SHARPS REDMORE

ACOUSTIC CONSULTANTS

Report

Aldi, St Mary's Lane, Upminster

Plant Noise Assessment

Prepared by
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Date 30th September 2026

Project No 2623965

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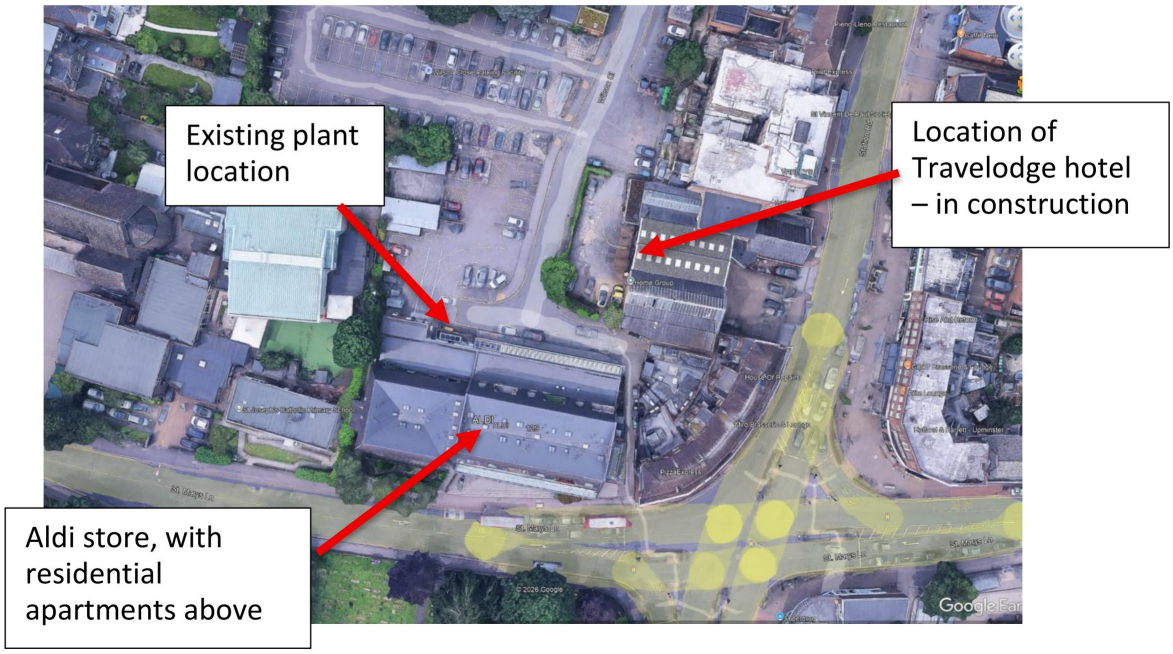
1.0 Introduction

1.1 Sharps Redmore (SR) has been instructed to undertake an environmental noise assessment in relation to the replacement of the existing external refrigeration and air conditioning plant, at the Aldi store, St Mary's Lane, Upminster, see Figure 1 below.

Figure 1: Site Layout



1.2 The existing plant is located at the side of the store, adjacent to the loading bay. The proposal is to replace the plant in the same location as that existing, and to add additional Air Source Heat Pumps (ASHP's) at the rear of the store see plant layout drawing in Appendix D.

1.3 The nearest residential properties are those located above the store itself – see Figure 2 below. In addition, we have also considered the Travelodge Hotel, currently under construction.

Figure 2: Existing plant and nearest residential properties above the store



2.0 Assessment methodology and criteria

2.1 The National Planning Policy Framework (NPPF), August 2026, sets out the Government's planning policies for England and these policies articulate the Government's vision of sustainable development. In respect of noise, Section 17, Policy "*P3: Living conditions and pollution*" on page 79, states:

"1 Development proposals should be appropriate for their location, taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and natural environment, whether these effects are on or off-site; and whether this is as a result of the development itself or the product of preexisting conditions in the vicinity. In assessing potential effects of pollution, consideration should be given to the potential sensitivity of the site, and its intended occupiers and users, as well as that of the environment and population in the surrounding area (including where certain groups could be particularly vulnerable to its effects, such as children and older people).

2. Within this context development proposals should:

a. Provide healthy living conditions for occupiers and users in terms of … avoiding exposure to levels of … noise … which could have an unacceptable adverse effect on health and the quality of life. Where necessary suitable mitigation measures should be incorporated to secure acceptable living conditions.

b. Not give rise to, or contribute to … unacceptable levels of … noise … on or beyond the site. Adverse impacts of this nature should be avoided where possible, or else mitigated to an acceptable degree… .

d. Mitigate and reduce to a minimum potential adverse impacts resulting from noise, not result in levels of noise exposure which would have a significant observed adverse effect, and maintain the character of tranquil areas (those areas that have remained relatively undisturbed by noise from human sources and are prized for their recreational and amenity value for this reason)."

2.2 In summary the primary aim of the NPPF is the avoidance of unacceptable or significant adverse impacts and where adverse impacts occur to mitigate and reduce these to provide acceptable living conditions. This does not mean that adverse effects cannot occur.

2.3 Guidance on the interpretation of the policy aims contained within the NPPF is contained within National Planning Policy Guidance (NPPG). The NPPG introduces the concept of a noise exposure hierarchy based on likely average response. The guidance contained in the NPPG is summarised in the table below:

Table 1: Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
		Lowest Observed Adverse Effect Level	
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

2.4 The NPPF and NPPG reinforces the March 2010 DEFRA publication, "Noise Policy Statement for England" (NPSE), which states three policy aims, as follows:

"Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *avoid significant adverse impacts on health and quality of life;*
- *mitigate and minimise adverse impacts on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life."*

2.5 Whilst the precise wording of the August 2026 NPPF no longer repeats verbatim the policy aims of the NPSE, the intent of the requirements are the same. Together, the first two aims require that no significant adverse impact should occur and that, where a noise level which falls between a level which represents the lowest observable adverse effect and a level which represents a significant observed adverse effect, then according to the explanatory notes in the statement:

"… all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur."

2.6 Taking an overview of national policy aims and guidance it is clear that when considering the impact of noise, the fact noise can be heard and causes impact, is not a reason to refuse an application as consideration should also be given to the significance of the impact and the mitigation measures available.

Assessment methodology

2.7 It is possible to apply objective standards to the assessment of noise and the effect produced by the introduction of a certain noise source may be determined by several methods, as follows:

i) The effect may be determined by reference to guideline noise values. British Standard (BS) 8233:2014 "Guidance on sound insulation and noise reduction for buildings" and World Health Organisation "Guidelines for Community Noise" contain such guidelines.

ii) Alternatively, the impact may be determined by considering the change in noise level that would result from the proposal, in an appropriate noise index for the characteristic of the noise in question. There are various criteria linking change in noise level to effect. This is the method that is suited to, for example, the assessment of noise from road traffic because it is capable of displaying impact to all properties adjacent to a road link irrespective of their distance from the road.

iii) Another method is to compare the resultant noise level against the background noise level (L_{A90}) of the area. This is the method employed by BS 4142:2014+A1:2019 to determine the impact of noise of an industrial or industrial type nature. It is best suited to the assessment of steady or pseudo-steady noise.

Guideline noise values

2.8 There are a number of guidance documents that contain recommended guideline noise values. These are discussed below.

2.9 British Standard 8233:2014 is principally intended to assist in the design of new dwellings; however, the Standard does state that it may be used in the assessment of noise from new sources being brought to existing dwellings.

2.10 The original BS 8233 was based on the advice contained in the draft World Health Organisation document "Guidelines for Community Noise". This document was released in final form in 2000. The World Health Organisation guidance is referenced in the NPSE.

2.11 The WHO advice is the most useful, comprehensive, and pertinent advice in this case, because it is not specific to the circumstances of the assessment. Instead, it provides guidance on acceptable limits in, for example, schools, dwellings and offices.

2.12 The WHO guideline values are appropriate to what are termed "critical health effects". This means that the limits are at the lowest noise level that would result in any psychological, physiological or sociological effect. They are, as defined by NPSE, set at the Lowest Observed Adverse Effect Level (LOAEL), but do not define the level above which effects may be considered significant (SOAEL). Compliance with the LOAEL should, therefore, be seen as a robust aim. WHO LOAEL guideline values are summarised in the following table.

Table 2: WHO guideline values

Document	Level	Guidance
World Health Organisation "Community Noise 2000"	L_{AeqT} = 55 dB	Serious annoyance, daytime and evening. (Continuous noise, outdoor living areas)
	L_{AeqT} = 50 dB	Moderate annoyance, daytime and evening. (Continuous noise, outdoor living areas).
	L_{AeqT} = 35 dB	Moderate annoyance, daytime and evening. (Continuous noise, dwellings, indoors)
	L_{AeqT} = 30 dB	Sleep disturbance, night-time (indoors)
	L_{AMAX} = 60 dB	Sleep disturbance, windows open at night. (Noise peaks outside bedrooms, external level).
	L_{AMAX} = 45 dB	Sleep disturbance at night (Noise peaks inside bedrooms, internal level)

2.13 BS 8233:2014 also offers guidance on target noise levels to be achieved within non-residential buildings, depending on use. Detailed below are the typical design noise levels on non-domestic buildings.

Table 3: Extract from BS 8233:2014 Table 2 Indoor ambient noise levels in spaces when they are unoccupied and privacy is also important

Objective	Typical situations	Design range $L_{Aeq,T}$ dB
Typical noise levels for acoustic privacy in shared spaces	Restaurant	40 – 55
	Open plan office	45 – 50
	Night club, public house	40 – 45
	Ballroom, banqueting hall	35 – 40
	Living room	35 - 40

Table 4: Extract from BS 8233:2014 Table 6 Typical noise levels in non-domestic buildings

Activity	Location	Design range dB $L_{Aeq,T}$
Speech or telephone communications	Department store Cafeteria, canteen, kitchen	50 - 55
	Concourse Corridor, circulation space	45 – 55
Study and work requiring concentration	Library, gallery, museum	40 – 50
	Staff/meeting room, training room	35 – 45
	Executive office	35 - 40
Listening	Place of worship, counselling, meditation, relaxation	30 - 35

2.14 For L_{AeqT} criteria the time base (T) given in the document is 16 hours for daytime limits and 8 hours for night time limits. When assessing impact, this has the tendency to smooth out the hourly variations in noise level. As such, our calculations are carried out to a 1-hour time base, which is more stringent assessment than is given in the guidance but is reflective of the actual duration of the delivery process.

Changes in noise level

2.15 Changes in noise levels of less than 3 dBA are not perceptible under normal conditions and changes of 10 dB are equivalent to a doubling of loudness. This guidance has been accepted by Inspectors, at Inquiry, to encompass changes in noise levels in the index $L_{Aeq,T.}$ in relation to road traffic noise and therefore if of limited use in this case.

2.16 The following table shows the response to changes in noise level (known as the Semantic Scale).

Table 5: Changes in noise level

Change in noise level L_{AeqT} dB	Response	Impact
<3	Imperceptible	None
3 - 5	Perceptible	Slight
6 - 10	Up to a doubling	Significant
11 – 15	More than a doubling	Substantial
> 15	-	Severe

BS 4142:2014+1:2019

2.17 As discussed, this BS described a method for rating and assessing sound of industrial and/or commercial nature according to the following summary process:

i) Carry out a numerical assessment of the noise, taking into the character and areas of uncertainty, by comparing the noise against the existing background noise level. The greater the difference between the two, the greater the impact.

ii) By considering the noise impact against the context in which it is placed. There are many contextual points to consider when considering an assessment of sound impact including the following:

- The absolute level of sound;
- The character and level of the specific sound compared to the existing noise climate;
- The sensitivity of the receptors;
- The time and duration that the specific sound occurs. The conclusions of assessments undertaken using alternative assessment methods, for example WHO guideline noise values or change in noise level;
- The ability to mitigate the specific sound through various methods, for example by screening, the selection of quiet plant equipment, the use of attenuators, through the imposition of noise management plans and good practice, façade design and layout/orientation;
- The form and scale and scale of a development. For example, does not the proposed development involve a new industrial/commercial premises or is the proposal the installation of new plant or an extension to an existing premises?

2.18 BS 4142:2014+A1:2019 assesses the potential impact based on a comparison of the predicted rating noise level against the pre-existing background noise climate, based on the following guidance:

a) Typically, the greater the difference the greater the magnitude of the impact.

b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

d) 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 level having a low impact, depending on the context.

2.19 It is therefore entirely possible that whilst the numerical outcome of a BS 4142 assessment is indicative of adverse or even significant adverse impact, when the proposal is considered in context the significance of the impact is reduced to an acceptable level.

Methodologies Selected

2.20 This assessment has been undertaken based on a comparison against the noise level of the existing plant, and predicted internal noise levels in accordance with BS 8233:2014, and BS 4142:2014+A1:2019

3.0 Establishing criteria

3.1 Consent for Planning Application No. P1052.18 was granted in 2019 for an extension to the plant area, including additional items of plant. The planning application was accompanied by a plant noise assessment ref 1918386 dated 21st February 2019, which assessed the pre-existing plant, and the proposed additional items of plant.

3.2 This plant is currently still operating at the store and comprises the plant to be replaced. The predicted noise from the existing plant to the nearest residential properties are detailed below:

Table 6: Predicted noise from existing plant

Receptor location	Predicted noise level – existing plant
1st floor above store A	34 dB
1st floor above store B	35 dB
1st floor above store C	35 dB
1st floor above store D	33 dB
1st floor above store E	30 dB
1st floor above store F	28 dB
2nd floor above store C	36 dB
2nd floor above store D	35 dB
2nd floor above store E	32 dB
2nd floor above store F	30 dB

3.3 As the proposed plant is a direct replacement to the existing plant serving the store, it is reasonable to consider that not exceeding / maintaining current noise levels would be a reasonable target criteria.

4.0 The fixed plant noise control scheme – conclusions and recommendations

4.1 Based on the environmental noise model (see Section 5.0), the predicted noise levels at the nearest residential property are as follows:

Table 7: Predicted noise levels

Receptor location	Predicted noise level – existing (current) plant	Predicted noise level - proposed plant	Difference
1st floor above store A	34 dB	25 dB	-9
1st floor above store B	35 dB	28 dB	-7
1st floor above store C	35 dB	30 dB	-5
1st floor above store D	33 dB	29 dB	-4
1st floor above store E	30 dB	24 dB	-6
1st floor above store F	28 dB	22 dB	-6
2nd floor above store C	36 dB	30 dB	-6
2nd floor above store D	35 dB	29 dB	-6
2nd floor above store E	32 dB	25 dB	-7
2nd floor above store F	30 dB	22 dB	-8

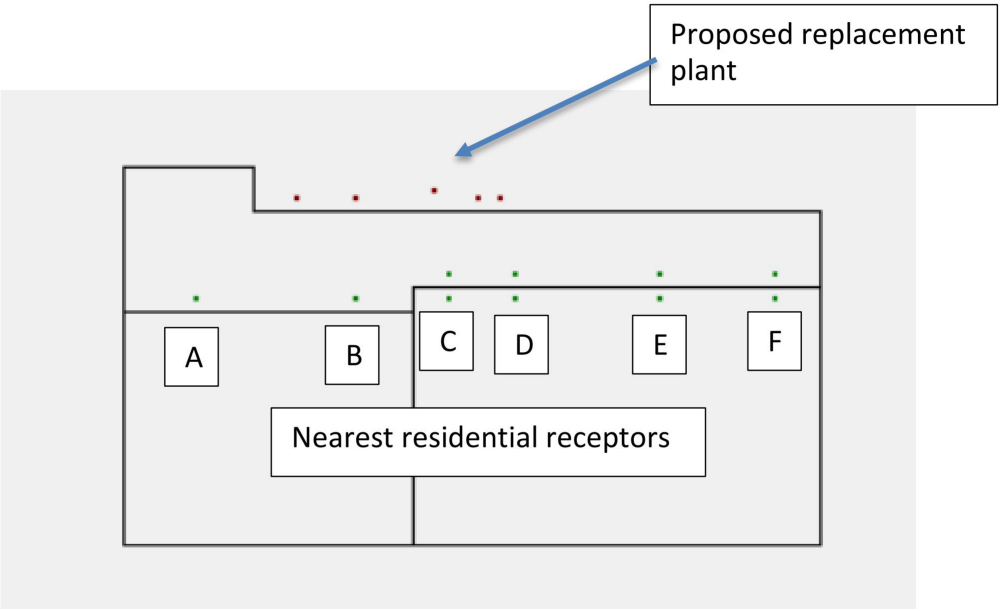
4.2 The predicted noise levels are based on the selection of intrinsically quiet plant, and acoustic screening from the store building itself.

4.3 Based on the assessment undertaken, noise from the proposed replacement plant is in all cases below (quieter) than the existing plant serving the store.

4.4 Assuming a 12 dB reduction through an open window this would result in internal noise levels of between 10 -18 dB, which is significantly below the noise criteria in BS 8233:2014 for night time sleep disturbance.

4.5 Detailed below is a sketch from the noise model:

Figure 4: Sketch from noise model



4.6 It is noted that construction of a Travelodge Hotel is ongoing near the store, see Figure 1. It is understood that planning consent for the hotel development, application ref P1585.22, was granted under appeal, and will have been designed to take into account the existing noise climate, which would include the existing plant serving the store. Based on the proposed plant being quieter than that existing, the proposed replacement plant should have no adverse impact on the noise levels at the hotel.

4.7 As part of the noise assessment undertaken by Hydrock for the hotel, report ref 23603-HYD-ZZ-XX-RP-Y-001-P03, the following typical background noise climate was established:

Figure 5: Extract from Hydrock report (Table 8)

Period	Representative Background Noise Level $L_{A90,T}$
Daytime (07:00 to 23:00 hrs)	49 dB
Night-time (23:00 to 07:00 hrs)	40 dB

4.8 With predicted noise levels from the proposed plant not exceeding 30 dB at the nearest residential properties above the store, and a typical background noise climate of 40 dB L_{A90} at night, noise from the proposed plant is at least 10 dB below the background noise climate.

4.9 In addition, in accordance with the guidelines in the 1997 version of BS 4142, background noise levels below about 30 dB and rating levels below about 35 dB are considered to be very low. It is SR's interpretation that is should not be necessary to design plant to achieve noise levels below those considered to be very low.

5.0 The noise model and prediction methodology

5.1 The noise model employed has been written in-house to provide an accurate prediction method for assessing environmental noise from, in particular, plant and equipment items which can be perceived as being point sources. It has been mainly used for the prediction of noise emanating from superstores.

5.2 There are three input spreadsheets containing:

- noise sources data
- receiver data
- acoustic screening data

These are included in Appendix A.

5.3 The noise sources data include one of the following forms for each item of plant:

- either, octave band sound power levels in the range of 63 to 8000Hz – this being available from manufacturer of many of the supply and extract fans.
- or, octave band sound pressure levels in the range of 63 to 8000Hz – this is available usually for the small, externally mounted split units' condenser fans from the manufacturer's product catalogue when measured at one metre in anechoic conditions, thus allowing straight forward calculation of the equivalent sound power levels.
- or, single value sound pressure levels at a stated distance

5.4 The relative location of the plant using X and Y co-ordinates with an arbitrary datum point and a Z (height) co-ordinate based on supporting steel and screening heights from the main contractor and then the equipment heights based, in this case, on the mechanical services contractor drawings.

5.5 Where known, the area and orientation of the noise outlet is entered together with its location adjacent to either one, two or three reflective surfaces so that the calculation can establish the directivity pattern and outlet reflection losses.

5.6 The receiver data needed are the X, Y and Z co-ordinates so that the relative distance and angle can be calculated between the source and the receiver.

5.7 Finally, several types of acoustic screening may be entered. In this case, this is designated "R" meaning a ring barrier used to indicate the store building itself, and "F" meaning a finite barrier, used to indicate the security fence around the plant.

5.8 The noise model carries out "text book" atmospheric side calculations at each receiver position from each source allowing for the attenuation from such as the calculated distance and screening. The calculations are performed in eight Octave bands from 63 to 8000Hz but can then be summarised as dBA, NR or NC for convenience. In this case, the overall summary levels are in dBA. Calculations for the plant are included in Appendix C. The computer maintains a logarithmic total of the noise +levels in Octave bands.

5.9 At the end of each program “run”, the overall day or night time noise level at each receiver position are calculated and ranked in descending order of noise level. Where this ranking shows that the receiver position’s noise level exceeds the noise criterion, each calculation can be interrogated to determine the plant items needing more detailed inspection to establish the attenuation needed. The process is repeated until either the noise level meets the noise criterion or the program demonstrates that other noise control methods are needed. This may take the form of restricting the offending plant’s period of operation or improving the screening or re-selection to give quieter plant.

5.10 Plant noise predictions are shown in summary form; full calculations of noise from each source to each receptor are available on request.

6.0 Conclusions

6.1 This assessment has been undertaken in accordance with the guidelines in BS 4142:2014+A1:2019.

6.2 The predicted rating noise levels in Table 7 demonstrates that noise from the proposed replacement plant is lower (quieter) than the existing plant it is to replace.

6.3 The predicted noise levels at the residential properties above the store are at least 10 dB below the typical background noise climate (established by Hydrock as pert of the noise assessment for the Travelodge Hotel).

6.4 Predicted internal noise levels within the nearest residential properties above the store are significantly below the noise criteria in BS 8233:2014 for night time sleep disturbance.

6.5 This assessment objectively demonstrates that noise arising from the proposed plant complies with the requirement of Policy P3 of the NPPF to avoid significant adverse impact.

APPENDIX A

NOISE SOURCE DATA

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CLIENT :Aldi	A Sht: 1 of 1
PROJECT :Upminster	PROJECT No:2623965
CONSULTANT:MOT	DATE :30 September 2026

SOUND POWER LEVELS (Lw) & SOUND PRESSURE LEVELS (Lp)
FOR FANS AND OTHER EQUIPMENT

EQUIPMENT NAME/REFERENCE	Lw/Lp	DIST. (m)	OP. TIME DNA	MID FREQUENCY OCTAVE BANDS (HZ) 63	125	250	500	1k	2k	4k	8k
Space DT Pack	Lp	10	A	Maximum 35dBA at 10 metres							
Gas cooler	Lp	10	A	Maximum 30dBA at 10 metres							
Refrigeration Pack	Lp	10	A	Maximum 30dBA at 10 metres							
ASHP	Lp	5	A	Maximum 38dBA at 5 metres							
ASHP	Lp	5	A	Maximum 38dBA at 5 metres							

NOTES:

1. Lw/Lp:
   Lw means sound power level (dB)
   Lp means sound pressure level at stated distance (dB/m)
2. Operational time (OP.TIME D/N/A):
   D (Day) - could operate at any time between 0700 & 2300
   N (Night) - could operate at any time between 2300 & 0700
   A (All) - could operate at any time during the day and night

APPENDIX B

NOISE MODEL INPUT DATA

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Filename : P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1

Date : 30 September 2026

Entries by : MOT

Project number : 2623965

Project title : Upminster

Client's name : Aldi

Map/plot details :

Length :3200
Width :3200
Height :250

SHARPS REDMORE PARTNERSHIP

The White House, London Road, Copdock, Ipswich, IP8 3JH
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Source data - description, coordinates, outlet size, percentage to atmosphere, directivity, sound levels and running period.

Filename : P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1

Source Description	Coordinates X(m)	Y(m)	Z(m)	Outlet details A(mm)	B(mm)	Ang.	%	Q	Run DNA	Lp/ Lw	dBA Y/N	Dist. (m)	Mid frequency octave bands 63	125	250	500	1k	2k	4k	8k
Space DT Pack	212.0	198.0	2.3	0	0	0	100	2	A	P	Y	10.0	35	0	0	0	0	0	0	0
Gas cooler	216.0	198.0	1.7	0	0	0	100	2	A	P	Y	10.0	30	0	0	0	0	0	0	0
Refrigeration Pack	221.5	198.5	2.6	0	0	0	100	2	A	P	Y	10.0	30	0	0	0	0	0	0	0
ASHP	224.5	198.0	1.6	0	0	0	100	2	A	P	Y	5.0	38	0	0	0	0	0	0	0
ASHP	226.0	198.0	1.6	0	0	0	100	2	A	P	Y	5.0	38	0	0	0	0	0	0	0

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Receptor data - description and coordinates

Filename : P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1

Receptor Description	Coordinates X(m)	Y(m)	Z(m)	DNA
1st floor above store A	205.0	191.0	5.5	A
1st floor above store B	216.0	191.0	5.5	A
1st floor above store C	222.5	192.8	6.0	A
1st floor above store D	227.0	192.8	6.0	A
1st floor above store E	237.0	192.8	6.0	A
1st floor above store F	245.0	192.8	6.0	A
2nd floor above store C2	222.5	191.0	9.0	A
2nd floor above store D2	227.0	191.0	9.0	A
2nd floor above store E2	237.0	191.0	9.0	A
2nd floor above store F2	245.0	191.0	9.0	A

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Barrier data - description and coordinates

Filename : P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1

Barrier type	Coordinates Start X(m)	Start Y(m)	Start Z(m)	Finish X(m)	Finish Y(m)	Finish Z(m)
R	200.0	200.0	4.5	209.0	200.0	4.5
R	209.0	200.0	4.5	209.0	197.0	4.5
R	209.0	197.0	4.5	248.0	197.0	4.5
R	248.0	197.0	4.5	248.0	174.0	4.5
R	248.0	174.0	4.5	200.0	174.0	4.5
R	200.0	174.0	4.5	200.0	200.0	4.5
R	200.0	190.0	6.5	220.0	190.0	6.5
R	220.0	190.0	6.5	220.0	174.0	6.5
R	220.0	174.0	6.5	200.0	174.0	6.5
R	200.0	174.0	6.5	200.0	190.0	6.5
R	220.0	191.8	6.8	248.0	191.8	6.8
R	248.0	191.8	6.8	248.0	174.0	6.8
R	248.0	174.0	6.8	220.0	174.0	6.8
R	220.0	174.0	6.8	220.0	191.8	6.8

APPENDIX C

PREDICTED NOISE LEVELS – SUMMARY

SHARPS REDMORE PARTNERSHIP

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Night-time overall receptor listings

Filename: P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1
Date: 30/09/2026

	Mid frequency Octave bands (Hz)								
	63	125	250	500	1k	2k	4k	8k	dBA
1st floor above store C	52	40	31	22	17	14	13	15	30
2nd floor above store C2	51	40	31	23	18	14	13	14	30
1st floor above store D	51	40	30	21	16	13	13	15	29
2nd floor above store D2	50	39	30	22	17	13	11	13	29
1st floor above store B	50	37	28	20	14	12	12	14	28
1st floor above store A	48	35	26	17	11	8	8	11	25
2nd floor above store E2	46	35	26	18	12	9	7	9	25
1st floor above store E	46	35	25	17	11	8	6	9	24
2nd floor above store F2	44	32	24	16	10	6	1	1	22
1st floor above store F	43	32	23	15	9	1	0	1	22

SHARPS REDMORE PARTNERSHIP

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Night-time source sound pressure levels at receptor: 1st floor above store A

Filename: P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1
Date: 30/09/2026

	Mid frequency Octave bands (Hz)								
	63	125	250	500	1k	2k	4k	8k	dBA
Space DT Pack	46	33	24	15	9	8	8	10	24
Refrigeration Pack	38	27	18	9	4	0	0	0	16
Gas cooler	37	24	15	6	1	0	0	2	15
ASHP	36	24	15	6	0	0	0	1	14
ASHP	35	23	14	5	0	0	0	0	13
Total Free field Lp and dBA	48	35	26	17	11	8	8	11	25

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Night-time source sound pressure levels at receptor: 1st floor above store B

Filename: P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1
Date: 30/09/2026

	Mid frequency Octave bands (Hz)								
	63	125	250	500	1k	2k	4k	8k	dBA
Space DT Pack	47	34	25	16	10	9	9	11	25
Refrigeration Pack	42	30	21	13	7	3	3	5	20
Gas cooler	42	29	20	11	6	5	5	7	20
ASHP	41	28	18	10	5	4	4	6	19
ASHP	40	27	18	9	4	3	3	5	18
Total Free field Lp and dBA	50	37	28	20	14	12	12	14	28

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Night-time source sound pressure levels at receptor: 1st floor above store C

Filename: P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1
Date: 30/09/2026

	Mid frequency Octave bands (Hz)								
	63	125	250	500	1k	2k	4k	8k	dBA
Refrigeration Pack	46	35	26	18	12	8	6	8	25
ASHP	46	34	24	15	10	8	8	10	24
Space DT Pack	45	33	24	15	10	6	6	8	23
ASHP	45	32	23	14	8	7	7	9	23
Gas cooler	42	30	20	11	5	4	4	6	20
Total Free field Lp and dBA	52	40	31	22	17	14	13	15	30

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Night-time source sound pressure levels at receptor: 1st floor above store D

Filename: P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1
Date: 30/09/2026

	Mid frequency Octave bands (Hz)								
	63	125	250	500	1k	2k	4k	8k	dBA
ASHP	46	34	24	15	10	8	8	10	24
ASHP	46	34	24	15	9	8	8	10	24
Refrigeration Pack	44	33	24	16	10	6	4	6	23
Space DT Pack	43	32	23	14	8	4	4	6	22
Gas cooler	39	27	17	9	3	1	1	3	17
Total Free field Lp and dBA	51	40	30	21	16	13	13	15	29

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Night-time source sound pressure levels at receptor: 1st floor above store E

Filename: P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1
Date: 30/09/2026

	Mid frequency Octave bands (Hz)								
	63	125	250	500	1k	2k	4k	8k	dBA
ASHP	41	29	19	10	4	3	3	5	19
Space DT Pack	40	29	20	11	6	2	0	2	19
ASHP	40	28	18	10	4	2	2	4	18
Refrigeration Pack	39	28	19	11	6	2	0	0	18
Gas cooler	35	23	14	5	0	0	0	0	13
Total Free field Lp and dBA	46	35	25	17	11	8	6	9	24

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Night-time source sound pressure levels at receptor: 1st floor above store F

Filename: P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1
Date: 30/09/2026

	Mid frequency Octave bands (Hz)								
	63	125	250	500	1k	2k	4k	8k	dBA
Space DT Pack	37	26	17	9	4	0	0	0	16
Refrigeration Pack	36	25	17	9	4	1	0	0	15
ASHP	37	25	16	7	2	0	0	1	15
ASHP	37	25	15	7	1	0	0	0	15
Gas cooler	33	22	12	4	0	0	0	0	11
Total Free field Lp and dBA	43	32	23	15	9	1	0	1	22

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Night-time source sound pressure levels at receptor: 2nd floor above store C2

Filename: P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1
Date: 30/09/2026

	Mid frequency Octave bands (Hz)								
	63	125	250	500	1k	2k	4k	8k	dBA
Refrigeration Pack	45	34	27	20	15	12	9	9	25
Space DT Pack	45	34	25	16	11	7	5	7	24
ASHP	44	33	24	15	9	5	5	7	23
ASHP	43	32	22	14	8	4	4	6	21
Gas cooler	40	28	19	11	5	1	1	3	18
Total Free field Lp and dBA	51	40	31	23	18	14	13	14	30

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Night-time source sound pressure levels at receptor: 2nd floor above store D2

Filename: P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1
Date: 30/09/2026

	Mid frequency Octave bands (Hz)								
	63	125	250	500	1k	2k	4k	8k	dBA
Refrigeration Pack	44	33	25	18	13	10	7	7	24
ASHP	44	33	24	15	9	6	5	7	23
ASHP	44	33	23	15	9	5	5	7	22
Space DT Pack	43	32	23	14	9	5	3	5	22
Gas cooler	39	27	18	9	3	0	0	2	17
Total Free field Lp and dBA	50	39	30	22	17	13	11	13	29

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Night-time source sound pressure levels at receptor: 2nd floor above store E2

Filename: P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1
Date: 30/09/2026

	Mid frequency Octave bands (Hz)								
	63	125	250	500	1k	2k	4k	8k	dBA
Refrigeration Pack	40	29	21	14	9	6	3	3	20
ASHP	40	28	19	10	4	1	1	3	18
ASHP	40	28	18	10	4	1	1	3	18
Space DT Pack	39	28	19	11	6	2	0	1	18
Gas cooler	35	23	14	6	0	0	0	0	13
Total Free field Lp and dBA	46	35	26	18	12	9	7	9	25

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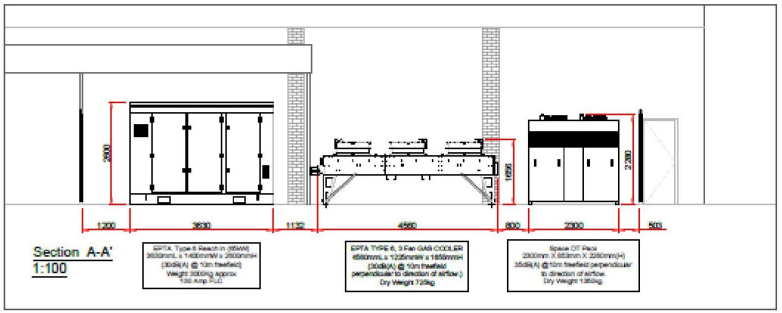
Night-time source sound pressure levels at receptor: 2nd floor above store F2

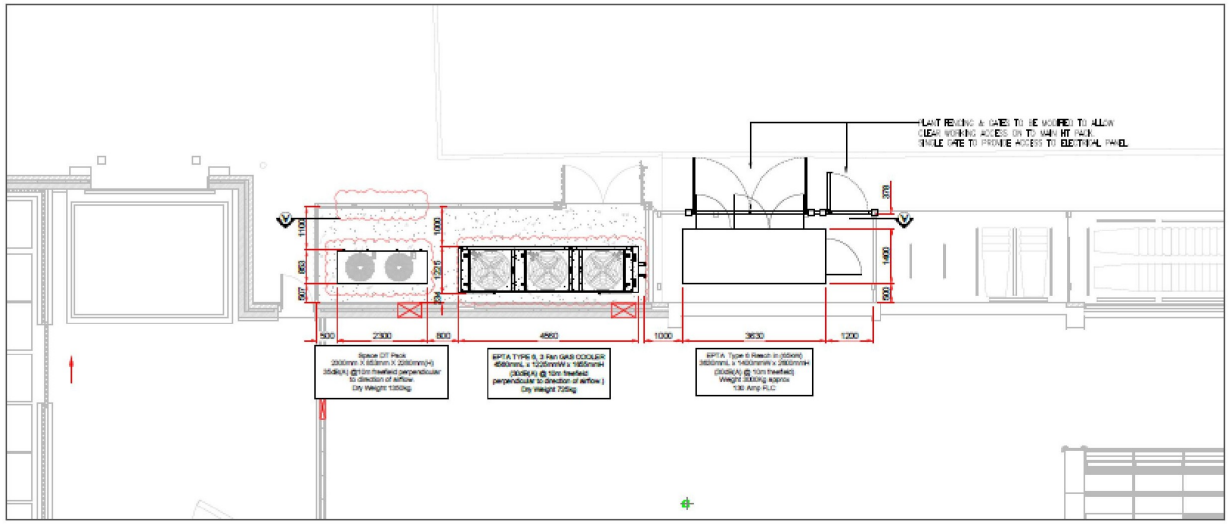
Filename: P:\26 - Projects\2623965 Aldi Upminster plant-KJM-MOT\Calculations\Noysplot\30.09.26_1
Date: 30/09/2026

	Mid frequency Octave bands (Hz)								
	63	125	250	500	1k	2k	4k	8k	dBA
Refrigeration Pack	37	26	19	12	7	4	1	1	17
Space DT Pack	38	27	18	10	4	1	0	0	17
ASHP	37	25	16	7	1	0	0	0	15
ASHP	37	25	16	7	1	0	0	0	15
Gas cooler	33	21	12	3	0	0	0	0	10
Total Free field Lp and dBA	44	32	24	16	10	6	1	1	22

APPENDIX D

PLANT LAYOUT DRAWINGS





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Drawing Revisions

Rev	Date	Description	DRW	CHK
P01	06/03/2026	Issued for information.	AA	ST
P02	16/03/2026	Gas cooler model revised. DT pack added to plant layout in place of condensing units. 1x gate omitted from layout. Pack model revised.	AA	ST

Client
CHE - Aldi Stores Ltd

Project Title
Upminster #42 - CO2 Upgrade

Project Address
St Mary's Lane,
Upminster,
RM14 2QB

Drawing Title
R6 Plant Compound Layout

Drawn	Checked	Scale @ A3	BIM Status	Date
AA	ST	1:100	S2	08/2026

Drawing Status	Revision	K2 Project No.
Information	P02	3956

Project No.	Originator	Volume	Level	Type	Role	Number
79-E0536	K2E	XX	ZZ	D	N	0004

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