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APPENDIX 7

NOISE & VIBRATION

List of Appendicies

Appendix 7.1 – Baseline Noise Measurements

Appendix 7.2 – Equipment Calibration Certificates

Appendix 7.3 – Noise Sensitive Location Details

Appendix 7.4 – Sound Power Level Data for Wind Turbines

Appendix 7.5 – Valley Correction

Appendix 7.6 – Predicted Noise Levels from Fahy Beg Wind Farm at Nearby Noise Sensitive Locations

Appendix 7.7 – Predicted Noise Levels from Fahy Beg Wind Farm with mitigation at nearby noise sensitive locations

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APPENDIX 7.1

BASELINE NOISE MEASUREMENTS

Baseline Noise Measurements

Baseline noise monitoring was undertaken at nine receptor locations, to establish the existing background noise levels at these locations. These locations represent the nearest residential locations to the east, south and west of the proposed wind farm.

Selection of Monitoring Locations

Section 2.2.5 of the Institute of Acoustics', *A Good Practice Guide to the Application of ETUS-R-97 for the Assessment at Rating of Wind Turbine Noise* (2013) regarding use of proxy locations states "*When choosing a location that will serve as a proxy for others, the basis for selection is that it can reasonably be claimed, from inspection and observation, to be representative of the non-surveyed locations, in line with the criteria of Section 2.5. Measurement locations outside a property's curtilage (such as an adjacent field) may be used when access to a representative property cannot be obtained, provided that such a location can be justified as being representative. No general guidance can therefore be given on the number of measurement locations as this will be site-specific.*" Section 2.5 of the GPG is summarised in Table 7.1.1 with the applicability of the proxy locations selected for Fahy Beg Wind Farm.

Table 7.1.1: IOA GPG Section 2.5 Criteria and Applicability to Fahy Beg Wind Farm Monitoring Locations

Requirements of Section 2.5	Fahy Beg Wind Farm Monitoring Locations
2.5.1 *Where possible, measurements should be made in the vicinity of a dwelling in an area frequently used for rest and recreation.*	All monitoring locations were in the gardens of the dwellings. RWID_13 was taken in a field to the rear of the property, approximately 8m from the rear façade of the property. This location was chosen as the gravel area to the rear of the property was screened by an embankment. The location in the field had a clearer line of sight to the proposed windfarm. The location was chosen to the rear of the house to screen potential quarry noise.
2.5.2 *Equipment should be placed at outdoor positions where noise levels are representative of typical 'low' levels likely to be experienced in the vicinity of a dwelling (or group of dwellings if the measurements are intended to be applied to more than one dwelling). The overriding consideration is that it can reasonably be claimed, from inspection and observation, that there are no other suitable noise-sensitive locations, in the vicinity of any selected location and close to a dwelling, where background noise levels would be expected to be consistently lower than the levels at the selected position.*	This was adhered to for all measurement locations.

Requirements of Section 2.5	Fahy Beg Wind Farm Monitoring Locations
2.5.3 *Ideally the position should be one which would be exposed to noise from the wind turbines whilst being best screened from other noise sources such as nearby roads or vegetation.*	The locations were in open areas or within the curtilage of a dwelling, set back from local roads and vegetation/ forestry where possible. Locations were chosen to have a direct line of sight to the proposed wind farm development. Location RWID_13 was chosen so that the house screened potential noise from the adjacent quarry. Location RWID_15 was chosen so it was away from an external fan at the property.
2.5.4 *The background surveys provide the basis for setting both daytime and night-time noise limits: the measurement position must therefore reasonably represent external areas (for daytime noise) and also building façades containing windows (for night-time noise).*	The locations being used to derive limits are representative of external areas and façade locations.
2.5.5 *In most locations, background noise levels will be determined by wind in trees and vegetation and noise sources external to the property such as traffic noise. The presence of local noise sources such as boiler flues, garden fountains, domestic drains, watercourses and farm equipment should be identified.*	There were no observed local sources during equipment deployment and collection which were considered non typical.
2.5.6 *Where it is not possible to exclude the influence of variable local noise sources by selection of monitoring position, it is generally possible to identify such data from inspection of noise level time histories and therefore to exclude it from the data set used to derive noise limits*	Attendance at the monitoring location during installation, battery changes and equipment collection did not identify any variable noise sources. Atypical data was removed from data analysis.
2.5.7 *In all cases, microphones should be supported at a height of 1.2 – 1.5 metres above the ground and no closer than 3.5 metres to any significant reflecting surface (such as a building or fence), except the ground. The position should be within 20 metres of the dwelling unless there are particular reasons for measuring at a more distant position (such as the presence of vegetation or denial of access); if so, the reasons should be explained.*	The microphones were mounted on tripods at approximate height of 1.5 m and at least 3.5 m from any significant reflecting surface other than the ground. Where possible the noise monitors were located within 20 m. When the noise monitors were located at more distant locations this to ensure the measurement location had a good line of sight to the proposed wind farm and was avoiding trees. Location RWID_2 was along the front drive of the property, approximately 22m from the façade. The location was chosen so the measurement location had a view of the location where the turbines are to be installed, that were not screened by outbuildings at the property.

Requirements of Section 2.5	Fahy Beg Wind Farm Monitoring Locations
2.5.8 *A resident at a selected property may request that measurements are made at a position which is considered inappropriate; perhaps because the preferred location(s) are inconvenient (it might obstruct lawn mowing, for example). In this situation the consultant should clearly explain the reasons why the measurements could be compromised; if no agreement can be reached, an alternative property or location should be sought. The assistance of the EHO may help to resolve these situations.*	This was not an issue.

Monitoring Locations

Noise monitoring was conducted at nine locations, selected for obtaining a detailed representation of the background noise levels at receptors surrounding the development. Details of the nine noise monitoring locations are provided in Table 7.1.2. The position of the monitoring locations is shown in Figure 7.2.

Table 7.1.2: Details on the Noise Monitoring Locations

Location ID	Easting	Northing	Description	Photograph
RWID_2	562309	670578	Meter set up to front of property overlooking proposed windfarm	Plate 7.1-1
RWID_11	562214	670310	Meter set up on gravel to rear of property overlooking proposed windfarm	Plate 7.1-2
RWID_13	562934	669681	Meter was set up at rear of property to screen potential noise from sand and gravel site.	Plate 7.1-3
RWID_17	563588	669030	This location was to the rear of the property in the direction of proposed windfarm and north of the adjacent sand and gravel quarry.	Plate 7.1-4
RWID_46	564753	669616	Meter set up on grassed area north of property overlooking proposed windfarm	Plate 7.1-5
RWID_49	565531	670155	Located within courtyard area of house.	Plate 7.1-6
RWID_52	565226	670629	Located on slope west of property in direction of windfarm	Plate 7.1-7
RWID_123	565481	671237	Located on embankment between cottage and field next to road.	Plate 7.1-8
RWD_211	564694	669294	Located to rear of property near fence near cul de sac	Plate 7.1-9

Location RWID_2, This location is west of the proposed wind farm, off a road off the R466. The measurement location was beside the front driveway of the property, so that the proposed windfarm could be viewed without screening from farm buildings on the site. The drive to the property is elevated towards the road. The location has a view of the hill where the wind turbines are proposed. The measurement location was approximately 22m in front of the property. There are trees approximately 30m south of the measurement location, along the southern boundary of the property and also along the adjacent road.

When the noise monitoring equipment was being deployed, the area was observed to be relatively quiet with some distant traffic along the R466, in addition to local traffic and birdsong. When the meter was being collected there was a distant hum from the construction equipment business adjacent to RWID_11. Also observed was occasional traffic from the nearby roads and birdsong.

Plate A7.1-1: Monitoring Location RWID_2

Location RWID_11, This location is west of the proposed site, on the R466. To the rear of the property is a construction equipment supplier. The sound level meter was located at the edge of a gravel area to the rear of the property, approximately 5m from the rear façade. There are some trees to the north of the garden, approximately 30m from the measurement location. When the equipment was being deployed, the main noise source was spray noise or vehicle noise from the adjacent construction equipment supplier. Also noted was occasional road traffic noise from the adjacent R466. The construction equipment supplier sheds are located in a valley relative to the garden and do not block the line of sight between the property and adjacent hillside where the turbines are proposed. When the equipment was being collected, noise from the adjacent business was much quieter, with traffic from the adjacent road being dominant.

Plate A7.1-2: Monitoring Location RWID_11

Location RWID_13, This location is west of the proposed site, at Fahy More North. The property is located opposite a sand and gravel quarry, north of Bridgetown. The noise meter was located to the rear of the property, so it is screened from potential noise from the sand and gravel site. There is a band of trees west of the road to the front of the property that screens view of the quarry. There are some trees forming part of hedging at the edge of the boundary of the property.

When the equipment was being deployed noise from wind in the trees was audible and also aircraft noise. When the equipment was being collected, although vehicle noise from the quarry was audible at the nearby location RWID_17, no quarry noise was audible at this location.

Plate A7.1-3: Monitoring Location RWID_13

Location RWID_17, This location is south of the proposed wind farm. South of the property, and south of the adjacent road is a sand and gravel quarry. The noise monitor was installed in a field adjacent to the rear of a dwelling, so that the noise from the quarry is screened by the building. To the east of the property is an external fan, that forms part of the house heating equipment which can operate intermittently at night. The location was chosen to avoid this equipment. There are no habitable windows to the windfarm side of the property. There is a field to the north of the property. The noise meter was on an elevated section of field just above a track that runs beside the property, at a distance of approximately 4m to the property facade. During the meter deployment, noise from wind in the trees at the edge of the field was audible. When the equipment was being collected vehicle noise from the quarry was clearly audible, and the main noise source, in addition to intermittent road traffic noise.

Plate A7.1-4: Monitoring Location RWID_17

Location RWID_46, This location is south of the proposed wind farm, at a property located within a horticultural centre. The measurement location was on a section of grass to the north of the property near to a driveway to the main horticultural glasshouses. There is a single tree opposite the driveway and beyond this is an elevated section of ground near the eastern end of the proposed windfarm. The measurement location is approximately 20m from the façade of the property.

When the noise monitoring equipment was being deployed, the area was observed to be very quiet as it is some distance from nearby roads. When the meter was being collected there was some construction noise at a nearby property near to the local road.

Plate A7.1-5: Monitoring Location RWID_46

Location RWID_49, This location is south east of the proposed wind farm, at Kilroughill. The property is accessed from a road west of the property. There are tall trees on this road. There is a gravelled area north and west of the main house used for parking. Between the barn and the road is a water drain that is audible at this side of the property. The original intention was to place the monitor south of the polytunnel south of the property, but the water drain, near the road, was audible from this location. The monitor was placed in the courtyard area, with a partial view of the windfarm to the north west.

Plate A7.1-6: Monitoring Location RWID_49

Location RWD_52, This location is located to the west of the proposed wind farm. The noise monitoring location was located on a hill, just north west of the dwelling, approximately 12m from the property. This location was in direct line of sight of the proposed windfarm, and some distance from a barn at the farm. During the meter deployment there was noise from wind in distant trees.

Plate A7.1-7: Monitoring Location RWID_52

Location RWID_123, This location is east of the proposed wind farm, at a working farm at a bend in the road. The property is a short distance from an electricity pylon. There is a small garden immediately west of the property with small shrubs. There is also an embankment at the rear of the garden, next to a field with livestock. The noise meter was placed on the embankment. There is an additional section of garden north of the property, but this is much closer to the electricity pylon. The noise monitoring location is approximately 5m from the façade of the cottage.

Noise sources observed when equipment was being installed included a constant hum from the electricity pylon, noise from livestock, farm machinery and handtools.

Plate A7.1-8: Monitoring Location RWID_123

Location RWID_211. The location represents a group of properties south of the development at Ballynevin. The noise meter was placed to the north and rear of the property near to a cul de sac that leads to a number of properties in the area. There is a concrete area to the rear of the property and the meter is on a raised grassed area. There are small hedges along the cul de sac. The measurement location was chosen as it was closer to the proposed windfarm, closer to the nearby properties and away from a trampoline and washing line in the rear garden of the property. The measurement location is approximately 14m from the rear façade of the property.

When equipment was being collected, there was noise audible from distant woodcutting and birdsong.

Plate A7.1-9: Monitoring Location RWID_211

Measurement Periods

The IOA GPG states "*The duration of a background noise survey is determined only by the need to acquire sufficient valid data over the range of wind speeds. It is unlikely that this requirement can be met in less than 2 weeks.*" If insufficient wind data is collected after two weeks, the monitoring period will be extended subject to acquiring sufficient valid data over the range of wind speeds. Sufficient data was captured at all monitoring locations with a minimum of two and a half weeks' worth of data captured at all monitoring locations.

Definition of Time Periods

The following periods were analysed for this report:

Amenity/Quiet Daytime hours	18:00 – 23:00 Monday to Friday 13:00 – 18:00 Saturday 07:00 – 18:00 Sunday
Night-time hours	23:00 – 07:00

Monitoring Equipment

Baseline noise monitoring was carried out using Svantek Svan 977 and Svan 977A and Larson Davis Sound Expert LxT Class 1 sound level meters. Details of the noise monitoring equipment are presented in Table 7.1.3. The sound level meters were fitted with 1/2" microphones. The microphones connected to the Svantek sound level meters were fitted with a UA-0237 type wind shield made from open-pored polyurethane foam with a diameter of 90mm. These were surrounded by a secondary windshield. Some of the microphones were fitted with a single oversized wind shield. The setup used is in keeping with ESTU W/13/00386/REP, Noise Measurements in Windy Conditions and IOA Good Practice Guidelines, 2013. Calibration certificates for each sound level meter are provided in Appendix 7.2.

Table 7.1.3: Details of Noise Monitoring Equipment

Monitoring Location	Meter Type	Serial Number
RWID_2[2]	Larson Davis Sound Expert	6241
RWID_11[2]	Larson Davis Sound Expert	5835
RWID_13[1]	Svan 307	101014
RWID_17[1]	Svan 977	34173
RWID_46[2]	Larson Davis Sound Expert	4642
RWID_49[1]	Larson Davis Sound Expert	LD6241
RWID_52[1]	Svan 977A	34876
RWID_123[1]	Larson Davis Sound Expert	LD5835
RWD_211[2]	Svan 977A	69556

1. Lot 1 data 1st April to 20th April
2. Lot 2 data 29th April to 13th May

A CR800 Series data logger was used to record rainfall (ARG 100) and this was located at monitoring location N8. This meteorological data was acquired every 10 minutes simultaneously with noise data. This was located at RWID_13 during the first round of monitoring and at RWID_14 during the second round of monitoring.

Monitoring Protocol

Baseline noise measurements were undertaken at nine locations near the proposed wind farm. Equipment was installed during two rounds of measurements, the first between the 1st to 20th April 2021 and the second between 29th April and 13th May 2021.

The following monitoring protocol was carried out at each of the monitoring locations:

1. The sound level meters were calibrated on-site and set to log L_{A90} statistics on a fast time weighted response every ten minutes.
2. Each sound level meter microphone was mounted at 1.5 m above ground level and fitted with an enhanced windshield. Each microphone was placed at least 3.5 m from reflecting surfaces to obtain 'free field' conditions.

   Wind speed and wind direction measurements were taken from permanent mast installed on site. Wind speed was measured at a range of heights and data from anemometers at 109 m and 99 m were used to extrapolate the wind speed data up to a hub height of 110 m.

   The standardised 10 m wind speed was obtained from the turbine hub height wind speed by correcting it to 10 m height using a ground roughness factor of 0.05 m. Roughness length (or logarithmic) shear profile:

$$U_1 = U_2 \frac{ln\left({}^{H_1}/_{z}\right)}{ln\left({}^{H_2}/_{z}\right)}$$

where U_1 is the wind speed to be calculated, U_2 is the measured wind speed, H_1 is the height of the measured wind speed to be calculated (10m), H_2 is the height of the measured wind speed and z is the ground roughness length (m). A roughness length of 0.05m is used to standardise hub height wind speeds to 10m height in the IEC 61400-11:2012 standard.

3. The L_{A90} statistic measurements were synchronised with the 10 m standardised wind speeds derived from the on-site meteorological mast data.
4. A logging rain gauge was also installed (at Monitoring Location RWID_13 and RWID_46) and similarly logged rainfall events over successive 10-minute intervals, also synchronised to the noise level and wind speed measurements.
5. After the monitoring was completed, the noise meters were re-tested using the calibration noise source to ensure that the meters had not drifted.

Analysis of the Baseline Data

Following collection of the site data, the following protocol was used to analyse the baseline data:

1. The raw baseline L_{A90} noise data was reviewed to determine whether there are any periods of non-consistent noise level due to equipment malfunction.
2. The raw noise level data was then correlated with the time synchronised wind speed and rainfall data. Preliminary data analysis was used to remove datasets (L_{A90}, wind speed and occurrence of rainfall event) which contain a rainfall event as these data sets are required to be removed from further analysis in line with best practice as outlined in the IOA Good Practice Guide and Supplementary Guidance Note 2 on Data Processing.
3. The prevailing background noise during for daytime periods uses the amenity/quiet daytime hours. The prevailing background noise during night-time periods excludes early morning periods to remove the dawn chorus, which is not prevalent through that whole year, with data recorded between 04:00 and 07:00 was removed from further analysis.
4. Once the rainfall events have been accounted for, the remaining data was graphed using a wind speed based plot to establish whether there are any remaining data outliers, representing atypical noise sources or events.
5. Once the remaining data sets were found to be representative of the noise environment, they were analysed to ensure that sufficient data remained to provide sufficient data coverage over the necessary wind speeds. The IOA Good Practice Guide (May 2013) requires, as a minimum, no fewer than five valid data sets across each 1 m/s wind speed from turbine cut-in to rated power. Where integer wind speeds have less than five valid data sets, the prevailing background noise trend will not be extended beyond the range covered by adequate data sets. See Section 'Data Available for Determination of Prevailing Background Noise Levels' for details.
6. As the proposed wind farm not adjacent to other nearby Wind Farms, no noise contribution from other windfarms have been considered.
7. A 'best fit' trend (not higher than a fourth order polynomial) was then derived to present the assumed prevailing background noise level at each monitoring location. See Section 'Results' for details.

Data Available for Determination of Prevailing Background Noise Levels

The requirement for the survey duration is dictated by the range of wind speeds to be collected. The IOA Good Practice Guide to the Application of ETSU-R-97[1] for the Assessment and Rating of Wind Turbine Noise, (May 2013) states that "*As a guideline, no fewer than 200 data points should be recorded in each of the amenity hours and night-time periods with no fewer than 5 data points in any 1 m/s wind speed bin.*"

The Wind Energy Development Guidelines (Department of Environment, Heritage and Local Government, 2006) do not provide the specific periods which are represented by daytime and night-time hours, therefore the definitions from ETSU-R-97 are taken as 07:00 to 23:00 hrs for daytime and 23:00 to 07:00 hrs for night-time.

Prevailing background noise levels were derived for daytime and night-time periods. The number of valid datasets are shown in Tables 7.1.4 and 7.1.5 with wind speed ranges greyed out which did not satisfy the criteria of at least 5 data points in any 1 m/s wind speed bin.

Table 7.1.4: Number of Valid Datasets: All Noise Monitoring Locations - Daytime

Wind Speed (at standardised 10 m height), m/s	Valid Datasets								
	RWID 2	RWID 11	RWID 13	RWID 17	RWID 46	RWID 49	RWID 52	RWID 123	RWID 211
0	13	13	0	0	13	0	0	0	13
1	74	75	8	8	75	8	7	8	75
2	63	63	62	62	63	62	56	62	61
3	67	69	114	114	69	114	105	111	69
4	55	58	131	131	58	131	112	129	58
5	33	33	172	171	33	172	113	171	33
6	44	44	118	118	44	118	94	118	44
7	72	72	97	97	72	97	78	97	72
8	75	75	35	35	75	35	23	35	75
9	36	36	33	32	36	33	32	33	36
10	22	23	10	10	23	10	10	10	23
11	10	10	1	1	10	1	1	1	10
12	2	2	0	0	2	0	0	0	2
13	4	4	0	0	4	0	0	0	4
14	3	3	0	0	3	0	0	0	3
15	0	0	0	0	0	0	0	0	0
Total Number of Data Points	573	580	781	779	580	781	631	775	578
	Did not satisfy the criteria of at least 5 data points in any 1 m/s wind speed bin								

[1] Department of Trade and Industry (1996), The Assessment and Rating of Noise from Wind Farms Report ETSU-R-97

Table 7.1.5: Number of Valid Datasets: All Noise Monitoring Locations– Night-time

Wind Speed (at standardised 10 m height), m/s	Valid Datasets								
	RWID 2	RWID 11	RWID 13	RWID 17	RWID 46	RWID 49	RWID 52	RWID 123	RWID 211
0	23	23	15	15	23	15	15	15	23
1	37	37	64	64	37	64	41	64	37
2	34	34	47	47	34	47	35	46	34
3	61	61	57	57	61	57	46	57	61
4	36	36	126	126	36	125	105	126	36
5	33	33	96	96	33	96	59	96	33
6	55	55	84	81	55	84	70	84	55
7	58	58	15	17	58	13	13	17	58
8	22	22	8	11	22	11	8	11	22
9	10	10	1	4	10	4	1	4	10
10	6	6	1	2	6	2	1	2	6
11	1	1	0	0	1	0	0	0	1
12	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0
Total Number of Data Points	376	376	514	520	376	518	394	522	376
	Did not satisfy the criteria of at least 5 data points in any 1 m/s wind speed bin								

Results

In this section, the prevailing background noise level in dB L_{A90} relative to standardised 10 m height wind speeds are provided for each monitoring location as per the requirements of the survey. The prevailing background noise level is plotted as a solid line for each daytime and night-time periods at each monitoring location. In all cases, the highest order of polynomial used is a fourth order polynomials provided lines of best fit to the scatter data.

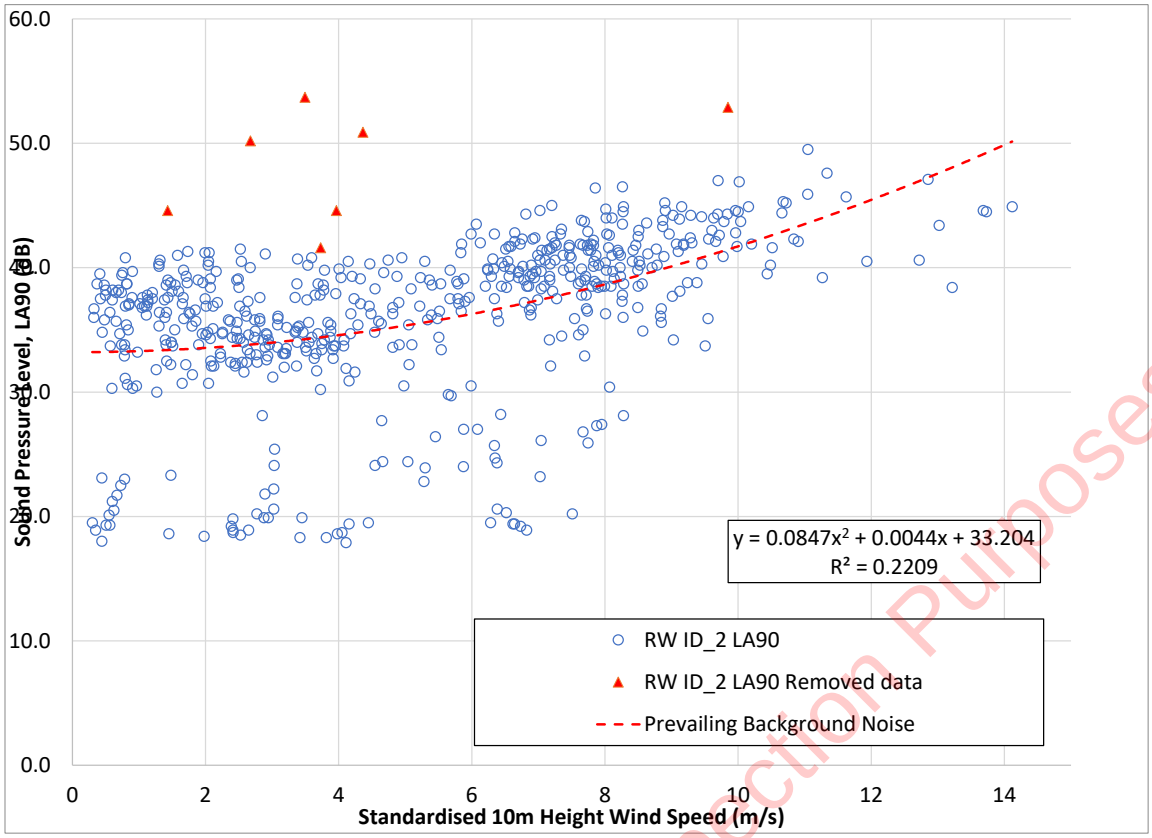


Figure A7.1: Prevailing Amenity/Daytime Background (L_{A90}) Noise Levels at RWID_2

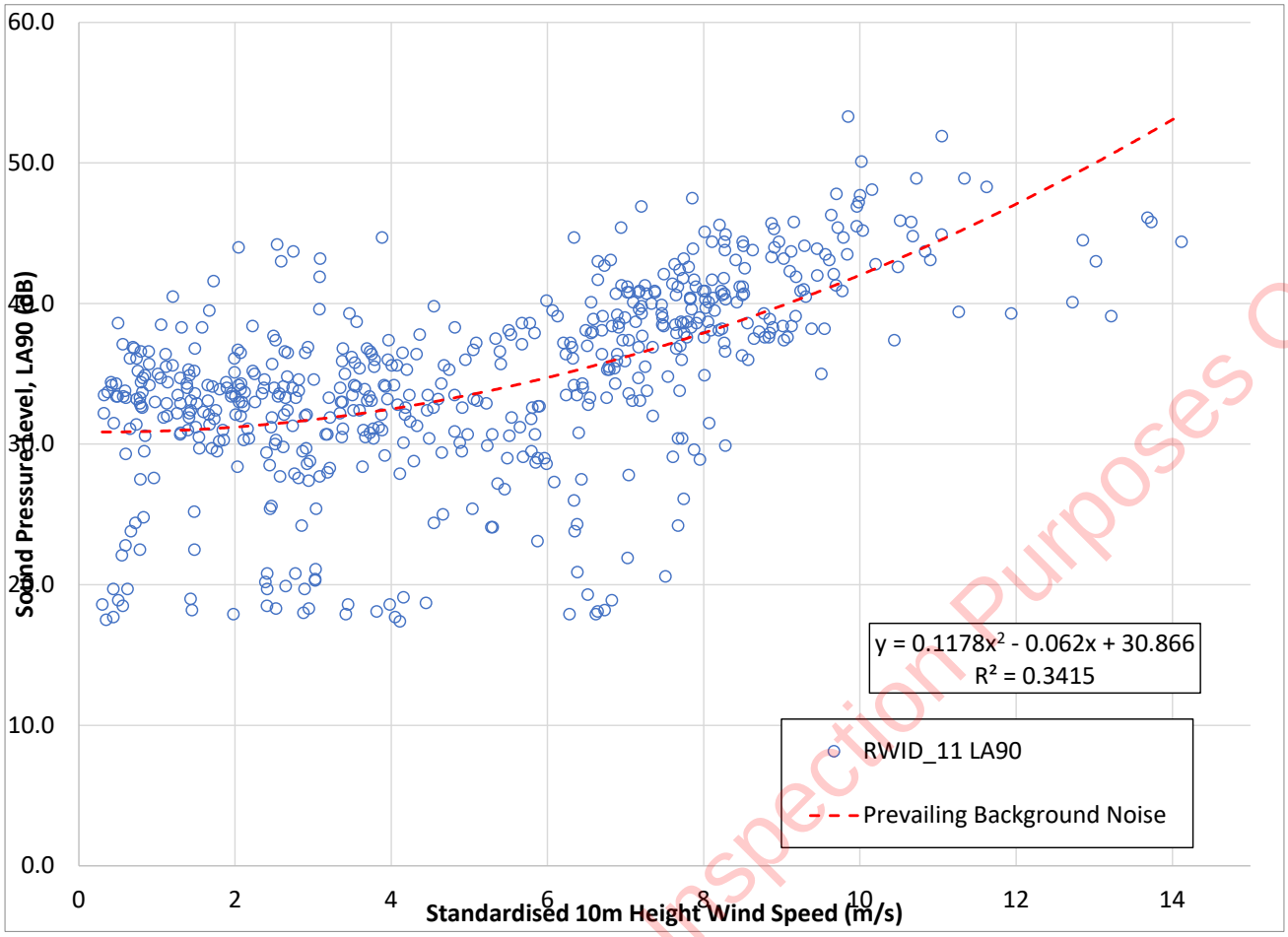


Figure A7.2: Prevailing Amenity/Daytime Background (L_{A90}) Noise Levels at RWID_11

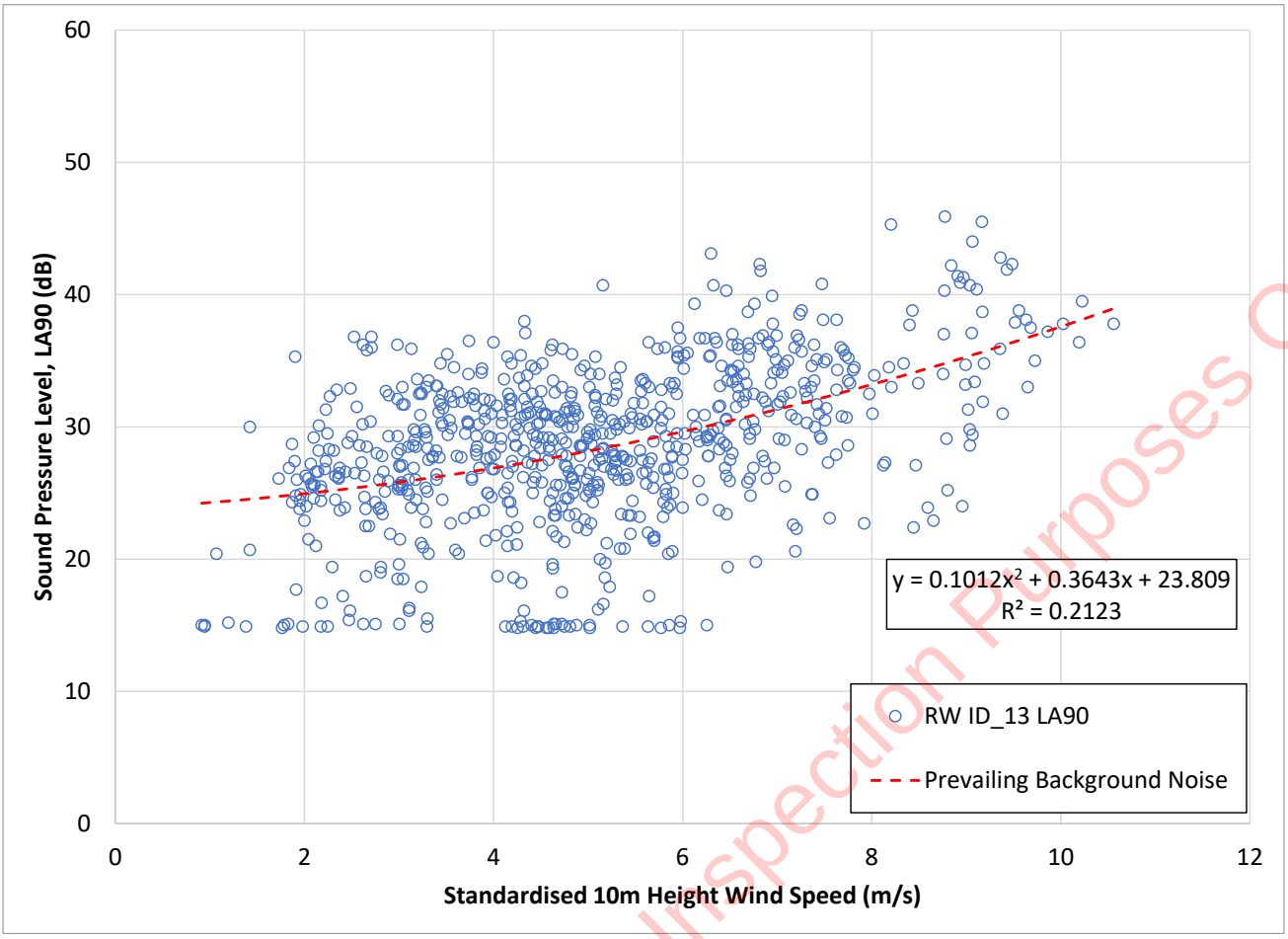


Figure A7.3: Prevailing Amenity/Daytime Background (L_{A90}) Noise Levels at RWID_13

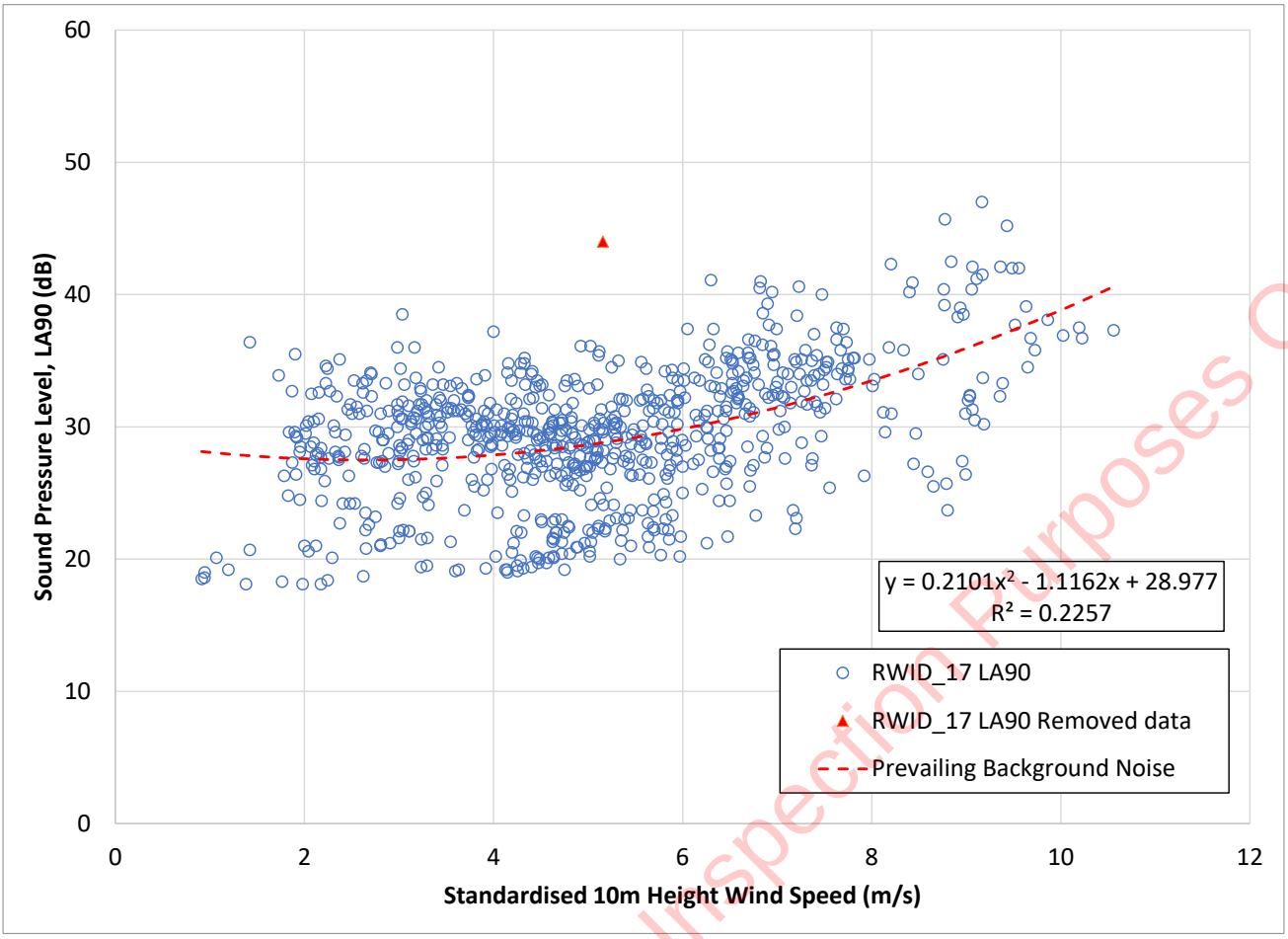


Figure A7.4: Prevailing Amenity/Daytime Background (L_{A90}) Noise Levels at RWID_17

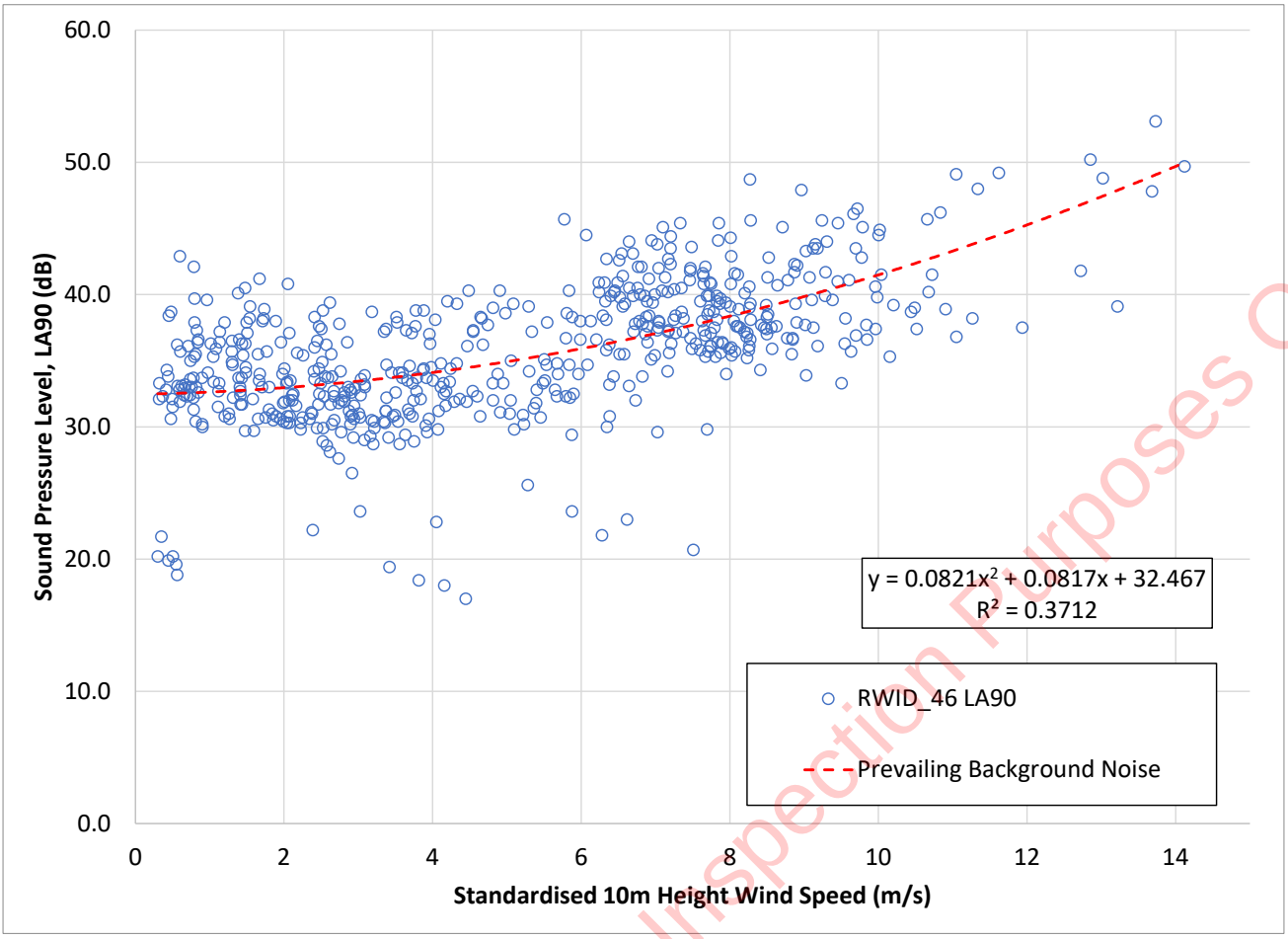


Figure A7.5: Prevailing Amenity/Daytime Background (L_{A90}) Noise Levels at RWID_46

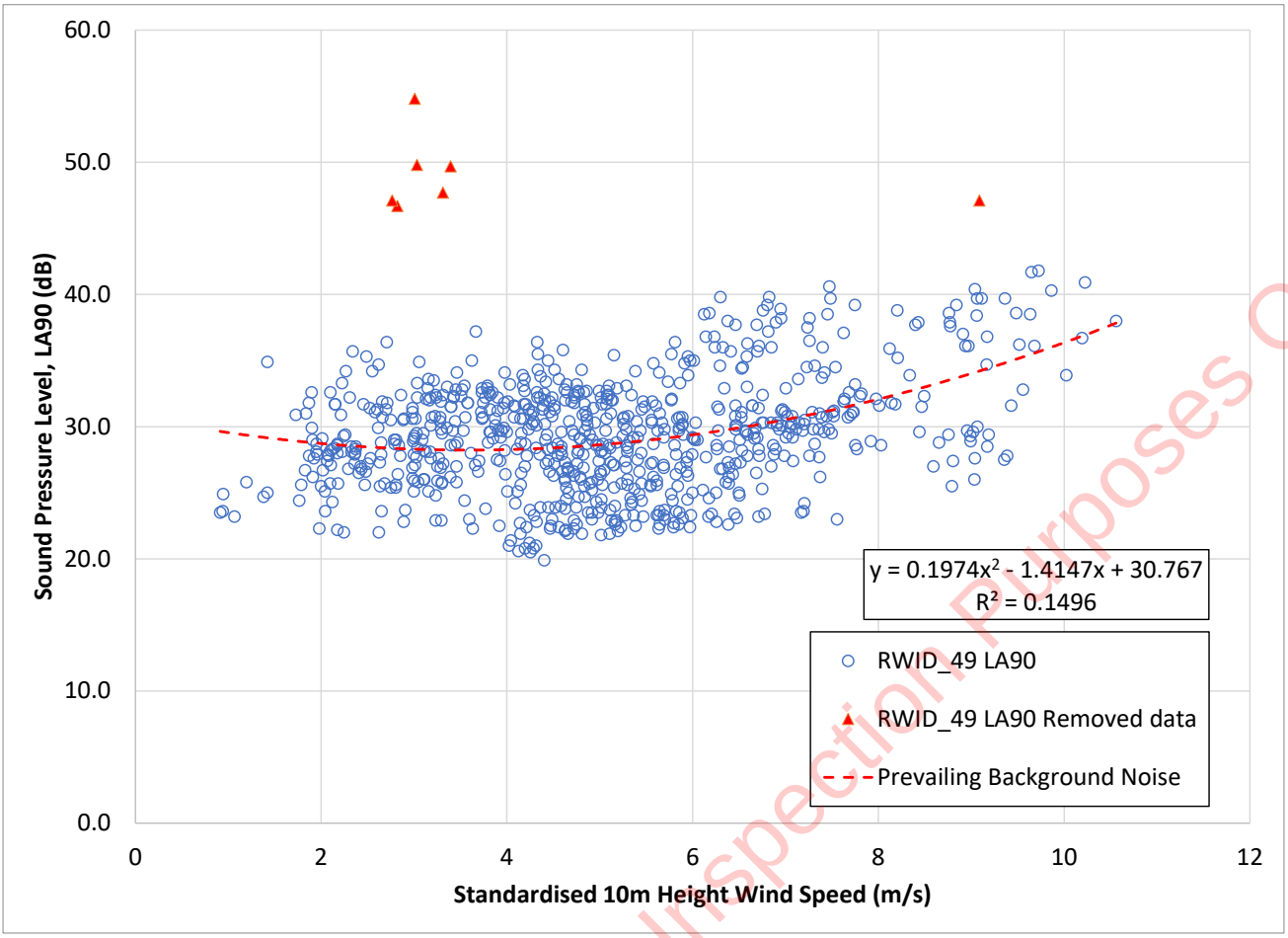


Figure A7.6: Prevailing Amenity/Daytime Background (L_{A90}) Noise Levels at RWID_49

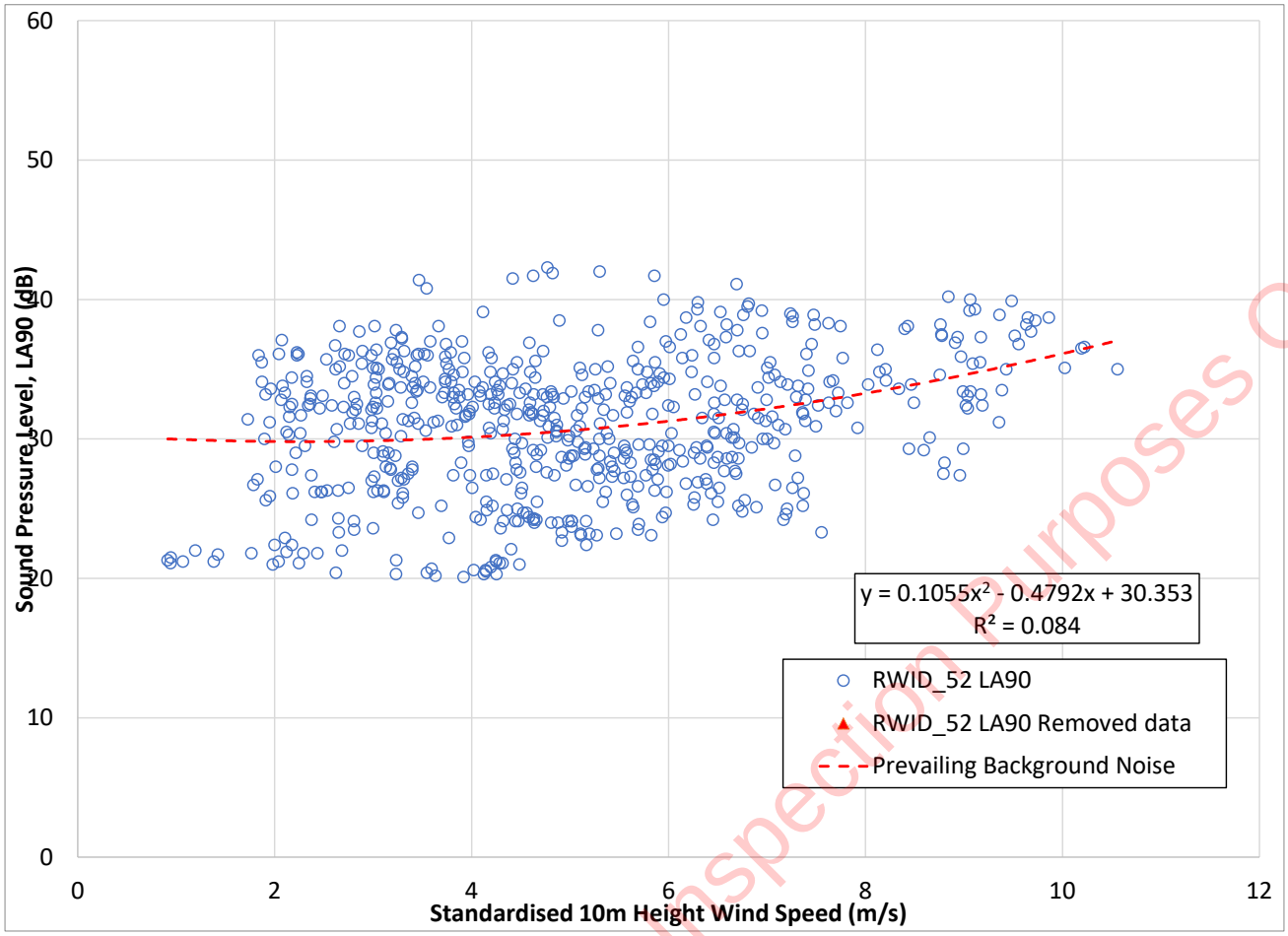


Figure A7.7: Prevailing Amenity/Daytime Background (L_{A90}) Noise Levels at RWID_52

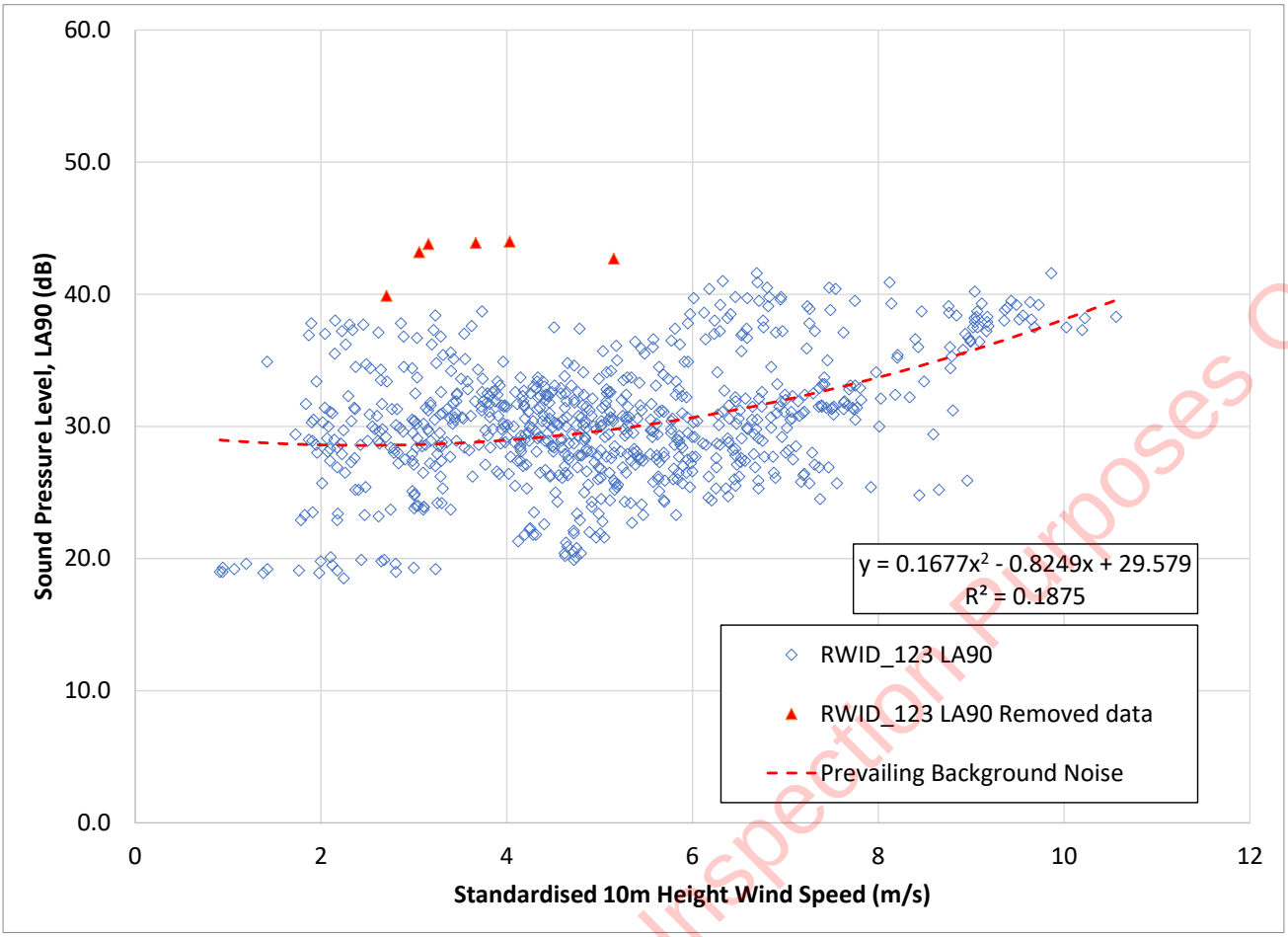


Figure A7.8: Prevailing Amenity/Daytime Background (L_{A90}) Noise Levels at RWID_123

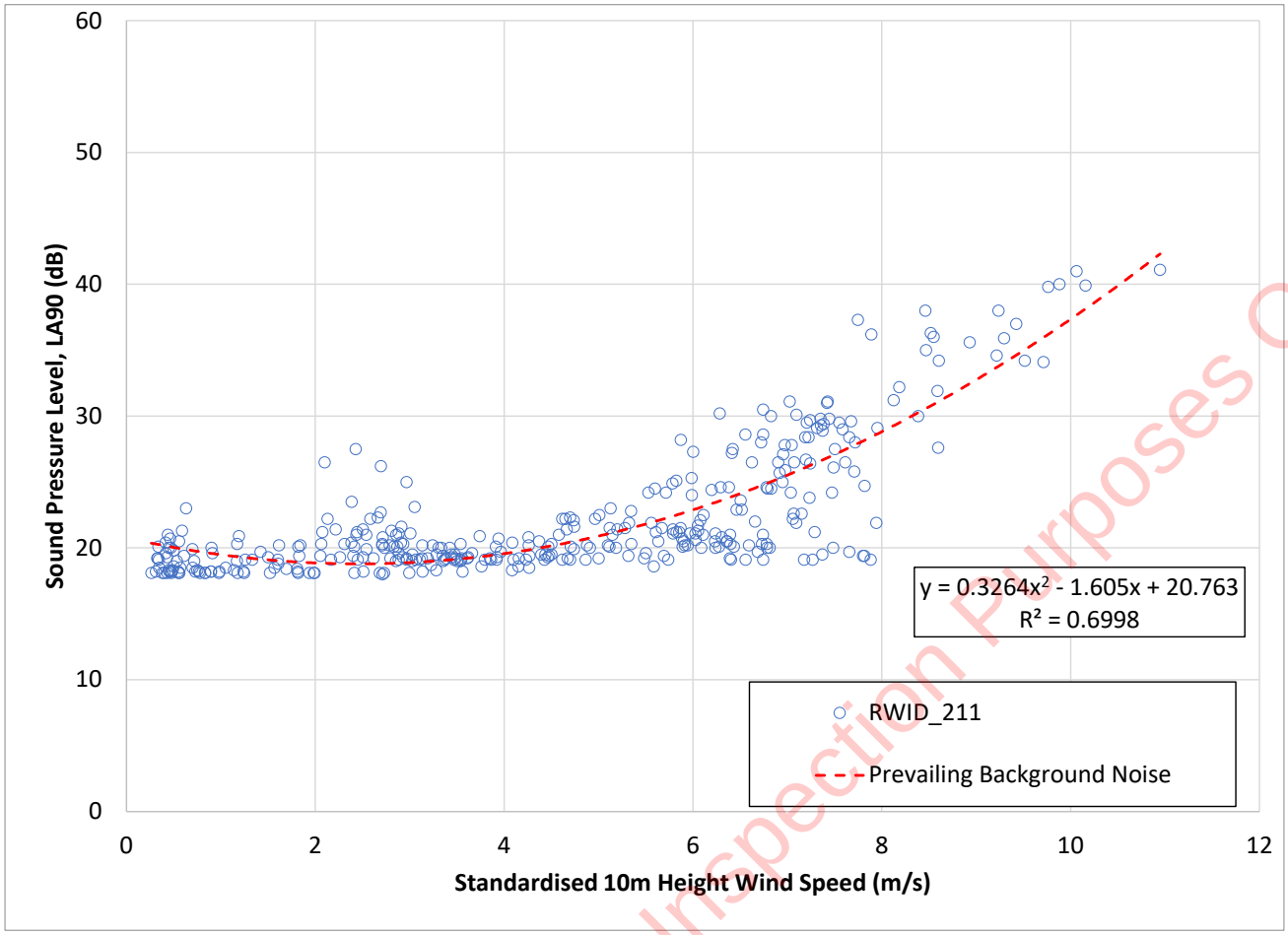


Figure A7.9: Prevailing Amenity/Daytime Background (L_{A90}) Noise Levels at RWID_211

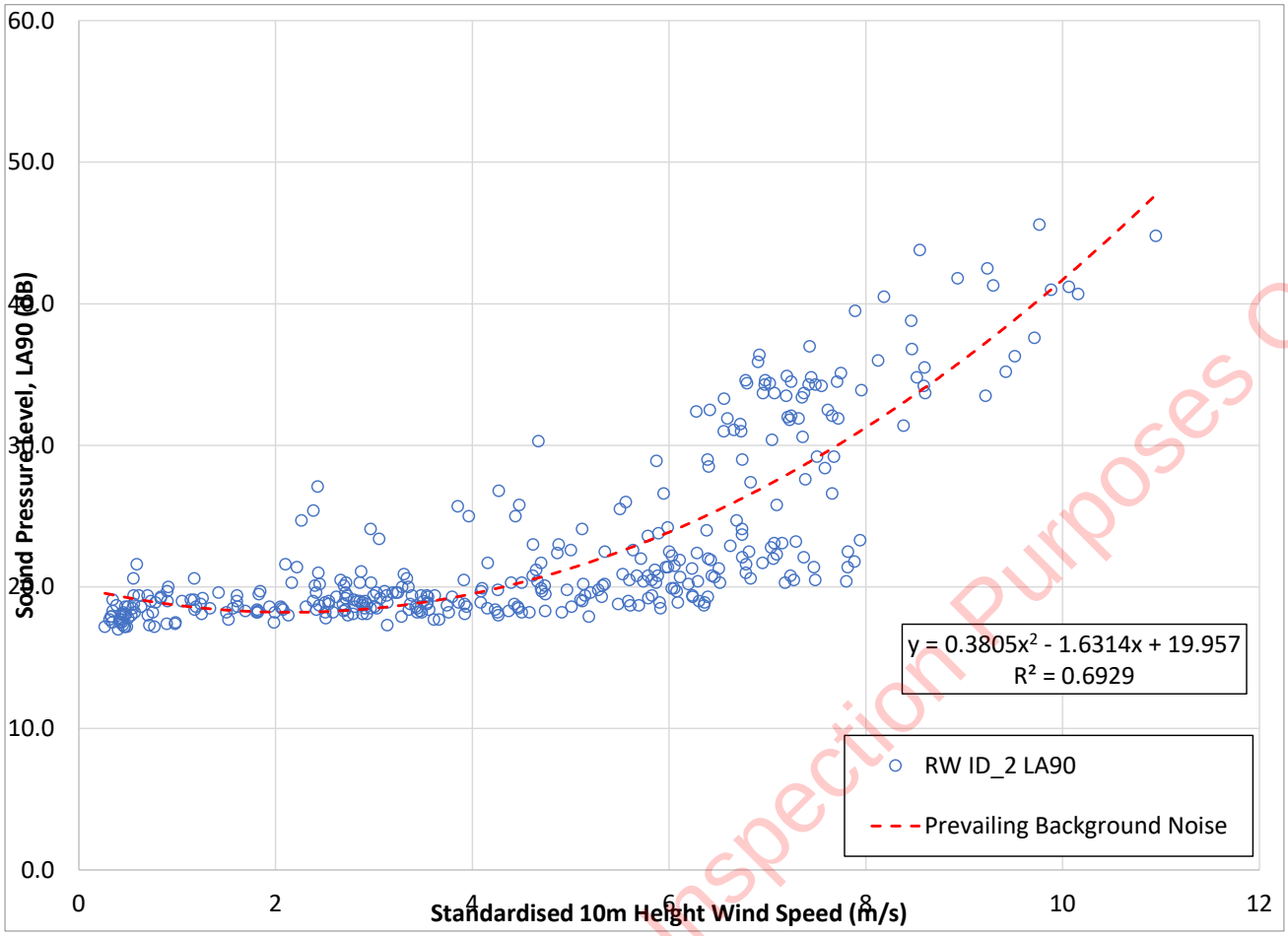


Figure A7.10: Prevailing Night-time Background (L_{A90}) Noise Levels at RWID_2

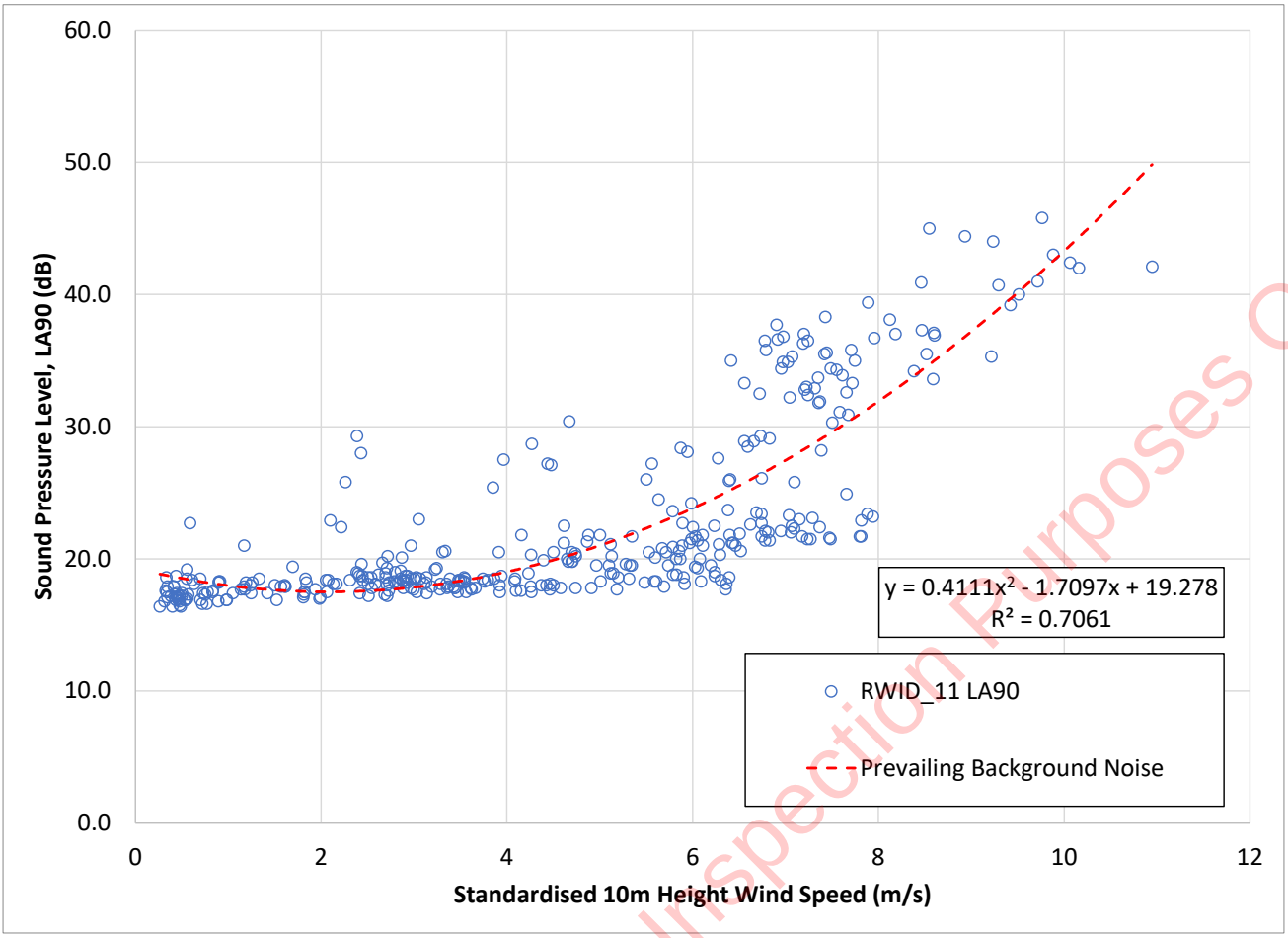


Figure A7.11: Prevailing Night-time Background (L_{A90}) Noise Levels at RWID_11

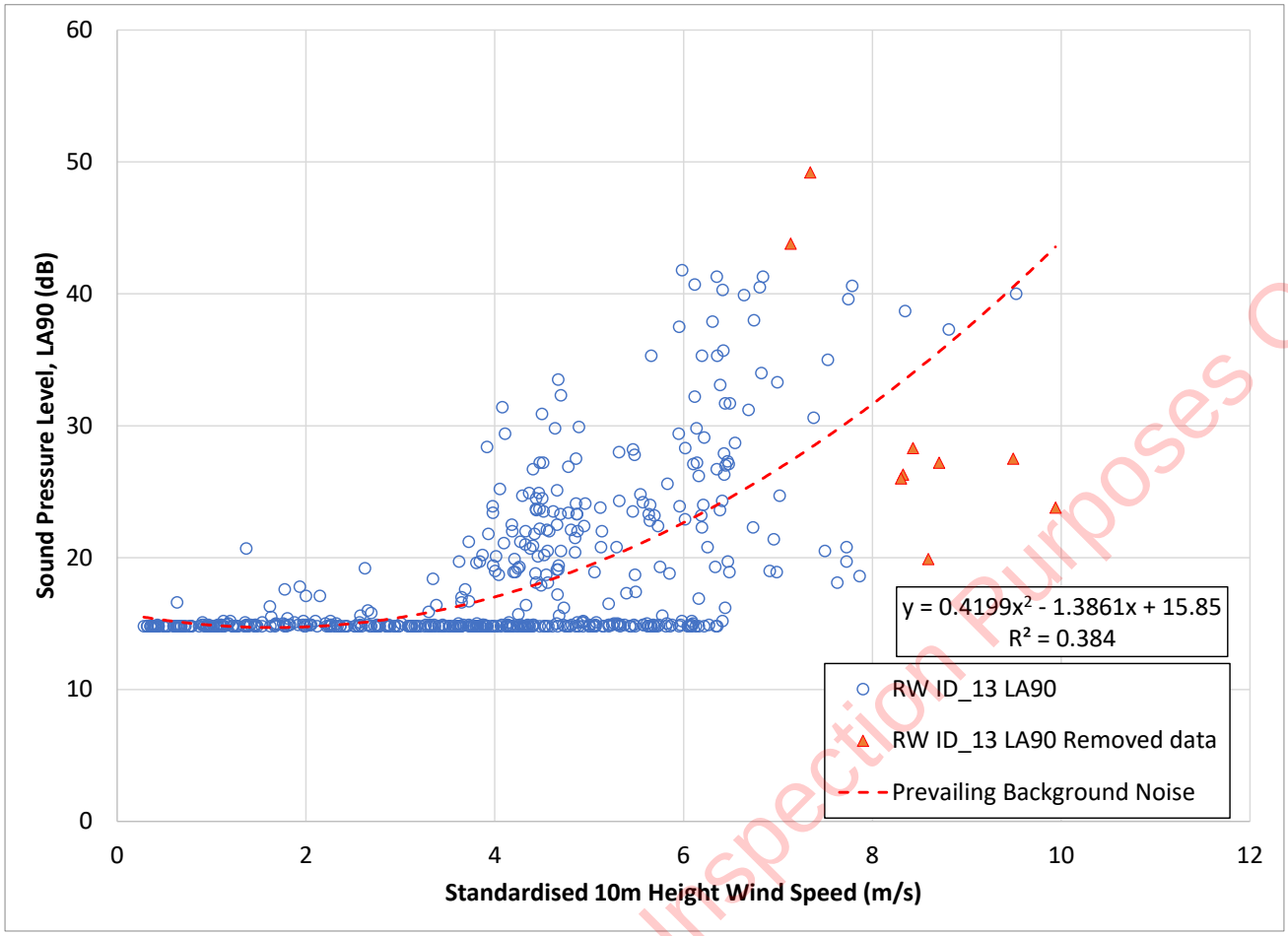


Figure A7.12: Prevailing Night-time Background (L_{A90}) Noise Levels at RWID_13

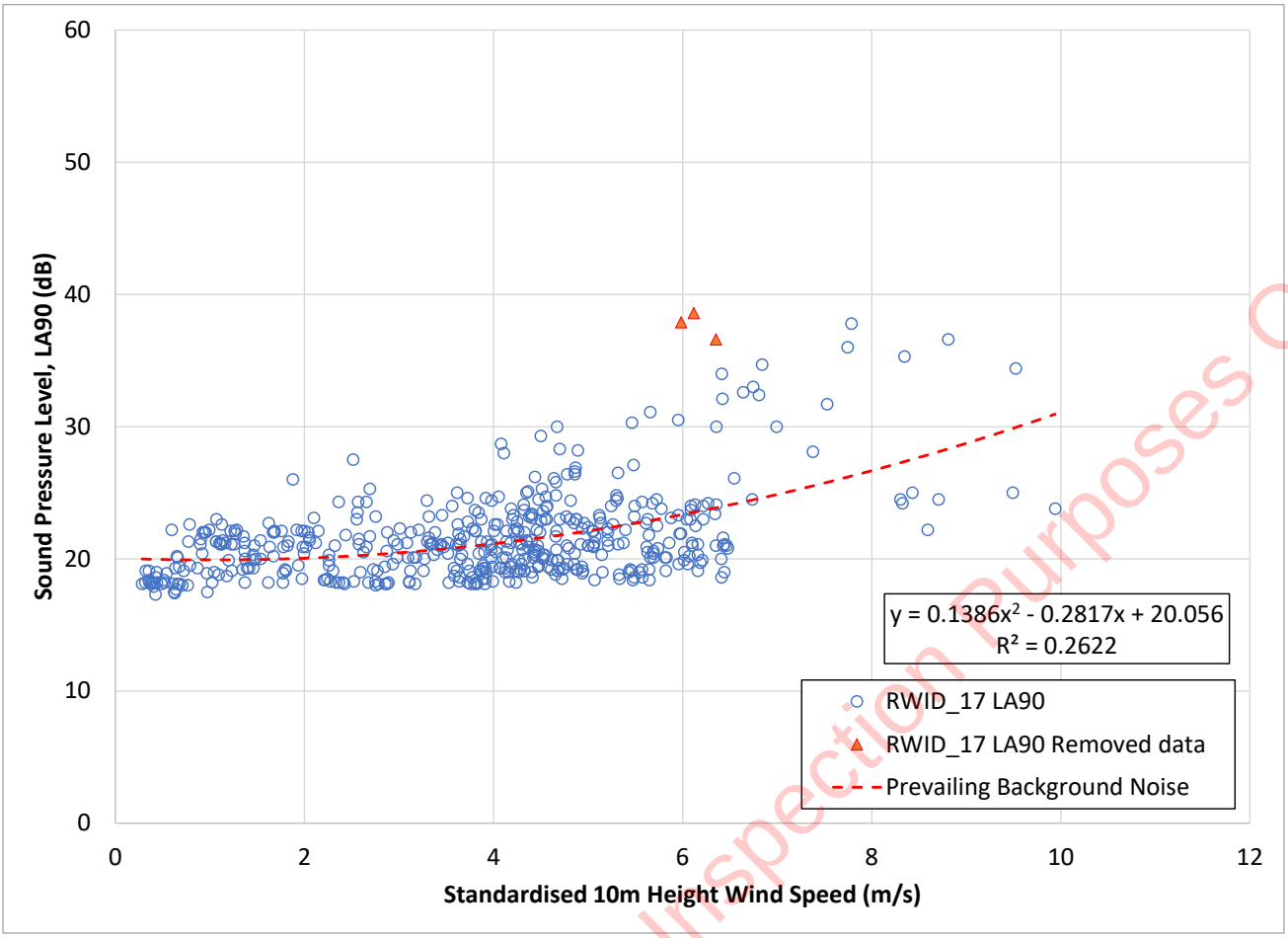


Figure A7.13: Prevailing Night-time Background (L_{A90}) Noise Levels at RWID_17

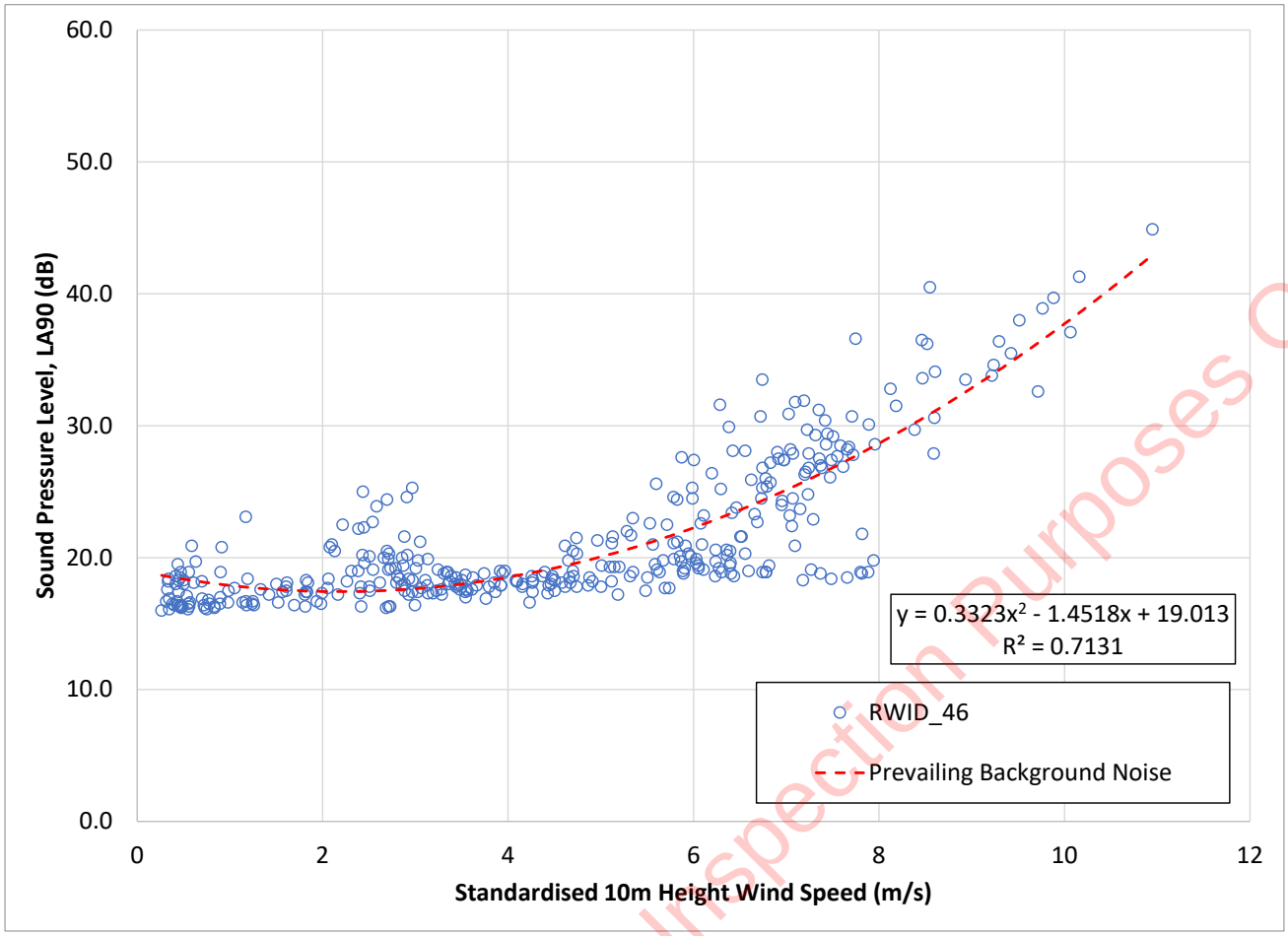


Figure A7.14: Prevailing Night-time Background (L_{A90}) Noise Levels at RWID_46

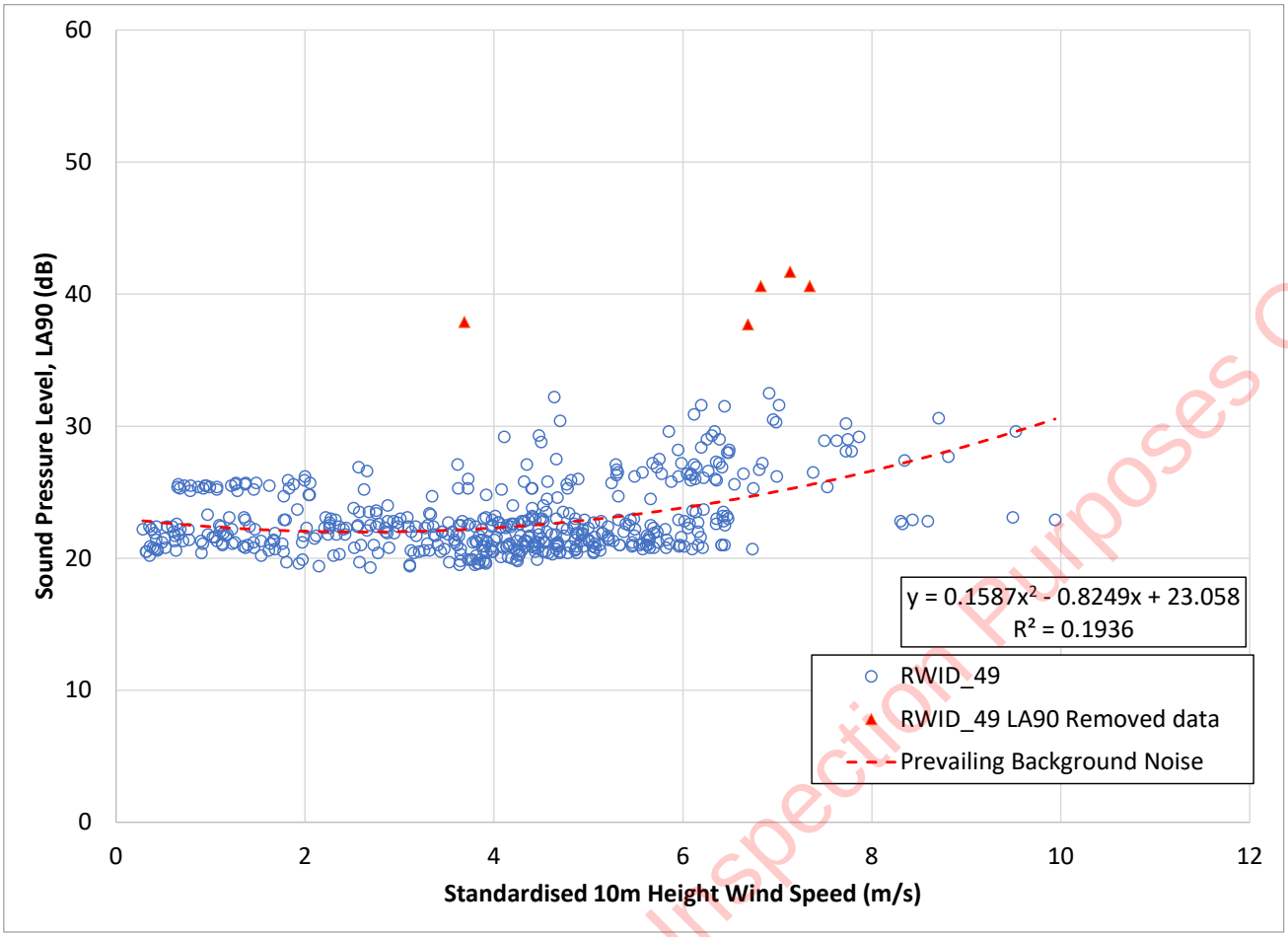


Figure A7.15: Prevailing Night-time Background (L_{A90}) Noise Levels at RWID_49

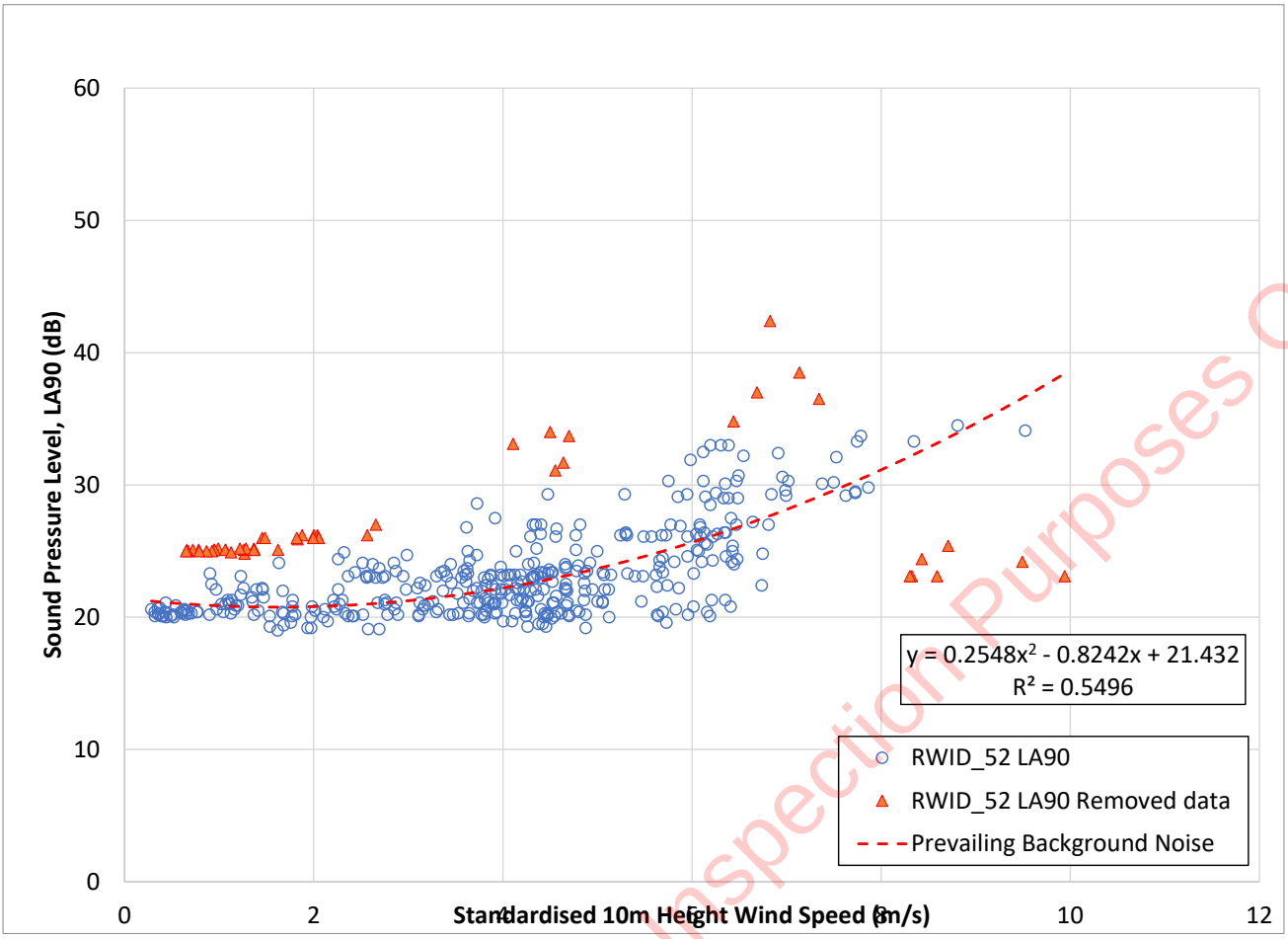


Figure A7.16: Prevailing Night-time Background (L_{A90}) Noise Levels at RWID_52

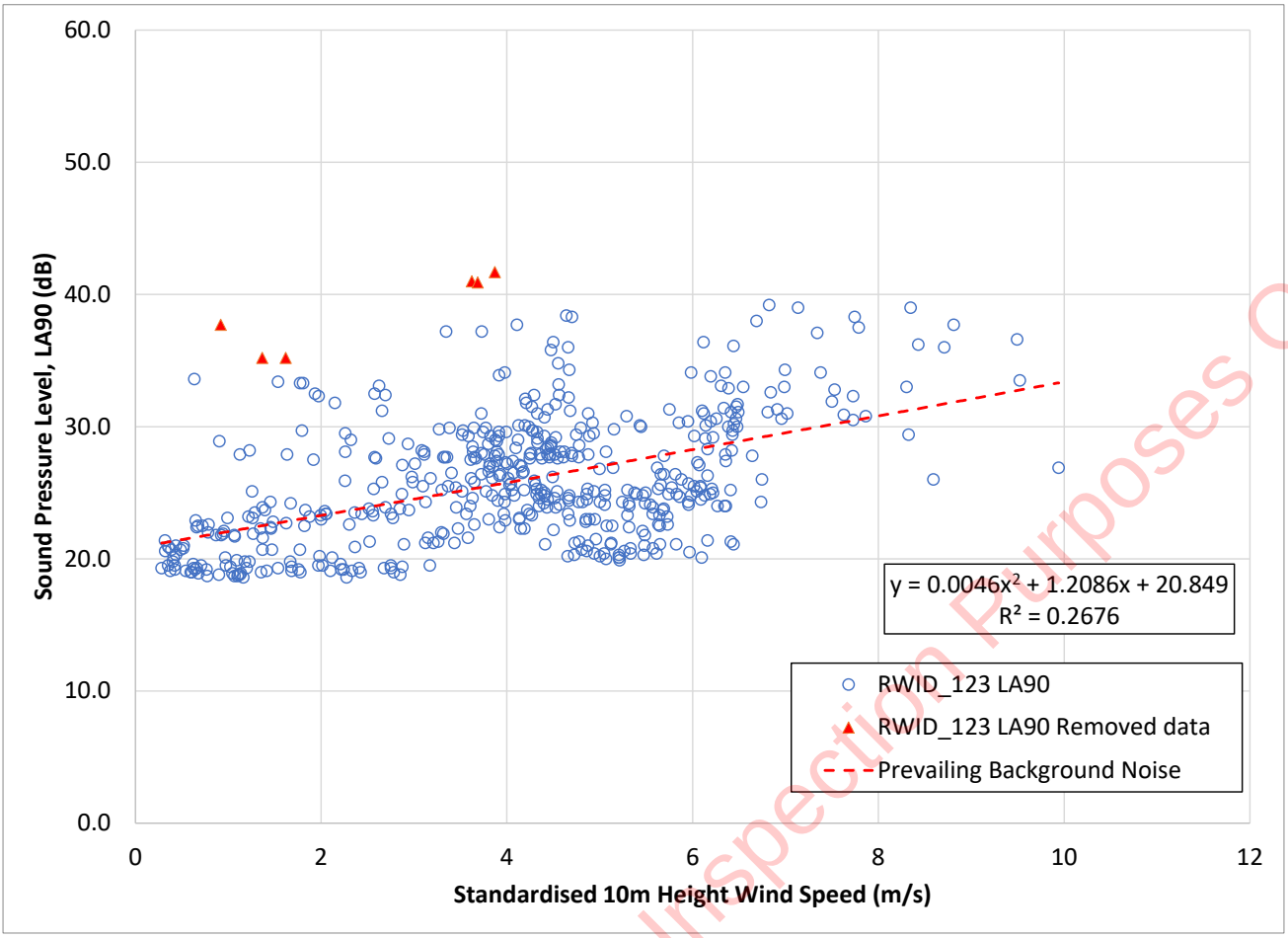


Figure A7.17: Prevailing Night-time Background (L_{A90}) Noise Levels at RWID_123

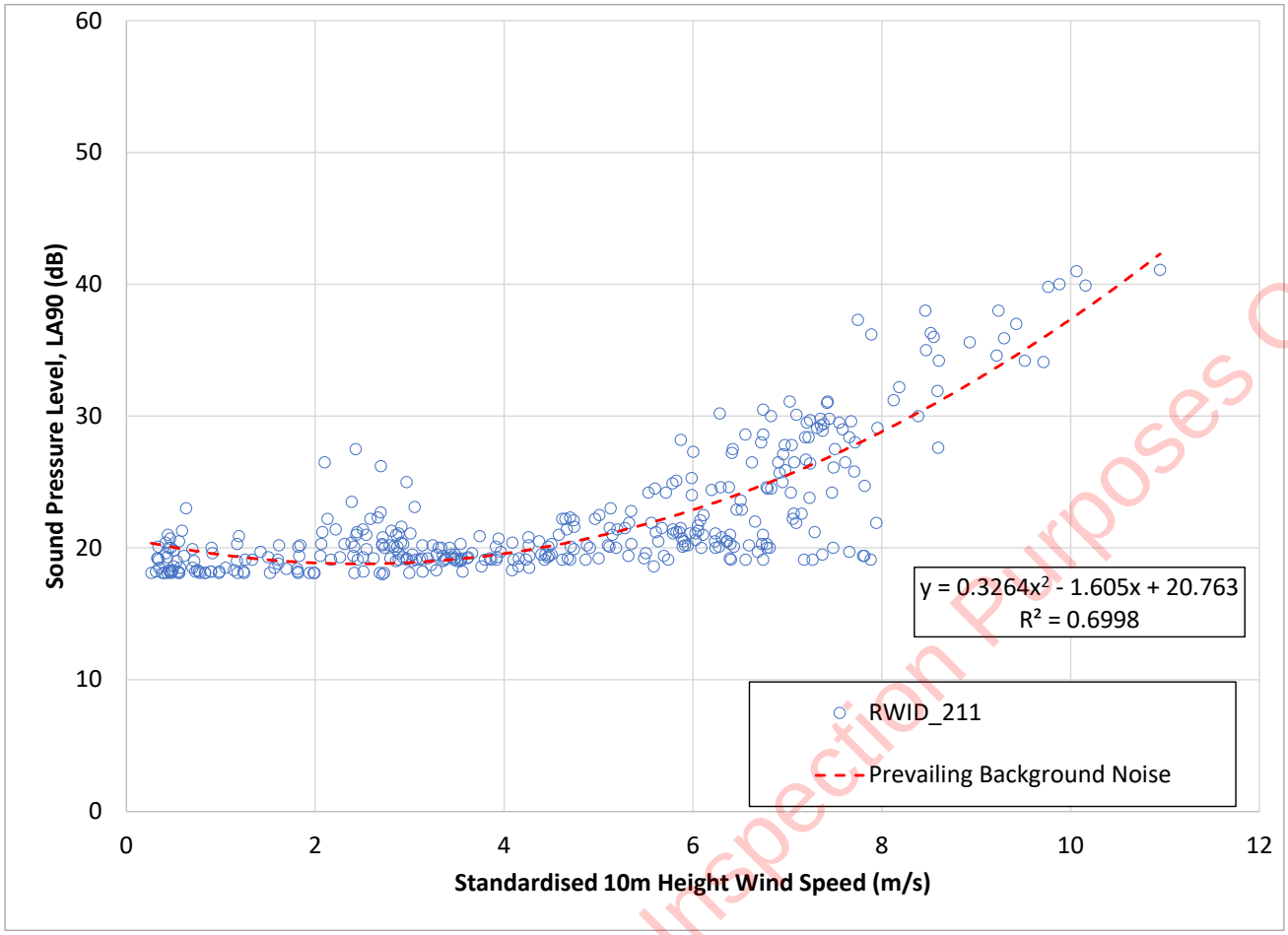


Figure A7.18: Prevailing Night-time Background (L_{A90}) Noise Levels at RWID_211

Table 7.1.6: Prevailing Background Noise – Daytime Periods

Location	Prevailing Background Noise $L_{A90,10min}$ (dB) at Standardised 10 m Height Wind Speed (m/s)											
	3	4	5	6	7	8	9	10	11	12	13	14
RWID_2	34.1	34.7	35.5	36.5	37.7	39.0	40.5	42.1	43.9	43.9§	43.9§	43.9§
RWID_11	31.7	32.5	33.5	34.7	36.2	37.9	39.8	42.0	44.4	44.4§	44.4§	44.4§
RWID_13	25.8	27.0	28.3	29.8	31.6	33.5	35.7	38.0	38.0§	38.0§	38.0§	38.0§
RWID_17	27.5	27.9	28.6	29.8	31.5	33.5	35.9	38.8	42.1	42.1§	42.1§	42.1§
RWID_46	33.5	34.1	34.9	35.9	37.1	38.4	39.9	41.5	41.5	41.5§	41.5§	41.5§
RWID_49	28.3	28.3	28.6	29.4	30.5	32.1	34.0	36.3	36.3§	36.3§	36.3§	36.3§
RWID_52	29.9	30.1	30.5	31.2	32.1	33.3	34.6	36.2	36.2§	36.2§	36.2§	36.2§
RWID_123	28.6	29.0	29.6	30.7	32.0	33.7	35.7	38.1	38.1§	38.1§	38.1§	38.1§
RWID_211	33.8	34.1	34.7	35.5	36.5	37.8	39.3	41.0	43.0	43.0§	43.0§	43.0§
§ - noise level restricted to the highest derived point												

Table 7.1.7: Prevailing Background Noise – Night-time Periods

Location	Prevailing Background Noise $L_{A90,10min}$ (dB) at Standardised 10 m Height Wind Speed (m/s)											
	3	4	5	6	7	8	9	10	11	12	13	14
RWID_2	18.5	19.5	21.3	23.9	27.2	31.3	36.1	41.7	41.7§	41.7§	41.7§	41.7§
RWID_11	17.8	19.0	21.0	23.8	27.5	31.9	37.2	43.3	43.3§	43.3§	43.3§	43.3§
RWID_13	15.5	17.0	19.4	22.6	26.7	31.6	31.6§	31.6§	31.6§	31.6§	31.6§	31.6§
RWID_17	20.5	21.3	22.4	23.7	25.4	27.4	27.4§	27.4§	27.4§	27.4§	27.4§	27.4§
RWID_46	17.6	18.5	20.1	22.3	25.1	28.7	32.9	37.7	37.7§	37.7§	37.7§	37.7§
RWID_49	22.1	22.5	23.1	24.1	25.5	27.2	27.2§	27.2§	27.2§	27.2§	27.2§	27.2§
RWID_52	21.3	22.4	24.0	26.2	28.9	32.3	32.3§	32.3§	32.3§	32.3§	32.3§	32.3§
RWID_123	24.9	26.2	27.4	28.7	30.0	31.3	31.3§	31.3§	31.3§	31.3§	31.3§	31.3§
RWID_211	18.9	19.6	20.9	22.9	25.5	28.8	32.8	37.4	37.4§	37.4§	37.4§	37.4§
§ - noise level restricted to the highest derived point												

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE
& PLANNING

Appendix 7.2

EQUIPMENT CALIBRATION CERTIFICATES

NSAI
National Metrology Laboratory

Certificate of Calibration

Issued to
Fehily Timoney & Company
J5 Plaza
North Business Park
North Road
Dublin 11

Attention of
Maureen Marsden

Certificate Number	220034
Item Calibrated	Svantek SVAN 977 Sound Level Meter with ACO 7052E Microphone
Serial Number	34173 (SLM) and 54691 (Microphone)
ID Number	None
Order Number	7018
Date Received	06 Jan 2022
NML Procedure Number	AP-NM-09

Method

The above sound level meter was allowed to stabilise for a suitable period in laboratory conditions. It was then calibrated by carrying out the verification tests detailed in IEC 61672-3 (2006), *Periodic tests, specification for the verification of sound level meters*. This standard specifies a procedure for the periodic verification of conformance of a sound level meter or integrating-averaging meter to IEC 61672-1 (2003).

Calibration Standards

Norsonic 1504A Calibration System incorporating:
SR DS360 Signal Generator, No. 0735 [Cal Due Date: 10 Jun 2022]
Agilent 34401A Digital Multimeter, No. 0736 [Cal Due Date: 10 Jun 2022]
B&K 4134 Measuring Microphone, No. 0744 [Cal Due Date: 03 Jun 2023]
B&K 4228 Pistonphone, No. 0740 [Cal Due Date: 04 Jun 2023]
B&K 4226 Acoustical Calibrator, No. 0150 [Cal Due Date: 07 Oct 2022]

Calibrated by	David Fleming	**Approved by**	Paul Hetherington
Date of Calibration	17 Jan 2022	**Date of Issue**	17 Jan 2022

CIPM MRA

This certificate is consistent with Calibration and Measurement Capabilities (CMC's) that are included in Appendix C of the Mutual Recognition Arrangement (MRA) drawn up by the International Committee for Weights and Measures. Under the MRA, all participating institutes recognize the validity of each other's calibration certificates and measurement reports for quantities, ranges and measurement uncertainties specified in Appendix C (for details see www.bipm.org)

Glas Naíon | Baile Átha Cliath 11 | Eire
Glasnevin | Dublin 11 | Ireland T+ 353 1 808 2609 | F+353 1 808 2603 | NSAI.ie

NSAI
National Metrology Laboratory

Certificate of Calibration

Issued to
Fehily Timoney & Company
J5 Plaza
North Business Park
North Road
Dublin 11

Attention of
Maureen Marsden

Certificate Number	220035
Item Calibrated	Svantek SVAN 977 Sound Level Meter with ACO 7052E Microphone
Serial Number	34876 (SLM) and 56429 (Microphone)
ID Number	None
Order Number	7018
Date Received	06 Jan 2022
NML Procedure Number	AP-NM-09
Method	The above sound level meter was allowed to stabilise for a suitable period in laboratory conditions. It was then calibrated by carrying out the verification tests detailed in IEC 61672-3 (2006), *Periodic tests, specification for the verification of sound level meters*. This standard specifies a procedure for the periodic verification of conformance of a sound level meter or integrating-averaging meter to IEC 61672-1 (2003).
Calibration Standards	Norsonic 1504A Calibration System incorporating: SR DS360 Signal Generator, No. 0735 [Cal Due Date: 10 Jun 2022] Agilent 34401A Digital Multimeter, No. 0736 [Cal Due Date: 10 Jun 2022] B&K 4134 Measuring Microphone, No. 0744 [Cal Due Date: 03 Jun 2023] B&K 4228 Pistonphone, No. 0740 [Cal Due Date: 04 Jun 2023] B&K 4226 Acoustical Calibrator, No. 0150 [Cal Due Date: 07 Oct 2022]

Calibrated by	David Fleming	**Approved by**	Paul Hetherington
Date of Calibration	18 Jan 2022	**Date of Issue**	18 Jan 2022

CIPM MRA

This certificate is consistent with Calibration and Measurement Capabilities (CMC's) that are included in Appendix C of the Mutual Recognition Arrangement (MRA) drawn up by the International Committee for Weights and Measures. Under the MRA, all participating institutes recognize the validity of each other's calibration certificates and measurement reports for quantities, ranges and measurement uncertainties specified in Appendix C (for details see www.bipm.org)

Statement of Calibration

Issued to:	Calibration Reference
Fehily Timoney J5 Plaza North Park Business Park North Road Dublin 11	SLM200096

Test Date: 03/06/2020
Procedure: TP-SLM-1

Equipment

Item Calibrated:	Sound Level Meter	**Model**	977
Make:	Svantek	**Serial Number:**	69556

Calibration Procedure

The sound level meter was allowed to stabilize for a suitable period, as described in the manufacturer's instruction manual, in laboratory conditions. The sound level meter was calibrated by carrying out the verification tests detailed in IEC 61672-3 (2006), Periodic tests, specification of sound level meters. Tolerances for verification procedures are specified in IEC 61672-1 (2003).

Calibration Standards

Description	Serial Number
National Instruments PXI-4461	19C91D2
Stanford Research DS360	123803

The standards used in this calibration are traceable to NIST and/or other National Measurement Institutes (NMI's) that are signatories of the International Committee of Weights and Measures (CIPM) mutual recognition agreement (MRA).

Signed on behalf of Sonitus Systems:

SONITUS SYSTEMS

Calibration Report

Equipment Description

Model:	Svantek	**Serial Number:**	69556
Model:	977	**Microphone Model:**	ACO 7052E

Ambient Conditions

Measurement conditions were within the tolerances defined in IEC 61672-1 and IEC 60942.

Barometric Pressure:	1030	hPa
Temperature:	22.5	°C
Relative Humidity:	39	%

Results Summary

IEC 61672 Test #	Test Description	Result
10	Self-generated noise	-
11	Frequency weighting (acoustical)	PASS
12	Frequency weighting (electrical)	PASS
13	Frequency and time weighting (1kHz)	PASS
14	Level linearity on reference level range	PASS
15	Level linearity with level range control	-
16	Toneburst response	PASS
17	Peak C sound level	PASS
18	Overload indication	PASS

As public evidence was available, from a testing organization responsible for approving the results of pattern evaluation tests, to demonstrate that the model of sound level meter fully conformed to the requirements for pattern evaluation described in IEC 61672:2003, the sound level meter tested is considered to conform to all the Class 1 requirements of IEC 61672:2003.

The manufacturer's guidelines concerning appropriate set up for measurement under various conditions should be observed during usage.

Prior to carrying out the verification tests the sound level meter was adjusted to read correctly using the acoustic calibrator held by the testing lab (Cirrus CR511ES, Serial number: 60871). The calibration procedure is described in the manufacturer's instruction manual.

Self-generated noise - IEC 61672-3 Test #10
SLM Measuring Mode: Leq

SLM Configuration	Freq. Weighting Network	SLM Reading
Microphone Installed	A	21.2
Microphone replaced by electrical input device fitted with short circuit	A	8.7
	C	8.7
	Z	8.7

Acoustical signal test of a frequency weighting - IEC 61672-3 Test #11
Range: reference level range
Frequency Weighting: C
Time Weighting: Slow

Input	Freq	Expected Level	Deviation	Tol +/-
94 dB	1000 Hz	94.0	0.0	1.0
	125 Hz	93.7	0.2	1.0
	4000 Hz	92.3	0.1	1.0

The frequency response was tested using an electrostatic actuator. Appropriate correction factors were applied where available from the manufacturer's instruction manual.

Electrical tests of frequency weighting - IEC 61672-3 Test #12
Range: reference level range

A-weighting

Freq	Expected Level	SLM Reading	Deviation	Tol +	Tol -
63	95.0	95.0	0.0	1.5	-1.5
125	95.0	95.0	0.0	1.5	-1.5
250	95.0	94.9	-0.1	1.4	-1.4
500	95.0	95.0	0.0	1.4	-1.4
1000	95.0	95.0	0.0	1.1	-1.1
2000	95.0	94.9	-0.1	1.6	-1.6
4000	95.0	95.1	0.1	1.6	-1.6
8000	95.0	95.1	0.1	2.1	-3.1
16000	95.0	94.7	-0.3	3.5	-17.0

C-weighting

Freq	Expected Level	SLM Reading	Deviation	Tol +	Tol -
63	95.0	94.9	-0.1	1.5	-1.5
125	95.0	95.3	0.3	1.5	-1.5
250	95.0	95.0	0.0	1.4	-1.4
500	95.0	95.0	0.0	1.4	-1.4
1000	95.0	95.0	0.0	1.1	-1.1
2000	95.0	95.1	0.1	1.6	-1.6
4000	95.0	95.1	0.1	1.6	-1.6
8000	95.0	95.1	0.1	2.1	-3.1
16000	95.0	94.7	-0.3	3.5	-17.0

Linear

Freq	Expected Level	SLM Reading	Deviation	Tol +	Tol -
63	95.0	95.0	0.0	1.5	-1.5
125	95.0	95.0	0.0	1.5	-1.5
250	95.0	95.0	0.0	1.4	-1.4
500	95.0	95.0	0.0	1.4	-1.4
1000	95.0	95.0	0.0	1.1	-1.1
2000	95.0	95.0	0.0	1.6	-1.6
4000	95.0	95.0	0.0	1.6	-1.6
8000	95.0	95.0	0.0	2.1	-3.1
16000	95.0	95.0	0.0	3.5	-17.0

Frequency and Time Weightings at 1 kHz IEC 61672-3 Test #13
Range: reference level range

Time Weighting	Freq. Weighting	Expected Level	Deviation	Tol +/-
Fast	A	94.0	ref	
	C	94.0	0.0	0.2
Slow	A	94.0	0.0	0.2
LEQ	A	94.0	0.0	0.2

Linearity level on reference range - IEC 61672-3 Test #14
Input frequency: 8 kHz
SLM Measuring Mode: SPL

Range	Expected Level	SLM Reading	Deviation	Tol +/-
123 dB	94.0	94.0	0.0	1.1
	99.0	99.0	0.0	1.1
	104.0	104.0	0.0	1.1
	109.0	109.0	0.0	1.1
	114.0	114.0	0.0	1.1
	119.0	119.0	0.0	1.1
	124.0	124.0	0.0	1.1
	129.0	129.0	0.0	1.1
	134.0	134.1	0.1	1.1
	135.0	135.1	0.1	1.1
	136.0	136.1	0.1	1.1
	137.0	137.1	0.1	1.1
	89.0	89.0	0.0	1.1
	84.0	84.0	0.0	1.1
	79.0	79.0	0.0	1.1
	74.0	74.0	0.0	1.1
	69.0	69.0	0.0	1.1
	64.0	64.0	0.0	1.1
	59.0	59.0	0.0	1.1
	54.0	54.0	0.0	1.1
	49.0	49.1	0.1	1.1
	44.0	44.1	0.1	1.1
	43.0	43.2	0.2	1.1
	42.0	42.2	0.2	1.1
	41.0	41.2	0.2	1.1
	40.0	40.3	0.3	1.1
	39.0	39.4	0.4	1.1

Toneburst response - IEC 61672-3 Test #16
Range: reference level range

Burst Type	Response	Expected Level	SLM Reading	Deviation	Tol +	Tol -
0.25 ms	LAFMAX	111.0	110.8	-0.2	0.8	-0.8
2.0 ms	LAFMAX	120.0	119.9	-0.1	1.3	-1.3
200 ms	LAFMAX	137.0	137.0	0.0	1.3	-3.3
2.0 ms	LASMAX	111.0	111.3	0.3	0.8	-0.8
200 ms	LASMAX	130.6	130.6	0.0	1.3	-3.3

Peak C sound level - IEC 61672-3 Test #17
Range: reference level range

Pulse Type	Freq	Expected Level	SLM Reading	Deviation	Tol +/-
1 cycle	8 kHz	135.4	135.2	-0.2	2.4
Pos ½ cycle	500 Hz	137.4	137.3	-0.1	1.4
Neg ½ cycle	500 Hz	137.4	137.3	-0.1	1.4

Overload indication IEC 61672-3 Test #18

Test Description	Overload at	Meas. Diff. (Pos – Neg)	Tol +/-
Pos. ½ cycle at 4 kHz	140.6		
Neg. ½ cycle at 4 kHz	140.7		
Level difference		-0.1	1.8

Calibration Notes

1. The manufacturer's instruction manual was accessed through the manufacturer's website.
2. The sound level meter was powered by a regulated 9V power supply provided by the testing laboratory.

Calibration Certificate

Certificate Number 2020009751

Customer:

Environmental Measurement
Unit 12 Tallaght Business Centre
Whitestown Business Park
Dublin, 24, Ireland

Model Number	LxT SE		***Procedure Number***	D0001.8378	
Serial Number	0006241		***Technician***	Ron Harris	
Test Results	**Pass**		***Calibration Date***	4 Sep 2020	
Initial Condition	As Manufactured		***Calibration Due***		
Description	Sound Expert LxT Class 1 Sound Level Meter Firmware Revision: 2.404		***Temperature***	23.69 °C	± 0.25 °C
			Humidity	50.5 %RH	± 2.0 %RH
			Static Pressure	86.75 kPa	± 0.13 kPa

Evaluation Method Tested electrically using Larson Davis PRMLxT1L S/N 069977 and a 12.0 pF capacitor to simulate microphone capacitance. Data reported in dB re 20 µPa assuming a microphone sensitivity of 23.6 mV/Pa.

Compliance Standards Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8384:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1
IEC 61260:2001 Class 1	ANSI S1.11 (R2009) Class 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2017. **Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.**

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

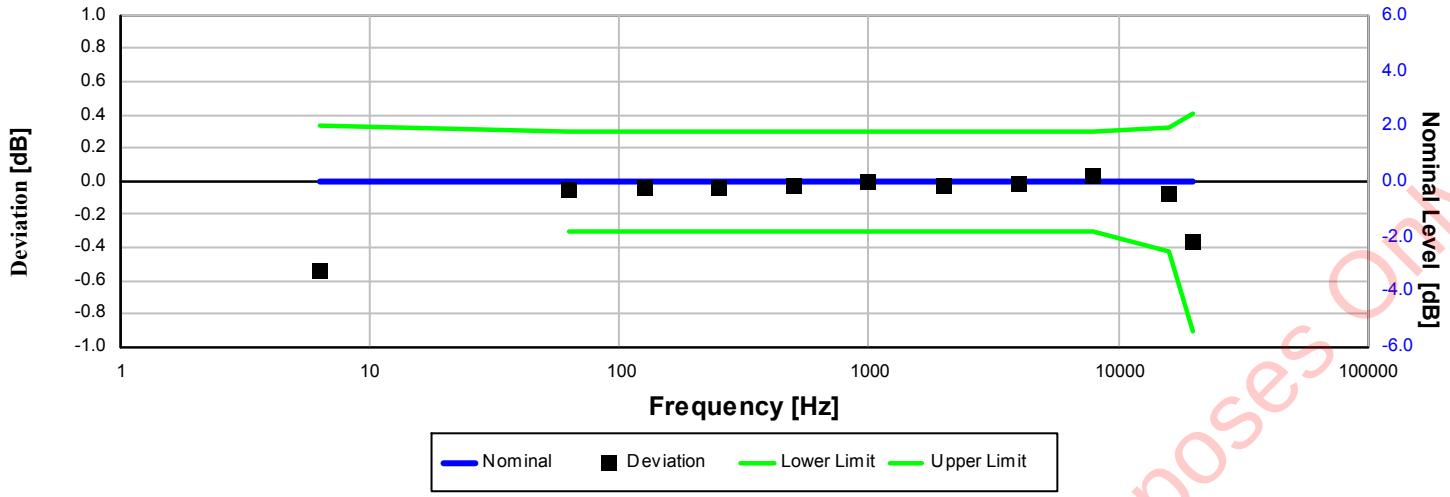
The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert Lxt, I770.01 Rev O Supporting Firmware Version 4.0.5, 2019-09-10

Calibration Check Frequency: 1000 Hz; Reference Sound Pressure Level: 114 dB re 20 µPa

Standards Used			
Description	**Cal Date**	**Cal Due**	**Cal Standard**
Hart Scientific 2626-S Humidity/Temperature Sensor	2020-05-12	2021-05-12	006943
SRS DS360 Ultra Low Distortion Generator	2020-01-17	2021-01-17	007118

Z-weight Filter Response

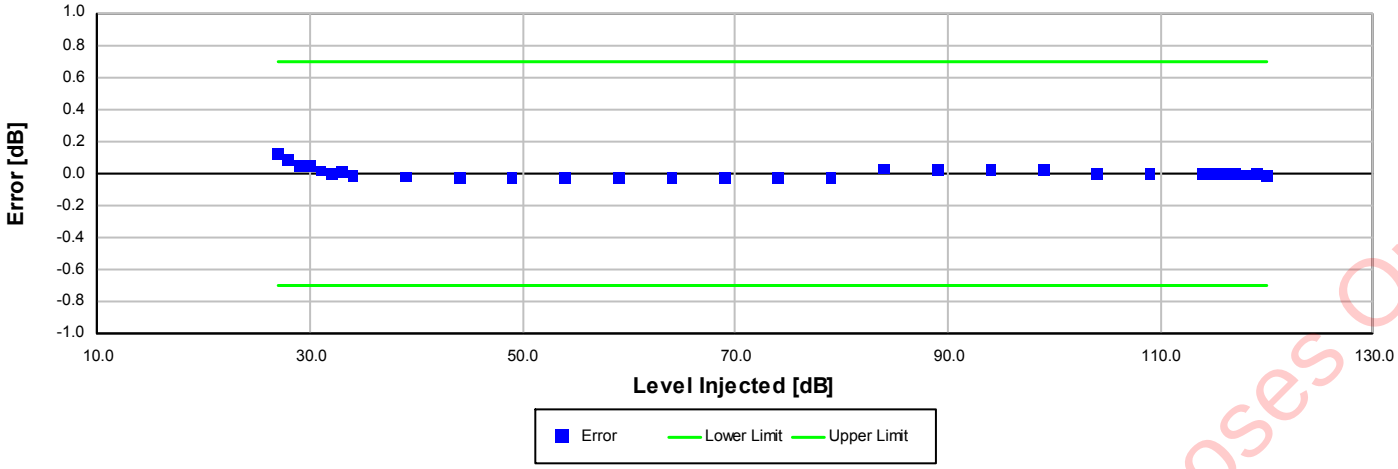


Electrical signal test of frequency weighting performed according to IEC 61672-3:2013 13 and ANSI S1.4-2014 Part 3: 13 for compliance to IEC 61672-1:2013 5.5; IEC 60651:2001 6.1 and 9.2.2; IEC 60804:2000 5; ANSI S1.4:1983 (R2006) 5.1 and 8.2.1; ANSI S1.4-2014 Part 1: 5.5

Frequency [Hz]	Test Result [dB]	Deviation [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
6.31	-0.54	-0.54	-1.11	0.33	0.15	Pass
63.10	-0.05	-0.05	-0.30	0.30	0.15	Pass
125.89	-0.04	-0.04	-0.30	0.30	0.15	Pass
251.19	-0.04	-0.04	-0.30	0.30	0.15	Pass
501.19	-0.02	-0.02	-0.30	0.30	0.15	Pass
1,000.00	0.00	0.00	-0.30	0.30	0.15	Pass
1,995.26	-0.02	-0.02	-0.30	0.30	0.15	Pass
3,981.07	-0.01	-0.01	-0.30	0.30	0.15	Pass
7,943.28	0.03	0.03	-0.30	0.30	0.15	Pass
15,848.93	-0.07	-0.07	-0.42	0.32	0.15	Pass
19,952.62	-0.36	-0.36	-0.91	0.41	0.15	Pass

-- End of measurement results--

A-weighted Broadband Log Linearity: 8,000.00 Hz



Broadband level linearity performed according to IEC 61672-3:2013 16 and ANSI S1.4-2014 Part 3: 16 for compliance to IEC 61672-1:2013 5.6, IEC 60804:2000 6.2, IEC 61252:2002 8, ANSI S1.4 (R2006) 6.9, ANSI S1.4-2014 Part 1: 5.6, ANSI S1.43 (R2007) 6.2

Level [dB]	Error [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
27.00	0.12	-0.70	0.70	0.16	Pass
28.00	0.09	-0.70	0.70	0.17	Pass
29.00	0.05	-0.70	0.70	0.16	Pass
30.00	0.05	-0.70	0.70	0.35	Pass
31.00	0.02	-0.70	0.70	0.16	Pass
32.00	0.00	-0.70	0.70	0.16	Pass
33.00	0.01	-0.70	0.70	0.16	Pass
34.00	-0.01	-0.70	0.70	0.16	Pass
39.00	-0.02	-0.70	0.70	0.16	Pass
44.00	-0.03	-0.70	0.70	0.16	Pass
49.00	-0.03	-0.70	0.70	0.16	Pass
54.00	-0.03	-0.70	0.70	0.16	Pass
59.00	-0.03	-0.70	0.70	0.16	Pass
64.00	-0.03	-0.70	0.70	0.16	Pass
69.00	-0.03	-0.70	0.70	0.16	Pass
74.00	-0.03	-0.70	0.70	0.16	Pass
79.00	-0.03	-0.70	0.70	0.16	Pass
84.00	0.03	-0.70	0.70	0.16	Pass
89.00	0.03	-0.70	0.70	0.16	Pass
94.00	0.02	-0.70	0.70	0.16	Pass
99.00	0.02	-0.70	0.70	0.16	Pass
104.00	0.00	-0.70	0.70	0.15	Pass
109.00	0.00	-0.70	0.70	0.15	Pass
114.00	0.00	-0.70	0.70	0.15	Pass
115.00	0.00	-0.70	0.70	0.15	Pass
116.00	0.00	-0.70	0.70	0.15	Pass
117.00	0.00	-0.70	0.70	0.15	Pass
118.00	-0.01	-0.70	0.70	0.15	Pass
119.00	0.00	-0.70	0.70	0.15	Pass
120.00	-0.02	-0.70	0.70	0.15	Pass

-- End of measurement results--

Peak Rise Time

Peak rise time performed according to IEC 60651:2001 9.4.4 and ANSI S1.4:1983 (R2006) 8.4.4

Amplitude [dB]	Duration [µs]		Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
116.15	40	Negative Pulse	117.52	116.05	118.05	0.15	Pass
		Positive Pulse	117.49	116.01	118.01	0.15	Pass
	30	Negative Pulse	116.59	116.05	118.05	0.15	Pass
		Positive Pulse	116.55	116.01	118.01	0.15	Pass

-- End of measurement results--

Positive Pulse Crest Factor

200 µs pulse tests at 2.0, 12.0, 22.0, 32.0 dB below Overload Limit

Crest Factor measured according to IEC 60651:2001 9.4.2 and ANSI S1.4:1983 (R2006) 8.4.2

Amplitude [dB]	Crest Factor	Test Result [dB]	Limits [dB]	Expanded Uncertainty [dB]	Result
114.15	3	OVLD	± 0.50	0.15 ‡	Pass
	5	OVLD	± 1.00	0.15 ‡	Pass
	10	OVLD	± 1.50	0.15 ‡	Pass
104.15	3	-0.16	± 0.50	0.15 ‡	Pass
	5	-0.17	± 1.00	0.16 ‡	Pass
	10	OVLD	± 1.50	0.15 ‡	Pass
94.15	3	-0.13	± 0.50	0.15 ‡	Pass
	5	-0.12	± 1.00	0.15 ‡	Pass
	10	-0.01	± 1.50	0.15 ‡	Pass
84.15	3	-0.14	± 0.50	0.15 ‡	Pass
	5	-0.15	± 1.00	0.15 ‡	Pass
	10	-0.09	± 1.50	0.15 ‡	Pass

-- End of measurement results--

Negative Pulse Crest Factor

200 µs pulse tests at 2.0, 12.0, 22.0, 32.0 dB below Overload Limit

Crest Factor measured according to IEC 60651:2001 9.4.2 and ANSI S1.4:1983 (R2006) 8.4.2

Amplitude [dB]	Crest Factor	Test Result [dB]	Limits [dB]	Expanded Uncertainty [dB]	Result
114.15	3	OVLD	± 0.50	0.15 ‡	Pass
	5	OVLD	± 1.00	0.15 ‡	Pass
	10	OVLD	± 1.50	0.15 ‡	Pass
104.15	3	-0.14	± 0.50	0.15 ‡	Pass
	5	-0.12	± 1.00	0.15 ‡	Pass
	10	OVLD	± 1.50	0.15 ‡	Pass
94.15	3	-0.13	± 0.50	0.15 ‡	Pass
	5	-0.12	± 1.00	0.15 ‡	Pass
	10	0.02	± 1.50	0.15 ‡	Pass
84.15	3	-0.14	± 0.50	0.15 ‡	Pass
	5	-0.14	± 1.00	0.15 ‡	Pass
	10	-0.04	± 1.50	0.15 ‡	Pass

-- End of measurement results--

Gain

Gain measured according to IEC 61672-3:2013 17.3 and 17.4 and ANSI S1.4-2014 Part 3: 17.3 and 17.4

Measurement	Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
0 dB Gain	84.01	83.90	84.10	0.15	Pass
0 dB Gain, Linearity	21.16	20.30	21.70	0.16	Pass
OBA Low Range	84.00	83.90	84.10	0.15	Pass
OBA Normal Range	84.00	83.20	84.80	0.15	Pass

-- End of measurement results--

Broadband Noise Floor

Self-generated noise measured according to IEC 61672-3:2013 11.2 and ANSI S1.4-2014 Part 3: 11.2

Measurement	Test Result [dB]	Upper limit [dB]	Result
A-weight Noise Floor	7.62	16.00	Pass
C-weight Noise Floor	12.10	18.00	Pass
Z-weight Noise Floor	19.88	25.00	Pass

-- End of measurement results--

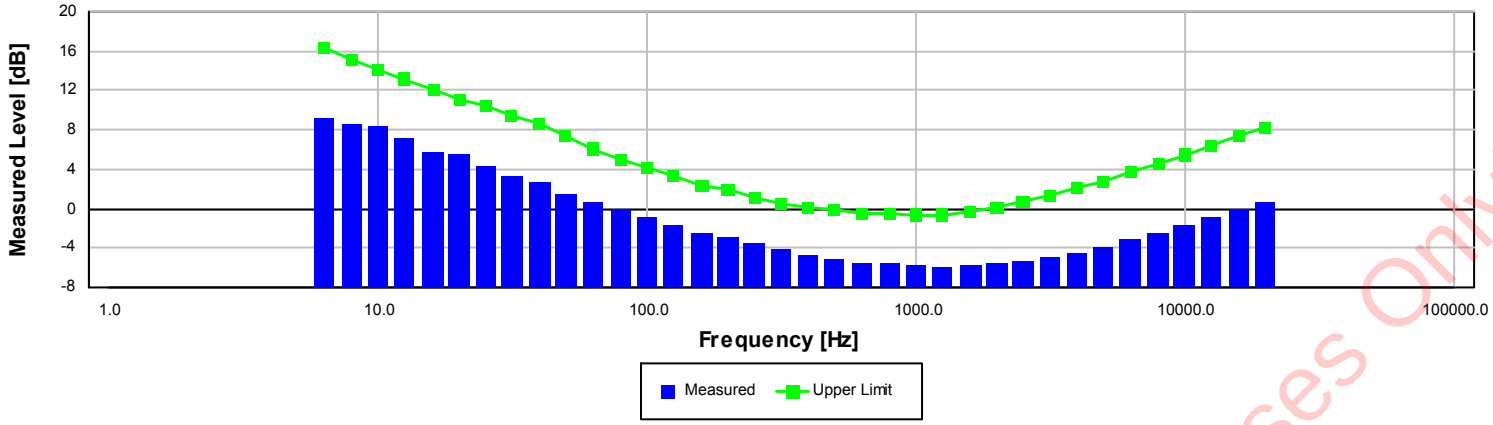
Total Harmonic Distortion

Measured using 1/3-Octave filters

Measurement	Test Result [dB]	Lower Limit [dB]	Upper Limit [dB]	Expanded Uncertainty [dB]	Result
10 Hz Signal	113.16	112.35	113.95	0.15	Pass
THD	-58.05		-50.00	0.01 ‡	Pass
THD+N	-56.28		-50.00	0.01 ‡	Pass

-- End of measurement results--

1/3-Octave Self-Generated Noise



The SLM is set to low range.

Frequency [Hz]	Test Result [dB]	Upper limit [dB]	Result
6.30	9.30	16.30	Pass
8.00	8.68	15.20	Pass
10.00	8.49	14.20	Pass
12.50	7.16	13.20	Pass
16.00	5.76	12.10	Pass
20.00	5.65	11.10	Pass
25.00	4.37	10.40	Pass
31.50	3.40	9.40	Pass
40.00	2.67	8.60	Pass
50.00	1.63	7.40	Pass
63.00	0.78	6.10	Pass
80.00	-0.17	5.00	Pass
100.00	-0.86	4.20	Pass
125.00	-1.64	3.30	Pass
160.00	-2.48	2.40	Pass
200.00	-2.97	1.90	Pass
250.00	-3.59	1.20	Pass
315.00	-4.18	0.60	Pass
400.00	-4.72	0.20	Pass
500.00	-5.22	-0.10	Pass
630.00	-5.49	-0.50	Pass
800.00	-5.65	-0.50	Pass
1,000.00	-5.84	-0.60	Pass
1,250.00	-5.91	-0.60	Pass
1,600.00	-5.83	-0.20	Pass
2,000.00	-5.62	0.20	Pass
2,500.00	-5.36	0.70	Pass
3,150.00	-4.93	1.40	Pass
4,000.00	-4.50	2.10	Pass
5,000.00	-3.89	2.80	Pass
6,300.00	-3.18	3.70	Pass
8,000.00	-2.48	4.60	Pass
10,000.00	-1.71	5.50	Pass
12,500.00	-0.88	6.40	Pass
16,000.00	-0.07	7.40	Pass
20,000.00	0.79	8.30	Pass

-- End of measurement results--

-- End of Report--

Signatory: Ron Harris

LARSON DAVIS - A PCB PIEZOTRONICS DIV.
1681 West 820 North
Provo, UT 84601, United States
716-684-0001

ACCREDITED Cert. #3622.01

LARSON DAVIS A PCB PIEZOTRONICS DIV.

Calibration Certificate

Certificate Number 2019015629

Customer:

Environmental Measurement
Unit 12 Tallaght Business Centre
Whitestown Business Park
Dublin, 24, Ireland

Model Number	LxT SE	***Procedure Number***	D0001.8378
Serial Number	0005835	***Technician***	Ron Harris
Test Results	**Pass**	***Calibration Date***	20 Dec 2019
Initial Condition	Inoperable	***Calibration Due***	20 Dec 2021
Description	Sound Expert LxT Class 1 Sound Level Meter Firmware Revision: 2.402	***Temperature***	23.7 °C ± 0.25 °C
		Humidity	50.6 %RH ± 2.0 %RH
		Static Pressure	87.39 kPa ± 0.13 kPa

Evaluation Method Tested electrically using Larson Davis PRMLxT1L S/N 069953 and a 12.0 pF capacitor to simulate microphone capacitance. Data reported in dB re 20 µPa assuming a microphone sensitivity of 23.6 mV/Pa.

Compliance Standards Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8384:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.11 (R2009) Class 1
IEC 61260:2001 Class 1	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. **Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.**

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert Lxt, I770.01 Rev O Supporting Firmware Version 4.0.5, 2019-09-10

Calibration Check Frequency: 1000 Hz; Reference Sound Pressure Level: 114 dB re 20 µPa

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1681 West 820 North
Provo, UT 84601, United States
716-684-0001

ilac-MRA ACCREDITED Cert. #3622.01

LARSON DAVIS
A PCB PIEZOTRONICS DIV.

CERTIFICATE OF CALIBRATION

Issued by: **MTS Calibration Ltd.**

Laboratory address: 17 Elvington Close
Billingham TS23 3YS
England

Telephone: +44 (0)1642 876 410

Please note delivery address below

Date of Issue: 26 April 2019 **Certificate Number:** 33234

Third-Octave Band Digital Filter

Third-Octave Band Filter verification to BS EN 61260:1996

Client: Environmental Measurements
Unit 12, Tallaght Business Centre
Whitestown Business Park
Co.Dublin 24, Ireland
0

Instrument Make: **Larson Davis**
Instrument Model: **LxT1**
Serial Number: **0004642**

The centre frequency sequence of this filter set follows the exact base 10 midband frequency sequence of IEC 61260 and measurements have been made accordingly

Associated Preamplifier:
- Make : Larson Davis
- Model : PRMLxT1L
- Serial Number : 036048
Calibrated by: MTS
Certificate Number: 33234
Date: 26 April 2019

Associated Sound Level Meter
- Make: Larson Davis
- Model: LxT1
- Serial Number: 0004642
Calibrated by: MTS
Certificate Number: 33234
Date: 26 April 2019

This is to certify that this instrument, whose calibration records are enclosed in this file, has been tested in accordance with MTS Calibration Ltd. Work Procedures. The instrument as configured above has been found to be in compliance with attenuation and frequency characteristics as specified by BS EN 61260: 1996 and the results are reported in the following pages and summarised below. The results obtained are only for limited tests and do not indicate conformance to the full requirements of the standard, and are only applicable to those filter bands tested. The measurements were carried out using equipment whose calibrations are traceable to UK National Standards. The management controls of MTS Calibration Ltd. are registered in the current issue of its Quality Manual, which are designed to be in conformity with BS EN ISO/IEC 17025: 2005. Test procedures and test results and details of the traceability of test equipment to National Standards are filed with MTS Calibration Ltd. and relevant extracts are available on request.

Because a digital filter will have the same amplitude characteristic relative to its centre frequency, only three filters were measured at each of the test frequencies specified by BS EN 61260:1996 for BASE-10 distribution. The measurements made were relative to the attenuation of the 1kHz filter at 1kHz input frequency and input level 1V. Because the measurements include a linearity contribution from the sound level meter, and could be variable with frequency, the assessment is valid only for this pairing. The sound level meter was set for "Linear" frequency response on the lowest range setting which did not give overload at any test frequency or test level. Its compliance with the standard was assessed by referring the measurements to the tolerances specified.

Third-Octave Band Filter **Compliance with BS EN 61260: 1996 Class 1**

125 Hz complies
1000 Hz complies
8kHz complies

Uncertainties of measurements:
Within Passband (0.89 to 1.12 of centre frequency) dB: 0.42
Outside Passband dB: 2.40

Test Equipment:

Equipment	Manufacturer	Model	Serial No.	Traceability Ref.	Cal. Due
Signal Generator (set 3)	HP	33120A	US34007158	TE 163	Oct-19

Authorised signatory: PA

Tony Sherris

Date of Receipt: 17 April 2019
Date of Calibration: 26 April 2019
Date of Certificate: 26 April 2019

MTS Calibration Ltd.
The Grange Business Centre, Belasis Avenue, Billingham TS23 1LG
Telephone: 01642 876410 **Fax:** 01642 876411 **E-Mail:** dmarsh@slmcal.co.uk or tsherris@slmcal.co.uk

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APPENDIX 7.3

NOISE SENSITIVE LOCATION DETAILS

Table 7.3.1: Noise Sensitive Location Details (based on L_{Aeq} 35 dB without Valley correction and no cumulative noise from adjacent windfarms.)

Receptor ID	Description	Easting	Northing
1	Residential	562345	671342
2	Residential	562400	670949
3	Residential	562292	670677
5	Residential	562285	670594
6	Residential and Commercial	562110	670555
8	Residential	562316	670473
9	Residential	562272	670414
10	Commercial	562278	670348
11	Residential	562199	670304
12	Residential	562187	670277
13	Residential	562916	669671
14	Residential and Commercial	563141	669238
15	Residential	563170	669116
16	Residential	563343	669044
17	Residential	563553	669023
18	Residential	563651	668745
20	Residential	563699	668741
21	Residential and Commercial	563792	668692
22	Residential	563912	668576
23	Residential	563977	668545
25	Residential	564096	668522
26	Residential	564124	668503
27	Residential	564135	668476
28	Residential	564195	668461
29	Residential	564584	668715
30	Residential	564600	668754
31	Residential	564771	668865
32	Residential	564676	668978
33	Residential	564566	669028
34	Residential	564584	669063
35	Residential	564618	669078
36	Residential and Commercial	564830	669134
37	Residential	564692	669182
39	Residential	564726	669301
40	Residential and Commercial	564642	669335
41	Residential	564711	669345
42	Residential	564728	669376
43	Residential	565200	669497
44	Residential	564914	669501
45	Residential	564827	669502

Receptor ID	Description	Easting	Northing
46	Residential and Commercial	564758	669592
47	Residential	565020	669608
49	Residential and Commercial	565519	670158
50	Residential	565533	670225
52	Residential and Commercial	565241	670627
53	Residential	562271	670449
54	Residential	562221	671777
55	Residential and Commercial	562416	671818
56	Residential	562529	671794
57	Residential	562590	671808
58	Residential	562676	671693
59	Residential	562385	671518
60	Residential and Commercial	562360	671406
61	Residential	561810	671127
62	Residential	561860	670924
63	Residential and Commercial	561659	670701
65	Residential	561874	669960
66	Residential	561856	669813
67	Residential and Commercial	562065	669758
68	Residential	561914	669731
71	Commercial	562622	669066
72	Residential	563006	668250
73	Residential	563037	668228
74	Residential	563089	668230
75	Residential	563140	668200
76	Residential	563171	668168
77	Residential	563197	668153
78	Residential	564241	668430
79	Residential	564172	668398
80	Residential	564355	668293
81	Residential	564478	668261
84	Residential and Commercial	564517	668049
85	Residential	564538	668079
86	Residential	564553	668037
87	Residential	564590	668069
88	Residential	564540	668226
89	Residential	564566	668222
90	Residential	564589	668190
91	Residential and Commercial	564637	668226
92	Residential	564649	668250
93	Residential	564711	668236
94	Residential	564684	668216

Receptor ID	Description	Easting	Northing
95	Commercial	564658	668179
96	Residential	564606	668159
97	Residential	564611	668156
98	Residential	564636	668154
99	Residential	564638	668144
100	Residential	564662	668144
101	Residential	564668	668144
102	Residential	564682	668147
103	Residential	564689	668146
104	Residential	564702	668126
105	Residential	564701	668120
106	Residential	564677	668111
107	Residential	564668	668111
108	Residential	564655	668112
109	Residential	564648	668112
110	Residential	564633	668112
111	Residential	564624	668113
112	Residential	564612	668117
113	Residential	564604	668119
114	Residential	564588	668128
115	Residential	564583	668124
116	Residential	564793	668589
117	Residential	564862	668665
118	Residential	565705	669688
119	Residential	565833	670493
120	Residential	566013	670513
121	Residential and Commercial	566086	670481
122	Residential	566138	670337
123	Residential and Commercial	565484	671230
124	Residential	565513	671844
125	Residential	562272	672216
126	Residential	562291	672007
127	Residential	561295	671537
128	Residential	561527	671204
129	Residential	561828	669418
130	Residential	561790	669333
131	Residential	561769	669288
132	Residential	561699	669216
133	Residential	561776	669224
134	Residential	561785	669194
135	Commercial	561669	669152
136	Residential	561695	669135

Receptor ID	Description	Easting	Northing
137	Residential	561661	668942
138	Residential	561956	669345
139	Commercial	562047	669147
141	Residential	562198	668991
142	Residential	562160	668944
144	Residential	562286	668784
145	Residential and Commercial	562292	668717
146	Residential	562911	668199
147	Residential	563487	667453
148	Residential	563533	667687
149	Residential	563605	667717
150	Residential	563656	667532
151	Residential	563709	667724
152	Commercial	563717	667799
153	Residential	563759	667744
154	Residential	563768	667531
155	Residential	563905	667644
156	Residential	563940	667681
157	Residential	564397	667915
158	Residential and Commercial	564516	667535
159	Commercial	564486	667987
160	Residential	564554	667919
161	Residential	564590	667852
162	Residential	564603	667834
163	Residential	564615	667819
164	Residential	564615	667786
165	Residential and Commercial	564527	668012
166	Residential	564590	667960
167	Residential	564674	667878
168	Residential	564578	668024
169	Residential	564691	667925
170	Residential	564599	668043
171	Residential	564635	668065
172	Residential	564649	668060
173	Residential	564662	668055
174	Residential	564676	668048
175	Residential	564688	668040
176	Residential	564700	668033
177	Residential	564711	668027
178	Residential	564724	668018
179	Residential	564735	668010
180	Residential	564746	668001

Receptor ID	Description	Easting	Northing
181	Residential	564759	667994
182	Residential	564770	667985
183	Residential and Commercial	565590	668719
184	Residential	565868	669058
185	Residential	565868	669134
186	Residential	565942	669074
187	Residential	565884	669158
188	Residential	566007	669155
189	Residential	566033	669177
190	Residential	566160	669276
191	Residential	566152	669340
192	Residential and Commercial	566195	669290
193	Residential	566345	669307
194	Residential	566202	669473
195	Residential	566291	669554
196	Residential	566294	669586
197	Residential	566287	669603
198	Residential	566524	670227
199	Residential	566626	670293
200	Residential	566629	670325
201	Residential	566311	670370
202	Residential	566306	670430
203	Residential	565466	671964
205	Residential	565643	672341
206	Residential	565560	672326
207	Residential	565516	672347
208	Residential	565485	672351
209	Residential	565364	672522
210	Residential	564757	672486

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APPENDIX 7.4

SOUND POWER LEVEL DATA FOR WIND TURBINES

Table 7.4.1: Wind Turbine (Nordex N133) - Sound Power Data (10 Hz to 10 kHz) Corresponding to Wind Speeds Referenced to 110m Hub Height

Wind Speed (m/s)	3	4	5	6	7	8	9	10	11	12	Up to cut-out
Mode 0	93.0	95.0	100.6	104.3	104.5	104.5	104.5	104.5	104.5	104.5	104.5

Table 7.4.2: Wind Turbine (Nordex N133) - Sound Power Data (10 Hz to 10 kHz) Corresponding to Wind Speeds Referenced to 102.5m Hub Height

Wind Speed (m/s)	3	4	5	6	7	8	9	10	11	12	Up to cut-out
Mode 0	93.0	95.0	100.6	103.9	104.5	104.5	104.5	104.5	104.5	104.5	104.5

Table 7.4.3: Wind Turbine Nordex 133 – Typical 1/1 octave band spectrum for 63 Hz to 8 kHz, 102.5m hub height.

1/1 oct. band, center freq.	63	125	250	500	1000	2000	4000	8000
3 m/s	74.7	81.7	85.5	86.4	86.9	85.6	81.3	72.1
4 m/s	76.7	83.7	87.5	88.4	88.9	87.6	83.3	74.1
5 m/s	82.3	89.3	93.1	94.0	94.5	93.2	88.9	79.7
6 m/s	85.7	92.7	96.5	97.4	97.9	96.6	92.3	83.1
7 m/s	86.3	93.3	97.1	98.0	98.4	97.2	92.9	83.7
8 m/s	86.2	93.2	97.0	97.9	98.4	97.1	92.8	83.6
9 m/s	86.2	93.2	97.0	97.9	98.4	97.1	92.8	83.6
10 m/s	86.2	93.2	97.0	97.9	98.4	97.1	92.8	83.6
11 m/s	86.2	93.2	97.0	97.9	98.4	97.1	92.8	83.6
12 m/s	86.2	93.2	97.0	97.9	98.4	97.1	92.8	83.6

Table 7.4.4: Wind Turbine Nordex 133 – Typical 1/1 octave band spectrum for 63 Hz to 8 kHz, 110m hub height.

1/1 oct. band, center freq.	63	125	250	500	1000	2000	4000	8000
3 m/s	74.7	81.7	85.5	86.4	86.9	85.6	81.3	72.1
4 m/s	76.7	83.7	87.5	88.4	88.9	87.6	83.3	74.1
5 m/s	82.3	89.3	93.1	94.0	94.5	93.2	88.9	79.7
6 m/s	86.0	93.0	96.8	97.7	98.2	96.9	92.6	83.4
7 m/s	86.3	93.3	97.1	98.0	98.4	97.2	92.9	83.7
8 m/s	86.2	93.2	97.0	97.9	98.4	97.1	92.8	83.6
9 m/s	86.2	93.2	97.0	97.9	98.4	97.1	92.8	83.6
10 m/s	86.2	93.2	97.0	97.9	98.4	97.1	92.8	83.6
11 m/s	86.2	93.2	97.0	97.9	98.4	97.1	92.8	83.6
12 m/s	86.2	93.2	97.0	97.9	98.4	97.1	92.8	83.6

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APPENDIX 7.5

VALLEY CORRECTION

Table 7.5.1: Valley Correction 102.5m hub height

Receptor ID	Description	Fahy Beg Wind Farm							
		T1	T2	T3	T4	T5	T6	T7	T8
1	Residential	0	0	0	0	0	0	0	0
2	Residential	0	0	0	0	0	0	0	0
3	Residential	0	0	0	0	0	0	0	0
5	Residential	0	0	0	0	0	0	0	0
6	Residential and Commercial	0	0	0	0	0	0	0	0
8	Residential	0	0	0	0	0	0	0	0
9	Residential	0	0	0	0	0	0	0	0
10	Commercial	0	0	0	0	0	0	0	0
11	Residential	0	0	0	0	0	0	0	0
12	Residential	0	0	0	0	0	0	0	0
13	Residential	0	0	0	0	0	0	0	0
14	Residential and Commercial	0	0	0	0	0	0	0	0
15	Residential	0	0	0	0	0	0	0	0
16	Residential	0	0	0	0	0	0	0	0
17	Residential	0	0	0	0	0	0	0	0
18	Residential	0	0	0	0	0	0	0	0
20	Residential	0	0	0	0	0	0	0	0
21	Residential and Commercial	0	0	0	0	0	0	0	0
22	Residential	0	0	0	0	0	0	0	0
23	Residential	0	0	0	0	0	0	0	0
25	Residential	0	0	0	0	0	0	0	0
26	Residential	0	0	0	0	0	0	0	0
27	Residential	0	0	0	0	0	0	0	0
28	Residential	0	0	0	0	0	0	0	0
29	Residential	0	0	0	0	0	0	0	0
30	Residential	0	0	0	0	0	0	0	0
31	Residential	0	0	0	0	0	0	0	0
32	Residential	0	0	0	0	0	0	0	0
33	Residential	0	0	0	0	0	0	0	0
34	Residential	0	0	0	0	0	0	0	0
35	Residential	0	0	0	0	0	0	0	0
36	Residential and Commercial	0	0	0	0	0	0	0	0

Receptor ID	Description	Fahy Beg Wind Farm							
		T1	T2	T3	T4	T5	T6	T7	T8
37	Residential	0	0	0	0	0	0	0	0
39	Residential	0	0	0	0	0	0	0	0
40	Residential and Commercial	0	0	0	0	0	0	0	0
41	Residential	0	0	0	0	0	0	0	0
42	Residential	0	0	0	0	0	0	0	0
43	Residential	0	0	0	0	0	0	0	0
44	Residential	0	0	0	0	0	0	0	0
45	Residential	0	0	0	0	0	0	0	0
46	Residential and Commercial	0	0	0	0	0	0	0	0
47	Residential	0	0	0	0	0	0	0	0
49	Residential and Commercial	0	0	0	0	0	0	0	0
50	Residential	0	0	0	0	0	0	0	0
52	Residential and Commercial	0	0	0	0	0	0	0	0
53	Residential	0	0	0	0	0	0	0	0
54	Residential	0	0	0	0	0	0	0	0
55	Residential and Commercial	0	0	0	0	0	0	0	0
56	Residential	0	0	0	0	0	0	0	0
57	Residential	0	0	0	0	0	0	0	0
58	Residential	0	0	0	0	0	0	0	0
59	Residential	0	0	0	0	0	0	0	0
60	Residential and Commercial	0	0	0	0	0	0	0	0
61	Residential	0	3	0	0	0	0	0	0
62	Residential	0	3	0	0	0	0	0	0
63	Residential and Commercial	3	3	3	0	3	3	0	0
65	Residential	3	3	3	0	3	0	0	0
66	Residential	3	3	3	0	3	0	0	0
67	Residential and Commercial	0	3	0	0	3	0	0	0
68	Residential	3	3	0	0	3	0	0	0
71	Commercial	0	0	0	0	0	0	0	0
72	Residential	0	0	0	0	3	0	0	0
73	Residential	0	0	0	0	0	0	0	0

Receptor ID	Description	Fahy Beg Wind Farm							
		T1	T2	T3	T4	T5	T6	T7	T8
74	Residential	0	0	0	0	0	0	0	0
75	Residential	0	0	0	0	0	0	0	0
76	Residential	0	0	0	0	0	0	0	0
77	Residential	0	0	0	0	0	0	0	0
78	Residential	0	0	0	0	0	0	0	0
79	Residential	0	0	0	0	0	0	0	0
80	Residential	0	0	0	0	0	0	0	0
81	Residential	0	0	0	0	0	0	0	0
84	Residential and Commercial	0	0	0	0	0	0	0	0
85	Residential	0	0	0	0	0	0	0	0
86	Residential	0	0	0	0	0	0	0	0
87	Residential	0	0	0	0	0	0	0	0
88	Residential	0	0	0	0	0	0	0	0
89	Residential	0	0	0	0	0	0	0	0
90	Residential	0	0	0	0	0	0	0	0
91	Residential and Commercial	0	0	0	0	0	0	0	0
92	Residential	0	0	0	0	0	0	0	0
93	Residential	0	0	0	0	0	0	0	0
94	Residential	0	0	0	0	0	0	0	0
95	Commercial	0	0	0	0	0	0	0	0
96	Residential	0	0	0	0	0	0	0	0
97	Residential	0	0	0	0	0	0	0	0
98	Residential	0	0	0	0	0	0	0	0
99	Residential	0	0	0	0	0	0	0	0
100	Residential	0	0	0	0	0	0	0	0
101	Residential	0	0	0	0	0	0	0	0
102	Residential	0	0	0	0	0	0	0	0
103	Residential	0	0	0	0	0	0	0	0
104	Residential	0	0	0	0	0	0	0	0
105	Residential	0	0	0	0	0	0	0	0
106	Residential	0	0	0	0	0	0	0	0
107	Residential	0	0	0	0	0	0	0	0
108	Residential	0	0	0	0	0	0	0	0
109	Residential	0	0	0	0	0	0	0	0
110	Residential	0	0	0	0	0	0	0	0

Receptor ID	Description	Fahy Beg Wind Farm							
		T1	T2	T3	T4	T5	T6	T7	T8
111	Residential	0	0	0	0	0	0	0	0
112	Residential	0	0	0	0	0	0	0	0
113	Residential	0	0	0	0	0	0	0	0
114	Residential	0	0	0	0	0	0	0	0
115	Residential	0	0	0	0	0	0	0	0
116	Residential	0	0	0	0	0	0	0	0
117	Residential	0	0	0	0	0	0	0	0
118	Residential	0	0	0	0	0	0	0	0
119	Residential	0	0	0	0	0	0	0	0
120	Residential	0	0	0	0	0	0	0	0
121	Residential and Commercial	0	0	0	0	0	0	0	0
122	Residential	0	0	0	0	0	0	0	0
123	Residential and Commercial	0	0	0	0	0	0	0	0
124	Residential	0	0	0	0	0	0	0	0
125	Residential	0	0	0	0	0	0	0	0
126	Residential	0	0	0	0	0	0	0	0
127	Residential	3	3	3	0	3	0	0	0
128	Residential	3	3	3	0	3	0	0	0
129	Residential	3	3	3	0	3	3	0	0
130	Residential	3	3	3	3	3	3	0	0
131	Residential	3	3	3	3	3	3	0	0
132	Residential	3	3	3	3	3	3	0	0
133	Residential	3	3	3	3	3	3	0	0
134	Residential	3	3	3	3	3	3	0	0
135	Commercial	3	3	3	0	3	3	0	0
136	Residential	3	3	3	3	3	3	0	0
137	Residential	3	3	3	0	3	3	0	0
138	Residential	3	3	3	0	3	0	0	0
139	Commercial	3	3	3	0	3	0	0	0
141	Residential	0	3	0	0	3	0	0	0
142	Residential	0	3	0	0	3	0	0	0
144	Residential	0	0	0	0	3	0	0	0
145	Residential and Commercial	0	0	0	0	3	0	0	0
146	Residential	0	0	0	0	3	0	0	0
147	Residential	0	3	3	3	3	3	3	3

Receptor ID	Description	Fahy Beg Wind Farm							
		T1	T2	T3	T4	T5	T6	T7	T8
148	Residential	0	0	0	0	3	3	0	0
149	Residential	0	0	0	0	3	0	0	0
150	Residential	0	3	3	3	3	3	3	3
151	Residential	0	0	0	0	3	0	0	0
152	Commercial	0	0	0	0	0	0	0	0
153	Residential	0	0	0	0	3	0	0	0
154	Residential	0	3	3	3	3	3	3	3
155	Residential	0	0	0	0	3	3	3	3
156	Residential	0	0	0	0	3	3	3	3
157	Residential	0	0	0	0	3	0	0	0
158	Residential and Commercial	0	0	3	3	3	3	3	3
159	Commercial	0	0	0	0	0	0	0	0
160	Residential	0	0	0	0	3	0	0	0
161	Residential	0	0	0	0	3	0	3	0
162	Residential	0	0	0	0	3	3	3	3
163	Residential	0	0	0	0	3	3	3	3
164	Residential	0	0	0	0	3	3	3	3
165	Residential and Commercial	0	0	0	0	0	0	0	0
166	Residential	0	0	0	0	0	0	0	0
167	Residential	0	0	0	0	3	3	3	0
168	Residential	0	0	0	0	0	0	0	0
169	Residential	0	0	0	0	3	0	3	0
170	Residential	0	0	0	0	0	0	0	0
171	Residential	0	0	0	0	0	0	0	0
172	Residential	0	0	0	0	0	0	0	0
173	Residential	0	0	0	0	0	0	0	0
174	Residential	0	0	0	0	0	0	0	0
175	Residential	0	0	0	0	0	0	0	0
176	Residential	0	0	0	0	0	0	0	0
177	Residential	0	0	0	0	3	0	0	0
178	Residential	0	0	0	0	3	0	0	0
179	Residential	0	0	0	0	3	0	0	0
180	Residential	0	0	0	0	3	0	0	0
181	Residential	0	0	0	0	3	0	0	0
182	Residential	0	0	0	0	3	0	0	0

Receptor ID	Description	Fahy Beg Wind Farm							
		T1	T2	T3	T4	T5	T6	T7	T8
183	Residential and Commercial	0	0	0	0	0	0	0	0
184	Residential	0	0	0	0	0	0	0	0
185	Residential	0	0	0	0	0	0	0	0
186	Residential	0	0	0	0	0	0	0	0
187	Residential	0	0	0	0	0	0	0	0
188	Residential	0	0	0	0	0	0	0	0
189	Residential	0	0	0	0	0	0	0	0
190	Residential	0	0	0	0	3	0	0	0
191	Residential	0	0	0	0	0	0	0	0
192	Residential and Commercial	0	0	0	0	3	0	3	0
193	Residential	0	0	0	0	3	3	3	0
194	Residential	0	0	0	0	0	0	0	0
195	Residential	0	0	0	0	0	0	0	0
196	Residential	0	0	0	0	0	0	0	0
197	Residential	0	0	0	0	0	0	0	0
198	Residential	0	0	0	0	0	0	0	0
199	Residential	0	0	0	0	0	0	0	0
200	Residential	0	0	0	0	0	0	0	0
201	Residential	0	0	0	0	0	0	0	0
202	Residential	0	0	0	0	0	0	0	0
203	Residential	0	0	0	0	0	0	0	0
205	Residential	0	0	0	0	0	0	0	0
206	Residential	0	0	0	0	0	0	0	0
207	Residential	0	0	0	0	0	0	0	0
208	Residential	0	0	0	0	0	0	0	0
209	Residential	0	0	0	0	0	0	0	0
210	Residential	0	0	0	0	0	0	0	0

Table 7.5.2: Valley Correction 110m hub height

Receptor ID	Description	Fahy Beg Wind Farm							
		T1	T2	T3	T4	T5	T6	T7	T8
1	Residential	0	0	0	0	0	0	0	0
2	Residential	0	0	0	0	0	0	0	0
3	Residential	0	0	0	0	0	0	0	0
5	Residential	0	0	0	0	0	0	0	0
6	Residential and Commercial	0	0	0	0	0	0	0	0
8	Residential	0	0	0	0	0	0	0	0
9	Residential	0	0	0	0	0	0	0	0
10	Commercial	0	0	0	0	0	0	0	0
11	Residential	0	0	0	0	0	0	0	0
12	Residential	0	0	0	0	0	0	0	0
13	Residential	0	0	0	0	0	0	0	0
14	Residential and Commercial	0	0	0	0	0	0	0	0
15	Residential	0	0	0	0	0	0	0	0
16	Residential	0	0	0	0	0	0	0	0
17	Residential	0	0	0	0	0	0	0	0
18	Residential	0	0	0	0	0	0	0	0
20	Residential	0	0	0	0	0	0	0	0
21	Residential and Commercial	0	0	0	0	0	0	0	0
22	Residential	0	0	0	0	0	0	0	0
23	Residential	0	0	0	0	0	0	0	0
25	Residential	0	0	0	0	0	0	0	0
26	Residential	0	0	0	0	0	0	0	0
27	Residential	0	0	0	0	0	0	0	0
28	Residential	0	0	0	0	0	0	0	0
29	Residential	0	0	0	0	0	0	0	0
30	Residential	0	0	0	0	0	0	0	0
31	Residential	0	0	0	0	0	0	0	0
32	Residential	0	0	0	0	0	0	0	0
33	Residential	0	0	0	0	0	0	0	0
34	Residential	0	0	0	0	0	0	0	0
35	Residential	0	0	0	0	0	0	0	0
36	Residential and Commercial	0	0	0	0	0	0	0	0

Receptor ID	Description	Fahy Beg Wind Farm							
		T1	T2	T3	T4	T5	T6	T7	T8
37	Residential	0	0	0	0	0	0	0	0
39	Residential	0	0	0	0	0	0	0	0
40	Residential and Commercial	0	0	0	0	0	0	0	0
41	Residential	0	0	0	0	0	0	0	0
42	Residential	0	0	0	0	0	0	0	0
43	Residential	0	0	0	0	0	0	0	0
44	Residential	0	0	0	0	0	0	0	0
45	Residential	0	0	0	0	0	0	0	0
46	Residential and Commercial	0	0	0	0	0	0	0	0
47	Residential	0	0	0	0	0	0	0	0
49	Residential and Commercial	0	0	0	0	0	0	0	0
50	Residential	0	0	0	0	0	0	0	0
52	Residential and Commercial	0	0	0	0	0	0	0	0
53	Residential	0	0	0	0	0	0	0	0
54	Residential	0	0	0	0	0	0	0	0
55	Residential and Commercial	0	0	0	0	0	0	0	0
56	Residential	0	0	0	0	0	0	0	0
57	Residential	0	0	0	0	0	0	0	0
58	Residential	0	0	0	0	0	0	0	0
59	Residential	0	0	0	0	0	0	0	0
60	Residential and Commercial	0	0	0	0	0	0	0	0
61	Residential	0	3	0	0	0	0	0	0
62	Residential	0	0	0	0	0	0	0	0
63	Residential and Commercial	3	3	3	0	3	0	0	0
65	Residential	3	3	3	0	3	0	0	0
66	Residential	3	3	0	0	3	0	0	0
67	Residential and Commercial	0	0	0	0	0	0	0	0
68	Residential	3	3	0	0	3	0	0	0
71	Commercial	0	0	0	0	0	0	0	0
72	Residential	0	0	0	0	0	0	0	0
73	Residential	0	0	0	0	0	0	0	0

Receptor ID	Description	Fahy Beg Wind Farm							
		T1	T2	T3	T4	T5	T6	T7	T8
74	Residential	0	0	0	0	0	0	0	0
75	Residential	0	0	0	0	0	0	0	0
76	Residential	0	0	0	0	0	0	0	0
77	Residential	0	0	0	0	0	0	0	0
78	Residential	0	0	0	0	0	0	0	0
79	Residential	0	0	0	0	0	0	0	0
80	Residential	0	0	0	0	0	0	0	0
81	Residential	0	0	0	0	0	0	0	0
84	Residential and Commercial	0	0	0	0	0	0	0	0
85	Residential	0	0	0	0	0	0	0	0
86	Residential	0	0	0	0	0	0	0	0
87	Residential	0	0	0	0	0	0	0	0
88	Residential	0	0	0	0	0	0	0	0
89	Residential	0	0	0	0	0	0	0	0
90	Residential	0	0	0	0	0	0	0	0
91	Residential and Commercial	0	0	0	0	0	0	0	0
92	Residential	0	0	0	0	0	0	0	0
93	Residential	0	0	0	0	0	0	0	0
94	Residential	0	0	0	0	0	0	0	0
95	Commercial	0	0	0	0	0	0	0	0
96	Residential	0	0	0	0	0	0	0	0
97	Residential	0	0	0	0	0	0	0	0
98	Residential	0	0	0	0	0	0	0	0
99	Residential	0	0	0	0	0	0	0	0
100	Residential	0	0	0	0	0	0	0	0
101	Residential	0	0	0	0	0	0	0	0
102	Residential	0	0	0	0	0	0	0	0
103	Residential	0	0	0	0	0	0	0	0
104	Residential	0	0	0	0	0	0	0	0
105	Residential	0	0	0	0	0	0	0	0
106	Residential	0	0	0	0	0	0	0	0
107	Residential	0	0	0	0	0	0	0	0
108	Residential	0	0	0	0	0	0	0	0
109	Residential	0	0	0	0	0	0	0	0
110	Residential	0	0	0	0	0	0	0	0

Receptor ID	Description	Fahy Beg Wind Farm							
		T1	T2	T3	T4	T5	T6	T7	T8
111	Residential	0	0	0	0	0	0	0	0
112	Residential	0	0	0	0	0	0	0	0
113	Residential	0	0	0	0	0	0	0	0
114	Residential	0	0	0	0	0	0	0	0
115	Residential	0	0	0	0	0	0	0	0
116	Residential	0	0	0	0	0	0	0	0
117	Residential	0	0	0	0	0	0	0	0
118	Residential	0	0	0	0	0	0	0	0
119	Residential	0	0	0	0	0	0	0	0
120	Residential	0	0	0	0	0	0	0	0
121	Residential and Commercial	0	0	0	0	0	0	0	0
122	Residential	0	0	0	0	0	0	0	0
123	Residential and Commercial	0	0	0	0	0	0	0	0
124	Residential	0	0	0	0	0	0	0	0
125	Residential	0	0	0	0	0	0	0	0
126	Residential	0	0	0	0	0	0	0	0
127	Residential	3	3	3	0	3	0	0	0
128	Residential	3	3	3	0	3	0	0	0
129	Residential	3	3	3	0	3	3	0	0
130	Residential	3	3	3	0	3	3	0	0
131	Residential	3	3	3	0	3	3	0	0
132	Residential	3	3	3	0	3	3	0	0
133	Residential	3	3	3	0	3	3	0	0
134	Residential	3	3	3	0	3	3	0	0
135	Commercial	3	3	3	0	3	3	0	0
136	Residential	3	3	3	0	3	3	0	0
137	Residential	3	3	3	0	3	3	0	0
138	Residential	3	3	0	0	3	0	0	0
139	Commercial	3	3	0	0	3	0	0	0
141	Residential	0	0	0	0	3	0	0	0
142	Residential	0	3	0	0	3	0	0	0
144	Residential	0	0	0	0	3	0	0	0
145	Residential and Commercial	0	0	0	0	3	0	0	0
146	Residential	0	0	0	0	3	0	0	0
147	Residential	0	3	3	3	3	3	3	3

Receptor ID	Description	Fahy Beg Wind Farm							
		T1	T2	T3	T4	T5	T6	T7	T8
148	Residential	0	0	0	0	3	0	0	0
149	Residential	0	0	0	0	3	0	0	0
150	Residential	0	0	3	0	3	3	3	3
151	Residential	0	0	0	0	3	0	0	0
152	Commercial	0	0	0	0	0	0	0	0
153	Residential	0	0	0	0	3	0	0	0
154	Residential	0	0	3	3	3	3	3	3
155	Residential	0	0	0	0	3	3	3	3
156	Residential	0	0	0	0	3	3	3	0
157	Residential	0	0	0	0	0	0	0	0
158	Residential and Commercial	0	0	3	3	3	3	3	3
159	Commercial	0	0	0	0	0	0	0	0
160	Residential	0	0	0	0	0	0	0	0
161	Residential	0	0	0	0	3	0	3	0
162	Residential	0	0	0	0	3	0	3	0
163	Residential	0	0	0	0	3	0	3	0
164	Residential	0	0	0	0	3	3	3	3
165	Residential and Commercial	0	0	0	0	0	0	0	0
166	Residential	0	0	0	0	0	0	0	0
167	Residential	0	0	0	0	3	0	3	0
168	Residential	0	0	0	0	0	0	0	0
169	Residential	0	0	0	0	3	0	0	0
170	Residential	0	0	0	0	0	0	0	0
171	Residential	0	0	0	0	0	0	0	0
172	Residential	0	0	0	0	0	0	0	0
173	Residential	0	0	0	0	0	0	0	0
174	Residential	0	0	0	0	0	0	0	0
175	Residential	0	0	0	0	0	0	0	0
176	Residential	0	0	0	0	0	0	0	0
177	Residential	0	0	0	0	0	0	0	0
178	Residential	0	0	0	0	0	0	0	0
179	Residential	0	0	0	0	0	0	0	0
180	Residential	0	0	0	0	0	0	0	0
181	Residential	0	0	0	0	0	0	0	0
182	Residential	0	0	0	0	3	0	0	0

Receptor ID	Description	Fahy Beg Wind Farm							
		T1	T2	T3	T4	T5	T6	T7	T8
183	Residential and Commercial	0	0	0	0	0	0	0	0
184	Residential	0	0	0	0	0	0	0	0
185	Residential	0	0	0	0	0	0	0	0
186	Residential	0	0	0	0	0	0	0	0
187	Residential	0	0	0	0	0	0	0	0
188	Residential	0	0	0	0	0	0	0	0
189	Residential	0	0	0	0	0	0	0	0
190	Residential	0	0	0	0	0	0	0	0
191	Residential	0	0	0	0	0	0	0	0
192	Residential and Commercial	0	0	0	0	0	0	0	0
193	Residential	0	0	0	0	3	0	0	0
194	Residential	0	0	0	0	0	0	0	0
195	Residential	0	0	0	0	0	0	0	0
196	Residential	0	0	0	0	0	0	0	0
197	Residential	0	0	0	0	0	0	0	0
198	Residential	0	0	0	0	0	0	0	0
199	Residential	0	0	0	0	0	0	0	0
200	Residential	0	0	0	0	0	0	0	0
201	Residential	0	0	0	0	0	0	0	0
202	Residential	0	0	0	0	0	0	0	0
203	Residential	0	0	0	0	0	0	0	0
205	Residential	0	0	0	0	0	0	0	0
206	Residential	0	0	0	0	0	0	0	0
207	Residential	0	0	0	0	0	0	0	0
208	Residential	0	0	0	0	0	0	0	0
209	Residential	0	0	0	0	0	0	0	0
210	Residential	0	0	0	0	0	0	0	0

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APPENDIX 7.6

PREDICTED NOISE LEVELS FROM FAHY BEG WIND FARM AT NEARBY NOISE SENSITIVE LOCATIONS

Table 7.6.1 presents the predicted noise levels (L_{A90}) from wind turbines for the proposed Fahy Beg Wind Farm at noise sensitive locations for Standardised 10m height wind speeds of 3 m/s to 9 m/s for a hub height of 102.5m. Some locations are outside the 35 dB L_{A90} noise contour. Derelict and uninhabited dwellings were not considered.

Table 7.6.1: Predicted noise levels (L_{A90}) from Fahy Beg Wind Farm at Noise Sensitive Locations for Standardised 10m Wind Speeds of 3 m/s to 9 m/s, hub height 102.5m

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)						
		3	4	5	6	7	8	9
1	Residential	23.5	25.5	31.1	34.5	35.0	35.0	35.0
2	Residential	26.2	28.2	33.8	37.1	37.7	37.7	37.7
3	Residential	26.0	28.0	33.6	37.0	37.5	37.5	37.5
5	Residential	26.1	28.1	33.7	37.0	37.6	37.6	37.6
6	Residential and Commercial	24.4	26.4	32.0	35.4	35.9	35.9	35.9
8	Residential	26.5	28.5	34.1	37.4	38.0	38.0	38.0
9	Residential	26.0	28.0	33.6	36.9	37.5	37.5	37.5
10	Commercial	25.9	27.9	33.5	36.9	37.4	37.4	37.4
11	Residential	25.1	27.1	32.7	36.0	36.6	36.6	36.6
12	Residential	25.0	27.0	32.6	35.9	36.5	36.5	36.5
13	Residential	28.4	30.4	36.0	39.4	39.9	39.9	39.9
14	Residential and Commercial	27.0	29.0	34.6	37.9	38.5	38.5	38.5
15	Residential	26.3	28.3	33.9	37.3	37.8	37.8	37.8
16	Residential	26.7	28.7	34.3	37.7	38.2	38.2	38.2
17	Residential	27.6	29.6	35.2	38.6	39.1	39.1	39.1
18	Residential	25.1	27.1	32.7	36.1	36.6	36.6	36.6
20	Residential	25.0	27.0	32.6	36.0	36.5	36.5	36.5
21	Residential and Commercial	24.8	26.8	32.4	35.7	36.3	36.3	36.3
22	Residential	23.8	25.8	31.4	34.7	35.3	35.3	35.3
23	Residential	23.5	25.5	31.1	34.5	35.0	35.0	35.0
25	Residential	23.5	25.5	31.1	34.5	35.0	35.0	35.0
26	Residential	23.0	25.0	30.6	34.0	34.5	34.5	34.5
27	Residential	22.8	24.8	30.4	33.8	34.3	34.3	34.3
28	Residential	22.6	24.6	30.2	33.6	34.1	34.1	34.1
29	Residential	23.4	25.4	31.0	34.3	34.9	34.9	34.9
30	Residential	23.6	25.6	31.2	34.6	35.1	35.1	35.1
31	Residential	23.6	25.6	31.2	34.6	35.1	35.1	35.1

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)						
		3	4	5	6	7	8	9
32	Residential	24.8	26.8	32.4	35.7	36.3	36.3	36.3
33	Residential	25.7	27.7	33.3	36.6	37.2	37.2	37.2
34	Residential	25.8	27.8	33.4	36.8	37.3	37.3	37.3
35	Residential	25.8	27.8	33.4	36.7	37.3	37.3	37.3
36	Residential and Commercial	25.0	27.0	32.6	36.0	36.5	36.5	36.5
37	Residential	26.1	28.1	33.7	37.0	37.6	37.6	37.6
39	Residential	25.8	27.8	33.4	36.8	37.3	37.3	37.3
40	Residential and Commercial	27.4	29.4	35.0	38.4	38.9	38.9	38.9
41	Residential	27.0	29.0	34.6	38.0	38.5	38.5	38.5
42	Residential	27.1	29.1	34.7	38.1	38.6	38.6	38.6
43	Residential	25.0	27.0	32.6	36.0	36.5	36.5	36.5
44	Residential	26.9	28.9	34.5	37.8	38.4	38.4	38.4
45	Residential	27.4	29.4	35.0	38.3	38.9	38.9	38.9
46	Residential and Commercial	28.5	30.5	36.1	39.5	40.0	40.0	40.0
47	Residential	26.9	28.9	34.5	37.8	38.4	38.4	38.4
49	Residential and Commercial	25.2	27.2	32.8	36.1	36.7	36.7	36.7
50	Residential	25.1	27.1	32.7	36.1	36.6	36.6	36.6
52	Residential and Commercial	24.8	26.8	32.4	35.8	36.3	36.3	36.3
53	Residential	26.0	28.0	33.6	36.9	37.5	37.5	37.5
54	Residential	20.6	22.6	28.2	31.6	32.1	32.1	32.1
55	Residential and Commercial	21.2	23.2	28.8	32.2	32.7	32.7	32.7
56	Residential	21.8	23.8	29.4	32.7	33.3	33.3	33.3
57	Residential	21.9	23.9	29.5	32.8	33.4	33.4	33.4
58	Residential	22.9	24.9	30.5	33.9	34.4	34.4	34.4
59	Residential	22.7	24.7	30.3	33.7	34.2	34.2	34.2
60	Residential and Commercial	23.2	25.2	30.8	34.2	34.7	34.7	34.7
61	Residential	21.8	23.8	29.4	32.8	33.3	33.3	33.3
62	Residential	22.7	24.7	30.3	33.7	34.2	34.2	34.2
63	Residential and Commercial	23.5	25.5	31.1	34.4	35.0	35.0	35.0
65	Residential	24.4	26.4	32.0	35.4	35.9	35.9	35.9
66	Residential	23.9	25.9	31.5	34.9	35.4	35.4	35.4

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)						
		3	4	5	6	7	8	9
67	Residential and Commercial	24.0	26.0	31.6	35.0	35.5	35.5	35.5
68	Residential	23.7	25.7	31.3	34.7	35.2	35.2	35.2
71	Commercial	23.1	25.1	30.7	34.1	34.6	34.6	34.6
72	Residential	20.5	22.5	28.1	31.5	32.0	32.0	32.0
73	Residential	20.2	22.2	27.8	31.1	31.7	31.7	31.7
74	Residential	20.3	22.3	27.9	31.2	31.8	31.8	31.8
75	Residential	20.2	22.2	27.8	31.2	31.7	31.7	31.7
76	Residential	20.1	22.1	27.7	31.1	31.6	31.6	31.6
77	Residential	20.1	22.1	27.7	31.0	31.6	31.6	31.6
78	Residential	22.4	24.4	30.0	33.3	33.9	33.9	33.9
79	Residential	22.2	24.2	29.8	33.2	33.7	33.7	33.7
80	Residential	21.3	23.3	28.9	32.2	32.8	32.8	32.8
81	Residential	20.9	22.9	28.5	31.8	32.4	32.4	32.4
84	Residential and Commercial	19.6	21.6	27.2	30.5	31.1	31.1	31.1
85	Residential	19.7	21.7	27.3	30.6	31.2	31.2	31.2
86	Residential	19.5	21.5	27.1	30.4	31.0	31.0	31.0
87	Residential	19.5	21.5	27.1	30.5	31.0	31.0	31.0
88	Residential	20.5	22.5	28.1	31.5	32.0	32.0	32.0
89	Residential	20.4	22.4	28.0	31.4	31.9	31.9	31.9
90	Residential	20.2	22.2	27.8	31.2	31.7	31.7	31.7
91	Residential and Commercial	20.3	22.3	27.9	31.3	31.8	31.8	31.8
92	Residential	20.4	22.4	28.0	31.4	31.9	31.9	31.9
93	Residential	20.2	22.2	27.8	31.2	31.7	31.7	31.7
94	Residential	20.2	22.2	27.8	31.1	31.7	31.7	31.7
95	Commercial	20.0	22.0	27.6	31.0	31.5	31.5	31.5
96	Residential	20.0	22.0	27.6	30.9	31.5	31.5	31.5
97	Residential	20.0	22.0	27.6	30.9	31.5	31.5	31.5
98	Residential	19.9	21.9	27.5	30.9	31.4	31.4	31.4
99	Residential	19.9	21.9	27.5	30.8	31.4	31.4	31.4
100	Residential	19.8	21.8	27.4	30.7	31.3	31.3	31.3
101	Residential	19.8	21.8	27.4	30.7	31.3	31.3	31.3
102	Residential	19.8	21.8	27.4	30.7	31.3	31.3	31.3
103	Residential	19.8	21.8	27.4	30.7	31.3	31.3	31.3
104	Residential	19.6	21.6	27.2	30.6	31.1	31.1	31.1

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)						
		3	4	5	6	7	8	9
105	Residential	19.6	21.6	27.2	30.6	31.1	31.1	31.1
106	Residential	19.6	21.6	27.2	30.6	31.1	31.1	31.1
107	Residential	19.6	21.6	27.2	30.6	31.1	31.1	31.1
108	Residential	19.7	21.7	27.3	30.6	31.2	31.2	31.2
109	Residential	19.7	21.7	27.3	30.6	31.2	31.2	31.2
110	Residential	19.7	21.7	27.3	30.7	31.2	31.2	31.2
111	Residential	19.7	21.7	27.3	30.7	31.2	31.2	31.2
112	Residential	19.8	21.8	27.4	30.7	31.3	31.3	31.3
113	Residential	19.8	21.8	27.4	30.8	31.3	31.3	31.3
114	Residential	19.9	21.9	27.5	30.9	31.4	31.4	31.4
115	Residential	19.9	21.9	27.5	30.8	31.4	31.4	31.4
116	Residential	21.9	23.9	29.5	32.9	33.4	33.4	33.4
117	Residential	22.1	24.1	29.7	33.1	33.6	33.6	33.6
118	Residential	22.5	24.5	30.1	33.5	34.0	34.0	34.0
119	Residential	22.7	24.7	30.3	33.7	34.2	34.2	34.2
120	Residential	21.4	23.4	29.0	32.4	32.9	32.9	32.9
121	Residential and Commercial	21.0	23.0	28.6	31.9	32.5	32.5	32.5
122	Residential	20.7	22.7	28.3	31.6	32.2	32.2	32.2
123	Residential and Commercial	23.5	25.5	31.1	34.5	35.0	35.0	35.0
124	Residential	20.5	22.5	28.1	31.5	32.0	32.0	32.0
125	Residential	18.8	20.8	26.4	29.8	30.3	30.3	30.3
126	Residential	19.8	21.8	27.4	30.8	31.3	31.3	31.3
127	Residential	19.7	21.7	27.3	30.6	31.2	31.2	31.2
128	Residential	21.6	23.6	29.2	32.6	33.1	33.1	33.1
129	Residential	22.9	24.9	30.5	33.8	34.4	34.4	34.4
130	Residential	22.8	24.8	30.4	33.7	34.3	34.3	34.3
131	Residential	22.5	24.5	30.1	33.5	34.0	34.0	34.0
132	Residential	22.0	24.0	29.6	32.9	33.5	33.5	33.5
133	Residential	22.4	24.4	30.0	33.3	33.9	33.9	33.9
134	Residential	22.3	24.3	29.9	33.3	33.8	33.8	33.8
135	Commercial	21.3	23.3	28.9	32.2	32.8	32.8	32.8
136	Residential	21.7	23.7	29.3	32.7	33.2	33.2	33.2
137	Residential	20.7	22.7	28.3	31.6	32.2	32.2	32.2
138	Residential	23.1	25.1	30.7	34.1	34.6	34.6	34.6
139	Commercial	22.9	24.9	30.5	33.8	34.4	34.4	34.4

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)						
		3	4	5	6	7	8	9
141	Residential	21.9	23.9	29.5	32.9	33.4	33.4	33.4
142	Residential	21.5	23.5	29.1	32.5	33.0	33.0	33.0
144	Residential	20.7	22.7	28.3	31.7	32.2	32.2	32.2
145	Residential and Commercial	20.5	22.5	28.1	31.4	32.0	32.0	32.0
146	Residential	20.1	22.1	27.7	31.0	31.6	31.6	31.6
147	Residential	19.7	21.7	27.3	30.6	31.2	31.2	31.2
148	Residential	18.8	20.8	26.4	29.7	30.3	30.3	30.3
149	Residential	18.6	20.6	26.2	29.5	30.1	30.1	30.1
150	Residential	20.2	22.2	27.8	31.1	31.7	31.7	31.7
151	Residential	18.7	20.7	26.3	29.6	30.2	30.2	30.2
152	Commercial	18.7	20.7	26.3	29.6	30.2	30.2	30.2
153	Residential	18.8	20.8	26.4	29.7	30.3	30.3	30.3
154	Residential	20.2	22.2	27.8	31.1	31.7	31.7	31.7
155	Residential	19.3	21.3	26.9	30.3	30.8	30.8	30.8
156	Residential	19.5	21.5	27.1	30.4	31.0	31.0	31.0
157	Residential	19.4	21.4	27.0	30.3	30.9	30.9	30.9
158	Residential and Commercial	19.7	21.7	27.3	30.6	31.2	31.2	31.2
159	Commercial	19.3	21.3	26.9	30.3	30.8	30.8	30.8
160	Residential	19.2	21.2	26.8	30.2	30.7	30.7	30.7
161	Residential	19.1	21.1	26.7	30.1	30.6	30.6	30.6
162	Residential	19.9	21.9	27.5	30.8	31.4	31.4	31.4
163	Residential	19.8	21.8	27.4	30.7	31.3	31.3	31.3
164	Residential	19.6	21.6	27.2	30.6	31.1	31.1	31.1
165	Residential and Commercial	19.4	21.4	27.0	30.3	30.9	30.9	30.9
166	Residential	19.0	21.0	26.6	29.9	30.5	30.5	30.5
167	Residential	19.6	21.6	27.2	30.5	31.1	31.1	31.1
168	Residential	19.3	21.3	26.9	30.3	30.8	30.8	30.8
169	Residential	19.3	21.3	26.9	30.3	30.8	30.8	30.8
170	Residential	19.4	21.4	27.0	30.3	30.9	30.9	30.9
171	Residential	19.5	21.5	27.1	30.4	31.0	31.0	31.0
172	Residential	19.4	21.4	27.0	30.4	30.9	30.9	30.9
173	Residential	19.3	21.3	26.9	30.3	30.8	30.8	30.8
174	Residential	19.3	21.3	26.9	30.2	30.8	30.8	30.8
175	Residential	19.2	21.2	26.8	30.2	30.7	30.7	30.7

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)						
		3	4	5	6	7	8	9
176	Residential	19.2	21.2	26.8	30.1	30.7	30.7	30.7
177	Residential	19.5	21.5	27.1	30.4	31.0	31.0	31.0
178	Residential	19.4	21.4	27.0	30.4	30.9	30.9	30.9
179	Residential	19.4	21.4	27.0	30.3	30.9	30.9	30.9
180	Residential	19.3	21.3	26.9	30.2	30.8	30.8	30.8
181	Residential	19.2	21.2	26.8	30.2	30.7	30.7	30.7
182	Residential	19.2	21.2	26.8	30.1	30.7	30.7	30.7
183	Residential and Commercial	19.6	21.6	27.2	30.6	31.1	31.1	31.1
184	Residential	19.7	21.7	27.3	30.6	31.2	31.2	31.2
185	Residential	19.9	21.9	27.5	30.9	31.4	31.4	31.4
186	Residential	19.4	21.4	27.0	30.3	30.9	30.9	30.9
187	Residential	19.9	21.9	27.5	30.8	31.4	31.4	31.4
188	Residential	19.3	21.3	26.9	30.3	30.8	30.8	30.8
189	Residential	19.3	21.3	26.9	30.2	30.8	30.8	30.8
190	Residential	19.4	21.4	27.0	30.3	30.9	30.9	30.9
191	Residential	19.1	21.1	26.7	30.1	30.6	30.6	30.6
192	Residential and Commercial	19.8	21.8	27.4	30.8	31.3	31.3	31.3
193	Residential	19.7	21.7	27.3	30.6	31.2	31.2	31.2
194	Residential	19.2	21.2	26.8	30.1	30.7	30.7	30.7
195	Residential	18.9	20.9	26.5	29.9	30.4	30.4	30.4
196	Residential	18.9	20.9	26.5	29.9	30.4	30.4	30.4
197	Residential	19.0	21.0	26.6	30.0	30.5	30.5	30.5
198	Residential	18.5	20.5	26.1	29.4	30.0	30.0	30.0
199	Residential	17.9	19.9	25.5	28.9	29.4	29.4	29.4
200	Residential	17.9	19.9	25.5	28.9	29.4	29.4	29.4
201	Residential	19.6	21.6	27.2	30.6	31.1	31.1	31.1
202	Residential	19.6	21.6	27.2	30.6	31.1	31.1	31.1
203	Residential	20.1	22.1	27.7	31.1	31.6	31.6	31.6
205	Residential	17.9	19.9	25.5	28.9	29.4	29.4	29.4
206	Residential	18.3	20.3	25.9	29.2	29.8	29.8	29.8
207	Residential	18.3	20.3	25.9	29.2	29.8	29.8	29.8
208	Residential	18.4	20.4	26.0	29.3	29.9	29.9	29.9
209	Residential	18.0	20.0	25.6	28.9	29.5	29.5	29.5
210	Residential	19.4	21.4	27.0	30.3	30.9	30.9	30.9

Table 7.6.2: Predicted noise levels (L_{A90}) from Fahy Beg Wind Farm at Noise Sensitive Locations for Standardised 10m Wind Speeds of 3 m/s to 9 m/s, hub height 110m

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)						
		3	4	5	6	7	8	9
1	Residential	23.5	25.5	31.1	34.8	35.0	35.0	35.0
2	Residential	26.2	28.2	33.8	37.5	37.7	37.7	37.7
3	Residential	26.0	28.0	33.6	37.3	37.5	37.5	37.5
5	Residential	26.1	28.1	33.7	37.4	37.6	37.6	37.6
6	Residential and Commercial	24.4	26.4	32.0	35.7	35.9	35.9	35.9
8	Residential	26.5	28.5	34.1	37.8	38.0	38.0	38.0
9	Residential	25.9	27.9	33.5	37.2	37.4	37.4	37.4
10	Commercial	25.9	27.9	33.5	37.2	37.4	37.4	37.4
11	Residential	25.1	27.1	32.7	36.4	36.6	36.6	36.6
12	Residential	25.0	27.0	32.6	36.3	36.5	36.5	36.5
13	Residential	28.4	30.4	36.0	39.7	39.9	39.9	39.9
14	Residential and Commercial	27.0	29.0	34.6	38.3	38.5	38.5	38.5
15	Residential	26.3	28.3	33.9	37.6	37.8	37.8	37.8
16	Residential	26.7	28.7	34.3	38.0	38.2	38.2	38.2
17	Residential	27.6	29.6	35.2	38.9	39.1	39.1	39.1
18	Residential	25.1	27.1	32.7	36.4	36.6	36.6	36.6
20	Residential	25.0	27.0	32.6	36.3	36.5	36.5	36.5
21	Residential and Commercial	24.8	26.8	32.4	36.1	36.3	36.3	36.3
22	Residential	23.8	25.8	31.4	35.1	35.3	35.3	35.3
23	Residential	23.5	25.5	31.1	34.8	35.0	35.0	35.0
25	Residential	23.5	25.5	31.1	34.8	35.0	35.0	35.0
26	Residential	23.0	25.0	30.6	34.3	34.5	34.5	34.5
27	Residential	22.8	24.8	30.4	34.1	34.3	34.3	34.3
28	Residential	22.6	24.6	30.2	33.9	34.1	34.1	34.1
29	Residential	23.4	25.4	31.0	34.7	34.9	34.9	34.9
30	Residential	23.6	25.6	31.2	34.9	35.1	35.1	35.1
31	Residential	23.6	25.6	31.2	34.9	35.1	35.1	35.1
32	Residential	24.8	26.8	32.4	36.1	36.3	36.3	36.3
33	Residential	25.7	27.7	33.3	37.0	37.2	37.2	37.2
34	Residential	25.8	27.8	33.4	37.1	37.3	37.3	37.3
35	Residential	25.8	27.8	33.4	37.1	37.3	37.3	37.3

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)						
		3	4	5	6	7	8	9
36	Residential and Commercial	25.0	27.0	32.6	36.3	36.5	36.5	36.5
37	Residential	26.1	28.1	33.7	37.4	37.6	37.6	37.6
39	Residential	25.8	27.8	33.4	37.1	37.3	37.3	37.3
40	Residential and Commercial	27.4	29.4	35.0	38.7	38.9	38.9	38.9
41	Residential	27.0	29.0	34.6	38.3	38.5	38.5	38.5
42	Residential	27.1	29.1	34.7	38.4	38.6	38.6	38.6
43	Residential	25.0	27.0	32.6	36.3	36.5	36.5	36.5
44	Residential	26.9	28.9	34.5	38.2	38.4	38.4	38.4
45	Residential	27.4	29.4	35.0	38.7	38.9	38.9	38.9
46	Residential and Commercial	28.5	30.5	36.1	39.8	40.0	40.0	40.0
47	Residential	26.9	28.9	34.5	38.2	38.4	38.4	38.4
49	Residential and Commercial	25.2	27.2	32.8	36.5	36.7	36.7	36.7
50	Residential	25.1	27.1	32.7	36.4	36.6	36.6	36.6
52	Residential and Commercial	24.8	26.8	32.4	36.1	36.3	36.3	36.3
53	Residential	26.0	28.0	33.6	37.3	37.5	37.5	37.5
54	Residential	20.6	22.6	28.2	31.9	32.1	32.1	32.1
55	Residential and Commercial	21.2	23.2	28.8	32.5	32.7	32.7	32.7
56	Residential	21.8	23.8	29.4	33.1	33.3	33.3	33.3
57	Residential	21.9	23.9	29.5	33.2	33.4	33.4	33.4
58	Residential	22.9	24.9	30.5	34.2	34.4	34.4	34.4
59	Residential	22.7	24.7	30.3	34.0	34.2	34.2	34.2
60	Residential and Commercial	23.2	25.2	30.8	34.5	34.7	34.7	34.7
61	Residential	21.8	23.8	29.4	33.1	33.3	33.3	33.3
62	Residential	21.8	23.8	29.4	33.1	33.3	33.3	33.3
63	Residential and Commercial	23.3	25.3	30.9	34.6	34.8	34.8	34.8
65	Residential	24.4	26.4	32.0	35.7	35.9	35.9	35.9
66	Residential	23.6	25.6	31.2	34.9	35.1	35.1	35.1
67	Residential and Commercial	22.8	24.8	30.4	34.1	34.3	34.3	34.3
68	Residential	23.7	25.7	31.3	35.0	35.2	35.2	35.2

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)						
		3	4	5	6	7	8	9
71	Commercial	23.1	25.1	30.7	34.4	34.6	34.6	34.6
72	Residential	20.2	22.2	27.8	31.5	31.7	31.7	31.7
73	Residential	20.2	22.2	27.8	31.5	31.7	31.7	31.7
74	Residential	20.3	22.3	27.9	31.6	31.8	31.8	31.8
75	Residential	20.2	22.2	27.8	31.5	31.7	31.7	31.7
76	Residential	20.1	22.1	27.7	31.4	31.6	31.6	31.6
77	Residential	20.1	22.1	27.7	31.4	31.6	31.6	31.6
78	Residential	22.4	24.4	30.0	33.7	33.9	33.9	33.9
79	Residential	22.2	24.2	29.8	33.5	33.7	33.7	33.7
80	Residential	21.2	23.2	28.8	32.5	32.7	32.7	32.7
81	Residential	20.9	22.9	28.5	32.2	32.4	32.4	32.4
84	Residential and Commercial	19.6	21.6	27.2	30.9	31.1	31.1	31.1
85	Residential	19.7	21.7	27.3	31.0	31.2	31.2	31.2
86	Residential	19.4	21.4	27.0	30.7	30.9	30.9	30.9
87	Residential	19.5	21.5	27.1	30.8	31.0	31.0	31.0
88	Residential	20.5	22.5	28.1	31.8	32.0	32.0	32.0
89	Residential	20.4	22.4	28.0	31.7	31.9	31.9	31.9
90	Residential	20.2	22.2	27.8	31.5	31.7	31.7	31.7
91	Residential and Commercial	20.3	22.3	27.9	31.6	31.8	31.8	31.8
92	Residential	20.4	22.4	28.0	31.7	31.9	31.9	31.9
93	Residential	20.2	22.2	27.8	31.5	31.7	31.7	31.7
94	Residential	20.2	22.2	27.8	31.5	31.7	31.7	31.7
95	Commercial	20.0	22.0	27.6	31.3	31.5	31.5	31.5
96	Residential	20.0	22.0	27.6	31.3	31.5	31.5	31.5
97	Residential	20.0	22.0	27.6	31.3	31.5	31.5	31.5
98	Residential	19.9	21.9	27.5	31.2	31.4	31.4	31.4
99	Residential	19.9	21.9	27.5	31.2	31.4	31.4	31.4
100	Residential	19.8	21.8	27.4	31.1	31.3	31.3	31.3
101	Residential	19.8	21.8	27.4	31.1	31.3	31.3	31.3
102	Residential	19.8	21.8	27.4	31.1	31.3	31.3	31.3
103	Residential	19.8	21.8	27.4	31.1	31.3	31.3	31.3
104	Residential	19.6	21.6	27.2	30.9	31.1	31.1	31.1
105	Residential	19.6	21.6	27.2	30.9	31.1	31.1	31.1
106	Residential	19.6	21.6	27.2	30.9	31.1	31.1	31.1

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)						
		3	4	5	6	7	8	9
107	Residential	19.6	21.6	27.2	30.9	31.1	31.1	31.1
108	Residential	19.7	21.7	27.3	31.0	31.2	31.2	31.2
109	Residential	19.7	21.7	27.3	31.0	31.2	31.2	31.2
110	Residential	19.7	21.7	27.3	31.0	31.2	31.2	31.2
111	Residential	19.7	21.7	27.3	31.0	31.2	31.2	31.2
112	Residential	19.8	21.8	27.4	31.1	31.3	31.3	31.3
113	Residential	19.8	21.8	27.4	31.1	31.3	31.3	31.3
114	Residential	19.9	21.9	27.5	31.2	31.4	31.4	31.4
115	Residential	19.9	21.9	27.5	31.2	31.4	31.4	31.4
116	Residential	21.9	23.9	29.5	33.2	33.4	33.4	33.4
117	Residential	22.1	24.1	29.7	33.4	33.6	33.6	33.6
118	Residential	22.5	24.5	30.1	33.8	34.0	34.0	34.0
119	Residential	22.7	24.7	30.3	34.0	34.2	34.2	34.2
120	Residential	21.4	23.4	29.0	32.7	32.9	32.9	32.9
121	Residential and Commercial	21.0	23.0	28.6	32.3	32.5	32.5	32.5
122	Residential	20.7	22.7	28.3	32.0	32.2	32.2	32.2
123	Residential and Commercial	23.5	25.5	31.1	34.8	35.0	35.0	35.0
124	Residential	20.5	22.5	28.1	31.8	32.0	32.0	32.0
125	Residential	18.8	20.8	26.4	30.1	30.3	30.3	30.3
126	Residential	19.8	21.8	27.4	31.1	31.3	31.3	31.3
127	Residential	19.7	21.7	27.3	31.0	31.2	31.2	31.2
128	Residential	21.6	23.6	29.2	32.9	33.1	33.1	33.1
129	Residential	22.9	24.9	30.5	34.2	34.4	34.4	34.4
130	Residential	22.4	24.4	30.0	33.7	33.9	33.9	33.9
131	Residential	22.2	24.2	29.8	33.5	33.7	33.7	33.7
132	Residential	21.6	23.6	29.2	32.9	33.1	33.1	33.1
133	Residential	22.0	24.0	29.6	33.3	33.5	33.5	33.5
134	Residential	22.0	24.0	29.6	33.3	33.5	33.5	33.5
135	Commercial	21.3	23.3	28.9	32.6	32.8	32.8	32.8
136	Residential	21.4	23.4	29.0	32.7	32.9	32.9	32.9
137	Residential	20.7	22.7	28.3	32.0	32.2	32.2	32.2
138	Residential	22.7	24.7	30.3	34.0	34.2	34.2	34.2
139	Commercial	22.4	24.4	30.0	33.7	33.9	33.9	33.9
141	Residential	21.1	23.1	28.7	32.4	32.6	32.6	32.6

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)						
		3	4	5	6	7	8	9
142	Residential	21.5	23.5	29.1	32.8	33.0	33.0	33.0
144	Residential	20.7	22.7	28.3	32.0	32.2	32.2	32.2
145	Residential and Commercial	20.5	22.5	28.1	31.8	32.0	32.0	32.0
146	Residential	20.1	22.1	27.7	31.4	31.6	31.6	31.6
147	Residential	19.7	21.7	27.3	31.0	31.2	31.2	31.2
148	Residential	18.4	20.4	26.0	29.7	29.9	29.9	29.9
149	Residential	18.6	20.6	26.2	29.9	30.1	30.1	30.1
150	Residential	19.2	21.2	26.8	30.5	30.7	30.7	30.7
151	Residential	18.7	20.7	26.3	30.0	30.2	30.2	30.2
152	Commercial	18.7	20.7	26.3	30.0	30.2	30.2	30.2
153	Residential	18.8	20.8	26.4	30.1	30.3	30.3	30.3
154	Residential	19.9	21.9	27.5	31.2	31.4	31.4	31.4
155	Residential	19.3	21.3	26.9	30.6	30.8	30.8	30.8
156	Residential	19.1	21.1	26.7	30.4	30.6	30.6	30.6
157	Residential	19.0	21.0	26.6	30.3	30.5	30.5	30.5
158	Residential and Commercial	19.7	21.7	27.3	31.0	31.2	31.2	31.2
159	Commercial	19.3	21.3	26.9	30.6	30.8	30.8	30.8
160	Residential	18.8	20.8	26.4	30.1	30.3	30.3	30.3
161	Residential	19.1	21.1	26.7	30.4	30.6	30.6	30.6
162	Residential	19.0	21.0	26.6	30.3	30.5	30.5	30.5
163	Residential	19.0	21.0	26.6	30.3	30.5	30.5	30.5
164	Residential	19.6	21.6	27.2	30.9	31.1	31.1	31.1
165	Residential and Commercial	19.4	21.4	27.0	30.7	30.9	30.9	30.9
166	Residential	19.0	21.0	26.6	30.3	30.5	30.5	30.5
167	Residential	19.2	21.2	26.8	30.5	30.7	30.7	30.7
168	Residential	19.3	21.3	26.9	30.6	30.8	30.8	30.8
169	Residential	19.0	21.0	26.6	30.3	30.5	30.5	30.5
170	Residential	19.4	21.4	27.0	30.7	30.9	30.9	30.9
171	Residential	19.5	21.5	27.1	30.8	31.0	31.0	31.0
172	Residential	19.4	21.4	27.0	30.7	30.9	30.9	30.9
173	Residential	19.3	21.3	26.9	30.6	30.8	30.8	30.8
174	Residential	19.3	21.3	26.9	30.6	30.8	30.8	30.8
175	Residential	19.2	21.2	26.8	30.5	30.7	30.7	30.7
176	Residential	19.2	21.2	26.8	30.5	30.7	30.7	30.7

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)						
		3	4	5	6	7	8	9
177	Residential	19.1	21.1	26.7	30.4	30.6	30.6	30.6
178	Residential	19.0	21.0	26.6	30.3	30.5	30.5	30.5
179	Residential	19.0	21.0	26.6	30.3	30.5	30.5	30.5
180	Residential	18.9	20.9	26.5	30.2	30.4	30.4	30.4
181	Residential	18.9	20.9	26.5	30.2	30.4	30.4	30.4
182	Residential	19.2	21.2	26.8	30.5	30.7	30.7	30.7
183	Residential and Commercial	19.6	21.6	27.2	30.9	31.1	31.1	31.1
184	Residential	19.7	21.7	27.3	31.0	31.2	31.2	31.2
185	Residential	19.9	21.9	27.5	31.2	31.4	31.4	31.4
186	Residential	19.4	21.4	27.0	30.7	30.9	30.9	30.9
187	Residential	19.9	21.9	27.5	31.2	31.4	31.4	31.4
188	Residential	19.3	21.3	26.9	30.6	30.8	30.8	30.8
189	Residential	19.3	21.3	26.9	30.6	30.8	30.8	30.8
190	Residential	19.0	21.0	26.6	30.3	30.5	30.5	30.5
191	Residential	19.1	21.1	26.7	30.4	30.6	30.6	30.6
192	Residential and Commercial	18.8	20.8	26.4	30.1	30.3	30.3	30.3
193	Residential	18.6	20.6	26.2	29.9	30.1	30.1	30.1
194	Residential	19.2	21.2	26.8	30.5	30.7	30.7	30.7
195	Residential	18.9	20.9	26.5	30.2	30.4	30.4	30.4
196	Residential	18.9	20.9	26.5	30.2	30.4	30.4	30.4
197	Residential	19.0	21.0	26.6	30.3	30.5	30.5	30.5
198	Residential	18.5	20.5	26.1	29.8	30.0	30.0	30.0
199	Residential	17.9	19.9	25.5	29.2	29.4	29.4	29.4
200	Residential	17.9	19.9	25.5	29.2	29.4	29.4	29.4
201	Residential	19.6	21.6	27.2	30.9	31.1	31.1	31.1
202	Residential	19.6	21.6	27.2	30.9	31.1	31.1	31.1
203	Residential	20.1	22.1	27.7	31.4	31.6	31.6	31.6
205	Residential	17.9	19.9	25.5	29.2	29.4	29.4	29.4
206	Residential	18.3	20.3	25.9	29.6	29.8	29.8	29.8
207	Residential	18.3	20.3	25.9	29.6	29.8	29.8	29.8
208	Residential	18.4	20.4	26.0	29.7	29.9	29.9	29.9
209	Residential	18.0	20.0	25.6	29.3	29.5	29.5	29.5
210	Residential	19.4	21.4	27.0	30.7	30.9	30.9	30.9

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING,
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APPENDIX 7.7

PREDICTED NOISE LEVELS FROMFAHY BEG WIND FARM WITH MITIGATION AT NEARBYNOISE SENSITIVE LOCATIONS

Table 7.7.1 presents the predicted cumulative noise levels (L_{A90}) with mitigation from wind turbines for the proposed Fahy Beg Wind Farm at noise sensitive locations for Standardised 10m height wind speeds of between 6-9 m/s. The numbering is not sequential as only the noise sensitive locations within the 35 dB L_{A90} noise contour are presented. Derelict and uninhabited dwellings were not considered.

Table 7.7.1: Predicted Cumulative Noise Levels (L_{A90}) with Mitigation from at Noise Sensitive Locations for Standardised 10m Wind Speeds of 6 m/s 102.5m hub height

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)
1	Residential	16.7
2	Residential	18.5
3	Residential	19.8
5	Residential	20.3
6	Residential and Commercial	20.4
8	Residential	21.1
9	Residential	21.4
10	Residential	21.9
11	Commercial	22.1
12	Residential	22.3
13	Residential	26.3
14	Residential	26.3
15	Residential and Commercial	26.1
16	Residential	24.3
17	Residential	22.5
18	Residential	21.4
19	Residential	21.1
21	Residential	20.4
22	Residential and Commercial	19.6
23	Residential	19.3
24	Residential	18.6
26	Residential	18.5
27	Residential	18.4
28	Residential	18.1
29	Residential	16.8
30	Residential	16.7

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)
31	Residential	16.1
32	Residential	16.5
33	Residential	17.0
34	Residential	16.9
35	Residential	16.8
36	Residential	15.9
37	Residential and Commercial	16.5
38	Residential	16.3
40	Residential	16.6
41	Residential and Commercial	16.3
42	Residential	16.3
43	Residential	14.7
44	Residential	15.5
45	Residential	15.8
46	Residential	16.0
47	Residential and Commercial	15.1
48	Residential	13.3
50	Residential and Commercial	13.2
51	Residential	13.5
53	Residential and Commercial	21.2
54	Residential	15.1
55	Residential and Commercial	15.0
56	Residential	15.0
57	Residential	15.0
58	Residential	15.4
59	Residential	16.0
60	Residential and Commercial	16.5
61	Residential	17.3
62	Residential	18.2

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)
63	Residential and Commercial	18.9
65	Residential	23.8
66	Residential	24.8
67	Residential and Commercial	26.6
68	Residential	25.9
71	Commercial	36.3
72	Residential	23.2
73	Residential	22.9
74	Residential	22.7
75	Residential	22.2
76	Residential	21.9
77	Residential	21.7
78	Residential	17.8
79	Residential	18.1
80	Residential	17.2
81	Residential	16.6
84	Residential and Commercial	16.1
85	Residential	16.1
86	Residential	16.0
87	Residential	15.9
88	Residential	16.3
89	Residential	16.3
90	Residential	16.1
91	Residential and Commercial	16.0
92	Residential	16.0
93	Residential	15.8
94	Residential	15.8
95	Commercial	15.9
96	Residential	16.0
97	Residential	16.0
98	Residential	15.9
99	Residential	15.9

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)
100	Residential	15.8
101	Residential	15.8
102	Residential	15.7
103	Residential	15.7
104	Residential	15.6
105	Residential	15.6
106	Residential	15.7
107	Residential	15.7
108	Residential	15.8
109	Residential	15.8
110	Residential	15.9
111	Residential	15.9
112	Residential	15.9
113	Residential	16.0
114	Residential	16.0
115	Residential	16.0
116	Residential	15.9
117	Residential	15.7
118	Residential	13.1
119	Residential	12.3
120	Residential	11.8
121	Residential and Commercial	11.7
122	Residential	11.7
123	Residential and Commercial	12.2
124	Residential	11.2
125	Residential	13.8
126	Residential	14.4
127	Residential	15.1
128	Residential	16.6
129	Residential	27.5
130	Residential	27.5
131	Residential	27.4
132	Residential	26.7
133	Residential	27.7

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)
134	Residential	27.8
135	Commercial	26.4
136	Residential	26.7
137	Residential	26.0
138	Residential	29.8
139	Commercial	32.6
141	Residential	35.5
142	Residential	33.9
144	Residential	32.5
145	Residential and Commercial	31.2
146	Residential	23.2
147	Residential	17.7
148	Residential	18.5
149	Residential	18.4
150	Residential	17.6
151	Residential	18.1
152	Commercial	18.3
153	Residential	18.0
154	Residential	17.2
155	Residential	17.2
156	Residential	17.2
157	Residential	16.3
158	Residential and Commercial	15.2
159	Commercial	16.1
160	Residential	15.8
161	Residential	15.6
162	Residential	15.5
163	Residential	15.4
164	Residential	15.4
165	Residential and Commercial	16.0
166	Residential	15.7
167	Residential	15.3
168	Residential	15.9

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)
169	Residential	15.4
170	Residential	15.9
171	Residential	15.8
172	Residential	15.7
173	Residential	15.7
174	Residential	15.6
175	Residential	15.6
176	Residential	15.5
177	Residential	15.5
178	Residential	15.4
179	Residential	15.4
180	Residential	15.3
181	Residential	15.3
182	Residential	15.2
183	Residential and Commercial	13.5
184	Residential	12.8
185	Residential	12.8
186	Residential	12.6
187	Residential	12.7
188	Residential	12.5
189	Residential	12.4
190	Residential	12.1
191	Residential	12.1
192	Residential and Commercial	12.0
193	Residential	11.7
194	Residential	12.0
195	Residential	11.7
196	Residential	11.7
197	Residential	11.7
198	Residential	11.0
199	Residential	10.8
200	Residential	10.7
201	Residential	11.3
202	Residential	11.3

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)
203	Residential	11.1
205	Residential	10.4
206	Residential	10.5
207	Residential	10.6
208	Residential	10.6
209	Residential	10.5
210	Residential	11.3

Table 7.7.2: Predicted Cumulative Noise Levels (L_{A90}) with Mitigation from at Noise Sensitive Locations for Standardised 10m Wind Speeds of 6 m/s 110m hub height

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)
1	Residential	32.7
2	Residential	35.1
3	Residential	34.9
5	Residential	35.0
6	Residential and Commercial	33.4
8	Residential	35.4
9	Residential	34.9
10	Residential	34.9
11	Commercial	34.9
12	Residential	34.2
13	Residential	34.1
14	Residential	37.5
15	Residential and Commercial	36.4
16	Residential	35.7
17	Residential	35.9
18	Residential	36.7
19	Residential	34.4
21	Residential	34.4

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)
22	Residential and Commercial	34.1
23	Residential	33.2
24	Residential	33.0
26	Residential	32.7
27	Residential	32.6
28	Residential	32.3
29	Residential	32.2
30	Residential	33.2
31	Residential	33.4
32	Residential	33.5
33	Residential	34.6
34	Residential	35.3
35	Residential	35.6
36	Residential	35.5
37	Residential and Commercial	35.0
38	Residential	36.0
40	Residential	36.7
41	Residential and Commercial	37.3
42	Residential	37.1
43	Residential	37.2
44	Residential	35.5
45	Residential	37.2
46	Residential	37.7
47	Residential and Commercial	38.9
48	Residential	37.4
50	Residential and Commercial	36.0
51	Residential	36.0
53	Residential and Commercial	39.0
54	Residential	30.2
55	Residential and Commercial	30.7

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)
56	Residential	31.3
57	Residential	31.5
58	Residential	32.4
59	Residential	32.1
60	Residential and Commercial	32.5
61	Residential	31.0
62	Residential	31.1
63	Residential and Commercial	32.4
65	Residential	33.7
66	Residential	33.2
67	Residential and Commercial	32.9
68	Residential	33.5
71	Commercial	37.7
72	Residential	30.4
73	Residential	30.3
74	Residential	30.4
75	Residential	30.3
76	Residential	30.1
77	Residential	30.1
78	Residential	32.0
79	Residential	31.8
80	Residential	31.0
81	Residential	30.6
84	Residential and Commercial	29.4
85	Residential	29.6
86	Residential	29.3
87	Residential	29.4
88	Residential	30.3
89	Residential	30.3
90	Residential	30.1
91	Residential and Commercial	30.2
92	Residential	30.2

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)
93	Residential	30.1
94	Residential	30.0
95	Commercial	29.9
96	Residential	29.9
97	Residential	29.8
98	Residential	29.8
99	Residential	29.7
100	Residential	29.7
101	Residential	29.7
102	Residential	29.7
103	Residential	29.7
104	Residential	29.5
105	Residential	29.5
106	Residential	29.5
107	Residential	29.5
108	Residential	29.5
109	Residential	29.5
110	Residential	29.6
111	Residential	29.6
112	Residential	29.6
113	Residential	29.7
114	Residential	29.7
115	Residential	29.7
116	Residential	31.8
117	Residential	32.0
118	Residential	33.1
119	Residential	33.5
120	Residential	32.2
121	Residential and Commercial	31.7
122	Residential	31.4
123	Residential and Commercial	34.4
124	Residential	31.3
125	Residential	28.5
126	Residential	29.5

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)
127	Residential	29.0
128	Residential	30.8
129	Residential	33.2
130	Residential	33.0
131	Residential	32.8
132	Residential	32.2
133	Residential	32.8
134	Residential	32.8
135	Commercial	31.9
136	Residential	32.0
137	Residential	31.3
138	Residential	33.9
139	Commercial	35.1
141	Residential	36.7
142	Residential	35.6
144	Residential	34.5
145	Residential and Commercial	33.6
146	Residential	30.4
147	Residential	29.5
148	Residential	28.5
149	Residential	28.7
150	Residential	29.4
151	Residential	28.7
152	Commercial	28.6
153	Residential	28.8
154	Residential	29.8
155	Residential	29.6
156	Residential	29.4
157	Residential	28.9
158	Residential and Commercial	29.6
159	Commercial	29.1
160	Residential	28.7
161	Residential	29.3
162	Residential	29.2

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)
163	Residential	29.1
164	Residential	30.0
165	Residential and Commercial	29.2
166	Residential	28.9
167	Residential	29.3
168	Residential	29.2
169	Residential	29.1
170	Residential	29.3
171	Residential	29.4
172	Residential	29.3
173	Residential	29.2
174	Residential	29.2
175	Residential	29.1
176	Residential	29.1
177	Residential	29.0
178	Residential	28.9
179	Residential	28.9
180	Residential	28.8
181	Residential	28.8
182	Residential	29.2
183	Residential and Commercial	29.9
184	Residential	30.1
185	Residential	30.3
186	Residential	29.8
187	Residential	30.4
188	Residential	29.8
189	Residential	29.7
190	Residential	29.4
191	Residential	29.6
192	Residential and Commercial	29.3
193	Residential	29.2
194	Residential	29.7
195	Residential	29.5

Receptor ID	Description	Predicted Noise Level (dB L_{A90}) at Standardised 10m Height Wind Speeds (m/s)
196	Residential	29.5
197	Residential	29.6
198	Residential	29.1
199	Residential	28.6
200	Residential	28.5
201	Residential	30.3
202	Residential	30.3
203	Residential	30.9
205	Residential	28.6
206	Residential	28.9
207	Residential	28.9
208	Residential	29.0
209	Residential	28.6
210	Residential	29.9