

Ref: P25-524-M01v1
Project: Land off Kenyon Lane, Manchester
Date: 20 January 2026
To: Patrick Beesley – John Southworth
From: David Thurstan BSc MIOA – Principal Consultant

Subject: Acoustic Verification Assessment

1. This memo sets out the details and findings of recent acoustic verification testing carried out for the Kenyon Lane development in Manchester.

Planning Condition

2. The following conditions relate to a scheme of noise mitigation and control of noise from domestic air source heat pumps (ASHP) for the development.

“21) The development hereby approved shall only be implemented in accordance with the details contained within the Noise Assessment prepared ADC Acoustics (Ref: ARR/C/3881.02 Rev A), received by the City Council as Local Planning Authority on 27 January 2025, agreed as part of discharge of condition application referenced CDN/25/0072. Upon completion of the development a verification report will be required to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic report. The report shall also undertake post completion testing to confirm that the noise criteria has been met. Any instances of nonconformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the agreed noise criteria.

27a) The air source heat pumps hereby approved shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location.

27 b) Prior to first operation of the air source heat pumps hereby approved, a verification report shall be submitted to and approved in writing by the City Council as Local Planning Authority to validate that the equipment conforms to the required noise levels. A report shall be submitted to demonstrate post completion testing to confirm that the noise criteria has been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the agreed noise criteria”

Noise Criteria

3. The ‘Manchester City Council Planning & Noise Technical Guidance 2022’ document provides guidance for assessing the potential impact on residential developments and recommends the following noise limits or acoustic design criteria:
 - Bedrooms (night-time - 23.00 - 07.00) 30 dB $L_{Aeq,T}$ (individual noise events should not normally exceed 45 dB $L_{Amax,F}$ by more than 10 times)
 - Living Rooms (daytime - 07.00 - 23.00) 35 dB $L_{Aeq,T}$

4. These acoustic criteria correspond to guidance set out in British Standard 8233: 2014, 'Guidance on sound insulation and noise reduction for buildings' and have been used for the assessment of the verification noise measurements.
5. We understand that the ADC Acoustics report to which the condition refers sets out the lowest measured 15 minute period of 43 dB $L_{A90,15mins}$ for the daytime (07:00 – 23:00) and 36 dB $L_{A90,15mins}$ at night (23:00 – 07:00) on the development land. It should be noted that these are the lowest measured and the 'typical' background noise levels may in fact be higher.
6. Therefore, based on requirements of condition 27a (i.e. ASHP noise level to be 5 dB below the background sound level) the adopted noise limits are 38 dB $L_{Aeq,T}$ for the daytime and 31 dB $L_{Aeq,T}$ at night outside the nearest dwelling i.e. the neighbouring plot on the development.

Noise Survey

7. An automatic data-logging sound analyser was installed in the Bedroom 1 of Plot 4 closest to the railway line to measure noise levels in consecutive 5-minute periods from approximately 14:00 hours on Monday 12 to 11:00 hours on Tuesday 13 January 2026. Further attended brief noise measurements were carried out in the Living Room of Plot 4 and also Bedroom 1 of Plot 6 during train pass-bys on the railway line.
8. The noise measurements were carried out with an NTi XL2 'Class 1' Sound Level Meter (serial no. A2A-20361-E0) and a Bruel & Kjaer 2250 Class 1 Sound Level Meter (serial no. 3011706). Sound level meters were located at the centre of the room and at a microphone height of approximately 1.4m above floor level. Calibration checks were carried out both before and after the measurement period with no variance in levels observed. Audio was also recorded during the monitoring period to help identify noise sources contributing to the measured noise levels.
9. The rooms were empty and unfurnished with no carpets. It is therefore to be expected that internal noise levels will be further reduced once the rooms are occupied and furnished, due to the reduction in reverberation that finishes and furnishings will introduce.
10. Weather conditions during the measurements were dry, cool (7 to 9°C), partially cloudy, with an occasional southerly breeze (<4m/s). The weather conditions during the noise survey were suitable for the purposes of determining the noise ingress.
11. A summary of the noise levels measured over the daytime and night-time periods is shown in Table 1, with full results enclosed in the appending chart.
12. The development is an active construction site. Therefore, only the measured noise levels outside of the site construction hours have been considered in this assessment (i.e. 17:00 to 07:00 hours).

Table 1: Summary of Measured Noise Levels (dB)

Location	Night-time		Daytime
	L_{AFmax}	$L_{Aeq,8hr}$	$L_{Aeq,16hr}^*$
Plot 6 – Bedroom (first floor)	21 – 52	21	23

* 16 hour is based on measurements between 17:00 to 23:00 hours following the end of ongoing site works

13. These are very low levels of noise during the daytime and at night. From review of the audio the noise climate was generally distant rail and road traffic, occasional overhead aircraft and other extraneous intermittent sources such as emergency services sirens. There were also a few internally generated peaks of noise noted, likely due to thermal expansion of the building fabric.

14. The brief noise measurements undertaken in the Living Room / Kitchen of Plot 4 and Bedroom 1 of Plot 5 corresponded with the automated noise levels carried out in Bedroom 1 of Plot 4.
15. The noise survey covered a daytime/evening period including a rush hour period. Nevertheless, the daytime noise levels were well below the internal daytime noise criterion.
16. The 10th highest maximum at night was 36 dB L_{AFmax} , which is within the night-time peak noise criteria.

Measurement of Equipment Noise Emission Levels

17. During the site visit on Monday 12 January 2026 noise emissions from the ASHP equipment were carried out.
18. The noise measurements were carried out using a Bruel & Kjaer 2250 'Class 1' sound level meter (s/n: 3011706). Calibration checks were carried out both before and after the measurement periods with no variance in levels observed. The noise measurements were taken in 'free-field' conditions.
19. One Vaillant aroTHERM plus 3.5kW has been installed on site so far at plot 5. During the noise survey it is understood the unit was operating at its typical capacity and that all other plots will use the same model.
20. The equipment operates at a very low, steady noise level, therefore the noise measurements were taken as multiple short-term periods in terms of $L_{eq,T}$ at 500mm from the equipment. The resulting noise levels which have been corrected for residual noise and standardised to 1 metre are presented in Table 2 below:

Table 2: Measured noise emission levels from equipment, at 1m

Description	Octave band centre frequency (Hz)							A
	63	125	250	500	1k	2k	4k	
ASHP operating	55	44	33	32	29	33	22	38

Resulting Noise Levels at Nearby Dwellings

21. The measured source noise levels have been used to calculate the corresponding noise level outside the nearest neighbouring window (i.e. 3 metres from the unit).
22. The noise produced by the equipment is steady in nature with no tonality or impulsivity associated with its operation. Also, because each unit will operate on demand, units switching on/off slowly at a low level such that there will be no distinctive or abrupt on/off change in noise. On this basis, no acoustic feature corrections have been applied. The assessment of noise from the domestic ASHP is shown in Table 3 along with the adopted noise limit.

Table 3: Assessment of domestic ASHP noise at the nearest dwelling (dB)

Description	Daytime
Calculated specific sound level outside dwelling	29
Acoustic feature correction	0
Rating level of sound at dwelling	29
Adopted noise limit	31
Difference	-2

23. The results in Table 3 show that the rating noise levels at the nearest dwellings are within the adopted noise limit during the night-time period. Furthermore, the rating level will be well below the daytime noise limit.

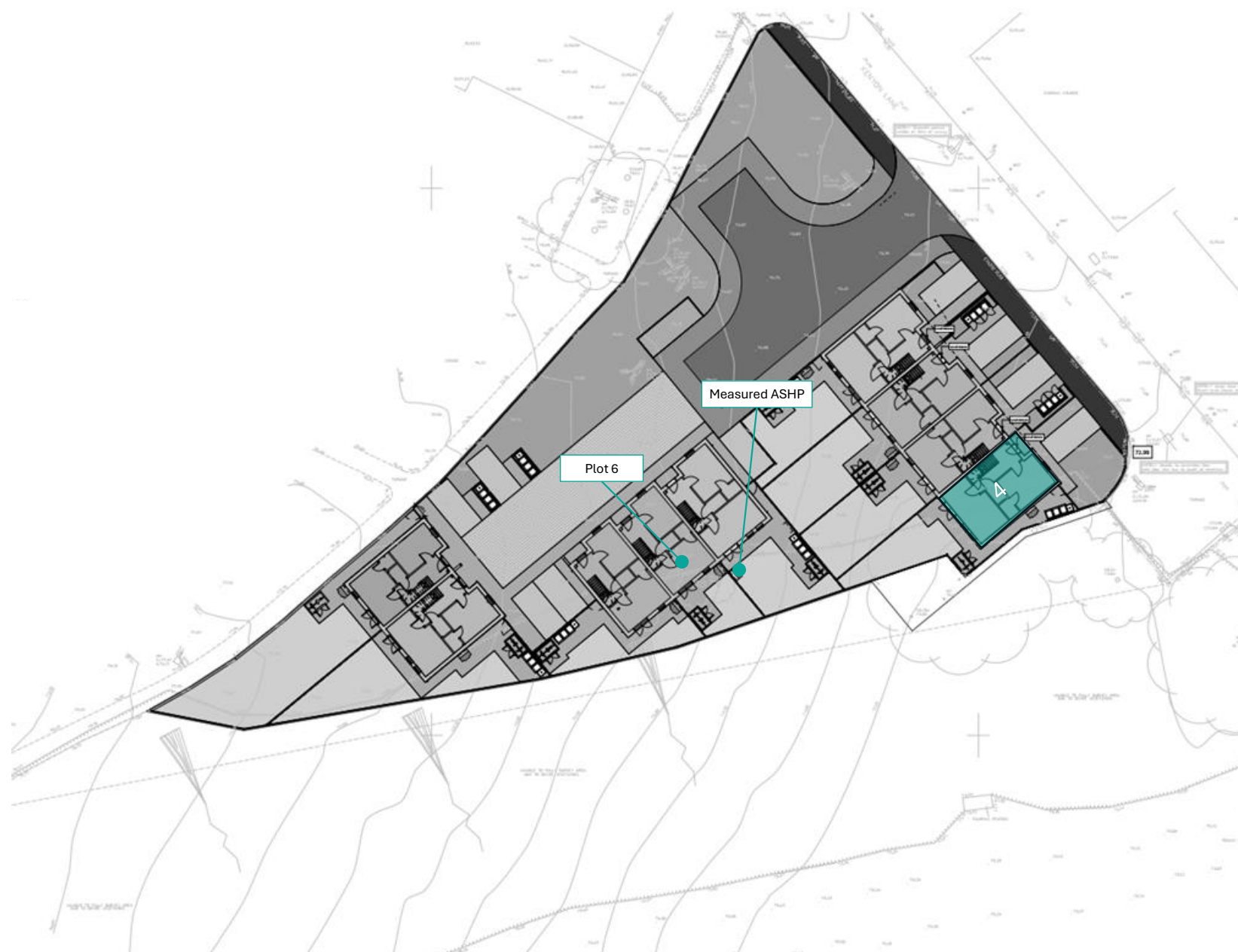
Conclusion

24. The results of the noise measurements demonstrate that the installed glazing and ventilation scheme meets the noise criteria required by Condition 21 of the Planning Approval.
25. The assessment of the ASHP equipment meets the noise criteria required by Condition 27 of the Planning Approval.
26. We therefore conclude that the requirements of the planning conditions have been met and no further works are required.

Do not scale from this figure

Key:

 - Plot Position



Project: P25-524

Ref: **Figure 1**

Title: Site location & plot position

Plot 4 - Bedroom

