.9	38.4	39.4	35.5	38.7	39.6	S. Deuel Wind
R-064	Non-Participating	27.3	40.7	42.9	44.3	40.9	43.1	44.3	S. Deuel Wind
R-065	Non-Participating	27.3	40.5	42.8	44.0	40.7	42.9	44.1	S. Deuel Wind
R-066	Participating	27.0	35.6	39.0	40.0	36.2	39.3	40.2	S. Deuel Wind
R-067	Participating	28.3	38.1	41.1	42.1	38.5	41.3	42.3	S. Deuel Wind
R-068	Non-Participating	27.4	37.6	40.5	41.5	38.0	40.7	41.7	S. Deuel Wind
R-069	Participating	28.6	40.0	42.4	43.6	40.3	42.5	43.7	S. Deuel Wind
R-070	Participating	28.5	39.3	41.8	42.9	39.6	42.0	43.1	S. Deuel Wind
R-071	Non-Participating	28.4	36.2	39.5	40.4	36.9	39.9	40.7	S. Deuel Wind
R-072	Participating	27.6	40.2	42.4	43.7	40.4	42.6	43.8	S. Deuel Wind
R-073	Participating	27.4	38.1	40.8	41.9	38.4	41.0	42.1	S. Deuel Wind
R-074	Participating	27.1	40.4	42.8	44.0	40.6	43.0	44.1	S. Deuel Wind
R-076	Non-Participating	25.5	39.5	41.8	43.0	39.7	41.9	43.1	S. Deuel Wind
R-077	Non-Participating	25.3	41.2	43.5	44.7	41.3	43.6	44.7	S. Deuel Wind
R-078	Participating	23.9	44.6	46.2	47.6	44.6	46.2	47.7	S. Deuel Wind
R-079	Participating	23.1	40.5	42.5	43.8	40.5	42.5	43.8	S. Deuel Wind
R-081	Non-Participating	27.6	40.3	42.7	43.8	40.5	42.8	43.9	S. Deuel Wind
R-082	Non-Participating	27.5	40.7	43.0	44.2	40.9	43.2	44.3	S. Deuel Wind
R-084	Non-Participating	29.6	34.7	38.4	39.3	35.9	39.0	39.7	S. Deuel Wind
R-085	Non-Participating	31.6	36.7	39.8	40.7	37.8	40.4	41.2	S. Deuel Wind
R-086	Non-Participating	30.6	40.5	43.0	44.1	41.0	43.2	44.3	S. Deuel Wind
R-087	Non-Participating	31.3	41.5	43.8	44.9	41.9	44.0	45.1	S. Deuel Wind

Receptor	South Deuel Wind Status	Tatanka Ridge Only Noise Level (L_{eq} dBA)	South Deuel Only Predicted Noise Level (L_{eq} dBA)			South Deuel + Tatanka Ridge Predicted Noise Level (L_{eq} dBA)			Dominant Facility
			SG 4.4-164 low noise	V163-4.5 STE	GE 3.8-154 LNTE	SG 4.4-164 low noise	V163-4.5 STE	GE 3.8-154 LNTE	
R-088	Non-Participating	33.2	38.7	41.4	42.3	39.8	42.0	42.8	S. Deuel Wind
R-089	Non-Participating	33.0	41.8	43.9	45.0	42.3	44.2	45.2	S. Deuel Wind
R-090	Non-Participating	35.5	41.1	43.4	44.4	42.2	44.1	44.9	S. Deuel Wind
R-091	Participating	40.0	42.6	44.5	45.8	44.5	45.8	46.8	Both
R-092	Participating	36.2	38.1	40.8	41.8	40.3	42.1	42.9	Both
R-093	Non-Participating	35.7	35.3	38.5	39.5	38.5	40.3	41.0	Both
R-096	Non-Participating	34.2	35.4	38.7	39.6	37.8	40.0	40.7	Both
R-099	Participating	33.0	33.8	37.6	38.4	36.4	38.9	39.5	Both
R-100	Non-Participating	30.2	34.5	38.2	39.1	35.8	38.9	39.6	S. Deuel Wind
R-101	Non-Participating	29.7	34.7	38.4	39.3	35.9	39.0	39.7	S. Deuel Wind
R-155	Non-Participating	30.1	41.4	43.6	44.8	41.7	43.8	45.0	S. Deuel Wind
R-156	Participating	27.8	41.4	43.4	44.7	41.6	43.5	44.8	S. Deuel Wind
R-157	Non-Participating	28.7	40.1	42.6	43.7	40.4	42.7	43.9	S. Deuel Wind
R-158	Non-Participating	26.7	32.9	36.2	37.3	33.8	36.7	37.6	S. Deuel Wind
R-160	Non-Participating	27.0	35.0	38.4	39.3	35.7	38.7	39.6	S. Deuel Wind
R-161	Non-Participating	27.8	36.1	39.2	40.2	36.7	39.5	40.4	S. Deuel Wind
R-162	Non-Participating	28.1	40.3	42.6	43.8	40.5	42.7	43.9	S. Deuel Wind
R-163	Participating	28.3	41.7	43.7	45.0	41.9	43.8	45.1	S. Deuel Wind
R-164	Non-Participating	30.0	39.1	41.7	42.8	39.6	42.0	43.0	S. Deuel Wind
R-165	Non-Participating	31.9	40.9	43.1	44.4	41.5	43.4	44.6	S. Deuel Wind
R-166	Participating	35.0	41.1	43.3	44.5	42.0	43.9	45.0	S. Deuel Wind
R-167	Non-Participating	37.2	38.1	40.8	41.9	40.7	42.4	43.1	Both
R-169	Participating	39.9	41.4	43.0	44.5	43.7	44.7	45.8	Both
R-171	Non-Participating	43.0	37.9	40.4	41.5	44.2	44.9	45.3	Tatanka Ridge
R-172	Non-Participating	42.7	35.5	38.6	39.6	43.5	44.1	44.4	Tatanka Ridge
R-173	Participating	39.2	42.2	43.9	45.4	43.9	45.2	46.3	Both
R-174	Non-Participating	40.9	35.4	38.7	39.6	42.0	43.0	43.3	Tatanka Ridge
R-175	Participating	40.5	35.4	38.7	39.7	41.7	42.7	43.1	Tatanka Ridge
R-176	Participating	37.1	41.4	43.4	44.7	42.8	44.3	45.4	S. Deuel Wind
R-177	Participating	35.8	42.5	44.6	45.8	43.4	45.1	46.3	S. Deuel Wind
R-178	Participating	36.6	42.4	44.2	45.6	43.4	44.9	46.2	S. Deuel Wind
R-179	Participating	36.4	40.3	42.7	43.9	41.8	43.6	44.6	S. Deuel Wind
R-180	Participating	34.9	41.0	43.4	44.5	42.0	44.0	45.0	S. Deuel Wind
R-181	Participating	34.2	40.0	42.6	43.6	41.0	43.2	44.1	S. Deuel Wind
R-182	Participating	33.7	43.1	45.0	46.3	43.6	45.3	46.6	S. Deuel Wind
R-183	Non-Participating	31.0	37.4	40.4	41.4	38.3	40.9	41.8	S. Deuel Wind

Receptor	South Deuel Wind Status	Tatanka Ridge Only Noise Level (L_{eq} dBA)	South Deuel Only Predicted Noise Level (L_{eq} dBA)			South Deuel + Tatanka Ridge Predicted Noise Level (L_{eq} dBA)			Dominant Facility
			SG 4.4-164 low noise	V163-4.5 STE	GE 3.8-154 LNTE	SG 4.4-164 low noise	V163-4.5 STE	GE 3.8-154 LNTE	
R-184	Participating	32.9	41.4	43.7	44.9	42.0	44.1	45.2	S. Deuel Wind
R-185	Participating	32.2	40.3	42.7	43.9	41.0	43.1	44.2	S. Deuel Wind
R-186	Non-Participating	30.8	36.9	40.1	41.0	37.9	40.6	41.4	S. Deuel Wind
R-187	Non-Participating	31.2	38.4	41.1	42.2	39.1	41.5	42.5	S. Deuel Wind
R-188	Non-Participating	31.2	38.0	40.9	41.8	38.8	41.3	42.2	S. Deuel Wind
R-189	Participating	29.3	35.3	38.6	39.5	36.3	39.1	39.9	S. Deuel Wind
R-190	Participating	29.5	38.7	41.1	42.3	39.2	41.4	42.5	S. Deuel Wind
R-191	Participating	29.4	37.8	40.4	41.5	38.4	40.7	41.7	S. Deuel Wind
R-192	Non-Participating	28.4	34.4	37.7	38.7	35.4	38.2	39.0	S. Deuel Wind
R-193	Participating	27.9	40.2	41.9	43.4	40.4	42.0	43.5	S. Deuel Wind
R-194	Non-Participating	27.8	37.5	39.7	41.0	37.9	40.0	41.2	S. Deuel Wind
R-195	Non-Participating	27.2	33.7	36.8	37.9	34.6	37.3	38.2	S. Deuel Wind
R-196	Non-Participating	26.8	33.0	36.3	37.3	33.9	36.8	37.7	S. Deuel Wind
R-197	Non-Participating	27.2	31.9	35.5	36.5	33.1	36.1	37.0	S. Deuel Wind
R-198	Non-Participating	27.1	32.0	35.6	36.6	33.2	36.2	37.1	S. Deuel Wind
R-200	Non-Participating	29.0	41.1	43.1	44.4	41.3	43.3	44.5	S. Deuel Wind
R-201	Participating	30.9	41.6	43.7	44.9	42.0	43.9	45.1	S. Deuel Wind
R-203	Participating	37.3	43.2	45.1	46.4	44.2	45.7	46.9	S. Deuel Wind
R-204	Non-Participating	39.3	38.8	41.0	42.3	42.1	43.2	44.0	Both
R-205	Non-Participating	39.6	40.8	42.9	44.2	43.2	44.6	45.5	Both
R-209	Non-Participating	41.5	33.4	36.7	37.7	42.2	42.8	43.0	Tatanka Ridge
R-212	Non-Participating	44.6	32.2	35.7	36.7	44.8	45.1	45.2	Tatanka Ridge
R-215	Non-Participating	32.8	32.5	36.0	36.9	35.7	37.7	38.3	Both
R-216	Non-Participating	29.8	35.0	37.7	38.8	36.2	38.4	39.3	S. Deuel Wind
R-228	Non-Participating	42.3	35.8	38.6	39.7	43.1	43.8	44.2	Tatanka Ridge
R-229	Non-Participating	41.6	36.2	39.1	40.1	42.7	43.5	43.9	Tatanka Ridge
R-231	Non-Participating	43.0	36.3	39.3	40.3	43.8	44.5	44.9	Tatanka Ridge
R-241	Non-Participating	29.5	33.5	36.8	38.0	35.0	37.5	38.5	S. Deuel Wind
R-242	Non-Participating	28.9	37.4	40.0	41.3	38.0	40.3	41.6	S. Deuel Wind
R-243	Participating	30.3	43.2	45.0	46.6	43.4	45.2	46.7	S. Deuel Wind
R-244	Participating	30.7	43.9	45.7	47.3	44.1	45.9	47.4	S. Deuel Wind
R-245	Participating	28.0	43.4	45.1	47.8	43.5	45.2	47.9	S. Deuel Wind
R-246	Participating	28.5	41.2	43.6	47.0	41.4	43.8	47.0	S. Deuel Wind
R-251	Non-Participating	25.5	35.5	38.6	40.0	35.9	38.8	40.1	S. Deuel Wind
R-252	Non-Participating	25.9	38.3	40.9	42.6	38.6	41.1	42.7	S. Deuel Wind
R-253	Non-Participating	24.3	35.1	37.9	39.8	35.4	38.1	40.0	S. Deuel Wind

Receptor	South Deuel Wind Status	Tatanka Ridge Only Noise Level (L_{eq} dBA)	South Deuel Only Predicted Noise Level (L_{eq} dBA)			South Deuel + Tatanka Ridge Predicted Noise Level (L_{eq} dBA)			Dominant Facility
			SG 4.4-164 low noise	V163-4.5 STE	GE 3.8-154 LNTE	SG 4.4-164 low noise	V163-4.5 STE	GE 3.8-154 LNTE	
R-255	Non-Participating	24.5	38.1	40.2	42.5	38.3	40.3	42.6	S. Deuel Wind
R-256	Non-Participating	25.3	37.7	40.0	44.0	37.9	40.2	44.1	S. Deuel Wind
R-257	Non-Participating	26.4	39.2	41.4	44.4	39.4	41.5	44.5	S. Deuel Wind
R-258	Non-Participating	24.5	31.3	34.9	37.3	32.1	35.3	37.6	S. Deuel Wind
R-280	Non-Participating	27.1	32.2	35.7	36.7	33.3	36.3	37.2	S. Deuel Wind
R-281	Non-Participating	27.1	32.6	36.0	37.0	33.7	36.5	37.4	S. Deuel Wind
R-282	Non-Participating	24.1	34.0	37.4	38.4	34.5	37.6	38.6	S. Deuel Wind
R-283	Non-Participating	26.3	39.7	42.0	43.4	39.9	42.1	43.5	S. Deuel Wind
R-286	Non-Participating	29.8	37.4	39.9	41.2	38.1	40.3	41.5	S. Deuel Wind
R-289	Participating	28.5	37.4	40.2	41.3	37.9	40.5	41.5	S. Deuel Wind
R-290	Non-Participating	26.3	41.3	43.7	44.9	41.5	43.8	44.9	S. Deuel Wind
R-291	Non-Participating	36.4	37.3	40.0	41.1	39.9	41.6	42.4	Both
R-294	Non-Participating	34.9	37.5	40.4	41.3	39.4	41.5	42.2	S. Deuel Wind
R-305	Non-Participating	42.8	37.0	39.8	40.8	43.8	44.5	44.9	Tatanka Ridge
R-306	Non-Participating	44.4	37.4	40.1	41.1	45.2	45.7	46.0	Tatanka Ridge
R-314	Participating	26.9	41.1	43.4	44.6	41.2	43.5	44.6	S. Deuel Wind
R-321	Non-Participating	37.9	37.4	39.8	41.1	40.7	42.0	42.8	Both
R-322	Non-Participating	43.3	39.0	41.1	42.4	44.7	45.4	45.9	Both
R-323	Participating	24.1	33.3	36.4	38.8	33.8	36.7	38.9	S. Deuel Wind
R-324	Participating	26.4	40.8	43.3	44.4	41.0	43.4	44.5	S. Deuel Wind
R-325	Non-Participating	25.3	37.9	40.2	44.1	38.1	40.3	44.2	S. Deuel Wind
R-326	Non-Participating	27.5	40.5	42.9	44.1	40.8	43.0	44.2	S. Deuel Wind
R-327	Non-Participating	39.7	37.5	39.9	41.1	41.8	42.8	43.5	Both
R-328	Participating	26.7	34.6	38.2	39.2	35.2	38.5	39.4	S. Deuel Wind
R-329	Participating	28.0	43.7	45.4	48.0	43.8	45.5	48.0	S. Deuel Wind