



Longfield Solar Farm

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Volume 2

Appendix 11B: Baseline Noise Survey

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1. Baseline Noise Survey

1.1 Introduction

- 1.1.1 This document presents the methodology and results of the baseline noise monitoring carried out to inform the construction and operational noise assessments for the Longfield Solar Farm Environmental Impact Assessment (EIA).
- 1.1.2 Noise monitoring locations were determined based on the development site location with respect to nearby noise-sensitive receptors and identified as part of a site visit undertaken on 2 February 2021.
- 1.1.3 Long-term noise measurements were undertaken from 26 February to 8 March 2021.
- 1.1.4 A number of other factors were also taken into consideration when identifying these locations, including:
 - a. Safety of the operators;
 - b. Security of monitoring equipment; and
 - c. Site accessibility.

1.2 Noise Monitoring Methodology

- 1.2.1 Baseline noise monitoring was carried out to establish the existing noise climate in the area. The monitoring procedures followed guidance from British Standard (BS) 7445-1:2003 Description and measurement of environmental noise - Part 1: Guide to quantities and procedures and BS 4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound. Acoustic field calibrators were applied to each instrument at the start and end of each measurement to check the calibration levels.
- 1.2.2 Unattended measurements were undertaken at locations representative of all identified receptors for a period of five days, to include weekend, weekday and night-time periods. Each unattended sound level meter was housed within a weatherproof box with batteries to power the instrument for the full measurement duration. Appropriate outdoor all-weather equipment was used on all microphones.
- 1.2.3 All noise measurements included L_{Aeq} , L_{A90} , L_{A10} and L_{AFmax} sound level indicators over 15-minute contiguous periods. The surveys were planned to avoid periods of high wind (>5m/s) and rainfall. Weather conditions (wind speed, rainfall etc.) were checked beforehand to ensure appropriate conditions were met.

1.3 Receptors

- 1.3.1 The nearest identified noise-sensitive receptors to the proposed development (and approximate coordinates) are summarised in **Table 1** and are shown in **Figure 1**, **Figure 2** and **Figure 3**.

Table 1: Receptors

| Receptor ID | Receptor | Approx. coordinates (Lat/Long) |
|-------------|-------------------------|-----------------------------------|
| R1 | Beggars Hall | 51°47'58.81"N 0°32'50.19"E |
| R2 | Birds Farm | 51°47'34.16"N 0°31'48.66"E |
| R3 | Brent Hall Lodge | 51°47'4.51"N 0°32'13.21"E |
| R4 | Brick House Farm | 51°45'54.87"N 0°32'27.03"E |
| R5 | Hankins Farm | 51°47'52.47"N 0°32'26.33"E |
| R6 | Kenwood House | 51°46'35.37"N 0°32'55.75"E |
| R7 | Lawns Farm | 51°47'33.91"N 0°31'23.12"E |
| R8 | Leyland's Farm | 51°48'18.49"N 0°32'13.93"E |
| R9 | Little Weathers | 51°47'56.83"N 0°32'38.58"E |
| R10 | Noakes Farm | 51°47'45.52"N 0°31'39.29"E |
| R11 | Properties South of A12 | 51°45'52.44"N 0°32'44.88"E |
| R12 | Public House | 51°47'43.68"N 0°31'17.77"E |
| R13 | Ridley Hall | 51°48'34.27"N 0°32'46.10"E |
| R14 | Ringers Farm | 51°47'26.94"N 0°33'12.27"E |
| R15 | Roll's Farm | 51°47'51.26"N 0°32'56.24"E |
| R16 | Russell Green Bungalow | 51°47'9.53"N 0°32'4.40"E |
| R17 | Russell Green Cottages | 51°47'11.61"N 0°31'44.10"E |
| R18 | Russell Green House | 51°47'18.55"N 0°31'44.34"E |
| R19 | Scarlett's Farm | 51°48'3.79"N 0°31'49.89"E |
| R20 | 6 Braintree Road | 51°48'53.0"N 0°32'09.5"E |
| R21 | Sparrow's Farm | 51°48'5.44"N 0°32'34.60"E |
| R22 | Stocks Farm | 51°46'59.08"N 0°32'29.25"E |
| R23 | Porridge Pot Cottages | 51°47'08.2"N 0°33'30.4"E |
| R24 | Toppinghoe Hall | 51°46'28.66"N 0°34'6.62"E |

| Receptor ID | Receptor | Approx. coordinates (Lat/Long) |
|-------------|----------------------------|--------------------------------|
| R25 | Wallace Farm Cottages | 51°46'28.29"N 0°32'32.45"E |
| R26 | Waltham Road Properties | 51°46'11.73"N 0°33'1.96"E |
| R27 | Whitehouse Farm / Cottages | 51°48'10.30"N 0°31'12.67"E |
| R28 | Woodhouse | 51°46'12.65"N 0°34'3.73"E |

1.4 Noise Monitoring Equipment

1.4.1 **Table 2** below presents the equipment that was used for the baseline noise surveys.

Table 2: Noise monitoring equipment

| Description | Manufacturer | Type | Serial Number | Locations Used |
|-------------------|--------------|-------|---------------|----------------|
| Sound Level Meter | Rion | NL-52 | 743082 | NM1 & NM6 |
| Sound Level Meter | Rion | NL-52 | 420764 | NM2 & NM8 |
| Sound Level Meter | Rion | NL-52 | 420765 | NM3 |
| Sound Level Meter | Rion | NL-52 | 420763 | NM4 & NM9 |
| Sound Level Meter | 01dB | DUO | 12051 | NM5 & NM7 |
| Calibrator | Rion | NC-74 | 34304647 | All locations |

1.5 Measurement Locations

1.5.1 Noise monitoring locations were selected to provide representative noise data for the identified sensitive receptors. Where receptors were likely to experience similar ambient noise conditions (e.g., they are approximately the same distance from a main highway), they were grouped together and represented by one noise monitoring location.

1.5.2 The noise monitoring locations are summarised below in **Table 3** along with receptor locations that the noise data is representative of. Maps of the monitoring locations can be seen in **Figure 1 to Figure 3**.

Table 3: Noise monitoring locations

| Location ID | Location/ Address | Approx. coordinates (Lat/Long) | Receptors | Grouping Justification |
|-------------|--------------------------------------|--------------------------------|---|---|
| NM1 | B1137, near Boleyn Way | 51°45'47.84"N 0°32'42.60"E | R4 Brick House Farm, R11 Properties South of A12, R28 Woodhouse | Similar distances from receptors to A12, the dominant noise source. |
| NM2 | Waltham Rd, near Chantry Lane | 51°46'12.57"N 0°33'3.33"E | R24 Toppinghoe Hall, R26 Waltham Road Properties | Similar distances from receptors to A12, the dominant noise source. |
| NM3 | Waltham Rd, near Wallace's Lane | 51°46'32.68"N 0°32'54.60"E | R6 Kenwood House, R25 Wallace Farm Cottages | Rural receptors in close proximity. |
| NM4 | Waltham Rd, near Brent Hall Lodge | 51°47'0.64"N 0°32'22.46"E | R3 Brent Hall Lodge, R16 Russell Green Bungalow, R17 Russell Green Cottages, R18 Russell Green House, R22 Stocks Farm | Rural receptors in close proximity. |
| NM5 | Noakes Lane | 51°47'47.67"N 0°31'43.47"E | R2 Birds Farm, R7 Lawns Farm, R10 Noakes Farm, R12 Public House | Rural receptors in close proximity. |
| NM6 | Scarlett's Farm | 51°48'8.30"N 0°32'26.80"E | R8 Leyland's Farm, R19 Scarlett's Farm, R27 Whitehouse Farm / Cottages | Rural receptors in close proximity. |
| NM7 | Ridley Hall, near Braintree Road | 51°48'40.02"N 0°32'47.67"E | R13 Ridley Hall, R20 6 Braintree Road | Rural receptors in close proximity. |
| NM8 | Terling Hall Road, near Roll's Farm | 51°47'54.05"N 0°32'57.75"E | R1 Beggars Hall, R5 Hankins Farm, R9 Little Weathers, R15 Roll's Farm, R21 Sparrow's Farm | Rural receptors in close proximity. |
| NM9 | Ringers Farm, near Terling Hall Road | 51°47'37.56"N 0°33'41.17"E | R14 Ringers Farm, R23 Porridge Pot Cottages | Rural receptors in close proximity. |

1.6 Meteorological Conditions

1.6.1 The weather during the survey period was noted at the beginning and the end of the survey, as well as checked using online weather stations. Conditions at the beginning and end of the surveys were suitable for measurements i.e. no

precipitation and wind speed not in exceedance of 5 m/s. Precipitation occurred during the survey on 3 March 2021. Data obtained during this period of unsuitable meteorological conditions has been excluded from results.

1.7 Survey Results

- 1.7.1 The baseline noise monitoring results of unattended measurements at N1 to N4 are presented in **Table 4** to **Table 12**.
- 1.7.2 Noise levels have been calculated over the time periods specified in Table E.1 of BS 5228.
- 1.7.3 Time history charts of the long-term measurements are presented in **Figure 4** to **Figure 12**.



Figure 1: Monitoring Locations for NM1, NM2 & NM3 (background image © Google 2021)

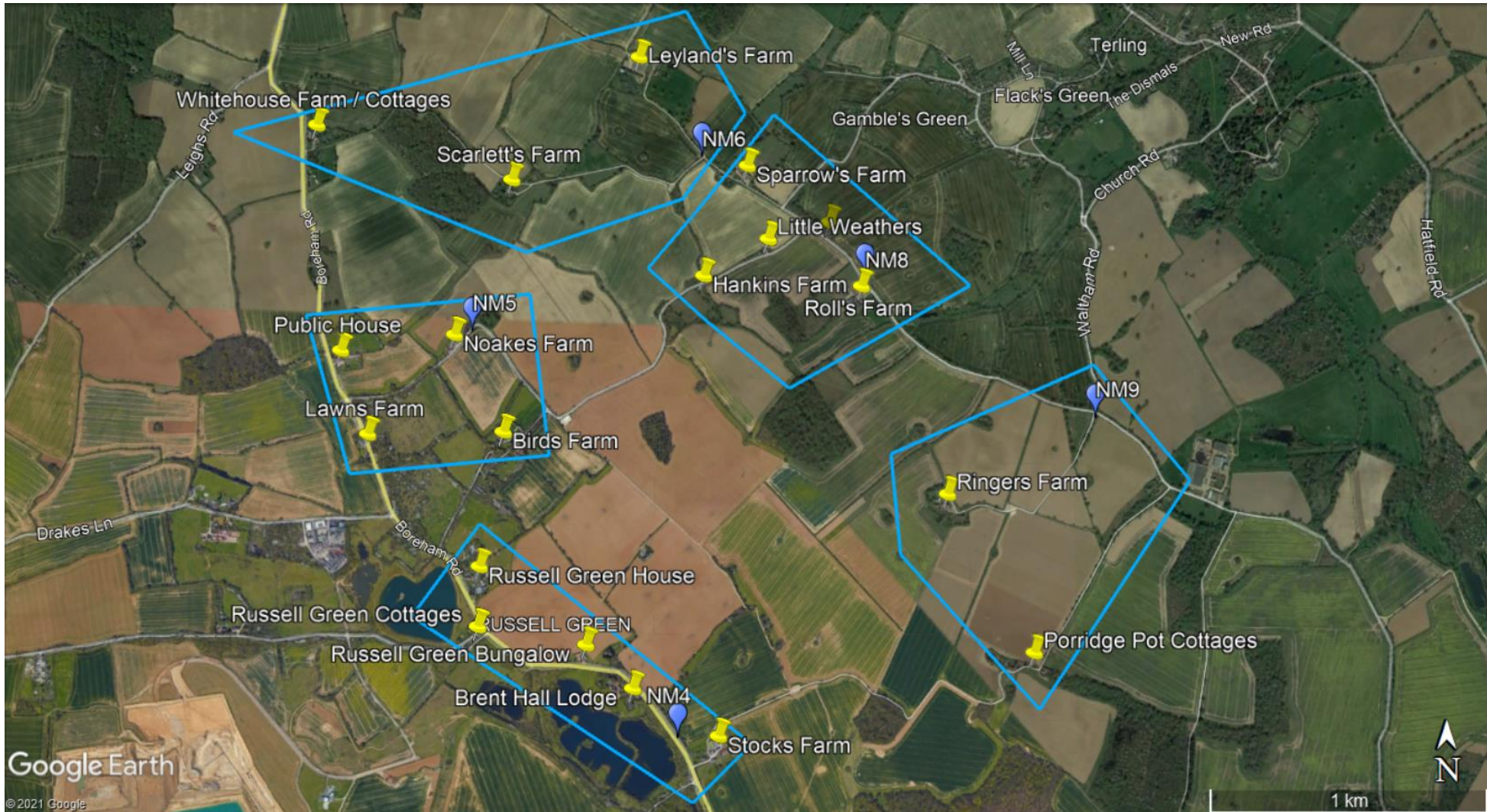


Figure 2: Monitoring Locations for NM4, NM5, NM6, NM8 & NM9 (background image © Google 2021)

1.8 Results - NM1

1.8.1 Noise measurements were undertaken at NM1 from 26 February to 3 March 2021.

Table 4: NM1 noise monitoring results

| Period | $L_{Aeq, 1hr} \text{ dB}^1$ | $L_{A90, 1hr} \text{ dB}^2$ |
|----------------------------------|-----------------------------|-----------------------------|
| Weekday Daytime (07:00 - 19:00) | 62 | 55 |
| Weekday Evening (19:00 - 23:00) | 59 | 46 |
| Saturday Daytime (07:00 - 13:00) | 62 | 52 |
| Saturday Evening (13:00 - 23:00) | 57 | 51 |
| Sunday Daytime (07:00 - 23:00) | 60 | 52 |
| Night-time (23:00 - 07:00) | 49 | 36 |

¹ Mode of the 1-hour L_{Aeq} for the corresponding time period.

² Mode of the 1-hour L_{A90} for the corresponding time period.

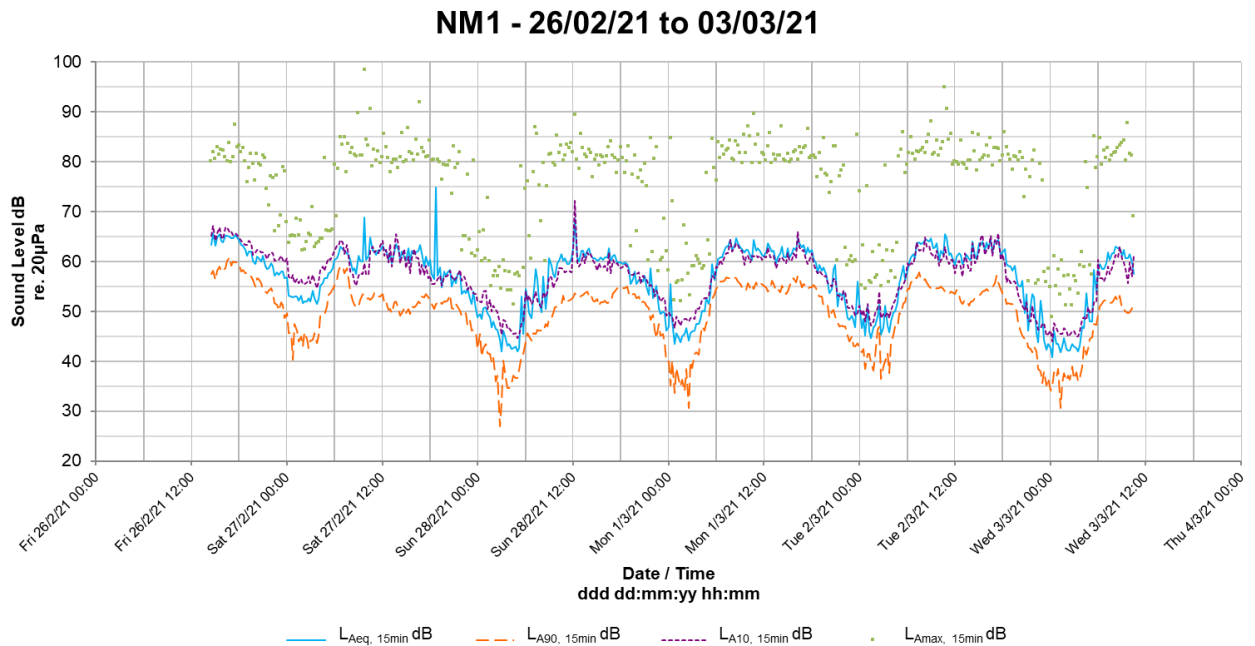


Figure 4: NM1 time history chart

1.9 Results - NM2

1.9.1 Noise measurements were undertaken at NM2 from 26 February to 3 March 2021.

Table 5: NM2 noise monitoring results

| Period | $L_{Aeq, 1hr}$ dB ¹ | $L_{A90, 1hr}$ dB ² |
|----------------------------------|--------------------------------|--------------------------------|
| Weekday Daytime (07:00 - 19:00) | 58 | 52 |
| Weekday Evening (19:00 - 23:00) | 55 | 49 |
| Saturday Daytime (07:00 - 13:00) | 57 | 49 |
| Saturday Evening (13:00 - 23:00) | 58 | 48 |
| Sunday Daytime (07:00 - 23:00) | 57 | 49 |
| Night-time (23:00 - 07:00) | 44 | 40 |

¹ Mode of the 1-hour L_{Aeq} for the corresponding time period.

² Mode of the 1-hour L_{A90} for the corresponding time period.

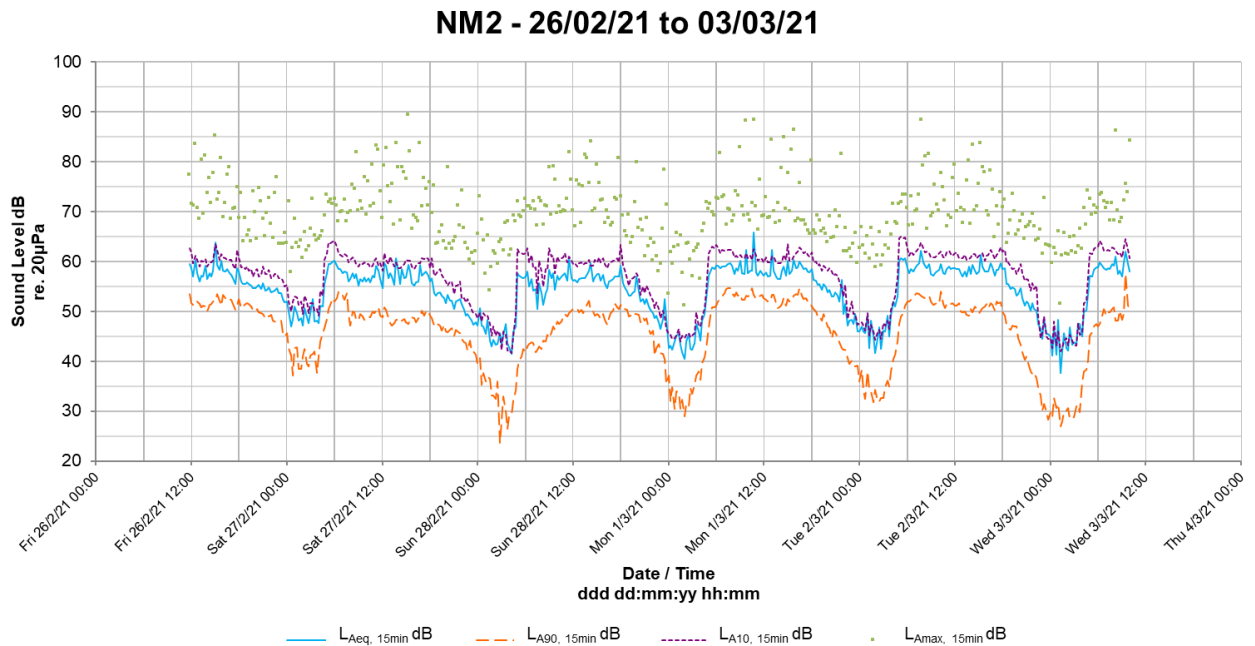


Figure 5: NM1 time history chart

1.10 Results - NM3

1.10.1 Noise measurements were undertaken at NM3 from 3 March to 8 March 2021.

Table 6: NM3 noise monitoring results

| Period | $L_{Aeq, 1hr}$ dB ¹ | $L_{A90, 1hr}$ dB ² |
|----------------------------------|--------------------------------|--------------------------------|
| Weekday Daytime (07:00 - 19:00) | 73* | 46* |
| Weekday Evening (19:00 - 23:00) | 70* | 40* |
| Saturday Daytime (07:00 - 13:00) | 71 | 44 |
| Saturday Evening (13:00 - 23:00) | 72 | 42 |
| Sunday Daytime (07:00 - 23:00) | 70 | 39 |
| Night-time (23:00 - 07:00) | 62 | 31 |

¹ Mode of the 1-hour L_{Aeq} for the corresponding time period.

² Mode of the 1-hour L_{A90} for the corresponding time period.

* Data excluded from period due to unsuitable meteorological conditions.

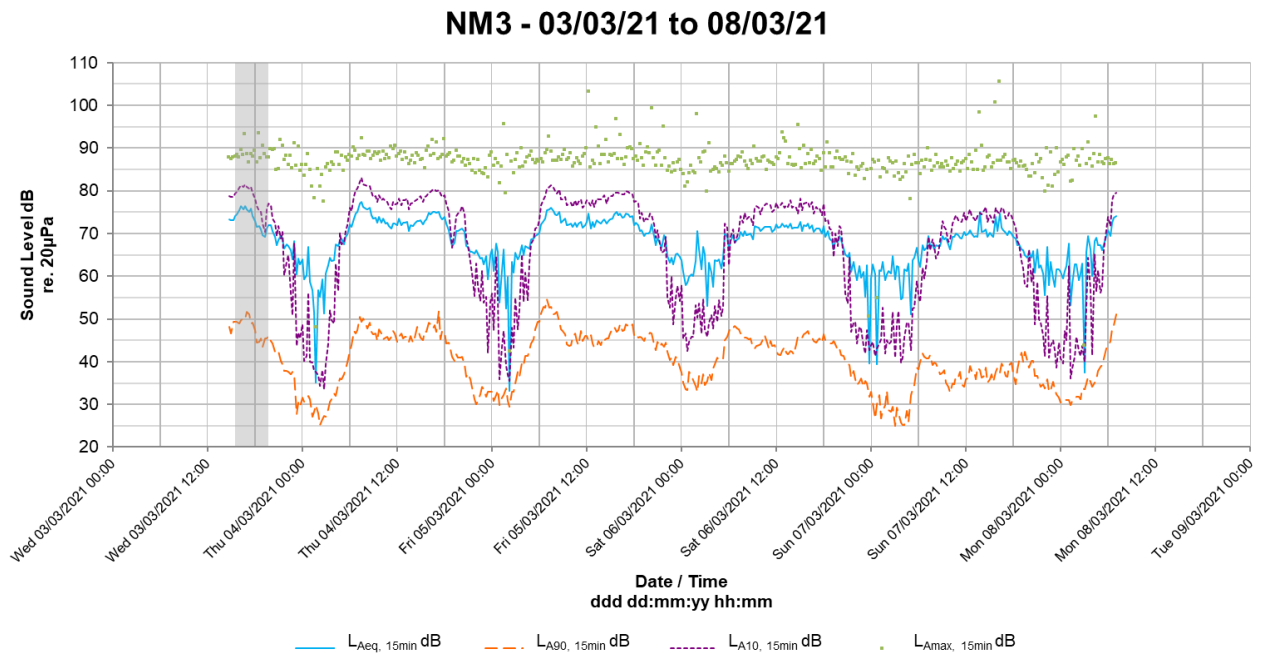


Figure 6: NM3 time history chart

1.11 Results - NM4

1.11.1 Noise measurements were undertaken at NM4 from 26 February to 3 March 2021.

Table 7: NM4 noise monitoring results

| Period | $L_{Aeq, 1hr}$ dB ¹ | $L_{A90, 1hr}$ dB ² |
|----------------------------------|--------------------------------|--------------------------------|
| Weekday Daytime (07:00 - 19:00) | 73 | 42 |
| Weekday Evening (19:00 - 23:00) | 70 | 35 |
| Saturday Daytime (07:00 - 13:00) | 71 | 43 |
| Saturday Evening (13:00 - 23:00) | 73 | 37 |
| Sunday Daytime (07:00 - 23:00) | 72 | 38 |
| Night-time (23:00 - 07:00) | 63 | 33 |

¹ Mode of the 1-hour L_{Aeq} for the corresponding time period.

² Mode of the 1-hour L_{A90} for the corresponding time period.

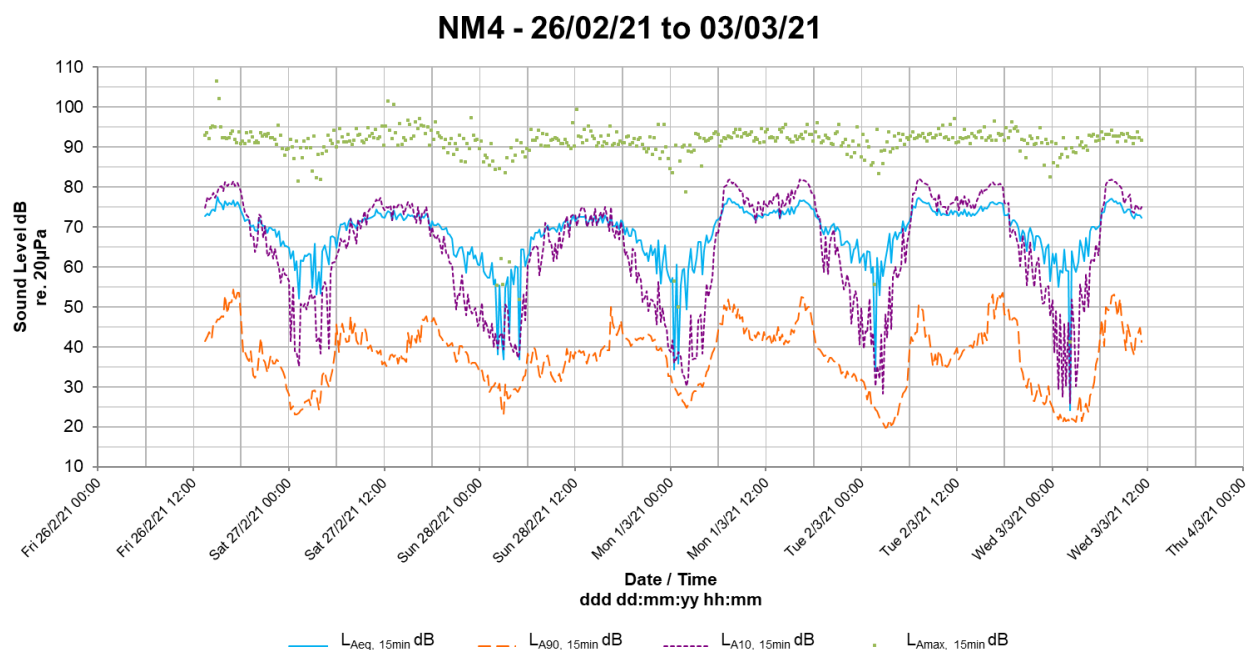


Figure 7: NM4 time history chart

1.12 Results - NM5

1.12.1 Noise measurements were undertaken at NM5 from 26 February to the 3 March 2021.

Table 8: NM5 noise monitoring results

| Period | $L_{Aeq, 1hr}$ dB ¹ | $L_{A90, 1hr}$ dB ² |
|----------------------------------|--------------------------------|--------------------------------|
| Weekday Daytime (07:00 - 19:00) | 51 | 31 |
| Weekday Evening (19:00 - 23:00) | 48 | 24 |
| Saturday Daytime (07:00 - 13:00) | 55 | 36** |
| Saturday Evening (13:00 - 23:00) | 49 | 29 |
| Sunday Daytime (07:00 - 23:00) | 54 | 31 |
| Night- time (23:00 - 07:00) | 28 | 21 |

¹ Mode of the 1-hour L_{Aeq} for the corresponding time period.

² Mode of the 1-hour L_{A90} for the corresponding time period.

**No modal value – arithmetic average used

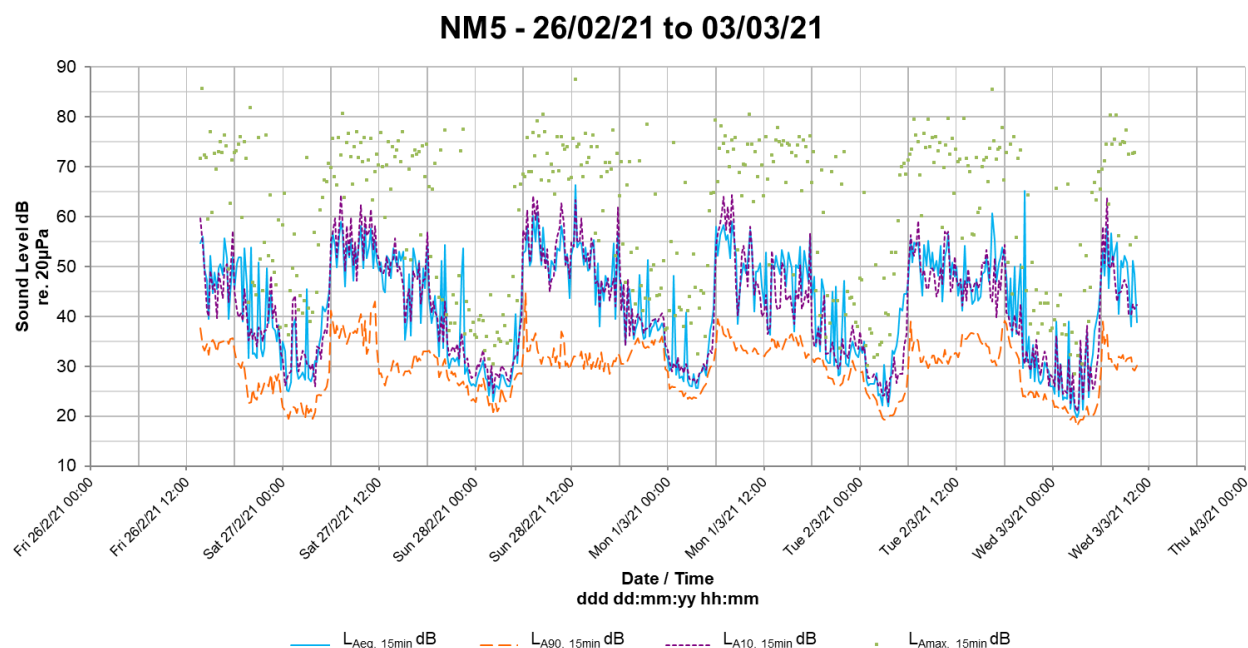


Figure 8: NM5 time history chart

1.13 Results - NM6

1.13.1 Noise measurements were undertaken at NM6 from 3 March to 8 March 2021.

Table 9: NM6 noise monitoring results

| Period | $L_{Aeq, 1hr}$ dB ¹ | $L_{A90, 1hr}$ dB ² |
|----------------------------------|--------------------------------|--------------------------------|
| Weekday Daytime (07:00 - 19:00) | 51* | 33* |
| Weekday Evening (19:00 - 23:00) | 32* | 24* |
| Saturday Daytime (07:00 - 13:00) | 50** | 30 |
| Saturday Evening (13:00 - 23:00) | 51 | 24 |
| Sunday Daytime (07:00 - 23:00) | 49 | 26 |
| Night-time (23:00 - 07:00) | 30 | 18 |

¹ Mode of the 1-hour L_{Aeq} for the corresponding time period.

² Mode of the 1-hour L_{A90} for the corresponding time period.

* Data excluded from period due to unsuitable meteorological conditions.

**No modal value – arithmetic average used

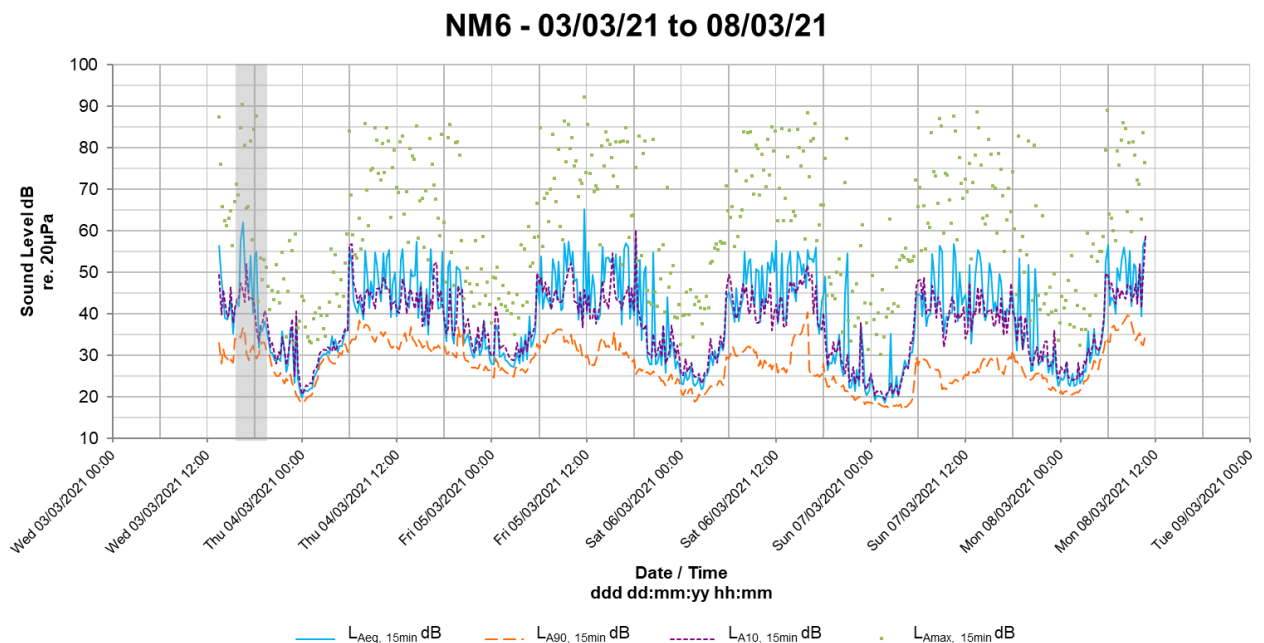


Figure 9: NM6 time history chart

1.14 Results - NM7

1.14.1 Noise measurements were undertaken at NM7 from 3 March to 8 March 2021.

Table 10: NM7 noise monitoring results

| Period | $L_{Aeq, 1hr}$ dB ¹ | $L_{A90, 1hr}$ dB ² |
|----------------------------------|--------------------------------|--------------------------------|
| Weekday Daytime (07:00 - 19:00) | 45* | 37* |
| Weekday Evening (19:00 - 23:00) | 31* | 25* |
| Saturday Daytime (07:00 - 13:00) | 43 | 32 |
| Saturday Evening (13:00 - 23:00) | 40 | 29 |
| Sunday Daytime (07:00 - 23:00) | 40 | 28 |
| Night- time (23:00 - 07:00) | 38 | 22 |

¹ Mode of the 1-hour L_{Aeq} for the corresponding time period.

² Mode of the 1-hour L_{A90} for the corresponding time period.

* Data excluded from period due to unsuitable meteorological conditions.

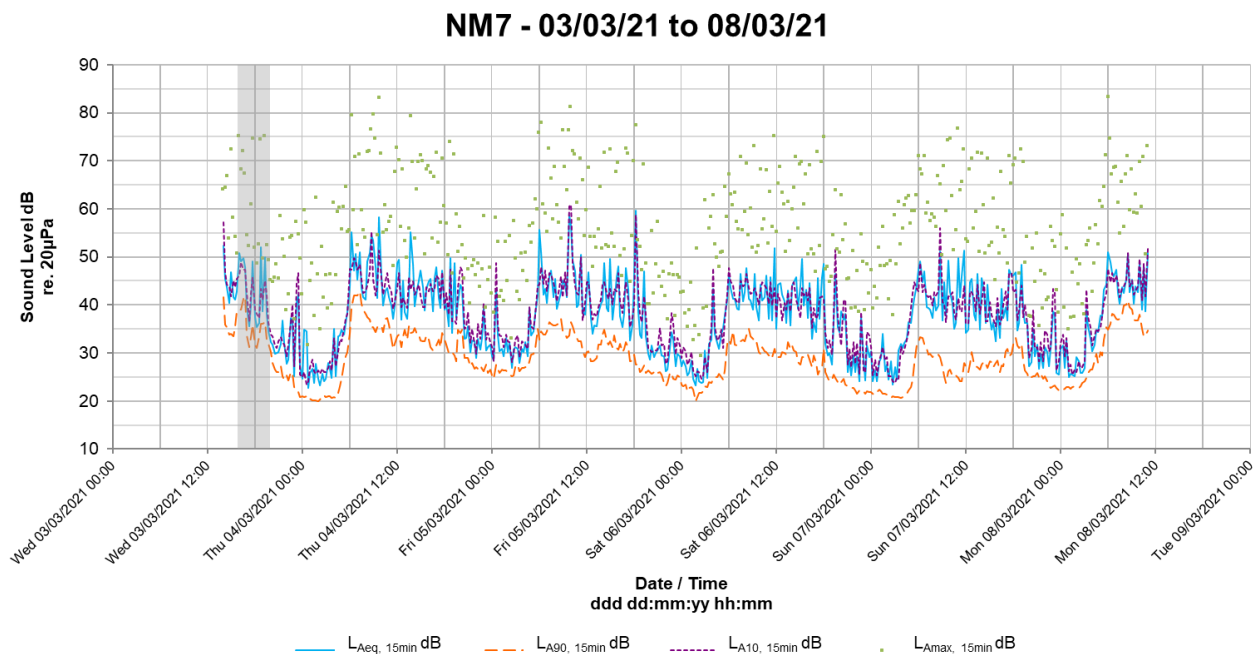


Figure 10: NM7 time history chart

1.15 Results - NM8

1.15.1 Noise measurements were undertaken at NM8 from 3 March to 8 March 2021.

Table 11: NM8 noise monitoring results

| Period | $L_{Aeq, 1hr}$ dB ¹ | $L_{A90, 1hr}$ dB ² |
|----------------------------------|--------------------------------|--------------------------------|
| Weekday Daytime (07:00 - 19:00) | 53* | 30* |
| Weekday Evening (19:00 - 23:00) | 33* | 26* |
| Saturday Daytime (07:00 - 13:00) | 52 | 31 |
| Saturday Evening (13:00 - 23:00) | 56 | 27 |
| Sunday Daytime (07:00 - 23:00) | 52 | 27 |
| Night- time (23:00 - 07:00) | 27 | 19 |

¹ Mode of the 1-hour L_{Aeq} for the corresponding time period.

² Mode of the 1-hour L_{A90} for the corresponding time period.

* Data excluded from period due to unsuitable meteorological conditions.

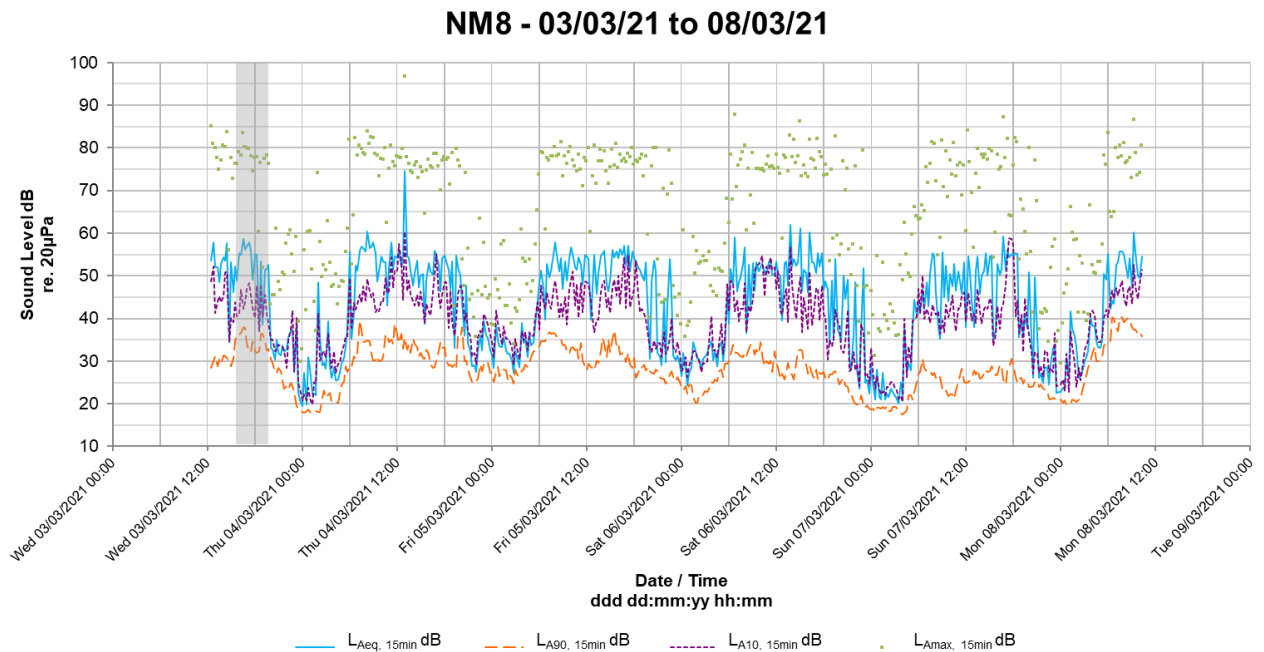


Figure 11: NM8 time history chart

1.16 Results - NM9

1.16.1 Noise measurements were undertaken at NM9 from 3 March to 8 March 2021. The noise meter lost power at 00:30 on 7 March 2021. Therefore, no data was obtained from 7 March to 8 March 2021.

Table 12: NM9 noise monitoring results

| Period | $L_{Aeq, 1hr}$ dB ¹ | $L_{A90, 1hr}$ dB ² |
|----------------------------------|--------------------------------|--------------------------------|
| Weekday Daytime (07:00 - 19:00) | 47* | 33* |
| Weekday Evening (19:00 - 23:00) | 33* | 30* |
| Saturday Daytime (07:00 - 13:00) | 44 | 34 |
| Saturday Evening (13:00 - 23:00) | 47 | 28 |
| Sunday Daytime (07:00 - 23:00) | 52** | 27** |
| Night-time (23:00 - 07:00) | 33 | 27 |

¹ Mode of the 1-hour L_{Aeq} for the corresponding time period.

² Mode of the 1-hour L_{A90} for the corresponding time period.

* Data excluded from period due to unsuitable meteorological conditions.

** Noise meter lost power at 00:30 on Sunday 7th March. No Sunday daytime data available for this location. Measured levels at NM8 have been considered as representative of this location and period.

NM9 - 03/03/21 to 08/03/21

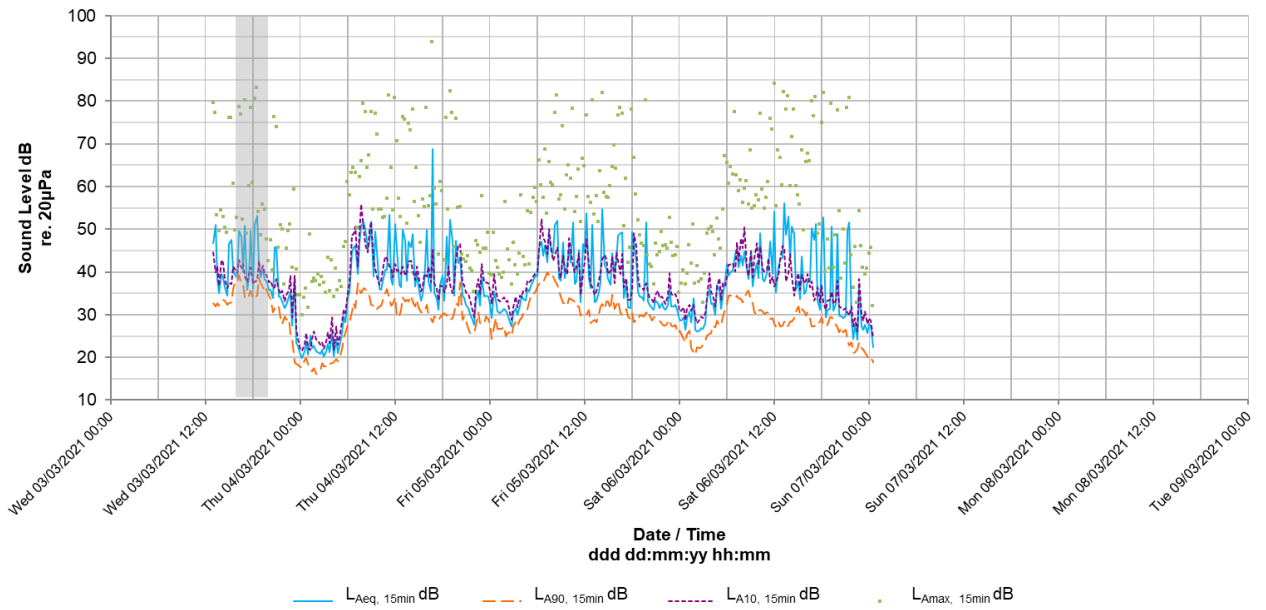


Figure 12: NM9 time history chart

1.17 Location Photographs

Table 13: Photographs of monitoring locations

NM1



NM2



NM3

NM4



NM5

NM6



NM7

NM8



NM9



1.18 Equipment Calibration Certificates



CERTIFICATE OF CALIBRATION

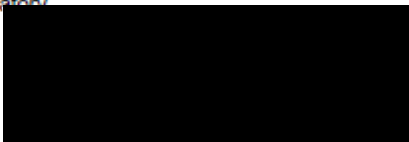


Date of Issue: 25 January 2021

Certificate Number: UCRT21/1120

Calibrated at & Certificate issued by:

ANV Measurement Systems
 Beaufort Court
 17 Roebuck Way
 Milton Keynes MK5 8HL
 Telephone 01908 642846 Fax 01908 642814
 E-Mail: info@noise-and-vibration.co.uk
 Web: www.noise-and-vibration.co.uk
 Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

| |
|--|
| Page 1 of 2 Pages |
| Approved Signature:  |
| B. Giles |

Customer AECOM Ltd
 Sunley House
 4 Bedford Park
 Croydon
 CR0 2AP

Order No. 1455431
Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator
Identification

| Manufacturer | Instrument | Type | Serial No. / Version |
|--------------|---------------------------------------|-------|----------------------|
| Rion | Sound Level Meter | NL-52 | 00743082 |
| Rion | Firmware | | 2.0 |
| Rion | Pre Amplifier | NH-25 | 43110 |
| Rion | Microphone | UC-59 | 18247 |
| Rion | Calibrator | NC-74 | 34536109 |
| | Calibrator adaptor type if applicable | | NC-74-002 |

Performance Class 1
Test Procedure TP 2.SLM 61672-3 TPS-49
Procedures from IEC 61672-3:2006 were used to perform the periodic tests.
Type Approved to IEC 61672-1:2002 YES **Approval Number** 21.21 / 13.02
If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003
Date Received 25 January 2021 **ANV Job No.** UKAS21/01055
Date Calibrated 25 January 2021

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

| Previous Certificate | Dated | Certificate No. | Laboratory |
|----------------------|----------------|-----------------|------------|
| | 14 August 2020 | UCRT20/1777 | 0653 |

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CERTIFICATE OF CALIBRATION



0653

Date of Issue: 07 October 2020

Certificate Number: UCRT20/1972

Calibrated at & Certificate issued by:
 ANV Measurement Systems
 Beaufort Court
 17 Roebuck Way
 Milton Keynes MK5 8HL
 Telephone 01908 642846 Fax 01908 642814
 E-Mail: info@noise-and-vibration.co.uk
 Web: www.noise-and-vibration.co.uk

Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

| |
|--------------------|
| Page 1 of 2 Pages |
| Approved Signatory |
| B. Bogd |

Customer AECOM Limited
 10th Floor
 Sunley House
 4 Bedford Park
 CR0 2AP

Order No. 08217289
Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator
Identification

| <i>Manufacturer</i> | <i>Instrument</i> | <i>Type</i> | <i>Serial No. / Version</i> |
|---------------------|---------------------------------------|-------------|-----------------------------|
| Rion | Sound Level Meter | NL-52 | 00420764 |
| Rion | Firmware | | 2.0 |
| Rion | Pre Amplifier | NH-25 | 20813 |
| Rion | Microphone | UC-59 | 03573 |
| Rion | Calibrator | NC-74 | 34536109 |
| | Calibrator adaptor type if applicable | | NC-74-002 |

Performance Class 1
Test Procedure TP 2.SLM 61672-3 TPS-49
Procedures from IEC 61672-3:2006 were used to perform the periodic tests.
Type Approved to IEC 61672-1:2002 YES Approval Number 21.21 / 13.02
If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003

Date Received 06 October 2020 ANV Job No. UKAS20/10555
Date Calibrated 07 October 2020

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

| Previous Certificate | <i>Dated</i> | <i>Certificate No.</i> | <i>Laboratory</i> |
|-----------------------------|--------------|------------------------|-------------------|
| | 05 July 2018 | UCRT18/1678 | 0653 |

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CERTIFICATE OF CALIBRATION



0653

Date of Issue: 14 August 2020

Certificate Number: UCRT20/1774

Issued by:

ANV Measurement Systems
 Beaufort Court
 17 Roebuck Way
 Milton Keynes MK5 8HL
 Telephone 01908 642846 Fax 01908 642814
 E-Mail: info@noise-and-vibration.co.uk
 Web: www.noise-and-vibration.co.uk

Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages

Appr [Redacted]

K. Mi [Redacted]

Customer AECOM Ltd
 Sunley House
 4 Bedford Park
 Croydon
 CR0 2AP

Order No. 08215735-GEN_GEN

Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator

| Identification | Manufacturer | Instrument | Type | Serial No. / Version |
|----------------|--------------|---------------------------------------|-------|----------------------|
| | Rion | Sound Level Meter | NL-52 | 00420765 |
| | Rion | Firmware | | 2.0 |
| | Rion | Pre Amplifier | NH-25 | 20814 |
| | Rion | Microphone | UC-59 | 03952 |
| | Rion | Calibrator | NC-74 | 34536109 |
| | | Calibrator adaptor type if applicable | | NC-74-002 |

Performance Class 1

Test Procedure TP 2.SLM 61672-3 TPS-49
 Procedures from IEC 61672-3:2006 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2002 YES Approval Number 21.21 / 13.02
 If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003

Date Received 12 August 2020 ANV Job No. UKAS20/08437

Date Calibrated 14 August 2020

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

| Previous Certificate | Dated | Certificate No. | Laboratory |
|----------------------|---------------|-----------------|------------|
| | 08 April 2019 | UCRT19/1431 | 0653 |

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CERTIFICATE OF CALIBRATION



0653

Date of Issue: 25 January 2021

Certificate Number: UCRT21/1121

Calibrated at & Certificate issued by:

ANV Measurement Systems
 Beaufort Court
 17 Roebuck Way
 Milton Keynes MK5 8HL
 Telephone 01908 642846 Fax 01908 642814
 E-Mail: info@noise-and-vibration.co.uk
 Web: www.noise-and-vibration.co.uk
 Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

| | |
|-------------------|------------|
| Page 1 of 2 Pages | |
| Approved Signa | [Redacted] |
| B. Giles | [Redacted] |

Customer AECOM Ltd
 Sunley House
 4 Bedford Park
 Croydon
 CR0 2AP

Order No. 1455431

Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator

| Identification | Manufacturer | Instrument | Type | Serial No. / Version |
|----------------|--------------|---------------------------------------|-------|----------------------|
| | Rion | Sound Level Meter | NL-52 | 00420763 |
| | Rion | Firmware | | 2.0 |
| | Rion | Pre Amplifier | NH-25 | 20812 |
| | Rion | Microphone | UC-59 | 18248 |
| | Rion | Calibrator | NC-74 | 34536109 |
| | | Calibrator adaptor type if applicable | | NC-74-002 |

Performance Class 1

Test Procedure TP 2.SLM 61672-3 TPS-49

Procedures from IEC 61672-3:2006 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2002 YES Approval Number 21.21 / 13.02

If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003

Date Received 25 January 2021

ANV Job No. UKAS21/01055

Date Calibrated 25 January 2021

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

| Previous Certificate | Dated | Certificate No. | Laboratory |
|----------------------|----------------|-----------------|------------|
| | 14 August 2020 | UCRT20/1779 | 0653 |

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CERTIFICATE OF CALIBRATION



0653

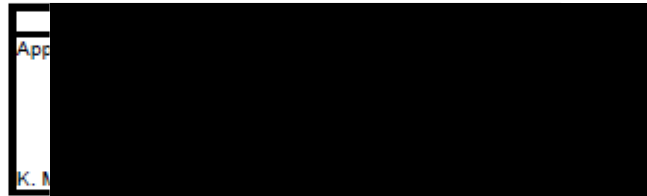
Date of Issue: 27 January 2021

Certificate Number: UCRT21/1134

Calibrated at & Certificate issued by:

ANV Measurement Systems
 Beaufort Court
 17 Roebuck Way
 Milton Keynes MK5 8HL
 Telephone 01908 642848 Fax 01908 642814
 E-Mail: info@noise-and-vibration.co.uk
 Web: www.noise-and-vibration.co.uk

Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems



Customer AECOM Ltd
 Sunley house
 4 Bedford Park
 Croydon
 CR0 2AP

Order No. PO 1454490

Test Procedure Procedure TP 1 Calibration of Sound Calibrators

Description Acoustic Calibrator

| Identification | <i>Manufacturer</i> | <i>Instrument</i> | <i>Model</i> | <i>Serial No.</i> |
|----------------|---------------------|-------------------|--------------|-------------------|
| | Rion | Calibrator | NC-74 | 34304647 |

The calibrator has been tested as specified in Annex B of IEC 60942:2003. As public evidence was available from a testing organisation (PTB) responsible for approving the results of pattern evaluation tests, to demonstrate that the model of sound calibrator fully conformed to the requirements for pattern evaluation described in Annex A of IEC 60942:2003, the sound calibrator tested is considered to conform to all the class 1 requirements of IEC 60942:2003.

ANV Job No. UKAS21/01056

Date Received 25 January 2021

Date Calibrated 27 January 2021

Previous Certificate *Dated* 02 August 2018
 Certificate No. UCRT18/1772
 Laboratory 0653

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