

TECHNICAL NOTE

To: **From: Gilleen Kennedy**
Company: AM2PM INC NW LTD **Pages: 7**
cc **Date: 23/09/2026**
Ref.: PA2651-R01-P01

Project: PA2651

Subject: 18-20 Macket's Lane, Hunt's Cross, Liverpool, L25 0LQ

1.0 INTRODUCTION

Peninsular Acoustics Ltd has been commissioned by (the Client) to conduct an acoustic assessment to evaluate the change in noise impact for the relocation of plant units at the rear of 18-20 Macket's Lane, Hunt's Cross, Liverpool, L25 0LQ (the Site).

The purpose of this technical note is to:

- review the existing sound levels at the nearest nearby noise receptors to the Site;
- identify the changes in sound levels at the receptor resulting from relocation of plant;
- consider any potential change in impact of plant being relocated, on the nearby noise receptors to the Site.

2.0 SITE DESCRIPTION AND PROPOSAL

The mechanical plant sits within the rear yard behind the "Premier" convenience store, which is within a row of terraced shop units within a residential area. To the east of the Site is the rear facade of a row of houses on Abberley Road. Residential flats are above the premier Convenience Store, and above the row of shops. Residential Houses surround the remainder of the site to the North, West and South.

There is currently 5no. wall mounted air conditioning units located within the yard area surrounded by a partial timber boarding.

Figure 1: Photograph of current Ground Floor plant area, behind timber boarding.



Specification of the existing plant is detailed below with sound power levels derived from manufacturer's data:

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Table 1: Air conditioning units on-site

Unit Name	No. of Units	Total Sound Power Level (L _w)
Danfoss OP-MSXM046MLW05G114X7063	2	72 dB(A)
Mitsubishi FDC71VNP	1	67 dB(A)
Mitsubishi FDC140VN	1	73 dB(A)
Marstair MR+30	1	62 dB(A)

The Client has proposed to relocate the 5no. air conditioning units within the yard onto the flat rooftop directly above. For the purposes of this assessment, our suggested position for the proposed new location is shown in the figure below along with the nearest NSR's and current plant area:

Figure 2 Site map



The nearest Noise Sensitive Receptors (NSR's) identified are located as follows:

- NSR1: First floor window of No. 18-20 Macket's Lane (Apartments above the premier convenience store) circa 16m away from proposed rooftop plant location;
- NSR2 First floor window of No. 18-20 Macket's Lane further north, circa 13m away from proposed rooftop plant location.
- NSR3: The rear façade of a row of houses on Abberley Road (East of the Site) circa 25m from proposed rooftop plant location.
- NSR4: The rear façade of a semi-detached house on Abberley Road circa 27m from proposed rooftop plant location.



3.0 MODELLING METHODOLOGY

A 3D acoustic model of the Site and nearby noise sensitive receptors has been created in CadnaA® modelling software using the calculation procedures set out within ISO 9613-2² with ground absorption set to 0 (hard ground); third order reflections included in the modelling and topography modelled as flat.

The model has been created using point sources which have been modelled using the values presented in Table 1. Building evaluations have been used as virtual receivers at the residential façades of each NSR.

3.1 ACOUSTIC LOUVRES

Due to the proximity of the first-floor window of 18-20 Macket's Lane and rear façades of the houses on Abberley Road (NSR2 and NSR3) which overlook the proposed rooftop location, it is recommended that all air conditioning units are enclosed within a continuous perimeter and roof of acoustic louvres to mitigate the adverse impact. This should enclose the units on all sides and above, which will ensure screening in all directions (including upwards).

The minimum acoustic rating of recommended louvres is shown in Table 2:

Table 2 Acoustic Louvre Specifications

Proposal	Example Product	Acoustic Rating R_w dB
Single Bank 305mm Louvre	'IAC Acoustic: Noishield Model LP'	11

4.0 NUMERICAL ASSESSMENT WITH AND WITHOUT ACOUSTIC LOUVRES

The following table shows the specific sound levels at each NSR before and after being located to the proposed rooftop area with the change in background sound level:

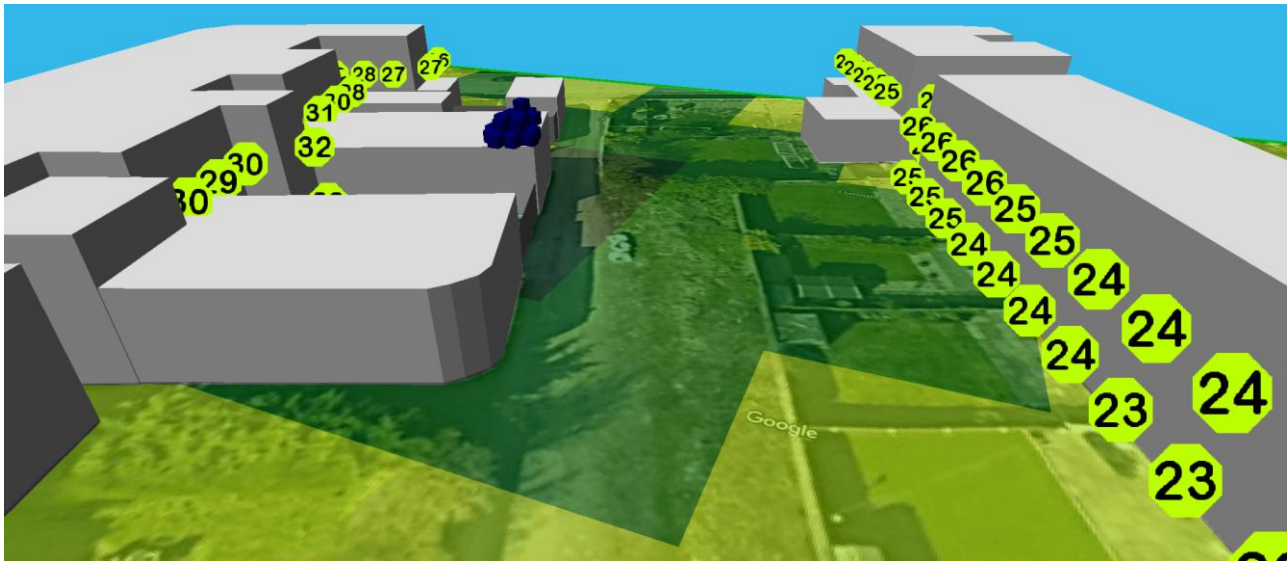
Table 3 Change in NSR sound levels

NSRs	Specific Sound Pressure Level (dBA)				Level below existing with mitigation
	<i>Existing SPL at Receptor with Current Plant Location</i>	<i>Predicted SPL at proposed Location</i>	<i>Predicted SPL at proposed Location with Acoustic Louvres</i>	<i>Change in Level once Plant moved with Acoustic Louvres</i>	
NSR1	51	49	38	-13	Yes
NSR2	40	50	39	-1	Yes
NSR3	43	45	34	-9	Yes
NSR4	33	44	33	0	Yes

As can be seen above, specific sound levels from the proposed rooftop location of air conditioning units are predicted to be significantly below the existing levels at the nearby receptors once installed within the acoustic louvres as described in 3.1. Note at NSR4 the level is predicted to be the same, however this is the lowest specific sound level in comparison to other receptors.



Figure 3: Acoustic Model – point sources shown in blue, values shown $LA_{eq,1hr}$



5.0 CONCLUSIONS

Peninsular Acoustics Ltd has been commissioned by (the Client) to conduct an acoustic assessment to evaluate the change in noise impact for the relocation of air conditioning units at 18-20 Macket's Lane, Hunt's Cross, Liverpool, L25 0LQ (the Site).

Following a 3D acoustic model using the sound power specification of the existing units, as provided by manufacturer's data, results show that the proposed relocation of plant units to the rooftop would lead to a significant decrease or similar sound levels at nearby noise sensitive receptors to the Site, provided they are installed fully enclosed within acoustic louvres as detailed in 3.1.

With the acoustic louvres enclosure installed, we would suggest the relocation of air conditioning units to the rooftop position as shown in Figure 2 would have an immaterial change in behaviour or attitude at nearby residential receptors.

Kind Regards,

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