Teledata UK Ltd Data Centre
Brownley Road
Manchester
M22 5RA

Chiller Acoustic Commissioning Report

30 September 2025

Client: KeySource

3 City Place
Beehive Ring Road
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For Information

Please Note
Quantum Acoustics Ltd have prepared this report with generally accepted acoustic consultancy principles, using all reasonable skill, care and diligence. This is as per the terms agreed between Quantum Acoustics Ltd and our Client. Information referred to herein which may have been provided by third parties should not be assumed to have been checked and verified by Quantum Acoustics Ltd, unless specifically confirmed to the contrary. Both confidential and commercially sensitive information is contained within this document, and as such it should not be disclosed to third parties. Any third party choosing to rely on this document does so at their own risk.

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1.0 INTRODUCTION

1.1 Teledata UK Ltd have demolished the existing structure known as Simon House, Brownley Road, Manchester, M22 5RA, and erected a new data centre adjacent to the existing data centre known as Delta House. This involves installing new items of building services plant externally. This new plant comprises 6No. chiller units, which will operate continuously (i.e. 24/7) and 3No. emergency generators for use during power outages.

1.2 Quantum Acoustics have previously reviewed this environmental noise assessment report, established appropriate environmental plant noise emission criteria and subsequently assessed the acceptability of environmental plant noise emissions from the proposed plant. Our methodology and findings were presented in our Plant Noise Impact Assessment Report dated 1 March 2024.

1.3 Quantum Acoustics have now been requested to undertake acoustic commissioning of the 3No chillers that have currently been installed. The plant area has been enclosed with an acoustic screen, comprising acoustic louvres.

1.4 We have assessed environmental noise emissions from the 3No chillers to the nearest existing residential receptors, with reference to the requirements of Manchester City Council's planning condition.

1.5 This report presents our methodology and findings.

1.6 The photo below shows one of the installed chillers and also the acoustic louvres.



2.0 NEAREST NOISE SENSITIVE RECEPTORS

2.1 The nearest existing noise-sensitive receptors at the time planning permission for the data centre was granted are identified the following dwellings:

Position	Address	Location
R1	275 Woodfield, Wythenshawe M22 5TB	Approximately 85m from the location of the proposed plant
R2	36 Clifden Drive, Wythenshawe, Manchester M22 5WG	Approximately, 125m from the proposed plant
R3	230 to 256 Brownley Road	Approximately 90m from the proposed plant.

2.2 With regard to noise-sensitive receptors (e.g. dwellings) that did not exist at the time planning permission for the data centre was granted, in accordance with the "agent of change" principle, responsibility for mitigating noise impacts lies with the developer of any noise-sensitive receptors (e.g., dwellings) that were permitted after planning approval for the data centre was granted. It is therefore assumed to be the responsibility of those developers to ensure that appropriate sound insulation measures are implemented to protect future occupants from existing noise sources.

2.3 The location of the above receptors are indicated below by the yellow circles in the plan below.

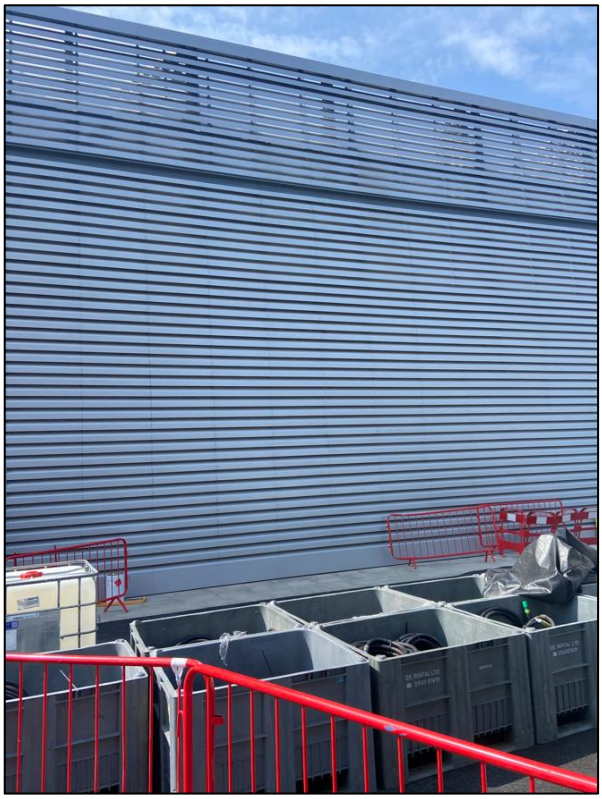


2.4 The location of the plant area is shown in orange on the above plan.

3.0 PLANT AREA ENCLOSURE

3.1 The plant area is enclosed with an acoustic louvre screen as shown in the photos below.



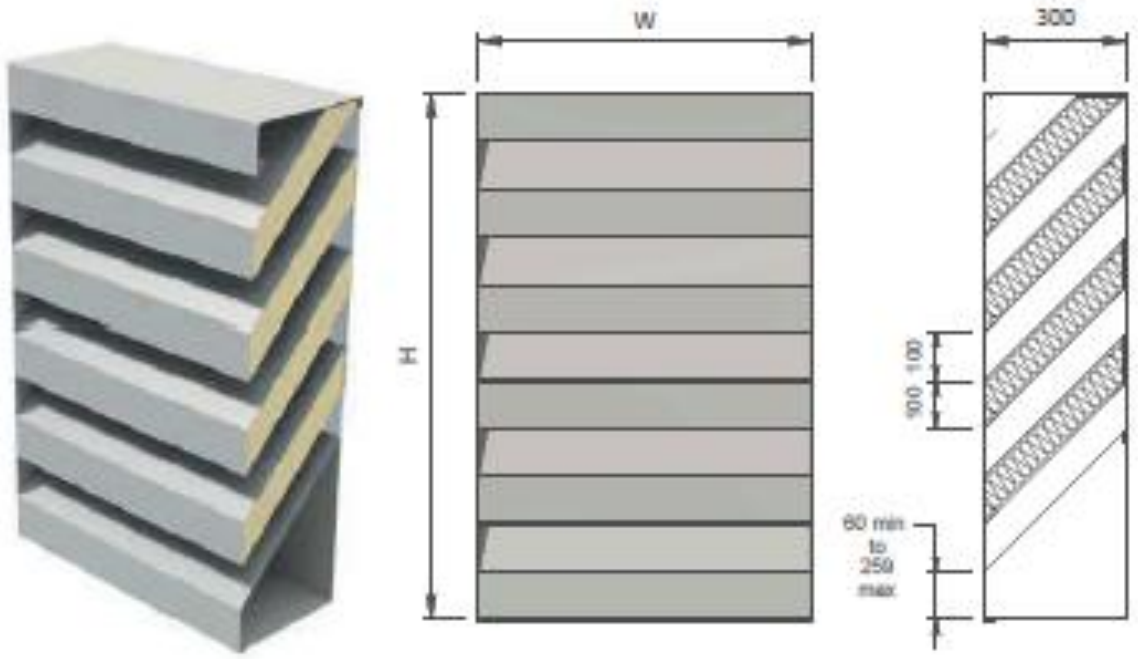








3.2 The acoustic louvre screen comprises 300mm deep acoustic louvres. They are SS300 louvres manufactured by Caice, as illustrated below:



3.3 The manufacturer's published acoustic test data for these acoustic louvres is shown below.

Acoustic Data	dB in each Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Sound reduction index	6	6	9	13	21	20	16	13
Weighted sound reduction index (Rw)					17			
Static insertion loss	5	6	9	14	20	20	20	20
Regenerated sound power level at 1m/s face velocity	48	41	34	30	25	20	13	12
Regenerated sound power level at 2m/s face velocity	66	58	51	47	45	43	39	28

3.4 These acoustic louvres are commensurate with our Plant Noise Impact Assessment Report dated 1 March 2024.

4.0 CHILLER NOISE DATA

4.1 The chiller units are Airedale DeltaChill DCF067TX-14RNXX. Acoustic data has been provided for normal operation (3 chiller units running simultaneously per data hall) and for failure operation (2 chiller units running simultaneously per data hall). For normal and failure operation, acoustic data has been provided for chiller units both with and without the proposed acoustic attenuation package.

4.2 According to the Airedale, the proposed chiller selections produce the following the sound pressure levels when measured at a distance of 10 meters:

Description	Sound Pressure Level (L_p) at 10m (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Normal Operation 465kW without Acoustic Pack	62	61	55	44	46	40	35	29	51.6
Failure Operation 698kW without Acoustic Pack	63	62	56	45	47	41	37	30	-
Normal Operation 465kW with Acoustic Pack	56	55	49	38	40	34	29	23	45.6
Failure Operation 698kW with Acoustic Pack	57	56	50	39	41	35	31	24	-

Octave band Data 465kW without acoustic pack

	Power	Pressure @ 10m	
63 Hz :	94.3	61.6	dB
125 Hz :	93.9	61.2	dB
250 Hz :	87.7	55.1	dB
500 Hz :	76.5	43.8	dB
1000 Hz :	78.5	45.8	dB
2000 Hz :	72.8	40.1	dB
4000 Hz :	68.1	35.4	dB
8000 Hz :	61.4	28.7	dB
Total :	**84.3**	**51.6**	**dBA**

Octave band Data 465kW with acoustic

	Power	Pressure @ 10m	
63 Hz :	88.3	55.6	dB
125 Hz :	87.9	55.2	dB
250 Hz :	81.7	49.1	dB
500 Hz :	70.5	37.8	dB
1000 Hz :	72.5	39.8	dB
2000 Hz :	66.8	34.1	dB
4000 Hz :	62.1	29.4	dB
8000 Hz :	55.4	22.7	dB
Total :	78.3	45.6	**dBA**

5.0 NOISE MEASUREMENT EQUIPMENT

5.1 Details of the equipment used for the survey are summarized in the following table:

Description	Manufacturer	Type	Serial Number
Type 1 Sound Level Meter	Svantek	971A (RT)	151366
Acoustic Calibrator	Svantek	SV 33B	166477
Sound Level Meter	Convergence	Mk4	

5.2 Calibration certificates for the equipment, traceable to national standards, used in this survey are available upon request.

5.3 Calibration checks were carried out prior to and on completion of this survey, with no significant calibration drift observed.

6.0 NOISE MEASUREMENT CONDITIONS

6.1 Quantum Acoustics were requested to undertake an acoustic commissioning visit on 22 and 23 September 2025.

6.2 At the time of this survey, 3No chillers were installed and operational. No generators were operational.

6.3 Weather conditions during the survey period were generally suitable for measuring environmental noise, it being dry and calm.

6.4 The chillers were being load tested at the time of our survey. We understand the load represented the maximum design load for the 3No chillers. The ambient air temperature at the time of our survey was below the worst-case design temperature. We were advised that it was not possible to simulate the chillers operating at maximum design load at the worst-case design temperature. The daytime temperature when the manned noise measurements were undertaken was around 14 degrees centigrade. We understand the chillers noise levels would not be significantly higher when operating at the worst-case design temperature for nighttime periods. We therefore consider that, whilst the chiller noise levels were not quite representative of the worst-case design conditions, there were reasonably representative of the typical worst-case nighttime conditions.

Noise Measurements Inside the Plant Enclosure

6.5 We undertook noise levels measurements along each of the long sides of the chiller, at distance of approximately 5m, using a spatial averaging (moving microphone) technique.



6.6 The results of the measurements made inside the plant enclosure, at distance of approximately 5m from the nearest chiller, are presented in the following table.

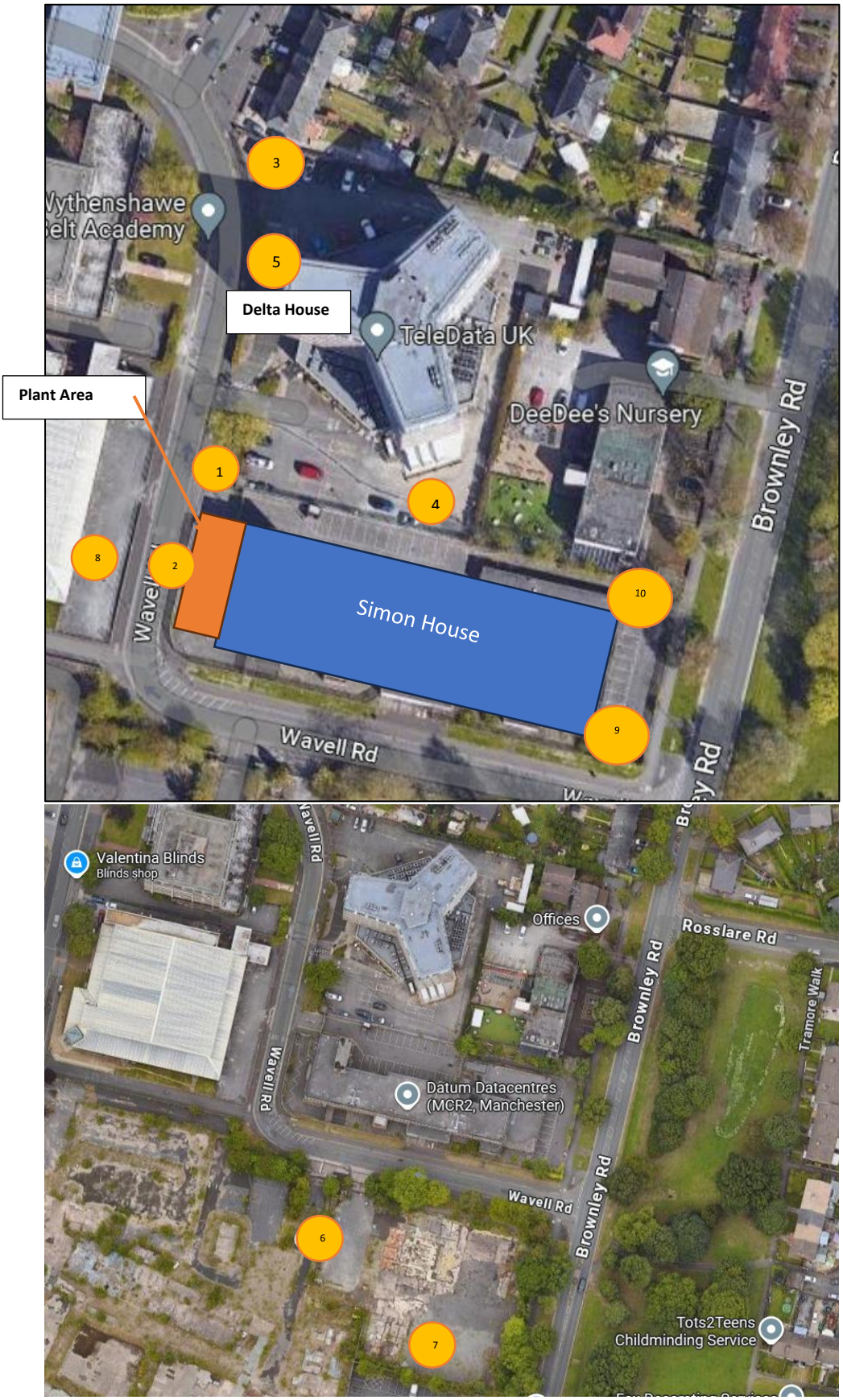
Noise Levels with Chiller Operating Inside the enclosure (Plant On)					
Position Description	Time	File	A-weighted Sound Pressure Level (dBA)		
			Leq	L90	Lmin
Inside Acoustic Louvre	16.40	L447	64.7	61.9	60.5

Manned Noise Measurements Outside the Plant Enclosure

6.7 We also undertook manned noise level measurements at the following positions:

Noise Measurement Position	Address	Location
1	Outside plant enclosure to the North	1m to the North
2	Outside plant enclosure to the West	1m to the West
3	275 Woodfield, Wythenshawe M22 5TB	Approximately 85m from the location of the proposed plant
4	Simon House car Park	Approximately 43m from the proposed plant
5	Delta House car park	Approximately 60m from the proposed plant
6	Wavell Road Development West	Approximately 60m south from the proposed plant
7	Wavell Road Development South	Approximately 100m south from the proposed plant
8	Dee Dees Nursery	East of the proposed plant next to Brownlee Road
9	Rear Of Brownlee Road	To the south of M8

6.8 The location of the above noise level measurement positions are indicated below by the yellow circles in the plan below and the location of the plant area is shown in orange.


3
5
Delta House
TeleData UK
Plant Area
DeeDee's Nursery
Brownley Rd
1
4
8
2
10
Simon House
9
Wavell Rd
Valentina Blinds
Blinds shop
Offices
Rosslare Rd
Brownley Rd
Tramore Walk
Datum Datacentres
(MCR2, Manchester)
Wavell Rd
6
Tots2Teens
Childminding Service
7

6.9 The results with the chillers operating were as follows:

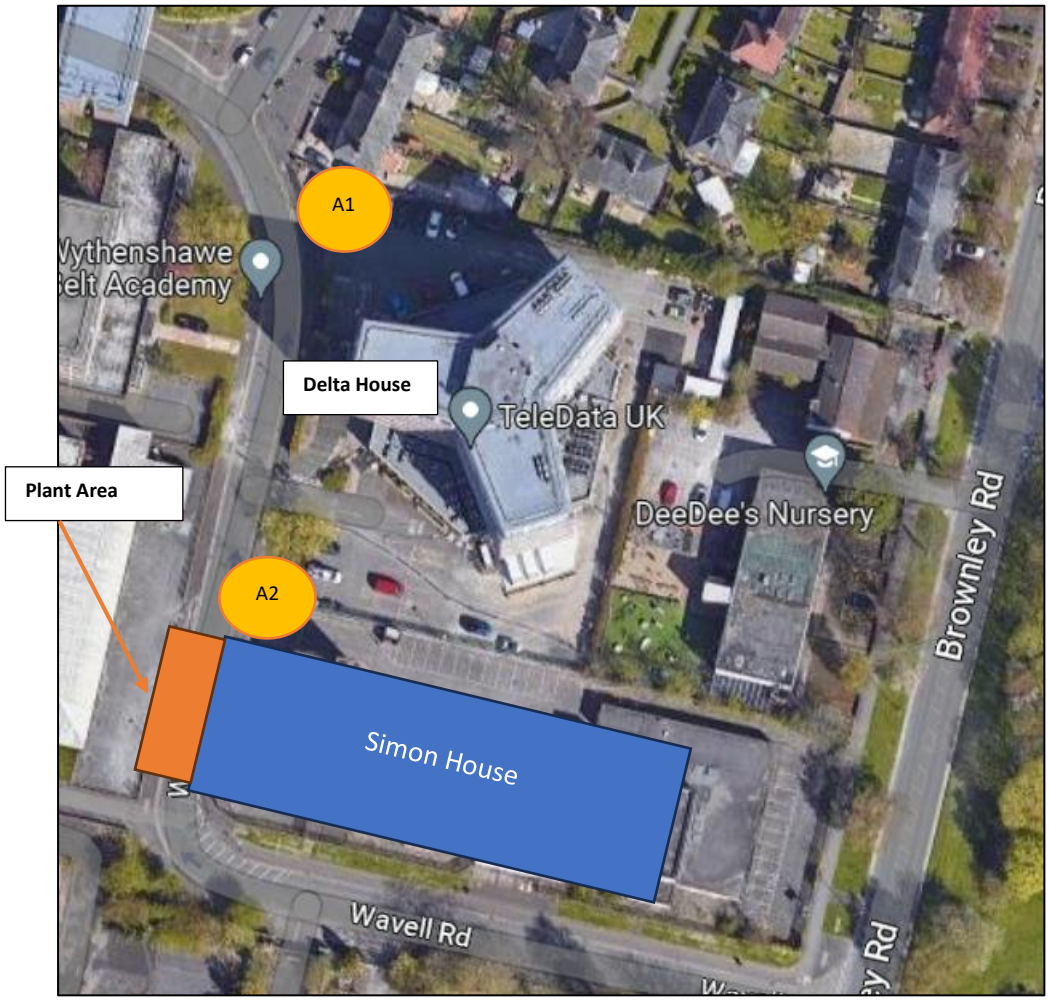
Noise Levels with Chiller Operating (Plant On)							
Position	Position Description	Time	File	Notes	A-weighted Sound Pressure Level (dBA)		
					Leq	L90	Lmin
1	1m from north louvre	15.58	L426	Chiller noise was audible, but it did not dominate the background noise	58.1	52.8	51.1
2	1m from west louvre	16.01	L428	Chiller noise was audible, but it did not dominate the background noise	55.9	53.4	52.3
3	275 Woodfield Wythenshawe	16.08	L433	Chiller noise was inaudible. Plant noise from Delta House was audible	50.4	49.3	48.8
4	Simon House Car Park	16.24	L439	Chiller noise was faintly audible	53.5	47.5	45.8
5	Delta House car park	16.15	L436	Chiller noise was inaudible. Plant noise from Delta House was audible	51.2	49.3	48.7
6	Wavell Road Development West	16.44	L449	No Chiller noise at all, Wavell and Brownley road contributed to most of the background noise	54.6	48.5	46.6
7	Wavell Road Development South	13.12	L419	Chiller noise was inaudible. Background noise dominated by Wavell Road and Brownley Road	51.1	47.8	47.3
8	West of louvre approximately 20m	16.34	L444	Chiller noise was faintly audible	60.2	51.7	50.7
9	Rear of Brownley Road		L413	Chiller noise was inaudible. Background noise dominated by Brownley Road	59.5	48.2	47
10	Dee Dees Nursery	13.00	L411	Chiller noise was inaudible. Background noise dominated by Brownley Road	48.8	50.9	48.8

Automated Noise Measurements

6.10 We also undertook automated noise level measurements from approximately 14:30 hours on 22 September to approximately 16.00 hours on 23 September 2025. Noise monitoring equipment was located at the following position/positions:

Noise Measurement Position	Address	Location
A1	275 Woodfield, Wythenshawe M22 5TB	Attached to a fence, at a height of approximately 1.6m.
A2	Approximately 1m from the north louvre	Attached to a shipping container, at a height of approximately 2m.

6.11 The location of the above noise level measurement positions are indicated below by the yellow circles in the plan below. The location of the plant area is shown in orange.



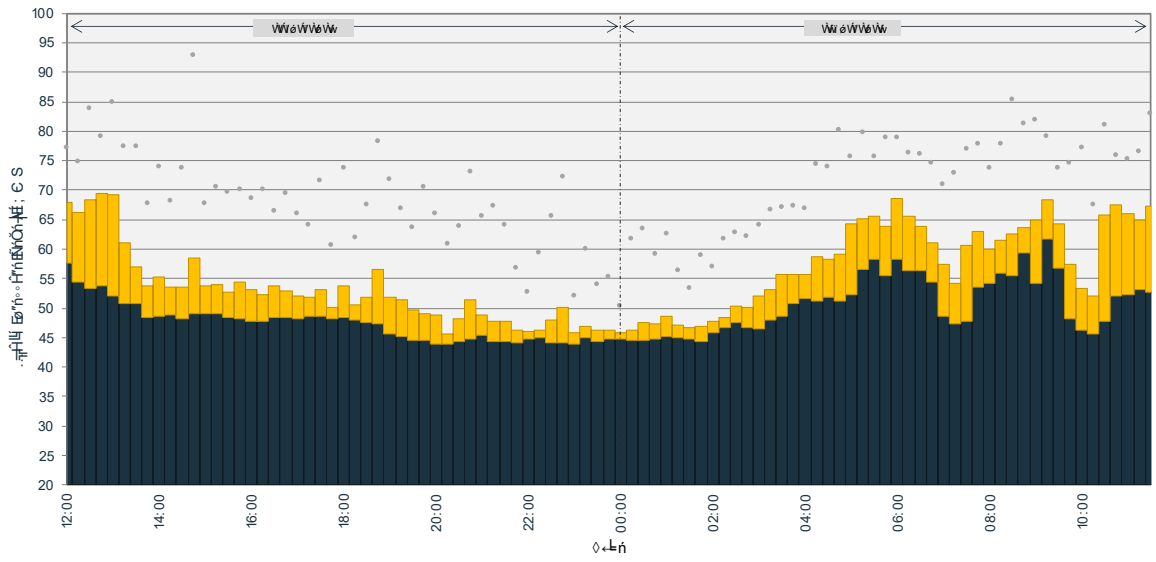
6.12 The noise survey results are presented in the graphs below, showing the A-weighted L90, Leq and Lmax noise levels measured during each consecutive 15-minute period of the survey.

Noise Monitoring Graph

Project: 23261

Measurement Location: Position A1

Survey Date: 24 April 2025 - 25 April 2025



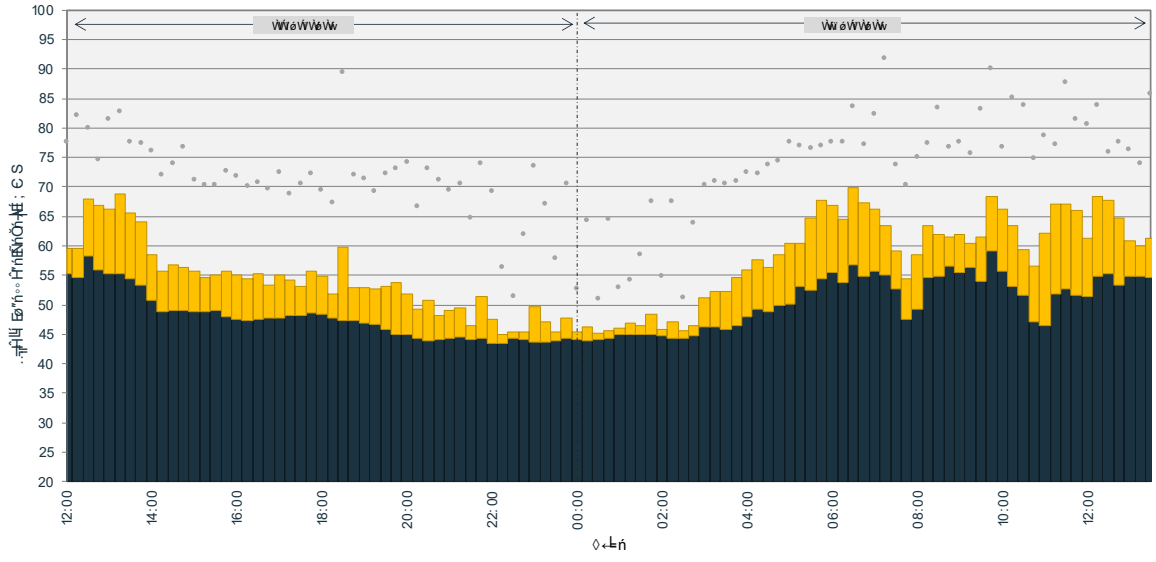
Key: $L_{A90,15mins}$ $L_{Aeq,15mins}$ $L_{Amax,fast}$

Noise Monitoring Graph

Project: 23261

Measurement Location: Position A2

Survey Date: 24 April 2025 - 25 April 2025



Key: $L_{A90,15mins}$ $L_{Aeq,15mins}$ $L_{Amax,fast}$

6.13 During the periods we were present on site, the subjectively dominant noise sources at measurement Position A1 was construction noise from the building development across Wavell Road, approximately 40m from this measurement position. Wavell road had constant traffic throughout the day. The proximity to Manchester airport also meant there was fairly constant noise from air traffic. Plant noise from Delta House was also audible at this position.

6.14 At Position A2 the aforementioned construction noise was still the dominant noise, approximately 60m from this measurement position. Air traffic noise was also fairly constant whilst we were on site. Chiller noise was just audible at this position.

7.0 CRITERIA

7.1 With reference to our Plant Noise Impact Assessment Report dated 1 March 2024, to comply with Manchester City Council's planning condition, the following environmental plant noise emission criteria are proposed to be achieved at 1 metre from the nearest noise sensitive residential windows:

Plant Noise Emission Limits L_{eq} dB re2x10^{-5}Pa	
Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
38	32

7.2 The above criteria apply to the cumulative noise levels, with plant operating simultaneously under normal operating conditions. The above does not apply to emergency generators and related equipment.

8.0 ASSESSMENT OF CHILLER NOISE LEVELS

Assessment to Receptor R1 (275 Woodfield, Wythenshawe M22 5TB)

8.1 We have assessed chiller noise emissions to Receptor R1, namely 275 Woodfield. This receptor is situated to the north of the plant area, at a distance of circa 85 meters:

Assessment of Chiller Noise Emissions to Receptor R1 (275 Woodfield)	
Description	Sound Pressure [dBA]
Measured level outside the plant enclosure at distance of approximately 1 meter from the north acoustic louvre with chillers operating	≤51
Propagation losses	minus≥22
Allowance for additional chillers operating	plus≤3
Predicted Plant Noise Level at Receptor R1	**≤32**
Criterion	38 Daytime 32 Night-time
Compliance	✓

8.2 On the basis of the above, we therefore predict that the chiller noise levels at Receptor R1, namely 275 Woodfield, should comply with Manchester City Council's criteria.

Assessment to Receptor R2 (36 Clifden Drive)

8.3 We have assessed chiller noise emissions to Receptor R2, namely 36 Clifden Drive. This receptor is situated to the northeast of the plant area, at a distance of circa 125 meters:

Assessment of Chiller Noise Emissions to the Receptor R2 (???)	
Description	Sound Pressure [dBA]
Measured level outside the plant enclosure at distance of approximately 1 meter from the north acoustic louvre with chillers operating at 100% each	≤51
Propagation losses	minus≥24
Allowance for additional chillers operating	plus≤3
Predicted Plant Noise Level at Receptor R2	**≤30**
Criterion	38 Daytime 32 Night-time
Compliance	✓

8.4 On the basis of the above, we therefore predict that the chiller noise levels at Receptor R2, namely 36 Clifden Drive, should comply with Manchester City Council's criteria.

Assessment to Receptor R3 (230 to 256 Brownley Road)

8.5 We have assessed chiller noise emissions to Receptor R3, namely 230 to 256 Brownley Road. This receptor is situated to the northeast of the plant area, at a distance of circa 90 meters:

Assessment of Chiller Noise Emissions to the Receptor R2 (???)	
Description	Sound Pressure [dBA]
Measured level outside the plant enclosure at distance of approximately 1 meter from the north acoustic louvre with chillers operating at 100% each	≤51
Propagation losses	minus≥24
Allowance for additional chillers operating	plus≤3
Predicted Plant Noise Level at Receptor R2	**≤30**
Criterion	38 Daytime 32 Night-time
Compliance	✓

8.6 On the basis of the above, we therefore predict that the chiller noise levels at Receptor R3, namely 230 to 256 Brownley Road, should comply with Manchester City Council's criteria.

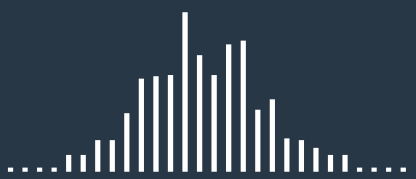
9.0 CONCLUSIONS

9.1 We have measured noise emissions from the installed chillers. At the time of this survey, 3No chillers were installed and operational.

9.2 The chillers were being load tested at the time of our survey. They are understood to have been reasonably representative of the typical worst-case nighttime conditions.

9.3 We have assessed environmental noise emissions from the chillers to the nearest existing residential receptors.

9.4 Our assessment indicates noise emissions from the installed chillers when operating at typical worst-case nighttime conditions, to the nearest existing residential receptors, should comply with Manchester City Council's criteria.



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