

# NOISE SURVEY LTD

## Billington Lakes Environmental Noise Measurements

**Date of Assessment:** Friday 16<sup>th</sup> February – Saturday 17<sup>th</sup> February 2024

**Time of Assessment:** 11:44 AM (Duration 24 hours)

**Site Location:** Billington Lakes  
Billington Road East  
Leicester  
LE9 7SB

**Assessor:** Donald Angir MloA Dip(loA) BA(Hons) [www.noisesurveyltd.co.uk](http://www.noisesurveyltd.co.uk) who has over 7 years of experience conducting noise at work as well as environmental noise assessments.

**Date of Report:** 26<sup>th</sup> February 2024



Picture 1: Noise measurement conducted with a class 1 sound level meter

### Methodology

A location close to a lake, was selected by the Client with the grid reference provided as 52.557018° N, 1.321985° W where the sound level meter was positioned for the duration of the measurements. During the measurements, Billington Lakes was closed to the public.



Picture 3: The ,meter remained in the same location during the measurement duration



Picture 3A: Measurements were not attended.

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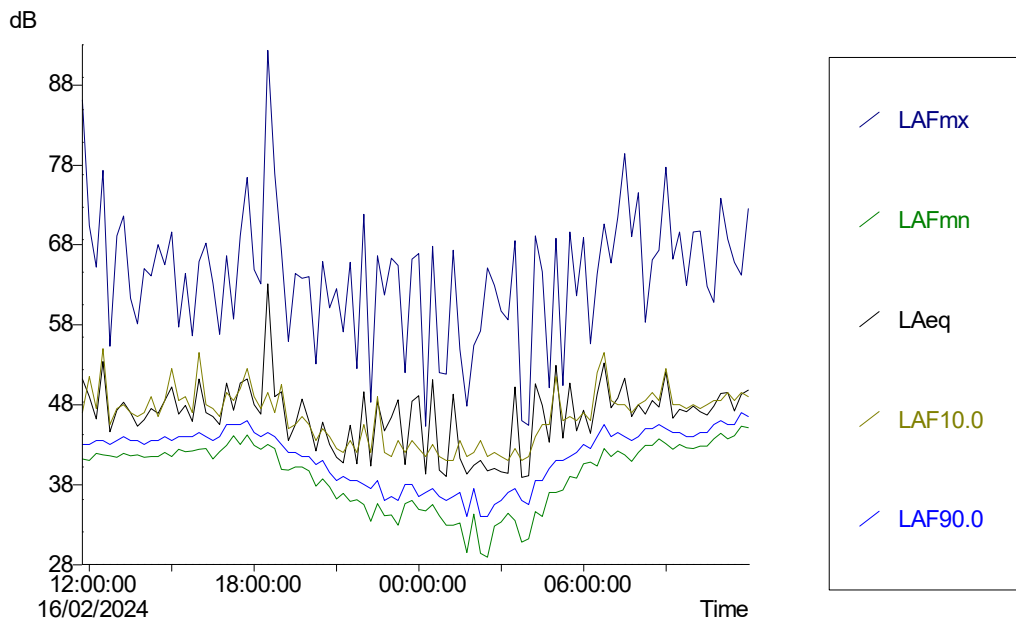
Once the measurements were started, the meter was left unattended until at the end of the measurements.

The measurements commenced at 11:44AM on Friday 16<sup>th</sup> February and were terminated at 12:30PM on Saturday 17<sup>th</sup> February 2024. This was a 24 hours and 30min measurement duration.

Measurements were conducted using Casella Cel 490 class 1 sound level meter. The meter was field calibrated successfully before and after the measurements.

The meter logged measurements on a 15 minute basis. The measurements have not been edited, deleted or amended but have been presented in this report as measured by the meter. The meter was not paused during the entire measurement duration.

The meter was placed on a tripod at a height of 1.4m. The meter was over 4m from a reflective surface. A correction for reflective surfaces has not been applied.



Graph 1: A graph of the noise parameters over time. The graph shows that the lowest noise levels occur during the night.

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## Measurement Data

| Time     | LAFmx<br>dB | LAFmn<br>dB | LAeq<br>dB | LAF10.0<br>dB | LAF90.0<br>dB | LCpk<br>dB |
|----------|-------------|-------------|------------|---------------|---------------|------------|
| 11:44:34 | 86.1        | 41.2        | 51.2       | 47            | 43            | 109.1      |
| 11:59:34 | 70.4        | 41          | 49         | 51.5          | 43            | 82.9       |
| 12:14:34 | 65.2        | 41.9        | 46.2       | 47.5          | 43.5          | 84.5       |
| 12:29:34 | 77.3        | 41.7        | 53.4       | 55            | 43.5          | 89.3       |
| 12:44:34 | 55.3        | 41.6        | 44.6       | 45.5          | 43            | 79.6       |
| 12:59:34 | 69.1        | 41.4        | 47.3       | 47.5          | 43.5          | 83.6       |
| 13:14:34 | 71.6        | 41.9        | 48.3       | 48            | 44            | 86.5       |
| 13:29:34 | 61.3        | 41.6        | 47         | 47            | 43.5          | 85.2       |
| 13:44:34 | 58.1        | 41.7        | 45.3       | 46.5          | 43.5          | 80.9       |
| 13:59:34 | 65          | 41.4        | 46.1       | 47            | 43            | 87.3       |
| 14:14:34 | 64.1        | 41.5        | 47.5       | 49            | 43.5          | 87.5       |
| 14:29:34 | 68          | 41.5        | 46.9       | 46.5          | 43.5          | 83.9       |
| 14:44:34 | 65.5        | 42          | 48.5       | 48.5          | 44            | 89.1       |
| 14:59:34 | 69.6        | 41.5        | 50.2       | 52.5          | 43.5          | 85.8       |
| 15:14:34 | 57.7        | 42.4        | 46.8       | 48.5          | 44            | 81.9       |
| 15:29:34 | 64.4        | 42.1        | 47.9       | 49            | 44            | 84.9       |
| 15:44:34 | 56.6        | 42.2        | 45.9       | 47            | 44            | 79.7       |
| 15:59:34 | 65.9        | 42.4        | 51.2       | 54.5          | 44.5          | 87.6       |
| 16:14:34 | 68.2        | 42.5        | 47         | 48            | 44            | 85.9       |
| 16:29:34 | 63.2        | 41.2        | 46.5       | 47.5          | 43.5          | 83.5       |
| 16:44:34 | 56.8        | 42.1        | 45.5       | 46.5          | 44            | 75.1       |
| 16:59:34 | 66.6        | 42.9        | 50.7       | 49.5          | 45.5          | 85         |
| 17:14:34 | 58.7        | 44.1        | 47.3       | 48.5          | 45.5          | 75.3       |
| 17:29:34 | 69.1        | 43          | 50.7       | 50            | 45.5          | 90.2       |
| 17:44:34 | 76.4        | 44.2        | 51.2       | 52.5          | 46            | 86         |
| 17:59:34 | 64.9        | 42.9        | 48         | 49            | 44.5          | 84.8       |
| 18:14:34 | 63.1        | 42.4        | 46.8       | 47.5          | 44            | 84.2       |
| 18:29:34 | 92.3        | 43          | 63.1       | 49.5          | 44.5          | 103.1      |
| 18:44:34 | 76.9        | 42.5        | 49         | 47            | 44            | 89.2       |
| 18:59:34 | 67.2        | 39.9        | 49.6       | 50.5          | 43            | 86.6       |
| 19:14:34 | 55.9        | 39.8        | 43.5       | 45            | 42            | 75.4       |
| 19:29:34 | 64.4        | 40.2        | 45.5       | 45.5          | 42            | 86.4       |
| 19:44:34 | 63.8        | 40.2        | 48.7       | 46.5          | 41.5          | 89.9       |
| 19:59:34 | 64          | 39.7        | 45.9       | 45.5          | 41.5          | 87         |
| 20:14:34 | 53.1        | 37.8        | 42.2       | 43.5          | 40.5          | 81.6       |
| 20:29:34 | 65.9        | 38.7        | 45.8       | 45            | 41            | 84.9       |
| 20:44:34 | 60.1        | 37.7        | 43         | 44            | 39.5          | 81.4       |
| 20:59:34 | 62.5        | 36.2        | 41.4       | 42.5          | 38.5          | 78.1       |
| 21:14:34 | 57.1        | 36.9        | 40.7       | 42            | 39            | 78.6       |
| 21:29:34 | 65.8        | 35.9        | 45.4       | 43.5          | 38.5          | 88.1       |
| 21:44:34 | 52.5        | 36.1        | 40.6       | 42            | 38.5          | 69.7       |
| 21:59:34 | 71.8        | 35.5        | 49.6       | 45.5          | 38            | 91.2       |
| 22:14:34 | 48.3        | 33.4        | 40.3       | 42            | 37.5          | 71.2       |
| 22:29:34 | 66.6        | 35.6        | 48.4       | 49            | 38.5          | 87.4       |

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|          |      |      |      |      |      |      |
|----------|------|------|------|------|------|------|
| 22:44:34 | 61.7 | 34.1 | 44.7 | 42   | 36   | 88.6 |
| 22:59:34 | 66.3 | 34.2 | 46.4 | 41.5 | 36.5 | 85.5 |
| 23:14:34 | 65.4 | 32.9 | 48.6 | 43.5 | 36   | 89.3 |
| 23:29:34 | 52   | 35.6 | 40.5 | 42   | 38   | 71.9 |
| 23:44:34 | 66.2 | 36   | 48.4 | 43.5 | 38   | 85.5 |
| 23:59:34 | 66.9 | 34.9 | 49.1 | 42.5 | 36.5 | 91.8 |
| 00:14:34 | 45.3 | 34.7 | 39.3 | 41.5 | 37   | 68.6 |
| 00:29:34 | 67.8 | 35.5 | 51.1 | 43   | 37.5 | 93.2 |
| 00:44:34 | 52   | 34.1 | 39.8 | 41.5 | 36.5 | 72.8 |
| 00:59:34 | 51.8 | 32.9 | 39   | 41   | 36   | 72.4 |
| 01:14:34 | 67.3 | 32.9 | 49.3 | 41   | 36.5 | 90.2 |
| 01:29:34 | 54.9 | 33.2 | 41.3 | 43.5 | 37   | 75.9 |
| 01:44:34 | 47.8 | 29.5 | 39.3 | 41.5 | 34   | 69.9 |
| 01:59:34 | 55.4 | 34.3 | 40.4 | 42   | 37.5 | 80.7 |
| 02:14:34 | 57.2 | 29.4 | 41   | 43.5 | 34   | 76.3 |
| 02:29:34 | 65.1 | 28.9 | 39.7 | 41.5 | 34   | 77.1 |
| 02:44:34 | 62.9 | 32.8 | 40   | 42   | 35.5 | 73.9 |
| 02:59:34 | 59.7 | 33.3 | 39.6 | 41.5 | 36   | 73.8 |
| 03:14:34 | 58.6 | 34.4 | 39.4 | 41   | 37   | 71.2 |
| 03:29:34 | 68.5 | 33.5 | 50.2 | 42.5 | 37.5 | 92.2 |
| 03:44:34 | 46   | 30.8 | 38.9 | 41   | 36   | 68   |
| 03:59:34 | 45.4 | 31.2 | 39.1 | 41.5 | 35.5 | 68.3 |
| 04:14:34 | 69.1 | 34.6 | 50.6 | 44   | 38.5 | 85.8 |
| 04:29:34 | 64.6 | 34   | 47.9 | 45.5 | 38.5 | 87.4 |
| 04:44:34 | 50.1 | 37   | 43.3 | 45.5 | 40   | 71.1 |
| 04:59:34 | 68.8 | 37   | 52.9 | 51.5 | 41   | 94.3 |
| 05:14:34 | 50.4 | 37.3 | 43.8 | 46   | 41   | 71.1 |
| 05:29:34 | 69.6 | 39   | 50.7 | 46.5 | 41.5 | 90.3 |
| 05:44:34 | 61.6 | 38.8 | 44.7 | 46   | 42   | 79.4 |
| 05:59:34 | 68.9 | 40.6 | 47.3 | 47   | 43   | 84.4 |
| 06:14:34 | 55.6 | 40.8 | 44.4 | 46   | 42.5 | 78   |
| 06:29:34 | 64.3 | 40.3 | 49.3 | 52   | 44   | 84.3 |
| 06:44:34 | 70.6 | 42.5 | 53.2 | 54.5 | 45.5 | 91.8 |
| 06:59:34 | 65.7 | 41.5 | 47.6 | 48.5 | 44   | 84.5 |
| 07:14:34 | 71.4 | 42.2 | 48.8 | 48   | 44.5 | 86.4 |
| 07:29:34 | 79.4 | 41.7 | 51.3 | 48   | 44   | 91   |
| 07:44:34 | 69   | 40.9 | 46.5 | 47   | 43.5 | 81.4 |
| 07:59:34 | 74.5 | 42   | 48   | 48   | 44   | 88.4 |
| 08:14:34 | 58.3 | 42.9 | 46.8 | 48.5 | 45   | 79   |
| 08:29:34 | 66.1 | 42.9 | 48.5 | 49.5 | 45   | 83.6 |
| 08:44:34 | 67.3 | 43.7 | 47.7 | 48.5 | 45.5 | 80.9 |
| 08:59:34 | 77.7 | 43.1 | 52.1 | 52.5 | 45   | 91.7 |
| 09:14:34 | 66.2 | 42.4 | 46.3 | 48   | 44.5 | 81.2 |
| 09:29:34 | 69.6 | 43   | 47.4 | 48   | 44.5 | 85.5 |
| 09:44:34 | 62.9 | 42.6 | 47.1 | 47.5 | 44   | 86.5 |
| 09:59:34 | 69.6 | 42.5 | 47.8 | 48   | 44   | 85.6 |
| 10:14:34 | 69.7 | 42.8 | 47.1 | 47.5 | 44.5 | 82.5 |
| 10:29:34 | 62.8 | 42.8 | 46.7 | 48   | 44.5 | 78.6 |

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|          |      |      |      |      |      |      |
|----------|------|------|------|------|------|------|
| 10:44:34 | 60.8 | 43.7 | 47.8 | 48.5 | 45.5 | 85.4 |
| 10:59:34 | 73.8 | 44.4 | 49.4 | 48.5 | 46   | 87.5 |
| 11:14:34 | 68.7 | 43.7 | 49.5 | 49.5 | 45.5 | 79.7 |
| 11:29:34 | 65.8 | 44.1 | 47.2 | 48.5 | 45.5 | 77.9 |
| 11:44:34 | 64.2 | 45.3 | 49.3 | 49.5 | 47   | 85.9 |
| 11:59:34 | 72.5 | 45.1 | 49.8 | 49   | 46.5 | 88.5 |

Table 1: Original 15min logs of the noise measurements. LAeq and LAF90 measurements have been highlighted blue and green respectively for ease of recognition only.

Analysis of Table 1 shows that the highest level of LAFmax during the night time was LAF 71dB.

## Uncertainty (Noise Assessment)

Measurements were conducted during suitable weather conditions. The meter was calibrated before and after the measurements successfully. Once measurements were started, the meter was left unattended until the end of the measurements.

The location of the measurements is not close to road traffic noise and was influenced by wildlife such as birds chirping.

Uncertainty arises from changes in the background noise and ambient noise levels. In this location, the measured noise levels could vary day to day depending on the level of wildlife noise and distant road traffic noise. An environmental uncertainty factor of +/- 4dB has been added to the uncertainty calculation for this reason.

Uncertainty also arises from the accuracy of the measurement instruments. The Casella Cel 490 class 1 sound level meter has a calibration uncertainty of ±1dB.

$$U = \sqrt{a^2 + b^2 + c^2 \dots n^2}$$

Where u = uncertainty. Based on the uncertainty formula, the assessed uncertainty in the results is ± 4dB for this environmental noise measurement.

## Equipment Used

- Casella Cel 490 Class 1 Sound level Meter serial 2306643 Calibrated by Pennine Instrument Services Cert No. 063196-1 calibrated on 6<sup>th</sup> February 2024.
- Casella Cel-110/1 Class 1 Acoustic calibrator calibrated 24<sup>th</sup> July 2023 by Pennine, Instrument Services cert no. 059962-1 meter serial 138252
- Kane May Thermostat model KM330 serial: 723858
- Kaindl Electronic model: Windtronic 2 Anemometer.

## Measuring Equipment & Calibration

At the beginning and at the end of measurements the meter was calibrated successfully with an acoustic calibrator before and after the measurements.



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Sound level meter calibration report

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