ACOUSTIC DESIGN TECHNOLOGY
Noise and Vibration Consultants

ADT 3535

06 June 2023

Aldi Stores Ltd
Sheepcotes
Springfield Business Park
CHELMSFORD
Essex
CM2 5AS

ALDI HOLBEACH

ENVIRONMENTAL NOISE IMPACT ASSESSMENT – FIXED PLANT

ACOUSTIC CONSULTANCY REPORT ADT 3535/ENIA

Revision	Date	Issued By	Checked by	Revision Notes
-	06 June 2023	Chris Middleton	-	first issue

ACOUSTIC DESIGN TECHNOLOGY LIMITED
CROSSLAND GRANGE, GREENWAYS, CHESTERFIELD, DERBYSHIRE S40 3HF
Telephone: 01246 554841 Facsimile: 01246 550141 Website: www.acousticdesign.co.uk E-mail: mail@acousticdesign.co.uk
Company Registered in England No. 4528227
V.A.T. Registration No. 593 7456 92

1.0 SUMMARY

Planning permission H09-1-57-22 has been granted for the demolition of the existing buildings and the construction of a foodstore (Use Class E) together with car parking, landscaping and associated works.

Condition 8 refers to noise from fixed plant, with a requirement that the $L_{Aeq,15\ mins}$ from fixed plant shall not exceed the otherwise prevailing background sound level (L_{A90}) by more than 5 dB on any residential boundary.

Noise from the proposed plant installations has been calculated at the nearest residential boundary and at the 1st floor windows of the houses themselves, with predicted $L_{Aeq,\ 15\ mins}$ below the typical night time background sound level. On that basis compliance with the requirements of condition 8 would be achieved.

2.0 BASIS OF ASSESSMENT

2.1 Site Location

The site is located off Fleet Street (B1515) in Holbeach. The site originally comprised a storage building, a boxing club, a car parking area, and a single storey outhouse building. The surrounding area comprises mainly residential properties with some commercial developments interspersed.

There are houses on all sides of the site, although those most relevant to this assessment are the two storey houses on Rathkenny Close to the west.

2.2 Development Details

Planning permission H09-1-57-22 has been granted for the demolition of the existing buildings and the construction of a foodstore (Use Class E) together with car parking, landscaping and associated works.

2.3 Assessment Criteria

Planning condition 8 refers to noise from fixed plant, and reads as follows:

> *No building hereby permitted shall be first occupied until details of the noise from fixed plant and machinery (which shall not exceed the background noise level by more than 5dB(A) when measured as a 15-minute L(A)eq on any residential boundary not within the applicant's ownership) have been submitted to and approved in writing by the local planning authority.*

2.4 Nearest Noise Sensitive Properties

The dwellings nearest the plant area are the houses on Rathkenny Close, approximately 25 metres west of the proposed plant.

2.5 Baseline Noise Data

An environmental noise survey was undertaken on the site in July 2022, with the results set out in the previously issued report ADT 3392/ENIA (Revision C) dated 19 October 2022, submitted in support of the planning application.

Typical day time and night time background sound levels from that survey are summarised as follows:

Period	Background sound level
Day time 07:00 – 23:00	38 dB $L_{A90,\ 1\ hour}$
Night time 23:00 – 07:00	33 dB $L_{A90,\ 15\ mins}$

3.0 NOISE IMPACT ASSESSMENT

3.1 Basis of Assessment

As the analysis is relatively complex, a computer model of the proposed plant and surrounding area has been constructed using Datakustik Cadna/A 2023 to predict how the sound will radiate from the proposed plant area to the nearest noise sensitive properties.

Within the model all buildings including the supermarket and the 2.4 metre high solid boundary fence have been assumed to be acoustically reflective, with ground absorption taken into account as appropriate, including the residential gardens. The receiver location is the rear boundary of the nearest houses on Rathkenny Close (these are understood to be nos. 24 and 25).

Manufacturers' noise data for the proposed plant is set out on the attached plant noise schedule ADT 3288/PNS. The plant locations are shown in detail on the building services drawings provided by others.

3.2 Predicted Sound Levels

Based on the information set out in Section 3.1 above, the predicted noise levels at the nearest dwellings with all plant operating simultaneously are as follows:

Location	Predicted $L_{eq,15\ mins}$ (dB) at octave band centre frequency (Hz)								$L_{Aeq,15\ mins}$ dB
	63	125	250	500	1k	2k	4k	8k	
Boundary, 2 metres above ground (i.e. above residential garden fence)	42	33	30	25	27	17	10	1	30
At 1st floor windows of houses (4.5 metres)	38	30	28	25	29	21	15	7	31

3.3 Assessment of Compliance

The plant will operate 24 hours a day, and the assessment must therefore be made against the night time typical background sound level of 33 dB $L_{A90,\ 15\ mins}$ as referenced in Section 2.5 above.

A comparison of the predicted $L_{Aeq,\ 15\ mins}$ in Section 3.2 above with this background sound level reveals that the requirement for the plant noise level not to exceed the background level by more than 5 dB would be achieved, both at the boundary and at the 1st floor windows of the houses themselves.

It is therefore reasonable to conclude that compliance with planning condition 8 would be achieved with the proposed plant and the acoustic screening provided by the Aldi boundary fence.

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PLANT NOISE SCHEDULE ADT 3535/PNS

PLANNING ISSUE

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Ref.	Plant Description	Location	Duty m^3/s : Pa	Data L_w / L_p	Octave Band Centre Frequency - Hz								
					63	125	250	500	1k	2k	4k	8k	dB(A)
Chiller condenser	Panasonic OCU-CR400VF8	Plant area	-	L_p @ 10m*	45	37	34	31	28	24	18	13	33
Freezer condenser	Panasonic OCU-CR400VF8A	Plant area	-	L_p @ 10m*	48	40	37	34	31	27	21	16	36
Cooler	Clade Gas Cooler GFHE1.4	Plant area	-	L_p @ 10m*	38	31	29	29	28	25	19	10	32
CO_2 Pack	Clade 75kW-PFE-ULN Reach In Pack	Plant area	-	L_p at 1 metre	45	45	48	41	54	39	37	31	54
ASHP	Valiant Arotherm 12kW ASHP (2 no.)	Plant area		L_w	48	47	54	48	54	53	50	46	60

*Note:- manufacturers octave band noise data for this specific unit is not available. The levels have been derived from published spectra for similar plant, corrected to the published A-weighted noise level