015037-R22-A
8 May 2026

Old Granada Studios, Manchester

Planning condition 18 discharge report

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Version	Date	Comments	Author	Reviewer
A	8 May 26		JMG	JA

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Summary

Sandy Brown has been commissioned by Manchester Quays Developments (OGS) Ltd to carry out acoustic verification measurements to demonstrate compliance with planning condition 18 under 138820/JO/2023. This report sets out relevant information to discharge the condition.

Sample noise measurements were undertaken on site on 29 April 2026 to verify noise levels from the installed plant in operation. The measurements and subsequent assessment indicates that plant noise egress complies with the criteria.

Based on the above, planning condition 18 can be discharged.

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1 Introduction

Sandy Brown has been commissioned by Manchester Quays Developments (OGS) Ltd to carry out acoustic verification measurements to demonstrate compliance with planning condition 18 under 138820/JO/2023. This report sets out relevant information to discharge the condition.

Noise measurements were carried out on site on 29 April 2026 for the installed and operational plant. The measurement results have been used as the basis of an updated 3D noise model to predict the levels outside the nearby receptors for comparison to the criteria set by Manchester City Council. Verification measurements have also been carried out outside the Bauhaus development.

Measurements of the emergency rooftop diesel generator were also undertaken.

2 Planning condition 18

Planning Condition 18 is split two part, A) and b), which states the following in regard to externally mounted plant.

a) *''Prior to first occupation of the hotel gymnasium hereby approved, the building, together with any externally mounted ancillary equipment, shall be acoustically insulated in accordance with the Acoustic Planning Report Ref: 15037-R17-A dated 6 December 2023 by Sandy Brown and the Sandy Brown Memo M070-A dated 13 December 2023 'L2 and L10 Rooftop Noise Egress Reassessment - Zones 4 and 5' in order to secure a reduction in the level of noise emanating from the equipment so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location*

b) *Prior to first occupation of the hotel gymnasium hereby approved, a verification report to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the Acoustic Planning Report Ref: 15037-R17-A dated 6 December 2023 by Sandy Brown and the Sandy Brown Memo M070-A dated 13 December 2023 'L2 and L10 Rooftop Noise Egress Reassessment - Zones 4 and 5' shall be submitted to and approved in writing by the City Council as local planning authority. The verification report shall include post completion testing to confirm that acceptable 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 and timescales for the implementation of those measures.''*

3 The site and its surroundings

The site location in relation to its surroundings is outlined in yellow in Figure 1.

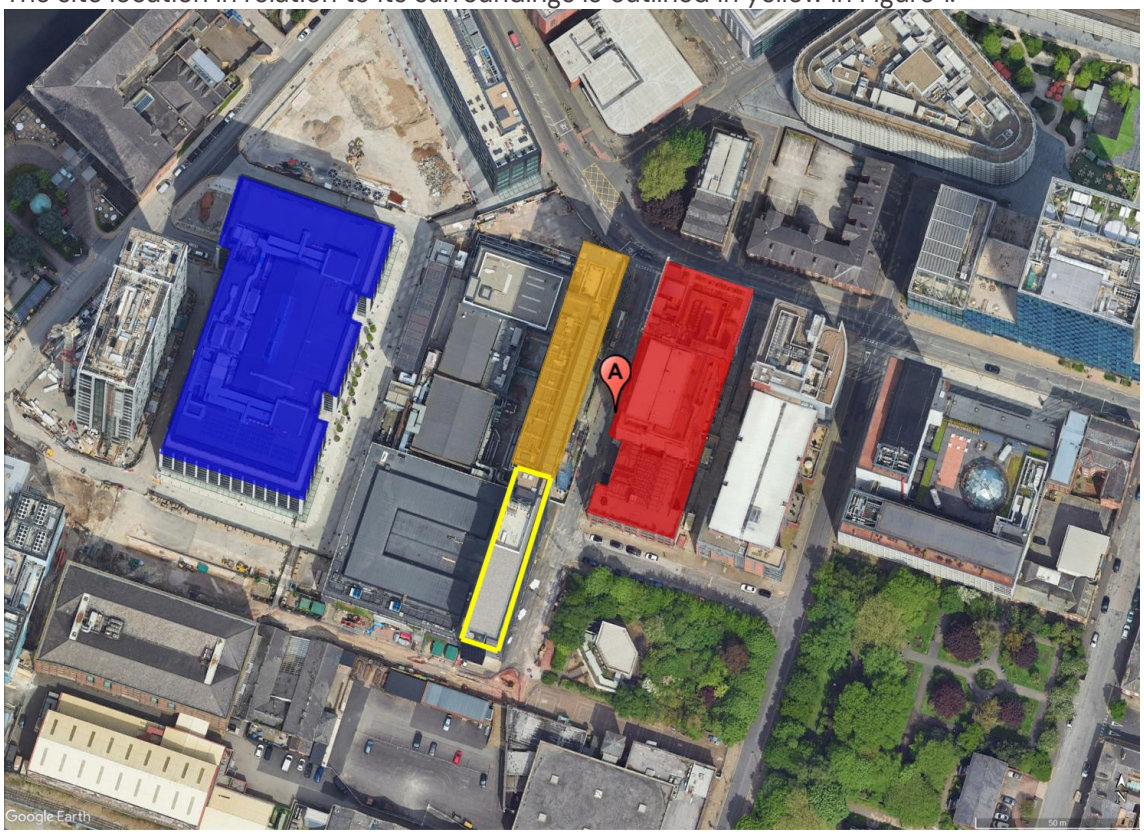


Figure 1 Aerial view of site (courtesy of Google Earth Pro)

3.1 Adjacent premises

The nearest and worst affected receptor is Bauhaus Apartments on Atherton Street, highlighted in red in Figure 1. This receptor is noise sensitive during the day (07:00-23:00) and night (23:00-07:00).

To the north of the site, there is Mollies hotel highlighted in orange in Figure 1, which is part of the development itself.

Other day sensitive premises include Manchester Good Yard building (MGY) highlighted in blue in Figure 1, this building comprises commercial spaces at ground and level 1 and office spaces above.

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4 Plant noise egress limits

4.1 Background noise levels

An environmental noise survey has previously been undertaken at the site to determine the existing noise levels in the vicinity of the site and nearby noise sensitive premises. Full details of this survey can be found in Sandy Brown report 15037-R03-E *Acoustic planning report* dated 5 October 2020.

The representative background noise levels measured applicable to nearest noise sensitive receptors are set out in Table 1.

Table 1 Typical background noise levels at the nearest noise sensitive premises

Location	Typical background noise level, L_{A90} (dB)	
	Day (07:00-23:00)	Night (23:00 – 07:00)
Manchester Goods Yard (commercial)	51	50
Bauhaus apartments (residential) and Globe and Simpson (commercial)	51	45

4.2 Normally operating plant items

Plant noise egress limits at 1 m from the nearest noise sensitive premises for normally operating plant are provided in Table 2. These limits are in line with the requirements of Planning Condition 18 based on the background noise levels measured at the site.

Table 2 Plant noise egress limits for OGS development

Location	Plant noise egress limit at 1 m from window of nearby noise sensitive receptor, L_{Aeq} (dB)	
	Day (07:00 – 23:00)	Night (23:00 – 07:00)
Manchester Goods Yard (commercial)	46	45
Bauhaus apartments (residential)	46	40

For Zone 6, the overall limits have been reduced by 3 dB for receptors to the east allow for contributions from zones 4 and 5 of the development.

For receptors to the west and south of the site, the zone 6 noise sources are sufficiently distanced such that they will not have equal contributions to zone 4 and zone 5 at any of the same facade points.

Based on the above, the plant noise limits applicable to zone 6 are set out in Table 3.

Table 3 Cumulative normally operating plant noise limits for zone 6, 1m from receptor

	Plant noise limit at 1 m from noise sensitive receiver, L_{Aeq} (dB)	
Location	Day (07:00 – 23:00)	Night (23:00 – 07:00)
Manchester Goods Yard	46	-
Bauhaus Apartments	43	37

These criteria are cumulative and therefore should not be exceeded by the cumulative noise levels resulting from noise egress from landlord and tenant plant items.

Zone 6 plant items operate during day only.

4.3 Attention catching features

Corrections will need to be applied for any attention catching features in line with BS4142:2014.

4.4 Emergency plant

The emergency plant limits are provided in Table 4. These have been set to be no more than 10 dB above the background noise level based on the typical requirements of MCC.

Table 4 Emergency plant noise limits at 1 m from nearest noise sensitive premises

Time of day	Emergency plant noise egress limit at 1 m from window of nearby noise sensitive receptor, L_{Aeq} (dB)
07:00-23:00	61
23:00-07:00	55

5 Plant equipment

5.1 Equipment

5.1.1 Level 10 rooftop plant area

2.7 m high solid screening has been installed to the west and east elevations, a non-acoustic louvre is installed to the south elevation. The following plant equipment has been installed.

- 1 x Mitsubishi PURY-P450YNW-A2 highlighted in pink in Figure 2
- 1 x Mitsubishi PURY-P400YNW-A2 highlighted in dark blue in Figure 2
- 11 x Mitsubishi PURY-P350YNW-A2 highlighted in red in Figure 2

- 1 x Mitsubishi PURY-P300YNW-A2 highlighted in dark green in Figure 2
- 4 x Mitsubishi PURY-P250YNW-A2 highlighted in purple in Figure 2
- 2 x Mitsubishi PUHZ-ZPR100VKA-A3 highlighted in light green in Figure 2, these units are landlord side serving the basement level
- 1 x Mitsubishi PUZ-ZM100VKA2-A3 highlighted in light blue in Figure 2
- 1 x Daikin RZAG-1002V1B highlighted in orange in Figure 2.

In addition to the above, there is an emergency generator as shown in grey in Figure 2, this is landlord side.

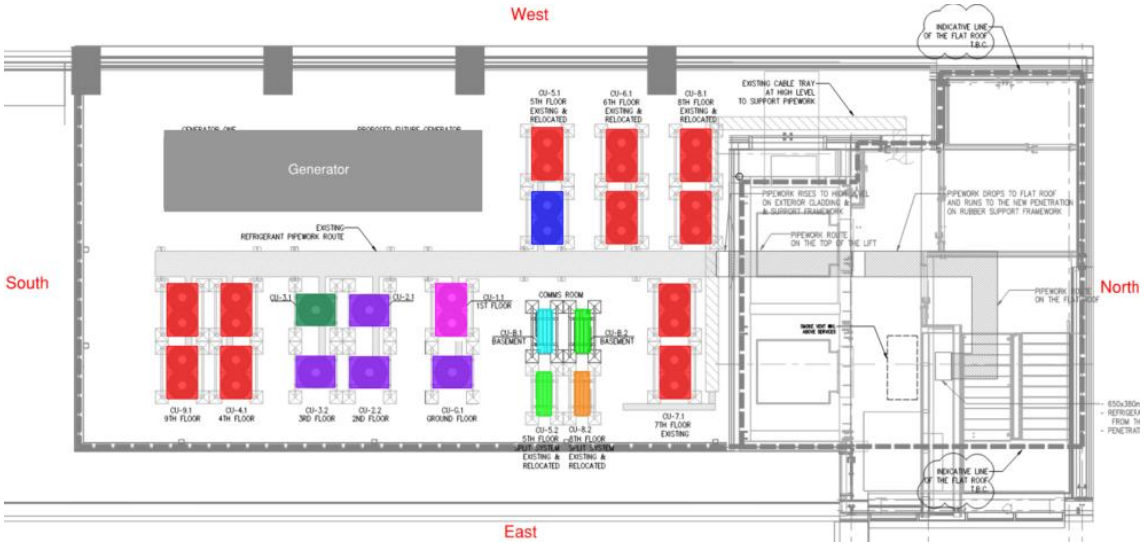


Figure 2 Level 10 installed rooftop plant

6 Verification measurements

6.1 Method

Sample noise measurements were carried out on 29 April 2026 to determine the noise levels produced by the installed and operational normally operating plant. Measurements were carried out in 1/3 octave bands over 1 minute periods.

For each measurement, the microphone was located on a tripod approximately 1 m from each plant item/termination and approximately 1.5 m above the ground/roof to side measurements, and 1 m above unit with top terminations/fans.

Measurements were also carried out at ground level Bauhaus Apartments outdoor terrace on Atherton St, with all plant fully commissioned and in operation, and switched off. These measurements were also carried out on 29 April 2026.

Mark-ups indicating the measurement locations are given in Figure 3.

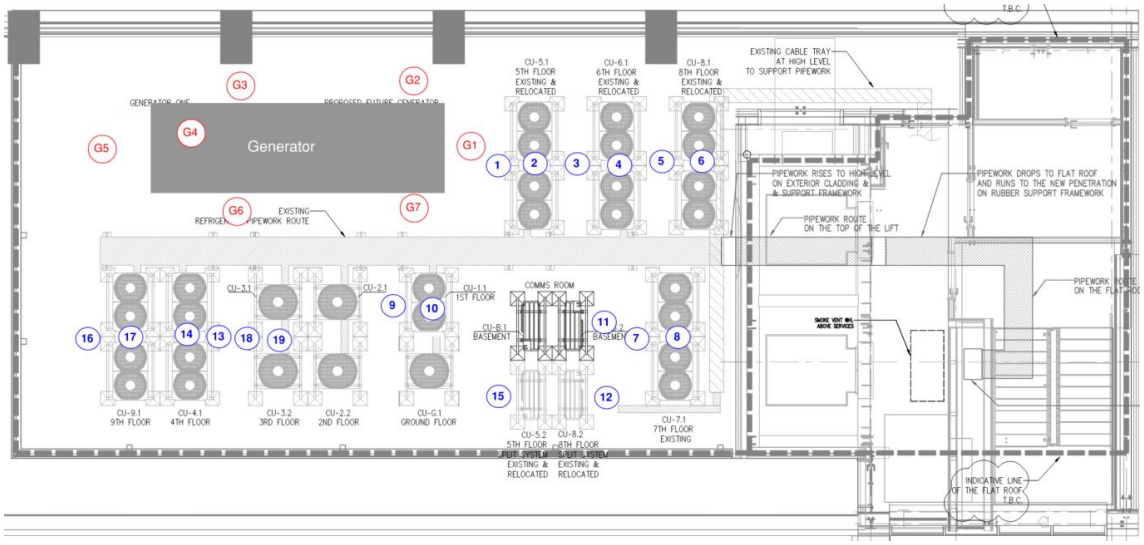


Figure 3 Level 10 rooftop normally operating plant (blue) and generator emergency plant (red)

6.2 Weather conditions

The weather conditions during the measurements on 29 April 2026 were clear and dry and considered suitable for obtaining representative measurements.

6.3 Measurement results

Plant noise measurement results are set out in Table 5. Observations for each measurement are provided. Plant noise was noted to be the dominant noise source in all cases. Subjectively, no attention catching features, with reference to BS4142 were noted during the measurements.

All measurements were undertaken in 1/3 octave bands and 1 min measurement duration. Plant items were switched on/off to ensure measurements were carried out in isolation, where plant items were pair to serve the same floor, measurements were carried out with both units in operation.

Table 5 Plant measurement results

Measurement position	Sound pressure level measured, L_{Aeq} (dB)	Notes
1	60	Dominated by plant units in isolation (1 m from side)
2	58	Dominated by plant units in isolation (1 m from top)
3	55	Dominated by plant units in isolation (1 m from side)
4	54	Dominated by plant units in isolation (1 m from top)

Measurement position	Sound pressure level measured, L_{Aeq} (dB)	Notes
5	60	Dominated by plant units in isolation (1 m from side)
6	64	Dominated by plant units in isolation (1 m from top)
7	59	Dominated by plant units in isolation (1 m from side)
8	58	Dominated by plant units in isolation (1 m from top)
9	53	Dominated by single plant unit in isolation (1 m from side)
10	55	Dominated by single plant unit in isolation (1 m from top)
11	54	Dominated by single plant unit in isolation (1 m from side)
12	50	Dominated by single plant unit in isolation (1 m from side)
13	65	Dominated by plant units in isolation (1 m from side)
14	60	Dominated by plant units in isolation (1 m from top)
15	51	Dominated by single plant unit in isolation (1 m from side)
16	59	Dominated by plant units in isolation (1 m from side)
17	59	Dominated by plant units in isolation (1 m from top)
18	64	Dominated by plant units in isolation (1 m from side)
19	58	Dominated by plant units in isolation (1 m from top)
G1	74	Dominated by generator break out with contributions from intake (1 m from side)
G2	79	Dominated by generator intake (1 m from side)
G3	78	Dominated by generator break out (1 m from side)
G4	85	Dominated by generator exhaust/flue termination (1 m from top)
G5	77	Dominated by generator break out (1 m from side)
G6	75	Dominated by generator break out (1 m from side)
G7	79	Dominated by generator break out (1 m from side)

In addition to the above, measurements were carried out outside Bauhaus Apartment at ground level on Atherton St, with all plant fully commissioned and in operation, and switched off. This measurement position is considered as facade measurement.

The measurement location is marked-up as A in Figure 1. A photograph of the measurement position is given in Figure 4.



Figure 4 Photograph of the measurement position at ground level outside Bauhaus Apartments

The measurement results are summarised in Table 6.

Table 6 Measurement results outside Bauhaus apartment

Position	Start time	Sound pressure levels (dB)			Noise sources
		$L_{Aeq,5min}$	$L_{AFmax,5min}$	$L_{A90,5min}$	
A	17:31	62	82	54	Rooftop plant switched off Dominated by road traffic on Quay St, with contributions from cars passing on Atherton St, less significant contributions from pedestrians passing by talking.
	17:36	57	70	53	
	17:41	55	68	50	

Position	Start time	Sound pressure levels (dB)			Noise sources
		$L_{Aeq,5min}$	$L_{AFmax,5min}$	$L_{A90,5min}$	
A	18:20	56	70	52	Rooftop plant switched on Dominated by road traffic on Quay St, with contributions from cars passing on Atherton St, less significant contributions from pedestrians passing by talking. Subjectively, plant in operation not audible.
	18:25	57	72	52	
	18:30	58	77	52	
	21:01	55	70	50	Rooftop plant switched off Dominated by road traffic on Quay St, with contributions from cars passing on Atherton St, less significant contributions from pedestrians passing by talking. Subjectively, less cars on Quay St
	21:06	57	70	49	
	21:11	54	69	49	

7 3D noise modelling

A 3D environmental noise model of the site has been produced using the computational acoustic modelling package CadnaA (version 2026).

3D modelling has been used to predict the plant noise egress at the nearby noise sensitive premises for normally operating plant, based on the localised plant verification measurement results.

The modelling is based on the measurement results carried out on site, and includes the acoustic screening installed to the west and east elevations. The model has been calibrated based on the measurements to predict plant noise egress levels at the worst affected noise sensitive receptors.

The software carries out calculations using a ray tracing technique, and considers the effects of topography, reflections, screening and distance attenuation for noise sources to

predict noise levels in three dimensions. Calculations are carried out in accordance with ISO 9613 Attenuation of sound during propagation outdoors.

A screenshot of the model is presented in Figure 5.

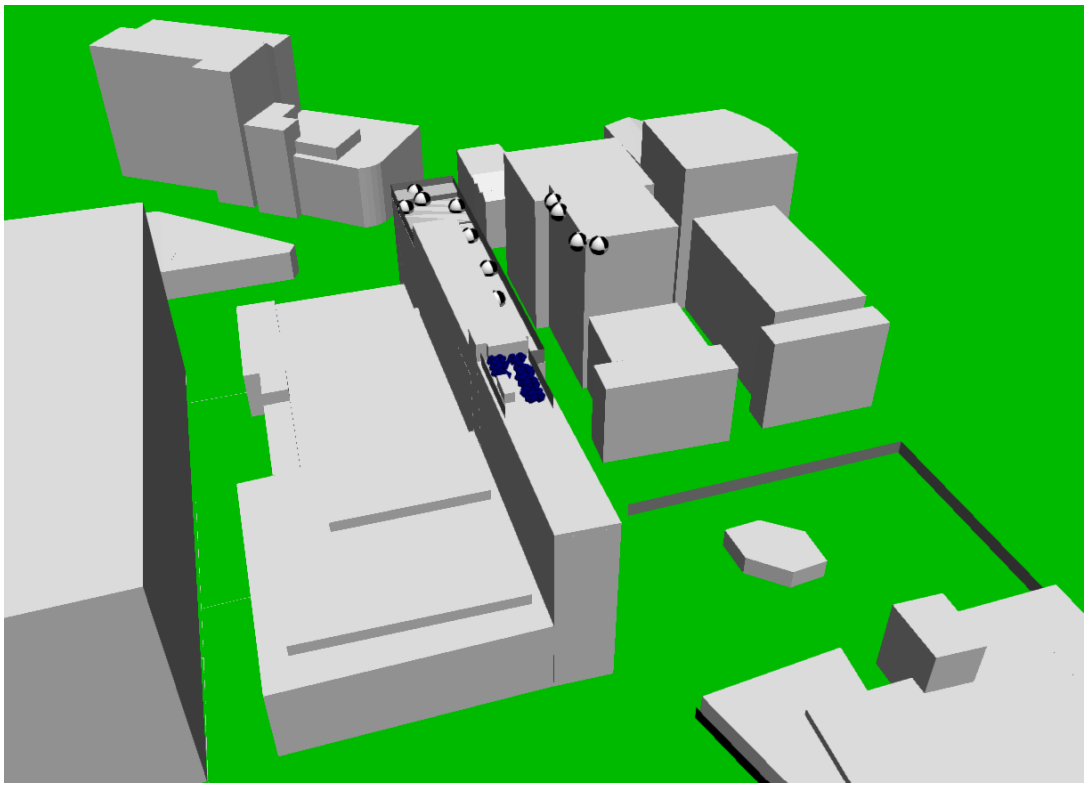


Figure 5 Screenshot of 3D environmental noise model

7.1 Results

The predicted plant noise egress levels outside the nearby noise sensitive receptors are provided in Table 7. The modelling has been based on the results of localised measurements close to the plant items. These include landlord and tenant plant in operation.

Table 7 Predicted plant noise egress levels for OGS Zone 6 development based on measurements

Location	Plant noise limit at 1 m from noise sensitive receiver, L_{Aeq} (dB) Day (07:00 – 23:00)
Manchester Goods Yard (commercial)	35
Bauhaus apartments (residential)	39

The plant noise egress levels meet the required day limits at the Bauhaus Apartments and the Manchester Goods Yard.

At night the plant is confirmed to be switched off, therefore the night limits are met by default.

Based on the above no additional mitigation measures are required to comply with the limits set out for normally operating plant at the nearest noise sensitive premises. No plant noise was audible outside the nearby noise sensitive receptors during the measurements and the background noise levels measured were consistent with those during the original noise survey works (as presented in Table 6) with the zone 6 plant in operation.

8 Emergency

8.1 Emergency plant

An emergency generator has been installed at the zone 6 rooftop. The generator location and measurement locations are given in Figure 3.

8.1.1 Method

Attended measurements were undertaken on 29 April 2026 to determine the noise levels of the installed generator.

Measurements were carried out in 1/3 octave bands over 1-minute periods. Extraneous noise was avoided for the duration of the measurements.

8.1.2 Weather conditions

Weather was clear and dry and considered suitable for obtaining representative measurements. In each case the generator was the dominant noise source.

8.1.3 Measurement results

The measurement results and observations for each measurement are presented in Table 8.

Table 8 Emergency generator noise measurement results

Measurement position	Sound pressure level measured, L_{Aeq} (dB)	Notes
G1	74	Dominated by generator break out with contributions from intake (1 m from side)
G2	79	Dominated by generator intake (1 m from side)
G3	78	Dominated by generator break out (1 m from side)

Measurement position	Sound pressure level measured, L_{Aeq} (dB)	Notes
G4	85	Dominated by generator exhaust/flue termination (1 m from top)
G5	77	Dominated by generator break out (1 m from side)
G6	75	Dominated by generator break out (1 m from side)
G7	79	Dominated by generator break out (1 m from side)

8.2 Assessment

The above 3D environmental noise model has been used to predict the plant noise egress at the nearby noise sensitive premises for emergency plant, based on the localised plant verification measurement results.

8.2.1 Results

The predicted emergency plant noise egress levels outside the nearby noise sensitive receptors are provided in Table 9.

Table 9 Predicted plant noise egress levels for OGS Zone 6 development based on measurements

Location	Predicted noise level at 1 m from noise sensitive receiver, L_{Aeq} (dB)
Manchester Goods Yard (commercial)	43
Bauhaus Apartments (residential)	49

The plant noise egress levels meet the emergency day and night limits at the Bauhaus Apartments and the Manchester Goods Yard. Therefore, deemed compliant with the criteria set out. No additional mitigation measures are proposed.

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Appendix A

Survey details

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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 NL-52 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

[1] 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 generally clear and dry and no rain occurred. Wind speeds were measured at each position and varied between 0 m/s and 5 m/s.

These weather conditions are considered suitable for obtaining representative measurements.

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