

MCS 020 PART A – TECHNICAL ASSESSMENT**PLOT 4 – COTTON HILL, ROCHDALE****PIC Homes**

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Introduction

Murray Acoustics Ltd has been commissioned by PIC Homes to undertake an MCS 020 a) air source heat pump noise assessment in support of planning application PL/2026/0246, relating to the retrospective regularisation of ASHP installations at Cotton Hill, Rochdale (formerly Dobfield Road, OL16 3AW). The original planning permission was granted under reference 20/01093/FUL.

The application has attracted formal representations from occupiers of Plots 3 and 4, a number of which raise concerns regarding noise from the ASHP installations and specifically request an acoustic assessment to MCS 020 standards including cumulative assessment of multiple units operating simultaneously. This document directly addresses those requests in respect of noise affecting Plot 4.

The ASHP units relevant to this assessment are those serving Plots 3 and 4, which are installed to the east of Plot 4. The assessment is based on the proposed repositioned locations as shown on the submitted drawings.

Assessment Methodology

Assessment Standard

This assessment has been undertaken with reference to MCS 020 a) Issue 1.0, Air Source Heat Pump Sound Calculation (For Permitted Development Installations), published by the MCS Charitable Foundation in March 2025.

MCS 020 a) is formally scoped to permitted development installations. The present application (PL/2026/0246) is for express planning permission under Section 73 of the Town and Country Planning Act 1990. In the absence of a published standard specifically addressing ASHP noise in

a non-permitted development planning context, MCS 020 a) has been adopted as the most appropriate available methodology for the following reasons:

- MCS 020 a) provides the established regulatory threshold for domestic ASHP noise in residential environments. The 37 dB(A) limit reflects World Health Organization guidance on community noise and has been adopted across the ASHP regulatory framework, including within the Class G permitted development conditions under the Town and Country Planning (General Permitted Development) (England) Order 2015.
- The formal representations received in respect of this application specifically request an acoustic assessment demonstrating compliance with MCS 020 planning standards. Adopting MCS 020 a) directly addresses the benchmark called for by the most technically detailed objections on the planning file.
- No alternative published standard provides a specific methodology for domestic ASHP noise in an express planning context. BS 4142:2014+A1:2019 is not considered appropriate, it is designed for industrial and commercial sources and its impact thresholds are calibrated for commercial source-receptor relationships rather than domestic plant.

The 37 dB $L_{Aeq,5min}$ criterion is adopted as the assessment threshold throughout this document.

Scope of Assessment

MCS 020 a) requires assessment at the nearest habitable room window of neighbouring properties only; noise at the dwelling served by its own ASHP unit is not assessed under the standard. However, given the nature of the planning objections received, and for robustness, this assessment includes the noise contribution of both the host plot's own ASHP unit and the opposing unit on the adjacent plot. This represents a conservative approach.

Assessment Position

The assessment position is defined in MCS 020 a) as a point 1 m external to the centre point of any door or window to a habitable room of a neighbouring property, measured perpendicular to the plane of that door or window. The assessment position adopted in this document is shown on the plan extract in Appendix A and corresponds to the first-floor habitable room window identified as the nearest noise-sensitive receptor.

Source Position

In accordance with MCS 020 a) Step 5, the source position is taken as the centre point of the heat pump unit. The distance used in the calculation is the straight-line distance between this centre point and the assessment position, measured to the nearest 0.1 m. The centre point of each unit has been identified from the submitted drawings showing the proposed ASHP positions, and the distances to the relevant assessment position have been measured accordingly.

Source Data

The installed units are Mitsubishi Ecodan UZ-WM85VAA(-BS) R32 Monobloc Air Source Heat Pumps. The manufacturer's declared A-weighted sound power level (L_W) is 58 dB(A), as confirmed from the manufacturer's product data sheet reproduced in Appendix B.

It is noted that the planning application documents reference a figure of 45 dB(A) at 1 m. This is a near-field sound pressure level and is not the same quantity as the sound power level. The sound power level is the correct input for the MCS 020 a) calculation and has been used throughout.

Directivity

Each unit is wall-mounted on the side elevation of the dwelling at approximately 2.5 m above ground level. At this height the unit is fixed to a single wall with no ground reflection. In accordance with MCS 020 a) Step 4, a directivity factor of $Q = 2$ is applied, representing one reflecting surface.

Barrier Attenuation

In accordance with MCS 020 a) Step 6, barrier attenuation is determined by reference to both the construction of any barrier between the heat pump and the assessment position, and the line of sight between the unit and the assessment position.

For all units, full line of sight is blocked from the assessment position and therefore a -10 dB correction is applied.

It is noted that the assessment position of 1 m perpendicular to the window face may, depending on the geometry, have a less favourable line of sight to the source than the window itself. The applied corrections are therefore considered to represent a cautious assessment of the barrier attenuation.

Noise Calculations

One assessment position has been identified for Plot 4, corresponding to the nearest habitable room windows on the Plot 4 dwelling that may be affected by noise from the ASHP units. This is shown on the plan extract in Appendix A. The MCS 020 a) Table 2 procedure (two heat pumps, same assessment position) has been applied.

As noted above, both the neighbouring and owner's ASHP have been assessed for robustness given the nature of the representations.

Assessment Position 1

Assessment Position 1 (AP1) is shown on the plan in Appendix A. The assessment position is 1 m perpendicular to the face of the first-floor habitable room window identified on the relevant elevation of Plot 4.

Table 1 - MCS 020 a) Table 2 Calculation: AP1, Plot 4

Step	Instructions	ASHP A	ASHP B
1	Date calculation undertaken	29/04/2026	
2	Description of assessment position	Plot 3, Cotton Hill, Rochdale, first-floor habitable room window, western side of northern elevation, Assessment Position 1	
3	From manufacturer's data, obtain the A-weighted sound power level of the heat pump.	58 dBA	58 dBA
4	Determine the directivity 'Q' of the heat pump noise.	Q = 2	Q = 2
5	Measure the distance from the heat pump to the assessment position in metres.	3.3 m	5.5 m
6	Determine any barrier corrections between the heat pump and the assessment position.	-10 dB	-10 dB
7a	Calculate the sound pressure level from the heat pump at the assessment position.	29.6 dBA	25.2 dBA
7b	Calculate the total sound pressure level from the heat pump at the assessment position	31.0 dBA	
8	Is the calculated sound pressure level at the assessment position equal to or lower than the permitted development noise limit of 37.0 dB(A)?	Yes	

Conclusion

Murray Acoustics Ltd has undertaken an MCS 020 a) noise assessment of the proposed ASHP positions at Cotton Hill, Rochdale, in respect of Plot 4. The assessment has been carried out with reference to MCS 020 a) Issue 1.0, adopted as the most appropriate available methodology for this express planning application in the absence of a published standard specifically addressing ASHP noise in a non-permitted development context.

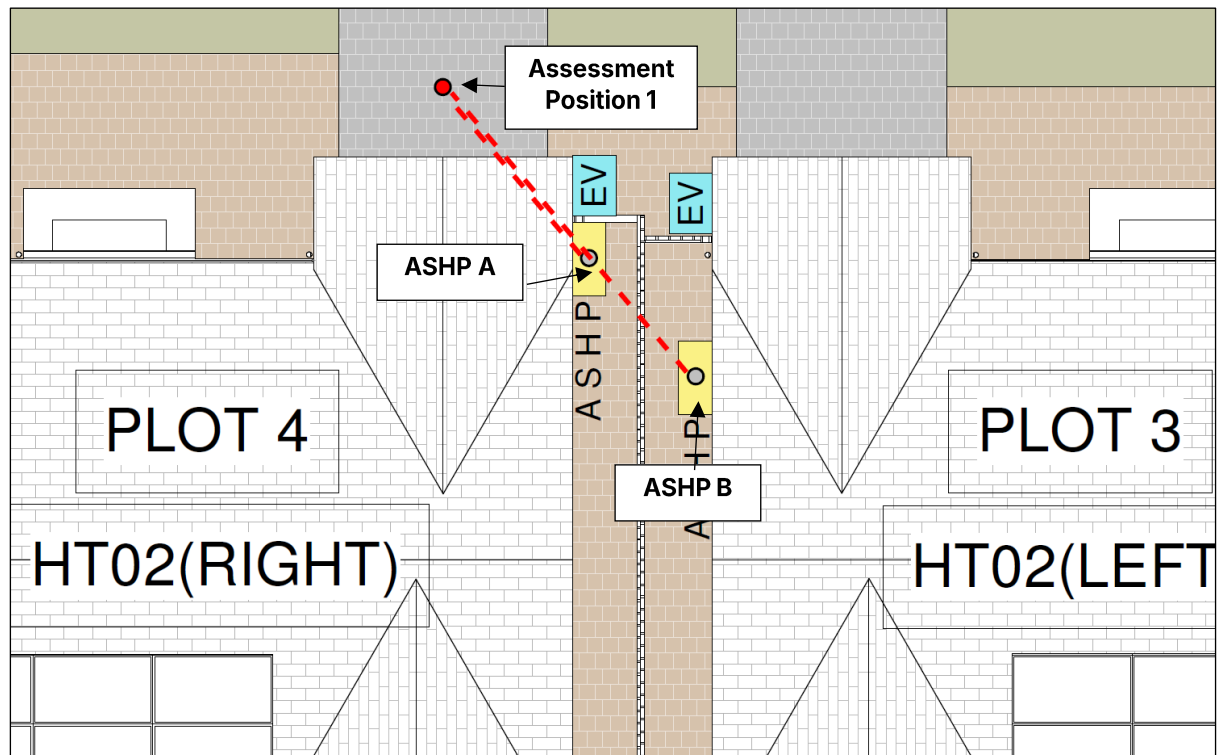
The assessment covers the nearest habitable room window position on Plot 4. At Assessment Position 1, the cumulative noise level from the two nearest ASHP units operating simultaneously is predicted to be 31.0 dB(A), which is below the MCS 020 a) threshold of 37.0 dB(A).

It is noted that the assessment has been undertaken conservatively, including the noise contribution of the host plot's own ASHP unit at the assessment position, and applying barrier corrections based on line of sight from the top edge of each unit to the assessment position that is 1 m from the window itself (and therefore in a greater line of sight). The results demonstrate compliance under these conservative assumptions.

This document does not address structure-borne noise or vibration from the ASHP unit transmitted through the fabric of the host dwelling, or airflow recirculation and system performance matters raised in the representations. These fall outside the scope of a planning acoustic assessment.

Appendix A – Assessment Position Plan Extract

The plan extract below shows the proposed ASHP positions and the assessment position adopted for this assessment. The assessment position is shown as a red dot, representing a point 1 m perpendicular to the face of the relevant habitable room window.



Appendix B – Manufacturer Product Data

The manufacturer's product data for the Mitsubishi Ecodan UZ-WM85VAA(-BS) R32 Monobloc Air Source Heat Pump, confirming the declared A-weighted sound power level of 58 dB(A), is provided below.

Heating

Product Information

PUZ-WM85VAA(-BS)
Ecoda R32
Monobloc Air Source Heat Pump

OUTDOOR UNIT		PUZ-WM85VAA(-BS)
HEAT PUMP SPACE HEATER - 55°C	ErP Rating	A++
	η_{hp}	139%
	SCOP (MCS)	3.48
HEAT PUMP SPACE HEATER - 35°C	ErP Rating	A+++
	η_{hp}	193%
	SCOP (MCS)	4.84
HEAT PUMP COMBINATION	ErP Rating	A+
HEATER - Large Profile ¹	η_{wh}	145%
HEATING ² (A-7/W35)	Capacity (kW)	8.5
	Power Input (kW)	3.27
	COP	2.60
	OPERATING AMBIENT TEMPERATURE (°C DB)	-20 ~ +35
SOUND DATA ³	Pressure Level at 1m (dBA)	45
	Power Level (dBA) ⁴	58
	Pipework Size (mm)	28
WATER DATA	Flow Rate (l/min)	24
	Water Pressure Drop (kPa)	15.0
	DIMENSIONS (mm)	Width: 1050 Depth: 480 Height: 1020
WEIGHT (kg)	98	
ELECTRICAL DATA	Electrical Supply	220-240v, 50Hz
	Phase	Single
	Nominal Running Current [MAX] (A) ⁵	9.1 [22]
	Fuse Rating - MCB Sizes (A) ⁶	25
REFRIGERANT CHARGE (kg) / CO ₂ EQUIVALENT (t)	R32 (GWP 675)	2.2 / 1.49

Notes:

¹ Combination with E*PT20X Cylinder.

² Under normal heating conditions at outdoor temp: -7°CDB / -8°CWB, outlet water temp 35°C, inlet water temp 30°C.

³ Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 55°C, inlet water temp 47°C as tested to BS EN14511.

⁴ Sound power level tested to BS EN12102.

⁵ Under nominal heating conditions at outdoor temp: 7°C, outlet water temp: 35°C.

⁶ MCB Sizes BS EN60898-2 & BS EN60947-2.

η_{hp} is the seasonal space heating energy efficiency (SSHEE) η_{wh} is the water heating energy efficiency

NOMINAL HEATING CAPACITY

Water outlet temperature 45°C

Ambient temperature [°C]	Capacity [kW]
-10.0	8.5
-5.0	8.5
0.0	8.5
5.0	8.5
10.0	8.5
15.0	8.5
20.0	8.5

PUZ-WM85VAA(-BS) DIMENSIONS

FRONT VIEW

UPPER VIEW

SIDE VIEW