



UNIVERSAL DESTINATIONS & EXPERIENCES UK PROJECT

Former Kempston Hardwick Brickworks
and adjoining land, Bedford

Environmental Statement Volume 3

Appendix 9.1 - Baseline Noise Survey De- tails

Report reference: 4.9.1.0

Revision number: 00

Date: June 2025



CONTENTS

1.	INTRODUCTION	1
2.	BASELINE NOISE SURVEY	2
2.1.	EQUIPMENT AND CALIBRATION	2
2.2.	MEASUREMENT POSITIONS	4
2.3.	NOISE SURVEY RESULTS	12
2.4.	COMMENTS ON MEASUREMENT DATA FROM MARCH 2024	13
2.5.	COMMENTS ON MEASUREMENT DATA FROM JANUARY AND FEBRUARY 2025	14
2.6.	NOISE SURVEY TIME HISTORIES	15
2.7.	COMMENTS ON TIME HISTORIES AND HISTOGRAMS FROM JANUARY AND FEBRUARY 2025	21
3.	THIRD PARTY DATA	22
3.1.	INTRODUCTION	22
3.2.	ALDI NOISE IMPACT ASSESSMENT 2024	22
3.3.	“SURVEY METHODOLOGY	23
3.4.	DEFRA STRATEGIC NOISE MAPS	24
4.	BASELINE NOISE LEVELS AT RECEPTORS	25

TABLES

Table 2-1 - Noise measurement equipment	2
Table 2-2 - Noise measurement durations and equipment	5
Table 2-3 - Noise measurement description	6
Table 2-4 - Summary of baseline noise survey results	13
Table 3-1 - Summary of measured sound pressure levels at MP1A	23
Table 4-1 - NSRs and associated measurement positions	25

Table 4-2 – Free-field baseline noise levels at noise sensitive receptors

26

IMAGES

Image 2-1 – Map of noise measurement positions and noise sensitive receptors	4
Image 2-2 - Measurement position 1	8
Image 2-3 - Measurement position 2a	8
Image 2-4 - Measurement position 2b	9
Image 2-5 - Measurement position 3	10
Image 2-6 - Measurement position 4 (March 2024)	10
Image 2-7 - Measurement position 4 (January 2025)	11
Image 2-8 - Measurement position 5	11
Image 2-9 - Measurement position A	12
Image 2-10 - Measurement position B	12
Image 2-11 - MP1 noise levels and weather conditions, 11/03/24-12/03/24	15
Image 2-12 - MP2 noise levels and weather conditions, 11/03/24-12/03/24	15
Image 2-13 - MP3 noise levels and weather conditions, 11/03/24-12/03/24	16
Image 2-14 - MP4 noise levels and weather conditions, 11/03/24-12/03/24	16
Image 2-15 - MP5 noise levels and weather conditions, 11/03/24-12/03/24	16
Image 2-16 - MP1-MP5 measured L_{Aeq} levels and weather conditions, 11/03/24-12/03/24	17
Image 2-17 - MP1-MP5 measured L_{A90} levels and weather conditions, 11/03/24-12/03/24	17
Image 2-18 – MP2b measured L_{A90} levels and weather conditions, 31/01/25 – 11/02/25	18
Image 2-19 – MP4 measured L_{A90} levels and weather conditions, 31/01/25 – 12/02/25	19
Image 2-20 – Histogram of day-time L_{A90} levels at MP2b, 1m from façade	19
Image 2-21 – Histogram of night-time L_{A90} levels at MP2b, 1m from facade	20
Image 2-22 – Histogram of day-time L_{A90} levels at MP4, free-field	20
Image 2-23 – Histogram of night-time L_{A90} levels at MP4, free-field	21
Image 3-1 - 2023 Aldi RDC baseline noise survey measurement position	22

1. INTRODUCTION

- 1.1.1. This appendix provides information on the baseline noise levels used for the noise assessments in **Chapter 9: Noise and Vibration (Volume 1)**. The methodology and results of the baseline noise surveys completed by WSP are presented alongside publicly available third-party data which have been reviewed.

2. BASELINE NOISE SURVEY

2.1. EQUIPMENT AND CALIBRATION

2.1.1. Class 1 sound level meters (as defined in *BS EN 61672-1:2013*) and hand-held acoustic calibrators were used over the course of the surveys, as detailed in **Table 2-1** below.

Table 2-1 - Noise measurement equipment

WSP equipment reference	Equipment	Make/model	Serial number	Calibration date
Duo 2	Sound Level Meter	01dB-Stell Duo 'Datalogging Integrating Sound Level Meter'	10618	14 December 2023
	Pre-amplifier	01dB-Stell PRE 22 Preamplifier	10627	
	Microphone	G.R.A.S Type 40CD Condenser Microphone	331635	
	Calibrator	01dB Cal 21	34924047	14 December 2023
Duo 5	Sound Level Meter	01dB-Stell Duo 'Datalogging Integrating Sound Level Meter'	10594	17 May 2023
	Pre-amplifier	01dB-Stell PRE 22 Preamplifier	1507076	
	Microphone	G.R.A.S Type 40CD Condenser Microphone	224313	
	Calibrator	01dB Cal 21	34924020	16 May 2023
Duo 8	Sound Level Meter	01dB-Stell Duo 'Datalogging Integrating Sound Level Meter'	10330	15 February 2023
	Pre-amplifier	01dB-Stell PRE 22 Preamplifier	10219	
	Microphone	G.R.A.S Type 40CD Condenser Microphone	330600	
	Calibrator	01dB Cal 21	50441999	16 February 2023
Fusion 2	Sound Level Meter	01dB-Metravib Fusion Sound Level Meter	10796	25 October 2023
	Pre-amplifier	01dB PRE22 Preamplifier	10882	
	Microphone	GRAS Type 40CD Condenser Microphone	207588	
	Calibrator	01dB-Stell Cal 21	34254632	24 October 2023

WSP equipment reference	Equipment	Make/model	Serial number	Calibration date
Solo 13	Sound Level Meter	01dB-METRAVIB Black Solo 'Datalogging Integrating Sound Level Meter'	65303	23 October 2023
	Pre-amplifier	01dB-Metravib PRE 21 S	15976	
	Microphone	01dB Metravib MCE 212 Microphone	142812	
	Calibrator	01dB-Stell Cal 21	34213780	23 October 2023
Solo 21	Sound Level Meter	01dB-METRAVIB Blue Solo 'Datalogging Integrating Sound Level Meter'	61332	12 December 2023
	Pre-amplifier	01dB-Metravib PRE 21 S	12495	
	Microphone	01dB Metravib MCE 212 Microphone	65593	
	Calibrator	01dB-Stell Cal 21	1120240	11 December 2023
Rion 7	Sound Level Meter	Rion NL-52 Sound Level Meter	00821130	3 January 2025
	Pre-amplifier	Rion NH-25 Preamplifier	21171	
	Microphone	Rion UC-59 Microphone	04130	
	Calibrator	Rion NC-74 Class 1 Calibrator	34494274	7 January 2025
ANV Rion NL-53	Sound Level Meter	Rion NL-53 Sound Level Meter	00240895	23 December 2024
	Pre-amplifier	Rion NH-25 Preamplifier	33786	
	Microphone	Rion UC-59 Microphone	25250	
	Calibrator	Rion NC-74 Class 1 Calibrator	34494274	7 January 2025

- 2.1.2. Each of the measurement systems had been calibrated to traceable standards within the previous 24 months, and the handheld calibrators within the previous 12 months. Using the paired handheld calibrator for each system, each measurement chain was subject to a field calibration at the beginning and end of each measurement. No significant calibration drift arose during any of the measurements.
- 2.1.3. All microphones were vertically mounted in free-field conditions (excluding ground reflections) on a tripod at a height of 1.5m above ground, unless noted otherwise (see **Table 2-3** below). At each measurement position (MP), the microphone of the installed measurement system was fitted with a windshield.

2.2. MEASUREMENT POSITIONS

- 2.2.1. The Site and surrounding areas were visited between 11 to 15 March 2024 to ascertain noise measurement positions representative of noise sensitive receptors (NSRs) in the area. Based on these observations various noise surveys were carried out.
- 2.2.2. Subsequent to this initial visit, further long-term measurements were conducted at two locations between 31 January 2025 and 12 February 2025.
- 2.2.3. The adopted measurement positions and noise sensitive receptors are depicted in **Image 2-1** below (and shown separately with more clarity on **Figure 9.1: Construction Noise and Vibration Study Area and Sensitive Receptors (Volume 2)**) and described in **Table 2-3** below.

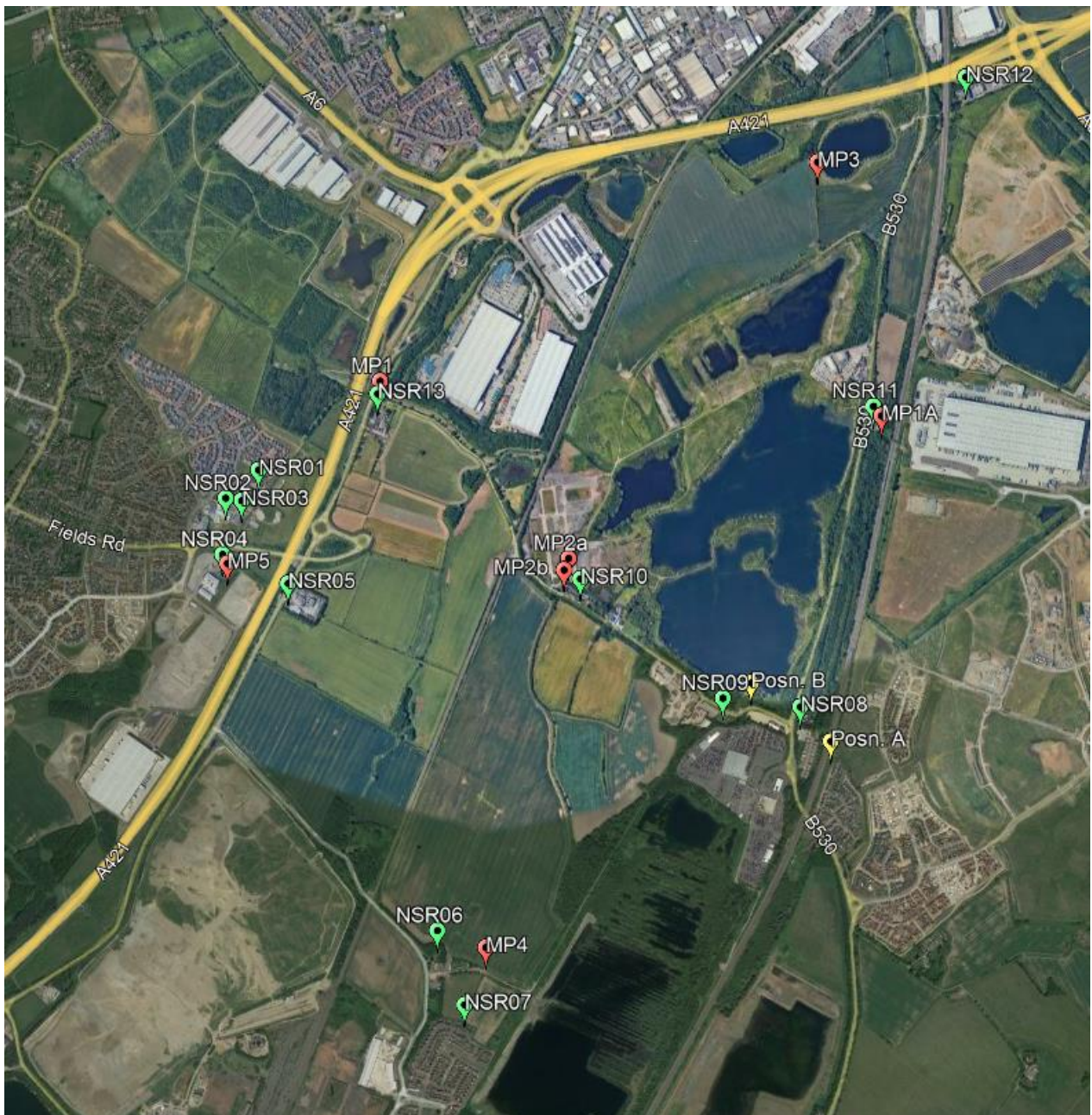


Image 2-1 – Map of noise measurement positions and noise sensitive receptors

Table 2-2 - Noise measurement durations and equipment

Meas. position	Start	End	Duration	Equipment
MP1	11 March 2024 15:30	13 March 2024 12:30	1 day 9 hours	Fusion 2
MP2a	11 March 2024 16:00	13 March 2024 12:45	1 day 9 hours	Duo 8
MP2b	31 January 2025 13:30	12 February 2025 11:30	11 days 22 hours	Rion 7
MP3	11 March 2024 16:30	13 March 2024 13:30	1 day 9 hours	Duo 5
MP4	13 March 2024 14:15	15 March 2024 13:00	1 day 11 hours	Solo 13
	31 January 2025 13:30	11 February 2025 13:30	11 days	ANV Rion NL-53
MP5	11 March 2024 17:30	13 March 2024 14:30	1 day 9 hours	Duo 2
Position A	12 March 2024 00:10	12 March 2024 00:25	15 mins	Solo 21
	12 March 2024 00:56	12 March 2024 01:11	15 mins	
	12 March 2024 01:40	12 March 2024 01:55	15 mins	
	12 March 2024 02:22	12 March 2024 02:37	15 mins	
	12 March 2024 13:45	12 March 2024 14:00	15 mins	
	12 March 2024 14:30	12 March 2024 14:45	15 mins	
	13 March 2024 10:13	13 March 2024 10:28	15 mins	
	13 March 2024 10:55	13 March 2024 11:10	15 mins	
Position B	12 March 2024 00:35	12 March 2024 00:50	15 mins	Solo 21
	12 March 2024 01:18	12 March 2024 01:33	15 mins	

Meas. position	Start	End	Duration	Equipment
	12 March 2024 02:01	12 March 2024 02:16	15 mins	
	12 March 2024 02:43	12 March 2024 02:58	15 mins	
	12 March 2024 14:08	12 March 2024 14:23	15 mins	
	12 March 2024 14:52	12 March 2024 15:07	15 mins	
	13 March 2024 10:34	13 March 2024 10:49	15 mins	
	13 March 2024 11:17	13 March 2024 11:32	15 mins	
MP1a (Third party data)	14 June 2023 16:30	16 June 2023 15:30	1 day 23 hours	Third party

Table 2-3 - Noise measurement description

Meas. position	Related NSRs	Location	Measurement purpose and description
MP1	NSR13	Garden lawn at Elms Farm.	Selected to determine prevailing ambient and background noise levels at Elms Farm farmhouse (NSR13). Dominated by continuous road traffic noise from the A421 to the west. Occasional road traffic on Manor Road to the north and birdsong.
MP2a	NSR10	Area of hardstanding to the rear of houses on Manor Road. Screened from Manor Road by the houses and an earth bund approximately 2.5m high.	Selected to determine prevailing ambient and background noise levels at houses on Manor Road which will be located toward the centre of the Site (NSR10). Dominated by distant continuous road traffic noise from the A421 to the west. Occasional road traffic on Manor Road to the south and birdsong.
MP2b	NSR10	1m from the façade at location of 1 st floor window of 2 Eastwood Cottages facing onto Manor Road	Selected to determine long-term prevailing ambient and background noise levels at houses on Manor Road. Dominated by distant continuous road traffic noise from the A421 to the west. Occasional road traffic travelling at speed along Manor Road to the south, including HDVs.
MP3	NSR12	Agricultural fields at the north end of the	Selected to determine prevailing ambient and background noise levels at NSR12 (a hotel). Dominated by distant continuous road traffic

Meas. position	Related NSRs	Location	Measurement purpose and description
		Site next to lakes and hedges.	noise from the A421 to the north. Occasional road traffic on Manor Road to the south and birdsong.
MP4	NSR06 and 07	Agricultural fields around the Site. Located on the side road to Broadmead Farm.	Selected to determine prevailing ambient and background noise levels at Broadmead Farm (NSR06) and residential properties to the south in Stewartby (NSR07). Dominated by distant continuous road traffic on the A421 to the west. Occasional road traffic on Broadmead Road to the west and birdsong.
MP5	NSR01-05	Field around Site. Located to southeast from Blue Orkids Wootton Nursery.	Selected to determine prevailing ambient and background noise levels at Blue Orkids Wootton Nursery (NSR04), CP Farm Cottage (NSR05) and residential properties to the west of the A421 in Wootton (NSR01-03). Dominated by continuous road traffic noise from the A421. Occasional road traffic on Innovation Way.
Position A	NSR08 and 11	Located on an earth bund of Angelica Grove, located between the houses and railway.	Selected to determine prevailing ambient and background noise levels for residential properties on Angelica Grove (NSR08) and a residential property further north (234 Ampthill Road, (NSR11). Dominated by road traffic noise from the B530 to the west. Occasional rail traffic to the west and birdsong.
Position B	NSR09	Located at the side of Manor Road.	Selected to determine prevailing ambient and background noise at residential properties on Manor Road (NSR09). Dominated by road traffic noise from the B530 to the east. Occasional road traffic on Manor Road and birdsong.
MP1A (Third party data)	NSR11	Located off an access road between the B530 Ampthill Road, and the railway, approximately 40m from the nearby dwelling.	Third party data survey representative of residential property at 234 Ampthill Road. Noise climate comprised a mixture of road traffic noise from the surrounding road network and service yard operations associated with the B&M Distribution Centre to the east. Noise from train movements on the railway line to the east was noted to be dominant intermittently.

2.2.4. Photographs of the measurement positions are provided below in **Image 2-2** to **Image 2-10**.



Image 2-2 - Measurement position 1



Image 2-3 - Measurement position 2a



Image 2-4 - Measurement position 2b



Image 2-5 - Measurement position 3



Image 2-6 - Measurement position 4 (March 2024)



Image 2-7 - Measurement position 4 (January 2025)



Image 2-8 - Measurement position 5



Image 2-9 - Measurement position A



Image 2-10 - Measurement position B

2.3. NOISE SURVEY RESULTS

- 2.3.1. **Table 2-4** below provides a summary of the results obtained from the noise measurement positions described above. All measurements are free-field and at a height of 1.2 – 1.5m above ground unless otherwise stated.

Table 2-4 - Summary of baseline noise survey results

Position	Representative ambient noise levels		Representative background noise levels	
	Day-time 07:00-23:00hrs dB L _{Aeq,T}	Night-time 23:00-07:00hrs dB L _{Aeq,T}	Day-time 07:00-23:00hrs L _{A90,15min}	Night-time 23:00-07:00hrs L _{A90,15min}
MP1	64	53	59	40
MP2a	52	45	46	35
MP2b ^{(1),(2)}	67 ⁽²⁾	58 ⁽²⁾	48 ⁽²⁾	39 ⁽²⁾
MP3	59	49	53	41
MP4	52	46	44	38
MP4 ⁽³⁾	51	45	43	39
MP5	64	53	59	40
Pos A	62 ⁽⁴⁾	54	46	32
Pos B	66 ⁽⁴⁾	52	49	32

(1) Long term measurement, 31/01/25 – 12/02/25

(2) Measured 1m from external façade, facing south. Data as reported includes effect of façade reflection. Deduct 2 dB to correct to free-field equivalent level.

(3) Long term measurement, 31/01/25 – 11/02/25

(4) Partial measurement during period

2.4. COMMENTS ON MEASUREMENT DATA FROM MARCH 2024

- 2.4.1. Some adverse weather conditions (rain and wind speeds above 5m/s) occurred during the unattended surveys at MP1 to MP3 and MP5 during the daytime of 12 March 2024. The recorded weather data were analysed and any noise data which appeared to have been influenced by the weather were excluded from the assessment. Graphs showing a time history of the measured noise levels and the recorded weather data are provided in **Image 2-11** to **Image 2-17**.
- 2.4.2. In all cases, weather conditions during the evening periods were conducive to noise monitoring with low wind speeds and no precipitation. With the exception of a one hour and 15-minute period during the night-time on the 12 March 2024, night-time periods were also unaffected by adverse weather conditions.
- 2.4.3. Two full evening and night-time periods were measured. As a conservative assumption, the lowest overall evening and night-time ambient (L_{Aeq,T}) noise level measured has been presented in **Table 2-4** above as the representative level and used in the assessments.
- 2.4.4. The representative background noise levels were derived from an analysis of histograms of full L_{A90,15min} data sets in each day and night-time period.

2.5. COMMENTS ON MEASUREMENT DATA FROM JANUARY AND FEBRUARY 2025

- 2.5.1. Additional measurements over a longer measurement period were made at positions MP2b and MP4 between 31/01/2025 and 12/02/2025 to more accurately establish the prevailing background and ambient noise levels at these locations, which are the closest to the Proposed Development and/or affected to a lesser extent by existing transportation noise sources.
- 2.5.2. Weather conditions during this survey were predominantly dry with wind speeds generally <5m/s. Between 31/01/25 and the morning of 06/02/25, winds were generally from a westerly direction, changing to an easterly direction until the end of the survey period. During this second half of the survey, wind speeds increased and there were sporadic periods of light rain. Data obtained where periods of rain or wind speeds >5m/s were experienced were excluded from the assessment.
- 2.5.3. The measurement position selected at MP2b was a first-floor window of a vacant property at 2 Eastwood Cottages, Manor Road. A microphone was located on a pole 1m from the front façade facing Manor Road and measurements therefore include a façade reflection which needs to be accounted for (as all other measurements are free-field). Measurements were made at the front of the property since there was activity on the development site to the rear of the property (security fencing being installed during the day) which could have influenced measured noise levels.
- 2.5.4. Noise sources audible at this location included road traffic along Manor Road, including Heavy Duty Vehicles (HDVs), and distant road traffic on the A421 to the northwest.
- 2.5.5. BS4142:2014+A1:2019 provides guidance on allowances for façade reflections at measurement locations, suggesting that when measurements for distant sources are made at 1m from a façade, 3 dB should be subtracted from the measured level to account for reflections. When the main sources of noise are either relatively close or not perpendicular to the façade, a correction of 1 or 2 dB is appropriate.
- 2.5.6. At position MP2b, the main noise source driving the L_{Aeq} value is road traffic along Manor Road, which is close to the façade. The L_{A90} – which is used to establish the background sound level – is likely to be affected more by distant road (and to a lesser extent, rail) sources, which are not perpendicular to the facade. In each case, it is considered that a correction of -2 dB to the measured noise levels reported at this location would be appropriate.
- 2.5.7. This results in an equivalent free-field ambient sound level of 65 dB $L_{Aeq,T}$ during the day and 56 dB $L_{Aeq,T}$ at night. These are higher than those measured in 2024 as a result of the measurement location being at the front of the Manor Road properties, closer to Manor Road. However, the representative free-field background sound level of 46 dB L_{A90} during the day was the same as that established in 2024. The night-time representative free-field background sound level of 37 dB L_{A90} at night was 2 dB higher than established in 2024. It is considered that the data obtained in 2025 is representative of the background sound level at location MP2 taking into account the duration of the survey and the range of wind speeds and directions over which the data was obtained.
- 2.5.8. At position MP4, the same location was selected as that used during the shorter survey in March 2024. The main noise sources at this location were the railway lines to the northeast and southwest and distant road traffic from the A421 to the northwest.

2.5.9. Here, the day-time and night-time ambient sound levels were 51 dB $L_{Aeq,T}$ and 45 dB $L_{Aeq,T}$ respectively, 1 dB lower than those measured in 2024. The representative background sound level was 43 dB L_{A90} during the day (1 dB lower than 2024) and 39 dB L_{A90} (1dB higher than 2024). It is considered that the data obtained in 2025 is representative of the background sound level at location MP4 taking into account the duration of the survey and the range of wind speeds and directions over which the data was obtained.

2.6. NOISE SURVEY TIME HISTORIES

2.6.1. The graphs in **Image 2-11** to **Image 2-17** below present full time histories of the recorded noise levels and weather station data measured during the survey in March 2024. The graphs in **Image 2-18** and **Image 2-19** present the long-term time histories at MP2b and MP4 respectively measured during the survey in January/February 2025, with histograms of the day-time and night-time $L_{A90,15min}$ values – used to determine a representative background sound level – provided in **Image 2-20** to **Image 2-23**.

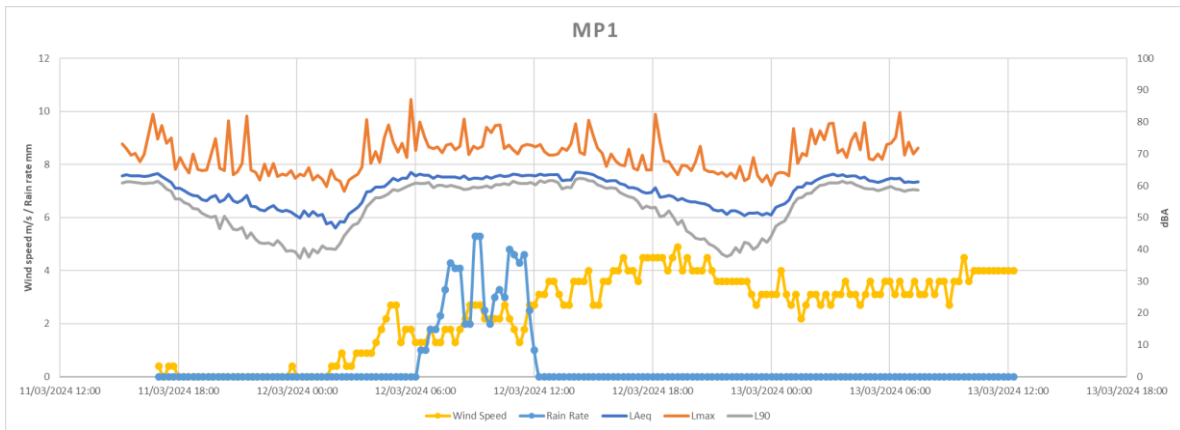


Image 2-11 - MP1 noise levels and weather conditions, 11/03/24-12/03/24

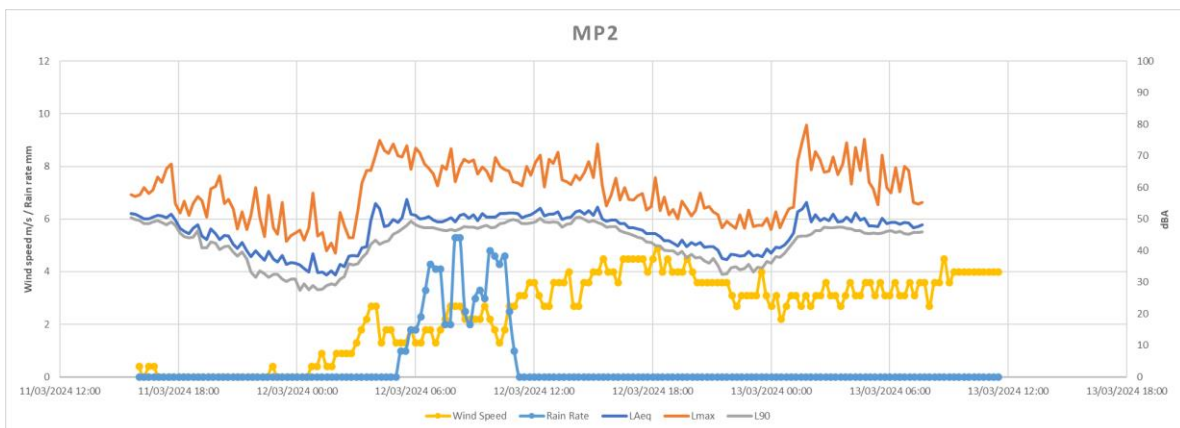


Image 2-12 - MP2 noise levels and weather conditions, 11/03/24-12/03/24

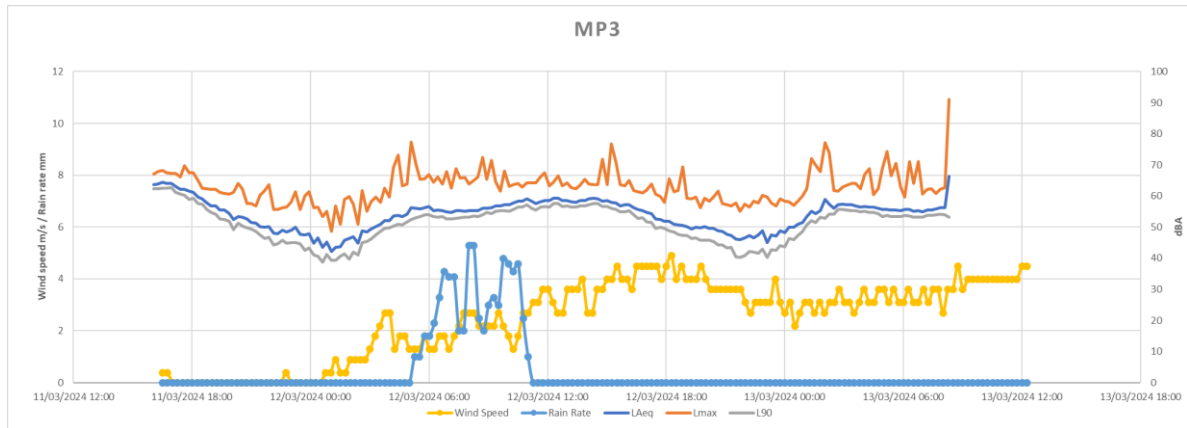


Image 2-13 - MP3 noise levels and weather conditions, 11/03/24-12/03/24

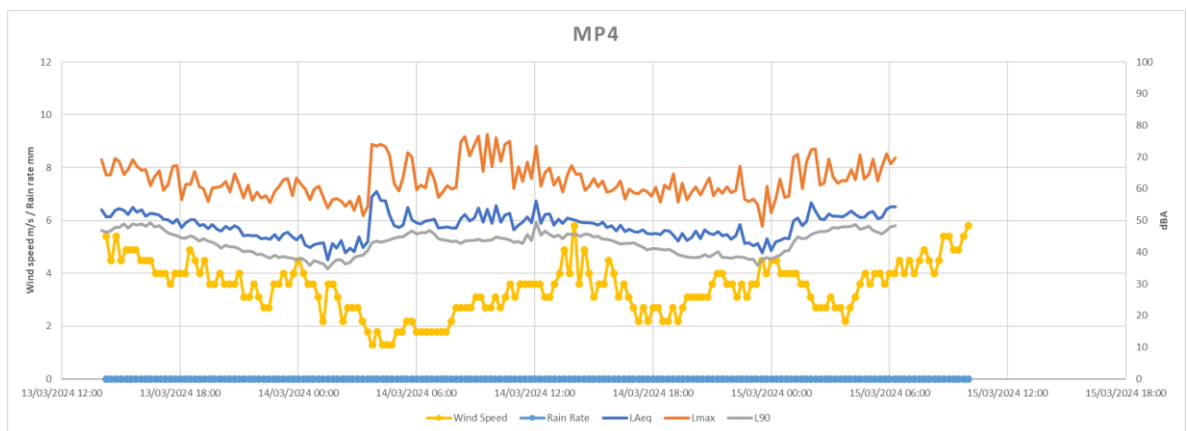


Image 2-14 - MP4 noise levels and weather conditions, 11/03/24-12/03/24

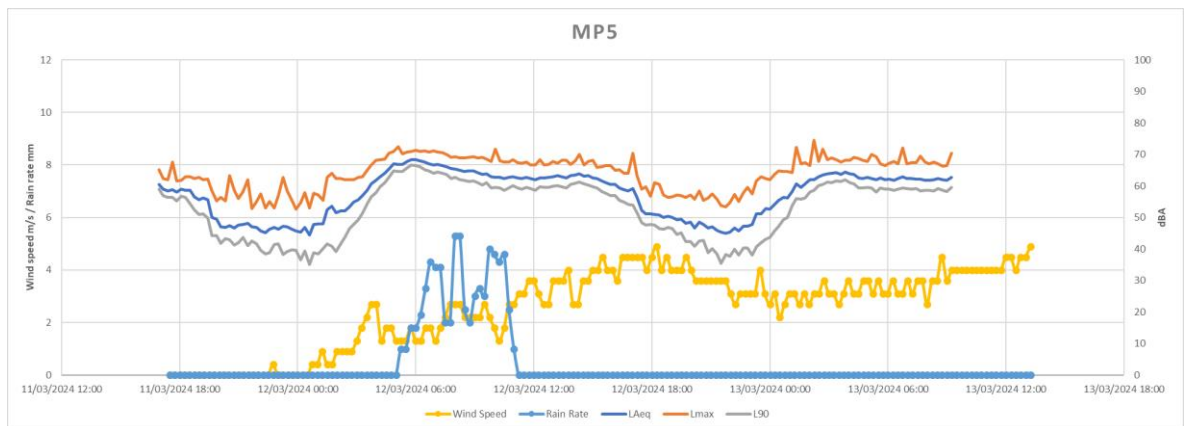


Image 2-15 - MP5 noise levels and weather conditions, 11/03/24-12/03/24

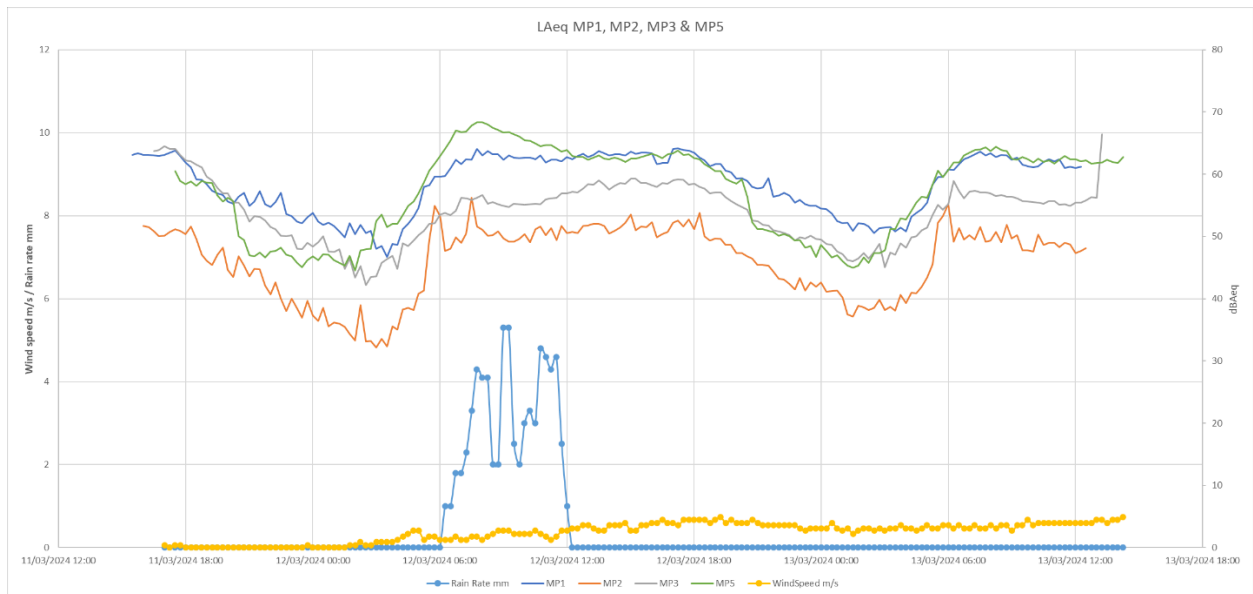


Image 2-16 - MP1-MP5 measured L_{Aeq} levels and weather conditions, 11/03/24-12/03/24

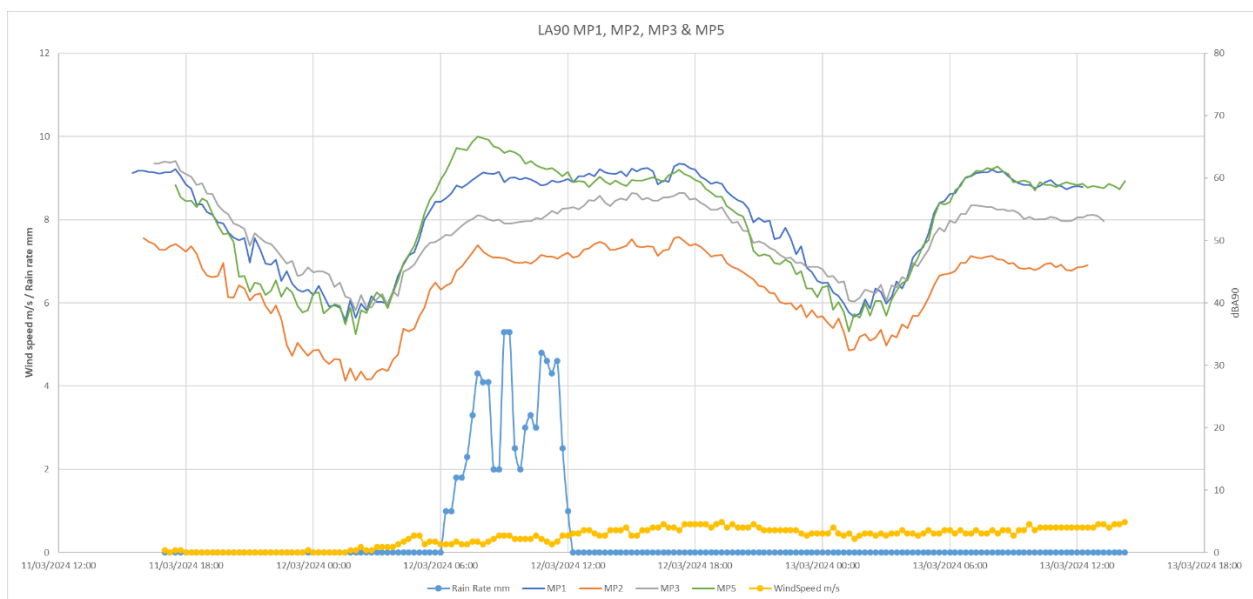


Image 2-17 - MP1-MP5 measured L_{A90} levels and weather conditions, 11/03/24-12/03/24

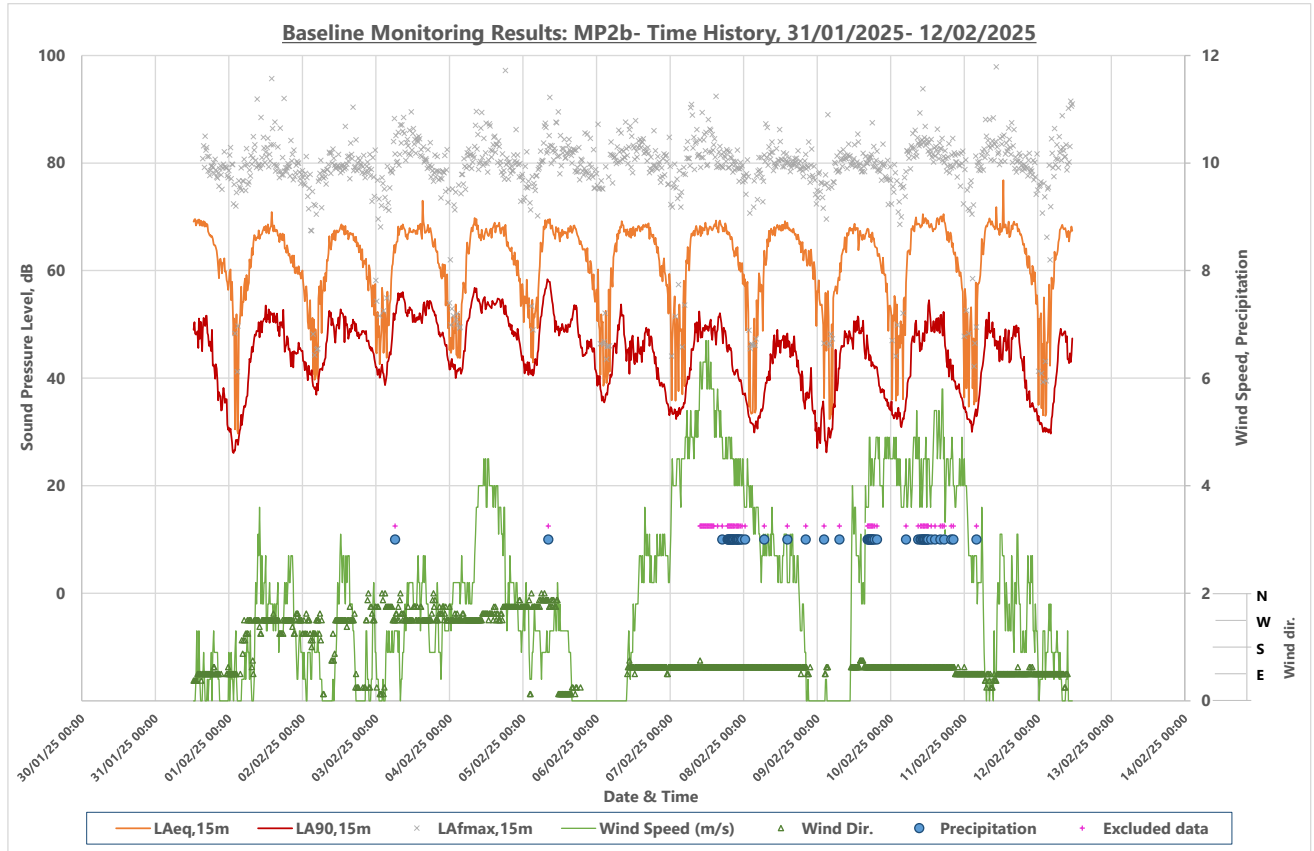


Image 2-18 – MP2b measured L_{A90} levels and weather conditions, 31/01/25 – 11/02/25

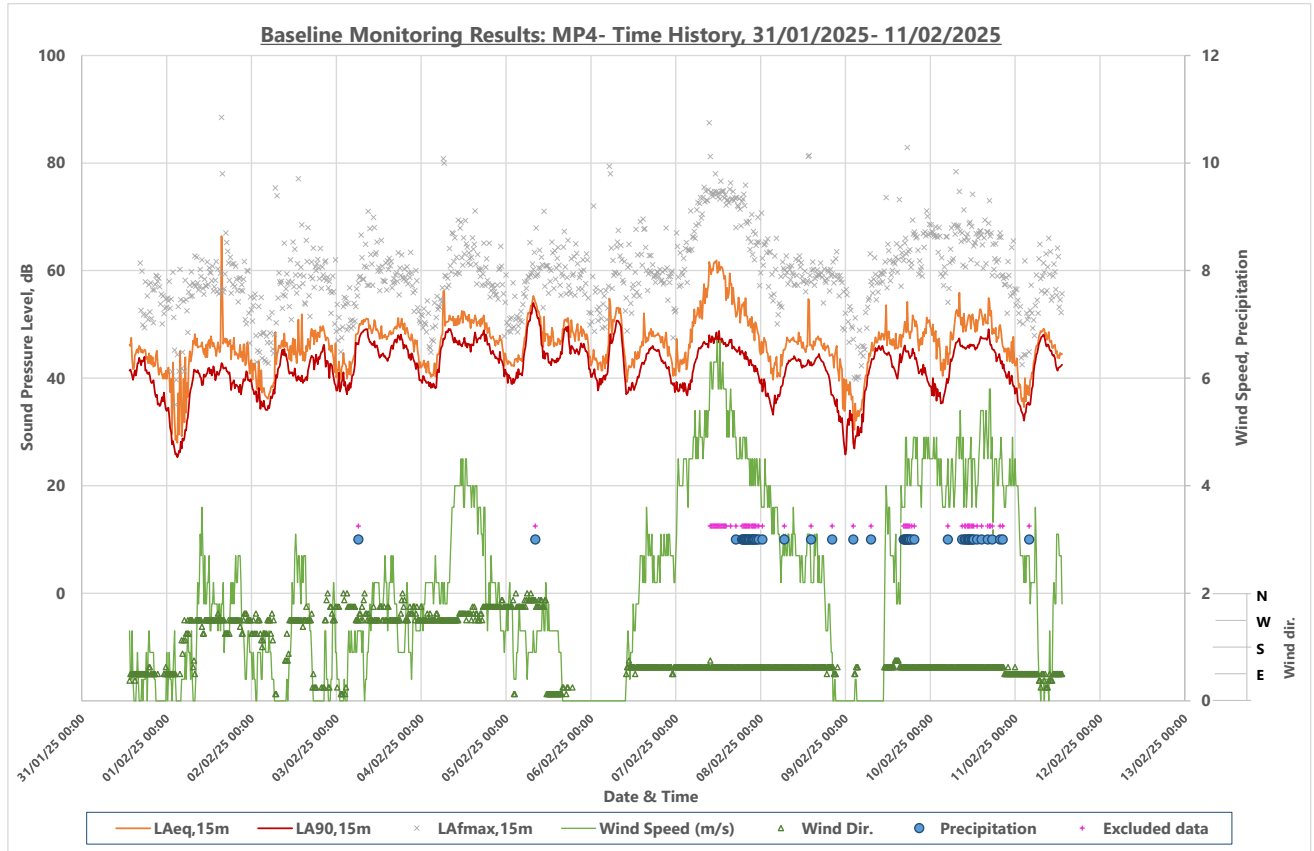


Image 2-19 – MP4 measured L_{A90} levels and weather conditions, 31/01/25 – 12/02/25

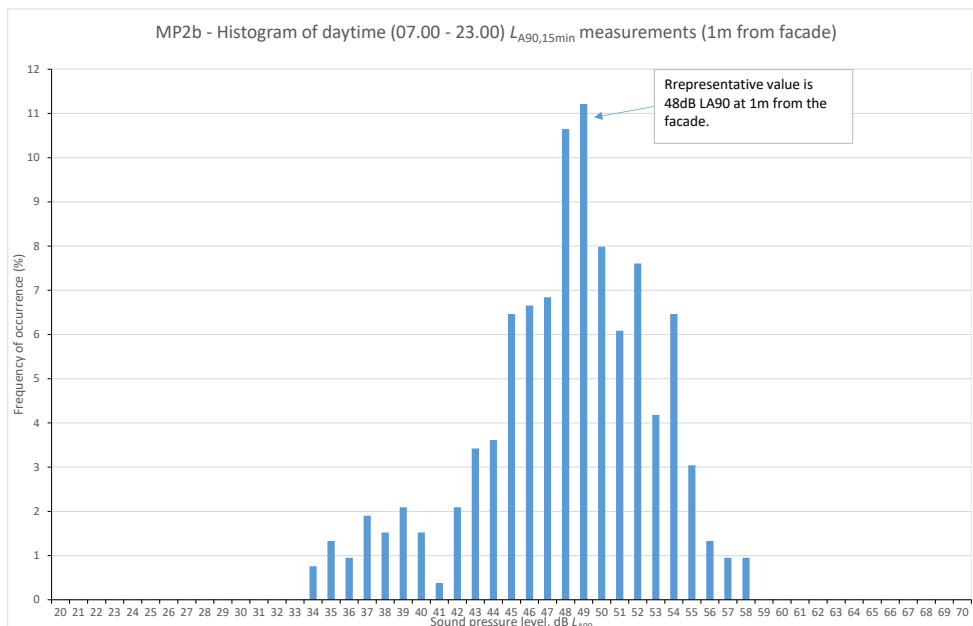


Image 2-20 – Histogram of day-time L_{A90} levels at MP2b, 1m from façade

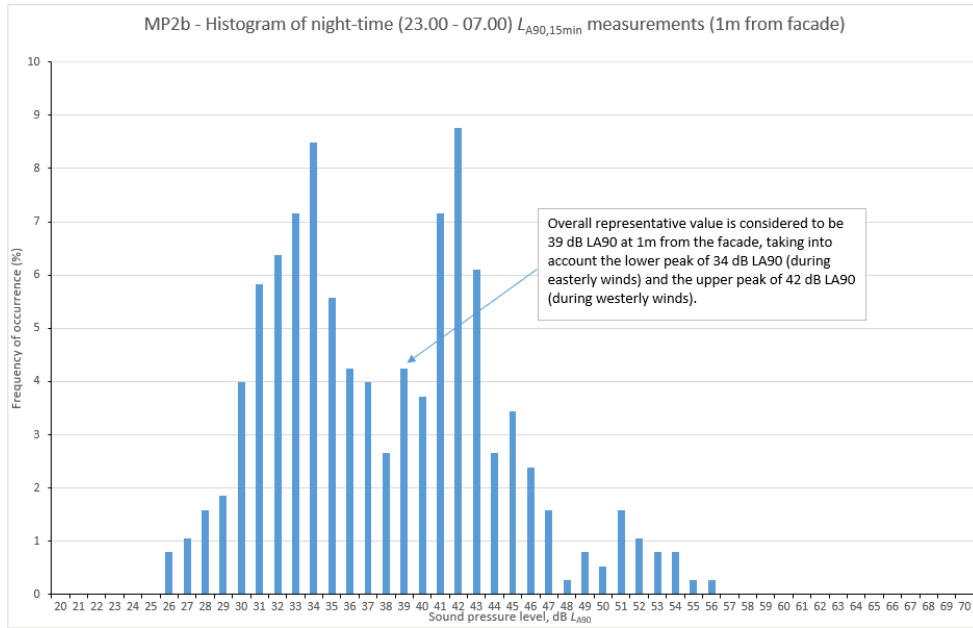


Image 2-21 – Histogram of night-time L_{A90} levels at MP2b, 1m from facade

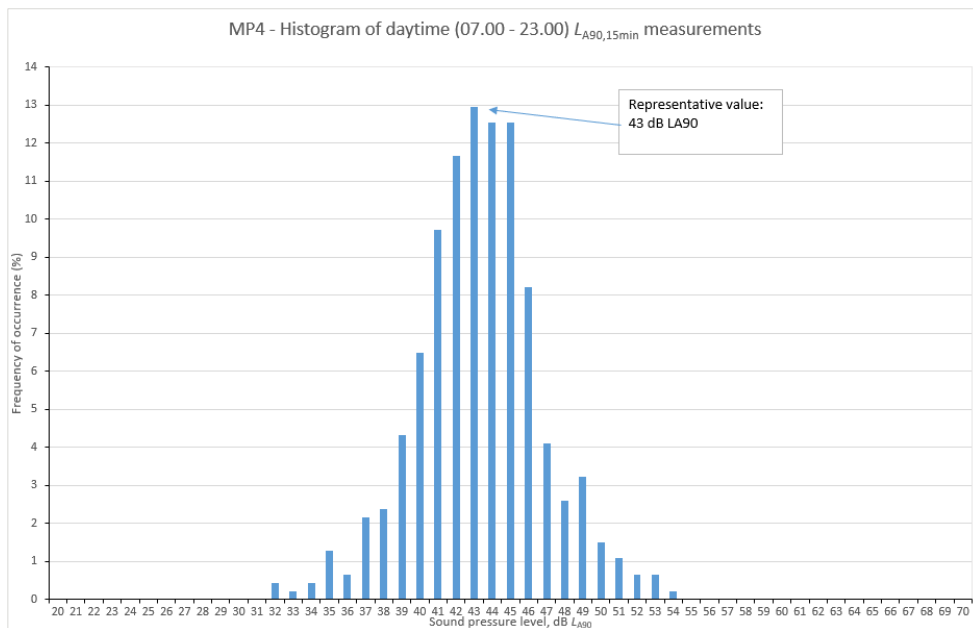


Image 2-22 – Histogram of day-time L_{A90} levels at MP4, free-field

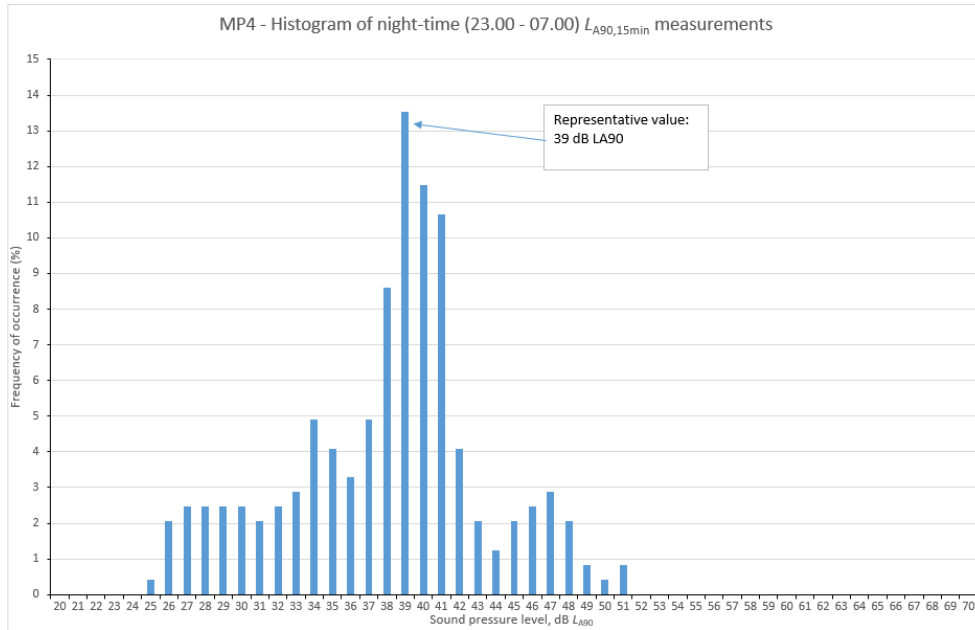


Image 2-23 – Histogram of night-time L_{A90} levels at MP4, free-field

2.7. COMMENTS ON TIME HISTORIES AND HISTOGRAMS FROM JANUARY AND FEBRUARY 2025

- 2.7.1. It was noted that the time history of the measured night-time background sound level at position MP2b (**Image 2-18**) indicated higher levels during the period between 31/01/2025 and 06/02/2025 compared with the period between 06/02/2025 and 12/02/2025. This resulted in two ‘peaks’ in the background sound level histogram (**Image 2-21**). This coincided with a change in general wind direction from the west to the east during these periods. MP2b was therefore in a downwind location from the A421 during the first half of the survey but upwind during the second half and it is considered that this could be the main reason for the differing background sound levels.
- 2.7.2. It is reasonable to select a representative value based on all data obtained and on balance it is considered that a value of 39 dB L_{A90} measured at the façade (equivalent to a free-field value of 37 dB L_{A90}) is appropriate.

3. THIRD PARTY DATA

3.1. INTRODUCTION

- 3.1.1. Third party noise data have been reviewed to supplement the data captured during the 2024 survey and as a consistency check. This section presents a summary of the data reviewed. The data were obtained from publicly accessible online planning portals.

3.2. ALDI NOISE IMPACT ASSESSMENT 2024

- 3.2.1. BWB Consulting Ltd carried out a noise impact assessment for Aldi Stores Ltd to support a Reserved Matters application (ref. 23/02566/MAR) for a Regional Distribution Centre (RDC) at Wixams, Bedford.
- 3.2.2. The noise impact assessment report (doc no. Document Number: XXX-BWB-ZZ-ZZ-RP-YA-0001_NIA_S2_P10 rev. 10 dated 01/02/2024) was obtained from Bedford Borough Council's online planning portal ¹.
- 3.2.3. In the report the results of a noise survey undertaken in June 2023 are presented (p.19 '2023 Update Survey'). Noise measurements were undertaken at 'Measurement Position 1A' (MP1A) over a 47-hour period from 16:30 on 14 June 2023. The BWB measurement position is shown in **Image 3-1** below and in **Image 2-1** which shows the measurement location within the context of the wider survey area.



Image 3-1 - 2023 Aldi RDC baseline noise survey measurement position

¹ Aldi Stores Limited. Bedford RDC, Wixams. Noise Impact Assessment, 2024. Available at: <https://publicaccess.bedford.gov.uk/online-applications/search.do?action=advanced>, [Accessed: 26 March 2024]

3.2.4. The noise survey was described in the report as follows:

3.3. “SURVEY METHODOLOGY

3.13 Noise measurements were undertaken at Measurement Position 1A (MP1A) over a 47-hour period commencing at 16:30 on 14 June 2023, the survey included audio recording. The measurement equipment was established in free-field conditions at 1.5m above local ground level. The noise climate at MP1A was noted to comprise a mixture of road traffic noise from the surrounding road network and service yard operations associated with the B&M Site to the east. Noise from train movements on the railway line to the east was noted to be dominant intermittently

MEASUREMENT EQUIPMENT

3.14 The baseline noise survey was undertaken using the Class 1 specification noise measurement equipment detailed in Table 3-4. The equipment was calibrated using a portable calibrator immediately before and after the measurements with no significant drift in calibration observed. The sound level meter, pre-amplifier and microphone were calibrated to traceable standards within the 24 months prior to the measurements. The portable calibrator was calibrated within the 12 months preceding the date of the survey.”

“3.15 The weather was generally conducive to environmental noise measurement, it being dry with negligible winds during all survey periods (<5 ms-1).”

3.3.1. A summary of the sound pressure levels measured at MP1A is presented in **Table 3-1** below.

Table 3-1 - Summary of measured sound pressure levels at MP1A

Period	Start date and time	Period (T)	dB LAeq,T	dB LA90,T ¹	dB LAFmax ²
Wednesday Day	14 June 2023 16:30	6.5 hours	54	41	-
Wednesday Night	14 June 2023 23:00	8 hours	51	38	74
Thursday Day	15 June 2023 07:00	16 hours	53	40	-
Thursday Night	15 June 2023 23:00	8 hours	50	37	74
Friday Day	16 June 2023 15:45	8.5 hours	53	39	-

¹ arithmetic average LA90,15mins during measurement period

² 90th Percentile LAFmax noise levels during measurement period

3.3.2. Noise measurement position MP1A detailed above is located close to NSR11 (shown in **Figure 9.1: Construction Noise and Vibration Study Area and Sensitive Receptors (Volume 2)**) and is considered more representative of noise levels at this position than the data measured at Position A in 2024. The third party noise levels from MP1A presented above were also lower than those at Position A and so this represents a conservative approach to the assessment.

3.4. DEFRA STRATEGIC NOISE MAPS

- 3.4.1. Environmental noise mapping is undertaken by the Department for Environment Food & Rural Affairs (Defra) to satisfy the requirements of the Environmental Noise Directive (END) (Directive 2002/49/EC) which is transposed into English law by the Environmental Noise (England) Regulations 2006 (as amended).
- 3.4.2. The END requires that, amongst other requirements, Defra adopts noise maps which show people's exposure to environmental noise from major sources of road, rail and aircraft noise.
- 3.4.3. Maps produced for the fourth round of this 5-yearly cycle ('Round 4') in October 2024 are the most up to date and have been utilised to provide some context on the main transportation noise sources, namely road² and rail noise³, currently experienced in the areas surrounding the Proposed Development.
- 3.4.4. Noise maps showing the overlaid daytime (dB L_{Aeq,16h}) and night-time (dB L_{Aeq,8h}) road and rail noise contours from Round 4 are provided in **Figure 9.2: DEFRA Road and Rail Noise Mapping – Day-time ambient noise level (Volume 2)** and **Figure 9.3 DEFRA Road and Rail Noise Mapping - Night-time ambient noise level (Volume 2)** respectively.
- 3.4.5. Note that the road and rail datasets shown in these figures are separate and distinct and do not represent a combined noise level from these sources, i.e. the road noise level data and the rail noise level data have not been logarithmically combined within the figures.

² DEFRA, 2024. Road Noise - All Metrics – England Round 4. Available at: <https://environment.data.gov.uk/dataset/562c9d56-7c2d-4d42-83bb-578d6e97a517> [Accessed: 22 May 2025].

³ DEFRA, 2024. Rail Noise - All Metrics – England Round 4. Available at: <https://environment.data.gov.uk/dataset/3fb3c2d7-292c-4e0a-bd5b-d8e4e1fe2947> [Accessed: 22 May 2025].

4. BASELINE NOISE LEVELS AT RECEPTORS

- 4.1.1. The baseline noise levels presented in the above sections have been associated with the relevant noise-sensitive receptors as shown in **Table 4-1**.

Table 4-1 - NSRs and associated measurement positions

NSR	Measurement position	Justification
NSR01-05	MP5	NSR located close to MP5.
NSR06-07	MP4	NSR located close to MP4.
NSR08	Position A	NSR located close to Pos A.
NSR09	Position A	NSR closer to Position B; however, Position B was exposed to traffic on Manor Rd and noise levels on the opposite side of the receptor are likely to be lower due to screening from the road. Therefore, Position A is considered more representative.
NSR10	MP2b	NSR located close to MP2b.
NSR11	MP1A	Following a review of the data in the 3 rd party report detailed in Section 3, which was measured in a location close to NSR11, it was decided that the 3 rd party data was more representative than the data measured at Position A. The noise levels presented in the 3 rd party report were lower than those at Position A and so this represents a conservative approach to the assessment.
NSR12	MP1	Although MP3 is closest to NSR12 it is set back further from the A421 which is the dominant noise source in this location. MP1 is closer to A421 and deemed more representative.
NSR13	MP1	NSR located close to MP1.

- 4.1.2. Based on the table above, the representative ambient and background baseline noise levels at each NSR have been determined. For comparative purposes, the road and rail ambient noise levels predicted at each NSR by the DEFRA Round 4 noise maps have been determined and combined logarithmically to provide an overall predicted road and rail noise level. These levels are summarised in **Table 4-2** below.

Table 4-2 – Free-field baseline noise levels at noise sensitive receptors

NSR	Measurement position	Ambient noise levels – measured and predicted (DEFRA levels in brackets)		Background noise levels - measured	
		Day 07:00-23:00hrs dB L _{Aeq,T}	Night 23:00-07:00hrs dB L _{Aeq,T}	Day 07:00-23:00hrs L _{A90,15min}	Night 23:00-07:00hrs L _{A90,15min}
NSR01-05	MP5	64 (65)	53 (56)	59	40
NSR06-07	MP4	51 (49)	45 (44)	43	39
NSR08-09	Position A	62 (65)	54 (61)	46	32
NSR10	MP2b	65 (62)	56 (52)	46	37
NSR11	MP1A	53 (59)	51 (56)	40	37
NSR12-13	MP1	64 (60)	53 (54)	59	40
<p>Notes</p> <p>The daytime and night-time ambient noise levels stated above include both the surveyed measurement level (the first value) and the predicted level from the DEFRA Round 4 noise maps (the second value in brackets). The latter includes contributions from road and rail sources only.</p> <p>The background noise level stated is the representative measured level, derived from histograms of the daytime and night-time L_{A90,15min} values.</p>					

- 4.1.3. It can be seen that the measured noise levels are generally within around ± 3 dB of the predicted noise levels from the Defra Round 4 noise maps at an equivalent location.
- 4.1.4. The ambient noise levels adopted at each location within the noise assessment are identified in the subsequent appendices to **Chapter 9: Noise and Vibration (Volume 1)**.



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