

TECHNICAL MEMORANDUM

To: Andrew Biemer, Administrator

Site Evaluation Subcommittee

From: Christopher Menge and Hayden Jubera

Date: April 6, 2023

Subject: Antrim Wind Compliance Monitoring Report

Reference: HMMH Project Number 312150

SEC Account Number 18930000/500464

Docket No. 2021-02

This memorandum presents Harris Miller Miller & Hanson Inc.'s (HMMH's) report on the noise monitoring program conducted for the Antrim Wind Compliance Assessment during the late spring and early summer of 2022. The memorandum includes an executive summary, Site Evaluation Committee rules, details of the monitoring program, tables of results and conclusions.

Executive Summary

HMMH conducted a noise compliance monitoring program in the vicinity of the Antrim Wind facility during three different occasions between June 9 and July 1, 2022. Monitoring locations were near homes in the vicinity of the wind farm, to the east, west and north of the turbines. Since access to private property was not available, short-term one-hour noise monitoring was conducted at locations representative of the affected residential areas. Monitoring was conducted during midday periods, evening periods and late-night periods. Noise data were collected during a total of 27 one-hour monitoring periods, but the analysis of interfering noise sources, which were primarily traffic on Route 9 and wind in the trees, showed that sufficient good quality data without interference were obtained during only 13 of the 27 measurement periods.

High-frequency biogenic sounds from birds, insects and frogs were removed from the sound level data during some of the monitoring periods to maximize the quantity of useful quality data for analysis. The data analysis showed that the LAeq sound metrics measured over the one-hour monitoring periods did not exceed the SEC nighttime (8:00 PM to 8:00 AM) noise standard limit of 40 dBA at any site during any time of day. This demonstrates the Antrim Wind facility's compliance in accordance with the SEC Subcommittee's findings.

Further, the data showed that during none of the five-minute intervals during the nighttime did the five-minute Leq metrics exceed the SEC nighttime noise limit of 40 dBA. And, during none of the five-minute intervals during the daytime did the five-minute LAeq metric exceed the SEC daytime (8:00 AM to 8:00 PM) noise limit of 45 dBA. This finding also demonstrates compliance with the more restrictive, shorter period interpretation of the noise limits, which was agreed by the SEC Subcommittee to be the minimum acceptable averaging period for compliance determination. As the Antrim Wind facility was intentionally not notified of when the monitoring was to occur, the turbines were not able to be shut down during the monitoring program to determine background sound levels, so comparisons with the background L90 could not be made. Therefore, the monitoring program showed that the Antrim Wind facility complies with the SEC noise limits.

SEC Noise Standards and Post-Construction Compliance Monitoring Requirements

The New Hampshire Site Evaluation Committee (SEC) has established noise standards for wind energy facilities, which are given in SEC Chapter Site 301.14 (f) (2) a. In summary, the standards require at residential buildings that the A-weighted equivalent sound levels (LAeq) produced by the facility during the daytime between 8 AM and 8 PM not exceed the greater of 45 dBA or 5 dBA above the background L90. During nighttime hours between 8 PM and 8 AM, the facility LAeq should not exceed the greater of 40 dBA or 5 dBA above the background L90.

The SEC also addresses the requirements for post-construction compliance monitoring, in Site 301.18 (e) through (i). Many conditions of the monitoring are addressed, including instrument set-up for data collection, monitoring duration, and the information and noise metrics to be reported. HMMH followed all the requirements to the extent possible.

Monitoring Program Details

Site Selection

The initial plans for the project called for the noise compliance monitoring to be conducted at the homes of four nearby property owners who had filed noise complaints. However, access to properties to conduct the monitoring was not available. Therefore, alternative sites were chosen on public land as close to the complainants' homes as practical. Sites along the same roadways and approximately the same distances from the wind turbines were selected. The roadways were Reed Carr Road, Craig Road, Salmon Brook Road and Loveren's Mill Road. A maintenance facility site just south of Franklin Pierce Highway (Route 9) and off Salmon Brook Road belonging to the New Hampshire Department of Transportation was also selected.

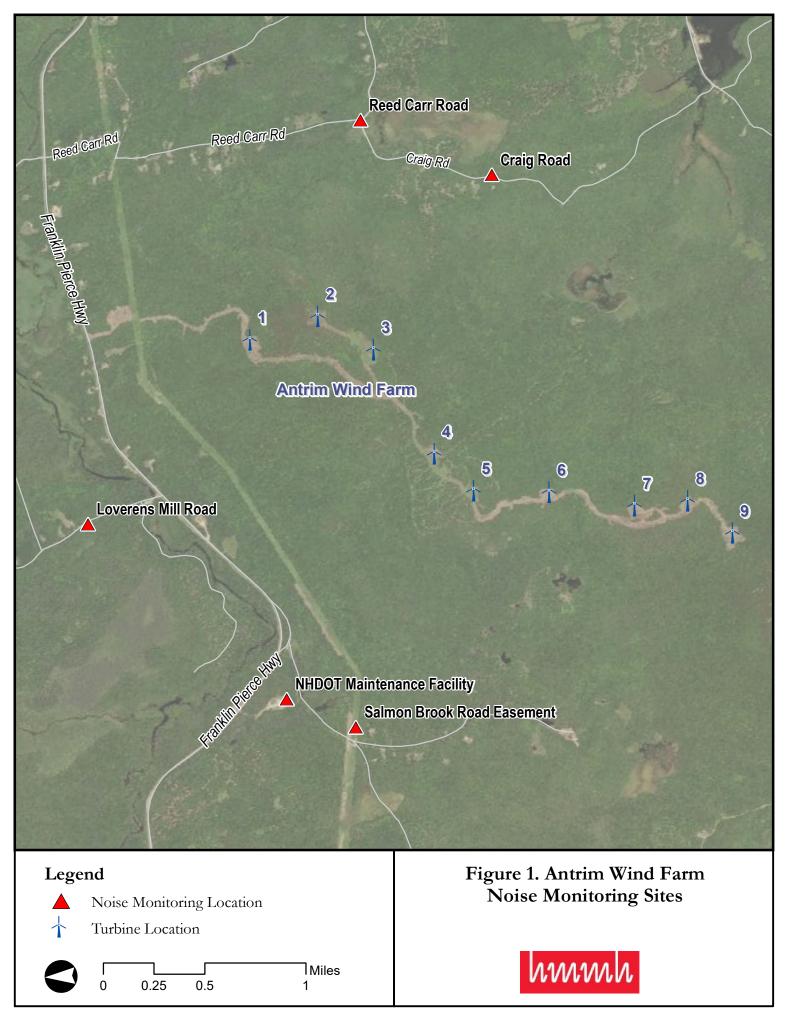
Figure 1 includes a map showing the locations of the monitoring sites and the proximity of the turbines in the wind farm.

Monitoring Periods

The initial plans had called for long-term unattended continuous monitoring in the yards of the residents' homes. Because private property access was not possible, nearly all the monitoring conducted was short term in nature by necessity for instrument security reasons. All short-term measurements were conducted for at least one hour.

Monitoring was conducted during three times of day on three separate occasions. The times of day were midday, evening and late night, and the occasions were June 9-10, June 16-17, and June 30-July 1. During the first two occasions, monitoring was conducted at three sites, Reed Carr Road at the intersection with Craig Road, a power easement along Salmon Brook Road, and the NHDOT maintenance facility. At the DOT facility, which could be secured, HMMH set up a separate 2270 monitor to operate for a full 24-hour period. Attended and logged monitoring was conducted at that site during the three times of day, as at the other two sites.

The data collected during the first two occasions was reviewed carefully prior to the third occasion, and it was determined that limited useful data could be collected at the DOT facility, due to the frequent traffic noise from nearby Route 9. The unattended data collected at that site proved to be not useful



due to the uncertainty of the significant noise contributions from traffic and wind in the nearby trees. Therefore, monitoring at that site was not repeated during the third monitoring occasion, and the site on Loveren's Mill Road was substituted. In addition, some bullfrog sound was present at the Reed Carr Road site due to a nearby wet area, and while not dominant, it made field determination of dominant sources challenging. Therefore, for the third monitoring occasion, that site was moved further south along Craig Road to avoid the bullfrog sound.

Data Collection

All noise monitoring was conducted with HMMH-owned instruments. HMMH's Bruel & Kjaer 2270 Type I precision analyzers were used for all acoustic data collection reported here. All of HMMH's instruments have current laboratory calibrations traceable to the National Institute of Standards and Technology. All data reported were collected during attended monitoring to ensure that the sources of sound were identified. HMMH's B&K 2245 instruments were also used to collect supplemental information simultaneously with the 2270 instruments. Such information included flagging of exclusion periods due to intruding dominant sources of sound unrelated to the wind turbines, which were predominantly vehicles on Route 9 and wind in the trees. Both these sources had spectral characteristics like that of the wind turbines, so all periods where they were clearly dominant had to be excluded from the results. Other supplemental information logged on the 2245 included temperature and wind observations conducted with hand-held instruments near the microphone a few times during each measurement period.

The 2270 instruments were set to collect fast and slow response data, and to log the Leq, L10 and L90 metrics, for both A- and C-weighting. The instruments collected continuous streams of 1-second and 1/10th second slow and fast response sound level data for the overall A-weighted sound level metric, and streams of 1-second slow and fast response data for the C-weighted level for the full hour. The instruments also collected streams of 1/3 octave band spectra every second, recording the 1-second Leq in each band. The instrument is not capable of collecting 1/3 octave band spectra 10 times a second. The instruments also recorded the sound signal so it can be played back and listened to or analyzed further. The instruments were calibrated with acoustic calibrators in the field before and after each measurement.

The Antrim Wind turbines were operating during all reported measurement periods. They were audible during all reported (non-excluded) periods, and more clearly audible during some quieter late night periods.

Data Analysis

After carefully reviewing all data collected, considering the exclusions, and listening to the recorded audio signal for further information and clarification, HMMH determined that 14 of the 27 measurement periods had nearly continuous interference from extraneous noise, mostly from wind in the trees and/or Route 9 traffic. Therefore, no results from those periods are reported here. We are reporting only data from the 13 periods with sufficient quality data to be representative of the period. The total durations of good quality, quiet or turbine-dominated sound during each one-hour measurement period varied from 16 minutes to 56 minutes. The data analysis included processing the 1-second and 10th-second data streams of the non-excluded quality data to compute all the whole-period metrics needed for the SEC requirements. The analysis also included processing the data into 5-minute intervals for potential comparisons with the 10-minute interval wind and turbine operation data from the turbines.

Some of these quality measurement periods included periodic biogenic sound from birds and some insects that did influence the overall A-weighted sound level. However, following the guidance in American National Standard "Methods to Define and Measure the Residual Sound in Protected Natural and Quiet Residential Areas," ANSI/ASA S3/SC1.100-2014 ANSI/ASA S12.100-2014 (reaffirmed 5/28/2020), HMMH was able to process the data to exclude the biogenic sounds. This is possible because those biogenic sounds occur at frequencies considerably higher than those from the wind turbines. The method involves using the 1/3 octave band data to first determine the frequency range of the biogenic sounds and then to compute the overall sound levels only with the frequency bands below the range of the biogenic sound. For the data collected at the Antrim Wind site, all bird and insect sounds were in the 2000 Hz 1/3 octave band and higher, so the data in those bands were not included in the computations of the overall dBA and dBC sound level metrics for those measurement periods.

Results

During the first monitoring occasion on June 9 and 10, the evening and late-night periods had relatively modest and calm wind conditions at the monitoring sites. Temperatures were in the mid-60s and 70s during the day and 50s and 60s at night. All six periods had quality data, and four of the periods required filtering for biogenic sounds from birds and peepers. The midday measurement periods on June 10 were considerably windier, and background noise from wind in the trees was too dominant at all three sites for any of the data to be usable.

During the second monitoring occasion from June 16 to 17, the June 16 midday and evening monitoring periods had fairly strong wind producing too much background from wind in the trees for the data to be useable for turbine noise monitoring. However, the late-night periods on June 17 at the DOT facility and Salmon Brook Road sites had lower wind speeds and sufficiently low intruding background noise and produced usable data reported in the following tables. Temperatures during that night were around 70 degrees.

The third monitoring occasion was on June 30 and July 1 and was chosen for forecast low wind conditions in the study area. Also, as mentioned above, two of the sites were moved. The DOT site moved to Loveren's Mill Road, and the Reed Carr Road site moved south to Craig Road. Weather conditions during that occasion were more favorable, with low or calm winds, and temperatures in the high 60s and 70s during the day and evening, and high 50s to 60 at night. Quality data were collected at the Craig Road site during all measurement periods, and at all sites during the late-night period. Primarily Route 9 traffic noise prevented sufficient useful data from being collected at the Loveren's Mill Road and Salmon Brook Road sites during the day and evening periods.

Table 1 below shows the overall A-weighted Leq metrics for all quality monitoring periods. The periods where biogenic sounds have been removed are marked "Yes" in the "Filtered" column. Appendix A provides tables of individual 5-minute periods of LAeqs throughout each one-hour monitoring period.

Summaries of the weather and wind conditions during each measurement period are given below in Table 2 for the conditions observed at the monitoring sites and in Table 3 for the data reported by the nine wind turbines. Wind direction reported by the turbines was exclusively from the west and southwest during all measurement occasions. Wind speeds were variable, from a low of 3 to 4 meters/second during the afternoon and evening of 6/30, to a high of 8 to 10 m/s during the monitoring occasions on 6/10 and 7/1. The lowest average measured period Leq sound levels of 27 dBA and 31 dBA occurred at the Craig Road site on 6/30 with the lowest observed turbine wind speeds of 3 to 4 m/s. However interestingly, during the late-night hours on 7/1, when the turbines were experiencing

relatively high winds between 7.5 and 10 m/s and generating significant power, the three monitoring sites registered relatively low period average Leq sound levels from 30 dBA to 36 dBA.

Table 3 provides the distances between the noise monitoring locations and each wind turbine. Detailed data reported for each turbine every 10 minutes during the monitoring periods are given in Appendix B.

Conclusions

Significantly, no LAeq values measured during any of the full one-hour monitoring periods or the 5-minute monitoring periods equal or exceed the 40 dBA LAeq nighttime limit or the 45 dBA LAeq daytime limit. Therefore, the monitoring showed consistent compliance with this absolute noise level standard. Also, since HMMH had no control over or contact with the operators of the Antrim Wind turbines, HMMH could not get them shut down for periods to enable measurement of background sound levels for purposes of comparison with the measured sound levels during periods when the turbines were operating. Therefore, HMMH is unable to comment on the potential increases in background levels that may have been caused by the turbine sound.

Table 1. A-Weighted Sound Metrics during Monitoring Periods

	Site Name and Measurement Periods					
Site Name	Start Time	End Time	Elapsed Time	Filtered?	Sound Levels, dBA	
Reed Carr Road	6/9/2022 6:15:00 PM	6/9/2022 7:15:00 PM	0:46:50	Yes	39.2	
Salmon Brook Road	6/9/2022 8:00:00 PM	6/9/2022 9:00:00 PM	0:37:37	Yes	38.6	
NHDOT Facility	6/9/2022 9:15:00 PM	6/9/2022 10:15:00 PM	0:32:54	Yes	32.0	
Reed Carr Road	6/10/2022 2:05:00 AM	6/10/2022 3:05:00 AM	0:59:40	No*	38.2	
Salmon Brook Road	6/10/2022 3:20:00 AM	6/10/2022 4:20:00 AM	0:39:04	No*	37.7	
NHDOT Facility	6/10/2022 4:30:00 AM	6/10/2022 5:30:00 AM	0:21:11	Yes	35.7	
NHDOT Facility	6/17/2022 1:15:00 AM	6/17/2022 2:15:00 AM	0:25:45	No*	37.8	
Salmon Brook Road	6/17/2022 3:55:00 AM	6/17/2022 4:55:00 AM	0:15:36	No*	34.6	
Craig Road	6/30/2022 1:30:00 PM	6/30/2022 2:30:00 PM	0:33:05	Yes	31.2	
Craig Road	6/30/2022 7:45:00 PM	6/30/2022 8:45:00 PM	0:41:28	No*	27.2	
Salmon Brook Road	7/1/2022 12:35:00 AM	7/1/2022 1:35:00 AM	0:25:16	No*	30.4	
Loveren's Mill Road	7/1/2022 2:00:00 AM	7/1/2022 3:00:00 AM	0:30:11	No*	31.7	
Craig Road	7/1/2022 3:15:00 AM	7/1/2022 4:15:00 AM	0:55:43	No*	36.1	

Table 2. Weather Conditions Observed at the Monitoring Sites during Monitoring Periods

Site	Start Time	End Time	Temp (F)	Wind (m/s)	Wind Dir	Humidity (%)
Reed Carr Road	6/9/2022 6:15:00 PM	6/9/2022 7:15:00 PM	76	1.3 - 2	E, N	54
Salmon Brook Road	6/9/2022 8:00:00 PM	6/9/2022 9:00:00 PM	64	0.5	Е	70
NHDOT Facility	6/9/2022 9:15:00 PM	6/9/2022 10:15:00 PM	66	0	N/A	67
Reed Carr Road	6/10/2022 2:05:00 AM	6/10/2022 3:05:00 AM	56	0 - 0.5	N/A	67
Salmon Brook Road	6/10/2022 3:20:00 AM	6/10/2022 4:20:00 AM	56	0.9 - 1.3	Е	60
NHDOT Facility	6/10/2022 4:30:00 AM	6/10/2022 5:30:00 AM	62	0	N/A	69
NHDOT Facility	6/17/2022 1:15:00 AM	6/17/2022 2:15:00 AM	72	0.9 - 3.1	Е	61
Salmon Brook Road	6/17/2022 3:55:00 AM	6/17/2022 4:55:00 AM	69	0.5 - 1.3	E	72
Craig Road	6/30/2022 1:30:00 PM	6/30/2022 2:30:00 PM	78	0.9 - 1.3	S	43
Craig Road	6/30/2022 7:45:00 PM	6/30/2022 8:45:00 PM	69	0	N/A	54
Salmon Brook Road	7/1/2022 12:35:00 AM	7/1/2022 1:35:00 AM	60	0	N/A	72
Loveren's Mill Road	7/1/2022 2:00:00 AM	7/1/2022 3:00:00 AM	58	0	N/A	75
Craig Road	7/1/2022 3:15:00 AM	7/1/2022 4:15:00 AM	57	0	N/A	60

Table 3. Average Wind and Power Conditions Reported by the Nine Turbines during Monitoring Periods

Sit	Site Name and Measurement Periods			oata for all Turbines in F	Period
Site Name	Start Time	End Time	Wind Dir. (deg)	Wind Speed (m/s)	Power (kW)
Reed Carr Road	6/9/2022 6:15:00 PM	6/9/2022 7:15:00 PM	276	7.6	1165
Salmon Brook Road	6/9/2022 8:00:00 PM	6/9/2022 9:00:00 PM	276	6.5	732
NHDOT Facility	6/9/2022 9:15:00 PM	6/9/2022 10:15:00 PM	283	7.5	1076
Reed Carr Road	6/10/2022 2:05:00 AM	6/10/2022 3:05:00 AM	249	8.4	1559
Salmon Brook Road	6/10/2022 3:20:00 AM	6/10/2022 4:20:00 AM	254	9.4	2022
NHDOT Facility	6/10/2022 4:30:00 AM	6/10/2022 5:30:00 AM	250	10.0	2350
NHDOT Facility	6/17/2022 1:15:00 AM	6/17/2022 2:15:00 AM	218	8.3	1658
Salmon Brook Road	6/17/2022 3:55:00 AM	6/17/2022 4:55:00 AM	204	7.1	1193
Craig Road	6/30/2022 1:30:00 PM	6/30/2022 2:30:00 PM	291	3.5	98
Craig Road	6/30/2022 7:45:00 PM	6/30/2022 8:45:00 PM	215	3.3	102
Salmon Brook Road	7/1/2022 12:35:00 AM	7/1/2022 1:35:00 AM	223	8.0	1581
Loveren's Mill Road	7/1/2022 2:00:00 AM	7/1/2022 3:00:00 AM	233	9.6	2259
Craig Road	7/1/2022 3:15:00 AM	7/1/2022 4:15:00 AM	227	9.3	2106

Table 4 Approximate Distances Between Noise Monitoring Locations and Each Wind Turbine

Noise Monitoring		Wind Turbine Number and Approximate Distance to Monitoring Location (feet)							
Location	T01	T02	T03	T04	T05	T06	T07	T08	T09
Reed Carr Road	4,681	3,801	4,447	6,455	7,412	7,976	9,066	9,611	10,677
Salmon Brook Road	7,529	7,822	7,061	5,388	4,965	5,734	6,631	7,579	8,039
NHDOT Facility	7,155	7,748	7,265	6,055	5,967	7,013	8,136	9,146	9,711
Craig Road	5,488	5,685	4,054	5,345	6,012	6,137	6,914	7,272	8,291
Loveren's Mill Road	4,492	5,703	6,085	6,479	7,190	8,619	10,157	11,223	12,134

Appendix A. Sound Level Metrics during Periods of Five Minutes without Excluded Events

This appendix provides a table for each of the 13 measurement periods that shows consecutive periods that incorporate five minutes of valid sound level data throughout the full hour of data collection. The five-minute periods are made up of only time segments with valid data, excluding all periods that had been marked to be excluded due to intruding noise sources. Therefore, for full measurement periods with less than sixty minutes of valid data, there will be fewer than 12 five-minute periods in the tables. And, many individual periods showing a Total Time of five minutes will have start and end times that are longer than five minutes due to the exclusions during the interval.

Table 5. Five-Minute Period Sound Levels: Reed Carr Road 6/9/2022 6:15 PM

ı	Leq Sound		
Start Time	End Time	Total Time	Level (dBA)
6/9/2022 6:15:03 PM	6/9/2022 6:20:33 PM	0:05:00	38.6
6/9/2022 6:20:33 PM	6/9/2022 6:27:32 PM	0:05:00	37.7
6/9/2022 6:27:32 PM	6/9/2022 6:33:53 PM	0:05:00	38.3
6/9/2022 6:33:53 PM	6/9/2022 6:39:51 PM	0:05:00	41.1
6/9/2022 6:39:51 PM	6/9/2022 6:46:34 PM	0:05:00	38.8
6/9/2022 6:46:34 PM	6/9/2022 6:51:34 PM	0:05:00	38.8
6/9/2022 6:51:34 PM	6/9/2022 6:58:01 PM	0:05:00	39.6
6/9/2022 6:58:01 PM	6/9/2022 7:07:23 PM	0:05:00	39.6
6/9/2022 7:07:23 PM	6/9/2022 7:13:26 PM	0:05:00	38.8

Table 6. Five-Minute Period Sound Levels: Salmon Brook Road 6/9/2022 8:00 PM

M	Leq Sound		
Start Time	End Time	Total Time	Level (dBA)
6/9/2022 8:00:00 PM	6/9/2022 8:07:36 PM	0:05:00	39.2
6/9/2022 8:07:36 PM	6/9/2022 8:12:36 PM	0:05:00	38.5
6/9/2022 8:12:36 PM	6/9/2022 8:17:36 PM	0:05:00	38.6
6/9/2022 8:17:36 PM	6/9/2022 8:35:51 PM	0:05:00	38.3
6/9/2022 8:35:51 PM	6/9/2022 8:44:16 PM	0:05:00	38.2
6/9/2022 8:44:16 PM	6/9/2022 8:50:37 PM	0:05:00	38.7
6/9/2022 8:50:37 PM	6/9/2022 8:56:09 PM	0:05:00	38.4

Table 7. Five-Minute Period Sound Levels: NHDOT Facility 6/9/2022 9:15 PM

M	Leq Sound Level		
Start Time	End Time	Total Time	(dBA)
6/9/2022 9:15:00 PM	6/9/2022 9:24:07 PM	0:05:00	33.5
6/9/2022 9:24:07 PM	6/9/2022 9:33:43 PM	0:05:00	31.4
6/9/2022 9:33:43 PM	6/9/2022 9:44:29 PM	0:05:00	30.5
6/9/2022 9:44:29 PM	6/9/2022 9:52:51 PM	0:05:00	31.4
6/9/2022 9:52:51 PM	6/9/2022 9:58:52 PM	0:05:00	29.7
6/9/2022 9:58:52 PM	6/9/2022 10:09:31 PM	0:05:00	32.7

Table 8. Five-Minute Period Sound Levels: Reed Carr Road 6/10/2022 2:05 AM

Me	_ Leg Sound Level		
Start Time	End Time	Total Time	(dBA)
6/10/2022 2:05:20 AM	6/10/2022 2:10:19 AM	0:05:00	36.3
6/10/2022 2:10:19 AM	6/10/2022 2:15:19 AM	0:05:00	38.9
6/10/2022 2:15:19 AM	6/10/2022 2:20:19 AM	0:05:00	38.6
6/10/2022 2:20:19 AM	6/10/2022 2:25:19 AM	0:05:00	39.6
6/10/2022 2:25:19 AM	6/10/2022 2:30:19 AM	0:05:00	37.9
6/10/2022 2:30:19 AM	6/10/2022 2:35:19 AM	0:05:00	38.5
6/10/2022 2:35:19 AM	6/10/2022 2:40:19 AM	0:05:00	38.7
6/10/2022 2:40:19 AM	6/10/2022 2:45:19 AM	0:05:00	37.7
6/10/2022 2:45:19 AM	6/10/2022 2:50:19 AM	0:05:00	38.0
6/10/2022 2:50:19 AM	6/10/2022 2:55:19 AM	0:05:00	38.0
6/10/2022 2:55:19 AM	6/10/2022 3:00:19 AM	0:05:00	38.5

Table 9. Five-Minute Period Sound Levels: Salmon Brook Road 6/10/2022 3:30 AM

Me	Leq Sound Level		
Start Time	End Time	Total Time	(dBA)
6/10/2022 3:20:22 AM	6/10/2022 3:25:21 AM	0:05:00	37.6
6/10/2022 3:25:21 AM	6/10/2022 3:30:21 AM	0:05:00	37.5
6/10/2022 3:30:21 AM	6/10/2022 3:38:46 AM	0:05:00	37.9
6/10/2022 3:38:46 AM	6/10/2022 3:43:46 AM	0:05:00	37.4
6/10/2022 3:43:46 AM	6/10/2022 3:54:02 AM	0:05:00	37.5
6/10/2022 3:54:02 AM	6/10/2022 4:04:20 AM	0:05:00	37.5
6/10/2022 4:04:20 AM	6/10/2022 4:13:14 AM	0:05:00	37.8

Table 10. Five-Minute Period Sound Levels: NHDOT Facility 6/10/2022 4:30 AM

	Leq Sound Level		
Start Time	End Time	Total Time	(dBA)
6/10/2022 4:30:49 AM	6/10/2022 4:42:24 AM	0:05:00	35.2
6/10/2022 4:42:24 AM	6/10/2022 4:54:29 AM	0:05:00	35.6
6/10/2022 4:54:29 AM	6/10/2022 5:02:25 AM	0:05:00	33.5
6/10/2022 5:02:25 AM	6/10/2022 5:16:11 AM	0:05:00	34.5

Table 11. Five-Minute Period Sound Levels: NHDOT Facility 6/17/2022 1:20 AM

M	_ Leg Sound Level		
Start Time	End Time	Total Time	(dBA)
6/17/2022 1:19:20 AM	6/17/2022 1:27:06 AM	0:05:00	38.2
6/17/2022 1:24:20 AM	6/17/2022 1:41:59 AM	0:05:00	38.9
6/17/2022 1:29:20 AM	6/17/2022 1:48:37 AM	0:05:00	38.2
6/17/2022 1:34:20 AM	6/17/2022 2:01:56 AM	0:05:00	37.3
6/17/2022 1:39:20 AM	6/17/2022 2:12:19 AM	0:05:00	35.5
6/17/2022 1:44:20 AM	6/17/2022 2:14:15 AM	0:00:45	35.8

Table 12. Five-Minute Period Sound Levels: Salmon Brook Road 6/17/2022 3:55 AM

Me	Leq Sound Level		
Start Time	End Time	Total Time	(dBA)
6/17/2022 3:55:41 AM	6/17/2022 4:05:56 AM	0:05:00	35.2
6/17/2022 4:05:56 AM	6/17/2022 4:18:54 AM	0:05:00	34.5
6/17/2022 4:18:54 AM	6/17/2022 4:27:32 AM	0:05:00	33.9

Table 13. Five-Minute Period Sound Levels: Craig Road 6/30/2022 1:30 PM

M	Measurement Period								
Start Time	End Time	Total Time	(dBA)						
6/30/2022 1:30:11 PM	6/30/2022 1:40:37 PM	0:05:00	31.0						
6/30/2022 1:40:37 PM	6/30/2022 1:45:59 PM	0:05:00	29.5						
6/30/2022 1:45:59 PM	6/30/2022 1:55:45 PM	0:05:00	28.5						
6/30/2022 1:55:45 PM	6/30/2022 2:05:26 PM	0:05:00	35.0						
6/30/2022 2:05:26 PM	6/30/2022 2:13:09 PM	0:05:00	31.6						
6/30/2022 2:13:09 PM	6/30/2022 2:18:59 PM	0:05:00	28.6						

Table 14. Five-Minute Period Sound Levels: Craig Road 6/30/2022 7:45 PM

P	Measurement Period							
Start Time	End Time	Total Time	(dBA)					
6/30/2022 7:46:32 PM	6/30/2022 7:57:11 PM	0:05:00	28.9					
6/30/2022 7:57:11 PM	6/30/2022 8:02:41 PM	0:05:00	31.1					
6/30/2022 8:02:41 PM	6/30/2022 8:07:53 PM	0:05:00	24.5					
6/30/2022 8:07:53 PM	6/30/2022 8:13:54 PM	0:05:00	26.0					
6/30/2022 8:13:54 PM	6/30/2022 8:21:28 PM	0:05:00	26.3					
6/30/2022 8:21:28 PM	6/30/2022 8:29:11 PM	0:05:00	26.7					
6/30/2022 8:29:11 PM	6/30/2022 8:38:31 PM	0:05:00	25.4					
6/30/2022 8:38:31 PM	6/30/2022 8:43:31 PM	0:05:00	24.8					

Table 15. Five-Minute Period Sound Levels: Salmon Brook Road 7/1/2022 12:35AM

	Leg Sound Level		
Start Time	End Time	Total Time	(dBA)
7/1/2022 12:40:31 AM	7/1/2022 12:49:58 AM	0:05:00	30.9
7/1/2022 12:49:58 AM	7/1/2022 1:02:49 AM	0:05:00	30.0
7/1/2022 1:02:49 AM	7/1/2022 1:09:57 AM	0:05:00	30.1
7/1/2022 1:09:57 AM	7/1/2022 1:21:15 AM	0:05:00	30.2
7/1/2022 1:21:15 AM	7/1/2022 1:32:48 AM	0:05:00	30.7

Table 16. Five-Minute Period Sound Levels: Loverens Mill Road 7/1/2022 2:00AM

Me	Measurement Period								
Start Time	End Time	Total Time	(dBA)						
7/1/2022 2:03:11 AM	7/1/2022 2:16:07 AM	0:05:00	30.6						
7/1/2022 2:16:07 AM	7/1/2022 2:21:07 AM	0:05:00	29.9						
7/1/2022 2:21:07 AM	7/1/2022 2:29:03 AM	0:05:00	32.5						
7/1/2022 2:29:03 AM	7/1/2022 2:37:19 AM	0:05:00	32.2						
7/1/2022 2:37:19 AM	7/1/2022 2:44:06 AM	0:05:00	32.9						
7/1/2022 2:44:06 AM	7/1/2022 2:54:32 AM	0:05:00	31.4						

Table 17. Five-Minute Period Sound Levels: Craig Road 7/1/2022 3:15 AM

Mea	asurement Period		Leq Sound Level
Start Time	End Time	Total Time	(dBA)
7/1/2022 3:16:06 AM	7/1/2022 3:21:05 AM	0:05:00	36.2
7/1/2022 3:21:05 AM	7/1/2022 3:26:05 AM	0:05:00	36.5
7/1/2022 3:26:05 AM	7/1/2022 3:31:05 AM	0:05:00	36.1
7/1/2022 3:31:05 AM	7/1/2022 3:36:05 AM	0:05:00	35.8
7/1/2022 3:36:05 AM	7/1/2022 3:41:05 AM	0:05:00	35.1
7/1/2022 3:41:05 AM	7/1/2022 3:46:05 AM	0:05:00	35.3
7/1/2022 3:46:05 AM	7/1/2022 3:51:05 AM	0:05:00	36.5
7/1/2022 3:51:05 AM	7/1/2022 3:56:05 AM	0:05:00	35.8
7/1/2022 3:56:05 AM	7/1/2022 4:04:16 AM	0:05:00	36.0
7/1/2022 4:04:16 AM	7/1/2022 4:09:16 AM	0:05:00	37.4
7/1/2022 4:09:16 AM	7/1/2022 4:14:16 AM	0:05:00	36.7

Appendix B. Wind Direction, Wind Speed and Power Reported by Turbines during Noise Monitoring Periods

This appendix provides three tables of the wind direction, wind speed and power data reported by the turbines during each monitoring period. The turbines issue data reports every 10 minutes. All data reported during each one-hour monitoring period are provided in the three tables that follow for each turbine and each 10-minute interval. The tables also include all-turbine averages for each 10-minute period, all-period averages for each turbine, and a single average value for all turbines over the entire monitoring period.

Table 18. Wind Direction Reported by Turbines during Monitoring Periods

		Wind D	irection	in Deg	rees Re	lative t	o True	North		
Monitoring Sites and	All Turbine				T	urbine	ID			
Periods	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
Reed Carr Road										
2022/06/09 18:20:00	279	218	283	280	292	312	286	287	242	312
2022/06/09 18:30:00	276	213	279	273	287	311	284	287	242	309
2022/06/09 18:40:00	275	210	278	275	285	310	283	286	238	307
2022/06/09 18:50:00	275	211	280	275	285	310	285	286	241	307
2022/06/09 19:00:00	273	207	277	272	282	308	283	280	238	307
2022/06/09 19:10:00	278	214	286	278	288	310	287	287	242	308
2022/06/09 19:20:00	277	210	285	279	285	310	285	286	242	309
Monitoring Period Average	276	212	281	276	286	310	285	285	241	309
Salmon Brook Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/09 20:00:00	278	213	287	281	288	312	283	289	244	308
2022/06/09 20:10:00	273	207	284	278	282	307	277	284	239	302
2022/06/09 20:20:00	272	208	281	275	280	307	278	284	239	301
2022/06/09 20:30:00	275	210	280	275	286	307	283	286	244	305
2022/06/09 20:40:00	277	215	286	280	286	308	282	286	241	309
2022/06/09 20:50:00	276	216	285	280	287	309	281	286	239	305
2022/06/09 21:00:00	277	217	285	280	287	311	282	284	239	305
Monitoring Period Average	276	212	284	278	285	309	281	286	241	305
NHDOT Facility	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/09 21:20:00	284	226	290	287	295	316	293	293	244	311
2022/06/09 21:30:00	280	225	289	286	291	316	286	285	238	302
2022/06/09 21:40:00	281	223	289	284	292	315	289	291	242	305
2022/06/09 21:50:00	282	221	289	284	289	315	286	293	243	315
2022/06/09 22:00:00	287	233	295	292	299	322	291	294	245	314
2022/06/09 22:10:00	288	235	297	293	299	322	292	295	247	313
2022/06/09 22:20:00	282	226	290	286	294	316	283	288	241	309
Monitoring Period Average	283	227	291	287	294	317	288	291	243	310

		Wind D	irection	in Deg	rees Re	lative t	o True	North		
Monitoring Sites and	All Turbine					urbine				
Periods	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
Reed Carr Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/10 2:10:00	246	186	255	246	252	281	256	256	211	274
2022/06/10 2:20:00	245	186	253	245	252	281	255	255	210	263
2022/06/10 2:30:00	247	187	255	247	253	283	258	259	214	266
2022/06/10 2:40:00	249	188	258	251	255	285	258	259	216	269
2022/06/10 2:50:00	251	191	260	253	258	287	258	261	216	272
2022/06/10 3:00:00	254	194	261	256	263	290	260	264	220	275
2022/06/10 3:10:00	255	194	265	257	264	291	261	267	223	276
Monitoring Period Average	249	190	258	251	257	285	258	260	216	271
Salmon Brook Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/10 3:20:00	253	193	262	253	262	289	261	264	221	274
2022/06/10 3:30:00	255	195	267	258	263	289	261	265	222	275
2022/06/10 3:40:00	256	198	268	259	265	292	261	266	221	275
2022/06/10 3:50:00	254	198	266	256	262	289	260	266	218	273
2022/06/10 4:00:00	255	196	263	256	265	292	262	266	221	273
2022/06/10 4:10:00	254	194	261	254	263	289	264	266	221	276
2022/06/10 4:20:00	251	191	259	252	261	286	261	262	218	271
Monitoring Period Average	254	195	264	255	263	289	262	265	220	274
NHDOT Facility	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/10 4:30:00	249	191	259	252	258	283	259	259	213	266
2022/06/10 4:40:00	251	192	261	253	260	286	261	262	217	272
2022/06/10 4:50:00	252	191	262	255	260	286	260	262	218	270
2022/06/10 5:00:00	250	191	261	253	258	284	257	262	215	269
2022/06/10 5:10:00	250	191	261	253	258	285	257	262	215	269
2022/06/10 5:20:00	250	190	260	253	258	286	257	259	215	270
2022/06/10 5:30:00	251	190	259	253	259	286	260	262	216	274
Monitoring Period Average	250	191	260	253	259	285	259	261	216	270
NHDOT Facility	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/17 1:20:00	219	162	216	209	231	249	234	225	179	266
2022/06/17 1:30:00	221	166	220	210	233	252	236	226	179	264
2022/06/17 1:40:00	217	159	218	209	231	250	234	226	173	254
2022/06/17 1:50:00	216	157	217	210	231	251	234	223	175	243
2022/06/17 2:00:00	217	160	218	209	231	250	233	226	175	250
2022/06/17 2:10:00	220	161	221	210	235	254	237	226	176	262
2022/06/17 2:20:00	220	161	219	213	236	254	237	229	179	253
Monitoring Period Average	218	161	218	210	233	251	235	226	177	256

		Wind D	irection	in Deg	rees Re	lative t	o True	North		
Monitoring Sites and	All Turbine					urbine l				
Periods	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
Salmon Brook Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/17 4:00:00	209	148	210	202	232	240	221	214	167	248
2022/06/17 4:10:00	209	148	209	204	232	241	224	213	164	244
2022/06/17 4:20:00	209	148	211	204	232	242	223	212	163	246
2022/06/17 4:30:00	200	144	206	198	221	236	214	209	157	217
2022/06/17 4:40:00	201	146	210	201	211	238	211	209	156	222
2022/06/17 4:50:00	200	146	210	201	210	237	214	206	155	217
2022/06/17 5:00:00	203	147	207	201	216	240	220	212	164	220
Monitoring Period Average	204	147	209	201	222	239	218	211	161	230
Craig Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/30 13:30:00	306	240	297	295	321	357	325	323	265	328
2022/06/30 13:40:00	299	251	312	321	314	339	289	297	242	322
2022/06/30 13:50:00	301	260	321	325	321	330	294	304	252	306
2022/06/30 14:00:00	299	255	315	317	308	326	306	311	244	308
2022/06/30 14:10:00	294	254	309	309	308	333	304	294	230	306
2022/06/30 14:20:00	264	264	328	312	320	3	321	294	228	307
2022/06/30 14:30:00	272	257	338	329	332	24	302	290	248	327
Monitoring Period Average	291	254	317	315	318	244	306	302	244	315
Craig Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/30 19:50:00	213	159	223	202	226	247	226	222	181	236
2022/06/30 20:00:00	218	158	226	208	235	255	236	229	181	236
2022/06/30 20:10:00	219	163	227	210	235	255	237	229	181	236
2022/06/30 20:20:00	216	161	219	204	235	253	236	230	180	231
2022/06/30 20:30:00	213	151	220	202	235	248	230	228	175	227
2022/06/30 20:40:00	212	148	219	201	235	250	230	226	173	227
2022/06/30 20:50:00	213	151	220	207	235	252	230	228	173	225
Monitoring Period Average	215	156	222	205	234	251	232	227	178	231
Salmon Brook Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/07/01 0:40:00	222	159	222	212	242	253	234	226	179	267
2022/07/01 0:50:00	221	159	219	211	239	253	234	228	177	267
2022/07/01 1:00:00	221	159	221	214	239	253	235	228	178	267
2022/07/01 1:10:00	223	159	225	216	238	253	237	228	179	267
2022/07/01 1:20:00	222	158	224	214	236	253	235	228	182	267
2022/07/01 1:30:00	225	159	233	220	240	257	234	231	191	265
2022/07/01 1:40:00	225	162	236	224	235	258	236	232	193	250
Monitoring Period Average	223	160	226	216	238	254	235	229	183	264

Manifestina Citara and		Wind D	irection	in Deg	rees Re	lative t	o True	North		
Monitoring Sites and Periods	All Turbine				T	urbine l	ID			
Periods	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
Loverens Mill Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/07/01 2:00:00	230	166	242	229	236	264	247	239	200	251
2022/07/01 2:10:00	233	166	245	235	237	264	248	242	200	256
2022/07/01 2:20:00	235	168	250	239	239	267	248	244	204	256
2022/07/01 2:30:00	237	172	247	239	242	270	247	249	207	255
2022/07/01 2:40:00	235	173	243	234	243	270	244	249	205	252
2022/07/01 2:50:00	233	174	237	231	241	267	244	246	204	252
2022/07/01 3:00:00	229	168	237	228	236	263	240	241	200	247
Monitoring Period Average	233	169	243	233	239	267	245	244	203	253
Craig Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/07/01 3:20:00	228	164	236	227	236	264	237	241	198	245
2022/07/01 3:30:00	228	167	237	228	237	263	237	241	197	248
2022/07/01 3:40:00	227	167	235	224	236	263	237	241	196	247
2022/07/01 3:50:00	225	167	230	222	234	263	237	235	189	248
2022/07/01 4:00:00	225	167	232	222	234	263	235	236	192	244
2022/07/01 4:10:00	228	168	237	225	236	265	236	238	197	246
2022/07/01 4:20:00	232	173	244	231	237	266	243	241	197	252
Monitoring Period Average	227	167	236	226	236	264	237	239	195	247

Table 19. Wind Speed Reported by Turbines during Monitoring Periods

		Wind Sp	eed at	the Nac	elle in f	Meters	per Sec	ond		
Manitorius Citas and Daviada	All Turbine				Τι	ırbine I	D			
Monitoring Sites and Periods	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
Reed Carr Road										
2022/06/09 18:20:00	8.9	7.6	10.6	9.6	7.9	8.5	8.3	9.8	9.9	8.4
2022/06/09 18:30:00	8.7	8.3	9.1	9.7	8.9	8.4	8.5	9.3	8.5	7.2
2022/06/09 18:40:00	8.3	7.7	10.2	9.9	8.0	8.0	7.7	8.3	8.1	6.8
2022/06/09 18:50:00	7.3	7.2	8.6	8.3	7.4	7.5	6.2	7.3	7.0	6.5
2022/06/09 19:00:00	7.0	6.1	8.1	8.1	7.7	7.3	5.8	6.6	6.9	6.3
2022/06/09 19:10:00	6.5	5.4	7.4	7.8	6.7	7.2	5.4	6.5	6.1	6.0
2022/06/09 19:20:00	6.1	5.7	7.9	7.7	6.3	6.0	4.8	5.9	5.7	5.0
Monitoring Period Average	7.6	6.9	8.8	8.7	7.5	7.6	6.7	7.7	7.5	6.6
Salmon Brook Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/09 20:00:00	6.7	5.8	7.7	7.9	6.7	6.2	5.8	6.8	6.9	6.1
2022/06/09 20:10:00	5.7	4.9	7.4	6.6	5.5	5.7	4.7	5.9	5.8	5.0
2022/06/09 20:20:00	6.0	5.7	7.3	6.8	6.4	6.2	4.9	6.3	5.4	4.9
2022/06/09 20:30:00	7.2	6.9	8.7	7.9	7.3	7.5	6.2	7.1	7.4	5.8
2022/06/09 20:40:00	6.8	6.9	8.4	6.9	6.6	6.4	6.1	7.4	7.0	5.9
2022/06/09 20:50:00	6.1	5.8	7.6	6.9	6.3	5.9	5.4	6.1	5.8	5.4
2022/06/09 21:00:00	6.6	6.0	8.0	7.7	6.8	6.5	5.9	6.4	6.3	6.2
Monitoring Period Average	6.5	6.0	7.9	7.2	6.5	6.3	5.6	6.6	6.4	5.6
NHDOT Facility	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/09 21:20:00	8.3	7.8	9.9	10.1	8.5	8.4	6.9	7.9	7.7	7.2
2022/06/09 21:30:00	7.0	7.6	8.9	8.2	7.0	6.8	5.5	6.4	6.4	5.9
2022/06/09 21:40:00	7.1	7.1	9.5	8.3	7.5	7.3	5.7	6.3	6.1	6.0
2022/06/09 21:50:00	7.3	6.7	8.8	8.4	7.7	7.6	6.6	7.6	7.1	5.5
2022/06/09 22:00:00	7.9	7.2	8.6	8.8	8.0	7.7	7.6	8.5	8.0	6.8
2022/06/09 22:10:00	7.2	6.9	8.4	8.5	6.8	7.2	6.6	7.2	7.0	6.4
2022/06/09 22:20:00	7.6	7.5	8.9	8.6	7.9	7.5	6.8	7.1	7.5	6.8
Monitoring Period Average	7.5	7.3	9.0	8.7	7.6	7.5	6.5	7.3	7.1	6.4
Reed Carr Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/10 2:10:00	7.3	7.8	8.2	7.7	7.3	7.8	6.7	7.4	7.2	5.5
2022/06/10 2:20:00	7.6	8.0	8.4	8.1	7.7	8.1	6.9	7.8	8.2	5.4
2022/06/10 2:30:00	8.3	8.6	9.1	8.6	8.2	8.9	7.7	8.5	8.8	6.2
2022/06/10 2:40:00	8.5	9.0	9.5	9.1	8.6	9.3	7.7	8.5	8.8	6.2
2022/06/10 2:50:00	9.1	9.6	10.4	9.6	8.9	9.6	8.4	9.4	9.3	6.6
2022/06/10 3:00:00	9.3	9.7	10.8	9.8	9.1	9.7	8.8	9.3	9.5	7.0
2022/06/10 3:10:00	9.0	9.0	9.6	9.0	8.9	9.4	9.0	9.4	9.6	7.5
Monitoring Period Average	8.4	8.8	9.4	8.8	8.4	9.0	7.9	8.6	8.8	6.3

		Wind Sp	eed at	the Nac	elle in 1	Meters	per Sec	cond		
	All Turbine	T			Τι	ırbine I	D			
Monitoring Sites and Periods	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
Salmon Brook Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/10 3:20:00	9.1	8.6	9.6	9.1	9.1	9.6	9.0	9.5	9.6	7.5
2022/06/10 3:30:00	9.2	9.0	9.8	9.3	9.0	9.5	9.1	9.5	9.7	7.4
2022/06/10 3:40:00	9.0	9.1	9.9	9.4	8.8	9.1	8.9	9.0	9.3	7.3
2022/06/10 3:50:00	9.0	9.4	9.9	9.4	8.9	9.5	8.8	9.0	9.2	7.2
2022/06/10 4:00:00	9.5	9.6	9.9	9.5	9.7	10.0	9.3	9.9	10.2	7.4
2022/06/10 4:10:00	9.8	9.9	10.3	9.8	9.7	10.1	9.7	10.0	10.4	7.9
2022/06/10 4:20:00	10.1	10.4	11.1	10.5	10.0	10.8	9.6	10.4	10.5	7.6
Monitoring Period Average	9.4	9.4	10.1	9.6	9.3	9.8	9.2	9.6	9.9	7.5
NHDOT Facility	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/10 4:30:00	10.0	9.7	11.5	10.9	10.1	11.1	8.6	10.5	10.7	7.2
2022/06/10 4:40:00	10.7	9.9	11.9	11.4	10.8	11.5	9.4	11.6	11.7	7.8
2022/06/10 4:50:00	10.5	10.2	12.0	11.3	10.4	11.2	8.8	11.1	11.4	7.9
2022/06/10 5:00:00	10.0	10.2	11.2	10.6	9.7	10.4	9.2	10.3	10.7	7.6
2022/06/10 5:10:00	9.7	10.1	11.2	10.2	9.5	10.0	9.4	9.7	9.9	7.1
2022/06/10 5:20:00	9.3	9.8	10.9	10.0	9.0	9.6	8.8	9.3	9.6	6.7
2022/06/10 5:30:00	9.7	10.3	11.7	10.4	9.3	9.9	8.8	9.7	10.2	7.2
Monitoring Period Average	10.0	10.0	11.5	10.7	9.8	10.5	9.0	10.3	10.6	7.4
NHDOT Facility	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/17 1:20:00	8.3	9.1	9.1	11.7	5.8	9.9	8.1	8.6	7.6	4.5
2022/06/17 1:30:00	7.9	8.4	8.0	8.9	6.5	10.3	8.3	9.2	7.3	4.4
2022/06/17 1:40:00	8.1	8.2	7.7	9.5	6.2	10.4	7.9	9.0	7.7	6.0
2022/06/17 1:50:00	8.0	8.5	8.2	9.1	5.9	10.1	8.4	8.9	7.3	5.5
2022/06/17 2:00:00	8.2	8.3	8.3	10.3	6.1	10.5	8.1	9.9	7.8	4.9
2022/06/17 2:10:00	8.4	8.9	8.3	8.8	6.7	10.3	8.4	9.6	8.3	5.9
2022/06/17 2:20:00	9.0	10.0	10.1	9.0	7.2	11.2	8.4	11.1	8.8	5.5
Monitoring Period Average	8.3	8.8	8.5	9.6	6.4	10.4	8.2	9.5	7.8	5.2
Salmon Brook Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/17 4:00:00	7.3	8.2	8.4	8.6	4.1	8.0	6.6	8.2	7.7	5.4
2022/06/17 4:10:00	7.7	8.5	9.3	9.4	4.1	8.0	7.3	9.4	7.7	5.6
2022/06/17 4:20:00	7.6	8.4	9.1	8.8	4.3	8.3	7.2	8.8	7.7	5.6
2022/06/17 4:30:00	7.1	7.9	6.7	7.6	5.8	7.8	6.8	9.1	6.9	4.8
2022/06/17 4:40:00	7.1	7.1	6.4	7.3	5.5	8.0	7.4	8.8	7.4	6.2
2022/06/17 4:50:00	6.8	7.7	6.2	8.6	6.1	8.5	6.7	6.8	6.0	4.1
2022/06/17 5:00:00	6.4	7.3	6.2	8.2	5.1	8.0	5.8	6.4	5.7	4.4
Monitoring Period Average	7.1	7.9	7.5	8.4	5.0	8.1	6.8	8.2	7.0	5.2

		Wind Sp	eed at 1	the Nac	elle in I	Meters	per Sec	ond		
	All Turbine					urbine I				
Monitoring Sites and Periods	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
Craig Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/30 13:30:00	3.8	3.2	3.8	3.7	4.1	4.1	3.5	3.5	3.9	4.3
2022/06/30 13:40:00	3.6	2.9	4.0	3.9	4.3	4.6	3.5	3.6	3.0	2.8
2022/06/30 13:50:00	3.8	3.7	3.6	4.2	3.5	3.6	3.3	3.9	4.0	4.3
2022/06/30 14:00:00	4.0	4.4	4.3	3.5	3.3	3.4	3.4	3.9	4.6	5.0
2022/06/30 14:10:00	3.4	3.1	3.8	3.9	3.0	2.8	2.9	3.8	3.9	3.5
2022/06/30 14:20:00	3.4	3.2	3.7	2.7	2.8	3.3	3.2	3.8	4.1	3.8
2022/06/30 14:30:00	2.6	1.8	3.0	3.0	2.4	2.0	2.4	3.1	3.0	3.0
Monitoring Period Average	3.5	3.2	3.7	3.5	3.3	3.4	3.2	3.7	3.8	3.8
Craig Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/30 19:50:00	2.9	2.6	2.4	2.8	2.6	3.6	3.1	3.5	3.3	2.4
2022/06/30 20:00:00	2.8	2.6	2.9	2.5	1.5	3.6	3.1	3.7	3.1	2.6
2022/06/30 20:10:00	3.0	3.3	2.7	3.0	1.2	4.0	3.5	3.8	3.3	2.5
2022/06/30 20:20:00	3.0	3.3	2.9	3.0	1.0	3.8	3.2	3.8	3.1	2.6
2022/06/30 20:30:00	3.4	3.4	2.6	3.1	1.7	4.5	4.0	4.2	3.8	3.0
2022/06/30 20:40:00	3.9	3.7	2.9	3.8	1.3	5.4	4.8	5.1	4.5	3.3
2022/06/30 20:50:00	4.0	4.0	2.6	4.7	1.1	5.4	5.1	5.3	4.7	3.0
Monitoring Period Average	3.3	3.3	2.7	3.3	1.5	4.3	3.8	4.2	3.7	2.8
Salmon Brook Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/07/01 0:40:00	7.8	7.0	9.4	7.3	5.5	9.9	6.8	10.4	8.8	5.1
2022/07/01 0:50:00	7.5	7.3	8.7	7.1	4.6	9.9	6.5	10.1	8.5	4.6
2022/07/01 1:00:00	7.2	6.4	7.9	7.0	5.2	10.0	6.3	9.0	8.7	4.6
2022/07/01 1:10:00	7.4	6.7	9.1	7.1	4.8	9.7	6.5	9.0	8.6	5.0
2022/07/01 1:20:00	8.1	8.1	9.4	7.7	4.3	10.1	6.9	10.2	10.2	5.7
2022/07/01 1:30:00	8.9	8.6	11.4	8.2	6.8	10.0	7.4	10.7	11.1	6.1
2022/07/01 1:40:00	8.9	9.1	10.9	7.3	7.1	9.8	8.3	10.8	11.4	5.2
Monitoring Period Average	8.0	7.6	9.6	7.4	5.5	9.9	6.9	10.0	9.6	5.2
Loverens Mill Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/07/01 2:00:00	9.6	7.8	11.1	9.4	8.8	10.3	7.7	11.5	12.5	7.0
2022/07/01 2:10:00	9.2	8.3	11.7	10.5	8.5	9.5	7.1	9.7	10.8	6.8
2022/07/01 2:20:00	9.6	8.3	12.1	11.0	9.1	10.1	7.2	10.5	11.0	6.9
2022/07/01 2:30:00	10.1	9.9	12.8	11.8	9.7	10.7	7.7	10.6	10.8	7.3
2022/07/01 2:40:00	10.1	10.4	12.4	10.6	10.1	11.0	8.2	10.8	11.1	6.7
2022/07/01 2:50:00	9.4	8.5	12.0	9.6	9.4	10.1	7.3	10.4	11.1	6.2
2022/07/01 3:00:00	8.9	7.6	12.0	7.2	8.8	10.4	7.1	10.5	10.9	5.9
Monitoring Period Average	9.6	8.7	12.0	10.0	9.2	10.3	7.5	10.6	11.2	6.7

	Wind Speed at the Nacelle in Meters per Second												
Monitoring Sites and Periods	All Turbine	Turbine ID											
Widnitoring Sites and Perious	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09			
Craig Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09			
2022/07/01 3:20:00	9.0	7.2	11.9	6.7	9.3	10.6	7.4	10.6	11.4	5.6			
2022/07/01 3:30:00	9.3	7.9	11.6	6.7	9.6	10.8	7.7	11.2	11.9	6.0			
2022/07/01 3:40:00	9.4	8.7	11.7	5.9	9.6	11.4	8.5	11.4	11.7	5.6			
2022/07/01 3:50:00	9.4	8.9	12.9	6.2	10.2	11.6	7.7	10.9	11.5	5.1			
2022/07/01 4:00:00	9.2	10.9	12.3	7.1	8.0	10.6	7.6	10.1	11.1	5.4			
2022/07/01 4:10:00	9.2	10.1	11.6	8.0	8.9	10.3	7.4	10.2	11.1	5.4			
2022/07/01 4:20:00	9.7	10.4	12.0	10.4	9.1	10.4	8.6	10.2	10.3	5.6			
Monitoring Period Average	9.3	9.1	12.0	7.3	9.2	10.8	7.8	10.7	11.3	5.5			

Table 20. Power Generated by Turbines during Monitoring Periods

	Wind-generated Turbine Power in kiloWatts										
Monitoring Sites and Periods	All Turbine Turbine ID										
	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09	
Reed Carr Road											
2022/06/09 18:20:00	1765	1086	2629	2156	1216	1592	1503	2141	2187	1376	
2022/06/09 18:30:00	1582	1389	1815	2175	1668	1504	1528	1798	1517	847	
2022/06/09 18:40:00	1473	1098	2392	2375	1289	1469	1198	1308	1346	785	
2022/06/09 18:50:00	1052	962	1542	1641	1067	1069	667	999	896	626	
2022/06/09 19:00:00	919	646	1286	1498	1161	1032	473	722	858	596	
2022/06/09 19:10:00	725	408	1025	1233	766	989	441	653	566	442	
2022/06/09 19:20:00	640	494	1263	1195	658	607	298	525	477	247	
Monitoring Period Average	1165	869	1707	1753	1118	1180	873	1164	1121	703	
Salmon Brook Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09	
2022/06/09 20:00:00	799	530	1258	1365	768	618	495	828	800	529	
2022/06/09 20:10:00	499	318	992	770	404	499	248	492	454	310	
2022/06/09 20:20:00	609	539	1018	890	677	612	318	678	466	288	
2022/06/09 20:30:00	1018	811	1624	1309	1042	1193	636	980	1065	502	
2022/06/09 20:40:00	831	715	1414	988	688	719	600	1002	852	503	
2022/06/09 20:50:00	588	525	973	914	579	518	374	582	461	363	
2022/06/09 21:00:00	783	524	1281	1235	810	759	564	703	626	545	
Monitoring Period Average	732	566	1223	1067	710	702	462	752	675	434	
NHDOT Facility	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09	
2022/06/09 21:20:00	1440	1123	2297	2362	1603	1651	871	1160	1084	808	
2022/06/09 21:30:00	870	977	1672	1366	856	856	379	621	623	479	
2022/06/09 21:40:00	954	899	1996	1492	1064	1073	485	565	538	474	
2022/06/09 21:50:00	1016	693	1653	1534	1113	1127	758	1069	880	319	
2022/06/09 22:00:00	1178	816	1477	1636	1178	1127	1040	1398	1221	712	
2022/06/09 22:10:00	942	808	1450	1405	752	982	739	892	854	595	
2022/06/09 22:20:00	1134	1020	1734	1572	1178	1158	839	897	1122	681	
Monitoring Period Average	1076	905	1754	1624	1106	1139	730	943	903	581	
Reed Carr Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09	
2022/06/10 2:10:00	980	1142	1476	1252	979	1052	710	955	932	323	
2022/06/10 2:20:00	1183	1212	1588	1504	1206	1288	798	1168	1314	571	
2022/06/10 2:30:00	1476	1424	1926	1748	1496	1636	1073	1476	1670	838	
2022/06/10 2:40:00	1610	1643	2160	2009	1724	1820	1158	1554	1642	777	
2022/06/10 2:50:00	1856	1990	2605	2283	1874	1964	1377	1830	1873	911	
2022/06/10 3:00:00	1953	2081	2726	2450	1964	1994	1429	1878	2004	1051	
2022/06/10 3:10:00	1854	1679	2194	2039	1824	1954	1564	2000	2131	1299	
Monitoring Period Average	1559	1596	2097	1898	1581	1672	1159	1552	1652	824	

	Wind-generated Turbine Power in kiloWatts									
Monitoring Sites and Periods	All Turbine					urbine I				
3	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
Salmon Brook Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/10 3:20:00	1849	1490	2134	2021	1880	2018	1676	1999	2145	1277
2022/06/10 3:30:00	1856	1505	2277	2141	1866	1968	1571	1954	2119	1299
2022/06/10 3:40:00	1799	1721	2351	2155	1829	1813	1495	1803	1906	1116
2022/06/10 3:50:00	1835	1841	2406	2126	1871	1951	1497	1805	1895	1125
2022/06/10 4:00:00	2103	1981	2387	2334	2203	2275	1778	2211	2360	1397
2022/06/10 4:10:00	2281	2136	2598	2442	2264	2396	2051	2444	2586	1615
2022/06/10 4:20:00	2428	2438	2977	2751	2454	2628	2038	2510	2604	1454
Monitoring Period Average	2022	1873	2447	2281	2052	2150	1729	2104	2231	1326
NHDOT Facility	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/10 4:30:00	2351	2083	3067	2891	2393	2657	1613	2517	2638	1299
2022/06/10 4:40:00	2631	2213	3183	3135	2725	2881	2023	2929	2998	1592
2022/06/10 4:50:00	2595	2394	3191	3139	2597	2773	1739	2817	2996	1706
2022/06/10 5:00:00	2345	2339	3012	2804	2276	2434	1736	2474	2596	1437
2022/06/10 5:10:00	2212	2309	2956	2672	2208	2249	1812	2190	2324	1189
2022/06/10 5:20:00	2073	2280	2925	2594	2071	2083	1584	1949	2122	1050
2022/06/10 5:30:00	2243	2456	3158	2781	2151	2202	1610	2189	2406	1234
Monitoring Period Average	2350	2296	3070	2860	2346	2469	1731	2438	2583	1358
NHDOT Facility	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/17 1:20:00	1654	2060	2213	2841	669	2410	1512	1844	1342	0
2022/06/17 1:30:00	1521	1793	1624	1953	786	2521	1583	2068	1364	0
2022/06/17 1:40:00	1519	1695	1536	2193	740	2637	1388	2061	1423	0
2022/06/17 1:50:00	1523	1925	1657	2198	568	2485	1549	2031	1161	132
2022/06/17 2:00:00	1686	1838	1826	2524	819	2623	1529	2486	1492	33
2022/06/17 2:10:00	1667	2094	1768	1989	895	2524	1567	2338	1824	0
2022/06/17 2:20:00	2035	2588	2627	2227	1319	2899	1569	2896	2032	154
Monitoring Period Average	1658	1999	1893	2275	828	2586	1528	2246	1520	45
Salmon Brook Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09
2022/06/17 4:00:00	1280	1832	2013	1935	0	1481	845	1792	1621	0
2022/06/17 4:10:00	1481	2015	2314	2265	0	1556	1193	2380	1603	0
2022/06/17 4:20:00	1402	1927	2309	2074	0	1648	1084	2123	1453	0
2022/06/17 4:30:00	1143	1630	1127	1460	73	1395	919	2266	1224	192
2022/06/17 4:40:00	1118	1222	965	1229	411	1409	1280	2124	1364	57
2022/06/17 4:50:00	1056	1437	925	1794	615	1615	951	1138	850	177
2022/06/17 5:00:00	870	1346	875	1628	355	1319	669	888	581	171
Monitoring Period Average	1193	1630	1504	1769	208	1489	992	1816	1242	85

	Wind-generated Turbine Power in kiloWatts										
Monitoring Sites and Periods	All Turbine					urbine I					
· ·	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09	
Craig Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09	
2022/06/30 13:30:00	126	58	101	122	193	192	123	44	107	196	
2022/06/30 13:40:00	107	66	156	105	173	236	79	92	40	17	
2022/06/30 13:50:00	124	89	122	167	80	57	84	136	183	197	
2022/06/30 14:00:00	140	229	178	53	18	71	92	114	217	292	
2022/06/30 14:10:00	84	40	134	110	96	37	13	49	168	107	
2022/06/30 14:20:00	78	57	153	8	8	50	47	87	149	141	
2022/06/30 14:30:00	26	-20	38	14	16	0	8	59	76	39	
Monitoring Period Average	98	74	126	82	83	92	64	83	134	141	
Craig Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09	
2022/06/30 19:50:00	39	0	0	0	4	94	45	107	91	9	
2022/06/30 20:00:00	37	0	27	11	0	75	42	106	66	3	
2022/06/30 20:10:00	63	72	41	47	0	114	77	118	93	4	
2022/06/30 20:20:00	62	76	62	54	0	93	62	118	62	29	
2022/06/30 20:30:00	102	92	1	70	0	179	144	204	146	81	
2022/06/30 20:40:00	191	152	72	161	0	333	258	346	268	124	
2022/06/30 20:50:00	222	196	73	257	0	352	285	390	344	101	
Monitoring Period Average	102	84	39	86	0	177	130	198	153	50	
Salmon Brook Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09	
2022/07/01 0:40:00	1508	1201	2537	1464	283	2419	927	2575	2181	-15	
2022/07/01 0:50:00	1450	1286	2182	1205	478	2384	879	2564	2089	-15	
2022/07/01 1:00:00	1301	899	1816	1105	586	2337	814	2084	2082	-15	
2022/07/01 1:10:00	1331	934	2346	1105	555	2211	842	2007	1997	-15	
2022/07/01 1:20:00	1586	1651	2490	1612	103	2442	969	2473	2548	-14	
2022/07/01 1:30:00	1904	1988	3189	1763	944	2467	1255	2588	2834	105	
2022/07/01 1:40:00	1983	2128	3149	1300	1460	2295	1491	2665	2937	426	
Monitoring Period Average	1581	1441	2530	1365	630	2365	1025	2422	2381	65	
Loverens Mill Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09	
2022/07/01 2:00:00	2250	1441	3199	2422	2189	2548	1287	2900	3188	1079	
2022/07/01 2:10:00	2137	1712	3200	3025	2071	2257	1058	2345	2590	976	
2022/07/01 2:20:00	2264	1725	3200	3171	2225	2432	1126	2534	2821	1140	
2022/07/01 2:30:00	2476	2254	3200	3196	2537	2735	1339	2732	2887	1405	
2022/07/01 2:40:00	2506	2572	3200	2799	2672	2861	1570	2850	2995	1038	
2022/07/01 2:50:00	2217	1735	3200	2479	2315	2462	1284	2622	2995	857	
2022/07/01 3:00:00	1966	1347	3188	1320	1965	2516	1114	2592	3019	633	
Monitoring Period Average	2259	1826	3198	2630	2282	2544	1254	2653	2928	1018	

	Wind-generated Turbine Power in kiloWatts											
Monitoring Sites and Periods	All Turbine		Turbine ID									
	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09		
Craig Road	Average	T01	T02	T03	T04	T05	T06	T07	T08	T09		
2022/07/01 3:20:00	1968	1112	3189	1151	2142	2655	1218	2634	3089	523		
2022/07/01 3:30:00	2063	1373	3168	1097	2168	2709	1396	2841	3177	641		
2022/07/01 3:40:00	2146	1838	3165	735	2094	2987	1683	3106	3182	525		
2022/07/01 3:50:00	2122	2023	3188	873	2417	3017	1374	2830	3044	335		
2022/07/01 4:00:00	2073	2887	3172	1249	1598	2591	1334	2522	2902	401		
2022/07/01 4:10:00	2073	2659	3183	1582	1961	2409	1240	2417	2753	457		
2022/07/01 4:20:00	2299	2634	3201	2691	2292	2544	1726	2579	2502	521		
Monitoring Period Average	2106	2075	3181	1340	2096	2702	1424	2704	2950	486		