

Aldi
Bradley Road
Trowbridge
BA14 0QT

**Plant Noise
Impact Assessment**

On behalf of



Project Reference: 93618 | Revision: 1 | Date: 30th March 2026
Revised 2nd April 2026

Document Information

Project Name : Aldi Bradley Road, Trowbridge
Project Reference : 93618
Report Title : Plant Noise Impact Assessment
Doc Reference : 93618/NIA
Date : 30th March 2026

	Name	Qualifications	Initials	Date
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For and on behalf of Noise Solutions Ltd				

Revision	Date	Description	Prepared	Reviewed/ Approved
1	2 nd April 2026	Updated site plan	SPN	NAC

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1.0 Introduction

- 1.1. Noise Solutions Ltd (NSL) has been commissioned to undertake a noise impact assessment in relation to proposed replacement plant serving an existing Aldi store on Bradley Road, Trowbridge.
- 1.2. An environmental sound survey has been undertaken to establish the prevailing background sound pressure levels at a location representative of the sound levels outside the nearest noise sensitive receptors to the site.
- 1.3. Cumulative plant noise emission levels for the proposed plant have been predicted at the most affected noise sensitive receptors and assessed against the local authority's usual requirements.
- 1.4. To assist with the understanding of this report a glossary of acoustic terms can be found in **Appendix A**. An in-depth glossary of acoustic terms can be viewed online at www.acoustic-glossary.co.uk.

2.0 Details of development proposals

- 2.1. The Aldi store is located to the west of Bradley Road, Trowbridge. The existing plant areas are located at the south-east and south-west façades of the store. It is understood that a roof plant area is proposed as part of the development.
- 2.2. It is understood that the external plant is to comprise of 2no. refrigeration packs, 1no. gas cooler and 4no. air source heat pumps (ASHP). The proposed development plans are presented in **Appendix D**.
- 2.3. The refrigeration plant will be installed in the proposed roof plant area, while the heating plant will be installed in the south-east plant area.
- 2.4. The proposed plant will potentially operate 24 hours a day, although it should be noted that these units operate as required to meet demand and that store demands for cooling are generally reduced at night.
- 2.5. A site plan showing the site and surrounding area and the noise monitoring location used in this assessment is presented in **Appendix B**.

3.0 Nearest noise sensitive receptors

- 3.1. The area around the site is mainly residential. The nearest residential receptors will be the houses on Cavell Court (Receptor R1 and R2), approximately 31m and 17m away from the roof and south-east plant areas respectively.

- 3.2. All other properties in the area are further from the plant area, and many are screened by buildings.
- 3.3. **Appendix B** contains an aerial photograph showing the site and surrounding area.

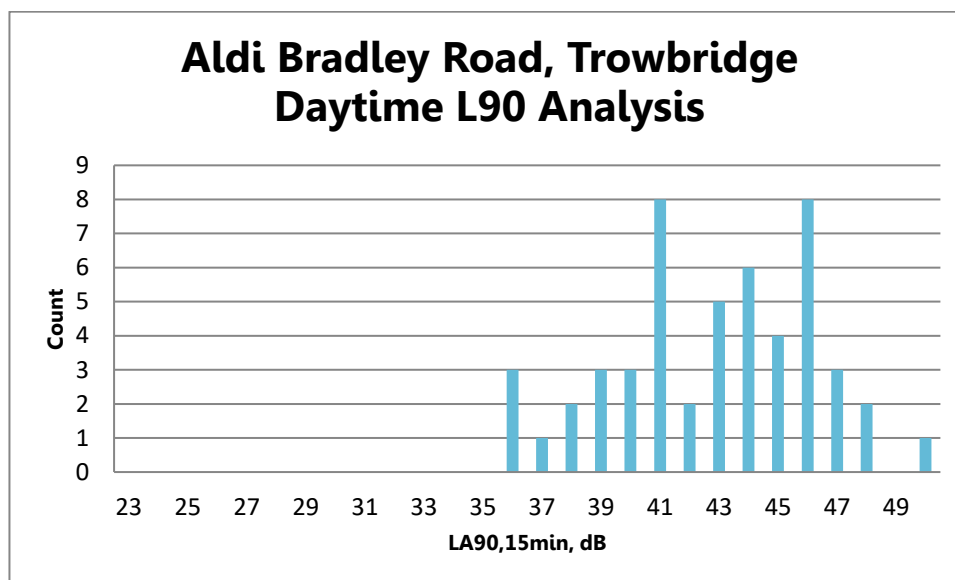
4.0 Existing noise climate

- 4.1. An environmental noise survey was undertaken to establish the typical background sound levels at a location representative of the noise climate outside the façades of the nearest noise sensitive receptor to the proposed plant area during the quietest times at which the plant will operate.
- 4.2. The results of the environmental sound survey are summarised in Table 1 below. The full set of measurement results and details of the survey methodology are presented in **Appendix C**.

Table 1 Summary of survey results

Measurement period	Range of recorded sound pressure levels (dB)			
	L _{Aeq} (15mins)	L _{Amax} (15mins)	L _{A10} (15mins)	L _{A90} (15mins)
Daytime (07.00 – 23.00 hours)	41-64	53-89	44-68	36-50
Night-time (23.00 – 07.00 hours)	29-52	46-70	31-54	23-45

Figure 1 Histogram of daytime L_{A90} background sound pressure levels



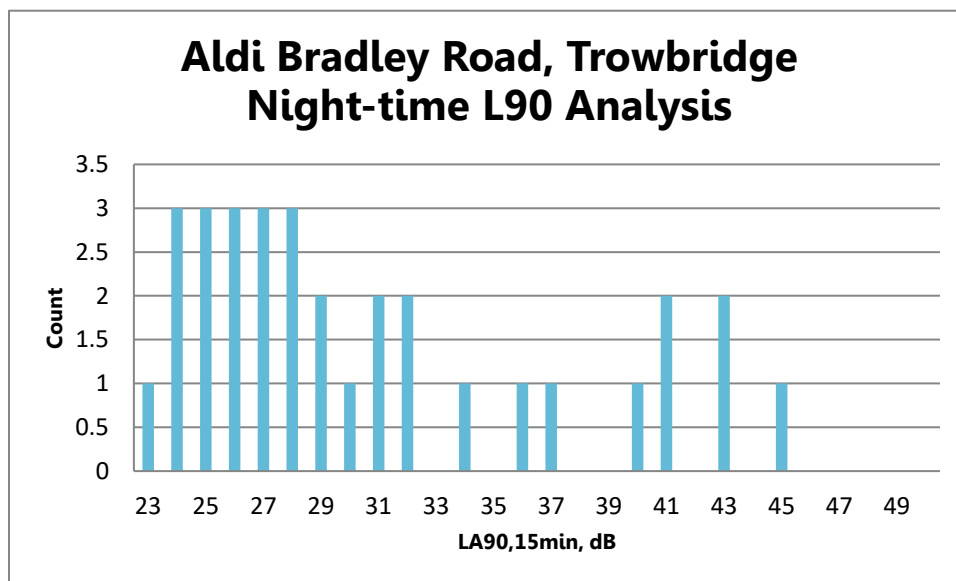
- 4.3. Additional statistical analysis has been undertaken. As shown in Table 2, the mean, median, and modal values have been calculated:

Table 2 Statistical analysis of $L_{A90,15min}$ levels during the daytime period

dB, L_{A90} daytime period	
Mean	43
Mode	41
Median	43

- 4.4. From the histogram analysis, 41dB L_{A90} is considered as representative of the typical background sound level during the daytime period.

Figure 2 Histogram of night-time L_{A90} background sound pressure levels



- 4.5. Additional statistical analysis has been undertaken. As shown in Table 3, the mean, median, and modal values have been calculated:

Table 3 Statistical analysis of $L_{A90,15min}$ levels during the night-time period

dB, L_{A90} night-time period	
Mean	31
Mode	24
Median	29

- 4.6. From the histogram analysis, 25dB L_{A90} is considered as representative of the typical background sound level during the night-time period.

- 4.7. Therefore, the following values are considered as representative of the existing background sound pressure levels at nearby noise sensitive premises:
- 41dB L₉₀ during the daytime period; and
 - 25dB L₉₀ during the night-time period.

5.0 Noise criteria

National Planning Policy Framework

- 5.1. A new edition of the NPPF was published in December 2024 and came into effect immediately, with corrections published in February 2025. The original National Planning Policy Framework (NPPF¹) was published in March 2012, with subsequent revisions made periodically - this document replaced the existing Planning Policy Guidance Note 24 (PPG 24) "Planning and Noise." The December 2024/February 2025 revised edition contains no new directions or guidance with respect to noise. The paragraph references quoted below relate to the December 2024/ February 2025 edition.
- 5.2. Paragraph 187 of the NPPF states that the planning system should contribute to and enhance the natural and local environment by, (amongst others) *"preventing new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability."*
- 5.3. The NPPF goes on to state in Paragraph 198:
- "planning policies and decisions should ...*
- a) Mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development, - and avoid noise giving rise to significant adverse impacts on health and quality of life;*
 - b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason ...*
- 5.4. The NPPF document does not refer to any other documents or British Standards regarding noise other than the Noise Policy Statement for England (NPSE²).

¹ National Planning Policy Framework, DCLG, March 2012

² Noise Policy Statement for England, DEFRA, March 2010

- 5.5. Paragraph 2 of the NPPF states that *“planning law requires that applications for planning permission be determined in accordance with the development plan unless material considerations indicate otherwise.”*
- 5.6. Paragraph 12 of the NPPF states that *“The presumption in favour of sustainable development does not change the statutory status of the development plan as the starting point for decision making. Where a planning application conflicts with an up-to-date development plan (including any neighbourhood plans that form part of the development plan), permission should not usually be granted. Local planning authorities may take decisions that depart from an up-to-date development plan, but only if material considerations in a particular case indicate that the plan should not be followed”.*
- 5.7. Paragraph 124 states that “Planning policies and decisions should promote an effective use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions. Strategic policies should set out a clear strategy for accommodating objectively assessed needs, in a way that makes as much use as possible of previously-developed or ‘brownfield’ land”.

Wiltshire Council

- 5.8. Wiltshire Council’s current typical requirement for the assessment of noise from fixed plant is that the rating noise level from plant is at least 5dB below the background sound level, assessed using the methodology in BS 4142:2014.

BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

- 5.9. BS 4142:2014+A1:2019 is intended to be used to assess the likely effects of sound on people residing in nearby dwellings. The scope of BS 4142:2014+A1:2019 includes “sound from fixed plant installations which comprise mechanical and electrical plant and equipment”.
- 5.10. The procedure contained in BS 4142:2014+A1:2019 is to quantify the “specific sound level”, which is the measured or predicted level of sound from the source in question over a one hour period for the daytime and a 15 minute period for the night-time. Daytime is defined in the standard as 07.00 to 23.00 hours, and night-time as 23.00 to 07.00 hours.
- 5.11. The specific sound level is converted to a rating level by adding penalties on a sliding scale to account for either potentially tonal or impulsive elements. The standard sets out objective methods for determining the presence of tones or impulsive elements, but notes that it is acceptable to subjectively determine these effects.

- 5.12. The penalty for tonal elements is between 0dB and 6dB, and the standard notes: "Subjectively, this can be converted to a penalty of 2 dB for a tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible."
- 5.13. The penalty for impulsive elements is between 0dB and 9dB, and the standard notes: "Subjectively, this can be converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible, and 9 dB where it is highly perceptible."
- 5.14. The assessment outcome results from a comparison of the rating level with the background sound level. The standard states:
- *Typically, the greater this difference, the greater the magnitude of the impact.*
 - *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;*
 - *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context;*
 - *The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.*
- 5.15. The standard does state that "adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact."
- 5.16. The standard goes on to note that: "Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night."
- 5.17. In addition to the margin by which the Rating Level of the specific sound source exceeds the Background Sound Level, the 2014 edition places emphasis upon an appreciation of the context, as follows:
- "An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context."
- 5.18. BS 4142:2014+A1:2019 requires uncertainties in the assessment to be considered, and where the uncertainty is likely to affect the outcome of the assessment, steps should be taken to reduce the uncertainty.

Proposed criteria

- 5.19. In line with the local authority requirements, the rating noise level due to the new plant should be 5dB below the existing representative background sound level at the nearest residential windows. According to the method described in BS 4142:2014+A1:2019 this would result in, at worst, a "low impact".
- 5.20. In view of the low background sound levels at night, and in accordance with the recommendations in BS 4142:2014 in such circumstances, it is proposed that at night the plant noise rating level at the nearest residential window is no higher than 30dBA. At worst this will result in internal noise levels of around 15-20dBA when windows are open, a level lower than that resulting from domestic refrigerators etc. within the dwellings.
- 5.21. The cumulative noise level for the proposed plant at the nearest receptors considered should not therefore exceed the limits shown in the table below:

Table 4 Proposed plant noise emissions level limits at noise sensitive receptors

Receptor	Period	Cumulative plant rating level, dB(A)
R1, R2	Daytime (07.00 – 23.00 hours)	36
	Night-time (23.00 – 07.00 hours)	30

- 5.22. The above limits have not been approved by the local authority at this stage.

6.0 Plant noise impact assessment

- 6.1. Manufacturer's noise data is given in [Appendix E](#). For the proposed plant installation, the cumulative sound level at the most affected noise sensitive receptors has been predicted. The assessment has taken into consideration distance attenuation, screening and directivity corrections.
- 6.2. The assessment is inclusive of the following mitigation measures:
- Absorptive acoustic wall lining fitted to building façade northwest of the plant area, with area of nominally 12m². This is to reduce reflections from a section of the walls at the rear of the plant area.
 - 2.3m high acoustic screen along southwest elevation of plant area, blocking line of sight to the nearest residential receptors. The screen must be solid and imperforate with a minimum density of 5kg/m² and absorbent inner face.

- 6.3. The proposed plant is not anticipated to exhibit any tonal or impulsive characteristics provided it is well maintained. All proposed plant will be inverter driven and, therefore, will gently ramp up and down depending on the demands on the various systems. To provide a robust assessment, a 3dB acoustic feature correction as described in BS 4142:2014+A1:2019 has been included for the residential receptors for the possible presence of "...characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment...".
- 6.4. The table below summarises the results of the assessment outside the nearest noise-sensitive receptors. All other nearby receptors benefit from increased distance/screening to the plant such that resulting noise levels will be lower than at the receptors considered. The full calculations are presented in [Appendix E](#).

Table 5 Assessment of plant rating levels

Receptor	Period	Plant noise level at receptor, dB	Plant noise limit at receptor, dB L_{Aeq}	Excess, dB
R1	Daytime (07.00 – 23.00 hours)	30	36	-6
	Night-time (23.00 – 07.00 hours)	30	30	0
R2	Daytime (07.00 – 23.00 hours)	30	36	-6
	Night-time (23.00 – 07.00 hours)	30	30	0

- 6.5. The above assessment demonstrates that the proposed plant will comply with the proposed criteria.

Context and uncertainties

- 6.6. As BS 4142:2014 advises, the impact must be considered within the context of the site and the surrounding acoustic environment. The following must, therefore, also be taken into consideration when determining the potential impact that may be experienced:
- The assessment is undertaken at the nearest residential windows. The impact on all other nearby windows will be lower due to screening and distance attenuation.

- The noise level predictions are based on the proposed equipment running simultaneously at maximum duty. The plant will not run in this manner at all times (for example, when demands for cooling are lower) and, therefore, this is a robust assessment.

6.7. Where possible uncertainty in this assessment has been minimised by taking the following steps:

- The measurement of the background sound levels was undertaken over a period including the quietest times of the day and night.
- The sound level meter and calibrator used have a traceable laboratory calibration and the meter was field calibrated before and after the measurements.
- Uncertainty in the calculated impact has been reduced by the use of a well-established calculation method.
- Care was taken to ensure that the measurement position was representative of the noise climate outside the nearby residential dwellings and not at a position where higher noise levels are present.

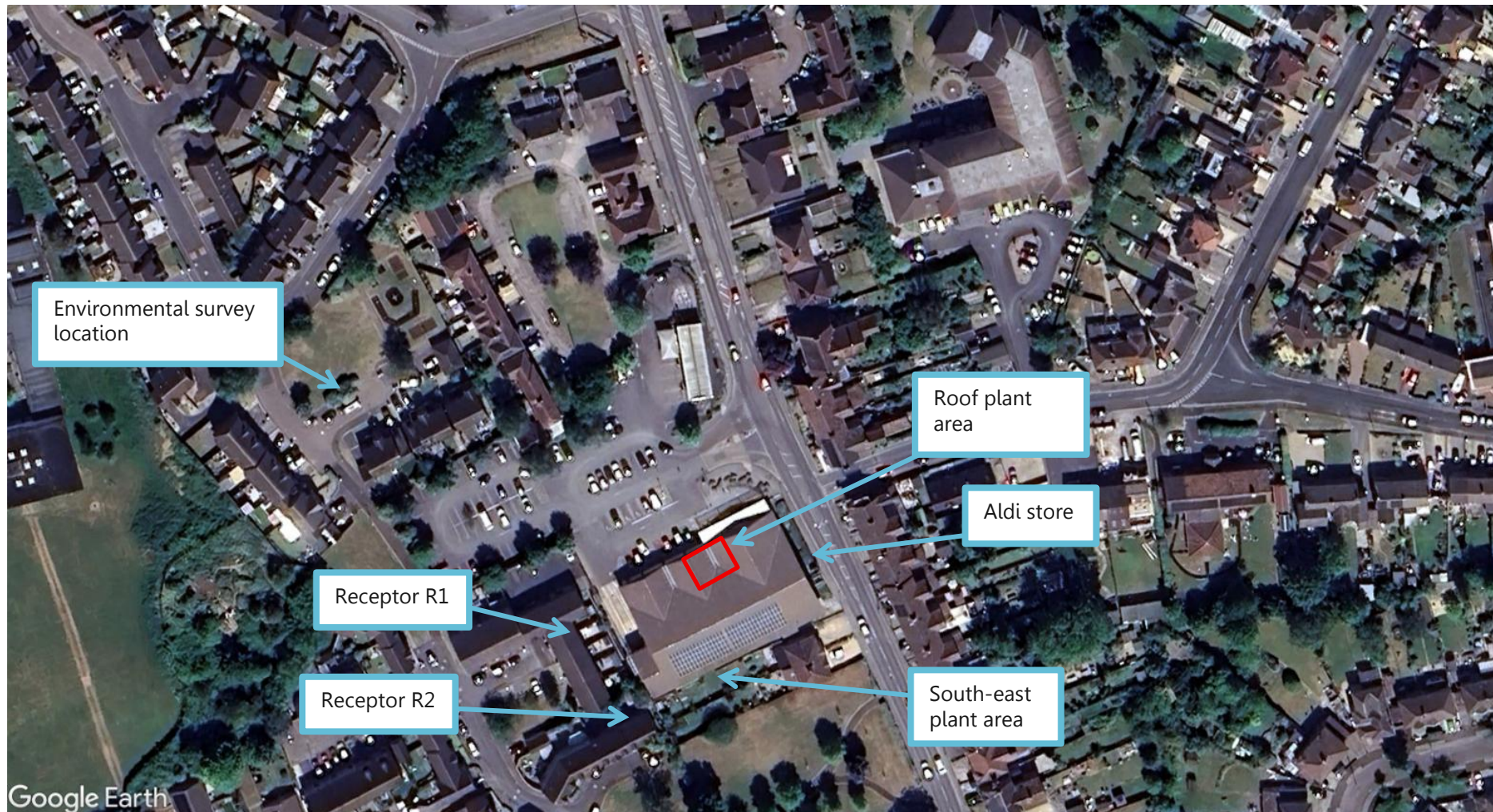
7.0 Summary

- 7.1. Noise Solutions Ltd (NSL) has been commissioned to provide guidance on the maximum plant noise emissions for an existing Aldi store on Bradley Road, Trowbridge.
- 7.2. An environmental noise survey has been undertaken to establish the existing prevailing noise levels at a location representative of the noise climate outside the nearest noise sensitive receptors to the plant area.
- 7.3. Cumulative plant noise emission levels for the proposed plant have been predicted at the most affected noise sensitive receptors and assessed against the local authority's usual requirements.
- 7.4. The assessment has demonstrated that with the proposed mitigation measures, predicted plant noise levels will comply with typical local authority requirements.

Appendix A Acoustic terminology

Parameter	Description
Ambient Noise Level	The totally encompassing sound in a given situation at a given time, usually composed of a sound from many sources both distant and near ($L_{Aeq,T}$).
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s_1 and s_2 is given by $20 \log_{10} (s_1/s_2)$. The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is $20\mu\text{Pa}$. The threshold of normal hearing is in the region of 0 dB and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions.
dB(A), L_{Ax}	Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).
Fast Time Weighting	Setting on sound level meter, denoted by a subscript F, that determines the speed at which the instrument responds to changes in the amplitude of any measured signal. The fast time weighting can lead to higher values than the slow time weighting when rapidly changing signals are measured. The average time constant for the fast response setting is 0.125 (1/8) seconds.
Free-field	Sound pressure level measured outside, far away from reflecting surfaces (except the ground), usually taken to mean at least 3.5 metres
Façade	Sound pressure level measured at a distance of 1 metre in front of a large sound reflecting object such as a building façade.
$L_{Aeq,T}$	A noise level index called the equivalent continuous noise level over the time period T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{max,T}$	A noise level index defined as the maximum noise level recorded during a noise event with a period T. L_{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
$L_{10,T}$	A noise level index. The noise level exceeded for 10% of the time over the period T. L_{10} can be considered to be the "average maximum" noise level. Generally used to describe road traffic noise. $L_{A10,18h}$ is the A-weighted arithmetic average of the 18 hourly $L_{A10,1h}$ values from 06:00-24:00.
$L_{90,T}$	A noise level index. The noise level that is exceeded for 90% of the measurement time interval, T. It gives an indication of the lower levels of fluctuating noise. It is often used to describe the background noise level and can be considered to be the "average minimum" noise level and is a term used to describe the level to which non-specific noise falls during quiet spells, when there is lull in passing traffic for example.

Appendix B Photograph of site showing areas of interest



Photograph 1 Courtesy of Google Earth 2026

Appendix C Environmental sound survey

Details of environmental sound surveys

- C.1 Measurements of the existing environmental sound levels were undertaken between 12.00 hours on Thursday 12th February and 08.45 hours on Friday 13th February 2026.
- C.2 The sound level meter was programmed to record the A-weighted L_{eq} , L_{90} , L_{10} and L_{max} noise indices for consecutive 15-minute sample periods for the duration of the noise survey.

Measurement position

- C.3 The sound level meter was positioned on a lamppost along Yeoman Way. The approximate location of the microphone during the survey is indicated on the plan in [Appendix B](#).
- C.4 In accordance with BS 7445-2:21991 'Description and measurement of environmental noise – Part 2: Guide to the acquisition of data pertinent to land use', the measurements were undertaken under free-field conditions.

Equipment

- C.5 Details of the equipment used during the survey are provided in the table below. The sound level meter was calibrated before and after the survey; no significant change (+/-0.2 dB) in the calibration level was noted.

Description	Model / serial no.	Calibration date	Calibration certificate no.
Class 1 Sound level meter	Svantek 971A / 124660	23/05/2025	1512162-1
Condenser microphone	ACO Pacific 7052E / 81197		
Preamplifier	Svantek SV18A / 130661		
Calibrator	Svantek SV33B / 125546	23/05/2025	1512162-2

Weather conditions

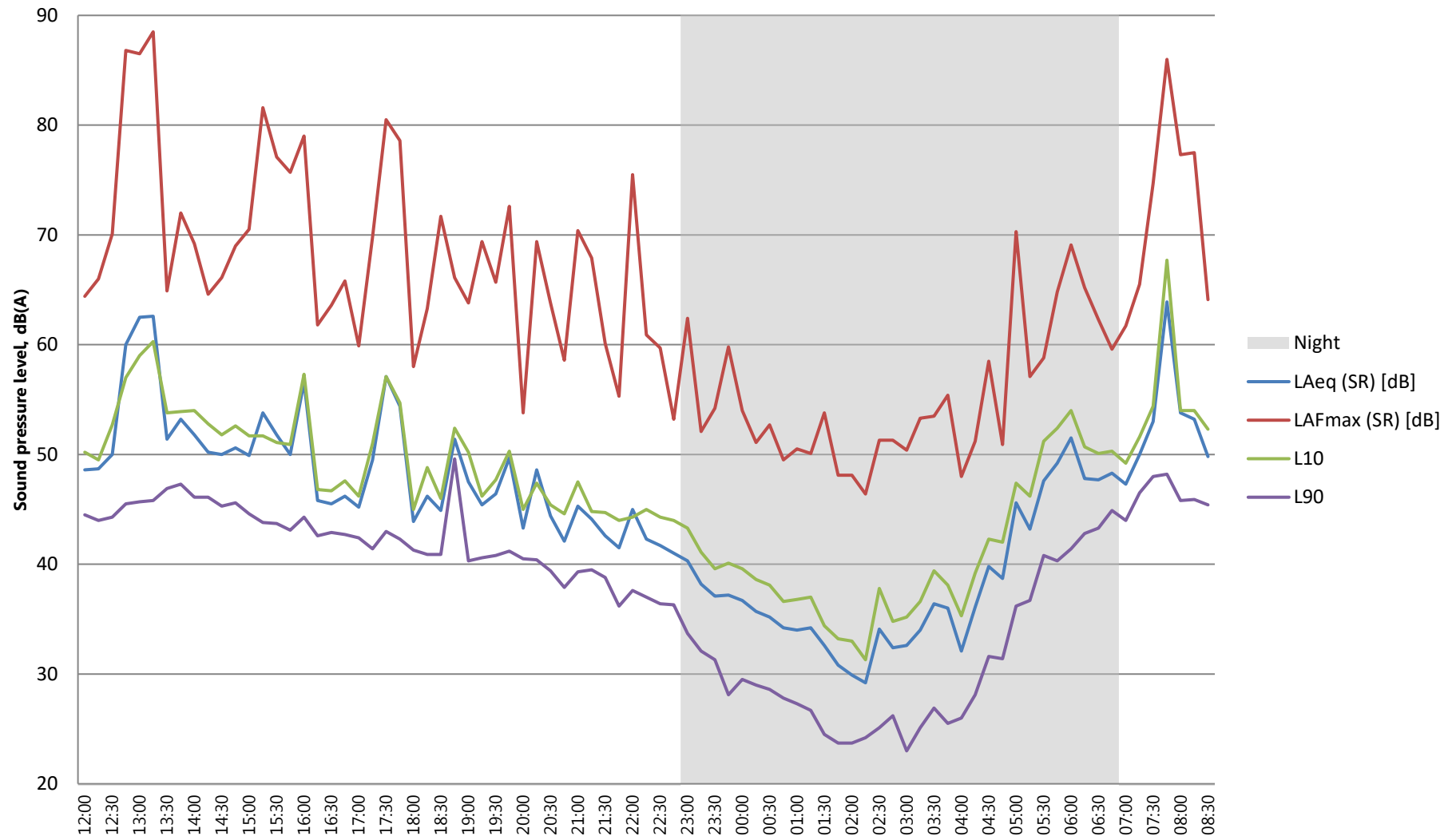
- C.6 Weather conditions were determined both at the start and on completion of the survey. It is considered that the meteorological conditions were appropriate for environmental noise measurements. The table below presents the weather conditions recorded on site at the beginning and end of the surveys.

Weather Conditions				
Measurement Location	Time/Date	Description	Beginning of Survey	End of Survey
As indicated on Appendix B	12.00 12/2/26 - 08.45 13/2/26	Temperature (°C)	9	3
Cloud Cover  Symbol Scale in oktas (eighths) 0 Sky completely clear 1 2 3 4 Sky half cloudy 5 6 7 8 Sky completely cloudy (9) Sky obstructed from view		Precipitation:	No	No
		Cloud cover (oktas – see guide)	6	0
		Presence of fog/snow/ice	No	No
		Presence of damp roads/wet ground	No	No
		Wind Speed (m/s)	4.8	0.2
		Wind Direction	W	SE
		Conditions that may cause temperature inversion (i.e. calm nights with no cloud)	No	No

Results

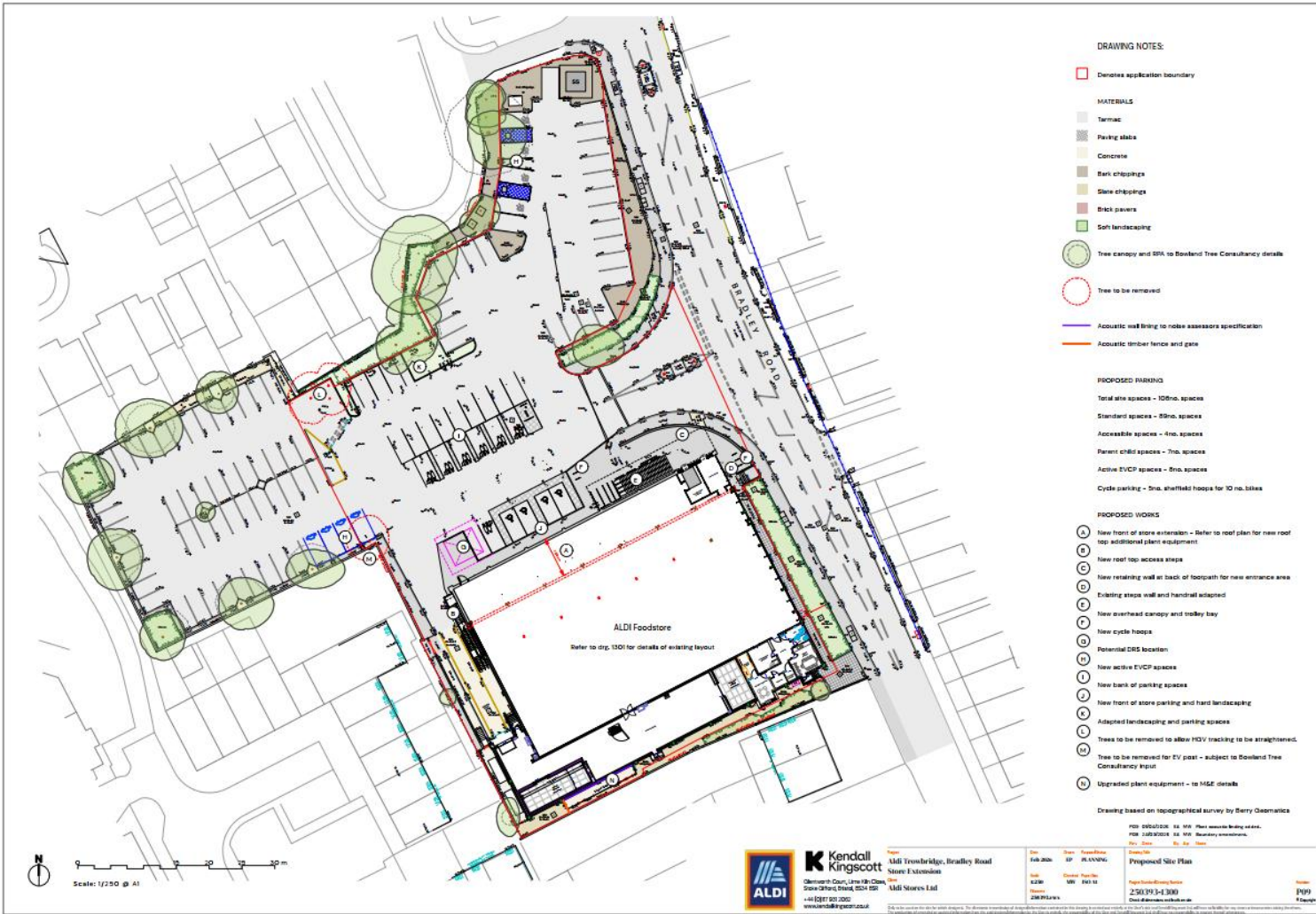
- C.7 The results of the environmental survey are considered to be representative of the background sound pressure levels at the façades of the nearest noise sensitive receptors during the quietest times at which the plant will operate. The noise climate during the survey period was dominated by distant road traffic with a minor influence from local traffic and pedestrians, although the survey period includes sufficient periods with no such activity that a robustly representative background can be determined. The results of the survey are presented in a time history graph overleaf.

Aldi Bradley Road, Trowbridge Thursday 12 - Friday 13 Feb 2026

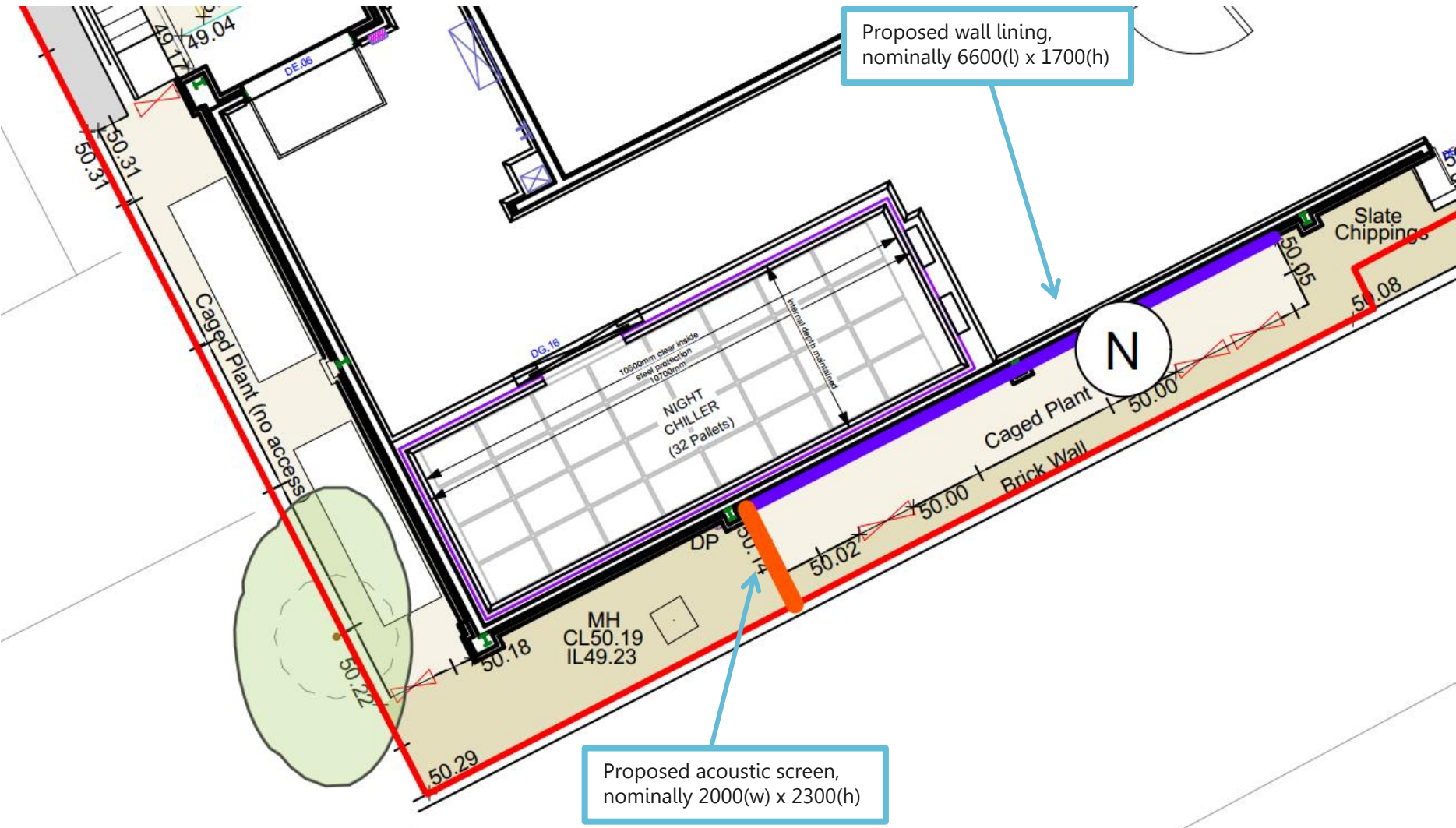


Appendix D Site plan

Proposed site plan



Proposed plant area – ASHP



Appendix E Plant noise calculations

Manufacturer's noise data

Plant	Noise level, dB(A)	Distance (m)
Refrigeration Pack	33	10
Refrigeration Pack	35	10
Gas Cooler	30	10
ASHP1-4 (each)	60	Lw

Receptor R1 – day and night

Plant	Plant noise level at source		Distance to receptor		Directivity	Acoustic Screening	BS4142 Feature	Resultant at receptor dB(A)
	Noise level, dB(A)	Distance (m)	Distance (m)	Correction (dB)	Correction (dB)	Correction (dB)	Correction (dB)	
Refrigeration Pack	33	10	34	-11	0	0	3	25
Refrigeration Pack	35	10	36	-11	0	0	3	27
Gas Cooler	30	10	31	-10	0	0	3	23
ASHP1	60	Lw	25	-36	0	-15	3	12
ASHP2	60	Lw	25	-36	0	-15	3	12
ASHP3	60	Lw	25	-36	0	-15	3	12
ASHP4	60	Lw	17	-33	0	-15	3	15
							Total	30

Receptor R2 – day and night

Plant	Plant noise level at source		Distance to receptor		Directivity*	Acoustic Screening**	BS4142 Feature	Resultant at receptor dB(A)
	Noise level, dB(A)	Distance (m)	Distance (m)	Correction (dB)	Correction (dB)	Correction (dB)	Correction (dB)	
Refrigeration Pack	33	10	48	-14	0	0	3	22
Refrigeration Pack	35	10	47	-13	0	0	3	25
Gas Cooler	30	10	49	-14	0	0	3	19
ASHP1	60	Lw	17	-33	0	-14	3	16
ASHP2	60	Lw	18.5	-33	0	-9	3	21
ASHP3	60	Lw	20	-34	0	-6	3	23
ASHP4	60	Lw	21.5	-35	0	-5	3	23
							Total	30

*Reflections reduced by wall lining, nominally 12m²

**Screening by acoustic fence, nominally 2000(w)x2300(h)