



The Great Grid Upgrade

Sea Link

Sea Link

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Part 2 Suffolk
Chapter 9
Appendix 2.9.A Suffolk Noise Survey Data

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1. Suffolk Noise Survey Data

1.1 Introduction

- 1.1.1 This appendix presents results of the noise survey conducted as part of the Suffolk Onshore Scheme. A noise survey has been conducted at six locations representative of noise sensitive receptors (NSR) for use within the operational noise assessment for the proposed Saxmundham Converter Station.

1.2 Noise Survey Methodology

Guidance

- 1.2.1 The noise monitoring was undertaken following the principles of BS 7445-1:2003 – Description and measurement of environmental noise – Part 1: Guide to quantities and procedures (BS 7445-1) (BSI, 2003) and BS 4142:2014+A1:2019. Methods for rating and assessing industrial and commercial sound (BS 4142) (BSI, 2019).
- 1.2.2 The survey methodology and locations were agreed with East Suffolk Council prior to conducting the surveys.

Survey Procedure

- 1.2.3 Continuous sound level monitoring was undertaken for a period of eleven days, including weekdays and weekend periods, between Thursday 22 June 2023 and Monday 3 July 2023.
- 1.2.4 The measurements were set to continuously repeating 15-minute periods. One-second L_{eq} measurements and one-third octave band sound levels were also recorded.
- 1.2.5 The calibration of the sound levels meter was checked at the start and end of the measurement. No significant drift was noted during the survey. The sound level meter had been laboratory calibrated within 24 months and the acoustic calibrators had been laboratory calibrated with 12 months of the survey, in line with the requirements of BS 4142 Calibration certificates are available upon request.
- 1.2.6 A full suite of acoustical parameters was measured during the monitoring, but the following parameters are of particular interest and reported:
- $L_{Aeq,15min}$ (the equivalent continuous A-weighted sound pressure level);
 - $L_{AFmax,15min}$ (the maximum sound during the measurement period); and
 - $L_{A90,15min}$ (the sound level that was exceeded for 90% of the measurement period; i.e. a typical lower value).
- 1.2.7 The sound level meter was housed within weatherproof peli-cases with the microphone mounted via a tripod at height of between 1.2 m and 1.5 m.
- 1.2.8 Weather conditions were monitored during the surveys and periods of rain and/or high wind (>5 m/s) were excluded from the assessment.

Survey Locations

- 1.2.9 The noise survey was conducted at one location (marked as S_L1-6), representative of nearby NSR within the operational noise study area for the Suffolk Onshore Scheme. The survey location, together with the assessment locations, representative of NSR locations, is shown in Plate 1.1.

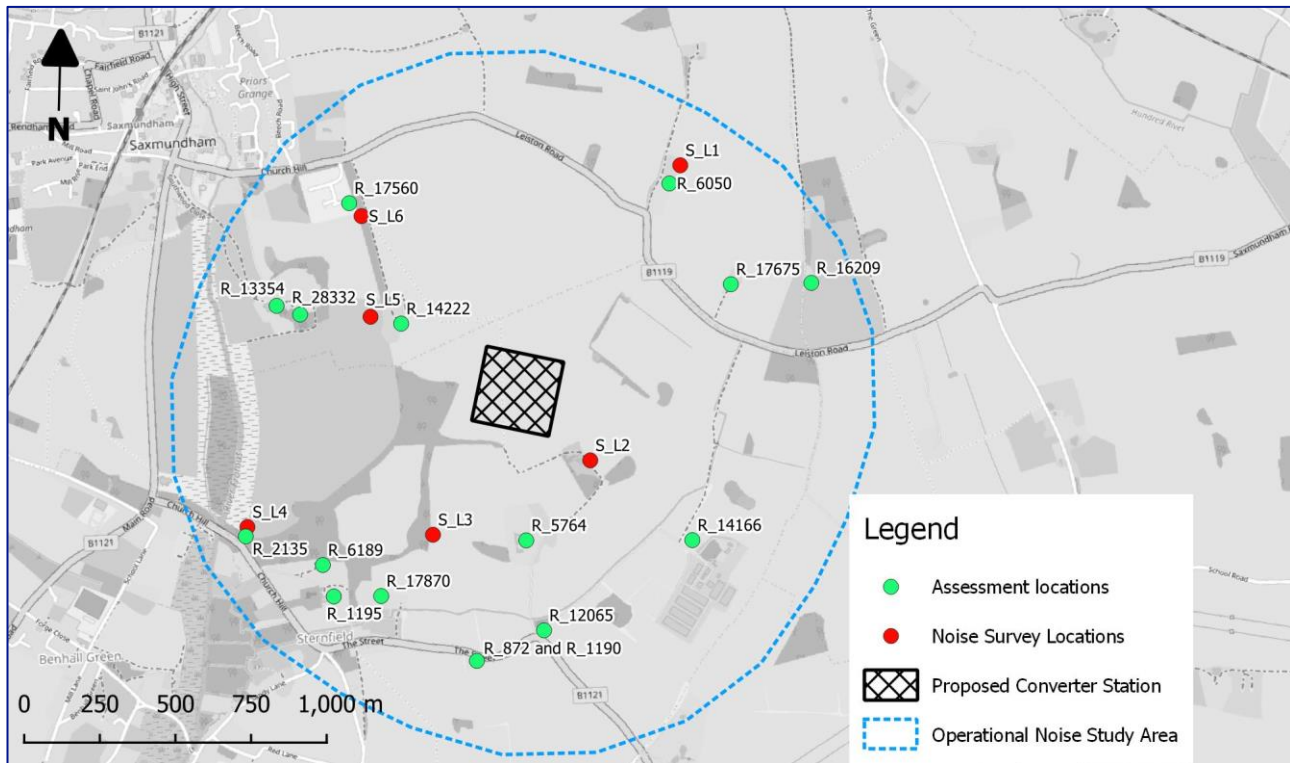


Plate 1.1 Suffolk Onshore Scheme sound level survey location

1.3 Noise Survey Results

Location S_L1

S_L1 location details

- 1.3.1 A photograph of the survey location is provided in Plate 1.2.



Plate 1.2 Survey location (S_L1)

1.3.2 The survey location is as follows:

- Easting/northing: 640311/263008;
- what3words: marketing.chum.loops; and
- Measurement Condition: Free-field.

Measurement equipment

- Sound Level Meter: Rion NL-52. Serial number: 00220558;
- Microphone: Rion UC-59. Serial number: 06710; and
- Acoustic Calibrator: Rion NC-74. Serial number: 34235943.

Details of the noise climate

1.3.3 The noise climate at monitoring location S_L1 is typical of predominantly rural area. The main sources of ambient sound are distance road traffic sources, particularly the B1119 to the south. There were also contributions from bird song and foliage.

Survey results

1.3.4 The temporal variation in sound level during the survey period is shown in Plate 1.3.

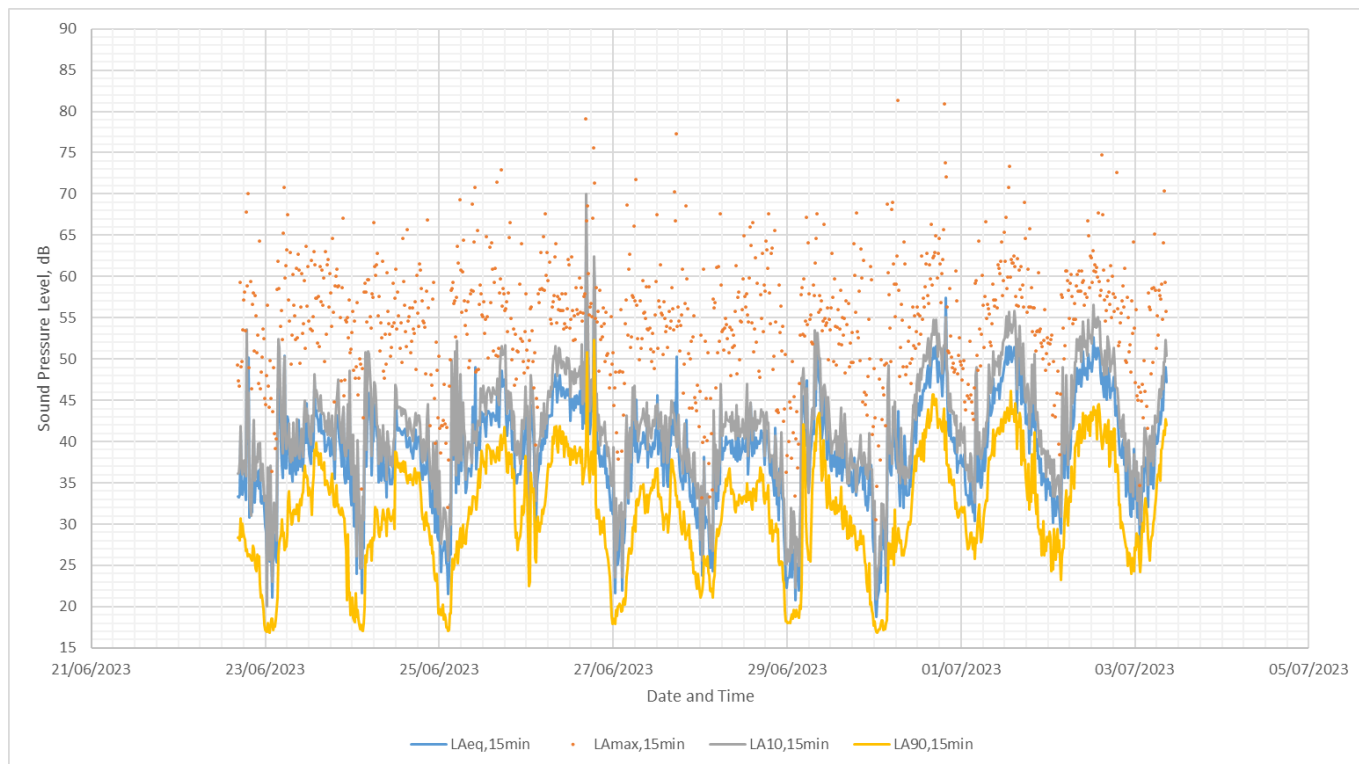


Plate 1.3 Temporal variation in sound levels – S_L1

1.3.5 The distribution of background sound level levels during daytime periods is shown in Plate 1.4.

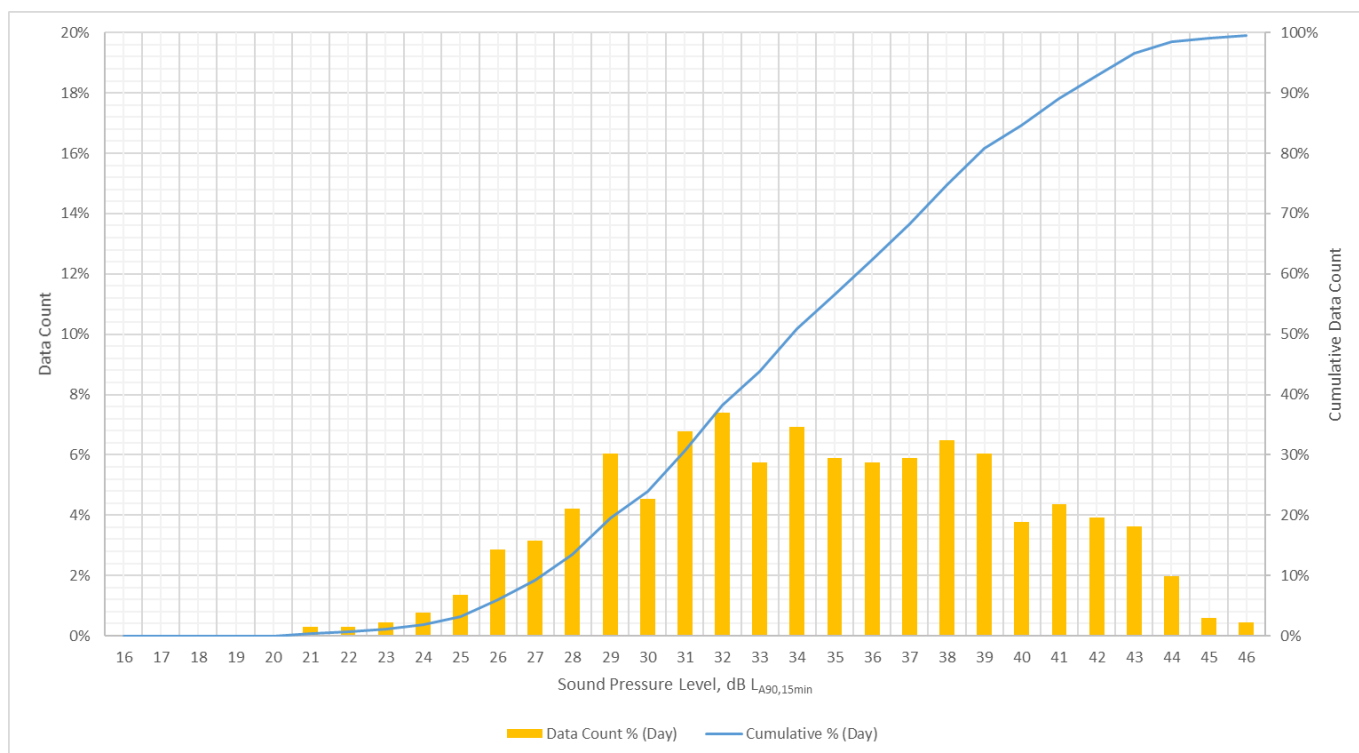


Plate 1.4 Distribution of background sound levels (Daytime) – S_L1

1.3.6 The distribution of background sound level levels during night-time periods is shown in Plate 1.5.

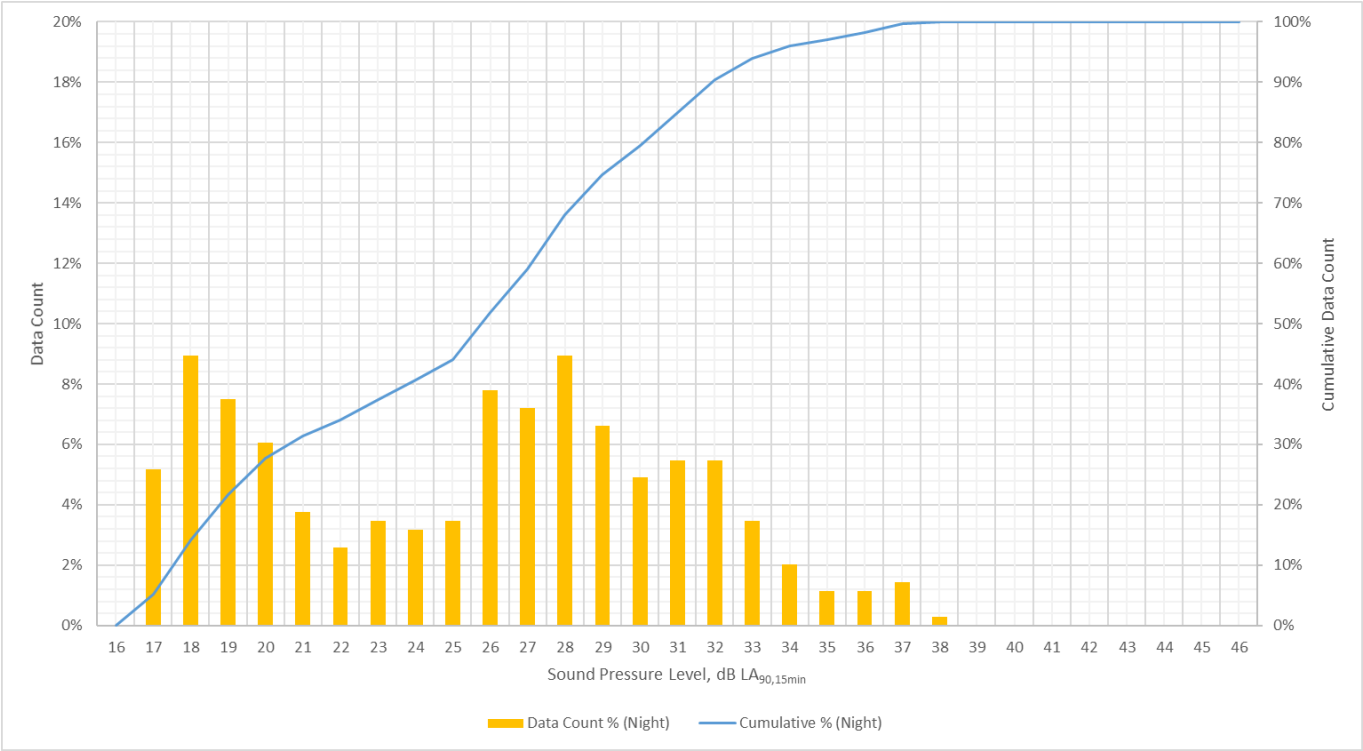


Plate 1.5 Distribution of background sound levels (Night-time) – S_L1

1.3.7 A summary of measured sound levels is provided in Table 1.1.

Table 1.1 Summary of measured sound levels – S_L1

Time period	Average sound level, dB LAeq,15min	Maximum sound level, dB LAFmax,15min	Background sound level, dB LA90,15min
Day	Range: 29 - 65 Average: 45	Range: 42 - 81 Typical: 56	Range: 21 - 52 Average: 34 Mode: 32
Night	Range: 19 - 50 Average: 38	Range: 31 - 81 Typical: 58	Range: 17 - 38 Average: 26 Mode: 18

Representative background sound levels

1.3.8 Based on the results of the survey, considering the average, modal and temporal variation in background sound level, the following representative background sound levels are applied at location S_L1:

- Daytime: 31 dB L_{A90} ; and
- Night-time: 20 dB L_{A90} .

Location S_L2

S_L2 location details

1.3.9 A photograph of the survey location is provided in Plate 1.6.



Plate 1.6 Survey location (S_L2)

1.3.10 The survey location is as follows:

- Easting/northing: 640013/262035;
- what3words: drupe.kingdom.marketing; and
- Measurement Condition: Free-field.

Measurement equipment

- Sound Level Meter: Rion NL-52. Serial number: 00620880;
- Microphone: Rion UC-59. Serial number: 03474; and

- Acoustic Calibrator: Rion NC-74. Serial number: 34235943.

Details of the noise climate

- 1.3.11 The noise climate at monitoring location S_L2 is typical of predominantly rural area. The main sources of ambient sound are distance road traffic sources. There were also contributions from agricultural activity, bird song and foliage. A bird scarer was also heard.

Survey results

- 1.3.12 The temporal variation in sound level during the survey period is shown in Plate 1.7.

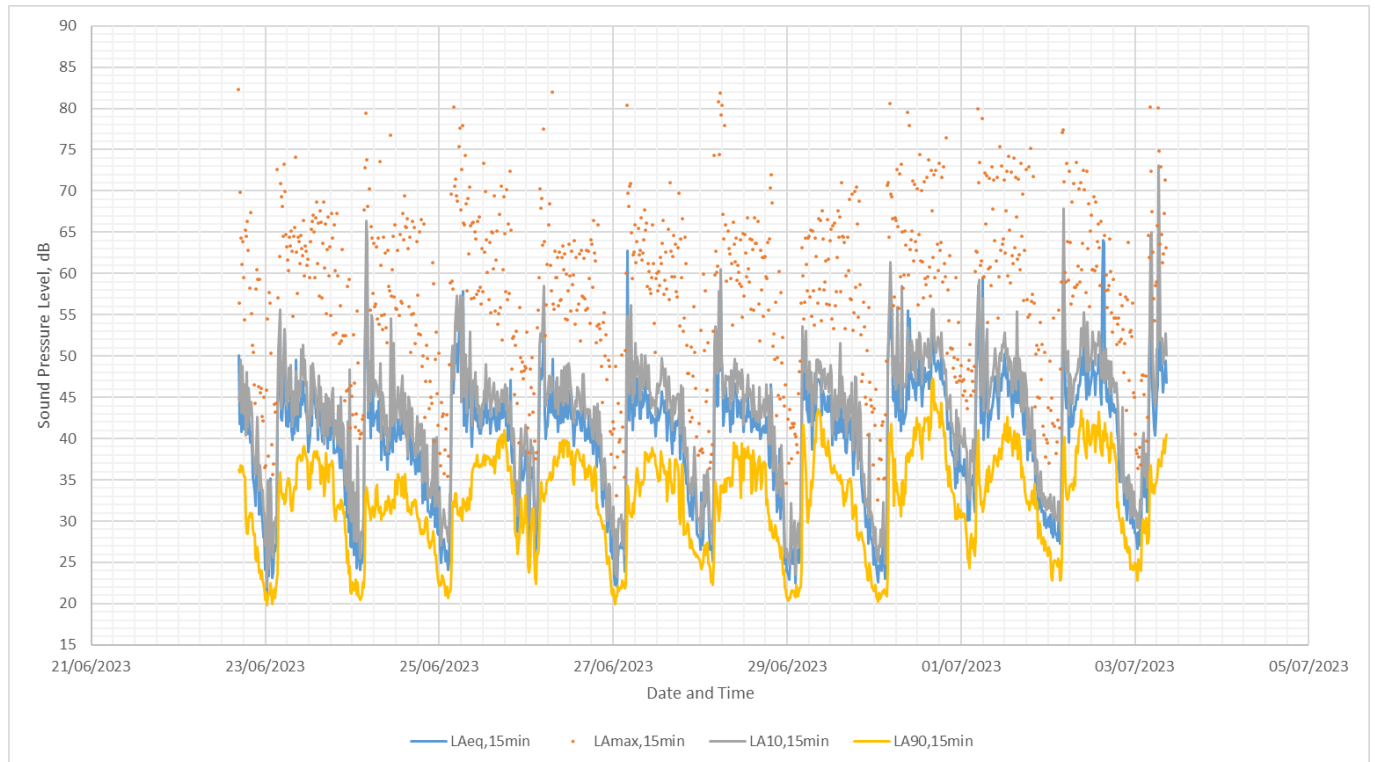


Plate 1.7 Temporal variation in sound levels – S_L2

- 1.3.13 The distribution of background sound level levels during daytime periods is shown in Plate 1.8.

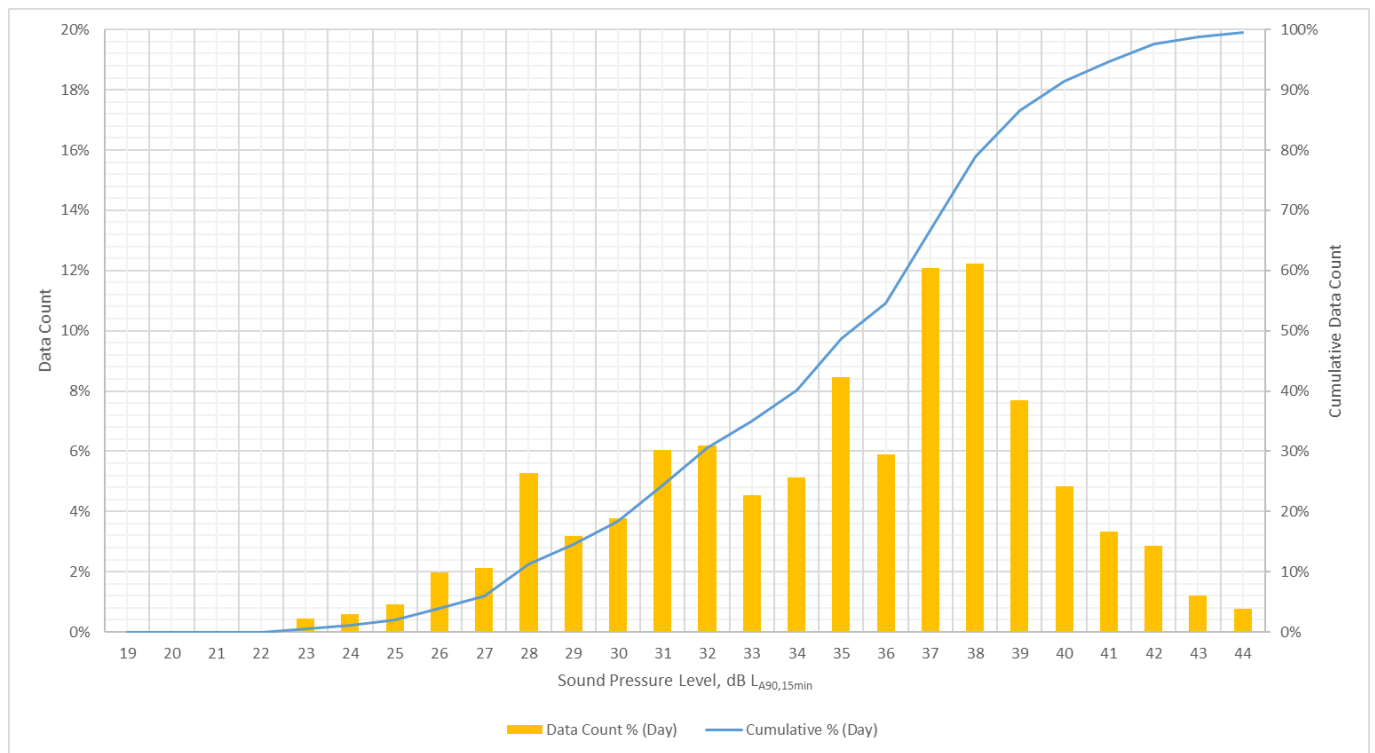


Plate 1.8 Distribution of background sound levels (Daytime) – S_L2

1.3.14 The distribution of background sound level levels during night-time periods is shown in Plate 1.9.

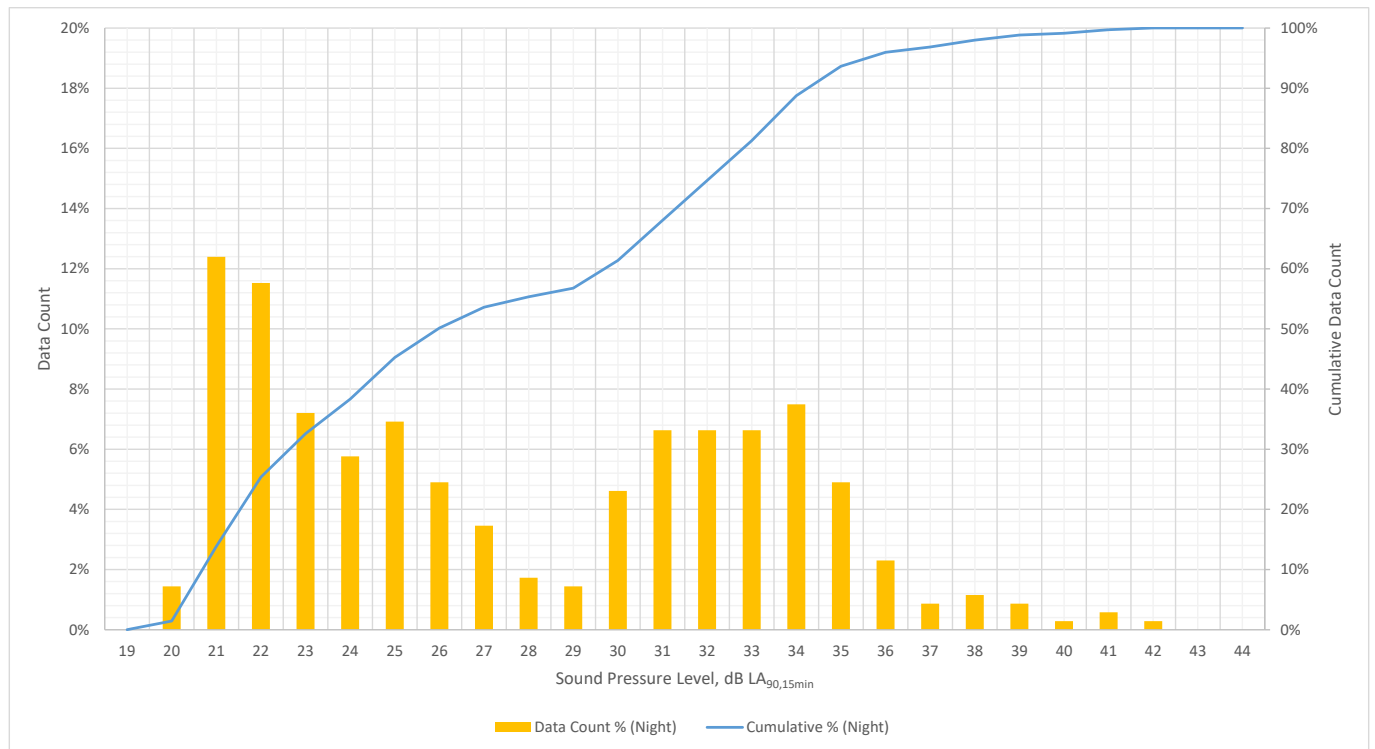


Plate 1.9 Distribution of background sound levels (Night-time) – S_L2

1.3.15 A summary of measured sound levels is provided in Table 1.2.

Table 1.2 Summary of measured sound levels – S_L2

Time period	Average sound level, dB LAeq,15min	Maximum sound level, dB LAFmax,15min	Background sound level, dB LA90,15min
Day	Range: 27 – 64 Average: 45	Range: 39 – 95 Typical: 64	Range: 23 – 47 Average: 35 Mode: 38
Night	Range: 21 – 67 Average: 49	Range: 33 – 82 Typical: 38	Range: 20 – 42 Average: 26 Mode: 21

Representative background sound levels

1.3.16 Based on the results of the survey, considering the average, modal and temporal variation in background sound level, the following representative background sound levels are applied at location S_L2:

- Daytime: 32 dB LA90; and
- Night-time: 22 dB LA90.

Location S_L3

S_L3 location details

1.3.17 A photograph of the survey location is provided in Plate 1.10.



Plate 1.10 Survey location (S_L3)

1.3.18 The survey location is as follows:

- Easting/northing: 639493/261789;
- what3words: haven.implanted.husky; and
- Measurement Condition: Free-field.

Measurement equipment

- Sound Level Meter: Rion NL-52. Serial number: 01143556;
- Microphone: Rion UC-59. Serial number: 07362; and
- Acoustic Calibrator: Rion NC-74. Serial number: 34235943.

Details of the noise climate

1.3.19 The noise climate at monitoring location S_L3 is typical of predominantly rural area. The main sources of ambient sound are distance road traffic sources, particularly the B1121 to the south. There were also contributions from agricultural activity, bird song and foliage. A bird scarer was also heard.

Survey results

1.3.20 The temporal variation in sound level during the survey period is shown in Plate 1.11.

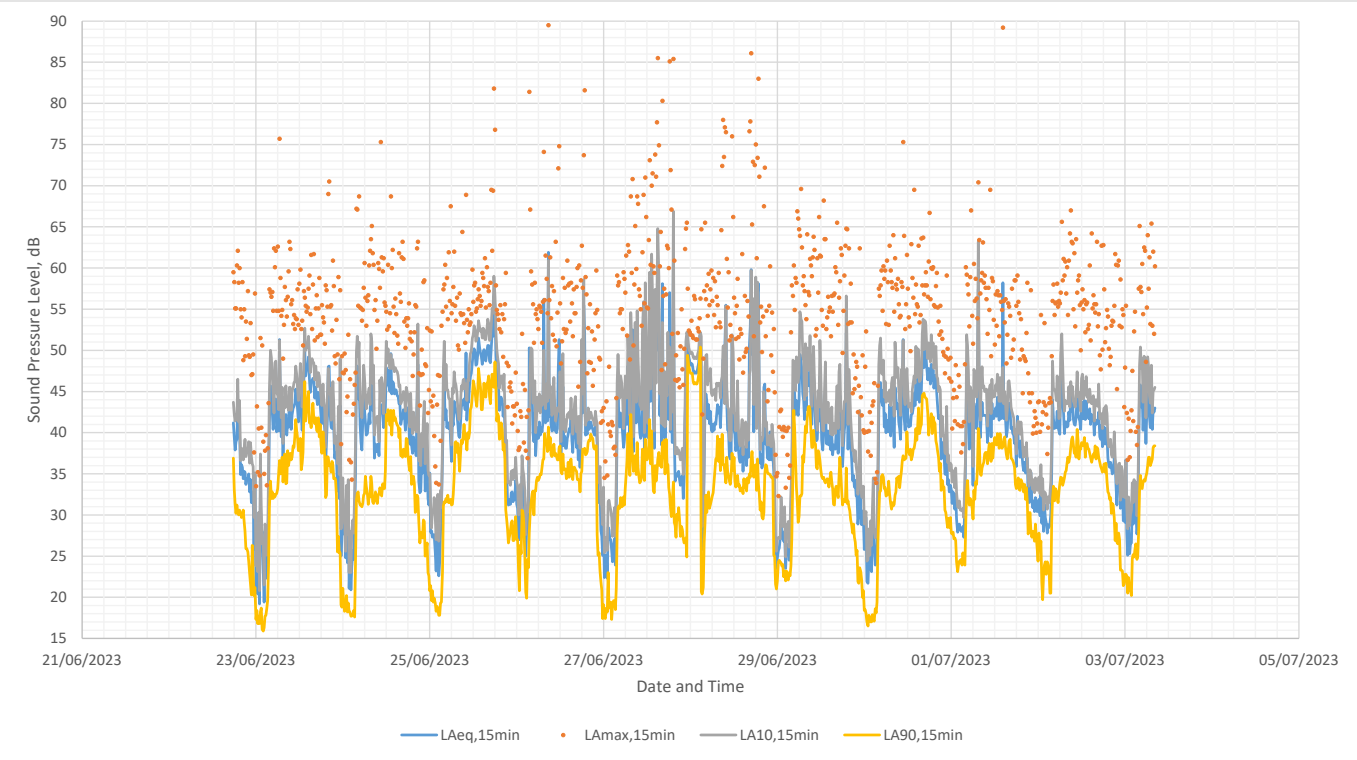


Plate 1.11 Temporal variation in sound levels – S_L3

1.3.21 The distribution of background sound level levels during daytime periods is shown in Plate 1.12.

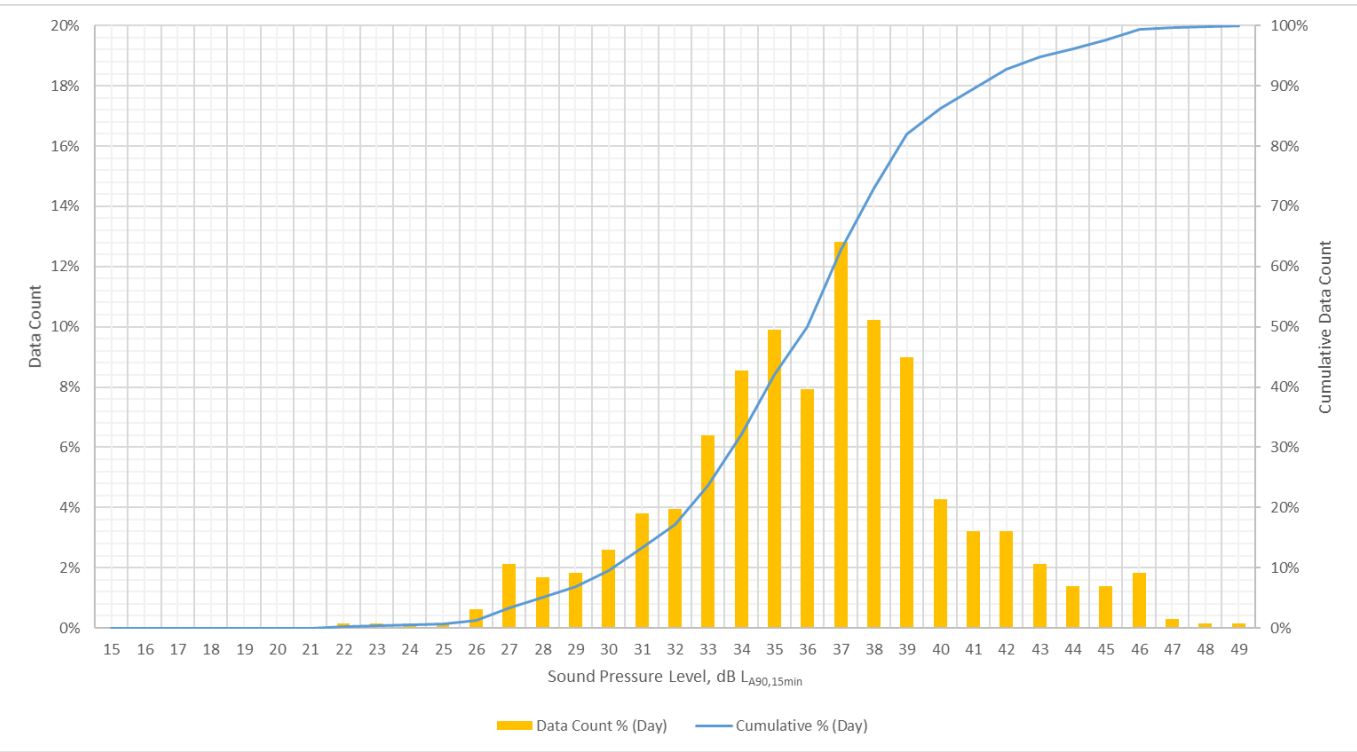


Plate 1.12 Distribution of background sound levels (Daytime) – S_L3

1.3.22 The distribution of background sound level levels during night-time periods is shown in Plate 1.13.

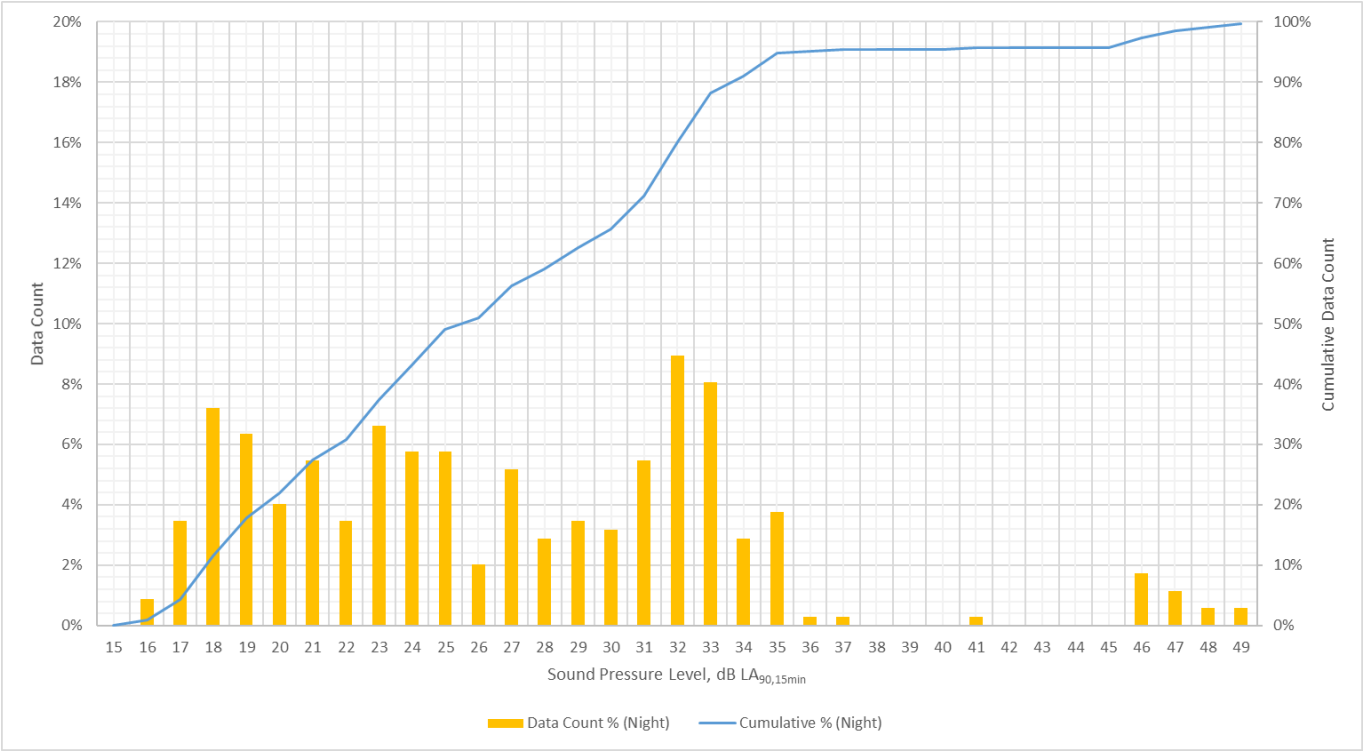


Plate 1.13 Distribution of background sound levels (Night-time) – S_L3

1.3.23 A summary of measured sound levels is provided in Table 1.3.

Table 1.3 Summary of measured sound levels – S_L3

Time period	Average sound level, dB LAeq,15min	Maximum sound level, dB LAFmax,15min	Background sound level, dB LA90,15min
Day	Range: 29 – 62 Average: 46	Range: 43 – 90 Typical: 55	Range: 22 – 49 Average: 36 Mode: 37
Night	Range: 19 – 51 Average: 40	Range: 32 – 91 Typical: 41	Range: 16 – 50 Average: 22 Mode: 32

Representative background sound levels

1.3.24 Based on the results of the survey, considering the average, modal and temporal variation in background sound level, the following representative background sound levels are applied at location S_L3:

- Daytime: 34 dB L_{A90} ; and
- Night-time: 22 dB L_{A90} .

Location S_L4

S_L4 location details

1.3.25 A photograph of the survey location is provided in Plate 1.14.



Plate 1.14 Survey location (S_L4)

1.3.26 The survey location is as follows:

- Easting/northing: 638879/261815;
- what3words: eased.accompany.inform; and
- Measurement Condition: Free-field.

Measurement equipment

- Sound Level Meter: Rion NL-52. Serial number: 01143556;
- Microphone: Rion UC-59. Serial number: 07362; and

- Acoustic Calibrator: Rion NC-74. Serial number: 34235943.

Details of the noise climate

- 1.3.27 The noise climate at monitoring location S_L4 is typical of predominantly rural area. The main sources of ambient sound are distance road traffic sources, particularly Church Hill to the south. There were also contributions from bird song and foliage.

Survey results

- 1.3.28 The temporal variation in sound level during the survey period is shown in Plate 1.15.

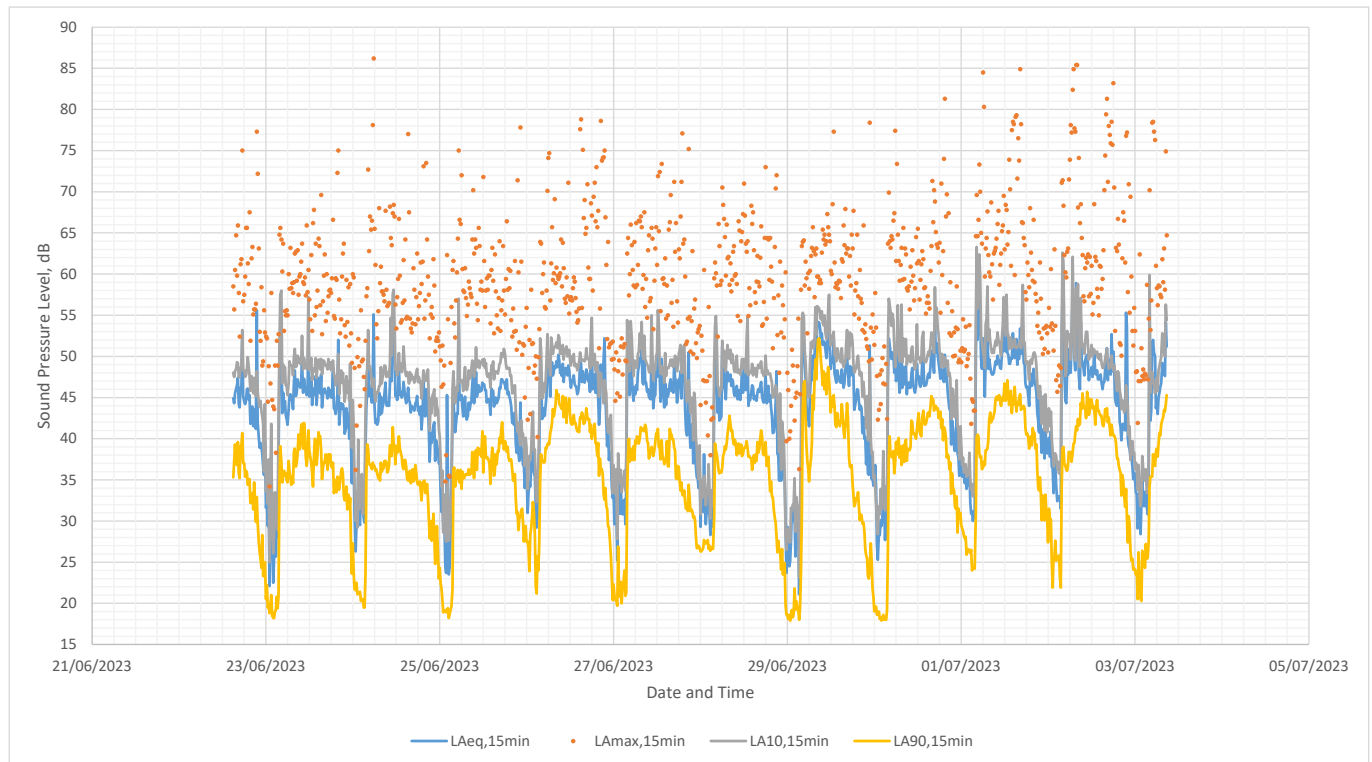


Plate 1.15 Temporal variation in sound levels – S_L4

- 1.3.29 The distribution of background sound level levels during daytime periods is shown in Plate 1.16.

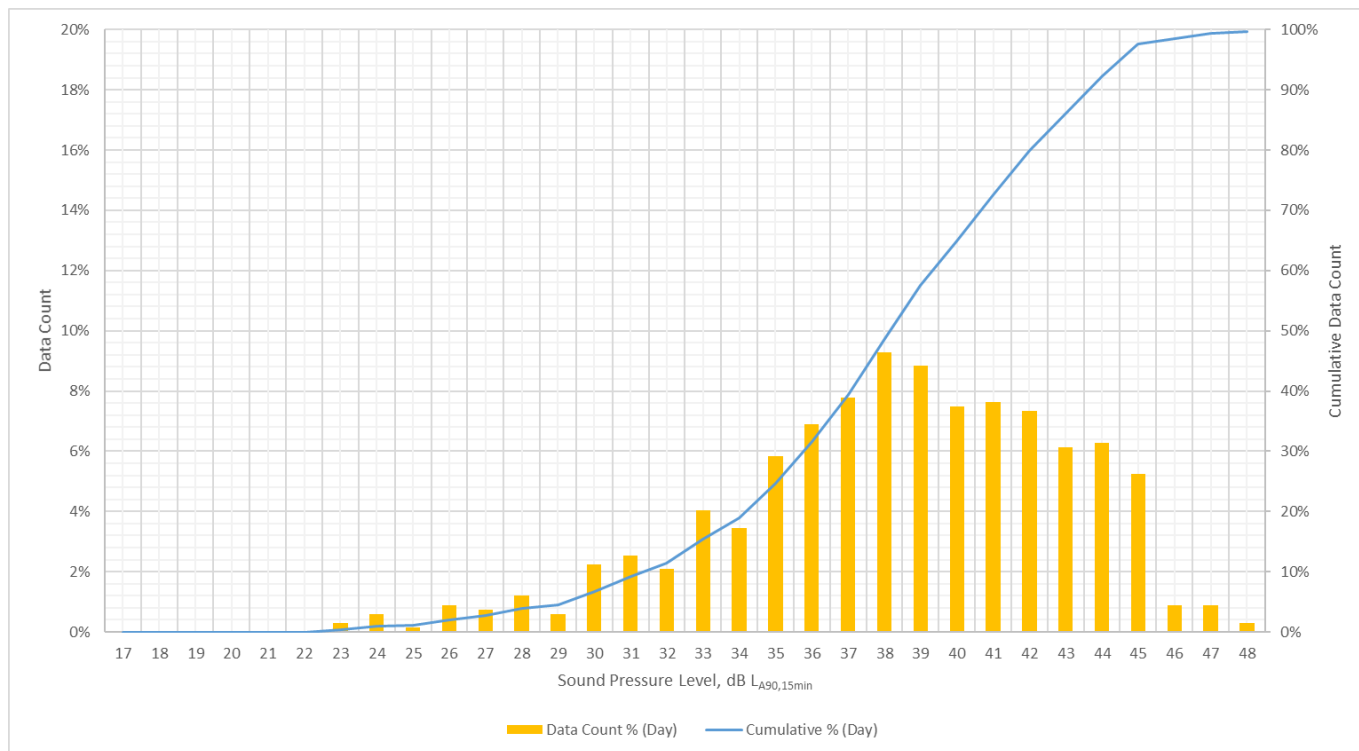


Plate 1.16 Distribution of background sound levels (Daytime) – S_L4

1.3.30 The distribution of background sound level levels during night-time periods is shown in Plate 1.17.

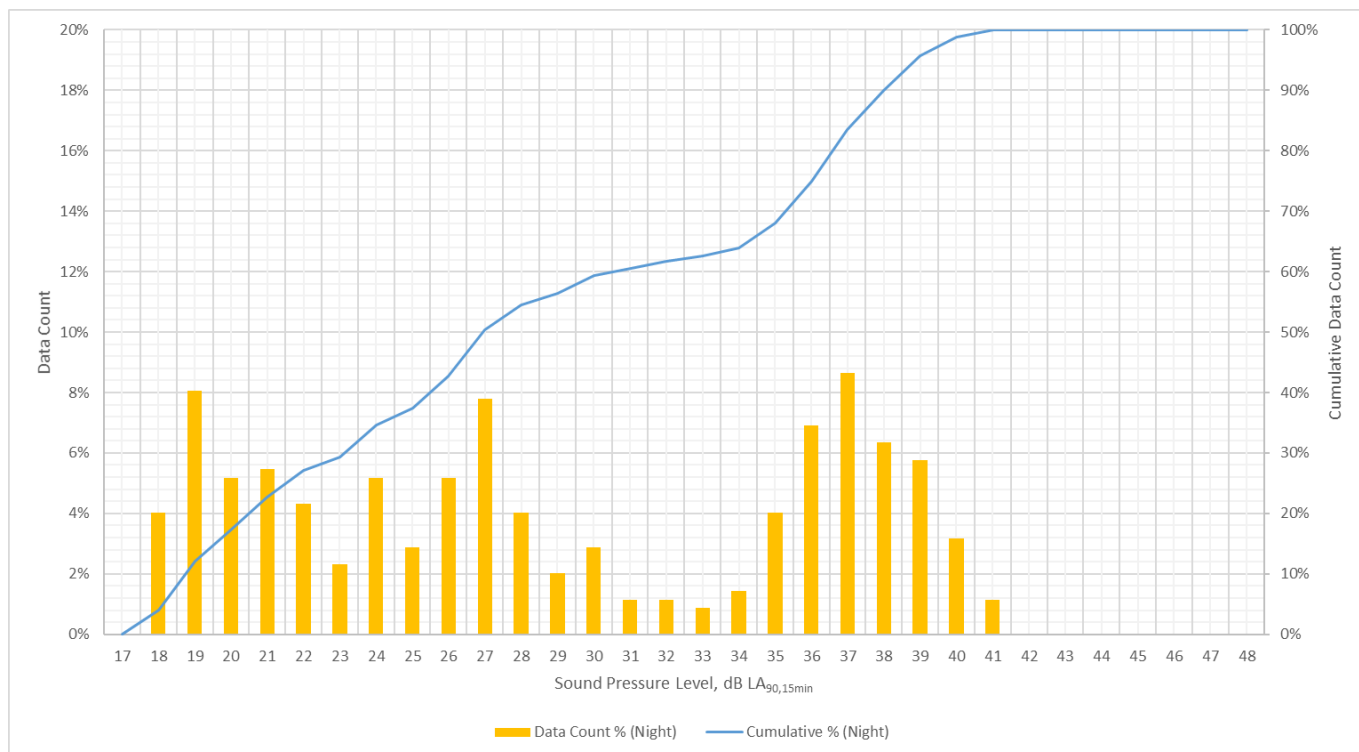


Plate 1.17 Distribution of background sound levels (Night-time) – S_L4

1.3.31 A summary of measured sound levels is provided in Table 1.4.

Table 1.4 Summary of measured sound levels – S_L4

Time period	Average sound level, dB LAeq,15min	Maximum sound level, dB LAFmax,15min	Background sound level, dB LA90,15min
Day	Range: 35 – 59 Average: 47	Range: 48 – 85 Typical: 59	Range: 23 -51 Average: 38 Mode: 38
Night	Range: 21 – 58 Average: 45	Range: 34 – 86 Typical: 49	Range: 18 – 41 Average: 27 Mode: 37

Representative background sound levels

1.3.32 Based on the results of the survey, considering the average, modal and temporal variation in background sound level, the following representative background sound levels are applied at location S_L4:

- Daytime: 35 dB LA90; and
- Night-time: 23 dB LA90.

Location S_L5

S_L5 location details

1.3.33 A photograph of the survey location is provided in Plate 1.18.



Plate 1.18 Survey location (S_L5)

1.3.34 The survey location is as follows:

- Easting/northing: 639286/262509;
- what3words: objective.geologist.rider; and
- Measurement Condition: Free-field.

Measurement equipment

- Sound Level Meter: 01dB Fusion. Serial number: 14937;
- Microphone: GRAS 40CD. Serial number: 504863; and
- Acoustic Calibrator: Cirrus CR:515. Serial number: 96164.

Details of the noise climate

1.3.35 The noise climate at monitoring location S_L5 is typical of predominantly rural area. The main sources of ambient sound are distance road traffic sources. There were also contributions from bird song, and gentle rustling of foliage in trees. Wind induced noise from crops was insignificant.

Survey results

1.3.36 The temporal variation in sound level during the survey period is shown in Plate 1.19.

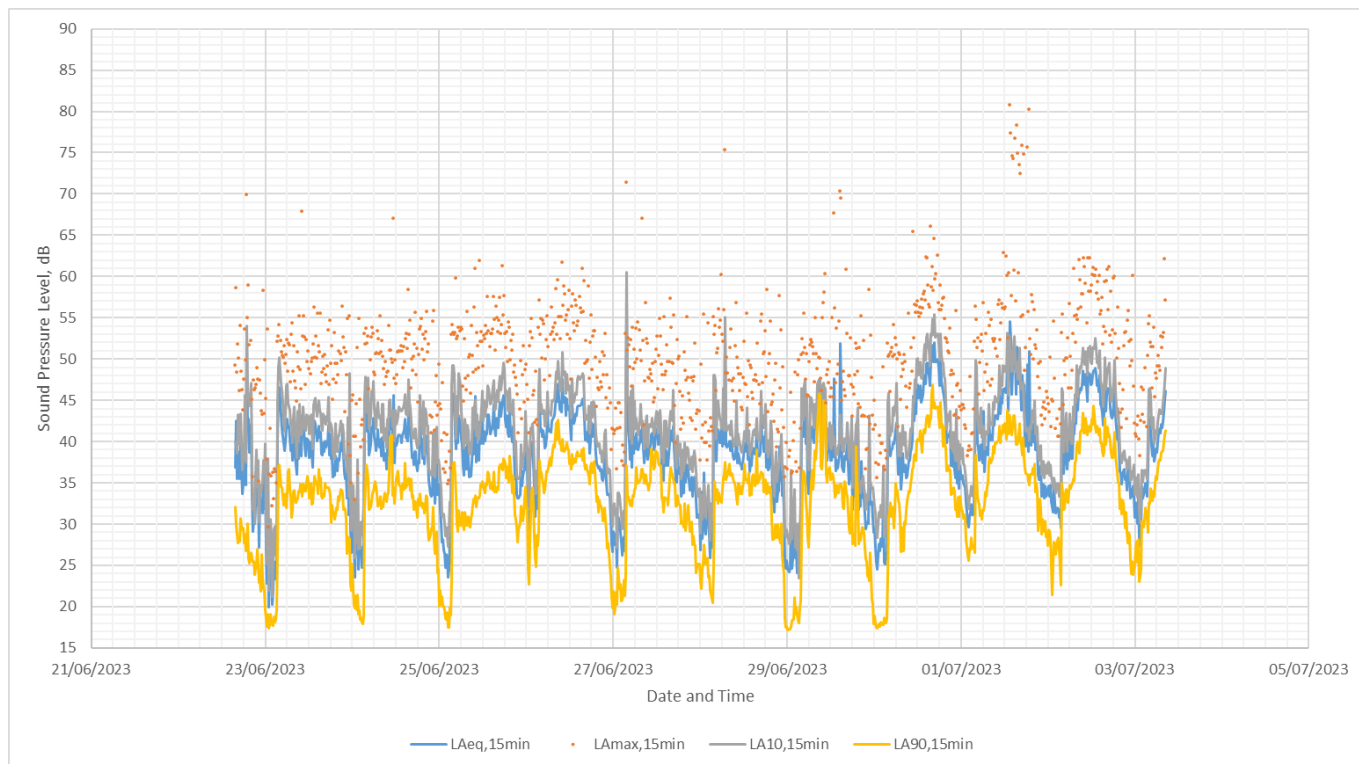


Plate 1.19 Temporal variation in sound levels – S_L5

1.3.37 The distribution of background sound level levels during daytime periods is shown in Plate 1.20.

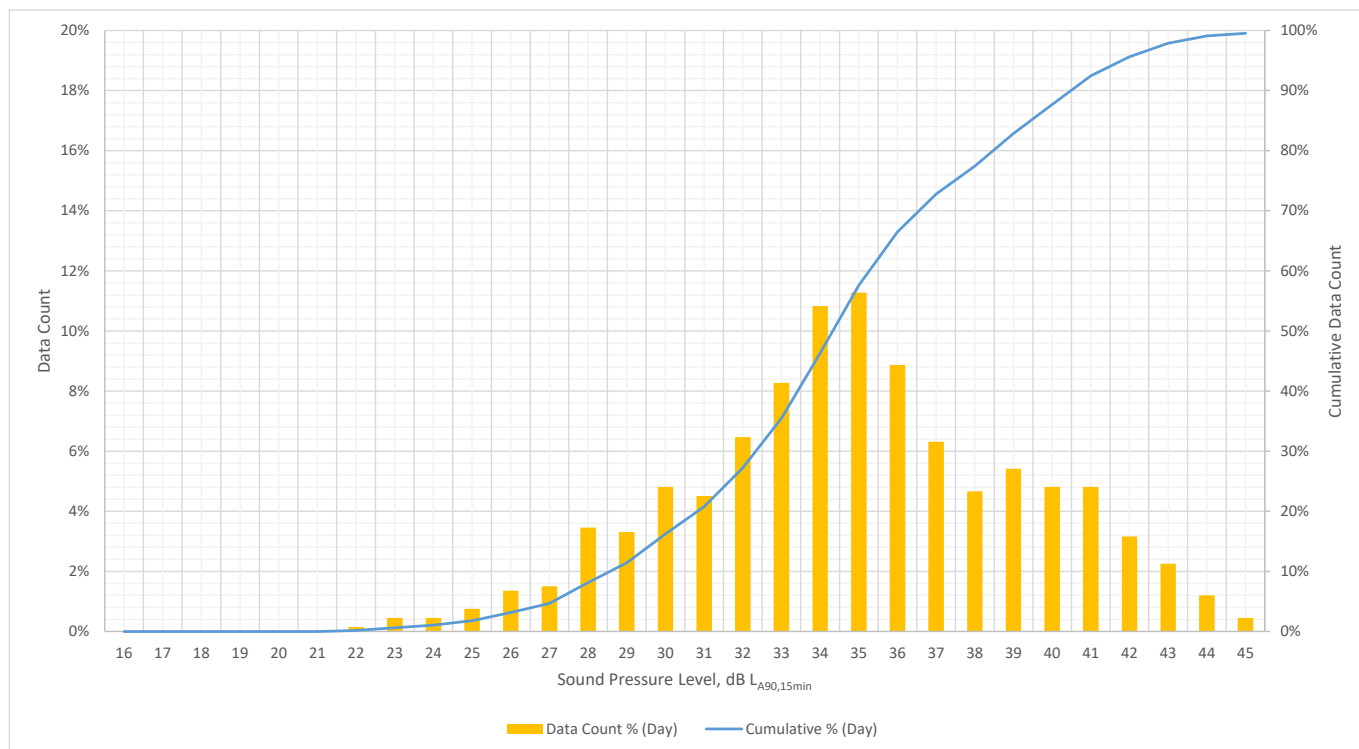


Plate 1.20 Distribution of background sound levels (Daytime) – S_L5

1.3.38 The distribution of background sound level levels during night-time periods is shown in Plate 1.21.

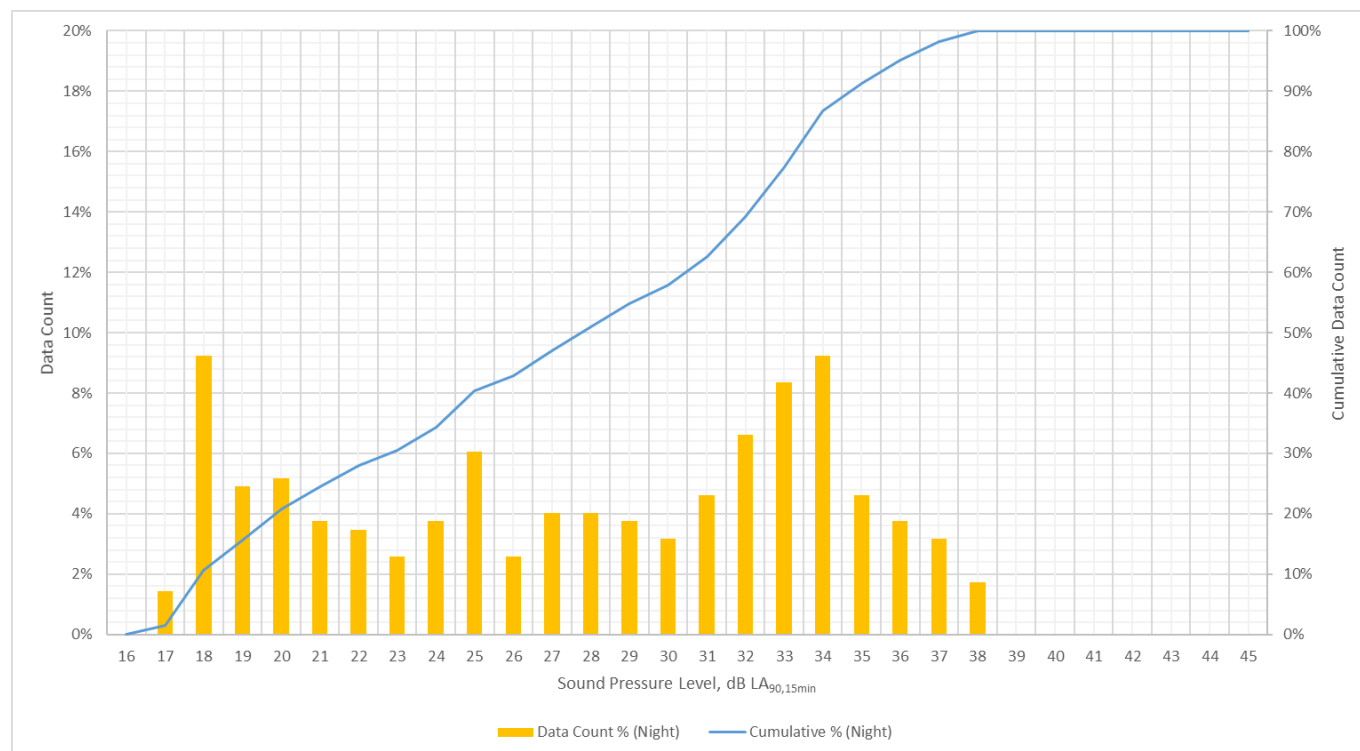


Plate 1.21 Distribution of background sound levels (Night-time) – S_L5

1.3.39 A summary of measured sound levels is provided in Table 1.5.

Table 1.5 Summary of measured sound levels – S_L5

Time period	Average sound level, dB LAeq,15min	Maximum sound level, dB LAFmax,15min	Background sound level, dB LA90,15min
Day	Range: 27 – 55 Average: 43	Range: 35 – 81 Typical: 52	Range: 22 – 47 Average: 34 Mode: 35
Night	Range: 20 – 56 Average: 39	Range: 30 – 71 Typical: 42	Range: 17 – 38 Average: 28 Mode: 18

Representative background sound levels

1.3.40 Based on the results of the survey, considering the average, modal and temporal variation in background sound level, the following representative background sound levels are applied at location S_L5:

- Daytime: 34 dB L_{A90} ; and
- Night-time: 22 dB L_{A90} .

Location S_L6

S_L6 location details

1.3.41 A photograph of the survey location is provided in Plate 1.22.



Plate 1.22 Survey location (S_L6)

1.3.42 The survey location is as follows:

- Easting/northing: 639256/262841;
- what3words: speaks.rooftop.dimension; and
- Measurement Condition: Free-field.

Measurement equipment

- Sound Level Meter: Rion NL-52. Serial number: 01087405;
- Microphone: Rion UC-59. Serial number: 14336; and

- Acoustic Calibrator: Rion NC-74. Serial number: 34235943.

Details of the noise climate

- 1.3.43 The noise climate at monitoring location S_L6 is typical of predominantly rural area. The main sources of ambient sound are distance road traffic sources, particularly the B1119 to the north. There were also contributions from bird song and foliage.

Survey results

- 1.3.44 The temporal variation in sound level during the survey period is shown in Plate 1.23.

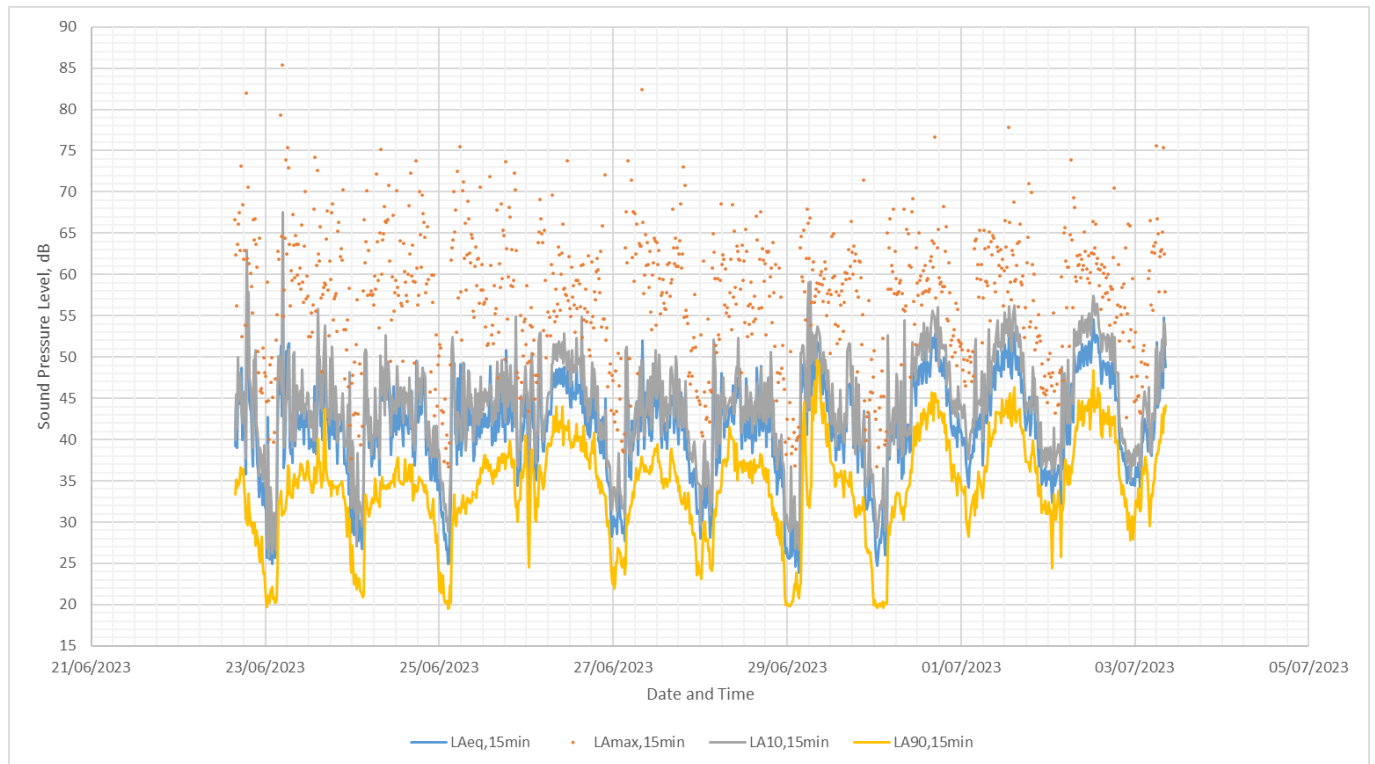


Plate 1.23 Temporal variation in sound levels – S_L6

- 1.3.45 The distribution of background sound level levels during daytime periods is shown in Plate 1.24.

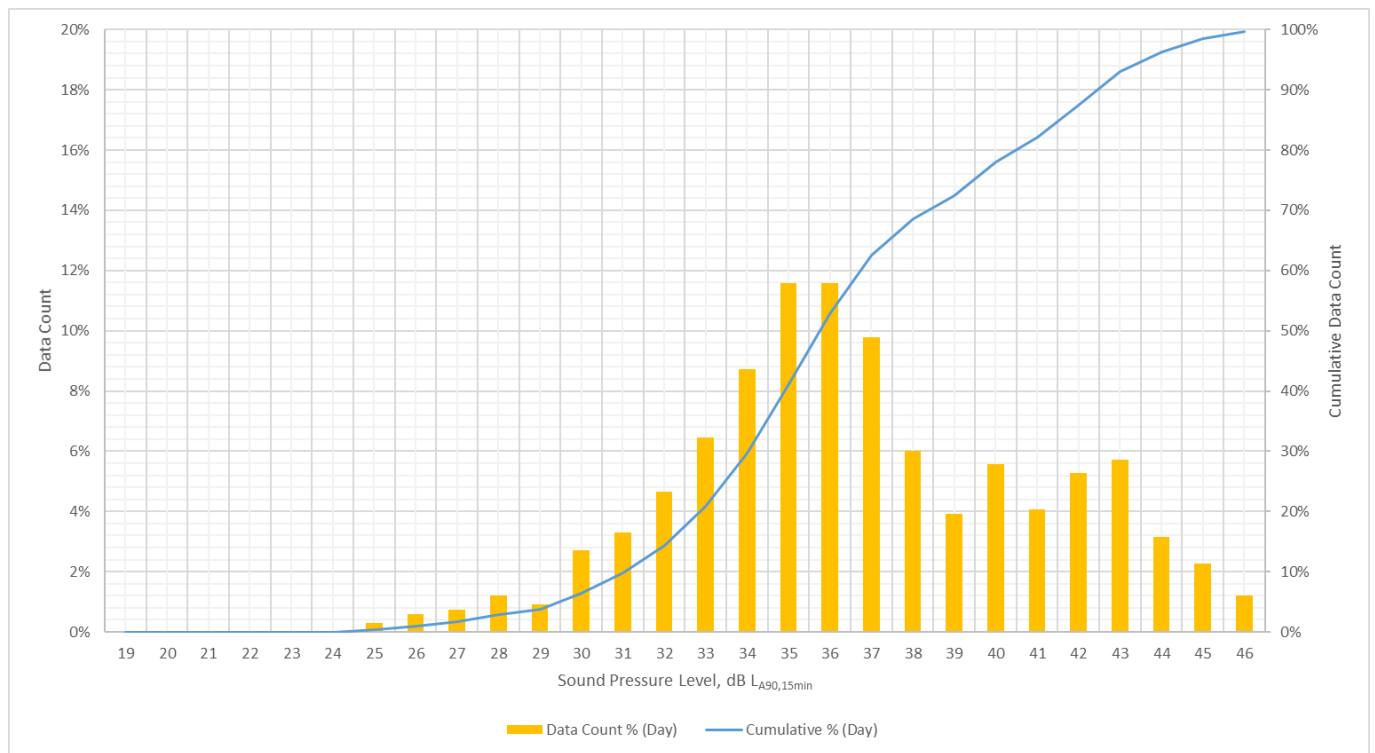


Plate 1.24 Distribution of background sound levels (Daytime) – S_L6

1.3.46 The distribution of background sound level levels during night-time periods is shown in Plate 1.25.

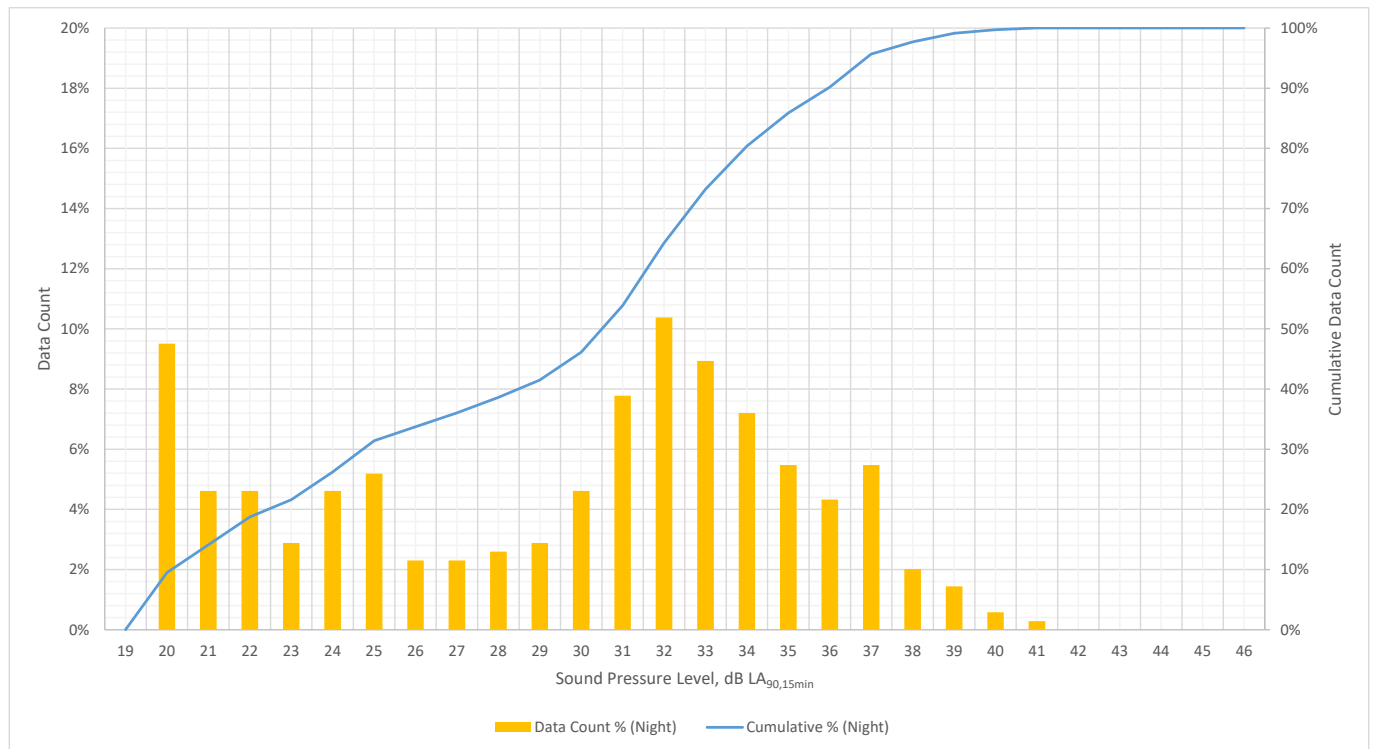


Plate 1.25 Distribution of background sound levels (Night-time) – S_L6

1.3.47 A summary of measured sound levels is provided in Table 1.6.

Table 1.6 Summary of measured sound levels – S_L6

Time period	Average sound level, dB LAeq,15min	Maximum sound level, dB LAFmax,15min	Background sound level, dB LA90,15min
Day	Range: 32 – 61 Average: 46	Range: 40 – 82 Typical: 59	Range: 25 – 48 Average: 36 Mode: 35
Night	Range: 24 – 63 Average: 43	Range: 37 – 85 Typical: 48	Range: 20 – 41 Average: 31 Mode: 32

Representative background sound levels

1.3.48 Based on the results of the survey, considering the average, modal and temporal variation in background sound level, the following representative background sound levels are applied at location S_L6:

- Daytime: 35 dB LA90; and
- Night-time: 25 dB LA90.

1.4 Summary

- 1.4.1 This appendix presents results of the noise survey conducted as part of the Suffolk Onshore Scheme. A noise survey has been conducted at a location representative of NSR for use within the operational noise assessment for the proposed Saxmundham Converter Station. The survey has been conducted in accordance with current guidance and good practice.
- 1.4.2 Table 1.7 presents a summary of representative background sound levels during daytime and night-time periods at the survey location for use in the operational noise assessment.

Table 1.7 Summary of representative background sound levels

Monitoring Location	Representative background sound level, dB LA90,15min	
	Daytime	Night-time
S_L1	31	20
S_L2	32	22
S_L3	34	22
S_L4	35	23

Monitoring Location	Representative background sound level, dB L _{A90,15min}	
	Daytime	Night-time
S_L5	34	22
S_L6	35	25

References

- BSI. (2003). *BS 7445-1:2003 Description and measurement of environmental noise - Part1: Guide to quantities and procedures*. London: BSI.
- BSI. (2019). *BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound*. London: BSI.

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