Appendix E
Baseline Sound Monitoring and Modeling Report

Toronto Power Plant
Baseline Sound Monitoring Report

Prepared for:
Western Minnesota Municipal Power Agency

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Table of Contents

List of Tables

List of Figures

List of Appendices

Executive Summary

Western Minnesota Municipal Power Agency (WMMPA) is proposing to construct and operate the Toronto Power Plant (Project) in Deuel County, South Dakota near the Town of Toronto at 44°36’7.34” N and 96°37’7.19”W (Site). The Project will consist of a simple cycle reciprocating internal combustion engine (RICE) power plant with a nominal generating capacity of 145 mega-watts (MW). WMMPA retained the services of Stantec Consulting Services Inc. (Stantec) to conduct a pre-construction baseline sound study for the Project to quantify existing ambient sound levels around the Project.

A pre-construction baseline sound study was completed over a sixteen-day period in October 2024 to characterize the existing acoustical environment in the Project area at noise sensitive receptors. Daytime (7:00 a.m. – 10:00 p.m.) and nighttime (10:00 p.m. – 7:00 a.m.) sound levels were measured at six (6) sound monitoring locations in the vicinity of the Project. This report documents the results of the baseline sound survey. A separate report will document the results of acoustical modeling and evaluate noise from the proposed Project.

The results of the pre-construction baseline sound study show that the average hourly existing background sound level at residences nearest to the Project ranged from 31 to 41 A-weighted decibels (dBA). The study also found that the measured sound levels at the monitoring sites increased with wind speed. Based on the results of the sound measurement survey, the average existing background sound level at residences nearest to the Project is 36 dBA.

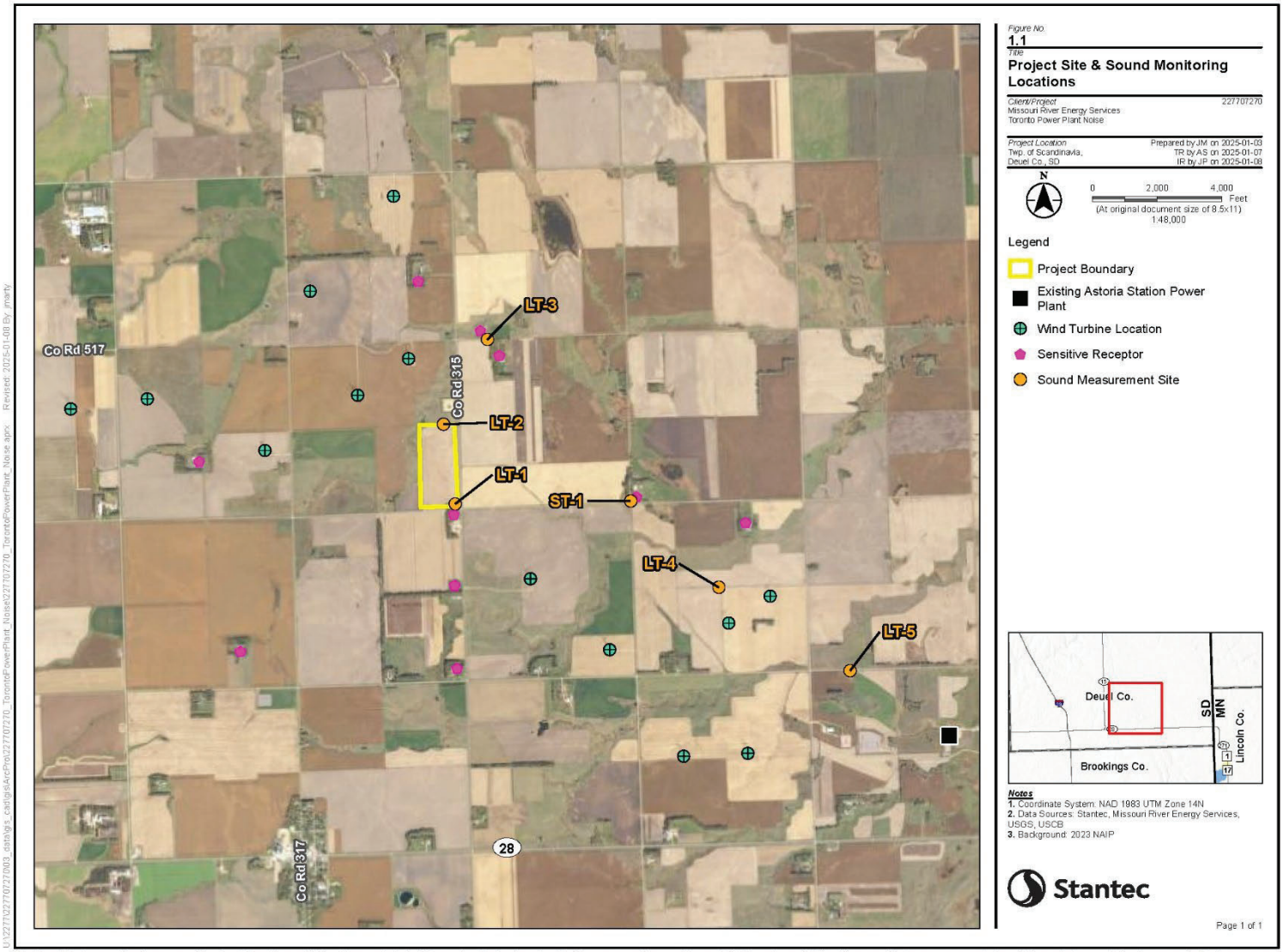
Acronyms / Abbreviations

dB	Decibel
dBA	Decibel (A-weighted)
dBC	Decibel (C-weighted)
Hz	Hertz
L_{eq}	Equivalent continuous sound level
L_{10}	Sound level exceeded for 10% of the time
L_{50}	Sound level exceeded for 50% of the time
L_{90}	Sound level exceeded for 90% of the time
MW	Megawatt
Project	Toronto Power Plant
RICE	Reciprocating internal combustion engine
SLM	Sound level meter
WMMPA	Western Minnesota Municipal Power Agency

1 Project Description

Western Minnesota Municipal Power Agency (WMMPA) is proposing to construct the Toronto Power Plant (the Project) which will consist of a simple cycle reciprocating internal combustion engine (RICE) power plant with a nominal generating capacity of 145 mega-watts (MW). The Project will be located at the intersection of 192nd Street and 479th Avenue in Deuel County, South Dakota near the Town of Toronto. The approximate Project site coordinates are 44.605842° latitude, -96.624719° longitude (Site). The generators will be dual fuel (natural gas and diesel) medium speed reciprocating engines. Each engine will have a nominal capacity of 18 to 26 MW. The area surrounding the Project site includes agricultural uses, wind turbines associated with an existing wind energy facility, and dispersed residences. The Astoria Station Power Plant is also located approximately 3.4 miles to the southeast of the Project site. **Figure *1.1*** shows the Project site boundaries and surrounding area.

Figure 1.1 Project Site and Sound Monitoring Locations



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2 Terminology

Sound is caused by vibrations that generate waves of minute pressure fluctuations in the surrounding air. Sound levels are measured using a logarithmic decibel (dB) scale. Noise is defined as unwanted sound.

Human hearing varies in sensitivity for different sound frequencies. The ear is most sensitive to sound frequencies between 800 and 8,000 Hertz (Hz) and is least sensitive to sound frequencies below 400 Hz or above 12,500 Hz. Consequently, several different frequency weighting schemes have been used to approximate the way the human ear responds to noise levels. The A-weighted decibel, or dBA, scale is the most widely used for regulatory requirements, as it discriminates against low frequency noise similar to the response of the human ear at the low to moderate sound levels typical of environmental sources. The C-weighted decibel, or dBC, scale applies less attenuation to low frequency noise to approximate the response of the human ear at higher sound levels. Sound levels without a frequency weighting applied, referred to as unweighted or linear, are generally reported as dB.

A variety of metrics and indices have been developed to quantify the temporal characteristics (changes over time) of community noise. A common metric for assessing community noise is the equivalent continuous sound level (L_{eq}). The L_{eq} is a metric that defines the level of a hypothetical steady sound that would have the same acoustic energy as the fluctuating sound level over a defined period of time. The L_{eq} represents the time average of the fluctuating sound pressure level.

Other statistical metrics useful to understanding environmental sound levels include the n-percent exceedance sound percentile levels, or L_n. This report includes the L_{10}, L_{50}, and L_{90} metrics. The L_{10} metric is the sound level that is exceeded 10% of the time. The L_{50} metric is the sound level that is exceeded 50% of the time and represents the statistical mid-point of fluctuating sound levels. The L_{90} metric is the sound level that is exceeded 90% of the time and is generally considered to be representative of the steady background or ambient noise environment.

A change in sound levels of 3 decibels is generally considered to be the threshold of perception, whereas a change of 5 decibels is clearly perceptible, and a change of 10 decibels is perceived as a doubling or halving of loudness.

3 Methodology

Ambient sound measurements were completed at six (6) locations during daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) periods. The sound monitoring sites were selected such that measurements would be representative of ambient sound levels at the nearest residences to the Project and residential areas with exposure to noise from existing wind turbines and the Astoria Station power plant. The sound measurement equipment and monitoring approach used for the ambient sound survey

were consistent with guidance in the ASTM E1503-22 standard[1]. The ambient sound measurement period of 16-days was selected to exceed the recommendation of a minimum survey period of seven continuous days for quiet residential areas per the ANSI S12.100-2014 standard[2].

Five Larson Davis Model 821ENV (LD821) and one Larson Davis model 831C (LD831C) sound level meters (SLMs) were used to measure long-term ambient sound levels. The microphones of the SLMs were mounted on tripods approximately five feet above ground and covered with 3-inch diameter foam windscreens. Five of the SLMs were equipped with external battery packs for power, housed in environmental protection cases, and deployed unattended to measure sound levels over a 16-day period from October 14 through October 30, 2024. Broadband sound levels were logged continuously in 1-hour and 1-second intervals for the L_{eq}, L_{10}, L_{50}, and L_{90} metrics in A-weighted, C-weighted, and unweighted decibels. One-third octave band sound levels were also logged continuously in 1-second intervals using the L_{eq} metric in unweighted decibels. Additionally, one LD821 SLM was used to collect short-term (30-minute) attended ambient sound measurements on October 14, 22, and 23, 2024.

The SLMs meet the American National Standards Institute (ANSI) S1.4-2014/Part 1 / IEC 61672-1:2013[3] standard Type 1 requirements for sound level meters and were calibrated by a National Institute of Standards and Technology (NIST) certified laboratory within 12 months of use. The SLMs were calibrated in the field before and after the sound survey with a Larson Davis CAL200 acoustical calibrator, which meets the ANSI/ASA S1.40-2006 (R2020) standard Type 1 requirements[4] and calibration interval requirements. Equipment calibration certificates are available upon request.

Weather data was collected using a meteorological sensor at one sound monitoring location from October 14, 2024, to October 23, 2024, before the sensor shut down due to a power loss. For the remaining eight days of the measurement period, weather data from the meteorological station in Watertown, SD approximately 30 miles northwest of the Project area were retrieved from Weather Underground[5]. The sound measurement and meteorological data were analyzed to identify and exclude time periods with precipitation or wind speeds greater than 11 mph at ground level in accordance with the ANSI S12.9-1993/Part 3 standard, as discussed further in **Section 4**.

The six ambient sound monitoring locations are described in **Table 3.1** and shown on **Figure *1.1***. The five long-term monitoring site names include the prefix “LT” and the short-term monitoring site name includes the prefix “ST”. **Appendix A** includes photos of the sound monitoring systems at each site.

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[1] ASTM E1503-22. Standard Test Method for Conducting Outdoor Sound Measurements Using a Statistical Sound Analysis System (November 2022)
[2] ANSI/ASA S12.100-2014. Methods to Define and Measure the Residual Sound in Protected Natural and Quiet Residential Areas. December 5, 2014.
[3] ANSI/ASA S1.4-2014/Part 1 / IEC 61672-1:2013. American National Standard for Electroacoustics – Sound Level Meters Part 1: Specifications (reaffirmed by ANSI August 13, 2019)
[4] ANSI/ASA S1.40-2006 (R2020) American National Standard Specifications and Verification Procedures for Sound Calibrators (reaffirmed by ANSI, 8 May 2020)
[5] Watertown, SD Weather History | Weather Underground

Table 3.1 Ambient Sound Monitoring Locations

Monitoring Location	Description	Distance from Nearest Residence	Measurement Period	Equipment	Latitude	Longitude
LT-1	Long-term monitoring site. Located at the southern end of the Project site near the intersection of 192nd Street and 479th Avenue. Representative of the nearest residence to the South of the Project.	300 feet	10/15/24 2:00 pm - 10/30/24 2:00 pm	LD821ENV S/N 40349	44.602447°	-96.62291°
LT-2	Long-term monitoring site. Located west of 479th Avenue near the northern end of the Project site.	2,780 feet	10/15/24 2:25 pm - 10/30/24 2:00 pm	LD821ENV S/N 40077	44.609038°	-96.624038°
LT-3	Long-term monitoring site. Located along 191st Street to the east of 479th Avenue. Representative of residences to the northeast of the Project site.	380 feet	10/14/24 5:06 pm - 10/30/24 2:00 pm	LD821ENV S/N 40097	44.616122°	-96.618525°
LT-4	Long-term sound and meteorological monitoring site west of 481st Avenue. Located southeast of the Project site. Representative of residences with exposure to noise from existing wind turbines. Data was not collected after 10/23/24 9:00 pm due to a power failure.	2,130 feet	10/14/24 4:00 pm - 10/23/24 9:00 pm	LD831C S/N 10781	44.594513°	-96.591909°
LT-5	Long-term monitoring site. Located along 193rd Street to the east of 481st Avenue. Representative of areas with exposure to noise from the existing Astoria Station Power Plant. Data was not collected after 10/22/24 4:00 pm due to an equipment malfunction.	4,350 feet	10/15/24 3:00 pm – 10/22/24 4:00 pm	LD821ENV S/N 40350	44.587100°	-96.576634°
ST-1	Short-term monitoring site. Located east of the Project site near the residence at the intersection of 192nd Street and 480th Avenue.	200 feet	10/14/24 6:05-6:35 pm 10/14/24 10:00-10:30 pm 10/22/24 10:01-10:31 pm 10/23/24 10:00-10:30 am	LD821ENV S/N 40110	44.602056°	-96.602071°

4 Sound Measurement Results

Ambient sound levels were measured during daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) periods at six (6) locations in the vicinity of the Project, as summarized in **Table 3.1**. The sound measurement results presented in this section include A-weighted sound levels (dBA) in the L_{eq}, L_{10}, L_{50}, and L_{90} metrics.

Ambient sound sources noted by Stantec field staff that were audible during the installation and maintenance of measurement equipment included roadway vehicles, wind turbines, the Astoria Station power plant, distant trains, tractors and other agricultural equipment, dogs, livestock, birds, and leaf rustling. There was also intermittent audible noise from geotechnical drilling equipment at the Project site.

Meteorological conditions during the ambient sound monitoring were logged at Site LT-4 from October 14, 2024, through October 23, 2024. During this period conditions included 20-76 °F hourly temperatures, 20-87% relative humidity, and average 1-hour wind speeds of 0-19 miles per hour (mph) at 5 feet above ground. There was no precipitation measured during this time. Meteorological data collected in Watertown, SD were reviewed for the remainder of the monitoring period from October 23 to October 30, 2024. During this period conditions included 28-71 °F hourly temperatures, 32-97% relative humidity, and average wind speeds of 0-22 mph at 10 meters (33 feet) above ground. Recorded precipitation was limited to “light rain” during several hours of October 24th, October 29th, and October 30th with accumulation of 0.0 inches for all periods.

The meteorological data indicates that periods with relatively calm conditions and sustained high wind conditions occurred during the sound monitoring period. Wind speed had the greatest influence on ambient sound levels at residences near the Project due to the presence of multiple wind turbines in proximity to residences. Noise generated by wind turbines is loudest when the turbine blades are rotating during periods of sustained high wind speeds. Wind induced noise, such as crop and leaf rustling, was also present and increased with wind speed.

The relationship between wind speed and measured sound level at residences in the Project area is illustrated on **Figure 4.1** and **Figure 4.2**. **Figure 4.1** shows the A-weighted L_{90} sound level while **Figure 4.2** shows the C-weighted L_{90} sound level. On these figures, the average 1-hour wind speed is plotted on the horizontal axis and the 1-hour L_{90} sound level is plotted on the vertical axis. Measurement data collected during both daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) hours when the onsite weather sensor was operational are shown.

While there is variance between measurement sites, the figures show a trend of increasing ambient sound level with increasing wind speed. Measured hourly A-weighted L_{90} sound levels (**Figure 4.1**) are approximately 20-40 dBA at 1 mph wind speed, 35-55 dBA at 11 mph wind speed, and 50-70 dBA at 19 mph wind speed. Measured hourly C-weighted L_{90} sound levels (**Figure 4.2**) are approximately 40-55 dBC at 1 mph wind speed, 50-75 dBA at 11 mph wind speed, and 60-85 dBA at 19 mph wind speed.

Figure 4.1 shows that A-weighted sound levels were most often highest at Site LT-4, which was within 0.3 miles of two wind turbines. **Figure 4.2** shows that at wind speeds of 6 mph and higher C-weighted sound levels were typically highest at Site LT-2, which was within approximately one-half mile of two wind turbines.

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Figure 4.1 Comparison of Measured 1-hour A-Weighted L_{90} Sound Levels and Wind Speed

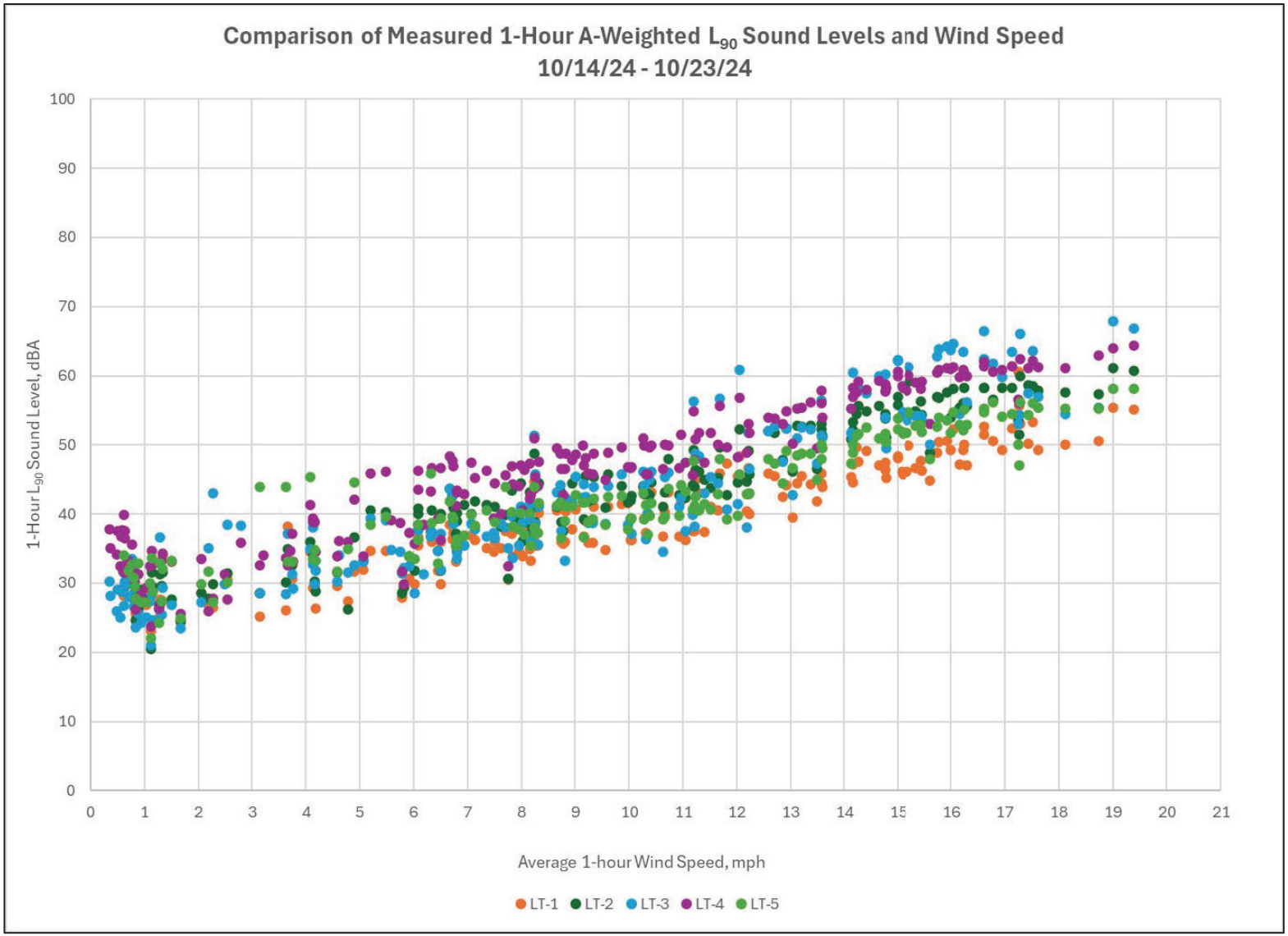
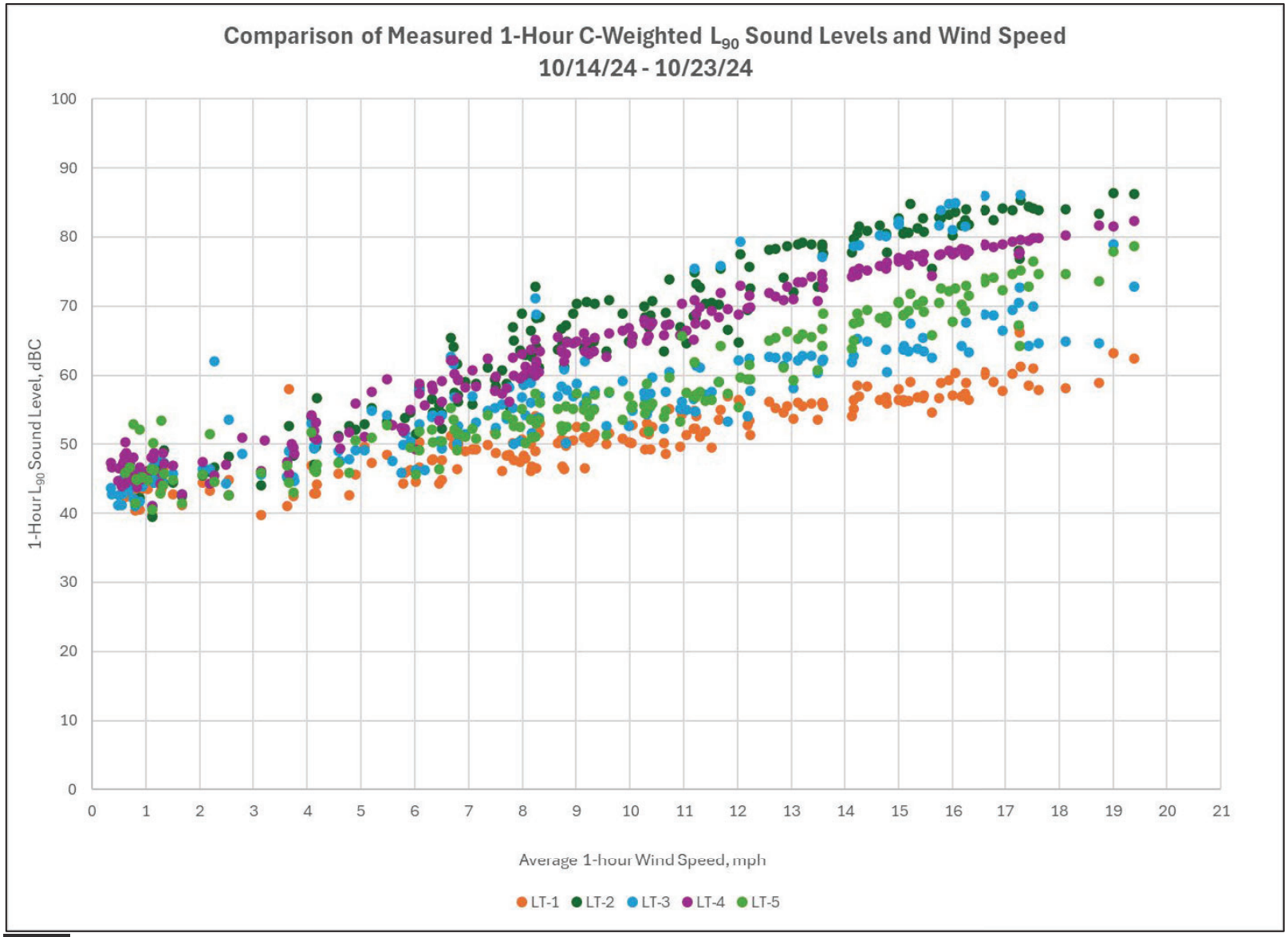


Figure 4.2 Comparison of Measured 1-hour C-Weighted L_{90} Sound Levels and Wind Speed



Wind speeds greater than 11 mph (5.5 m/s) can generate additional noise as wind moves across a microphone, even when covered with a windscreen. In accordance with industry standards[6], Stantec has excluded sound data measured when wind speeds greater than 11 mph were observed to accurately represent ambient sound levels without the influence of wind-generated noise. As part of the analysis, sound measurement data were excluded when average wind speeds exceeded 11 mph based on the available onsite weather data from October 14, 2024 to October 23, 2024 and the Watertown, SD weather station data from October 24, 2024 to October 30, 2024. Based on Watertown, SD being approximately 30 miles northeast of the Project site, it is expected that regional weather conditions were similar at both locations.

Figure 4.3 shows the measured 1-hour L_{90} sound level at each monitoring location, measured wind speeds, and periods where sound measurement data were excluded. Sound measurement data collected during the "data exclusion periods" shown on **Figure 4.3** were excluded from the dataset and are not included in the data presented or discussed in the remainder of this report. The data exclusion periods include hours with wind speeds greater than 11 mph.

Additional information on the range of measured 1-hour A- and C-weighted L_{90} sound levels at wind speeds up to 11 mph are shown in **Table 4.1** and **Table 4.2**, respectively. **Table 4.3** presents the number of hours of data captured by site and wind speed. To show the relationship between wind speed and sound level most accurately, these tables only include data collected between October 14 and October 23, 2024 when the onsite weather sensor was operational.

The measured ambient sound levels at each monitoring location are summarized in the following sections. Average A- and C-weighted ambient sound levels are presented for the daytime (7:00 am – 10:00 pm), nighttime (10:00 pm – 7:00 am), and overall 24-hour periods.

[6] ANSI S12.9-1993/Part 3. Quantities and Procedures for Description and Measurement of Environmental Sound. Part 3: Short-term measurements with an observer present. Reaffirmed by ANSI April 21, 2008.

Table 4.1 Range of Measured 1-hour A-weighted L_{90} Sound Levels at Various Wind Speeds

Wind Speed, mph	Range of 1-hour L_{90} Sound Levels, dBA				
	LT-1	LT-2	LT-3	LT-4	LT-5
0-2	23-34	21-32	21-43	24-40	22-34
3-5	25-38	26-41	28-39	28-46	30-45
6-8	28-45	29-49	29-51	30-51	33-46
9-11	35-46	38-49	33-56	43-55	37-48

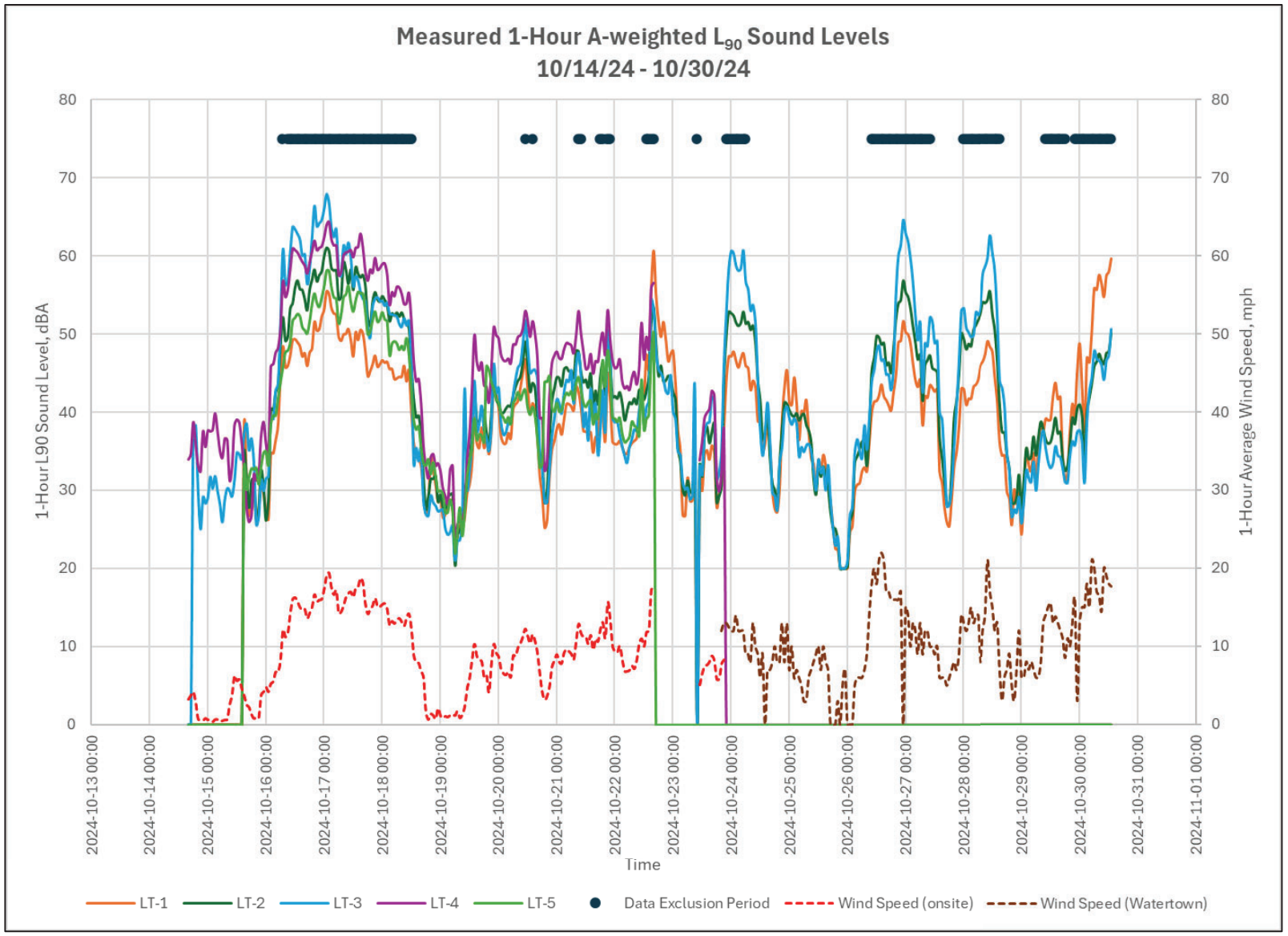
Table 4.2 Range of Measured 1-hour C-weighted L_{90} Sound Levels at Various Wind Speeds

Wind Speed, mph	Range of 1-hour L_{90} Sound Levels, dBC				
	LT-1	LT-2	LT-3	LT-4	LT-5
0-2	40-47	40-49	41-62	41-50	41-53
3-5	40-58	44-57	44-55	43-58	43-52
6-8	44-54	52-73	46-71	49-65	46-57
9-11	46-55	61-75	50-75	62-71	51-66

Table 4.3 Hours of Sound Measurement Data Recorded at Various Wind Speeds (10/14/24 – 10/23/24)

Wind Speed, mph	Hours of Data Recorded				
	LT-1	LT-2	LT-3	LT-4	LT-5
0-2	22	22	35	35	22
3-5	14	14	19	21	13
6-8	42	42	45	45	33
9-11	38	38	38	38	37

Figure 4.3 Measured 1-Hour A-weighted L_{90} Sound Levels



4.1 Site LT-1

Table 4.4 summarizes the average 1-hour A-weighted sound levels measured at Site LT-1. **Table 4.5** summarizes the average 1-hour C-weighted sound levels measured at Site LT-1.

Audible sound sources at the measurement location included vehicle traffic on local roads, wind turbines, harvesting equipment, Project drilling equipment, a forklift at the wind farm, wind rustling vegetation, and birds. A total of 218 hours (9.1 days) of valid sound measurement data were included in the analysis.

Table 4.4 A-Weighted Sound Measurement Summary at Site LT-1

Time Period	Average 1-Hour Sound Level, dBA			
	L_{eq}	L_{10}	L_{50}	L_{90}
Day	51	49	39	35
Night	43	42	37	35
24-Hour	48	47	39	35

Table 4.5 C-Weighted Sound Measurement Summary at Site LT-1

Time Period	Average 1-Hour Sound Level, dBC			
	L_{eq}	L_{10}	L_{50}	L_{90}
Day	60	58	51	48
Night	52	53	50	48
24-Hour	57	56	51	48

4.2 Site LT-2

Table 4.6 summarizes the average 1-hour A-weighted sound levels measured at Site LT-2. **Table 4.7** summarizes the average 1-hour C-weighted sound levels measured at Site LT-2.

Audible sound sources at the measurement location included vehicle traffic on local roads, wind turbines, harvesting equipment, Project drilling equipment, a forklift at the wind farm, wind rustling vegetation, and birds. A total of 218 hours (9.1 days) of valid sound measurement data were included in the analysis.

Table 4.6 A-Weighted Sound Measurement Summary at Site LT-2

Time Period	Average 1-Hour Sound Level, dBA			
	L_{eq}	L_{10}	L_{50}	L_{90}
Day	47	48	41	37
Night	42	42	39	37
24-Hour	45	46	40	37

Table 4.7 C-Weighted Sound Measurement Summary at Site LT-2

Time Period	Average 1-Hour Sound Level, dBC			
	L_{eq}	L_{10}	L_{50}	L_{90}
Day	66	69	63	58
Night	62	65	60	56
24-Hour	65	67	62	57

4.3 Site LT-3

Table 4.8 summarizes the average 1-hour A-weighted sound levels measured at Site LT-3. **Table 4.9** summarizes the average 1-hour C-weighted sound levels measured at Site LT-3.

Audible sound sources at the measurement location included vehicle traffic on local roads, wind turbines, aircraft, harvesting equipment, dogs barking, wind rustling vegetation, and birds. A total of 239 hours (10 days) of valid sound measurement data were included in the analysis.

Table 4.8 A-Weighted Sound Measurement Summary at Site LT-3

Time Period	Average 1-Hour Sound Level, dBA			
	L_{eq}	L_{10}	L_{50}	L_{90}
Day	45	47	41	37
Night	39	40	37	35
24-Hour	43	45	39	36

Table 4.9 C-Weighted Sound Measurement Summary at Site LT-3

Time Period	Average 1-Hour Sound Level, dBC			
	L_{eq}	L_{10}	L_{50}	L_{90}
Day	61	63	57	53
Night	55	57	54	51
24-Hour	58	61	56	52

4.4 Site LT-4

Table 4.10 summarizes the average 1-hour A-weighted sound levels measured at Site LT-4. **Table 4.11** summarizes the average 1-hour C-weighted sound levels measured at Site LT-4.

Audible sound sources at the measurement location included vehicle traffic on local roads, wind turbines, distant trains, harvesting equipment, wind rustling vegetation, and birds. A total of 139 hours (5.8 days) of valid sound measurement data were included in the analysis. There was less valid sound measurement data collected at Site LT-4 compared to Sites LT-1, LT-2, and LT-3 because of an equipment power failure during the second week of measurements, as noted in **Table 3.1**.

Table 4.10 A-Weighted Sound Measurement Summary at Site LT-4

Time Period	Average 1-Hour Sound Level, dBA			
	L_{eq}	L_{10}	L_{50}	L_{90}
Day	47	49	44	40
Night	45	47	44	42
24-Hour	46	48	44	41

Table 4.11 C-Weighted Sound Measurement Summary at Site LT-4

Time Period	Average 1-Hour Sound Level, dBC			
	L_{eq}	L_{10}	L_{50}	L_{90}
Day	63	66	61	56
Night	61	64	60	56
24-Hour	62	65	61	56

4.5 Site LT-5

Table 4.12 summarizes the average 1-hour A-weighted sound levels measured at Site LT-5. **Table 4.13** summarizes the average 1-hour C-weighted sound levels measured at Site LT-5.

Audible sound sources at the measurement location included vehicle traffic on local roads, the Astoria Station Power Plant, wind rustling vegetation, and birds. A total of 105 hours (4.4 days) of valid sound measurement data were included in the analysis. There was less valid sound measurement data collected at Site LT-5 compared to Sites LT-1, LT-2, and LT-3 because of an equipment malfunction during the second week of measurements, as noted in **Table 3.1**.

Table 4.12 A-Weighted Sound Measurement Summary at Site LT-5

Time Period	Average 1-Hour Sound Level, dBA			
	L_{eq}	L_{10}	L_{50}	L_{90}
Day	43	44	40	37
Night	41	43	39	37
24-Hour	42	43	40	37

Table 4.13 C-Weighted Sound Measurement Summary at Site LT-5

Time Period	Average 1-Hour Sound Level, dBC			
	L_{eq}	L_{10}	L_{50}	L_{90}
Day	62	65	57	52
Night	59	62	56	51
24-Hour	61	64	57	52

4.6 Site ST-1

Table 4.6 summarizes the average A-weighted sound levels measured at Site ST-1. **Table 4.15** summarizes the average C-weighted sound levels measured at Site ST-1.

Audible sound sources at the measurement location included vehicle traffic on local roads, wind turbines, aircraft, wind rustling vegetation, and birds.

Table 4.14 A-Weighted Sound Measurement Summary at Site ST-1

Time Period	Average 1-Hour Sound Level, dBA			
	L_{eq}	L_{10}	L_{50}	L_{90}
Day	40	42	39	37
Night	40	42	38	35
24-Hour	40	42	39	36

Table 4.15 C-Weighted Sound Measurement Summary at Site ST-1

Time Period	Average 1-Hour Sound Level, dBC			
	L_{eq}	L_{10}	L_{50}	L_{90}
Day	60	60	56	52
Night	58	60	57	54
24-Hour	59	60	56	53

5 Analysis and Discussion

The data presented **Section 4** illustrates the sound levels measured at each site during daytime and nighttime periods. The L_{10} sound level represents the louder moments while the L_{90} sound level represents the steady background sound environment resulting from contributions of many natural and human-generated sources. The A-weighted sound level best represents the perception of ambient sound by humans, whereas the C-weighted sound level is an indicator of how much low frequency acoustic energy is present in the ambient sound environment.

When considering the potential impact of new sound sources in quiet residential or rural areas, the A-weighted L_{90} sound level is the metric that is considered to best represent background ambient sound levels[7]. In rural areas, intermittent noise sources such as vehicle traffic, distant trains, or aircraft overpasses contribute most to the L_{eq} and L_{10} metrics and influence the L_{90} metric the least. These types of intermittent sources can generate higher sound levels for a short period of time but do not contribute to the steady background sound environment that could potentially mask, or inhibit perception of, a new sound source such as a power plant. In addition, the noise generated by the onsite geotechnical drilling work that was occurring intermittently during daytime hours of the sound survey had the least influence on the L_{90} sound levels measured at Sites LT-1, LT-2, and LT-3. For these reasons, this analysis primarily relies on the A-weighted L_{90} sound level to define existing background sound levels in the Project area. Measurement results for the C-weighted L_{90} sound level are also presented for potential comparison to C-weighted sound levels generated by the Project.

5.1 A-Weighted Sound Levels

The average 1-hour A-weighted L_{90} sound levels during each hour of the day at each long-term measurement site are shown on **Figure *5.1*.** The data shows that at Sites LT-1, LT-2, and LT-3, which are most representative of residences near the Project, average hourly background sound levels range from 31-41 dBA. Measured hourly background sound levels are relatively steady during nighttime (10:00 p.m. to 07:00 a.m.) hours and vary more during daytime (07:00 a.m. to 10:00 p.m,) hours at these locations. At Sites LT-4 and LT-5, which represent the most influence of noise from wind turbines and the Astoria Station power plant, respectively, average hourly background sound levels are slightly higher and range from 34-44 dBA.

A summary of the average hourly background A-weighted sound levels during the daytime (07:00 a.m. to 10:00 p.m,), nighttime (10:00 p.m. to 07:00 a.m.), and 24-hour periods at each measurement site is provided in **Table 5.1.** As discussed in **Section 4**, background sound levels in the area increase with wind

[7] ANSI/ASA S12.100-2014. Methods to Define and Measure the Residual Sound in Protected Natural and Quiet Residential Areas. December 5, 2014.

speed and the measurement period included both calm and high wind conditions; thus, the average of the dataset represents a range of existing ambient sound conditions in the Project area. Based on the sound measurement results at Sites LT-1, LT-2, and LT-3, the existing average background (L_{90}) A-weighted sound level at residences nearest to the Project is 36 dBA.

Figure 5.1 Average Daily A-Weighted L_{90} Sound Levels

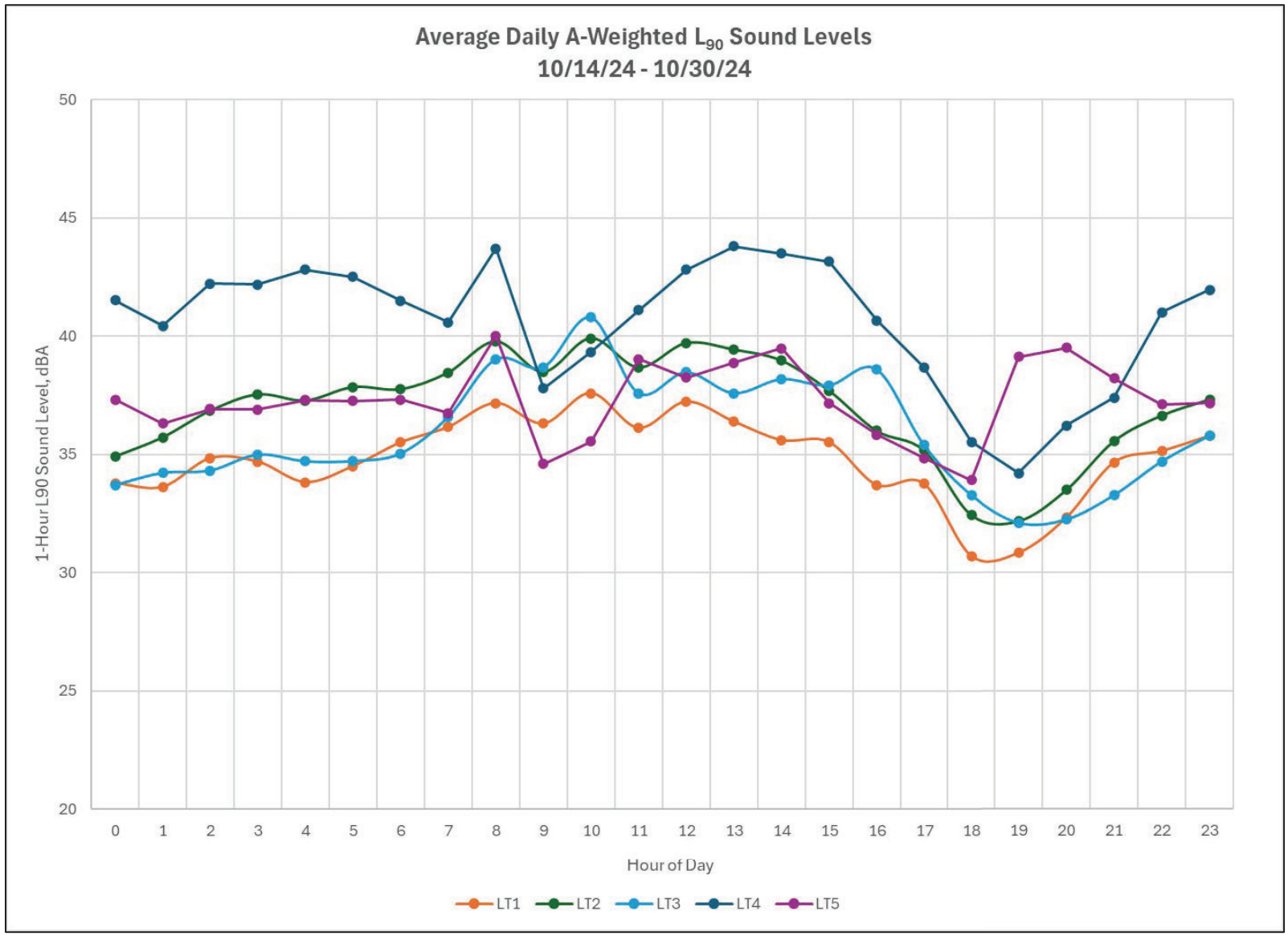


Table 5.1 Summary of Average 1-Hour A-Weighted L_{90} Sound Levels

Time Period	Average 1-Hour L_{90} Sound Level, dBA					
	LT-1	LT-2	LT-3	LT-4	LT-5	ST-1*
Day	35	37	37	40	37	37
Night	35	37	35	42	37	35
24-Hour	35	37	36	41	37	36

Notes: Daytime = 7:00 am – 10:00 pm. Nighttime = 10:00 p.m. – 7:00 a.m.

* 1-hour sound level estimated from four 30-minute measurements.

5.2 C-Weighted Sound Levels

The average 1-hour C-weighted L_{90} sound levels during each hour of the day at each long-term measurement site are shown on **Figure *5.2*.** The data shows that at Sites LT-1, LT-2, and LT-3, which are most representative of residences near the Project, average hourly background sound levels range from 48-58 dBC. Similar to the A-weighted results, measured hourly background C-weighted sound levels are relatively steady during nighttime (10:00 p.m. to 07:00 a.m.) hours and vary more during daytime (07:00 a.m. to 10:00 p.m,) hours at these locations.

Average C-weighted L_{90} sound levels were generally highest during daytime hours at Site LT-2 and during nighttime hours at Site LT-4. The trend of the average C-weighted L_{90} sound levels being highest at LT-2 and LT-4 during most hours of the day may be due to those sites' proximity to wind turbines and also the measurement locations being in open fields, which can result in higher wind speed conditions.

A summary of the average hourly background C-weighted sound levels during the daytime (07:00 a.m. to 10:00 p.m,), nighttime (10:00 p.m. to 07:00 a.m.), and 24-hour periods at each measurement site is provided in **Table 5.2.** Based on the sound measurement results at Sites LT-1, LT-2, and LT-3, the existing average background (L_{90}) C-weighted sound level at residences nearest to the Project is 52 dBC.

Figure 5.2 Average Daily C-Weighted L_{90} Sound Levels

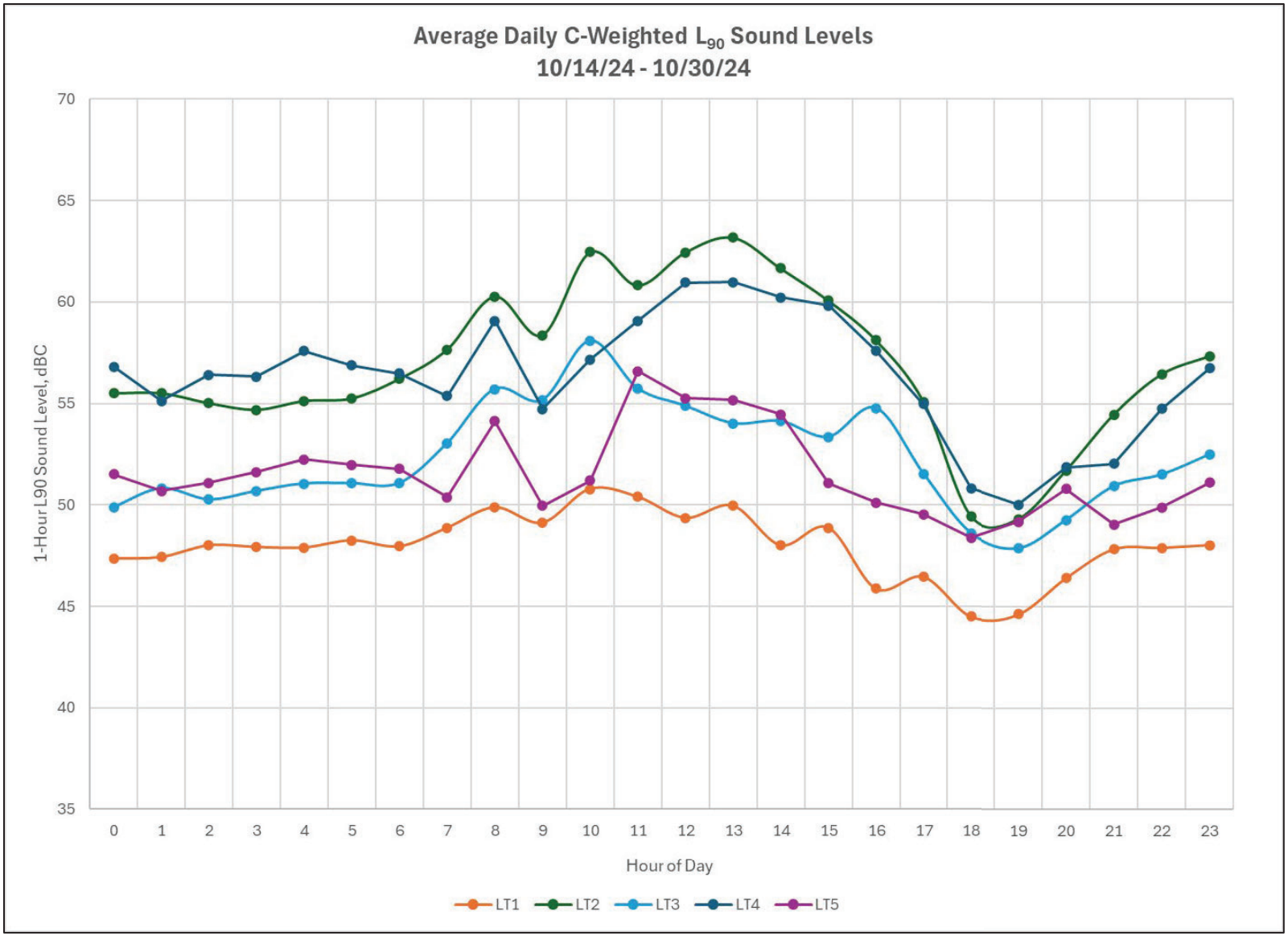


Table 5.2 Summary of Average 1-Hour C-Weighted L_{90} Sound Levels

Time Period	Average 1-Hour L_{90} Sound Level, dBC					
	LT-1	LT-2	LT-3	LT-4	LT-5	ST-1*
Day	48	58	53	56	52	52
Night	48	56	51	56	51	54
24-Hour	48	57	52	56	52	53

Notes: Daytime = 7:00 am – 10:00 pm. Nighttime = 10:00 p.m. – 7:00 a.m.

* 1-hour sound level estimated from four 30-minute measurements.

6 Conclusion

The pre-construction baseline sound study results demonstrate that background sound levels in the vicinity of the proposed Toronto Power Plant are heavily influenced by wind speed. Sound levels at all measurement sites increased with increasing wind speed. The 16-day sound measurement period included both calm and high wind conditions; thus, the dataset represents a range of existing ambient sound conditions in the Project area. The results of the study show that the existing average hourly background (L_{90}) sound levels at residences nearest to the Project are 36 dBA and 52 dBC.

Design goals for Project-generated noise of 45 dBA and 65 dBC at residential buildings have been established for the Project. The Project noise modeling report will document the Project design elements and noise mitigation requirements expected to be necessary to meet the Project noise design goals.

Appendix A Sound Monitoring Site Photos

Stantec

Site: LT-1

North

East

South

West

Stantec

Site: LT-2

North

East

South

West

Stantec

Site: LT-3

North

East

South

West

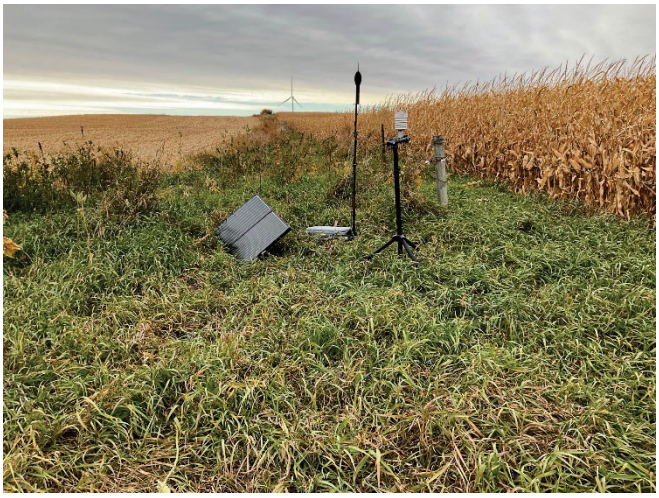
Stantec

Site: LT-4

North

East

South



West

Stantec

Site: LT-5

North

East

South

West

Stantec

Site: ST-1

North

East

South

West

Appendix B Sound and Weather Measurement Data

Table B.1. A-Weighted Sound Measurement Data

Date	Measured Sound Level, dBA																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-14 16:00:00													39	41	37	34				
2024-10-14 17:00:00													38	41	37	35				
2024-10-14 18:00:00									69	64	43	38	43	45	42	39				
2024-10-14 19:00:00									55	59	44	38	38	40	37	36				
2024-10-14 20:00:00									39	42	35	30	35	37	35	33				
2024-10-14 21:00:00									30	32	28	25	34	36	34	33				
2024-10-14 22:00:00									31	32	31	29	39	41	39	38				
2024-10-14 23:00:00									30	32	30	28	38	40	38	36				
2024-10-15 00:00:00									33	35	34	29	42	44	42	38				
2024-10-15 01:00:00									33	34	33	32	41	42	40	38				
2024-10-15 02:00:00									34	35	33	30	41	43	40	38				
2024-10-15 03:00:00									34	35	34	32	42	44	42	40				
2024-10-15 04:00:00									34	35	31	30	40	42	40	38				
2024-10-15 05:00:00									35	34	29	28	38	39	37	35				
2024-10-15 06:00:00									41	44	29	26	37	39	36	34				
2024-10-15 07:00:00									40	44	32	29	39	40	38	37				
2024-10-15 08:00:00									41	46	34	30	39	40	38	37				
2024-10-15 09:00:00									33	35	32	30	34	35	33	31				
2024-10-15 10:00:00									42	34	31	29	36	38	35	33				
2024-10-15 11:00:00									44	42	33	31	45	47	42	38				
2024-10-15 12:00:00									51	46	40	35	45	48	43	39				
2024-10-15 13:00:00									41	45	39	35	47	51	45	39				
2024-10-15 14:00:00									42	45	39	34	44	48	42	36				
2024-10-15 15:00:00	52	50	42	38	47	51	41	35	47	48	43	37	42	46	39	33	41	43	37	33
2024-10-15 16:00:00	52	50	38	31	41	44	36	31	48	51	46	39	35	38	33	28	40	41	34	30
2024-10-15 17:00:00	53	52	32	27	45	48	35	28	43	47	41	35	36	35	30	26	51	38	34	32
2024-10-15 18:00:00	51	51	38	28	47	48	38	31	45	48	43	37	38	34	30	27	51	38	35	33
2024-10-15 19:00:00	52	53	37	30	50	53	38	32	42	46	38	34	34	35	33	32	35	37	35	33
2024-10-15 20:00:00	53	51	33	26	47	45	29	26	38	42	28	26	33	34	33	31	42	38	35	33
2024-10-15 21:00:00	52	48	31	28	48	46	30	28	38	40	28	27	34	36	33	32	37	36	33	31
2024-10-15 22:00:00	45	39	33	31	43	37	35	33	37	39	33	31	40	42	40	37	35	37	35	33
2024-10-15 23:00:00	40	34	32	30	39	39	38	30	37	37	36	30	43	44	42	39	37	38	36	35

Table B.1. A-Weighted Sound Measurement Data

Date	Measured Sound Level, dBA																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-16 00:00:00	39	35	30	27	37	38	29	26	35	38	33	32	42	45	41	36	38	40	37	35
2024-10-16 01:00:00	35	38	34	26	39	42	39	29	38	41	38	32	44	47	43	35	37	40	36	33
2024-10-16 02:00:00	36	38	36	35	43	42	41	41	41	41	41	39	48	49	47	46	40	42	40	39
2024-10-16 03:00:00	37	38	36	35	46	43	41	40	42	44	40	39	48	50	48	46	41	43	41	40
2024-10-16 04:00:00	44	42	39	36	45	46	44	43	46	48	45	43	50	52	50	48	41	42	41	40
2024-10-16 05:00:00	47	48	42	38	48	50	47	44	50	53	48	44	51	53	50	48	44	45	43	42
2024-10-16 06:00:00	52	54	48	45	53	56	52	49	57	60	55	51	55	57	53	51	46	48	45	44
2024-10-16 07:00:00	55	58	52	48	58	62	57	52	65	68	65	61	61	64	60	57	50	53	49	46
2024-10-16 08:00:00	54	56	49	46	54	57	53	49	60	62	59	56	59	62	58	55	51	54	50	48
2024-10-16 09:00:00	53	56	50	46	56	59	54	50	62	65	61	57	60	63	59	56	61	56	51	48
2024-10-16 10:00:00	55	58	52	47	60	63	58	53	68	71	66	60	64	67	63	58	64	59	53	49
2024-10-16 11:00:00	58	61	55	49	62	65	60	54	70	74	68	64	67	70	66	61	59	62	56	52
2024-10-16 12:00:00	57	60	55	49	63	66	61	56	71	74	69	63	67	70	65	61	60	63	56	52
2024-10-16 13:00:00	57	60	54	49	63	66	62	57	69	72	67	63	66	69	65	61	59	62	57	53
2024-10-16 14:00:00	57	60	54	48	62	65	61	56	68	71	67	62	65	68	64	60	59	61	57	52
2024-10-16 15:00:00	56	59	53	47	62	65	61	56	67	70	66	60	64	67	63	59	59	61	55	51
2024-10-16 16:00:00	56	59	52	48	61	64	59	55	67	69	65	60	65	68	64	59	58	60	55	51
2024-10-16 17:00:00	56	58	52	46	60	63	59	53	64	67	62	56	63	66	62	58	58	59	54	50
2024-10-16 18:00:00	56	58	52	48	61	64	60	56	64	68	63	58	64	66	63	59	57	60	55	52
2024-10-16 19:00:00	55	59	53	48	63	66	61	57	68	71	66	62	65	68	64	61	59	62	58	54
2024-10-16 20:00:00	58	62	56	52	64	67	63	58	71	74	70	66	67	69	65	62	60	63	59	55
2024-10-16 21:00:00	59	60	55	50	62	65	61	57	68	70	67	64	65	68	64	61	59	61	57	54
2024-10-16 22:00:00	57	61	55	51	63	66	62	58	69	71	68	64	65	68	64	61	59	62	57	54
2024-10-16 23:00:00	59	62	56	52	64	67	63	58	69	72	68	65	66	69	65	61	60	63	58	55
2024-10-17 00:00:00	60	63	58	53	66	69	65	60	71	74	70	66	67	70	66	62	62	65	60	56
2024-10-17 01:00:00	62	66	60	55	67	70	66	61	74	77	72	68	69	72	68	64	63	66	61	58
2024-10-17 02:00:00	61	64	59	55	67	70	65	61	72	75	71	67	69	71	68	64	63	66	62	58
2024-10-17 03:00:00	60	63	58	53	65	68	63	59	70	73	68	64	67	70	66	62	61	64	60	56
2024-10-17 04:00:00	59	62	57	53	64	66	62	58	67	70	66	62	66	69	65	61	59	62	58	55
2024-10-17 05:00:00	58	62	57	52	64	67	63	58	68	71	67	63	66	68	65	61	59	62	58	55
2024-10-17 06:00:00	56	59	54	50	60	63	59	55	64	67	62	58	63	66	61	58	57	60	55	51
2024-10-17 07:00:00	56	59	53	49	61	64	60	55	64	67	62	57	63	66	62	58	57	60	56	53

Table B.1. A-Weighted Sound Measurement Data

Date	Measured Sound Level, dBA																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-17 08:00:00	56	59	53	50	64	67	63	59	67	70	65	61	64	67	63	60	60	63	59	55
2024-10-17 09:00:00	57	61	55	50	64	67	63	58	66	69	65	60	65	68	64	61	61	64	59	55
2024-10-17 10:00:00	58	62	56	51	63	66	62	57	68	71	66	62	66	68	64	61	62	65	60	56
2024-10-17 11:00:00	57	60	54	49	64	67	63	58	66	69	64	60	66	69	65	61	60	63	58	54
2024-10-17 12:00:00	55	59	52	47	61	64	60	56	64	68	62	56	65	68	64	60	59	62	57	53
2024-10-17 13:00:00	57	61	55	50	65	68	63	59	66	70	64	57	66	69	65	61	60	63	58	54
2024-10-17 14:00:00	57	61	54	49	65	68	63	58	66	69	63	57	67	70	65	61	62	65	60	55
2024-10-17 15:00:00	59	62	56	51	64	68	63	57	64	67	61	55	68	71	67	63	62	65	60	55
2024-10-17 16:00:00	57	61	55	50	64	67	63	58	62	65	60	55	67	70	66	61	62	66	60	55
2024-10-17 17:00:00	56	59	52	48	63	66	61	56	61	64	60	54	64	67	62	58	59	63	57	53
2024-10-17 18:00:00	53	56	49	45	59	62	57	52	58	61	56	51	61	64	60	57	55	58	53	50
2024-10-17 19:00:00	53	56	49	45	58	61	56	51	57	61	55	50	63	66	61	58	56	59	55	50
2024-10-17 20:00:00	53	56	50	46	60	63	58	54	59	62	58	54	63	66	62	58	57	60	55	52
2024-10-17 21:00:00	54	57	51	47	61	64	59	55	60	63	59	55	64	67	63	60	58	61	57	53
2024-10-17 22:00:00	53	56	50	46	60	63	59	55	60	63	59	55	63	66	62	58	57	59	55	52
2024-10-17 23:00:00	52	55	49	46	59	62	58	54	60	63	58	54	63	65	62	59	56	59	55	52
2024-10-18 00:00:00	52	56	50	47	60	63	59	55	60	63	58	54	63	66	62	59	57	60	56	53
2024-10-18 01:00:00	52	55	50	46	59	62	58	54	59	62	58	54	63	66	62	59	57	60	55	52
2024-10-18 02:00:00	52	55	50	46	59	62	58	54	59	62	58	54	62	65	61	58	57	60	55	52
2024-10-18 03:00:00	52	55	50	46	57	61	56	52	57	60	56	53	59	62	58	54	53	55	51	47
2024-10-18 04:00:00	52	55	49	46	58	61	57	53	57	60	56	53	60	62	59	55	53	56	52	49
2024-10-18 05:00:00	49	52	47	44	57	60	56	52	57	60	56	52	60	62	58	55	54	57	52	49
2024-10-18 06:00:00	52	53	48	44	57	60	56	53	57	60	56	52	60	63	59	56	53	56	52	49
2024-10-18 07:00:00	53	55	48	45	57	60	56	52	56	59	55	51	60	63	59	56	53	55	51	48
2024-10-18 08:00:00	54	55	48	45	57	60	56	53	56	59	55	51	60	62	58	55	53	56	52	49
2024-10-18 09:00:00	55	57	50	46	57	60	56	52	57	59	56	52	58	61	57	54	53	56	51	48
2024-10-18 10:00:00	54	56	49	44	56	59	55	51	56	59	55	51	60	63	58	54	55	58	54	50
2024-10-18 11:00:00	55	57	50	45	57	60	56	51	57	60	56	52	61	63	59	55	53	56	51	47
2024-10-18 12:00:00	54	55	46	40	53	56	52	46	54	57	52	47	58	61	56	52	49	52	47	43
2024-10-18 13:00:00	55	52	41	36	49	52	47	42	45	49	41	33	51	54	50	47	43	46	42	39
2024-10-18 14:00:00	52	49	40	35	47	50	44	39	43	47	41	35	50	53	48	44	42	44	40	38
2024-10-18 15:00:00	54	49	39	34	47	50	44	40	42	46	39	34	49	52	48	44	42	45	41	38

Table B.1. A-Weighted Sound Measurement Data

Date	Measured Sound Level, dBA																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-18 16:00:00	55	54	40	33	47	50	42	37	41	44	39	35	47	49	44	41	39	41	38	36
2024-10-18 17:00:00	52	50	37	30	46	48	40	32	41	44	36	29	46	50	42	36	37	40	36	34
2024-10-18 18:00:00	50	48	31	27	45	46	30	28	38	39	33	27	35	36	34	33	38	38	35	33
2024-10-18 19:00:00	53	53	33	28	50	54	32	29	37	41	31	27	34	36	34	32	49	43	41	34
2024-10-18 20:00:00	50	44	38	34	43	39	34	32	34	36	32	29	37	38	36	34	38	42	35	32
2024-10-18 21:00:00	56	45	36	33	44	40	34	32	32	35	30	28	38	40	37	35	37	39	36	34
2024-10-18 22:00:00	48	41	33	31	43	38	34	32	31	33	30	28	36	37	35	33	39	37	34	32
2024-10-18 23:00:00	47	37	30	29	41	34	31	29	31	32	29	27	36	37	35	34	35	40	33	30
2024-10-19 00:00:00	47	36	31	29	39	33	31	30	33	34	30	27	35	37	34	33	33	35	32	30
2024-10-19 01:00:00	37	33	29	27	33	33	30	28	39	43	32	28	34	37	33	30	32	34	31	30
2024-10-19 02:00:00	38	30	28	27	33	32	30	28	28	30	27	25	33	35	33	29	36	33	30	27
2024-10-19 03:00:00	31	33	30	28	31	32	31	29	31	35	26	24	33	35	33	28	30	32	29	27
2024-10-19 04:00:00	30	32	30	29	32	33	31	30	30	30	27	25	35	36	34	33	34	33	31	29
2024-10-19 05:00:00	39	33	31	28	33	33	31	30	28	29	27	25	35	35	34	33	34	31	29	27
2024-10-19 06:00:00	43	34	26	23	36	32	27	21	25	26	25	21	31	34	29	24	39	46	25	22
2024-10-19 07:00:00	46	37	28	24	40	34	28	25	33	35	26	24	34	37	30	26	32	36	31	25
2024-10-19 08:00:00	47	39	28	26	36	35	27	25	42	32	26	24	32	35	30	26	38	35	31	28
2024-10-19 09:00:00	52	50	29	25	42	41	29	27	32	35	29	26	32	35	30	26	31	34	28	24
2024-10-19 10:00:00	49	44	32	27	39	41	33	30	48	50	47	43	33	35	31	28	31	33	30	27
2024-10-19 11:00:00	50	46	33	30	44	43	35	32	48	43	34	30	43	46	37	34	34	36	33	32
2024-10-19 12:00:00	49	48	34	31	50	47	38	34	37	39	35	33	47	50	42	37	37	38	36	34
2024-10-19 13:00:00	46	44	38	33	45	48	43	37	44	47	42	36	52	55	49	43	40	43	39	36
2024-10-19 14:00:00	50	49	44	39	48	52	47	43	49	52	48	44	58	62	54	50	43	46	42	39
2024-10-19 15:00:00	51	50	42	36	46	50	45	39	45	49	44	38	57	61	53	47	42	44	40	37
2024-10-19 16:00:00	47	46	40	35	45	48	44	39	45	47	44	39	52	55	50	45	54	46	41	37
2024-10-19 17:00:00	48	47	41	38	46	49	44	40	46	49	45	41	52	55	50	46	41	43	39	37
2024-10-19 18:00:00	51	47	39	35	45	47	42	40	41	42	40	38	47	49	46	44	40	40	38	36
2024-10-19 19:00:00	48	45	39	37	51	50	41	37	39	40	38	37	49	51	46	43	49	51	49	46
2024-10-19 20:00:00	45	40	36	35	40	41	38	36	37	39	37	35	43	45	43	41	49	50	49	45
2024-10-19 21:00:00	42	43	40	38	44	47	42	40	45	48	43	38	53	57	51	46	49	50	49	44
2024-10-19 22:00:00	48	48	46	44	49	52	47	44	49	51	48	46	57	60	54	51	47	49	48	43
2024-10-19 23:00:00	47	48	44	42	45	48	44	42	45	46	44	42	56	59	53	50	46	48	46	42

Table B.1. A-Weighted Sound Measurement Data

Date	Measured Sound Level, dBA																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-20 00:00:00	46	45	43	41	45	46	43	41	45	46	44	43	55	59	53	50	44	46	43	41
2024-10-20 01:00:00	42	43	40	37	42	43	41	40	41	43	41	39	51	53	50	47	43	46	42	40
2024-10-20 02:00:00	37	38	37	36	41	42	41	40	38	39	38	37	49	50	48	47	42	45	41	39
2024-10-20 03:00:00	40	39	37	36	42	43	41	41	38	39	38	37	49	50	48	47	42	44	40	39
2024-10-20 04:00:00	41	40	38	37	42	43	42	41	40	41	40	39	49	50	48	47	41	43	41	39
2024-10-20 05:00:00	39	41	38	37	43	45	42	41	41	43	40	39	49	50	48	46	40	41	40	39
2024-10-20 06:00:00	44	45	42	40	45	47	44	42	45	47	44	42	53	55	51	49	43	44	42	41
2024-10-20 07:00:00	45	46	43	41	46	49	45	43	47	49	46	44	52	54	51	49	43	44	43	42
2024-10-20 08:00:00	49	47	43	41	48	50	47	44	49	51	48	46	54	56	52	50	45	45	44	43
2024-10-20 09:00:00	51	50	46	43	50	52	48	45	50	52	49	46	56	59	53	50	44	45	43	42
2024-10-20 10:00:00	51	53	48	45	52	55	51	46	53	56	52	49	58	62	55	51	45	48	44	43
2024-10-20 11:00:00	53	55	50	47	56	59	55	49	56	59	55	52	65	69	60	53	49	53	48	43
2024-10-20 12:00:00	52	53	48	43	52	55	50	46	53	55	52	48	63	66	58	52	47	50	44	41
2024-10-20 13:00:00	51	50	44	40	49	52	47	43	50	52	49	45	59	62	55	50	45	48	43	40
2024-10-20 14:00:00	50	50	45	41	50	53	48	44	50	53	49	45	60	64	57	52	47	50	44	41
2024-10-20 15:00:00	51	50	45	40	49	52	48	43	50	53	49	45	58	61	55	50	45	47	42	40
2024-10-20 16:00:00	50	47	42	37	45	48	43	39	49	51	48	44	57	60	53	47	41	44	39	37
2024-10-20 17:00:00	51	48	37	32	43	46	39	35	43	46	40	35	50	53	43	39	38	41	35	33
2024-10-20 18:00:00	50	49	32	29	45	48	36	34	40	44	35	33	43	44	42	39	37	38	36	34
2024-10-20 19:00:00	48	40	27	25	43	37	30	29	34	34	30	29	37	40	35	33	46	47	46	44
2024-10-20 20:00:00	48	38	29	26	44	38	33	30	32	34	30	28	36	38	35	34	46	48	45	44
2024-10-20 21:00:00	47	40	34	32	43	43	40	37	37	38	36	33	46	48	45	42	47	49	47	45
2024-10-20 22:00:00	46	42	37	35	46	47	43	41	40	42	39	37	49	51	48	46	46	49	46	41
2024-10-20 23:00:00	43	42	38	36	46	47	45	43	43	46	42	39	50	52	49	47	44	46	44	40
2024-10-21 00:00:00	42	44	40	38	48	50	46	45	45	48	44	42	51	53	50	48	45	47	44	41
2024-10-21 01:00:00	44	46	41	38	48	50	47	44	45	48	44	41	49	51	49	47	45	49	43	40
2024-10-21 02:00:00	40	43	39	37	46	48	45	43	43	46	42	40	49	51	49	47	45	48	43	40
2024-10-21 03:00:00	46	48	43	39	49	52	48	46	47	50	46	43	51	54	50	48	47	48	44	42
2024-10-21 04:00:00	49	50	45	41	50	52	48	46	47	50	47	44	52	54	51	49	45	48	44	43
2024-10-21 05:00:00	49	50	44	41	50	52	49	45	47	50	47	44	52	54	51	49	47	48	44	42
2024-10-21 06:00:00	51	51	44	41	50	53	48	45	48	51	48	45	51	53	50	49	46	48	45	43
2024-10-21 07:00:00	52	52	45	40	50	52	47	45	44	46	44	41	50	52	49	48	44	46	43	42

Table B.1. A-Weighted Sound Measurement Data

Date	Measured Sound Level, dBA																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-21 08:00:00	53	54	48	43	54	57	52	48	53	56	51	46	55	58	53	50	56	52	48	44
2024-10-21 09:00:00	52	54	47	43	54	57	53	48	54	57	53	48	71	63	57	53	53	52	48	45
2024-10-21 10:00:00	52	52	45	41	50	52	48	45	48	51	47	44	68	62	53	50	47	50	46	43
2024-10-21 11:00:00	48	46	41	38	49	51	47	44	45	48	43	38	61	56	51	48	45	47	43	41
2024-10-21 12:00:00	50	51	43	38	50	53	48	44	48	52	46	40	53	56	50	46	46	49	44	41
2024-10-21 13:00:00	54	50	41	37	50	52	47	43	45	49	42	36	51	54	50	46	46	49	44	41
2024-10-21 14:00:00	51	51	42	37	51	54	49	45	50	53	48	43	52	55	51	48	47	50	45	42
2024-10-21 15:00:00	52	50	39	35	47	50	44	41	45	49	44	39	59	56	49	45	43	45	41	39
2024-10-21 16:00:00	51	50	41	37	48	51	46	43	47	50	46	41	58	56	50	47	46	48	43	40
2024-10-21 17:00:00	50	49	40	37	48	52	45	41	45	49	42	35	51	54	50	47	45	46	42	39
2024-10-21 18:00:00	53	52	45	40	51	54	49	45	47	50	43	38	54	57	53	49	48	51	47	43
2024-10-21 19:00:00	49	50	43	40	51	54	50	46	49	52	47	43	59	62	55	50	50	52	50	47
2024-10-21 20:00:00	50	51	41	36	50	54	46	42	48	52	43	38	55	59	51	47	49	50	48	43
2024-10-21 21:00:00	53	56	50	45	56	59	54	49	56	59	55	50	59	62	57	53	54	57	52	48
2024-10-21 22:00:00	50	52	46	42	52	55	50	47	52	55	51	47	55	59	54	50	50	53	49	45
2024-10-21 23:00:00	46	43	38	36	45	47	44	42	44	47	42	39	50	52	49	47	44	47	42	39
2024-10-22 00:00:00	40	42	38	36	44	46	44	42	41	43	41	39	49	51	48	46	42	44	41	39
2024-10-22 01:00:00	39	41	38	36	44	46	44	42	41	43	40	39	49	51	48	46	41	43	41	39
2024-10-22 02:00:00	41	42	39	36	45	48	44	43	40	43	39	37	50	53	49	47	42	44	41	39
2024-10-22 03:00:00	40	41	37	36	45	48	43	41	39	41	38	36	48	51	47	44	40	43	39	37
2024-10-22 04:00:00	41	38	36	35	42	43	41	39	36	37	36	34	46	47	45	43	39	41	38	36
2024-10-22 05:00:00	47	40	36	35	44	44	42	40	35	37	35	34	46	47	45	43	38	40	38	36
2024-10-22 06:00:00	51	51	38	36	47	49	43	41	38	39	37	36	46	48	45	43	39	40	39	37
2024-10-22 07:00:00	52	51	39	36	47	49	43	41	40	42	38	37	47	49	47	44	40	42	40	39
2024-10-22 08:00:00	54	53	40	36	49	53	44	42	55	46	40	38	47	49	47	45	41	42	40	38
2024-10-22 09:00:00	51	49	39	37	45	48	43	41	48	44	40	38	50	52	47	44	41	43	40	38
2024-10-22 10:00:00	52	49	44	40	51	53	48	43	45	48	44	40	65	69	57	46	45	49	43	37
2024-10-22 11:00:00	52	51	44	42	48	51	47	43	47	50	46	42	67	71	63	52	49	52	48	44
2024-10-22 12:00:00	53	53	46	42	47	50	46	42	45	48	44	39	61	65	56	47	43	46	42	38
2024-10-22 13:00:00	56	59	54	47	51	54	49	43	56	51	47	41	60	64	57	50	45	48	43	39
2024-10-22 14:00:00	55	59	52	46	52	55	50	45	50	53	47	42	55	58	53	48	48	48	43	40
2024-10-22 15:00:00	64	67	62	56	58	62	56	52	61	64	58	54	63	66	61	56	57	56	51	47

Table B.1. A-Weighted Sound Measurement Data

Date	Measured Sound Level, dBA																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-22 16:00:00	64	67	64	61	60	63	58	54	60	63	58	53	67	71	64	57	54	56	52	50
2024-10-22 17:00:00	61	63	59	55	55	59	54	49	55	59	54	48								
2024-10-22 18:00:00	61	64	59	52	56	60	54	45	56	60	53	46								
2024-10-22 19:00:00	59	62	57	50	54	57	52	46	52	55	50	45								
2024-10-22 20:00:00	58	61	56	52	52	56	50	44	52	55	49	44								
2024-10-22 21:00:00	55	57	53	49	50	53	48	44	48	51	46	43								
2024-10-22 22:00:00	57	61	54	47	53	57	50	45	52	56	48	42								
2024-10-22 23:00:00	56	60	53	47	51	55	49	44	52	56	50	45								
2024-10-23 00:00:00	55	58	54	48	50	54	48	43	45	48	44	40								
2024-10-23 01:00:00	49	52	48	44	47	50	46	42	44	47	42	39								
2024-10-23 02:00:00	42	45	41	38	41	43	40	36	38	41	38	35								
2024-10-23 03:00:00	39	41	38	35	37	40	36	34	37	39	37	35								
2024-10-23 04:00:00	38	35	30	27	35	37	34	30	35	36	34	31								
2024-10-23 05:00:00	45	39	35	27	40	40	36	29	37	38	33	30								
2024-10-23 06:00:00	52	52	35	32	42	43	35	31	40	45	33	30								
2024-10-23 07:00:00	53	54	32	29	48	50	33	30	43	47	34	29								
2024-10-23 08:00:00	54	55	32	29	46	48	34	30	46	50	35	29								
2024-10-23 09:00:00	54	53	38	34	44	44	35	32	50	54	49	43								
2024-10-23 10:00:00																				
2024-10-23 11:00:00	51	54	35	32	38	40	36	33	41	43	36	33	47	51	39	34				
2024-10-23 12:00:00	50	44	34	30	48	43	36	32	48	45	37	32	52	56	44	36				
2024-10-23 13:00:00	52	48	38	35	46	48	42	37	47	50	43	37	52	55	46	39				
2024-10-23 14:00:00	52	53	40	35	44	47	42	38	47	50	44	39	51	55	46	40				
2024-10-23 15:00:00	51	46	38	34	43	45	41	36	46	49	44	39	53	56	48	41				
2024-10-23 16:00:00	50	49	41	36	46	49	43	38	49	52	47	42	53	56	49	43				
2024-10-23 17:00:00	50	50	41	35	48	51	44	39	48	51	47	42	52	56	48	42				
2024-10-23 18:00:00	51	49	34	28	45	46	38	29	43	47	38	31	42	46	40	32				
2024-10-23 19:00:00	45	39	32	30	40	37	32	29	37	39	34	32	36	38	33	30				
2024-10-23 20:00:00	45	41	35	31	42	44	37	31	43	46	40	35	44	48	39	32				
2024-10-23 21:00:00	46	46	41	38	48	50	47	44	50	53	49	46	44	48	42	38				
2024-10-23 22:00:00	51	54	49	44	56	60	55	50	60	63	59	53								
2024-10-23 23:00:00	53	57	51	47	58	61	57	53	62	65	61	58								

Table B.1. A-Weighted Sound Measurement Data

Date	Measured Sound Level, dBA																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-24 00:00:00	53	56	51	47	58	61	57	53	64	66	63	61								
2024-10-24 01:00:00	52	55	51	48	58	61	56	52	64	66	63	60								
2024-10-24 02:00:00	51	54	49	47	56	59	55	52	62	64	61	59								
2024-10-24 03:00:00	50	53	49	46	56	59	55	51	62	64	61	58								
2024-10-24 04:00:00	52	55	50	47	57	59	56	52	62	65	62	58								
2024-10-24 05:00:00	54	56	51	48	58	61	57	53	65	67	64	61								
2024-10-24 06:00:00	53	56	50	46	56	59	55	51	61	64	60	57								
2024-10-24 07:00:00	54	55	50	46	56	59	55	52	59	62	59	56								
2024-10-24 08:00:00	53	55	47	43	56	59	54	51	58	61	57	53								
2024-10-24 09:00:00	55	56	49	44	57	60	55	51	59	62	58	54								
2024-10-24 10:00:00	54	54	47	43	54	57	53	49	57	59	55	51								
2024-10-24 11:00:00	52	51	42	39	51	54	48	44	51	55	48	44								
2024-10-24 12:00:00	51	48	43	39	47	48	44	41	45	48	41	38								
2024-10-24 13:00:00	53	50	41	35	47	49	40	37	40	43	37	34								
2024-10-24 14:00:00	52	52	41	36	47	51	41	37	48	53	44	38								
2024-10-24 15:00:00	56	54	45	39	54	53	46	40	55	58	49	41								
2024-10-24 16:00:00	54	54	43	36	47	50	41	34	48	52	47	36								
2024-10-24 17:00:00	51	50	34	30	38	42	34	31	40	44	34	30								
2024-10-24 18:00:00	50	48	31	28	42	41	32	30	39	44	32	29								
2024-10-24 19:00:00	48	45	30	27	40	39	31	28	37	40	31	28								
2024-10-24 20:00:00	45	45	40	30	42	44	40	34	40	42	38	34								
2024-10-24 21:00:00	49	48	43	39	44	45	41	38	40	42	38	36								
2024-10-24 22:00:00	51	52	47	43	45	47	44	41	43	45	42	40								
2024-10-24 23:00:00	49	51	48	45	44	45	43	41	43	45	42	41								
2024-10-25 00:00:00	46	46	44	41	42	44	42	40	41	43	41	39								
2024-10-25 01:00:00	45	47	44	41	41	43	41	40	40	41	39	38								
2024-10-25 02:00:00	46	47	46	44	41	42	41	40	40	41	40	39								
2024-10-25 03:00:00	46	48	45	41	42	44	41	40	40	42	40	39								
2024-10-25 04:00:00	43	44	39	36	41	42	41	39	37	39	36	34								
2024-10-25 05:00:00	46	45	43	40	42	42	41	40	39	40	37	36								
2024-10-25 06:00:00	52	49	43	40	45	45	41	40	40	44	37	35								
2024-10-25 07:00:00	53	54	44	42	47	49	41	38	43	47	39	36								

Table B.1. A-Weighted Sound Measurement Data

Date	Measured Sound Level, dBA																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-25 08:00:00	52	52	42	37	45	48	40	38	49	47	40	36								
2024-10-25 09:00:00	52	51	39	34	45	48	39	36	43	45	37	35								
2024-10-25 10:00:00	50	48	40	33	43	45	36	32	42	43	37	32								
2024-10-25 11:00:00	50	46	37	30	41	42	34	30	41	46	35	30								
2024-10-25 12:00:00	51	52	41	34	43	46	39	33	44	46	39	34								
2024-10-25 13:00:00	49	49	40	32	41	45	38	32	41	44	37	32								
2024-10-25 14:00:00	50	52	43	35	43	46	39	33	42	45	39	33								
2024-10-25 15:00:00	53	51	41	33	44	47	38	32	40	44	37	30								
2024-10-25 16:00:00	53	52	39	31	45	47	36	30	48	52	43	33								
2024-10-25 17:00:00	55	56	35	28	47	50	31	27	42	46	37	29								
2024-10-25 18:00:00	55	54	35	25	50	53	30	25	43	47	36	25								
2024-10-25 19:00:00	54	56	28	23	48	53	29	25	39	43	27	23								
2024-10-25 20:00:00	53	50	25	22	49	47	26	24	39	43	28	24								
2024-10-25 21:00:00	51	47	23	20	49	45	21	20	37	40	25	20								
2024-10-25 22:00:00	49	39	22	20	47	36	21	20	34	34	22	20								
2024-10-25 23:00:00	38	21	20	20	35	22	20	20	23	20	20	20								
2024-10-26 00:00:00	25	28	24	20	25	26	25	20	26	28	26	21								
2024-10-26 01:00:00	26	26	25	25	28	29	27	26	30	31	29	27								
2024-10-26 02:00:00	45	33	28	25	43	36	29	27	35	35	29	28								
2024-10-26 03:00:00	39	32	31	30	37	35	34	34	36	37	36	35								
2024-10-26 04:00:00	43	34	32	31	39	37	36	34	39	39	37	37								
2024-10-26 05:00:00	32	33	32	31	37	37	37	35	36	38	36	35								
2024-10-26 06:00:00	45	36	34	32	42	41	38	36	38	39	36	34								
2024-10-26 07:00:00	48	40	35	33	44	42	40	36	44	45	40	38								
2024-10-26 08:00:00	49	47	39	32	45	45	39	33	42	45	39	35								
2024-10-26 09:00:00	52	51	43	36	47	50	44	38	45	47	43	39								
2024-10-26 10:00:00	53	51	44	40	51	53	49	45	49	52	48	44								
2024-10-26 11:00:00	53	53	45	41	53	56	52	47	53	56	51	45								
2024-10-26 12:00:00	54	53	46	41	55	58	54	50	54	57	53	48								
2024-10-26 13:00:00	54	54	48	42	55	59	54	50	56	59	54	49								
2024-10-26 14:00:00	54	55	49	44	55	58	53	49	55	59	52	47								
2024-10-26 15:00:00	53	54	47	42	55	58	53	49	55	58	53	47								

Table B.1. A-Weighted Sound Measurement Data

Date	Measured Sound Level, dBA																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-26 16:00:00	51	52	47	42	53	56	51	46	53	56	51	45								
2024-10-26 17:00:00	52	52	45	41	52	55	50	46	51	54	49	45								
2024-10-26 18:00:00	51	50	44	40	50	53	49	45	47	50	46	43								
2024-10-26 19:00:00	50	52	46	43	54	57	52	48	55	58	52	46								
2024-10-26 20:00:00	52	55	49	45	57	60	56	52	60	63	59	55								
2024-10-26 21:00:00	55	58	53	49	59	61	58	54	64	66	63	60								
2024-10-26 22:00:00	55	58	53	49	59	62	58	54	66	68	64	61								
2024-10-26 23:00:00	57	60	55	52	62	64	61	57	68	71	68	65								
2024-10-27 00:00:00	56	60	54	50	60	63	59	55	67	69	66	63								
2024-10-27 01:00:00	55	58	54	50	60	62	59	55	66	68	65	62								
2024-10-27 02:00:00	54	58	53	49	58	61	58	53	64	66	63	60								
2024-10-27 03:00:00	52	55	51	46	56	59	55	51	60	63	60	57								
2024-10-27 04:00:00	50	53	48	44	54	57	52	49	57	59	56	52								
2024-10-27 05:00:00	49	52	47	43	51	54	50	47	53	56	52	49								
2024-10-27 06:00:00	50	53	48	44	53	56	52	47	55	58	55	51								
2024-10-27 07:00:00	46	46	41	38	46	49	44	42	48	51	46	43								
2024-10-27 08:00:00	49	50	45	42	50	53	49	46	53	56	52	49								
2024-10-27 09:00:00	51	52	46	42	52	55	51	47	53	55	52	48								
2024-10-27 10:00:00	52	53	47	43	53	56	52	47	57	60	56	52								
2024-10-27 11:00:00	51	52	47	43	52	55	51	46	57	60	56	52								
2024-10-27 12:00:00	51	52	46	43	51	54	49	46	54	57	53	49								
2024-10-27 13:00:00	53	53	48	43	52	55	50	45	56	59	55	49								
2024-10-27 14:00:00	49	48	38	32	45	48	42	37	47	50	45	40								
2024-10-27 15:00:00	47	43	35	31	41	44	39	34	44	47	43	39								
2024-10-27 16:00:00	51	46	33	28	46	43	35	31	40	43	38	34								
2024-10-27 17:00:00	51	48	31	26	44	46	31	28	39	43	34	28								
2024-10-27 18:00:00	51	47	29	25	46	45	32	28	44	44	33	28								
2024-10-27 19:00:00	51	44	32	29	47	44	36	33	40	43	33	31								
2024-10-27 20:00:00	51	45	35	33	47	45	40	39	42	45	38	36								
2024-10-27 21:00:00	50	43	37	35	47	46	43	42	46	48	44	41								
2024-10-27 22:00:00	49	49	42	38	51	54	49	45	51	54	50	46								
2024-10-27 23:00:00	50	52	47	43	54	57	53	50	57	60	56	53								

Table B.1. A-Weighted Sound Measurement Data

Date	Measured Sound Level, dBA																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-28 00:00:00	49	50	46	43	54	56	53	49	57	60	56	53								
2024-10-28 01:00:00	46	49	44	41	52	55	51	48	55	58	54	51								
2024-10-28 02:00:00	47	50	45	42	53	56	52	49	55	58	54	50								
2024-10-28 03:00:00	48	50	45	42	52	55	51	49	54	57	53	50								
2024-10-28 04:00:00	49	52	47	43	55	58	54	51	55	58	54	50								
2024-10-28 05:00:00	50	52	47	44	56	58	55	51	58	61	56	53								
2024-10-28 06:00:00	53	54	48	44	56	59	55	52	58	61	56	52								
2024-10-28 07:00:00	54	56	50	46	58	61	57	53	59	63	58	53								
2024-10-28 08:00:00	53	56	50	46	59	62	58	54	62	65	61	58								
2024-10-28 09:00:00	55	58	52	47	58	61	58	54	63	66	62	59								
2024-10-28 10:00:00	56	60	54	49	60	63	59	54	64	67	63	60								
2024-10-28 11:00:00	56	59	53	48	61	64	60	56	67	70	67	63								
2024-10-28 12:00:00	55	58	52	48	58	61	57	53	64	67	64	60								
2024-10-28 13:00:00	54	56	49	44	56	59	55	51	62	65	61	58								
2024-10-28 14:00:00	54	54	47	41	53	56	52	47	58	62	57	52								
2024-10-28 15:00:00	52	51	41	36	49	52	46	41	51	54	49	44								
2024-10-28 16:00:00	58	54	40	34	49	49	43	38	52	52	48	43								
2024-10-28 17:00:00	56	53	40	34	49	48	40	37	51	50	45	41								
2024-10-28 18:00:00	54	49	35	30	47	46	37	35	48	48	40	35								
2024-10-28 19:00:00	51	49	33	29	42	45	35	33	44	48	36	33								
2024-10-28 20:00:00	50	44	34	26	41	38	32	29	40	42	30	27								
2024-10-28 21:00:00	49	39	34	30	42	36	31	28	38	36	30	28								
2024-10-28 22:00:00	44	35	30	28	38	35	32	29	32	32	29	27								
2024-10-28 23:00:00	38	36	32	30	37	38	34	32	33	36	31	29								
2024-10-29 00:00:00	28	31	27	24	32	34	30	28	28	31	27	26								
2024-10-29 01:00:00	39	36	33	30	36	36	34	31	32	33	31	29								
2024-10-29 02:00:00	37	39	37	35	37	39	37	35	34	36	34	33								
2024-10-29 03:00:00	42	37	35	33	39	38	35	34	34	35	33	32								
2024-10-29 04:00:00	40	39	34	32	37	37	36	34	33	34	32	31								
2024-10-29 05:00:00	48	41	39	35	43	41	38	37	38	39	36	34								
2024-10-29 06:00:00	52	49	36	31	46	44	37	35	39	41	33	30								
2024-10-29 07:00:00	53	55	38	36	47	50	39	37	41	45	37	33								

Table B.1. A-Weighted Sound Measurement Data

Date	Measured Sound Level, dBA																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-29 08:00:00	55	53	42	39	50	48	40	39	47	49	42	36								
2024-10-29 09:00:00	58	56	41	38	52	50	40	38	51	51	44	38								
2024-10-29 10:00:00	58	55	42	39	51	48	39	37	49	47	40	35								
2024-10-29 11:00:00	56	54	42	39	51	47	39	36	51	49	38	34								
2024-10-29 12:00:00	54	53	43	39	47	47	39	36	37	40	35	33								
2024-10-29 13:00:00	54	56	47	42	47	49	41	38	40	42	37	33								
2024-10-29 14:00:00	52	52	48	44	45	47	42	39	43	46	38	36								
2024-10-29 15:00:00	53	52	45	42	46	47	40	37	42	45	38	34								
2024-10-29 16:00:00	53	53	46	42	46	48	41	38	39	41	36	34								
2024-10-29 17:00:00	52	51	40	34	45	47	38	34	44	48	35	33								
2024-10-29 18:00:00	50	45	33	31	44	41	35	33	37	39	34	31								
2024-10-29 19:00:00	47	41	34	32	41	38	35	33	36	37	33	31								
2024-10-29 20:00:00	46	46	41	38	42	44	40	36	38	41	37	34								
2024-10-29 21:00:00	48	47	44	41	43	43	41	39	39	39	38	36								
2024-10-29 22:00:00	46	48	42	39	41	43	40	39	38	39	37	36								
2024-10-29 23:00:00	50	53	49	45	45	48	43	41	39	41	39	37								
2024-10-30 00:00:00	58	62	55	49	52	56	49	41	52	56	48	38								
2024-10-30 01:00:00	58	62	55	43	51	55	46	40	51	56	43	36								
2024-10-30 02:00:00	44	47	41	37	39	41	37	34	36	38	33	31								
2024-10-30 03:00:00	52	55	51	47	46	50	44	40	45	49	43	39								
2024-10-30 04:00:00	54	56	52	46	48	52	47	42	50	53	48	43								
2024-10-30 05:00:00	57	60	55	50	51	54	49	44	52	55	50	44								
2024-10-30 06:00:00	61	63	60	56	53	56	51	46	54	57	52	48								
2024-10-30 07:00:00	61	64	60	56	54	57	52	47	54	57	52	47								
2024-10-30 08:00:00	63	65	61	58	54	58	53	48	52	55	51	47								
2024-10-30 09:00:00	61	64	60	56	54	57	52	47	51	54	50	46								
2024-10-30 10:00:00	60	62	59	55	52	55	51	46	50	53	48	44								
2024-10-30 11:00:00	63	65	62	57	54	57	52	48	52	55	51	47								
2024-10-30 12:00:00	63	66	62	58	55	59	53	48	54	57	52	47								
2024-10-30 13:00:00	64	67	63	60	56	59	55	50	56	59	55	51								

Table B.2. C-Weighted Sound Measurement Data

Date	Measured Sound Level, dBC																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-14 16:00:00													54	57	53	51				
2024-10-14 17:00:00													54	57	53	50				
2024-10-14 18:00:00									69	67	56	50	58	61	56	52				
2024-10-14 19:00:00									57	61	52	49	55	57	53	51				
2024-10-14 20:00:00									49	51	46	43	48	50	47	45				
2024-10-14 21:00:00									43	45	42	41	45	46	45	44				
2024-10-14 22:00:00									44	45	44	43	48	49	48	47				
2024-10-14 23:00:00									43	44	43	42	47	48	47	46				
2024-10-15 00:00:00									47	49	47	43	52	54	52	47				
2024-10-15 01:00:00									46	48	46	45	50	52	50	48				
2024-10-15 02:00:00									46	47	46	44	50	52	50	47				
2024-10-15 03:00:00									46	48	46	45	52	53	52	50				
2024-10-15 04:00:00									47	47	45	44	51	52	50	49				
2024-10-15 05:00:00									45	46	44	43	48	50	48	47				
2024-10-15 06:00:00									47	49	43	41	47	48	47	45				
2024-10-15 07:00:00									48	51	46	43	48	49	48	47				
2024-10-15 08:00:00									52	54	48	46	49	50	49	47				
2024-10-15 09:00:00									47	48	46	44	52	55	49	47				
2024-10-15 10:00:00									49	49	46	45	57	60	53	49				
2024-10-15 11:00:00									50	52	48	46	65	68	62	56				
2024-10-15 12:00:00									55	55	50	48	64	68	60	53				
2024-10-15 13:00:00									52	54	49	46	65	69	61	52				
2024-10-15 14:00:00									57	59	52	48	60	64	56	49				
2024-10-15 15:00:00	63	65	60	58	59	62	56	53	55	58	53	49	56	61	52	46	57	60	50	44
2024-10-15 16:00:00	60	62	58	45	56	59	53	48	66	70	63	54	50	53	48	43	58	58	46	43
2024-10-15 17:00:00	61	60	46	43	55	57	49	46	58	61	53	46	49	50	48	44	61	57	54	51
2024-10-15 18:00:00	58	59	47	43	54	55	49	47	52	55	51	48	49	50	48	46	61	57	56	53
2024-10-15 19:00:00	61	62	46	43	56	59	49	46	52	54	48	46	50	51	50	48	54	56	54	53
2024-10-15 20:00:00	60	60	44	41	53	54	45	42	54	52	44	42	49	51	48	47	56	56	54	52
2024-10-15 21:00:00	61	59	42	40	59	58	50	45	51	52	44	41	47	48	46	45	50	49	43	41
2024-10-15 22:00:00	55	48	44	42	53	54	51	48	48	50	47	45	56	58	55	50	45	46	45	43
2024-10-15 23:00:00	46	46	44	43	53	55	52	50	48	50	48	46	57	59	56	53	49	50	47	46

Table B.2. C-Weighted Sound Measurement Data

Date	Measured Sound Level, dBC																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-16 00:00:00	46	47	44	43	58	61	57	53	52	55	51	48	59	62	58	52	52	55	49	46
2024-10-16 01:00:00	47	48	46	44	63	67	62	57	57	60	55	50	58	61	56	51	51	53	49	47
2024-10-16 02:00:00	49	50	48	47	62	65	61	55	59	62	58	55	62	65	61	58	61	64	55	51
2024-10-16 03:00:00	50	51	49	48	63	67	60	53	62	66	58	54	64	67	62	59	64	68	58	53
2024-10-16 04:00:00	53	54	51	50	69	72	68	64	68	71	66	62	67	71	66	62	62	66	57	54
2024-10-16 05:00:00	56	57	53	51	73	77	71	65	72	76	69	63	68	72	66	62	68	71	62	55
2024-10-16 06:00:00	60	62	57	54	80	83	78	73	78	81	76	71	72	76	70	65	71	75	65	57
2024-10-16 07:00:00	64	67	59	56	85	88	83	77	85	88	84	79	80	84	78	73	75	79	69	60
2024-10-16 08:00:00	63	66	58	55	81	84	79	75	81	84	80	75	78	82	77	71	78	81	72	62
2024-10-16 09:00:00	63	66	58	55	82	86	81	75	83	86	81	76	79	83	78	72	80	83	74	64
2024-10-16 10:00:00	65	68	60	56	87	90	85	80	86	89	84	79	83	87	81	75	83	86	76	65
2024-10-16 11:00:00	69	72	62	57	88	91	86	80	88	91	86	81	86	89	84	78	86	90	80	68
2024-10-16 12:00:00	69	72	63	57	89	92	88	82	88	91	87	82	86	89	84	77	87	90	80	69
2024-10-16 13:00:00	69	72	62	57	88	91	88	83	88	91	87	82	85	88	83	77	86	90	81	71
2024-10-16 14:00:00	68	71	62	56	88	91	87	82	88	91	86	82	84	88	82	77	85	90	81	71
2024-10-16 15:00:00	67	69	61	56	87	90	86	82	87	91	86	80	84	87	82	76	86	89	79	68
2024-10-16 16:00:00	66	69	61	56	86	90	85	80	87	90	85	80	84	88	82	76	85	88	79	68
2024-10-16 17:00:00	65	68	60	56	86	89	85	79	85	88	83	77	83	86	80	74	83	87	77	67
2024-10-16 18:00:00	65	68	60	57	87	90	86	82	86	89	84	79	83	86	81	76	83	88	78	68
2024-10-16 19:00:00	66	69	61	58	88	91	87	83	88	91	87	82	84	88	83	77	86	90	81	71
2024-10-16 20:00:00	69	72	64	60	89	92	88	84	91	94	90	86	86	89	84	79	87	91	83	73
2024-10-16 21:00:00	69	72	63	59	88	91	87	83	89	92	88	84	85	88	83	78	86	90	81	73
2024-10-16 22:00:00	69	71	63	59	88	91	87	83	90	92	89	85	85	88	83	78	86	90	81	72
2024-10-16 23:00:00	70	73	65	60	90	93	88	84	90	93	89	85	85	89	84	78	87	91	83	73
2024-10-17 00:00:00	72	75	66	61	91	94	90	85	91	94	90	86	87	90	85	80	89	93	85	75
2024-10-17 01:00:00	75	78	69	63	92	95	91	86	92	95	90	79	89	92	87	82	91	95	86	78
2024-10-17 02:00:00	73	76	68	62	92	95	91	86	80	84	78	73	89	92	87	82	91	95	87	79
2024-10-17 03:00:00	72	76	67	61	90	93	89	84	77	81	75	70	87	90	85	80	89	93	85	76
2024-10-17 04:00:00	71	73	65	60	89	92	88	84	75	78	73	69	86	89	84	79	87	91	83	74
2024-10-17 05:00:00	71	74	65	60	89	92	88	84	75	78	74	70	86	89	84	79	87	91	83	75
2024-10-17 06:00:00	68	70	62	58	86	89	85	80	71	74	69	65	82	86	80	75	84	88	79	69
2024-10-17 07:00:00	67	69	62	58	87	90	85	81	72	75	69	65	83	87	81	75	85	89	80	69

Table B.2. C-Weighted Sound Measurement Data

Date	Measured Sound Level, dBC																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-17 08:00:00	66	69	62	59	89	92	88	85	75	78	72	67	84	88	83	77	87	91	82	72
2024-10-17 09:00:00	68	71	63	59	89	92	88	84	75	78	73	68	85	89	84	78	88	92	83	73
2024-10-17 10:00:00	71	73	64	59	89	92	87	83	76	80	74	69	86	89	84	79	89	93	84	74
2024-10-17 11:00:00	68	71	62	58	89	92	88	84	75	78	72	67	86	90	85	79	88	92	83	72
2024-10-17 12:00:00	66	68	60	56	87	90	86	82	73	76	70	63	86	90	84	78	87	91	81	72
2024-10-17 13:00:00	67	70	63	58	90	93	89	84	75	78	71	64	87	91	86	80	88	92	83	73
2024-10-17 14:00:00	67	70	63	58	90	93	89	84	75	78	71	65	88	91	86	80	90	94	85	75
2024-10-17 15:00:00	69	72	64	59	90	93	89	83	75	79	71	65	89	92	87	82	90	94	84	74
2024-10-17 16:00:00	67	70	63	58	90	93	89	84	75	79	72	65	88	92	86	80	90	95	85	75
2024-10-17 17:00:00	66	69	61	57	89	92	88	83	74	78	71	65	84	88	82	77	87	91	81	71
2024-10-17 18:00:00	62	65	58	55	85	88	83	79	71	74	69	63	82	86	81	75	83	87	77	68
2024-10-17 19:00:00	64	66	59	56	85	88	83	78	70	73	66	60	84	87	82	76	84	87	78	68
2024-10-17 20:00:00	64	66	59	56	86	89	85	81	71	75	69	63	84	88	82	76	84	88	79	69
2024-10-17 21:00:00	64	67	60	57	87	90	86	82	72	76	69	64	85	89	84	78	86	90	80	70
2024-10-17 22:00:00	63	66	59	56	86	89	85	81	72	76	70	64	84	87	82	77	84	88	78	69
2024-10-17 23:00:00	62	65	59	56	85	88	84	81	72	75	69	64	84	87	82	77	84	88	78	69
2024-10-18 00:00:00	63	66	59	57	86	89	85	81	72	75	69	64	84	87	83	77	85	89	80	70
2024-10-18 01:00:00	62	65	59	57	86	89	85	81	71	75	68	63	84	88	83	78	85	89	79	69
2024-10-18 02:00:00	63	65	59	57	85	88	84	80	71	75	68	64	83	87	82	76	85	88	79	69
2024-10-18 03:00:00	63	66	58	55	84	87	83	78	69	72	67	63	80	83	78	71	80	84	75	65
2024-10-18 04:00:00	63	65	58	56	85	87	83	79	69	72	67	63	80	84	79	74	80	84	76	66
2024-10-18 05:00:00	60	62	57	56	84	86	83	79	69	73	67	63	80	84	79	73	82	86	76	66
2024-10-18 06:00:00	61	63	58	56	84	87	83	79	70	73	67	63	81	84	80	74	81	84	75	66
2024-10-18 07:00:00	61	64	58	56	83	86	82	79	69	72	66	62	81	85	80	75	80	84	74	64
2024-10-18 08:00:00	62	64	58	56	84	86	83	79	69	72	66	62	81	84	79	74	81	85	75	65
2024-10-18 09:00:00	65	67	59	56	83	86	82	78	69	72	67	63	79	83	78	72	80	85	75	65
2024-10-18 10:00:00	64	66	59	55	83	86	82	78	69	72	67	62	81	84	79	73	83	87	78	69
2024-10-18 11:00:00	64	67	59	54	84	87	83	78	69	72	67	62	81	84	80	74	81	85	75	64
2024-10-18 12:00:00	62	64	55	51	80	84	79	73	65	69	62	58	78	82	76	70	77	81	70	59
2024-10-18 13:00:00	63	60	52	50	74	78	73	67	58	62	55	50	71	75	69	63	71	75	65	56
2024-10-18 14:00:00	59	59	51	47	72	76	70	64	56	60	54	50	69	73	66	60	69	72	62	52
2024-10-18 15:00:00	66	58	51	48	72	76	71	65	60	61	54	50	69	73	66	60	69	73	63	53

Table B.2. C-Weighted Sound Measurement Data

Date	Measured Sound Level, dBC																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-18 16:00:00	67	61	50	46	69	72	68	62	59	59	53	50	65	69	62	57	64	67	57	49
2024-10-18 17:00:00	65	57	48	45	68	72	65	52	60	60	51	46	65	70	59	49	61	64	50	46
2024-10-18 18:00:00	65	54	45	43	59	53	46	44	59	57	51	46	49	50	48	47	48	48	46	45
2024-10-18 19:00:00	65	56	45	42	60	59	47	45	58	60	48	45	48	50	48	44	66	49	47	46
2024-10-18 20:00:00	60	57	50	47	61	63	55	49	53	53	49	47	51	53	50	47	49	51	48	46
2024-10-18 21:00:00	61	54	48	47	54	56	51	48	51	51	48	47	50	52	49	48	52	53	52	50
2024-10-18 22:00:00	54	52	48	46	52	53	49	47	49	51	48	47	49	50	49	47	51	52	49	47
2024-10-18 23:00:00	56	51	46	44	55	59	47	45	48	49	48	46	50	52	49	47	48	50	48	46
2024-10-19 00:00:00	54	51	47	45	54	57	50	46	48	49	47	46	50	52	50	48	49	51	48	46
2024-10-19 01:00:00	46	46	45	44	47	49	46	44	48	49	47	46	48	50	47	45	48	50	47	45
2024-10-19 02:00:00	46	47	45	43	50	53	48	46	47	48	47	46	50	52	49	46	49	50	47	45
2024-10-19 03:00:00	46	48	46	44	48	50	47	45	46	47	45	44	49	51	49	45	48	50	47	45
2024-10-19 04:00:00	46	48	46	44	50	53	49	46	49	48	46	44	51	53	51	49	49	50	48	46
2024-10-19 05:00:00	49	49	46	45	54	57	51	47	46	47	46	44	52	53	51	49	47	49	46	44
2024-10-19 06:00:00	47	46	43	40	50	53	45	40	44	46	44	41	48	51	45	41	45	48	43	41
2024-10-19 07:00:00	49	46	43	41	47	49	45	42	46	48	46	43	46	49	45	43	46	49	45	41
2024-10-19 08:00:00	53	50	45	43	48	49	45	44	48	48	46	44	46	48	46	44	49	50	46	45
2024-10-19 09:00:00	62	55	45	43	55	53	47	45	50	51	47	46	48	50	47	44	45	47	45	43
2024-10-19 10:00:00	55	54	47	45	53	54	49	47	69	72	67	62	49	52	48	46	47	49	46	45
2024-10-19 11:00:00	55	51	47	46	59	62	56	51	59	63	51	49	60	64	57	51	54	58	50	47
2024-10-19 12:00:00	56	54	48	46	64	67	61	55	53	54	52	50	63	67	61	55	58	62	54	49
2024-10-19 13:00:00	53	54	49	47	72	76	70	63	57	60	55	52	70	73	67	61	64	67	57	51
2024-10-19 14:00:00	58	58	52	49	76	79	74	68	61	63	59	57	75	78	73	68	68	72	63	55
2024-10-19 15:00:00	62	59	50	47	74	78	71	65	59	62	56	52	72	75	70	63	65	69	60	52
2024-10-19 16:00:00	53	54	49	47	72	76	71	64	57	60	56	53	70	73	68	62	67	70	61	53
2024-10-19 17:00:00	55	55	50	48	73	76	71	63	59	61	57	54	69	73	67	61	63	66	55	50
2024-10-19 18:00:00	66	57	49	47	67	70	64	58	57	57	54	53	63	67	61	57	55	57	51	49
2024-10-19 19:00:00	53	52	49	48	63	66	61	57	55	57	55	54	64	68	63	59	58	61	55	52
2024-10-19 20:00:00	50	49	48	47	60	63	58	54	55	57	55	53	58	60	56	54	55	58	53	52
2024-10-19 21:00:00	51	53	50	48	71	75	68	59	57	60	56	54	71	75	67	58	62	65	57	54
2024-10-19 22:00:00	56	57	53	52	77	80	75	70	60	62	59	58	75	78	73	68	67	71	62	56
2024-10-19 23:00:00	55	55	52	51	72	75	69	64	57	59	57	56	72	76	71	66	65	68	60	55

Table B.2. C-Weighted Sound Measurement Data

Date	Measured Sound Level, dBC																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-20 00:00:00	53	54	52	50	70	73	68	64	59	60	58	57	71	74	70	66	65	69	61	55
2024-10-20 01:00:00	51	53	51	49	66	70	63	56	58	60	58	57	67	70	65	61	60	63	56	52
2024-10-20 02:00:00	49	50	49	48	61	65	59	55	56	57	55	54	65	68	63	59	53	54	52	50
2024-10-20 03:00:00	50	51	49	48	62	65	60	55	55	56	55	54	65	69	62	58	54	57	52	50
2024-10-20 04:00:00	52	52	51	50	65	68	62	57	59	61	59	57	66	69	64	60	55	57	54	52
2024-10-20 05:00:00	52	53	51	50	68	72	63	58	60	62	60	58	64	67	62	59	54	55	53	52
2024-10-20 06:00:00	53	54	52	50	72	75	71	65	60	61	59	58	71	75	69	65	62	65	55	53
2024-10-20 07:00:00	53	54	52	51	74	77	72	67	61	63	60	58	71	75	69	64	62	66	55	53
2024-10-20 08:00:00	55	55	52	51	75	79	74	69	62	64	61	59	73	77	72	67	66	68	57	54
2024-10-20 09:00:00	59	59	55	53	77	81	76	71	63	65	62	60	75	78	73	68	67	70	61	56
2024-10-20 10:00:00	60	62	56	54	80	83	79	73	65	68	64	61	76	80	74	69	71	74	64	57
2024-10-20 11:00:00	60	62	57	53	83	86	81	76	68	71	66	62	79	83	77	72	76	80	72	61
2024-10-20 12:00:00	59	61	55	51	79	82	78	73	69	72	67	61	77	80	75	70	72	77	67	58
2024-10-20 13:00:00	59	60	53	49	76	80	75	69	63	66	61	57	74	78	73	67	70	74	65	55
2024-10-20 14:00:00	58	59	53	50	77	81	76	71	62	65	60	58	77	80	75	69	71	75	66	56
2024-10-20 15:00:00	57	59	52	49	77	80	75	69	66	71	62	58	75	78	73	67	70	73	64	55
2024-10-20 16:00:00	57	55	50	47	72	76	71	64	68	71	67	62	72	75	70	64	66	70	61	53
2024-10-20 17:00:00	65	55	47	44	67	71	64	56	62	66	55	50	65	69	61	53	61	64	51	46
2024-10-20 18:00:00	56	54	45	43	53	56	50	47	60	64	51	49	55	57	54	51	49	50	48	46
2024-10-20 19:00:00	53	47	41	40	50	51	46	44	49	51	47	46	49	52	48	46	47	49	47	46
2024-10-20 20:00:00	53	47	43	41	51	52	48	45	48	49	47	45	51	54	51	47	48	49	48	47
2024-10-20 21:00:00	55	52	48	46	59	62	55	52	53	55	52	49	61	64	59	56	56	57	52	51
2024-10-20 22:00:00	54	55	53	50	70	73	68	61	58	59	57	55	68	71	66	62	68	71	60	54
2024-10-20 23:00:00	52	54	51	50	71	74	70	66	60	62	58	56	70	73	68	64	67	71	61	54
2024-10-21 00:00:00	55	55	52	51	74	77	73	69	61	64	59	57	71	74	69	65	69	73	63	55
2024-10-21 01:00:00	55	57	52	51	74	78	73	69	61	63	59	57	69	72	67	63	68	72	63	55
2024-10-21 02:00:00	53	54	51	50	72	75	71	67	59	62	58	55	68	71	66	63	68	71	61	54
2024-10-21 03:00:00	57	59	53	51	76	79	75	71	62	65	60	57	71	75	70	65	70	74	65	56
2024-10-21 04:00:00	59	61	54	52	76	79	75	71	62	65	60	58	72	75	71	66	71	75	66	58
2024-10-21 05:00:00	59	61	54	52	76	79	75	70	63	66	61	58	72	75	70	65	71	75	66	57
2024-10-21 06:00:00	58	61	54	53	76	79	75	70	63	66	62	59	71	74	69	65	72	76	66	57
2024-10-21 07:00:00	60	61	55	53	74	77	73	68	60	62	59	57	69	72	68	64	68	72	63	56

Table B.2. C-Weighted Sound Measurement Data

Date	Measured Sound Level, dBC																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-21 08:00:00	67	65	58	55	80	83	79	74	67	71	65	60	76	79	73	67	76	80	70	60
2024-10-21 09:00:00	64	65	58	55	80	84	79	74	68	72	66	61	79	82	76	71	76	80	70	61
2024-10-21 10:00:00	61	63	56	54	76	79	75	70	63	66	62	59	76	79	74	68	75	78	69	59
2024-10-21 11:00:00	63	58	54	52	74	78	73	68	61	64	58	55	75	78	73	68	73	76	66	57
2024-10-21 12:00:00	62	62	54	52	76	80	74	69	64	68	61	57	75	79	72	65	74	77	67	57
2024-10-21 13:00:00	60	60	55	53	75	79	74	68	61	64	58	54	73	77	71	65	75	79	69	59
2024-10-21 14:00:00	64	61	54	52	78	81	76	70	65	68	62	57	75	78	73	67	74	78	67	56
2024-10-21 15:00:00	59	58	52	50	72	76	69	63	59	63	57	53	71	75	69	63	67	71	59	51
2024-10-21 16:00:00	60	60	52	50	74	77	73	67	61	65	59	55	73	77	72	66	72	75	64	53
2024-10-21 17:00:00	57	58	52	50	74	78	70	63	61	64	56	52	74	78	71	66	70	74	63	54
2024-10-21 18:00:00	66	61	55	53	77	80	75	69	63	66	58	54	77	81	75	70	75	79	70	59
2024-10-21 19:00:00	59	60	56	54	78	81	77	72	65	68	62	58	78	82	77	71	75	78	68	59
2024-10-21 20:00:00	60	61	53	51	76	80	73	65	63	66	58	55	75	78	72	66	73	76	66	57
2024-10-21 21:00:00	64	67	59	55	82	86	81	75	71	74	68	63	82	85	80	74	81	85	76	66
2024-10-21 22:00:00	61	63	56	54	79	82	78	73	67	70	64	60	78	82	76	71	77	81	71	61
2024-10-21 23:00:00	55	56	52	50	71	74	69	65	59	61	57	55	71	74	69	65	69	72	62	55
2024-10-22 00:00:00	54	54	52	51	70	73	69	65	58	60	57	55	69	73	67	64	66	69	61	55
2024-10-22 01:00:00	53	54	52	50	70	73	69	64	58	60	56	55	70	74	68	63	65	69	59	54
2024-10-22 02:00:00	55	56	54	53	72	75	70	65	58	61	57	55	72	76	71	66	67	71	61	56
2024-10-22 03:00:00	53	54	53	52	71	75	67	61	57	59	55	54	69	73	65	60	61	63	56	54
2024-10-22 04:00:00	52	53	51	50	64	68	62	57	54	55	54	53	63	66	62	59	54	56	53	52
2024-10-22 05:00:00	55	53	51	50	64	67	62	56	53	54	53	51	64	67	62	59	57	59	54	51
2024-10-22 06:00:00	63	55	51	49	66	68	63	59	57	55	53	52	63	66	62	58	55	58	52	51
2024-10-22 07:00:00	64	59	51	49	68	72	65	58	57	57	54	52	65	68	63	60	59	62	54	51
2024-10-22 08:00:00	64	60	51	49	66	69	64	59	60	60	55	53	64	67	62	58	56	57	52	51
2024-10-22 09:00:00	61	56	51	49	68	71	66	60	58	60	56	54	68	71	65	60	60	64	55	51
2024-10-22 10:00:00	65	60	55	51	75	79	73	67	61	62	58	55	77	81	74	66	71	76	66	52
2024-10-22 11:00:00	63	60	56	54	74	78	72	66	60	62	58	56	79	83	77	70	75	79	73	66
2024-10-22 12:00:00	61	60	56	50	73	76	71	65	57	59	56	53	75	79	73	67	69	73	65	57
2024-10-22 13:00:00	66	67	61	57	76	80	74	67	69	72	64	53	78	81	76	70	70	74	66	57
2024-10-22 14:00:00	67	69	62	56	75	79	72	65	71	75	69	62	77	80	75	69	69	73	64	55
2024-10-22 15:00:00	73	77	71	66	85	88	83	77	81	85	79	73	85	88	83	78	77	81	72	64

Table B.2. C-Weighted Sound Measurement Data

Date	Measured Sound Level, dBC																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-22 16:00:00	71	73	70	67	85	89	84	78	79	83	77	70	86	90	85	78	78	82	75	67
2024-10-22 17:00:00	69	70	66	61	81	84	79	73	76	80	73	65								
2024-10-22 18:00:00	68	70	65	59	82	86	79	68	75	79	72	64								
2024-10-22 19:00:00	66	68	64	58	79	83	77	69	73	76	70	62								
2024-10-22 20:00:00	65	67	63	59	78	81	75	67	74	77	70	64								
2024-10-22 21:00:00	62	64	60	58	75	79	73	66	69	73	66	60								
2024-10-22 22:00:00	64	67	61	56	79	83	75	68	73	77	69	61								
2024-10-22 23:00:00	64	68	60	56	77	80	74	67	74	78	71	64								
2024-10-23 00:00:00	62	65	61	56	75	79	72	65	67	71	64	58								
2024-10-23 01:00:00	57	60	56	54	72	76	70	63	66	70	63	58								
2024-10-23 02:00:00	53	54	52	51	63	67	60	56	59	62	56	52								
2024-10-23 03:00:00	49	51	49	47	61	64	59	54	56	59	53	50								
2024-10-23 04:00:00	47	49	47	45	51	54	51	47	50	52	49	47								
2024-10-23 05:00:00	49	48	45	43	57	60	51	46	53	56	48	45								
2024-10-23 06:00:00	54	54	46	44	55	57	52	48	48	51	46	44								
2024-10-23 07:00:00	63	57	45	44	57	55	47	45	53	53	47	44								
2024-10-23 08:00:00	63	59	46	45	55	55	48	46	53	56	47	45								
2024-10-23 09:00:00	62	60	50	47	55	57	48	47	66	70	63	57								
2024-10-23 10:00:00	63	65	56	52	58	60	57	55	58	61	53	48	55	59	53	47				
2024-10-23 11:00:00	61	64	54	50	61	65	58	53	56	60	53	49	62	67	58	51				
2024-10-23 12:00:00	60	57	48	45	64	68	60	52	61	63	56	49	67	71	63	56				
2024-10-23 13:00:00	62	60	55	52	69	73	66	59	66	70	62	55	68	72	65	58				
2024-10-23 14:00:00	62	63	55	46	69	72	67	61	67	70	64	56	68	71	65	57				
2024-10-23 15:00:00	59	59	54	48	67	71	65	59	67	71	65	59	69	72	66	60				
2024-10-23 16:00:00	60	61	55	46	71	75	68	61	70	73	67	61	70	74	68	62				
2024-10-23 17:00:00	57	56	49	46	69	73	67	60	68	72	65	59	69	72	66	61				
2024-10-23 18:00:00	58	53	46	44	59	63	57	52	56	59	54	50	60	63	57	52				
2024-10-23 19:00:00	50	50	48	46	59	62	58	54	58	62	56	52	59	62	57	52				
2024-10-23 20:00:00	53	53	50	48	66	70	63	56	68	71	64	58	67	71	63	56				
2024-10-23 21:00:00	56	58	54	52	73	76	72	68	75	78	74	69	68	71	67	62				
2024-10-23 22:00:00	62	65	58	55	82	85	80	75	82	86	81	76								
2024-10-23 23:00:00	66	69	61	57	83	86	82	78	84	87	83	79								

Table B.2. C-Weighted Sound Measurement Data

Date	Measured Sound Level, dBC																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-24 00:00:00	66	68	60	56	84	87	83	78	85	88	84	80								
2024-10-24 01:00:00	63	65	59	56	84	87	83	78	84	87	83	80								
2024-10-24 02:00:00	62	64	58	55	82	85	81	77	83	86	82	78								
2024-10-24 03:00:00	63	65	57	54	82	85	81	77	83	86	82	78								
2024-10-24 04:00:00	64	67	59	55	83	86	82	77	83	86	82	78								
2024-10-24 05:00:00	66	69	60	56	84	87	83	78	85	88	85	81								
2024-10-24 06:00:00	64	67	59	55	82	84	81	76	83	86	82	78								
2024-10-24 07:00:00	64	66	59	56	81	84	80	77	82	85	81	78								
2024-10-24 08:00:00	62	64	58	55	81	84	80	76	82	85	81	76								
2024-10-24 09:00:00	64	67	59	55	82	85	81	76	83	86	81	77								
2024-10-24 10:00:00	63	65	60	57	80	83	79	74	81	84	79	74								
2024-10-24 11:00:00	64	63	57	54	75	79	73	67	75	79	73	67								
2024-10-24 12:00:00	62	61	59	53	69	73	68	62	68	72	59	54								
2024-10-24 13:00:00	63	62	57	53	64	68	61	57	58	61	56	52								
2024-10-24 14:00:00	62	61	54	50	69	74	61	54	69	72	59	52								
2024-10-24 15:00:00	67	67	55	51	69	72	64	56	67	70	58	53								
2024-10-24 16:00:00	64	65	49	46	63	62	53	48	61	61	53	49								
2024-10-24 17:00:00	56	57	46	44	51	54	48	46	49	51	49	47								
2024-10-24 18:00:00	52	50	44	43	52	56	49	46	49	52	47	45								
2024-10-24 19:00:00	52	50	44	43	50	53	47	45	50	53	48	44								
2024-10-24 20:00:00	52	54	51	44	62	66	58	48	55	58	53	46								
2024-10-24 21:00:00	56	56	52	50	63	67	61	55	58	61	56	51								
2024-10-24 22:00:00	57	58	56	53	67	70	65	59	62	65	59	55								
2024-10-24 23:00:00	57	58	56	55	66	69	64	60	63	67	61	56								
2024-10-25 00:00:00	54	56	54	53	62	65	60	57	60	63	57	53								
2024-10-25 01:00:00	54	55	54	52	61	63	59	56	57	59	55	52								
2024-10-25 02:00:00	54	55	54	53	61	64	60	57	55	58	54	52								
2024-10-25 03:00:00	55	56	55	53	65	68	63	58	58	61	56	53								
2024-10-25 04:00:00	54	55	54	53	61	64	59	56	56	59	52	49								
2024-10-25 05:00:00	54	55	53	52	59	62	58	56	58	61	55	51								
2024-10-25 06:00:00	56	55	53	51	59	62	58	55	59	62	55	50								
2024-10-25 07:00:00	60	60	54	52	61	62	58	55	62	66	60	53								

Table B.2. C-Weighted Sound Measurement Data

Date	Measured Sound Level, dBC																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-25 08:00:00	60	57	51	48	58	60	56	53	58	61	54	49								
2024-10-25 09:00:00	57	56	49	46	60	63	58	53	54	58	52	48								
2024-10-25 10:00:00	60	58	51	47	61	65	58	51	60	64	57	51								
2024-10-25 11:00:00	62	59	50	45	63	66	58	49	60	64	57	51								
2024-10-25 12:00:00	57	58	49	45	66	70	62	54	62	65	59	53								
2024-10-25 13:00:00	55	57	49	44	65	69	62	53	61	64	58	49								
2024-10-25 14:00:00	60	62	54	47	67	72	64	55	63	67	60	51								
2024-10-25 15:00:00	60	62	54	47	67	71	63	53	61	66	57	47								
2024-10-25 16:00:00	60	59	51	45	62	66	59	51	64	68	60	48								
2024-10-25 17:00:00	65	61	47	43	59	61	52	45	55	57	50	45								
2024-10-25 18:00:00	65	58	43	40	57	57	44	42	54	52	44	40								
2024-10-25 19:00:00	62	60	42	40	57	56	44	42	50	51	42	39								
2024-10-25 20:00:00	58	55	43	40	53	53	44	42	49	50	43	40								
2024-10-25 21:00:00	55	52	42	40	52	50	41	39	45	47	40	39								
2024-10-25 22:00:00	53	46	42	41	50	46	41	40	43	45	40	38								
2024-10-25 23:00:00	42	42	35	33	40	41	36	34	37	39	36	34								
2024-10-26 00:00:00	39	40	38	36	46	48	45	38	46	50	45	39								
2024-10-26 01:00:00	39	40	39	38	47	50	46	43	47	50	46	43								
2024-10-26 02:00:00	55	44	40	39	53	50	46	43	47	50	45	42								
2024-10-26 03:00:00	45	43	42	41	49	52	48	46	51	53	50	48								
2024-10-26 04:00:00	49	44	42	42	53	56	52	48	54	57	53	50								
2024-10-26 05:00:00	44	45	43	43	52	55	51	47	55	58	53	49								
2024-10-26 06:00:00	50	48	46	44	55	59	52	48	53	55	52	48								
2024-10-26 07:00:00	56	51	47	46	61	63	59	56	60	63	58	54								
2024-10-26 08:00:00	55	54	49	47	60	63	58	54	59	62	57	54								
2024-10-26 09:00:00	62	57	52	49	68	71	67	60	68	71	66	60								
2024-10-26 10:00:00	65	61	55	54	75	78	74	69	75	78	73	68								
2024-10-26 11:00:00	64	64	56	54	79	82	77	72	78	82	76	68								
2024-10-26 12:00:00	63	64	57	53	80	83	79	75	79	82	78	71								
2024-10-26 13:00:00	65	66	58	53	81	84	80	75	80	84	79	71								
2024-10-26 14:00:00	64	66	59	54	80	83	79	74	79	83	76	64								
2024-10-26 15:00:00	62	65	57	54	80	83	79	74	79	83	77	66								

Table B.2. C-Weighted Sound Measurement Data

Date	Measured Sound Level, dBC																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-26 16:00:00	61	64	57	54	78	82	76	71	78	82	75	64								
2024-10-26 17:00:00	61	63	57	54	77	81	76	71	76	80	74	65								
2024-10-26 18:00:00	59	61	57	55	76	79	74	69	72	76	69	60								
2024-10-26 19:00:00	61	63	58	56	79	83	78	73	79	83	77	68								
2024-10-26 20:00:00	64	67	59	56	83	86	81	77	83	86	82	78								
2024-10-26 21:00:00	68	71	63	58	84	87	83	79	85	88	85	81								
2024-10-26 22:00:00	68	70	62	58	85	88	84	80	86	89	85	81								
2024-10-26 23:00:00	69	72	64	60	87	90	86	82	89	91	88	84								
2024-10-27 00:00:00	69	72	63	58	86	89	85	80	87	90	86	83								
2024-10-27 01:00:00	68	71	62	58	85	88	84	80	86	89	86	82								
2024-10-27 02:00:00	67	70	62	57	84	87	83	79	85	88	84	80								
2024-10-27 03:00:00	66	68	60	56	82	85	81	77	82	85	81	78								
2024-10-27 04:00:00	63	66	58	55	80	83	78	74	80	83	79	74								
2024-10-27 05:00:00	62	64	57	54	77	80	76	72	77	80	75	71								
2024-10-27 06:00:00	63	65	57	54	79	82	78	73	78	81	77	73								
2024-10-27 07:00:00	55	56	52	51	72	76	69	62	70	74	68	63								
2024-10-27 08:00:00	60	62	55	53	77	80	75	70	76	79	75	71								
2024-10-27 09:00:00	63	65	56	53	78	81	76	72	76	79	75	71								
2024-10-27 10:00:00	63	63	56	53	80	83	79	73	80	83	78	73								
2024-10-27 11:00:00	61	63	55	52	79	82	77	71	79	83	78	73								
2024-10-27 12:00:00	60	62	55	52	77	81	76	70	76	80	75	70								
2024-10-27 13:00:00	61	62	56	52	79	82	77	71	77	80	76	70								
2024-10-27 14:00:00	59	58	49	44	70	74	68	60	70	74	68	62								
2024-10-27 15:00:00	55	53	46	43	67	71	65	58	67	70	65	60								
2024-10-27 16:00:00	62	57	45	42	63	66	59	53	62	66	60	55								
2024-10-27 17:00:00	55	52	43	41	55	59	52	45	55	59	54	43								
2024-10-27 18:00:00	57	53	42	40	52	52	45	43	52	52	44	42								
2024-10-27 19:00:00	56	50	45	42	55	57	52	46	51	56	46	42								
2024-10-27 20:00:00	56	52	47	45	60	64	58	53	58	62	56	50								
2024-10-27 21:00:00	56	54	49	47	68	71	67	63	70	73	69	63								
2024-10-27 22:00:00	57	59	52	48	76	79	75	69	76	79	75	70								
2024-10-27 23:00:00	61	63	56	53	80	83	79	75	81	84	80	76								

Table B.2. C-Weighted Sound Measurement Data

Date	Measured Sound Level, dBC																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-28 00:00:00	60	62	56	53	79	82	78	74	81	84	80	76								
2024-10-28 01:00:00	58	61	55	53	78	81	77	73	80	83	79	75								
2024-10-28 02:00:00	59	62	56	54	79	82	78	74	80	83	79	74								
2024-10-28 03:00:00	60	62	57	54	78	81	77	73	80	83	79	74								
2024-10-28 04:00:00	61	64	58	55	81	84	80	76	81	84	79	74								
2024-10-28 05:00:00	62	65	58	55	81	84	81	76	83	86	81	77								
2024-10-28 06:00:00	63	65	59	56	82	85	81	77	83	86	82	76								
2024-10-28 07:00:00	64	67	60	57	83	86	82	78	84	87	83	78								
2024-10-28 08:00:00	64	67	60	57	84	87	83	79	85	88	84	80								
2024-10-28 09:00:00	68	70	62	57	84	87	83	79	86	88	85	81								
2024-10-28 10:00:00	69	72	63	58	86	89	85	80	86	89	85	81								
2024-10-28 11:00:00	68	71	62	57	87	90	86	82	88	91	87	83								
2024-10-28 12:00:00	67	70	61	56	85	88	84	79	86	88	85	81								
2024-10-28 13:00:00	64	67	58	53	83	86	82	77	84	87	83	79								
2024-10-28 14:00:00	63	66	56	51	80	83	79	73	81	84	79	75								
2024-10-28 15:00:00	61	61	51	48	74	78	72	65	74	78	72	65								
2024-10-28 16:00:00	65	60	49	46	70	73	68	62	69	72	66	61								
2024-10-28 17:00:00	63	58	49	46	66	69	64	58	66	68	63	59								
2024-10-28 18:00:00	62	58	47	43	59	62	51	47	61	61	54	49								
2024-10-28 19:00:00	58	56	45	42	55	58	51	46	54	57	51	47								
2024-10-28 20:00:00	57	51	45	43	54	57	50	46	49	50	45	43								
2024-10-28 21:00:00	52	47	44	43	52	56	49	45	51	55	47	43								
2024-10-28 22:00:00	48	46	44	42	51	54	47	45	46	48	46	44								
2024-10-28 23:00:00	52	48	46	44	52	54	49	47	48	49	47	46								
2024-10-29 00:00:00	44	45	43	41	47	50	46	43	46	47	45	43								
2024-10-29 01:00:00	47	49	46	45	51	53	50	47	49	51	48	46								
2024-10-29 02:00:00	50	51	49	48	56	59	54	52	50	51	49	48								
2024-10-29 03:00:00	50	50	48	47	52	54	50	49	49	50	48	47								
2024-10-29 04:00:00	49	50	48	46	51	53	50	48	49	51	48	47								
2024-10-29 05:00:00	53	53	51	49	56	60	55	51	50	51	50	49								
2024-10-29 06:00:00	54	53	48	46	52	55	50	48	49	51	48	46								
2024-10-29 07:00:00	58	58	50	49	56	58	53	51	51	53	50	48								

Table B.2. C-Weighted Sound Measurement Data

Date	Measured Sound Level, dBC																			
	LT-1				LT-2				LT-3				LT-4				LT-5			
	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90	Leq	L10	L50	L90
2024-10-29 08:00:00	64	60	54	51	61	63	58	54	58	58	53	50								
2024-10-29 09:00:00	65	61	53	51	62	63	58	55	63	65	55	51								
2024-10-29 10:00:00	65	61	54	51	63	66	61	56	61	56	51	49								
2024-10-29 11:00:00	63	62	54	51	65	68	63	58	63	65	51	48								
2024-10-29 12:00:00	63	61	55	51	65	68	64	58	52	53	50	49								
2024-10-29 13:00:00	61	65	58	54	68	72	66	61	56	55	50	49								
2024-10-29 14:00:00	62	65	59	55	69	73	68	62	57	59	53	51								
2024-10-29 15:00:00	60	62	56	52	67	71	65	59	55	58	53	50								
2024-10-29 16:00:00	61	63	58	54	68	71	66	60	52	54	52	51								
2024-10-29 17:00:00	57	58	52	49	61	65	59	52	59	61	51	50								
2024-10-29 18:00:00	56	51	48	47	54	57	52	49	51	52	50	49								
2024-10-29 19:00:00	52	52	49	48	56	59	53	50	51	53	51	49								
2024-10-29 20:00:00	55	58	53	50	65	69	62	55	60	64	58	53								
2024-10-29 21:00:00	59	61	57	55	63	67	61	58	58	61	57	54								
2024-10-29 22:00:00	59	61	56	54	64	68	61	58	56	57	55	53								
2024-10-29 23:00:00	62	65	61	57	71	75	68	62	54	55	54	53								
2024-10-30 00:00:00	69	72	66	60	79	84	75	65	75	79	70	52								
2024-10-30 01:00:00	70	74	67	56	78	83	73	63	74	79	64	52								
2024-10-30 02:00:00	57	60	54	50	65	69	62	55	58	62	49	47								
2024-10-30 03:00:00	66	69	63	58	74	77	71	64	70	74	67	59								
2024-10-30 04:00:00	67	70	65	58	76	79	74	67	74	77	72	64								
2024-10-30 05:00:00	70	73	68	62	78	81	76	70	75	79	73	65								
2024-10-30 06:00:00	74	77	73	67	80	84	79	72	77	81	75	65								
2024-10-30 07:00:00	75	78	73	68	81	84	79	72	77	81	72	58								
2024-10-30 08:00:00	76	79	74	70	82	85	80	74	74	78	64	57								
2024-10-30 09:00:00	74	77	73	68	81	85	79	74	70	73	60	56								
2024-10-30 10:00:00	73	76	71	66	79	83	78	73	71	76	59	55								
2024-10-30 11:00:00	76	79	75	70	81	85	80	74	74	79	64	57								
2024-10-30 12:00:00	76	79	74	70	83	86	81	74	76	81	66	57								
2024-10-30 13:00:00	77	80	75	71	83	86	81	77	76	82	64	59								

Table B.3. Onsite Weather Data

Time	Avg Wind Speed (mi/h)	Gust Speed (mi/h)	Avg Temp (°F)	Avg Humidity (%RH)	Barometer Avg (kPa)	Rain Accumulation (in)
2024-10-14 16:00:00	3.2	7.6	46.1	44.0	95.6	0.0
2024-10-14 17:00:00	3.7	7.4	45.2	45.1	95.6	0.0
2024-10-14 18:00:00	4.1	10.1	43.3	49.3	95.7	0.0
2024-10-14 19:00:00	2.8	7.6	40.4	55.5	95.7	0.0
2024-10-14 20:00:00	0.7	3.8	33.8	63.6	95.7	0.0
2024-10-14 21:00:00	0.6	1.8	27.1	71.0	95.8	0.0
2024-10-14 22:00:00	0.5	2.0	24.9	75.3	95.8	0.0
2024-10-14 23:00:00	0.8	3.1	27.0	73.8	95.9	0.0
2024-10-15 00:00:00	0.6	2.9	25.7	75.5	96.0	0.0
2024-10-15 01:00:00	0.6	1.8	26.9	76.7	96.0	0.0
2024-10-15 02:00:00	0.4	1.6	25.2	80.7	96.1	0.0
2024-10-15 03:00:00	0.6	2.7	25.8	83.8	96.2	0.0
2024-10-15 04:00:00	0.6	2.0	24.8	80.6	96.2	0.0
2024-10-15 05:00:00	0.4	1.1	22.3	80.2	96.2	0.0
2024-10-15 06:00:00	0.5	1.6	22.7	83.0	96.3	0.0
2024-10-15 07:00:00	0.6	2.0	22.8	81.0	96.4	0.0
2024-10-15 08:00:00	0.6	2.5	26.7	82.6	96.5	0.0
2024-10-15 09:00:00	2.5	7.4	31.7	87.3	96.6	0.0
2024-10-15 10:00:00	3.8	12.5	33.7	85.8	96.6	0.0
2024-10-15 11:00:00	6.2	11.9	39.2	73.3	96.6	0.0
2024-10-15 12:00:00	5.6	12.5	44.3	60.4	96.6	0.0
2024-10-15 13:00:00	5.7	13.6	47.9	51.2	96.6	0.0
2024-10-15 14:00:00	4.6	10.1	50.5	43.7	96.5	0.0
2024-10-15 15:00:00	3.7	9.6	51.8	38.9	96.5	0.0
2024-10-15 16:00:00	2.5	6.9	52.5	36.1	96.5	0.0
2024-10-15 17:00:00	2.2	5.4	51.3	35.8	96.5	0.0
2024-10-15 18:00:00	1.3	4.3	42.3	45.0	96.5	0.0
2024-10-15 19:00:00	0.8	2.7	35.9	55.0	96.5	0.0
2024-10-15 20:00:00	0.9	3.1	34.8	57.5	96.4	0.0
2024-10-15 21:00:00	0.8	2.9	32.7	61.4	96.4	0.0
2024-10-15 22:00:00	3.7	7.8	33.6	61.2	96.4	0.0

Table B.3. Onsite Weather Data

Time	Avg Wind Speed (mi/h)	Gust Speed (mi/h)	Avg Temp (°F)	Avg Humidity (%RH)	Barometer Avg (kPa)	Rain Accumulation (in)
2024-10-15 23:00:00	4.2	8.5	34.4	59.5	96.4	0.0
2024-10-16 00:00:00	4.8	9.8	34.6	59.7	96.4	0.0
2024-10-16 01:00:00	4.2	9.2	33.5	61.1	96.4	0.0
2024-10-16 02:00:00	5.2	10.3	34.9	58.7	96.3	0.0
2024-10-16 03:00:00	5.5	11.9	34.8	58.5	96.3	0.0
2024-10-16 04:00:00	6.7	13.4	35.6	56.8	96.2	0.0
2024-10-16 05:00:00	6.7	13.6	35.4	56.1	96.2	0.0
2024-10-16 06:00:00	8.2	17.4	35.5	56.1	96.1	0.0
2024-10-16 07:00:00	12.1	26.2	35.7	56.0	96.0	0.0
2024-10-16 08:00:00	11.2	23.7	36.2	55.8	96.0	0.0
2024-10-16 09:00:00	11.7	23.9	39.8	49.5	96.0	0.0
2024-10-16 10:00:00	14.2	27.3	45.0	39.9	95.9	0.0
2024-10-16 11:00:00	16.0	32.4	50.8	29.7	95.8	0.0
2024-10-16 12:00:00	16.2	29.3	54.2	25.0	95.7	0.0
2024-10-16 13:00:00	15.7	32.2	55.8	23.8	95.6	0.0
2024-10-16 14:00:00	15.0	27.5	57.7	22.3	95.4	0.0
2024-10-16 15:00:00	14.6	26.8	59.1	20.1	95.3	0.0
2024-10-16 16:00:00	14.8	29.8	58.9	20.2	95.2	0.0
2024-10-16 17:00:00	13.6	25.9	57.5	21.8	95.1	0.0
2024-10-16 18:00:00	14.3	30.0	55.3	23.1	95.0	0.0
2024-10-16 19:00:00	15.0	29.8	53.3	24.4	94.9	0.0
2024-10-16 20:00:00	16.6	29.3	52.4	24.8	94.9	0.0
2024-10-16 21:00:00	15.8	31.1	50.5	27.1	94.9	0.0
2024-10-16 22:00:00	15.9	32.2	49.6	28.6	94.9	0.0
2024-10-16 23:00:00	16.0	30.9	49.2	28.9	94.8	0.0
2024-10-17 00:00:00	17.3	31.1	49.5	28.4	94.7	0.0
2024-10-17 01:00:00	19.0	36.2	49.7	28.6	94.6	0.0
2024-10-17 02:00:00	19.4	34.9	49.5	29.1	94.6	0.0
2024-10-17 03:00:00	17.5	34.0	48.5	30.4	94.5	0.0
2024-10-17 04:00:00	16.6	29.5	47.4	31.9	94.5	0.0
2024-10-17 05:00:00	17.1	31.8	46.2	33.6	94.5	0.0

Table B.3. Onsite Weather Data

Time	Avg Wind Speed (mi/h)	Gust Speed (mi/h)	Avg Temp (°F)	Avg Humidity (%RH)	Barometer Avg (kPa)	Rain Accumulation (in)
2024-10-17 06:00:00	14.2	27.3	44.8	35.7	94.5	0.0
2024-10-17 07:00:00	14.4	27.7	44.6	36.5	94.4	0.0
2024-10-17 08:00:00	15.2	27.5	45.2	36.6	94.4	0.0
2024-10-17 09:00:00	16.3	28.4	48.3	34.1	94.4	0.0
2024-10-17 10:00:00	16.8	34.0	52.8	31.7	94.4	0.0
2024-10-17 11:00:00	17.0	30.2	57.0	30.0	94.3	0.0
2024-10-17 12:00:00	16.3	29.1	60.9	27.9	94.2	0.0
2024-10-17 13:00:00	17.4	32.0	64.3	26.2	94.2	0.0
2024-10-17 14:00:00	17.6	32.9	67.5	24.9	94.1	0.0
2024-10-17 15:00:00	18.7	33.6	69.4	24.2	94.1	0.0
2024-10-17 16:00:00	18.1	34.4	69.4	24.7	94.1	0.0
2024-10-17 17:00:00	15.5	30.6	68.2	26.2	94.1	0.0
2024-10-17 18:00:00	14.2	27.3	66.2	28.5	94.2	0.0
2024-10-17 19:00:00	14.8	29.1	64.4	30.1	94.2	0.0
2024-10-17 20:00:00	15.2	29.5	63.7	30.7	94.3	0.0
2024-10-17 21:00:00	16.2	30.6	62.8	32.2	94.4	0.0
2024-10-17 22:00:00	15.1	28.2	60.8	34.7	94.4	0.0
2024-10-17 23:00:00	15.1	25.7	58.7	36.2	94.5	0.0
2024-10-18 00:00:00	15.3	28.2	57.6	37.0	94.5	0.0
2024-10-18 01:00:00	15.5	28.6	56.4	38.6	94.5	0.0
2024-10-18 02:00:00	14.8	25.7	55.7	39.4	94.6	0.0
2024-10-18 03:00:00	12.7	25.5	54.9	40.3	94.6	0.0
2024-10-18 04:00:00	13.2	24.8	54.8	40.6	94.6	0.0
2024-10-18 05:00:00	12.9	24.6	54.2	41.6	94.7	0.0
2024-10-18 06:00:00	13.4	23.3	52.9	43.6	94.7	0.0
2024-10-18 07:00:00	13.6	23.9	52.1	44.5	94.8	0.0
2024-10-18 08:00:00	13.1	25.9	52.3	44.6	94.8	0.0
2024-10-18 09:00:00	12.6	23.9	53.7	43.6	95.0	0.0
2024-10-18 10:00:00	13.6	24.6	58.0	40.4	95.1	0.0
2024-10-18 11:00:00	14.1	28.0	62.7	36.8	95.1	0.0
2024-10-18 12:00:00	12.2	24.2	65.5	34.9	95.2	0.0

Table B.3. Onsite Weather Data

Time	Avg Wind Speed (mi/h)	Gust Speed (mi/h)	Avg Temp (°F)	Avg Humidity (%RH)	Barometer Avg (kPa)	Rain Accumulation (in)
2024-10-18 13:00:00	8.8	17.7	64.9	37.1	95.2	0.0
2024-10-18 14:00:00	8.0	15.7	66.8	36.6	95.2	0.0
2024-10-18 15:00:00	7.8	15.2	68.7	34.5	95.2	0.0
2024-10-18 16:00:00	6.8	13.0	67.2	36.3	95.3	0.0
2024-10-18 17:00:00	6.0	15.0	65.7	38.6	95.3	0.0
2024-10-18 18:00:00	1.5	4.0	59.5	45.8	95.4	0.0
2024-10-18 19:00:00	0.6	2.5	55.8	54.0	95.5	0.0
2024-10-18 20:00:00	1.3	5.4	55.2	62.9	95.6	0.0
2024-10-18 21:00:00	1.1	5.6	50.9	72.9	95.7	0.0
2024-10-18 22:00:00	0.7	4.7	47.8	75.5	95.7	0.0
2024-10-18 23:00:00	2.1	6.0	49.0	76.9	95.7	0.0
2024-10-19 00:00:00	1.1	4.9	48.7	77.6	95.8	0.0
2024-10-19 01:00:00	0.8	2.7	49.0	77.9	95.8	0.0
2024-10-19 02:00:00	1.0	3.8	48.1	80.6	95.8	0.0
2024-10-19 03:00:00	0.9	4.0	47.7	81.6	95.9	0.0
2024-10-19 04:00:00	1.2	4.9	47.4	82.8	95.9	0.0
2024-10-19 05:00:00	1.3	4.7	46.3	84.9	95.9	0.0
2024-10-19 06:00:00	1.1	5.8	46.4	87.1	95.9	0.0
2024-10-19 07:00:00	1.7	5.1	46.5	87.5	95.8	0.0
2024-10-19 08:00:00	0.8	2.7	47.1	86.5	95.9	0.0
2024-10-19 09:00:00	1.3	4.5	47.3	87.1	96.0	0.0
2024-10-19 10:00:00	2.3	5.8	48.9	85.2	96.0	0.0
2024-10-19 11:00:00	4.6	9.6	51.2	79.9	96.0	0.0
2024-10-19 12:00:00	5.9	12.1	53.7	74.6	95.9	0.0
2024-10-19 13:00:00	8.2	17.9	59.1	61.9	95.8	0.0
2024-10-19 14:00:00	10.3	19.0	62.3	56.4	95.8	0.0
2024-10-19 15:00:00	8.7	16.6	63.9	54.4	95.7	0.0
2024-10-19 16:00:00	8.3	16.6	63.7	54.9	95.7	0.0
2024-10-19 17:00:00	8.1	16.8	61.8	58.0	95.7	0.0
2024-10-19 18:00:00	6.1	12.3	58.0	65.5	95.7	0.0
2024-10-19 19:00:00	6.3	11.9	55.4	70.7	95.7	0.0

Table B.3. Onsite Weather Data

Time	Avg Wind Speed (mi/h)	Gust Speed (mi/h)	Avg Temp (°F)	Avg Humidity (%RH)	Barometer Avg (kPa)	Rain Accumulation (in)
2024-10-19 20:00:00	4.1	9.2	52.5	74.8	95.7	0.0
2024-10-19 21:00:00	7.7	17.0	52.7	75.0	95.7	0.0
2024-10-19 22:00:00	10.3	19.5	53.8	74.0	95.6	0.0
2024-10-19 23:00:00	9.1	18.3	53.5	75.7	95.6	0.0
2024-10-20 00:00:00	8.7	15.4	51.6	78.6	95.6	0.0
2024-10-20 01:00:00	7.1	15.9	51.4	79.5	95.6	0.0
2024-10-20 02:00:00	6.5	13.0	50.0	81.1	95.5	0.0
2024-10-20 03:00:00	6.3	13.0	49.7	81.7	95.5	0.0
2024-10-20 04:00:00	6.7	13.2	49.4	82.5	95.5	0.0
2024-10-20 05:00:00	6.1	14.5	47.9	84.4	95.5	0.0
2024-10-20 06:00:00	8.8	17.7	49.0	84.2	95.4	0.0
2024-10-20 07:00:00	8.7	17.4	49.5	84.0	95.4	0.0
2024-10-20 08:00:00	9.9	17.7	51.7	82.5	95.4	0.0
2024-10-20 09:00:00	10.4	19.0	56.4	79.1	95.4	0.0
2024-10-20 10:00:00	11.2	21.3	60.6	72.7	95.4	0.0
2024-10-20 11:00:00	12.2	23.5	65.7	61.9	95.4	0.0
2024-10-20 12:00:00	11.3	21.7	68.2	55.8	95.4	0.0
2024-10-20 13:00:00	10.4	19.2	70.7	50.3	95.4	0.0
2024-10-20 14:00:00	11.5	21.9	73.0	44.9	95.3	0.0
2024-10-20 15:00:00	10.7	21.5	73.8	43.5	95.3	0.0
2024-10-20 16:00:00	9.2	17.7	74.1	43.8	95.2	0.0
2024-10-20 17:00:00	6.5	15.0	73.0	46.6	95.2	0.0
2024-10-20 18:00:00	4.1	7.6	68.6	54.2	95.2	0.0
2024-10-20 19:00:00	3.1	7.6	64.7	59.1	95.2	0.0
2024-10-20 20:00:00	3.6	6.0	62.0	64.2	95.2	0.0
2024-10-20 21:00:00	4.9	12.8	63.8	61.6	95.2	0.0
2024-10-20 22:00:00	7.4	15.0	67.4	55.8	95.1	0.0
2024-10-20 23:00:00	8.2	16.1	65.7	58.0	95.1	0.0
2024-10-21 00:00:00	8.9	16.3	64.0	60.0	95.1	0.0
2024-10-21 01:00:00	8.0	16.8	62.4	61.2	95.1	0.0
2024-10-21 02:00:00	7.8	14.5	61.5	60.8	95.0	0.0

Table B.3. Onsite Weather Data

Time	Avg Wind Speed (mi/h)	Gust Speed (mi/h)	Avg Temp (°F)	Avg Humidity (%RH)	Barometer Avg (kPa)	Rain Accumulation (in)
2024-10-21 03:00:00	9.2	17.7	60.3	59.0	95.0	0.0
2024-10-21 04:00:00	9.6	17.9	59.1	57.9	94.9	0.0
2024-10-21 05:00:00	9.3	17.7	58.6	55.3	94.9	0.0
2024-10-21 06:00:00	9.0	17.2	57.9	56.0	94.9	0.0
2024-10-21 07:00:00	8.3	15.4	57.7	57.8	94.9	0.0
2024-10-21 08:00:00	10.7	25.1	58.8	56.1	94.9	0.0
2024-10-21 09:00:00	12.9	23.0	61.0	54.9	94.9	0.0
2024-10-21 10:00:00	11.7	23.5	64.4	52.9	94.9	0.0
2024-10-21 11:00:00	11.2	20.1	68.3	49.7	94.9	0.0
2024-10-21 12:00:00	11.2	25.3	72.3	46.2	94.9	0.0
2024-10-21 13:00:00	10.3	19.0	73.7	44.3	94.8	0.0
2024-10-21 14:00:00	11.4	21.3	74.6	41.3	94.8	0.0
2024-10-21 15:00:00	9.6	18.3	74.9	38.2	94.7	0.0
2024-10-21 16:00:00	10.9	20.1	76.3	35.5	94.7	0.0
2024-10-21 17:00:00	10.6	20.6	75.1	36.8	94.7	0.0
2024-10-21 18:00:00	12.2	22.4	72.1	40.9	94.7	0.0
2024-10-21 19:00:00	13.0	23.7	70.8	44.4	94.7	0.0
2024-10-21 20:00:00	11.0	23.3	68.6	47.9	94.7	0.0
2024-10-21 21:00:00	15.6	30.0	66.2	50.2	94.7	0.0
2024-10-21 22:00:00	13.5	23.5	63.4	57.5	94.7	0.0
2024-10-21 23:00:00	10.0	18.6	62.4	61.2	94.7	0.0
2024-10-22 00:00:00	9.3	17.2	60.9	64.5	94.7	0.0
2024-10-22 01:00:00	9.2	19.0	58.8	69.2	94.6	0.0
2024-10-22 02:00:00	10.0	18.6	58.6	69.4	94.6	0.0
2024-10-22 03:00:00	8.3	16.3	57.7	68.1	94.5	0.0
2024-10-22 04:00:00	6.8	13.4	55.7	69.1	94.5	0.0
2024-10-22 05:00:00	6.8	11.9	54.0	69.9	94.5	0.0
2024-10-22 06:00:00	6.9	12.8	53.1	69.8	94.5	0.0
2024-10-22 07:00:00	7.5	13.0	51.6	72.8	94.5	0.0
2024-10-22 08:00:00	7.1	13.4	52.0	74.0	94.4	0.0
2024-10-22 09:00:00	8.2	16.8	55.7	72.6	94.5	0.0

Table B.3. Onsite Weather Data

Time	Avg Wind Speed (mi/h)	Gust Speed (mi/h)	Avg Temp (°F)	Avg Humidity (%RH)	Barometer Avg (kPa)	Rain Accumulation (in)
2024-10-22 10:00:00	10.4	19.5	58.5	68.6	94.5	0.0
2024-10-22 11:00:00	11.0	19.9	62.1	63.1	94.5	0.0
2024-10-22 12:00:00	10.0	19.7	64.3	63.0	94.6	0.0
2024-10-22 13:00:00	11.8	21.3	64.6	59.2	94.6	0.0
2024-10-22 14:00:00	12.0	22.4	66.4	46.4	94.6	0.0
2024-10-22 15:00:00	17.3	30.2	66.6	41.1	94.7	0.0
2024-10-22 16:00:00	17.2	30.9	61.3	50.6	94.8	0.0

Table B.4. Watertown, SD Weather Data

Day	Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
10/23/2024	11:53 PM	47 °F	36 °F	66 %	NW	13 mph	0 mph	28.26 in	0.0 in	Cloudy
	12:53 AM	46 °F	36 °F	68 %	NW	13 mph	0 mph	28.26 in	0.0 in	Cloudy
	1:53 AM	44 °F	36 °F	73 %	NW	9 mph	0 mph	28.27 in	0.0 in	Mostly Cloudy
	2:53 AM	42 °F	36 °F	79 %	NW	9 mph	0 mph	28.30 in	0.0 in	Fair
	3:53 AM	39 °F	35 °F	86 %	NW	8 mph	0 mph	28.31 in	0.0 in	Fair
	4:53 AM	38 °F	33 °F	83 %	WNW	6 mph	0 mph	28.34 in	0.0 in	Partly Cloudy
	5:31 AM	38 °F	34 °F	86 %	NW	8 mph	0 mph	28.34 in	0.0 in	Mostly Cloudy
	5:45 AM	37 °F	33 °F	86 %	NW	6 mph	0 mph	28.34 in	0.0 in	Partly Cloudy
	5:53 AM	37 °F	33 °F	86 %	WNW	6 mph	0 mph	28.34 in	0.0 in	Fair
	6:53 AM	37 °F	33 °F	86 %	WNW	3 mph	0 mph	28.35 in	0.0 in	Fair
	7:53 AM	34 °F	33 °F	96 %	SSW	3 mph	0 mph	28.37 in	0.0 in	Fair
	8:36 AM	39 °F	37 °F	93 %	S	5 mph	0 mph	28.37 in	0.0 in	Mist
	8:39 AM	39 °F	38 °F	96 %	S	3 mph	0 mph	28.37 in	0.0 in	Mist
	8:47 AM	39 °F	37 °F	93 %	S	3 mph	0 mph	28.37 in	0.0 in	Mist
	8:53 AM	41 °F	38 °F	89 %	S	5 mph	0 mph	28.38 in	0.0 in	Fair
	9:53 AM	45 °F	36 °F	71 %	VAR	6 mph	0 mph	28.37 in	0.0 in	Fair
	10:53 AM	49 °F	36 °F	61 %	SSW	7 mph	0 mph	28.37 in	0.0 in	Fair
	11:53 AM	54 °F	36 °F	51 %	SW	13 mph	0 mph	28.35 in	0.0 in	Fair
	12:53 PM	57 °F	37 °F	47 %	S	13 mph	0 mph	28.32 in	0.0 in	Fair
	1:53 PM	59 °F	35 °F	41 %	SW	12 mph	0 mph	28.29 in	0.0 in	Fair
	2:53 PM	60 °F	34 °F	38 %	SW	17 mph	25 mph	28.27 in	0.0 in	Fair
	3:53 PM	60 °F	35 °F	39 %	SW	14 mph	0 mph	28.26 in	0.0 in	Fair
	4:53 PM	57 °F	36 °F	45 %	S	12 mph	0 mph	28.24 in	0.0 in	Fair
	5:53 PM	51 °F	36 °F	56 %	S	8 mph	0 mph	28.22 in	0.0 in	Fair
	6:53 PM	51 °F	36 °F	56 %	S	9 mph	0 mph	28.21 in	0.0 in	Fair
	7:53 PM	50 °F	36 °F	59 %	S	10 mph	0 mph	28.18 in	0.0 in	Fair
	8:53 PM	50 °F	35 °F	57 %	S	12 mph	0 mph	28.17 in	0.0 in	Fair
	9:53 PM	51 °F	34 °F	52 %	S	13 mph	0 mph	28.16 in	0.0 in	Fair
	10:53 PM	51 °F	34 °F	52 %	S	13 mph	0 mph	28.15 in	0.0 in	Fair
10/24/2024	11:53 PM	51 °F	35 °F	54 %	S	13 mph	0 mph	28.13 in	0.0 in	Fair

Table B.4. Watertown, SD Weather Data

Day	Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
	12:53 AM	51 °F	36 °F	56 %	S	12 mph	0 mph	28.13 in	0.0 in	Fair
	1:53 AM	52 °F	36 °F	54 %	S	12 mph	0 mph	28.12 in	0.0 in	Fair
	2:53 AM	50 °F	36 °F	59 %	S	14 mph	0 mph	28.10 in	0.0 in	Fair
	3:53 AM	48 °F	35 °F	61 %	SSE	12 mph	0 mph	28.08 in	0.0 in	Fair
	4:53 AM	48 °F	36 °F	63 %	SSE	12 mph	0 mph	28.08 in	0.0 in	Fair
	5:53 AM	46 °F	35 °F	66 %	SSE	12 mph	0 mph	28.06 in	0.0 in	Fair
	6:53 AM	45 °F	35 °F	68 %	SSE	9 mph	0 mph	28.05 in	0.0 in	Fair
	7:53 AM	46 °F	36 °F	68 %	SSE	9 mph	0 mph	28.04 in	0.0 in	Fair
	8:53 AM	48 °F	36 °F	63 %	SSE	8 mph	0 mph	28.04 in	0.0 in	Fair
	9:53 AM	52 °F	37 °F	57 %	SSE	13 mph	0 mph	28.03 in	0.0 in	Fair
	10:53 AM	54 °F	38 °F	55 %	SSE	10 mph	0 mph	28.02 in	0.0 in	Cloudy
	11:53 AM	54 °F	37 °F	53 %	S	9 mph	0 mph	28.02 in	0.0 in	Cloudy
	12:53 PM	56 °F	36 °F	47 %	SSW	6 mph	0 mph	27.97 in	0.0 in	Mostly Cloudy
	1:53 PM	52 °F	44 °F	74 %	NNW	9 mph	0 mph	27.98 in	0.0 in	Light Rain
	2:53 PM	52 °F	44 °F	74 %	CALM	0 mph	0 mph	27.99 in	0.0 in	Cloudy
	3:53 PM	55 °F	42 °F	62 %	NNW	7 mph	0 mph	28.02 in	0.0 in	Partly Cloudy
	4:53 PM	53 °F	45 °F	74 %	N	7 mph	0 mph	28.05 in	0.0 in	Cloudy
	5:53 PM	51 °F	44 °F	77 %	NNW	8 mph	0 mph	28.09 in	0.0 in	Cloudy
	6:53 PM	50 °F	44 °F	80 %	NW	10 mph	0 mph	28.13 in	0.0 in	Cloudy
	7:53 PM	48 °F	44 °F	86 %	NW	8 mph	0 mph	28.14 in	0.0 in	Mostly Cloudy
	8:53 PM	46 °F	43 °F	89 %	NW	8 mph	0 mph	28.16 in	0.0 in	Fair
	9:53 PM	46 °F	42 °F	86 %	NW	13 mph	0 mph	28.18 in	0.0 in	Fair
	10:53 PM	44 °F	41 °F	89 %	NW	8 mph	0 mph	28.19 in	0.0 in	Fair
10/25/2024	11:53 PM	43 °F	40 °F	89 %	WNW	7 mph	0 mph	28.20 in	0.0 in	Fair
	12:53 AM	43 °F	38 °F	82 %	WNW	7 mph	0 mph	28.22 in	0.0 in	Fair
	1:53 AM	42 °F	35 °F	76 %	NW	10 mph	0 mph	28.24 in	0.0 in	Fair
	2:53 AM	36 °F	32 °F	86 %	NNW	6 mph	0 mph	28.27 in	0.0 in	Fair
	3:53 AM	36 °F	32 °F	86 %	NW	7 mph	0 mph	28.29 in	0.0 in	Fair
	4:53 AM	35 °F	31 °F	85 %	NW	6 mph	0 mph	28.33 in	0.0 in	Fair
	5:53 AM	34 °F	31 °F	89 %	NW	5 mph	0 mph	28.34 in	0.0 in	Fair

Table B.4. Watertown, SD Weather Data

Day	Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
	6:53 AM	35 °F	31 °F	85 %	NW	3 mph	0 mph	28.36 in	0.0 in	Fair
	7:53 AM	33 °F	30 °F	89 %	N	3 mph	0 mph	28.39 in	0.0 in	Fair
	8:53 AM	40 °F	35 °F	83 %	NW	6 mph	0 mph	28.41 in	0.0 in	Fair
	9:53 AM	44 °F	36 °F	73 %	NW	7 mph	0 mph	28.44 in	0.0 in	Fair
	10:53 AM	49 °F	35 °F	59 %	NNW	8 mph	0 mph	28.46 in	0.0 in	Fair
	11:53 AM	52 °F	32 °F	47 %	NNW	9 mph	0 mph	28.46 in	0.0 in	Fair
	12:53 PM	53 °F	31 °F	43 %	NNW	10 mph	0 mph	28.46 in	0.0 in	Fair
	1:53 PM	53 °F	30 °F	41 %	NW	7 mph	0 mph	28.45 in	0.0 in	Fair
	2:53 PM	54 °F	28 °F	37 %	NNW	10 mph	0 mph	28.45 in	0.0 in	Fair
	3:53 PM	54 °F	27 °F	35 %	NW	8 mph	0 mph	28.46 in	0.0 in	Fair
	4:53 PM	50 °F	30 °F	46 %	N	7 mph	0 mph	28.48 in	0.0 in	Fair
	5:53 PM	45 °F	30 °F	56 %	CALM	0 mph	0 mph	28.49 in	0.0 in	Fair
	6:53 PM	44 °F	29 °F	55 %	CALM	0 mph	0 mph	28.50 in	0.0 in	Fair
	7:53 PM	41 °F	29 °F	62 %	CALM	0 mph	0 mph	28.50 in	0.0 in	Fair
	8:53 PM	37 °F	29 °F	73 %	SSE	3 mph	0 mph	28.52 in	0.0 in	Fair
	9:53 PM	35 °F	27 °F	72 %	CALM	0 mph	0 mph	28.53 in	0.0 in	Fair
	10:53 PM	32 °F	26 °F	79 %	S	5 mph	0 mph	28.55 in	0.0 in	Fair
10/26/2024	11:53 PM	31 °F	26 °F	82 %	CALM	0 mph	0 mph	28.55 in	0.0 in	Fair
	12:53 AM	31 °F	26 °F	82 %	CALM	0 mph	0 mph	28.55 in	0.0 in	Fair
	1:53 AM	32 °F	25 °F	75 %	CALM	0 mph	0 mph	28.55 in	0.0 in	Fair
	2:53 AM	28 °F	23 °F	81 %	CALM	0 mph	0 mph	28.55 in	0.0 in	Fair
	3:53 AM	32 °F	26 °F	79 %	SSE	5 mph	0 mph	28.55 in	0.0 in	Mostly Cloudy
	4:53 AM	32 °F	26 °F	79 %	SSE	6 mph	0 mph	28.55 in	0.0 in	Fair
	5:53 AM	32 °F	27 °F	82 %	SSE	6 mph	0 mph	28.55 in	0.0 in	Fair
	6:53 AM	32 °F	28 °F	85 %	SSE	6 mph	0 mph	28.55 in	0.0 in	Fair
	7:53 AM	34 °F	30 °F	85 %	SSE	7 mph	0 mph	28.55 in	0.0 in	Fair
	8:53 AM	40 °F	33 °F	77 %	SSE	9 mph	0 mph	28.54 in	0.0 in	Fair
	9:53 AM	48 °F	35 °F	61 %	SSE	14 mph	21 mph	28.52 in	0.0 in	Fair
	10:53 AM	53 °F	34 °F	48 %	S	18 mph	26 mph	28.50 in	0.0 in	Fair
	11:53 AM	54 °F	33 °F	45 %	S	20 mph	0 mph	28.48 in	0.0 in	Fair

Table B.4. Watertown, SD Weather Data

Day	Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
	12:53 PM	56 °F	33 °F	42 %	S	18 mph	31 mph	28.43 in	0.0 in	Fair
	1:53 PM	57 °F	31 °F	37 %	S	21 mph	30 mph	28.40 in	0.0 in	Fair / Windy
	2:53 PM	56 °F	31 °F	39 %	SSE	22 mph	35 mph	28.37 in	0.0 in	Fair / Windy
	3:53 PM	54 °F	31 °F	41 %	S	21 mph	31 mph	28.35 in	0.0 in	Fair / Windy
	4:53 PM	54 °F	32 °F	43 %	S	17 mph	28 mph	28.34 in	0.0 in	Fair
	5:53 PM	51 °F	32 °F	48 %	S	17 mph	0 mph	28.32 in	0.0 in	Fair
	6:53 PM	50 °F	32 °F	50 %	S	16 mph	29 mph	28.31 in	0.0 in	Fair
	7:53 PM	49 °F	32 °F	52 %	S	16 mph	24 mph	28.31 in	0.0 in	Fair
	8:53 PM	49 °F	31 °F	50 %	S	16 mph	31 mph	28.31 in	0.0 in	Fair
	9:53 PM	49 °F	31 °F	50 %	S	16 mph	28 mph	28.30 in	0.0 in	Fair
	10:53 PM	49 °F	31 °F	50 %	S	17 mph	29 mph	28.29 in	0.0 in	Fair
10/27/2024	11:53 PM	48 °F	30 °F	50 %	S	14 mph	25 mph	28.27 in	0.0 in	Fair
	12:53 AM	48 °F	30 °F	50 %	S	15 mph	25 mph	28.25 in	0.0 in	Fair
	1:53 AM	47 °F	30 °F	52 %	S	14 mph	0 mph	28.25 in	0.0 in	Fair
	2:53 AM	46 °F	30 °F	54 %	S	10 mph	0 mph	28.24 in	0.0 in	Fair
	3:53 AM	46 °F	30 °F	54 %	S	13 mph	0 mph	28.22 in	0.0 in	Fair
	4:53 AM	45 °F	30 °F	56 %	S	12 mph	0 mph	28.22 in	0.0 in	Fair
	5:53 AM	44 °F	30 °F	58 %	S	9 mph	0 mph	28.21 in	0.0 in	Fair
	6:53 AM	43 °F	30 °F	60 %	S	13 mph	0 mph	28.20 in	0.0 in	Fair
	7:53 AM	43 °F	30 °F	60 %	SSE	9 mph	0 mph	28.20 in	0.0 in	Fair
	8:53 AM	48 °F	31 °F	52 %	S	12 mph	0 mph	28.19 in	0.0 in	Fair
	9:53 AM	52 °F	32 °F	47 %	SSW	12 mph	0 mph	28.18 in	0.0 in	Fair
	10:53 AM	55 °F	32 °F	42 %	SSW	10 mph	0 mph	28.17 in	0.0 in	Fair
	11:53 AM	59 °F	33 °F	38 %	SSW	10 mph	0 mph	28.15 in	0.0 in	Fair
	12:53 PM	62 °F	34 °F	35 %	S	9 mph	0 mph	28.11 in	0.0 in	Fair
	1:53 PM	63 °F	34 °F	34 %	SW	10 mph	0 mph	28.10 in	0.0 in	Fair
	2:53 PM	65 °F	34 °F	32 %	SW	6 mph	0 mph	28.09 in	0.0 in	Fair
	3:53 PM	64 °F	36 °F	35 %	SW	6 mph	0 mph	28.08 in	0.0 in	Fair
	4:53 PM	57 °F	36 °F	45 %	SE	6 mph	0 mph	28.06 in	0.0 in	Fair
	5:53 PM	55 °F	35 °F	47 %	SE	5 mph	0 mph	28.04 in	0.0 in	Fair

Table B.4. Watertown, SD Weather Data

Day	Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
	6:53 PM	52 °F	35 °F	53 %	SSE	6 mph	0 mph	28.04 in	0.0 in	Fair
	7:53 PM	50 °F	35 °F	57 %	SSE	7 mph	0 mph	28.02 in	0.0 in	Fair
	8:53 PM	51 °F	36 °F	56 %	SSE	8 mph	0 mph	28.01 in	0.0 in	Fair
	9:53 PM	51 °F	35 °F	54 %	SSE	7 mph	0 mph	27.99 in	0.0 in	Fair
	10:53 PM	51 °F	36 °F	56 %	SSE	9 mph	0 mph	27.96 in	0.0 in	Fair
10/28/2024	11:53 PM	51 °F	36 °F	56 %	SSE	12 mph	0 mph	27.94 in	0.0 in	Fair
	12:53 AM	49 °F	37 °F	64 %	SSE	13 mph	0 mph	27.92 in	0.0 in	Fair
	1:53 AM	49 °F	38 °F	66 %	SSE	12 mph	0 mph	27.90 in	0.0 in	Fair
	2:53 AM	49 °F	38 °F	66 %	SSE	13 mph	0 mph	27.87 in	0.0 in	Fair
	3:53 AM	49 °F	39 °F	69 %	SSE	15 mph	23 mph	27.84 in	0.0 in	Fair
	4:53 AM	50 °F	39 °F	66 %	SSE	13 mph	23 mph	27.82 in	0.0 in	Fair
	5:53 AM	50 °F	40 °F	68 %	S	14 mph	26 mph	27.80 in	0.0 in	Fair
	6:53 AM	50 °F	41 °F	71 %	SSE	14 mph	0 mph	27.79 in	0.0 in	Fair
	7:53 AM	50 °F	43 °F	77 %	S	8 mph	0 mph	27.79 in	0.0 in	Fair
	8:53 AM	53 °F	45 °F	74 %	S	12 mph	0 mph	27.78 in	0.0 in	Fair
	9:53 AM	61 °F	49 °F	64 %	S	14 mph	0 mph	27.78 in	0.0 in	Fair
	10:53 AM	67 °F	49 °F	52 %	SSW	21 mph	0 mph	27.77 in	0.0 in	Fair / Windy
	11:53 AM	71 °F	48 °F	44 %	SSW	17 mph	0 mph	27.75 in	0.0 in	Fair
	12:53 PM	70 °F	47 °F	44 %	SSW	15 mph	0 mph	27.75 in	0.0 in	Fair
	1:53 PM	69 °F	48 °F	47 %	SSW	12 mph	0 mph	27.74 in	0.0 in	Fair
	2:53 PM	70 °F	46 °F	42 %	SW	13 mph	0 mph	27.75 in	0.0 in	Fair
	3:53 PM	66 °F	45 °F	47 %	SW	7 mph	0 mph	27.76 in	0.0 in	Fair
	4:53 PM	62 °F	44 °F	52 %	SW	3 mph	0 mph	27.77 in	0.0 in	Fair
	5:53 PM	59 °F	44 °F	58 %	WNW	6 mph	0 mph	27.80 in	0.0 in	Fair
	6:53 PM	57 °F	41 °F	55 %	NW	7 mph	0 mph	27.80 in	0.0 in	Fair
	7:53 PM	53 °F	40 °F	61 %	NNW	9 mph	0 mph	27.81 in	0.0 in	Fair
	8:53 PM	52 °F	40 °F	63 %	NE	5 mph	0 mph	27.80 in	0.0 in	Fair
	9:53 PM	53 °F	40 °F	61 %	E	3 mph	0 mph	27.81 in	0.0 in	Fair
	10:53 PM	45 °F	39 °F	80 %	N	7 mph	0 mph	27.80 in	0.0 in	Fair
10/29/2024	11:53 PM	46 °F	38 °F	73 %	N	3 mph	0 mph	27.81 in	0.0 in	Fair

Table B.4. Watertown, SD Weather Data

Day	Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
	12:53 AM	44 °F	37 °F	76 %	NNW	6 mph	0 mph	27.82 in	0.0 in	Fair
	1:53 AM	43 °F	36 °F	76 %	N	6 mph	0 mph	27.80 in	0.0 in	Fair
	2:53 AM	47 °F	37 °F	68 %	NE	8 mph	0 mph	27.79 in	0.0 in	Fair
	3:53 AM	46 °F	37 °F	71 %	NNE	7 mph	0 mph	27.80 in	0.0 in	Fair
	4:53 AM	47 °F	38 °F	71 %	N	8 mph	0 mph	27.79 in	0.0 in	Fair
	5:53 AM	49 °F	37 °F	64 %	NNE	7 mph	0 mph	27.80 in	0.0 in	Fair
	6:53 AM	48 °F	38 °F	68 %	N	6 mph	0 mph	27.79 in	0.0 in	Fair
	7:53 AM	50 °F	39 °F	66 %	N	6 mph	0 mph	27.80 in	0.0 in	Fair
	8:53 AM	52 °F	40 °F	63 %	NNE	8 mph	0 mph	27.79 in	0.0 in	Fair
	9:53 AM	51 °F	40 °F	66 %	NNE	13 mph	0 mph	27.77 in	0.0 in	Fair
	10:53 AM	53 °F	41 °F	64 %	NE	14 mph	0 mph	27.75 in	0.0 in	Fair
	11:53 AM	54 °F	42 °F	64 %	NE	15 mph	0 mph	27.76 in	0.0 in	Fair
	12:25 PM	54 °F	44 °F	69 %	NNE	14 mph	0 mph	27.76 in	0.0 in	Mostly Cloudy
	12:53 PM	53 °F	43 °F	69 %	NNE	17 mph	23 mph	27.74 in	0.0 in	Light Rain
	1:53 PM	56 °F	44 °F	64 %	NE	13 mph	0 mph	27.74 in	0.0 in	Light Rain
	2:00 PM	57 °F	45 °F	64 %	NE	14 mph	0 mph	27.74 in	0.0 in	Light Rain
	2:07 PM	57 °F	45 °F	64 %	NNE	14 mph	0 mph	27.73 in	0.0 in	Cloudy
	2:31 PM	57 °F	44 °F	62 %	NE	15 mph	0 mph	27.73 in	0.0 in	Partly Cloudy
	2:50 PM	57 °F	45 °F	63 %	NNE	14 mph	0 mph	27.73 in	0.0 in	Mostly Cloudy
	2:53 PM	58 °F	45 °F	62 %	NNE	12 mph	0 mph	27.73 in	0.0 in	Mostly Cloudy
	3:53 PM	56 °F	44 °F	64 %	NE	13 mph	0 mph	27.74 in	0.0 in	Cloudy
	4:53 PM	55 °F	43 °F	64 %	NNE	12 mph	0 mph	27.76 in	0.0 in	Cloudy
	5:46 PM	55 °F	45 °F	69 %	NNE	10 mph	0 mph	27.75 in	0.0 in	Cloudy
	5:53 PM	55 °F	45 °F	69 %	NNE	12 mph	0 mph	27.76 in	0.0 in	Cloudy
	6:17 PM	54 °F	45 °F	72 %	NNE	9 mph	0 mph	27.77 in	0.0 in	Cloudy
	6:53 PM	54 °F	45 °F	72 %	N	8 mph	0 mph	27.79 in	0.0 in	Cloudy
	7:38 PM	52 °F	45 °F	77 %	N	13 mph	0 mph	27.79 in	0.0 in	Partly Cloudy
	7:53 PM	51 °F	44 °F	77 %	NNE	9 mph	0 mph	27.79 in	0.0 in	Fair
	8:53 PM	50 °F	43 °F	77 %	N	10 mph	0 mph	27.79 in	0.0 in	Fair
	9:53 PM	50 °F	44 °F	80 %	NNE	13 mph	0 mph	27.79 in	0.0 in	Mostly Cloudy

Table B.4. Watertown, SD Weather Data

Day	Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
	10:53 PM	49 °F	43 °F	80 %	N	16 mph	29 mph	27.81 in	0.0 in	Cloudy
10/30/2024	11:00 PM	49 °F	44 °F	83 %	N	15 mph	25 mph	27.81 in	0.0 in	Cloudy
	11:12 PM	49 °F	44 °F	83 %	NW	20 mph	26 mph	27.89 in	0.0 in	T-Storm
	11:36 PM	47 °F	45 °F	93 %	N	16 mph	0 mph	27.86 in	0.0 in	Light Rain
	11:44 PM	47 °F	45 °F	93 %	NNE	14 mph	0 mph	27.86 in	0.0 in	Light Rain
	11:53 PM	47 °F	44 °F	90 %	NNE	16 mph	0 mph	27.83 in	0.0 in	Light Rain
	12:29 AM	47 °F	44 °F	90 %	NE	15 mph	0 mph	27.81 in	0.0 in	Light Rain
	12:36 AM	47 °F	45 °F	93 %	NE	10 mph	0 mph	27.82 in	0.0 in	Mostly Cloudy
	12:53 AM	47 °F	45 °F	93 %	NNE	14 mph	0 mph	27.84 in	0.0 in	Cloudy
	1:53 AM	46 °F	44 °F	93 %	N	15 mph	23 mph	27.88 in	0.0 in	Cloudy
	2:08 AM	46 °F	44 °F	93 %	N	16 mph	25 mph	27.88 in	0.0 in	Cloudy
	2:53 AM	45 °F	44 °F	97 %	N	14 mph	0 mph	27.91 in	0.0 in	Cloudy
	3:53 AM	44 °F	42 °F	93 %	N	18 mph	24 mph	27.95 in	0.0 in	Light Rain
	4:53 AM	43 °F	42 °F	97 %	N	15 mph	0 mph	28.00 in	0.0 in	Light Rain
	5:53 AM	43 °F	41 °F	93 %	N	21 mph	28 mph	28.02 in	0.0 in	Light Rain / Windy
	6:53 AM	43 °F	41 °F	93 %	N	20 mph	29 mph	28.05 in	0.0 in	Cloudy
	7:53 AM	43 °F	41 °F	93 %	N	17 mph	26 mph	28.09 in	0.0 in	Cloudy
	8:08 AM	43 °F	41 °F	93 %	N	17 mph	26 mph	28.09 in	0.0 in	Cloudy
	8:53 AM	43 °F	41 °F	93 %	N	16 mph	0 mph	28.11 in	0.0 in	Cloudy
	9:01 AM	44 °F	41 °F	89 %	N	13 mph	23 mph	28.12 in	0.0 in	Cloudy
	9:18 AM	44 °F	41 °F	89 %	N	15 mph	0 mph	28.13 in	0.0 in	Cloudy
	9:49 AM	45 °F	41 °F	87 %	N	13 mph	0 mph	28.14 in	0.0 in	Cloudy
	9:53 AM	44 °F	41 °F	89 %	N	17 mph	0 mph	28.15 in	0.0 in	Cloudy
	10:53 AM	45 °F	40 °F	82 %	N	20 mph	25 mph	28.14 in	0.0 in	Cloudy
	11:18 AM	45 °F	39 °F	80 %	N	21 mph	29 mph	28.14 in	0.0 in	Cloudy / Windy
	11:53 AM	46 °F	38 °F	73 %	N	17 mph	30 mph	28.14 in	0.0 in	Cloudy
	12:53 PM	46 °F	38 °F	73 %	N	18 mph	28 mph	28.16 in	0.0 in	Cloudy
	1:04 PM	46 °F	38 °F	73 %	N	16 mph	0 mph	28.16 in	0.0 in	Cloudy
	1:20 PM	46 °F	37 °F	71 %	N	20 mph	29 mph	28.15 in	0.0 in	Cloudy
	1:53 PM	46 °F	37 °F	71 %	NNE	17 mph	26 mph	28.15 in	0.0 in	Cloudy

Table B.4. Watertown, SD Weather Data

Day	Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
	2:36 PM	46 °F	37 °F	71 %	NNE	18 mph	28 mph	28.15 in	0.0 in	Mostly Cloudy
	2:53 PM	46 °F	37 °F	71 %	N	21 mph	29 mph	28.15 in	0.0 in	Cloudy / Windy
	3:42 PM	43 °F	35 °F	74 %	N	17 mph	29 mph	28.14 in	0.0 in	Fair
	3:53 PM	44 °F	36 °F	73 %	N	18 mph	0 mph	28.14 in	0.0 in	Fair
	4:53 PM	42 °F	36 °F	79 %	NNE	20 mph	28 mph	28.13 in	0.0 in	Partly Cloudy
	5:19 PM	41 °F	35 °F	79 %	N	15 mph	28 mph	28.14 in	0.0 in	Mostly Cloudy
	5:42 PM	40 °F	35 °F	83 %	N	14 mph	0 mph	28.14 in	0.0 in	Partly Cloudy
	5:53 PM	40 °F	35 °F	83 %	N	14 mph	0 mph	28.14 in	0.0 in	Fair
	6:53 PM	38 °F	34 °F	86 %	N	13 mph	0 mph	28.14 in	0.0 in	Fair
	7:53 PM	37 °F	33 °F	86 %	N	13 mph	0 mph	28.13 in	0.0 in	Fair
	8:53 PM	36 °F	32 °F	86 %	N	10 mph	0 mph	28.14 in	0.0 in	Fair
	9:53 PM	35 °F	30 °F	82 %	N	10 mph	0 mph	28.14 in	0.0 in	Fair
	10:53 PM	36 °F	30 °F	79 %	N	13 mph	0 mph	28.12 in	0.0 in	Fair

Stantec

Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

Toronto Power Plant
Noise Modeling Report

Prepared for:
Western Minnesota Municipal Power Agency

July 18, 2025

Prepared by:
Stantec Consulting Services Inc.

Project/File:
227707270

Stantec Consulting Services Inc.

The conclusions in the Report titled Toronto Power Plant Noise Modeling Report are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

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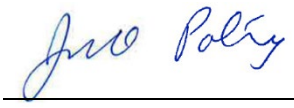
Prepared by 

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Table of Contents

List of Tables

List of Figures

List of Appendices

Executive Summary

Western Minnesota Municipal Power Agency (WMMPA) is proposing to construct and operate the Toronto Power Plant (Project) in Deuel County, South Dakota near the Town of Toronto at 44°36’7.34” N and 96°37’7.19”W (Site). The Project will consist of a dual fuel combustion turbine power plant with a nominal generating capacity of 145 mega-watts. WMMPA retained the services of Stantec Consulting Services Inc. (Stantec) to conduct a noise modeling study to estimate Project-generated sound levels and determine the facility design features and noise mitigation measures necessary to meet applicable noise limits.

The noise modeling study determined that noise mitigation measures including exhaust gas silencers, ventilation inlet and exhaust silencers, exhaust gas duct lagging, acoustic louvers, and sound transmission specifications for the roof and wall constructions for the engine hall and chiller building are required for the Project. With the implementation of these noise mitigation measures, the noise modeling results demonstrate that the predicted Project sound levels are expected to comply with the applicable Deuel County noise limit and meet the Project’s low frequency noise design goal. Stantec recommends that a post-construction noise survey be completed to confirm operational sound levels upon Project commissioning.

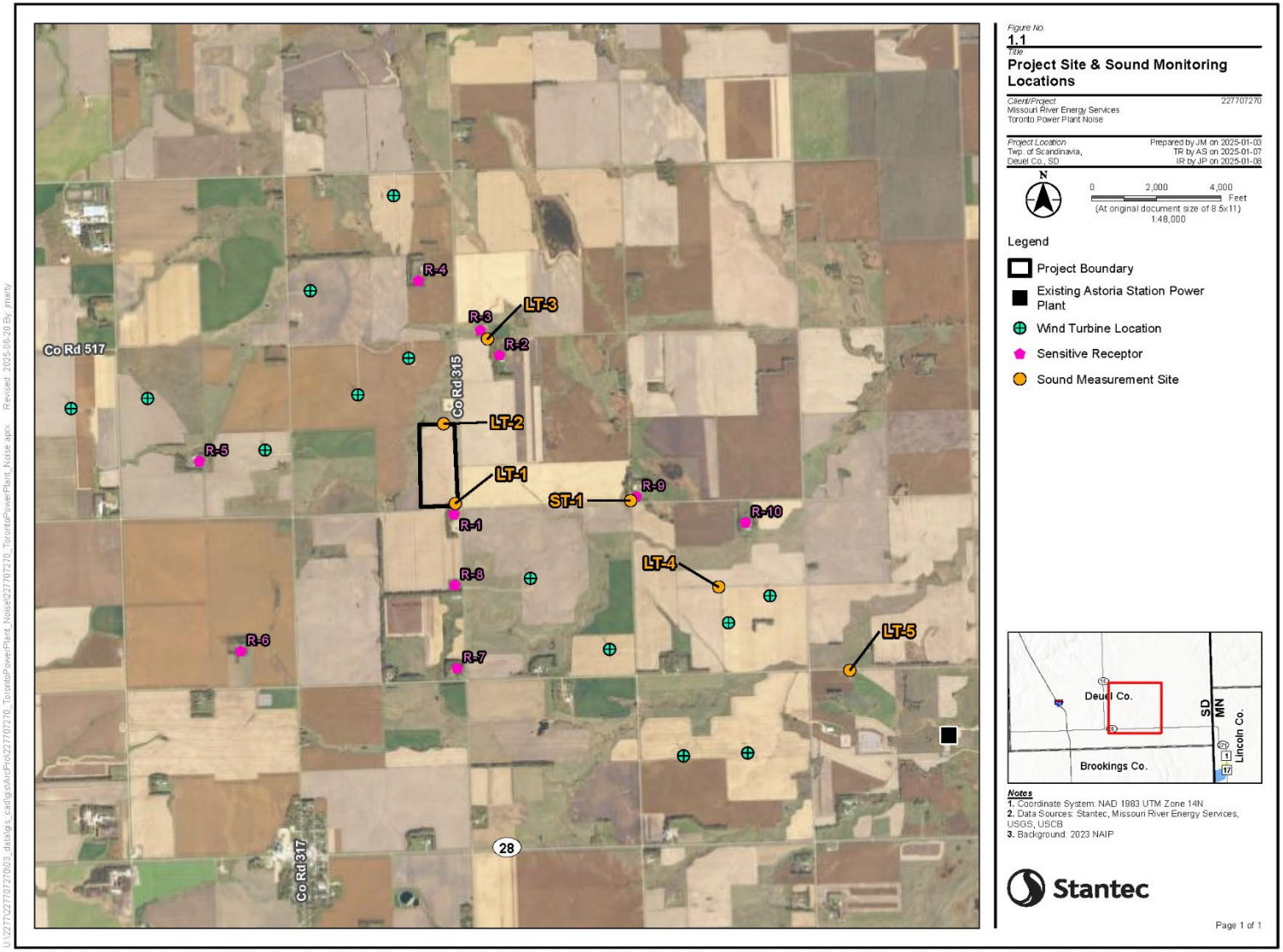
Acronyms / Abbreviations

dB	Decibel
dBA	Decibel (A-weighted)
dBC	Decibel (C-weighted)
Hz	Hertz
IL	Insertion Loss
L_{eq}	Equivalent continuous sound level
L_{90}	Sound level exceeded for 90% of the time
LFN	Low Frequency Noise
MW	Megawatt
NEMA	National Electrical Manufacturers Association
Project	Toronto Power Plant
PWL	Sound power level
STC	Sound Transmission Class
TL	Transmission Loss
WMMPA	Western Minnesota Municipal Power Agency

1 Project Description

Western Minnesota Municipal Power Agency (WMMPA) is proposing to construct the Toronto Power Plant (the Project) which will consist of a dual fuel combustion turbine power plant with a nominal generating capacity of 145 mega-watts (MW). The Project will be located at the intersection of 192nd Street and 479th Avenue in Deuel County, South Dakota near the Town of Toronto. The approximate Project site coordinates are 44.605842° latitude, -96.624719° longitude (Site). Each gas turbine will have a nominal capacity of 35 to 39 MW. The area surrounding the Project site includes agricultural uses, wind turbines associated with an existing wind energy facility, and dispersed residences. The Astoria Station Power Plant is also located approximately 3.4 miles to the southeast of the Project site. **Figure *1.1*** shows the Project site boundaries and surrounding area.

Figure 1.1 Project Site, Sound Monitoring, and Sensitive Receptor Locations



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2 Terminology

Sound is caused by vibrations that generate waves of minute pressure fluctuations in the surrounding air. Sound levels are measured using a logarithmic decibel (dB) scale. Noise is defined as unwanted sound.

Human hearing varies in sensitivity for different sound frequencies. The ear is most sensitive to sound frequencies between 800 and 8,000 Hertz (Hz) and is least sensitive to sound frequencies below 400 Hz or above 12,500 Hz. Consequently, several different frequency weighting schemes have been used to approximate the way the human ear responds to noise levels. The A-weighted decibel, or dBA, scale is the most widely used for regulatory requirements, as it discriminates against low frequency noise similar to the response of the human ear at the low to moderate sound levels typical of environmental sources. The C-weighted decibel, or dBC, scale applies less attenuation to low frequency noise to approximate the response of the human ear at higher sound levels. Sound levels without a frequency weighting applied, referred to as unweighted or linear, are generally reported as dB.

The sound power level (PWL) of a noise source is related to the acoustic energy that the source emits regardless of the environment in which it is placed (i.e., similar to the wattage of a light bulb). Sound power is a property of the source and therefore is independent of distance. The radiating sound power then produces a sound pressure level (SPL) which human beings can perceive as audible sound. The sound pressure level is dependent on the acoustical environment (e.g., indoor, outdoor, absorption, reflections) and the distance from the noise source. Unless otherwise stated, sound levels in this report refer to sound pressure levels.

A variety of metrics and indices have been developed to quantify the temporal characteristics (changes over time) of community noise. A common metric for assessing community noise is the equivalent continuous sound level (L_{eq}). The L_{eq} is a metric that defines the level of a hypothetical steady sound that would have the same acoustic energy as the fluctuating sound level over a defined period of time. The L_{eq} represents the time average of the fluctuating sound pressure level.

Other statistical metrics useful to understanding environmental sound levels include the n-percent exceedance sound percentile levels, or L_n. This report includes the L_{90} metric, which is the sound level that is exceeded 90% of the time and is generally considered to be representative of the steady background or ambient noise environment.

A change in sound levels of 3 decibels is generally considered to be the threshold of perception, whereas a change of 5 decibels is clearly perceptible, and a change of 10 decibels is perceived as a doubling or halving of loudness.

The ability of a building's components or materials to mitigate noise can be quantified using several different metrics. Typically, the acoustical performance of building components such as walls, doors, and windows are quantified using sound transmission loss (TL) values. Larger values of TL represent a greater ability to reduce noise transmitted through a building component.

The noise mitigation performance of building components can also be quantified using the single-number Sound Transmission Class (STC) rating. A higher STC rating represents a higher ability of a component to reduce transmitted sound through it.

Acoustical performance of components specifically designed to mitigate transmitted noise through an opening such as an acoustic silencer are typically quantified using insertion loss (IL) values. IL is defined as the reduction in sound level between a noise source and receiver due to the placement of a noise mitigation device.

The ability of a material to absorb sound is quantified using the sound absorption coefficient and the single-number noise reduction coefficient (NRC). The NRC ranges from 0 to 1, representing no sound absorption to full sound absorption.

3 Noise Regulations and Design Goals

A review of local, county, and state ordinances was completed to identify noise requirements that are applicable to the Project.

South Dakota Administrative Rules Chapter 20:10:22 for energy facility siting does not define noise requirements for energy facilities.

Deuel County Ordinance No. B2022-01-07 was identified as applicable to the Project. B2022-01-07 regulates noise emissions from electrical utilities including power generation, transmission or distribution of electrical energy whether owned by private, public, or municipal entities. B2022-01-07 Section 1247.03.2.Noise.a stipulates:

> "Noise level for residences shall not exceed 45 dBA, average A-weighted sound pressure. The noise level is to be measured at the perimeter of existing residences. The property owners shall have the right to waive the respective setback requirements, the waiver needs to be in writing and filed with the Zoning Office."

The Project noise modeling study documented in this report was completed to address the above requirement.

Additionally, WMMPA has established a Project design goal for low frequency noise (LFN) of 65 dBC at nearby noise sensitive receptors such as residences. LFN is typically perceived as a "rumble" and can be generated by power plants or large industrial facilities. During permitting of the nearby Astoria Station Power Plant, the South Dakota Public Utilities Commission required the plant to meet a maximum sound

level of 65 dBC. An outdoor sound level of 65 dBC at residences is a commonly recommended criterion in the noise control industry to mitigate the potential impact of low frequency noise.[1] [2]

4 Noise Sensitive Receptor Locations

Publicly available aerial imagery and land ownership records were utilized to identify noise sensitive receptors (also referred to as receptors), which could include residences, schools, churches, hospitals, and other occupied buildings located within and near the Project. A total of 10 representative receptors were identified within 1 mile of the Project limits. Receptor locations were modeled at the exterior façade of residential structures nearest to the Project. Because noise reduces with increasing distance from a noise source, the identified receptors represent the areas with the highest exposure to Project-generated noise and sound levels at residences located further away would be lower. Locations of noise sensitive receptors are shown on **Figure *1.1***. A tabulated summary of sensitive receptors along with their location in UTM coordinates is provided in **Table 4.1**.

Table 4.1 Noise Sensitive Receptors

Receptor ID	Description	UTM Coordinates (Zone 14N)	
		Northing	Easting
R-1	Residence Southwest of 192nd St. and 479th Ave	688,630	4,941,420
R-2	Residence Southeast of 191st St and 479 Ave	689,059	4,942,919
R-3	Residence Northeast of 191st St and 479 Ave	688,881	4,943,154
R-4	Residence Northwest of 191st St and 479 Ave	688,294	4,943,622
R-5	Residence Northeast of 192nd St and 477th Ave	686,228	4,941,920
R-6	Residence Northwest of 193rd St. and 478th Ave	686,619	4,940,128
R-7	Residence Northwest of 193rd St. and 479th Ave	688,660	4,939,967
R-8	Residence Southwest of 192nd St. and 479th Ave	688,638	4,940,751

[1] Broner. A Simple Criterion for Low Frequency Noise Emission Assessment. Journal of Low Frequency Noise, Vibration and Active Control. 2010.

[2] Hessler. Proposed criteria in residential communities for low-frequency noise emission from industrial sources. Noise Control Engineering Journal. 2004.

Receptor ID	Description	UTM Coordinates (Zone 14N)	
		Northing	Easting
R-9	Residence Northeast of 192nd St. and 480th Ave	690,352	4,941,586
R-10	Residence Southeast of 192nd St. and 480th Ave	691,382	4,941,342

5 Existing Ambient Sound Levels

A pre-construction baseline sound study was completed over a sixteen-day period in October 2024 to characterize the existing acoustical environment in the Project area at noise sensitive receptors. The results of the study showed that background sound levels in the vicinity of the Project are heavily influenced by wind speed and the existing average hourly background (L_{90}) sound levels at residences nearest to the Project are 36 dBA and 52 dBC. Additional information on the baseline sound study is provided in the Toronto Power Plant Baseline Sound Monitoring Report (Stantec, February 2025).

6 Noise Modeling Methodology

Noise sources for the proposed Project that were included in the noise model are listed below.

- Noise radiated through the walls, roof, and ventilation openings of the turbine hall.
- Turbine hall ventilation intake and exhaust fans.
- Combustion turbine intake air and exhaust stacks.
- Combustion turbine enclosure package fresh air inlet and exhaust vents.
- Combustion turbine exhaust duct breakout noise.
- Radiator coolers.
- Power transformers.
- Gas valves.
- Noise radiated through the walls, roof, and ventilation openings of the chiller building.

Interior noise from the enclosed turbine packages in the turbine hall and chillers in the chiller building were estimated based on the anticipated acoustical characteristics of the space. This estimated interior

noise level was then used to estimate noise radiating through the building walls and roof and propagating through the ventilation openings. The noise reduction from building components and noise mitigation measures such as silencers and acoustical louvers was included in the acoustic model.

The equipment quantities and sound power levels, which includes the effects of noise mitigation measures when relevant, that were used as input for the noise modeling are presented in **Table *6.1*** and **Table 6.2**. Detailed acoustical specifications for noise mitigation measures are included in **Appendix A**. Equipment sound power levels were based on manufacturer data provided by WMMPA.

Table 6.1 Equipment Quantities and Sound Power Levels

Equipment	Quantity	Sound Power Level[3] (dBA)	Notes
Enclosed gas turbine package	4	110	Noise radiated from package enclosure to interior of turbine hall.
Combustion exhaust stack exit	4	91	Mitigated, includes exhaust stack silencers.
Combustion exhaust gas ducting	N/A	65	PWL per 1-m length. Mitigated, includes acoustical lagging.
Combustion turbine air intake	4	109	Mitigated, includes air inlet silencer.
Turbine package air inlet	4	96	Mitigated, includes silencer.
Turbine package air exhaust	4	99	Mitigated, includes silencer.
Radiator	28	90	Condenser water cooler.
Water cooled chiller	5	109	Noise radiated to interior of chiller building.

[3] Sound power level for one unit of each equipment type.

Equipment	Quantity	Sound Power Level[3] (dBA)	Notes
Engine hall ventilation intake fan	6	89	Mitigated, includes silencer.
Engine hall ventilation exhaust fan	4	92	Mitigated, includes silencer.
Main power transformer	2	95	NEMA (National Electrical Manufacturers Association) TR1 estimate. Mitigated, specify to meet 75 dBA NEMA sound rating.
Auxiliary power transformer	2	95	NEMA TR1 estimate. Mitigated, specify to meet 75 dBA NEMA sound rating.
Gas valves	1	91	Mitigated, valve enclosures and acoustical pipe lagging.

Table 6.2 Building Acoustical Characteristics

Building Component	Acoustical Characteristic
Turbine Hall	
Walls and roof	STC 55
Interior sound level	96 dBA SPL
Large equipment doors	STC 44
Chiller Building	
Walls and roof	STC 31

Building Component	Acoustical Characteristic
Interior sound level	103 dBA SPL
Acoustical louver	See Appendix A

Sound attenuates between a source and receptor location due to a variety of factors, including but not limited to, distance between source and receptor, atmospheric absorption, ground type, topography, shielding from solid structures, vegetation, and meteorological conditions. Operational noise levels from the proposed Project equipment were estimated using the CadnaA model by Datakustik, which utilizes the ISO 9613-2 standard[4] algorithms for outdoor sound propagation.

A CadnaA Project base model was first developed by importing topographic data from the U.S. Geological Survey National Elevation Dataset and aerial imagery. Noise sources that emit noise into the environment from a stationary point are modeled as point sources (e.g. combustion exhaust stack, radiators fans, transformers). Sources that emit noise through a larger area (e.g. engine hall walls, roof, louvers, and large ducts) are modeled as vertical or horizontal area sources. Locations of the engine hall building, noise sources, and noise source heights were modeled based on the site layout drawings and equipment selection provided by WMMPA.

Two orders of reflection were used to consider acoustic reflections of noise from buildings. A ground absorption factor of 0.0 was used for the proposed Project site to reflect acoustically hard or reflective ground. A ground absorption factor of 0.5 was used to simulate the relatively absorptive ground, such as grass and agricultural fields, surrounding the Project area. Receptors were modeled at a height of 15 feet above ground (4.6 m) to estimate sound levels at the upper level of two-story houses.

Additional assumptions that were used to conservatively estimate operational noise included the following:

- No sound attenuation from vegetation (foliage) to simulate a worst-case condition when leaves have fallen off trees.
- Meteorological conditions are conducive to sound propagation to estimate noise during conditions such as receptors located downwind of noise sources or moderate temperature inversions.

The estimated Project sound levels include all equipment operating simultaneously at full load. The noise model produces estimated sound levels at the specified receptor locations as well as sound level

[4] ISO 9613-2: 1996. Acoustics – Attenuation of sound during propagation outdoors. Part 2: General method of calculation.

contours as outputs. These model outputs are used to compare results to the Project noise limit and evaluate regulatory compliance, as discussed in the next section.

7 Noise Modeling Results

Estimated sound levels from the Project operations and equipment described above are provided in **Table *7.1***. These sound levels represent all equipment operating simultaneously at full load and account for the noise mitigation measures identified as necessary for the Project at the preliminary design stage. A-weighted and C-weighted sound contour lines illustrating the estimated sound levels in the area surrounding the Project site are provided as **Figure 7.1** and **Figure 7.2**, respectively. The estimated sound levels and contours do not include the contribution of ambient sound levels.

Table 7.1 shows that the predicted Project sound levels at noise sensitive receptors range from 25-45 dBA and 51-65 dBC. At R-1, the nearest receptor to the south of the Project, estimated sound levels are 45 dBA and 65 dBC. At R-2, the nearest receptor to the north of the Project, estimated sound levels are 34 dBA and 58 dBC. Thus, predicted sound levels are expected to meet the Deuel County noise limit of 45 dBA and the Project LFN design goal of 65 dBC.

The existing average ambient sound levels at residences nearest to the Project were 36 dBA and 52 dBC based on the ambient sound survey completed by Stantec in October 2024. The results of this study show that Project generated noise is predicted to be lower than existing ambient sound levels at the more distant receptors; up to 9 dBA higher than the average existing A-weighted sound level at the nearest receptors, and 6-13 dBC higher than the average existing C-weighted sound level at the nearest receptors.

During times when the Project is operating, noise is expected to be clearly perceptible in outdoor areas at the nearest residences, though the level of perceptibility will likely vary depending on the time of day, weather conditions, and an individual's sensitivity to noise. At a distance of approximately 1.5 miles from the Project, noise from the Project is generally expected to be close to or lower than existing average background sound levels.

Table 7.1 Estimated Project Operational Sound Levels

Receptor	UTM 14N Coordinates			Receptor Height above Ground	Land Use	Noise Limit	Noise Design Goal	Estimated Project-Generated Sound Level		Meets Noise Limit and Design Goal (Yes/No)
	Northing	Easting	Ground Elevation							
	X, m	Y, m	Z, m	m		dBA	dBC	dBA	dBC	
R-1	688,630	4,941,420	599	4.6	Existing residential	45	65	45	65	Yes
R-2	689,059	4,942,919	579	4.6	Existing residential	45	65	34	58	Yes
R-3	688,881	4,943,154	579	4.6	Existing residential	45	65	33	57	Yes
R-4	688,294	4,943,622	591	4.6	Existing residential	45	65	33	55	Yes
R-5	686,228	4,941,920	614	4.6	Existing residential	45	65	30	54	Yes
R-6	686,619	4,940,128	611	4.6	Existing residential	45	65	25	51	Yes
R-7	688,660	4,939,967	597	4.6	Existing residential	45	65	29	54	Yes
R-8	688,638	4,940,751	599	4.6	Existing residential	45	65	35	58	Yes
R-9	690,352	4,941,586	575	4.6	Existing residential	45	65	30	55	Yes
R-10	691,382	4,941,342	565	4.6	Existing residential	45	65	25	51	Yes

Figure 7.1 Estimated Project-Generated Sound Levels (dBA)

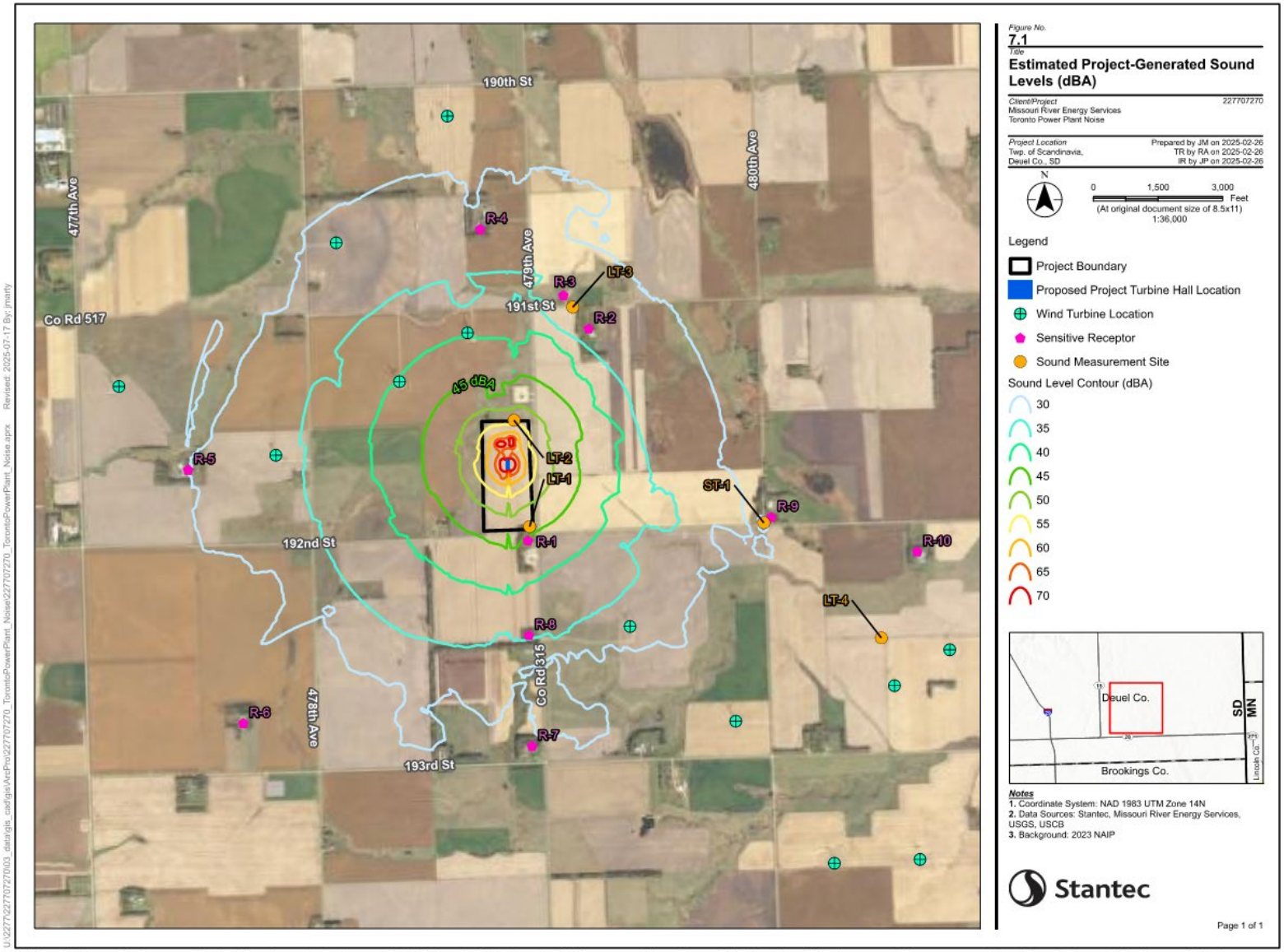
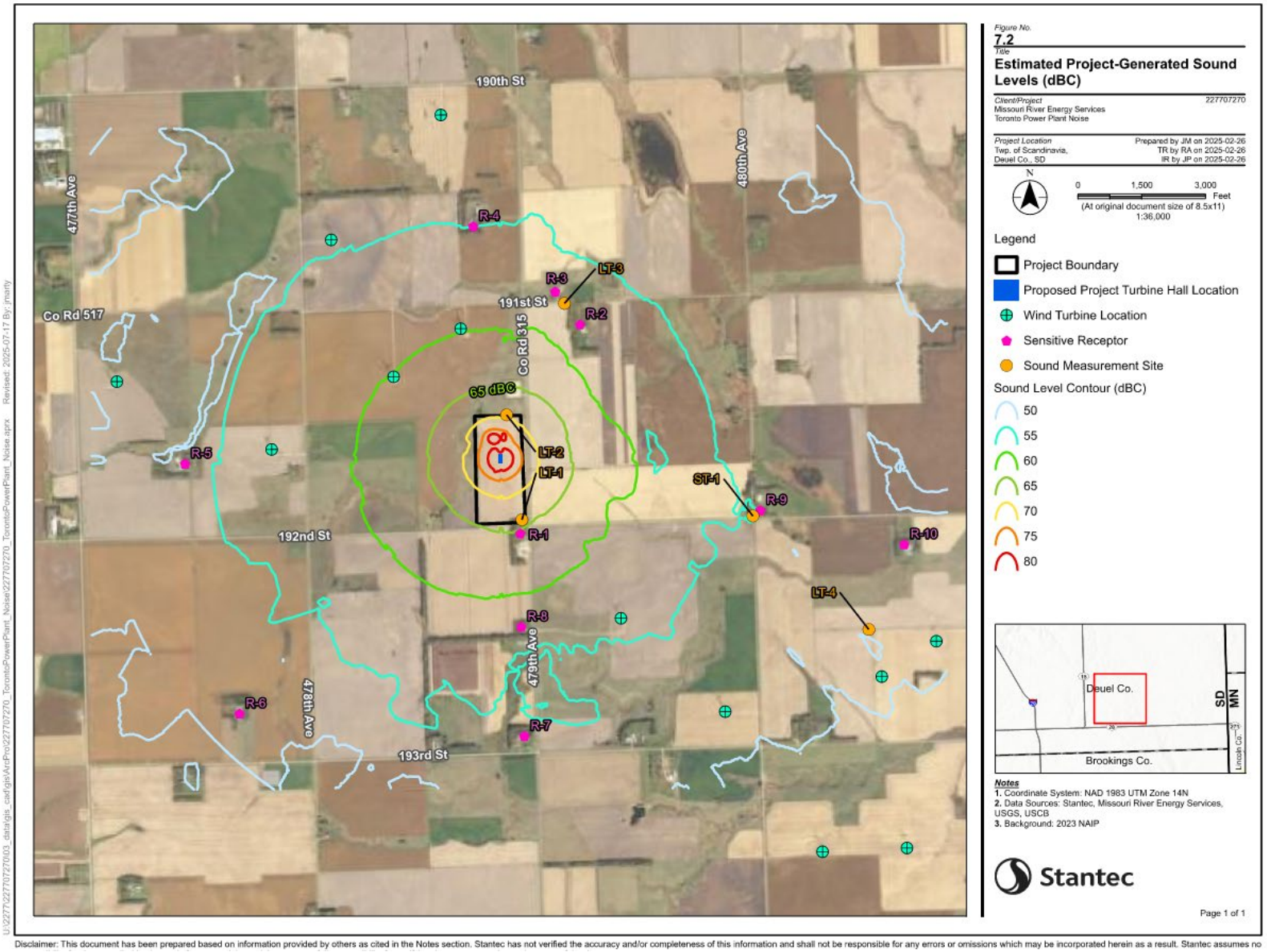


Figure 7.2 Estimated Project-Generated Sound Levels (dBC)



8 Conclusion

The pre-construction noise modeling report results demonstrate that the predicted Project sound levels in the vicinity of the proposed Toronto Power Plant are in compliance with the applicable Deuel County noise limit and meet the Project's low frequency noise design goal. Noise mitigation measures including exhaust gas silencers, ventilation inlet and exhaust silencers, exhaust gas duct lagging, acoustic louvers, and sound transmission specifications for the roof and wall constructions for the engine hall and chiller building are expected to be required for the Project. Stantec recommends that a post-construction noise survey be completed to confirm operational sound levels upon Project commissioning.

Appendix A Noise Mitigation Measure Specifications

Table A.1 Noise Mitigation Measure Specifications

Component	Measure	Sound Reduction (dB) per Octave Band (Hz)								
		31.5	63	125	250	500	1000	2000	4000	8000
Combustion turbine exhaust silencer	IL	10	20	40	51	60	49	52	40	12
Combustion turbine intake silencer	IL	3	15	26	47	51	55	58	55	54
Package vent intake silencer	IL	5	10	15	20	25	30	35	30	25
Package vent exhaust silencer	IL	0	1	5	11	21	28	32	30	21
Turbine hall walls and roof	TL	22	20	30	49	56	57	59	65	67
Turbine hall vent intake silencer	IL	1	5	8	12	15	16	17	16	16
Turbine hall vent exhaust silencer	IL	0	1	5	11	21	28	32	30	21
Chiller building roof	TL	10	18	21	27	31	34	28	38	49
Chiller building walls	TL	10	18	21	27	31	34	28	38	49
Chiller building acoustical louver	TL	0	1	7	6	14	16	13	11	8
Combustion turbine exhaust duct lagging	TL	7	12	21	22	27	32	35	42	45
Gas piping insulation	TL	2	4	6	8	10	12	14	15	15

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