

SANDY BROWN

Consultants in Acoustics, Noise & Vibration

023395-R02-A

17 December 2025

Nightingale Centre Extension, Wythenshawe Hospital

Acoustic planning condition 4 discharge report

London, Manchester, Edinburgh, Birmingham, Leeds, Bristol

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Version	Date	Comments	Author	Reviewer
A	17 Dec 25		JMG	JW

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Summary

Sandy Brown has been commissioned by Manchester University NHS Foundation Trust to provide acoustic advice in relation to the proposed extension to the existing Nightingale Centre, Wythenshawe Hospital.

Attended acoustic measurements were undertaken on 3 December 2025 at the installed ground floor outdoor plant equipment located at the rear of the new extension building. In addition, attended measurements were carried out outside the nearest noise sensitive premises.

An assessment of the measurement results has been carried out to determine the external noise levels outside the nearest noise sensitive receptors.

The plant noise egress criteria for this development are set out in Sandy Brown 023395-R01-A *Noise survey and plant noise egress limits report* dated 30 June 2023. These limits have been used for the assessment and to support the discharge Planning Condition 4 of decision notice 137892/FO/2023.

The assessment indicates that the installed normally operating plant meet the noise egress criteria during the day at the nearest noise sensitive premises. The nearby premises which are a nursery and hospital building are assumed to not be sensitive at night.

Based on the above, it is considered that Planning Condition 4 can be discharged.

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1 Introduction

Sandy Brown has been commissioned by Manchester University NHS Foundation Trust to provide acoustic advice in relation to the proposed extension to the existing Nightingale Centre, Wythenshawe Hospital.

Attended measurements were undertaken on 3 December 2025 for the purpose of determining the noise generated by the installed plant items. An assessment of the results has been carried out to determine the external noise levels outside the nearest noise sensitive receptors.

This report sets out relevant information to support the discharge Planning Condition 4 of decision notice 137892/FO/2023 imposed by the Local Authority.

2 Site description

2.1 The site and its surrounding

The site location in relation to its surroundings is outlined in yellow Figure 1, and is an extension to the Nightingale Centre highlighted in orange.

The site is located off Southmoor Road, Wythenshawe which runs to the south. Tilson Road runs to the north with other internal hospital roads to the south.

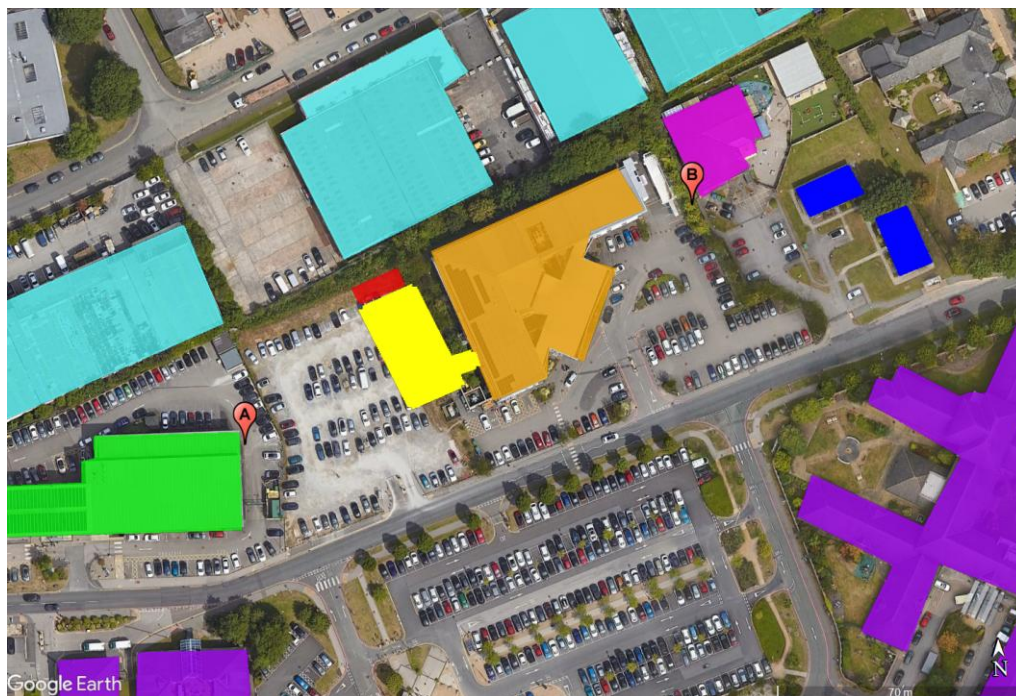


Figure 1 Aerial view of site (courtesy of Google Earth Pro)

2.2 Adjacent premises

The surrounding premises is mostly commercial with the site being part of Wythenshawe Hospital. The nearest hospital building is highlighted in green in Figure 1, other hospital buildings are located to the south east and south west and are highlighted in purple in Figure 1. To the north of the site are offices and industrial units located on Tilson Road, highlighted in light blue in Figure 1. To the northwest of the site highlighted in pink Figure 1 is Kids Planet nurse and pre-School building. Also to the east there are two buildings highlighted in blue which are understood not to be residential, however the use is unknown.

Based on the above, the nearest noise sensitive premises are considered to be the following:

- Medicines evaluation unit, Wythenshawe Hospital highlighted in green in Figure 1 to the south west
- Kids Planet nurse and pre-School building highlighted in green in Figure 1 to the north east.

It is assumed that the above premises are not sensitive during the night.

3 Development

The development comprises a single storey extension to the existing Nightingale Centre, and includes consulting and examination rooms with a plant room and Ultrasound rooms to the north of the building. The extension is joined to the existing building via a link at ground level.

4 Acoustic criteria

4.1 Local Authority criteria

Planning condition 4 of application 137892/FO/2023 sets out the following requirement,

'4) a) Externally mounted ancillary plant, equipment and servicing 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. Prior to commencement of the use hereby approved the scheme shall be submitted to and approved in writing by the City Council as local planning authority in order to secure a reduction in the level of noise emanating from the site. The scheme shall be implemented in full before the use commences or as otherwise agreed in writing by the City Council as local planning authority.

b) Prior to the operation of the scheme a verification report shall be submitted to and approved in writing by the City Council as local planning authority 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 have 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.

Reason - To minimise the impact of the development and to prevent a general increase in pre-existing background noise levels around the site, pursuant to Policy DM1 in the Manchester Core Strategy and saved UDP Policy DC26.'

4.2 Plant noise egress limits

The cumulative noise egress limits from plant operation are set out in Sandy Brown 023395-R01-A *Noise survey and plant noise egress limits report* dated 30 June 2023, and presented in Table 1.

Table 1 Plant noise limits at 1 m from the nearest noise sensitive premises

Time of day	Maximum sound pressure level at 1 m from noise sensitive premises, $L_{Aeq,15min}$ (dB)
Daytime (07:00-23:00)	45
Night-time (23:00-07:00)	39

4.3 Plant information

The new plant installed for this development comprises 2 x Mitsubishi Climaveneta NX-Q 0262P Air Source Heat Pumps (ASHPs). They are connected in an N+1 configuration, therefore only 1 unit will operate at any given time.

These units are located at the rear of the newly build extension building, and are partially screened from the nearest noise sensitive premise to the north east.

The location of the installed ASHPs is highlighted in red in Figure 2 and a photograph of the installed units is provided in Figure 3.

Both ASHP units are the same and set to the same design duty and load. On this basis, measurements of one unit in operation were carried out.

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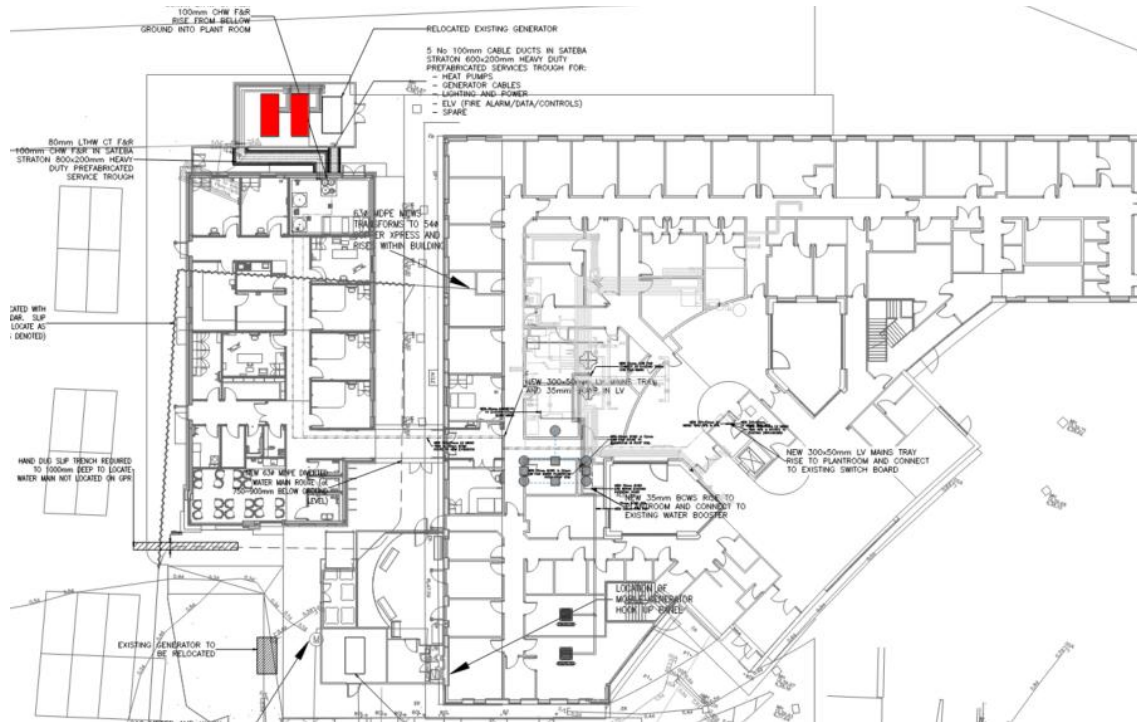


Figure 2 Excerpt of drawing 3139-SHA-BI-XX-DR-ME-0001-C4 - External Services Layout showing ASHPs location



Figure 3 Photographs of the installed ASHP

In addition to the above, an existing generator unit serving the Nightingale building computer room has been relocated to the outdoor plant compound. This unit does not form part of the newly installed plant, and has therefore not considered in the assessment.

5 Measurements

5.1 Attended measurements

Attended sample measurements were carried out at strategic locations from the installed plant and nearest noise sensitive premises, with plant in normal operation and switched off.

The plant items were operated by an MEP engineer familiar with the installed ASHPs, who also confirmed they were running at their normal design duty.

The sample measurement locations at the nearest noise sensitive premises are marked up as A and B in Figure 1. At these locations, the microphone was mounted on a tripod approximately 1.5 m above the ground level and approximately 1 m and 2 m from a reflective surface for measurement locations A and B respectively.

Photographs of the measurement locations are shown in Figure 4.



Figure 4 Photographs of measurement locations A (left) and B (right)

The plant sample measurement locations are marked up as 1 to 4 in Figure 5.

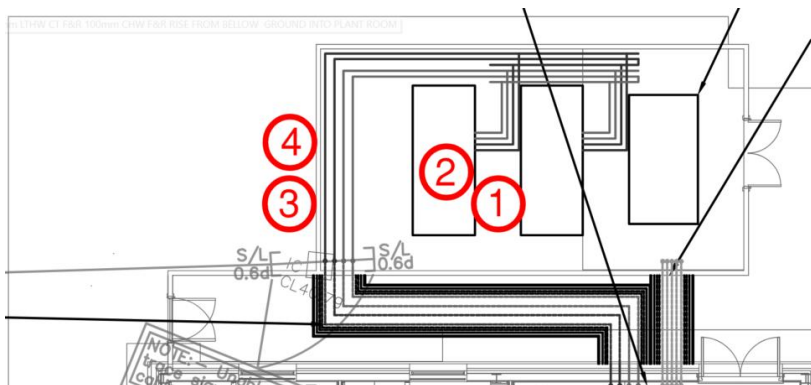


Figure 5 Locations of plant sample measurement locations

A description of the plant measurement locations is provided below:

- Position 1: Approximately 1 m from the side of the unit, and 1.5 m above the ground level
- Position 2: Approximately 1 m from the top of the unit, and approximately 2.5 m from ground level
- Position 3: Approximately 3 m from the side of the unit, and 1.5 m above the ground level
- Position 4: Approximately 3 m from the side of the unit, and approximately 2.5 m from ground level

Details of the equipment used and the noise indices measured are provided in Appendix A.

Dominant noise sources occurring during the measurements were noted.

5.2 Weather conditions

Weather conditions during the survey are described in Appendix A.

6 Noise survey results

6.1 Observations

6.1.1 Plant noise measurements

For the plant measurements, the dominant noise source was the plant in operation. With plant switched off, the dominant noise sources were distant road traffic. Less significant noise sources included pedestrians talking.

6.1.2 Noise measurements at receivers

The dominant noise sources at these locations were distant jack hammers with contributions from road traffic on Southmoor Road at position A and B.

At these measurement locations, the plant was not audible when in operation.

During the sample measurements, there were also periods when the dominant noise sources were 3 distant jack hammers demolishing a chimney at a high level.

6.2 Noise measurement results

6.2.1 Attended measurement results

Noise levels and key sources recorded during the attended measurements are summarised in Table 2 and Table 3. The measurement intervals for positions A and B were 5 minutes, the measurement interval for plant measurements were 30 seconds.

Table 2 Plant measurement results and key noise sources

Position	Start time	Sound pressure levels (dB)			Noise sources
		$L_{Aeq,30 \text{ sec}}$	$L_{AFmax,30 \text{ sec}}$	$L_{A90, 30 \text{ sec}}$	
1	10:16	58	59	58	Dominated by plant in operation
	10:17	58	59	58	As above
	10:20	69	70	69	As above
	10:22	69	70	69	As above
2	10:18	68	73	55	Dominated by plant in operation
	10:19	73	74	73	As above
	10:23	74	75	73	As above
	10:24	74	75	73	As above
3	10:25	62	63	62	Dominated by plant in operation
	10:27	62	74	62	As above with distant metal drop in industrial yard to the north
	11:24	51	57	48	Plant switched off Dominated by distant jack hammers, with contributions from aircraft overhead
4	10:32	63	69	61	Dominated by plant in operation
	11:26	52	61	49	Plant switched off Dominated by distant jack hammers, with contributions from aircraft overhead

Table 3 Measurement results at the nearest noise sensitive premises

Position	Start time	Sound pressure levels (dB)			Noise sources
		$L_{Aeq,5min}$	$L_{AFmax, 5min}$	$L_{A90, 5min}$	
A	10:44	54	68	51	Plant in operation Dominated by road traffic on Southmoor Rd, with contributions from distant jack hammers and aircraft overhead. Plant from Nightingale Centre extension not audible
	10:49	54	66	50	As above
	10:54	54	76	50	As above, maximum level caused by distant slamming bin lid
	11:30	58	67	52	Plant switched off Dominated by distant jack hammers with contributions from road traffic on Southmoor Rd
	11:35	56	67	51	As above
	11:40	56	69	51	As above with aircraft overhead
	11:02	56	71	52	Plant in operation Dominated by distant jack hammers with contributions from road traffic on Southmoor Rd. distant plant from MRI cabin. Plant from Nightingale Centre extension not audible
B	11:09	57	68	53	As above
	11:14	55	67	52	As above

Position	Start time	Sound pressure levels (dB)			Noise sources
		$L_{Aeq,5min}$	$L_{AFmax, 5min}$	$L_{A90, 5min}$	
B	11:49	54	67	51	Plant switched off Dominated by distant jack hammers with contributions from road traffic on Southmoor Rd.
	11:54	54	62	52	As above
	12:07	56	72	52	As above with contributions from MRI scanner break out

7 Assessment

The plant noise egress assessment takes into account the following:

- Plant measurement results set out in Table 2 (worst case)
- Distance and screening (as applicable) to the nearest noise sensitive premises
- 3 dB facade reflection allowance
- 1 ASHP in operation in N+1 configuration.

7.1 Predicted plant noise egress levels

The predicted cumulative noise levels at the worst affected nearby noise sensitive premises are summarised in Table 4. Other noise sensitive premises are either fully screened or located at a significant distance, and therefore not included in the assessment.

Table 4 Predicted plant noise egress at the nearest noise sensitive premises

Noise sensitive receptor	Predicted plant noise egress level $L_{Aeq, 5min}$ (dB)
Medicines evaluation unit building (south west)	44
Kids Planet nurse's and pre-School building (north east)	41

The predicted noise egress levels from plant operation are below the noise limits during the day without additional mitigation measures.

The nearest noise sensitive premises are assumed to not be sensitive at night. On this basis, plant noise egress limits during the day only would apply. The noise egress from the installed ASHPs are below the day limits at the nearest noise sensitive premises, and Planning Condition 4 of decision notice 137892/FO/2023 can be discharged.

8 Conclusion

Sandy Brown has been commissioned by Manchester University NHS Foundation Trust to carry out acoustic testing of the installed item of plant servicing the newly build Nightingale Centre extension, and to demonstrate compliance with the plant noise limits at the nearest noise sensitive premises.

The cumulative noise egress from plant operation are set out in Sandy Brown 023395-R01-A *Noise survey and plant noise egress limits report* dated 30 June 2023 and apply to the new items of plant operating under normal conditions.

Attended measurements of the plant in operation have been undertaken. The predicted noise egress at the nearest noise sensitive premises are below the day limits without additional mitigation measures. These premises are assumed to not be sensitive during the night.

Based on the above, Planning Condition 4 of decision notice 137892/FO/2023 can be discharged.

Appendix A

Survey details

Reference standards

- BS 7445 Part 1: 2003 *Description and measurement of environmental noise, Part 1. Guide to quantities and procedures*
- BS 7445: Part 2: 1991 *Description and measurement of environmental noise, Part 2. Guide to the acquisition of data pertinent to land use.*

Equipment

The attended noise measurements were taken using a Rion NL52 sound level meter.

Calibration details for the equipment used during the survey are provided in Table A1.

Table A1 Equipment calibration data

Equipment description	Type/serial number	Manufacturer	Calibration expiry	Calibration certification number
Sound level meter	NL-52/00932326	Rion	24 Apr 26	TCRT23/1806
Microphone	UC-59/09251	Rion	24 Apr 26	TCRT23/1806
Pre-amp	NH-25/32354	Rion	24 Apr 26	TCRT23/1806
Calibrator	NC-74/34536129	Rion	24 Apr 26	TCRT23/1576

Calibration of the meters used for the measurements is traceable to national standards. Calibration certificates for the sound level meter used in this survey are available upon request.

Calibration checks were carried out on the meters and their measurement chains at the beginning and end of the survey. No significant calibration deviation occurred.

Noise indices

Noise indices recorded included the following:

- $L_{Aeq,T}$ The A-weighted equivalent continuous sound pressure level over a period of time, T.
- $L_{AFmax,T}$ The A-weighted maximum sound pressure level that occurred during a given period, T, with a fast time weighting.
- $L_{A90,T}$ The A-weighted sound pressure level exceeded for 90% of the measurement period. Indicative of the background sound level.

Sound pressure level measurements are normally taken with an A-weighting (denoted by a subscript 'A', eg, L_{A90}) to approximate the frequency response of the human ear.

A more detailed explanation of these quantities can be found in BS 7445: Part 1: 2003 *Description and measurement of environmental noise, Part 1. Guide to quantities and procedures*.

Weather conditions

During the attended noise measurements, the weather was clear and dry and no rain occurred. Wind speeds were measured at each position and varied between 0 m/s and 1 m/s. These weather conditions are considered suitable for obtaining representative measurements.