



NOISE IMPACT ASSESSMENT

on behalf of

Bowmer and Kirkland Limited

for development at

Echo Street, Manchester

Report Number NA101531-5

Date of Report 3 October 2025

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Summary

A noise assessment has been undertaken to predict the potential impact of noise from the fixed plant associated with a student accommodation development at Echo Street, Manchester. This report provides details of the undertaken environmental noise survey works, modelling and results required for the discharge of Condition 16(a) of the planning permission associated with the development.

Environmental sound surveys have previously been undertaken in 2017 and 2023 to establish the existing sound climate at nearby noise sensitive receptors (NSRs) during periods when the plant will operate.

A computer noise model of the proposed development and surrounding site has been assembled based on the proposed site layout and provided plant specifications. The likely noise levels at the nearest NSRs due to emissions from the site have been predicted and are presented within this report.

The predicted noise levels and data from the environmental sound survey have been used to assess the potential impact at the most affected NSR during the night-time period when existing background sound levels are at their lowest whilst the plant may be operational.

Based on the results of the computer modelling and the proposed site layout, no specific mitigation measures are required to control the noise emissions from externally mounted ancillary plant.

The assessment concludes that, with the specified mitigation measures in place, mechanical services plant noise limits will be achieved at all receptors and Condition 16(a) may be discharged.

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Date:	3 October 2025	Date:	3 October 2025	
Revision Number	Date	Updated by	Checked by	Changes made

Advisory Note

The suitability of any recommended noise mitigation measures within this report should be approved by the relevant architects, structural engineers, building contractors, fire consultants and material manufacturers constituting the wider design team, prior to procurement and field application. This should ensure that when the recommended noise control measures are implemented on site, they will satisfy the requirements of all disciplines, therefore should not cause any health and safety issues.

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1 Introduction

- 1.1 Miller Goodall Ltd has undertaken a noise assessment to accompany an application to discharge a planning condition for a proposed student accommodation development at Echo Street, Manchester. The scope of this report is to provide details of the undertaken environmental noise surveys, assess the potential impact of operational noise from the fixed plant associated with the development on nearby noise sensitive receptors (NSRs), and demonstrate that noise limits set to comply with Condition 16(a) are achievable.

2 Policy, Standards and Guidance

- 2.1 The following planning policy and acoustics standards and guidance have been considered in this assessment.
- Noise Policy Statement for England (NPSE).
 - National Planning Policy Framework (NPPF).
 - BS 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound'.
- 2.2 Further detail is provided in **Appendix 1: Policy, Standards and Guidance**.

3 Planning Condition 16

- 3.1 Two planning conditions associated with the planning permission for the site (Manchester City Council ref: 136874/FO/2023) relate to noise, with this report seeking to discharge Condition 16(a) only, which is reproduced below:

"16) (a) Prior to the first occupation of the development hereby approved, details of any externally mounted ancillary plant, equipment and servicing shall be submitted for approval in writing by the City Council, as Local Planning Authority. Externally mounted 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 5 dB (L_{aeq}) below the typical background (LA₉₀) level at the nearest noise sensitive location.

(b) Prior to the first occupation of the development, a verification report will be required to validate that the work undertaken conforms to the recommendations and requirements approved as part of part (a) of this planning condition. The verification report shall include post completion testing to confirm the noise criteria has been met. In instances of non-conformity,

these shall be detailed along with mitigation measures required to ensure compliance with the noise criteria. A verification report and measures shall be agreed until such a time as the development complies with part (a) of this planning condition. Any mitigation measures shall be implemented in accordance with a timescale to be agreed with the City Council, as Local Planning Authority. Any measures shall thereafter retained and maintained in situ.

Reason – To minimise the impact of plant on the occupants of the development pursuant to policies SP1 and DM1 of the Manchester Core Strategy (2012) and saved policy DC26 of the Unitary Development Plan for the City of Manchester (1995).

4 Assessment Methodology

- 4.1 BS 4142 has been considered with regard to the potential noise from the development. Environmental sound monitoring was undertaken in 2017 and 2023 and has been used to establish background noise levels at noise sensitive receptors (NSRs) close to the development. These measurements have been considered in the context of the achievability of appropriate noise limits on fixed external plant and equipment associated with the development.

5 Site Description

- 5.1 The site is located at Echo Street, Manchester. The site location is indicated in the figure presented in **Appendix 2: Site Location, Monitoring and NSR Locations**.
- 5.2 The site is bounded to the south by the trainline, running between Manchester Piccadilly and Manchester Oxford Road, beyond which are university buildings and the Mancunian Way (A57(M)) overpass approximately 250 m away. To the east, the site is directly bounded by Echo Street and an office building with the A6 and Piccadilly train station beyond.
- 5.3 North of the site, across Granby Row, is the existing iQ student accommodation, with Fairfield Street and offices beyond. To the west of the site are Vimto Park and University of Manchester buildings.
- 5.4 The primary noise sources in the area are the A6 and Fairfield Street, with anonymous traffic noise from other surrounding roads and intermittent noise from the train line.

6 Proposed Development

- 6.1 Three interlinked towers ranging from 27, 21, and 16 storeys are currently being erected together with intermediary link buildings (15 and 11 storeys) to form Purpose Built Student Accommodation with associated amenity space and external landscaping and other associated works.
- 6.2 Externally mounted plant items are roof mounted on each of the main towers, the rooftop plant layout is presented in **Appendix 3: Plant Layout**.
- 6.3 Only one scenario is assessed as it is the worst-case scenario for the development, which is night-time assessment of mechanical services plant.

7 Environmental Sound Survey

7.1 2023 Survey

- 7.1.1 Noise measurements were undertaken in accordance with BS 7445-1: 2003¹ by James Sharpe and Jo Miller of Miller Goodall Ltd. The calibration of the sound level meter was checked before and after measurements with negligible deviation (≤ 0.1 dB). Details of the equipment used are shown in **Table 1**.

Table 1: Noise monitoring equipment

Equipment Description	Type Number	Manufacturer	Serial No.	Date Calibrated	Calibration Certification Number
Class 1 ^{2,3} Integrating Real Time 1/3 Octave Sound Analyser	NTi XL2-TA	NTi Audio	A2A-11111-E0	13/09/2021	05451/1
Microphone	NTi MC230A	NTi Audio	A14423	13/09/2021	05451/1
Class 1 Calibrator ⁴	CAL 200	Larson Davies	14154	10/10/2022	05964/1

¹ BS 7445-1: 2003 Description and measurement of environmental noise – Part 1: Guide to quantities and procedures

² IEC 61672-1 (2002) Electroacoustics – Sound level meters Part 1: Specifications

³ IEC 61260 (1995) Electroacoustics – Octave-band and fractional-octave-band filters

⁴ IEC 60942 (2003) Electroacoustics – Sound calibrators

Equipment Description	Type Number	Manufacturer	Serial No.	Date Calibrated	Calibration Certification Number
Class 1 ^{5,6} Integrating Real Time 1/3 Octave Sound Analyser	NTi XL2-TA	NTi Audio	A2A-15860-E0	27/02/2023	05145/1
Microphone	NTi MC230A	NTi Audio	A16445	28/02/2023	05145/1

7.1.2 Noise monitoring was undertaken at the times specified in **Table 2**. Weather conditions were determined both at the start and on completion of the survey. It is considered that meteorological conditions were appropriate for environmental noise measurements. Measurement locations are shown in **Appendix 2: Site Location, Monitoring and NSR Locations**.

Table 2: Dates, times and weather conditions during noise measurements

Measurement Locations	Date/Time	Weather conditions		
		Description	At Start of Survey	On Completion
MP1 and MP2	03/02/2023, 11:00 to 09/02/2023, 13:00	Temperature:	9 °C	8 °C
		Precipitation:	Light	Dry
		Cloud cover (oktas – see opposite):	5	4
		Any fog/snow/ice?	No	No
		Any damp roads/wet ground?	Slight	No
		Wind speed:	4 m/s	5 m/s
		Wind direction:	W	
		Any conditions that may cause temp. inversion (e.g. calm nights with no cloud):	No	No

Cloud Cover		
Symbol	Scale in oktas (eighths)	
	0	Sky completely clear
	1	
	2	
	3	
	4	Sky half cloudy
	5	
	6	
	7	
	8	Sky completely cloudy
	(9)	Sky obstructed from view

⁵ IEC 61672-1 (2002) Electroacoustics – Sound level meters Part 1: Specifications

⁶ IEC 61260 (1995) Electroacoustics – Octave-band and fractional-octave-band filters

7.1.3 Measurements were made under free-field conditions at a height of approximately 3.8 m above ground. The noise sources within the vicinity of the measurement locations are summarised in **Table 3**.

Table 3: Description of noise sources affecting the site

Measurement Locations	Noise Sources
MP1	Road traffic, limited train pass-bys due to train strike on 03/03/2023
MP2	Road traffic dominant

7.1.4 A summary of the broadband measurement data is provided in **Table 4** in day- and night-time periods. All data are sound pressure levels in dB re 20 μ Pa.

Table 4: Summary of noise measurements

Measurement Location	Period	Date	$L_{Aeq,T}$ (dB)	Overall L_{AFmax} (dB)	$L_{A10,T}$ (dB)	$L_{A90,T}$ (dB)
MP1	Day*	02/02/2023	56.4	85.6	57	52
	Night	02/02/2023 – 03/02/2023	55.5	86.5	54	49
	Day	03/02/2023	55.9	79.7	57	52
	Night	03/02/2023 – 04/03/2023	53.4	77.8	55	50
	Day	04/02/2023	56.7	90.6	55	51
	Night	04/02/2023 – 05/02/2023	53.0	82.3	55	48
	Day	05/02/2023	58.9	88.7	61	52
	Night	05/02/2023 – 06/02/2023	54.9	85.2	55	47
	Day	06/02/2023	60.4	86.8	62	52
	Night	06/02/2023 – 07/02/2023	55.2	83.8	55	48
	Day	07/02/2023	58.6	84.1	60	54
	Night	07/02/2023 – 08/02/2023	55.2	83.8	55	48
	Day*	08/02/2023	64.2	93.1	66	55

Measurement Location	Period	Date	$L_{Aeq,T}$ (dB)	Overall L_{AFmax} (dB)	$L_{A10,T}$ (dB)	$L_{A90,T}$ (dB)
MP2	Day*	02/02/2023	58	91.6	59	55
	Night	02/02/2023 – 03/02/2023	56.9	86.6	57	53
	Day	03/02/2023	57.9	87.0	59	55
	Night	03/02/2023 – 04/03/2023	56.2	84.0	57	54
	Day	04/02/2023	57.6	89.3	58	54
	Night	04/02/2023 – 05/02/2023	55.4	86.6	57	52
	Day	05/02/2023	61.9	87.5	64	54
	Night	05/02/2023 – 06/02/2023	56.5	78.5	58	52
	Day	06/02/2023	62.6	87.9	64	54
	Night	06/02/2023 – 07/02/2023	56.1	79.4	57	53
	Day	07/02/2023	59.8	83.5	61	55
	Night	07/02/2023 – 08/02/2023	56.5	82.8	57	52
	Day*	08/02/2023	63.2	88.3	63	56

* Measurements during the daytime periods of 02/02/2023 and 08/02/2023 are less than 16-hour daytime periods due to the set-up and collection of equipment. However, the data has been included here for completeness

7.1.5 Each measurement period consisted of sequential 100 ms samples which therefore allowed the variation in noise level over time to be assessed. The 100 ms noise levels have not been presented in this report but are kept on file for future reference.

7.1.6 Octave band frequency data was obtained during surveying and this was utilised within noise modelling software to determine noise levels at the proposed development.

7.2 2017 Survey

7.2.1 Noise measurements have previously been undertaken by Miller Goodall Ltd in May and July 2017 at various positions in Chandos Hall – now demolished. Attended and unattended measurements of the existing noise climate were made as follows:

- 11th May 2017: Attended measurements of individual train pass-bys at different heights on the south elevation and 30-minute attended measurements of weekday, daytime ambient noise

levels at different heights on west and east facing elevations of the now demolished Chandos Hall building.

- 11th – 15th May 2017: Continuous unattended noise logging at two heights (5th and 11th floors) on the south facing elevation of the now demolished Chandos Hall building. Included weekday and weekend periods.
- 6th – 10th July 2017: Continuous unattended noise logging 1 m from the east and west facing elevations of the now demolished Chandos Hall building. Included weekday and weekend periods.

7.2.2 These noise measurements were undertaken in accordance with BS 7445-1:2003 by Colin Foster and Michael Rickard of Miller Goodall Ltd. All instrumentation used during the surveys was fully calibrated and traceable to UKAS standards and satisfy the requirements for Class 1 instruments described in BS EN 61672-1:2013. Details of the equipment used are shown in **Table 5**. The calibration of the sound level meters was checked before and after measurements with negligible deviation (≤ 0.1 dB).

Table 5: Noise Monitoring Equipment

Equipment Description	Type Number	Manufacturer	Serial No.	Date Calibrated	Calibration Certification Number
Class 1 ^{[7],[8]} Integrating Real Time 1/3 Octave Sound Analyser	NOR 140	Norsonic	1406815	12/01/17	474629844
Class 1 ^{[7],[8]} Integrating Real Time 1/3 Octave Sound Analyser	NOR 140	Norsonic	1406017	22/05/15	U18820
				23/05/17	03238/2
Class 1 Calibrator ⁹	Type 4231	Brüel & Kjær	2478249	25/07/16	02817/1
				18/05/17	03238/1
Class 1 Calibrator ^[9]	NOR 1251	Norsonic	34123	05/07/17	02777/1
Outdoor microphone housing	NOR 1217	Norsonic	12175738	N/A	N/A
Outdoor microphone housing	NOR 1217	Norsonic	12175146	N/A	N/A

⁷ IEC 61672-1 (2002) Electroacoustics – Sound level meters Part 1: Specifications

⁸ IEC 61260 (1995) Electroacoustics – Octave-band and fractional-octave-band filters

⁹ IEC 60942 (2003) Electroacoustics – Sound calibrators

- 7.2.3 As with the 2023 environmental noise measurements, meteorological conditions were noted by the engineers on site and were considered suitable for reliable noise measurements i.e. no rain and wind speeds below 5 m/s. For unattended noise logging, meteorological conditions were determined from reviewing forecasts and data measured at nearby weather stations (www.wunderground.com).
- 7.2.4 There were periods during the unattended measurements taken between 11th – 15th May when adverse meteorological weather conditions may have influenced the results. In particular, the possible influence due to rainfall was determined as follows:
- 10:00 – 14:30 on 12/07/2017: approx. 0.5 – 2 mm/hr; Data still considered useable
 - 02:30 – 06:00 on 14/07/2017 approx. 0.5 – 4.5 mm/hr; Data still considered useable
 - 07:00 onwards on 15/07/2017 approx. >3 mm/hr; Data excluded from analysis
- 7.2.5 The weather conditions for all other periods were considered suitable for reliable measurements. There was no rainfall and wind speeds remained low (below 5 m/s) throughout, generally from a westerly / south-westerly direction.
- 7.2.6 **Table 6** describes the noise sources which were audible at each of the measurement positions during the environmental noise measurements.

Table 6: Description of Noise Sources Affecting the Site

Measurement Locations	Noise Sources
South facing elevation (overlooking railway)	Railway noise dominant. Train pass-bys are all quite slow, due to proximity of Piccadilly Station. Mixture of diesel (louder) and electric (quieter) trains. Occasional diesel freight trains during day and night. Occasional horns. Rail squeal often audible, due to track curve near Piccadilly, though not directly adjacent to Chandos Hall. Distant general road traffic hum dominant in between train movements. At upper levels the rail noise reduces a little and traffic hum becomes more noticeable. Some noise at higher floors from fixed M&E plant on rooftops of university buildings.
East facing elevation	Distant general road traffic hum dominant. Ambient noise levels are higher at the upper floors of the existing building where there

Measurement Locations	Noise Sources
(facing towards Piccadilly station)	is a direct line of sight to Piccadilly station taxi drop off / interchange area. Some playground noise from existing nursery audible at lowest floors. Rail noise audible but not significant.
West facing elevation (facing towards Vimto Park)	Distant general road traffic hum dominant. Louder at higher floors of the existing building. Subjectively lower noise levels than east facing elevation. Rail noise audible but not significant.
MP1 facing railway line	Railway noise dominant. Train pass-bys are all quite slow, due to proximity of Piccadilly Station. Mixture of diesel (louder) and electric (quieter) trains. Occasional diesel freight trains during day and night. Horns from railway occasionally. Occasional rail noise squeal, due to track curve near Piccadilly, though not directly adjacent to Chandos Hall. Distant general road traffic hum dominant in between train movements.
MP2	Railway noise evident at this position but not always dominant. Noise from general road traffic on Granby Row and the A6 and surrounding road network more dominant.

7.2.7 A summary of the broadband and spectral measurement data recorded at Chandos Hall is provided in **Table 7** in day- and night-time periods. All data are sound pressure levels in dB re 20 μ Pa and are façade reflected sound pressure levels.

7.2.8 Each measurement period consisted of sequential 1 second samples which therefore allowed the variation in noise level over time to be assessed. The following observations may be made by inspection of the measurement data:

- The highest maximum noise levels occur during train pass-bys on lower floors of the south facing elevation. The maximum noise levels on this elevation reduce with height, being approximately 6 dB lower at 15th floor than at 2nd floor.
- On the south facing elevation, the L_{Aeq} remains reasonably constant irrespective of changes in height.
- Environmental noise levels are slightly higher on the east facing elevation (facing Piccadilly) than the west (facing Vimto Park).

Table 7 – External Noise Levels Derived from Unattended Measurements at Existing (at the time) Chandos Hall (2017)

Location	Descriptor	Sound Pressure Level, dB								dBA
		in Octave Band Centre Frequency, Hz								
		63	125	250	500	1k	2k	4k	8k	
Southern elevation 2 nd Floor	Day L_{eq}	73.4	64.5	64.2	62.1	61.8	58.3	58.7	53.7	66.8
	Night L_{eq}	68.3	61.1	61.6	59.1	58.3	54.5	58.5	52.9	64.4
	*Typical Night L_{Max}	91.6	79.7	81.7	78.4	77.5	74.3	75.6	73.4	83.3
Southern elevation 5 th Floor	Day L_{eq}	72.4	63.5	63.2	61.1	60.8	57.3	57.7	52.7	65.8
	Night L_{eq}	67.3	60.1	60.6	58.1	57.3	53.5	57.5	51.9	63.4
	*Typical Night L_{Max}	90.6	78.7	80.7	77.4	76.5	73.3	74.6	72.4	82.3
Southern elevation 13 th Floor	Day L_{eq}	71.5	64.7	62.3	60.9	62.1	56.3	51.2	45.3	65.2
	Night L_{eq}	67.0	60.8	59.2	57.9	59.1	53.7	51.4	44.8	62.5
	*Typical Night L_{Max}	88.6	78.5	74.6	74.8	72.5	70.1	68.0	62.8	77.9
Eastern elevation 5 th Floor	Day L_{eq}	68.8	61.4	59.0	58.1	58.4	54.0	51.0	46.2	62.3
	Night L_{eq}	63.8	57.9	56.1	55.6	55.3	49.8	47.1	42.4	59.0
	*Typical Night L_{Max}	84.6	75.3	72.9	74.1	71.9	68.6	66.7	60.1	76.8
Western elevation 5 th Floor	Day L_{eq}	67.6	61.9	56.8	56.1	55.9	51.6	48.0	44.6	60.0
	Night L_{eq}	61.8	57.7	52.9	52.6	51.6	46.3	41.2	36.3	55.5
	*Typical Night L_{Max}	81.9	74.5	70.3	71.5	69.6	66.4	62.2	57.3	74.3

8 Background Sound Level

- 8.1 Based on the results of the environmental sound monitoring in **Section 7**, representative background sound levels ($L_{A90,T}$) have been based on the lowest, recorded modal L_{A90} values recorded at the site in the corresponding period (day- and night-time, 07:00 – 23:00 and 23:00 – 07:00 respectively used here).
- 8.2 The histograms of results with the representative background sound levels ($L_{A90,T}$) values highlighted are shown in **Figure 1** to **Figure 4**. A summary of these results is then given in **Table 8**.

Figure 1: L_{A90} Histogram, 07:00 – 23:00 North of Site

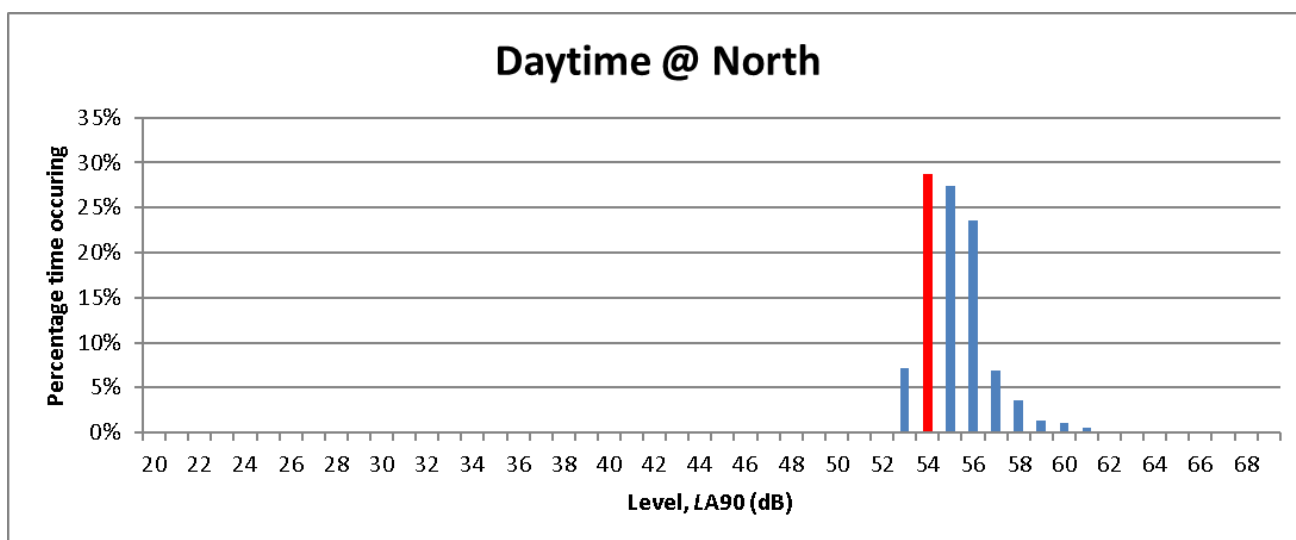


Figure 2: L_{A90} Histogram, 23:00 – 07:00 North of Site

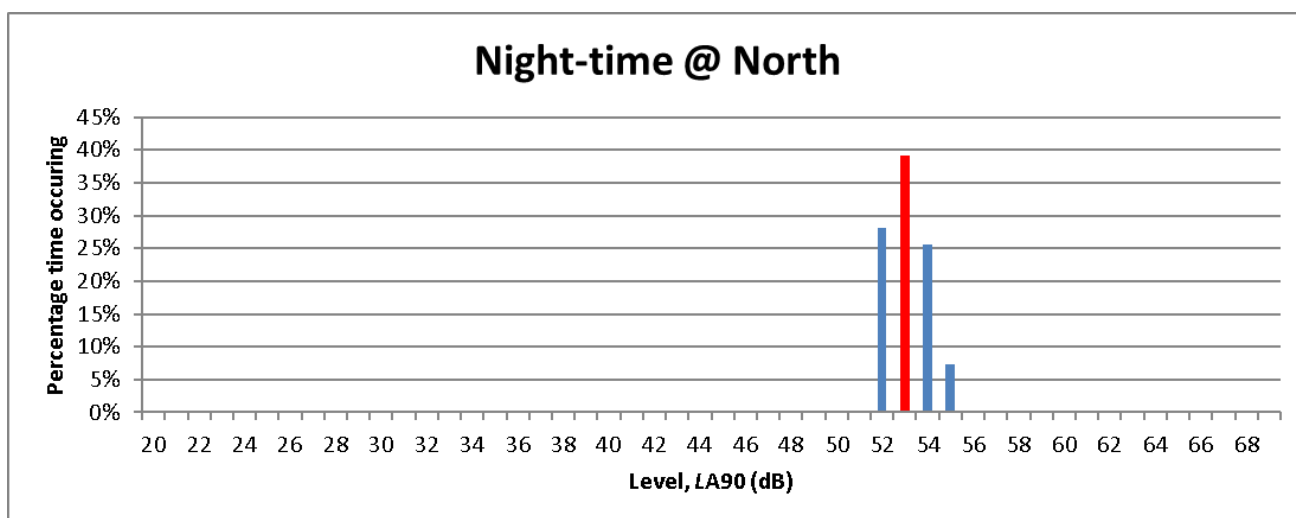


Figure 3: L_{A90} Histogram, 07:00 – 23:00 South of Site

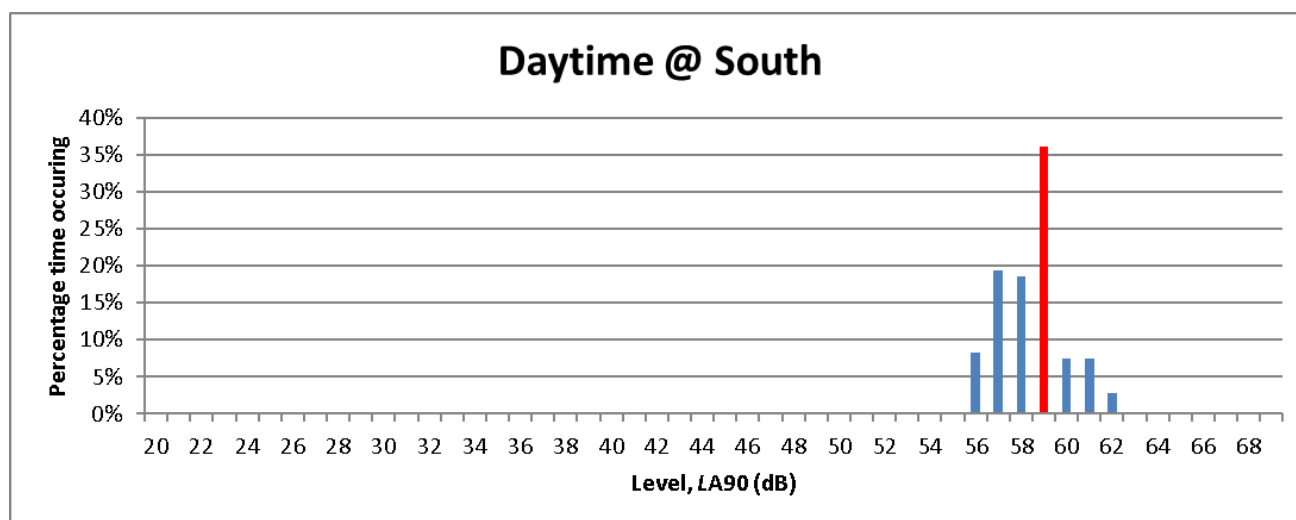


Figure 4: L_{A90} Histogram, 23:00 – 07:00 South of Site

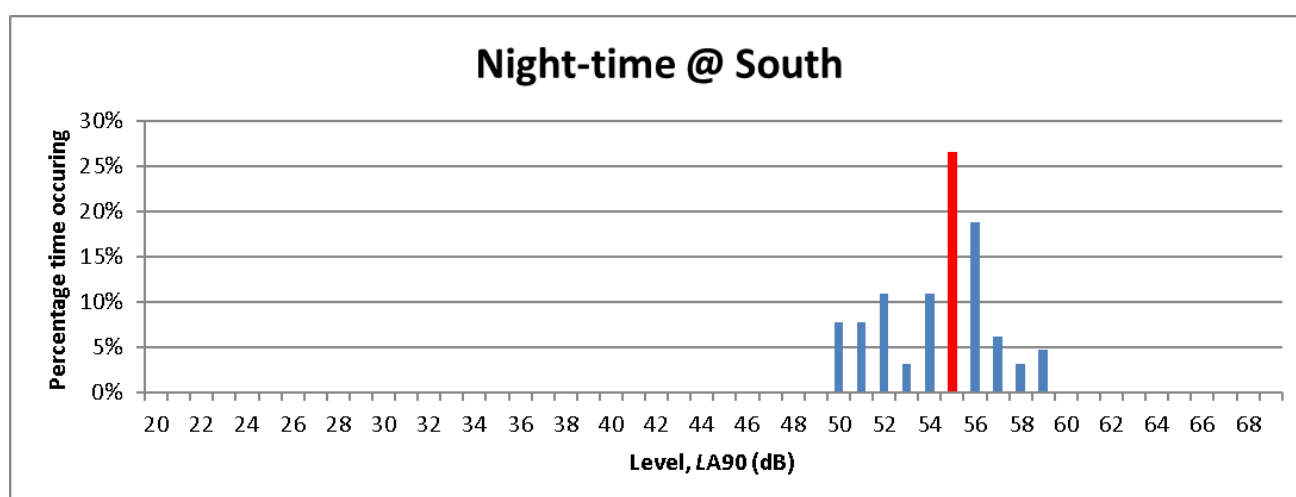


Table 8: Representative Background Sound Levels

Position	Period	Background Sound Level,
		$L_{A90,T}$ (dB)
North	Daytime: 07:00 – 23:00	54
	Night-time: 23:00 – 07:00	53
South	Daytime: 07:00 – 23:00	59
	Night-time: 23:00 – 07:00	55

9 Plant Noise Limits

- 9.1 Based on the results of the environmental sound surveys undertaken at the site, and using the guidance from Condition 16(a), plant noise limits have been derived and are shown in **Table 9**.

Table 9: Plant Noise Limits

Position	Period	Plant Noise Limits (dB)
North	Daytime: 07:00 – 23:00	49
	Night-time: 23:00 – 07:00	48
South	Daytime: 07:00 – 23:00	54
	Night-time: 23:00 – 07:00	50

10 Noise Modelling Methodology

10.1 General

- 10.1.1 A noise model of noise from the proposed development has been assembled using CadnaA noise modelling software.
- 10.1.2 The general horizontal plan information of the area surrounding and including the proposed development site was imported from Google Earth. This was used to determine road positions, building footprint areas and relative locations and is considered accurate to within 5%.
- 10.1.3 The following parameters were assigned to the model:
- Propagation of noise using algorithms within ISO 9613:2024 *Acoustics – Attenuation of sound during propagation outdoors*.
 - Default ground absorption $G = 0.0$. Representing hard ground surrounding the site.
 - No adverse meteorological effects.
 - Two orders of reflection.
 - Topographical data was obtained using NextMap Britain 2 m contours for the site and surrounding assessment area.
 - 1 m solid parapet around the perimeter of each rooftop plant area.
 - Buildings are reflecting with smooth non-structured facades.

- Receiver heights of 4 m for first floor receivers.

10.1.4 The assessment and mechanical services locations have been based on the following drawing provided by *Bowmer and Kirkland Limited*:

- 63073-ABE-ZZ-ZZ-DR-ME-59201 – MECHANICAL ROOF PLANTROOMS

10.2 Noise Sources

10.2.1 Noise source data has been provided by *ab Engineering* and used for the purposes of this assessment. Noise source heights were based on the dimensions of units (taken from datasheets) and located at the top of all items of plant to provide a worst-case assessment. Where only single figure noise data has been provided, flat A-weighted spectra at an equivalent single figure noise level has been used – this would typically result in a worse-case outcome than using a flat noise spectrum. The noise data used in the assessment is therefore as shown in **Table 10**.

Table 10: Assessed Mechanical Services Noise Levels

Source	Sound Power Level (dB) at								dB(A)
	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
AHU01 Fresh Air Intake	80	78	81	73	68	64	61	61	76.1
AHU01 Exhaust	81	76	78	80	77	76	74	74	83.3
AHU01 Breakout	72	64	57	61	46	45	42	45	59.5
QTon Units 1-11	85.3	69.3	65.3	67.3	64.8	60.8	58.3	57.8	70
OU.RF.001_12	84	84	82.5	81.5	76.5	73	72.5	64	82.9
OU.RF.001_16	84	84	82	84	76.5	73.5	71	67	83.9
OU.RF.002	82	82	80	81.5	75	76	75	69	83.3
OU.RF.003	94.5	90	85.5	85.5	77.5	75	73.5	71	85.9
OU.RF.004	87.5	81.5	79	77	71	68	64	59.5	78.1
Roof Extract Fan Exhaust	88	82	74	71	60	56	51	47	72.2
Roof Extract Fan Breakout	74	64	60	44	27	24	25	16	54.4

Source	Sound Power Level (dB) at								dB(A)
	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
Basement Bin Fan Exhaust ¹	81	92	77	72	76	78	75	67	83.4
Ground Bin Fan Exhaust ¹	83	90	73	66	72	73	68	62	79.1
Ground W/C Fan Exhaust ¹	71	63	64	57	50	45	45	38	59.3
Smoke Extract Fans ²	124.7	114.6	107.1	101.7	98.5	97.3	97.5	99.6	107.6
Diesel Pump ²	95.6	100.1	96	100.8	101.8	102.5	102.2	99.8	108.7

¹ As these are internally mounted plant items, they are excluded from the assessment under of plant related to Condition 16, which looks at externally mounted plant only.

² This is an item of emergency plant only and will not run under normal conditions. It is therefore excluded from the mechanical services assessment.

10.2.2 Condition 16 relates only to externally mounted ancillary plant under normal usage. Plant which operates in emergency scenarios e.g. emergency smoke extract fans and basement diesel pumps, have not been included as part of the assessment.

10.2.3 Other items of proposed plant which are excluded from assessment under Condition 16 are:

- Booster pump set for combined domestic and residential tank – not expected to make a significant contribution.
- Daikin RZAG100NV1 Condenser – Location unknown, not modelled at this stage. Unlikely to make a significant contribution as this is a single condenser unit.
- Lobby Extract Fan – Location unknown, not modelled at this stage. Unlikely to make a significant contribution.
- Rainwater Booster Set – No noise data, not expected to make a significant contribution.
- Internally mounted MVHR units at ground floor level.
- Internally mounted extract fans serving bin stores at basement and ground floor level.

11 BS 4142:2014+A1:2019 Assessment

- 11.1 **Table 11** sets out the noise sensitive receptors (NSRs) considered within the assessment and included within the noise model. The modelled noise levels at the NSRs due to emissions from the proposed development with embedded mitigation included are also presented. The assessment height at each building is based on the worst-affected part of the building using a typical storey height of 3 m.

Table 11: Modelled noise levels and noise sensitive receptors

Reference	Noise Sensitive Receptor (NSR)		Plant Noise Limit, dB	Modelled Specific Noise Level, dB $L_{Aeq,Tr}$
	Description			
NSR1	Sackville Building – west of the site, approximately 50 m from the site on the north side of Granby Row.		48	41
NSR2	Fairfield Hall – north-east of the site, directly across Granby Row.		48	36
NSR3	Lambert Hall – north of the site, directly across Granby Row.		48	36
NSR4	Barnes Wallis Building – south of the site, approximately 40 m south of the site across the train line.		50	33
NSR5	Piccadilly Hotel – east of the site, approximately 100 m from the site across the train line and the A6.		50	25

- 11.2 The output from the noise model showing the loudest levels at each façade as described in **Table 11** is presented in **Appendix 4: Noise Model Output**.
- 11.3 The octave-band results that have been predicted at the NSRs show that no tonal characteristics (as described in BS 4142:2014+A1:2019) are anticipated, so no character correction is required for this characteristic. With respect to intermittency, impulsivity and other characteristics described in BS 4142, the mechanical services plant is all new and should not generate any impulsive sound if well-maintained and is anticipated to be in constant operation i.e. not intermittent. Consequently, in this case, the specific sound and the rating level are the same.
- 11.4 Based on the results presented in **Table 11**, without the addition of any specific mitigation measures (e.g. silencers, enclosures, barriers etc.), noise criteria are achievable at all nearby noise sensitive receptors. This shows compliance with the requirements of Condition 16(a) of

Planning Permission ref: *136874/FO/2023* associated with the development, which may therefore be discharged.

12 Summary and Conclusion

- 12.1 A noise assessment has been undertaken, on behalf of Bowmer and Kirkland Limited to predict the potential impact of noise from mechanical services plant associated with a student accommodation development on nearby noise sensitive receptors.
- 12.2 This report has provided full details of environmental noise surveys undertaken at the site previously.
- 12.3 Combined mechanical services noise from all externally mounted ancillary plant has been assessed at nearby noise sensitive receptors based on proposed installations, and shown to comply with the requirements of Condition 16(a). As a result, we would consider that Condition 16(a) can now be discharged.

APPENDICES

Appendix 1: Policy, Standards and Guidance

1 Noise Policy Statement for England

- 1.1 The Noise Policy Statement for England (NPSE¹¹) sets out the long-term vision of noise policy. The Noise Policy aims, as presented in this document, are:

“Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *avoid significant adverse effects on health and quality of life;*
- *mitigate and minimise adverse effects on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life.”*

- 1.2 The NPSE makes reference to the concepts of NOEL (No Observed Effect Level) and LOAEL (Lowest Observed Adverse Effect Level) as used in toxicology but applied to noise impacts. It also introduces the concept of SOAEL (Significant Observed Adverse Effect Level) which is described as the level above which significant adverse effects on health and the quality of life occur.

- 1.3 The first aim of the NPSE is to avoid significant adverse effects, taking into account the guiding principles of sustainable development (as referenced in Section 1.8). The second aim seeks to provide guidance on the situation that exists when the potential noise impact falls between the LOAEL and the SOAEL, in which case:

“...all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development”.

- 1.4 Importantly, the NPSE goes on to state:

“This does not mean that such adverse effects cannot occur”.

¹¹ Noise Policy Statement for England, Defra, March 2010

- 1.5 The Statement does not provide a noise-based measure to define SOAEL, acknowledging that the SOAEL is likely to vary depending on the noise source, the receptor and the time in question. NPSE advises that:

"Not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available"

- 1.6 It is therefore likely that other guidance will need to be referenced when applying objective standards for the assessment of noise, particularly in reference to the SOAEL, whilst also taking into account the specific circumstances of a proposed development.

2 National Planning Policy Framework

- 2.1 The National Planning Policy Framework (NPPF¹²) was updated most recently in February 2025. The NPPF advises that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives). One of these is an environmental objective which is described in par. 8 (c):

"to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."

- 2.2 At par. 187 NPPF advises that:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans..."

¹² National Planning Policy Framework, Ministry of Housing, Communities and Local Government, December 2023

2.3 Par. 198 goes on to state:

“Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; ...”

2.4 Par. 200 seeks to ensure that any development does not prejudice the legally permitted operations and activities of other, existing non-residential uses, stating:

“Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or ‘agent of change’) should be required to provide suitable mitigation before the development has been completed.”

3 BS 4142:2014+A1:2019 ‘Methods for rating and assessing industrial and commercial sound’

3.1 BS 4142:2014+A1:2019¹³ provides guidance on the assessment of the likelihood of complaints relating to noise from industrial sources. The standard presents a method of assessing potential noise impact by comparing the noise level due to industrial sources (the Rating Level) with that of the

¹³ BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

existing background noise level at the nearest noise sensitive receiver in the absence of the source (the Background Sound Level).

3.2 The Specific Noise Level – the noise level produced by the source in question at the assessment location – is determined and a correction applied for certain undesirable acoustic features such as tonality, impulsivity or intermittency. The corrected Specific Noise Level is referred to as the Rating Level.

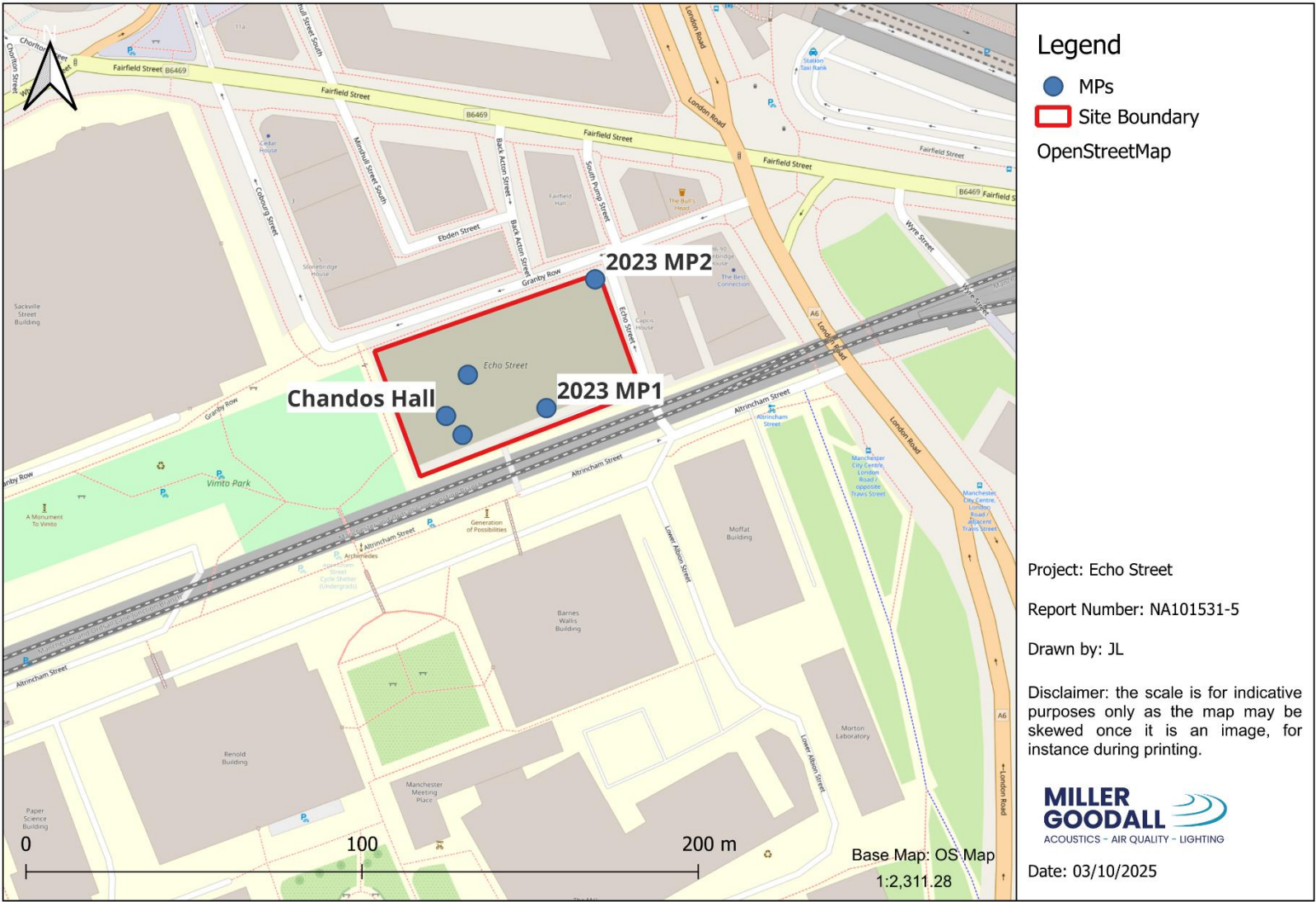
3.3 In order to assess the noise impact, the Background Sound Level is arithmetically subtracted from the Rating Level. The standard states the following:

- *Typically, the greater this difference, the greater the magnitude of the impact,*
- *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context,*
- *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context,*
- *The lower the Rating Level is relative to the measured Background Sound Level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the Rating Level does not exceed the Background Sound Level, this is an indication of the specific sound source having a low impact, depending on the context.*

3.4 In addition to the margin by which the Rating Level of the specific sound source exceeds the Background Sound Level, the 2014+A1:2019 edition places emphasis upon an appreciation of the context, as follows:

An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context.

Appendix 2: Site Location, Monitoring and NSR Locations



Appendix 3: Plant Layout



Appendix 4: Noise Model Output



Glossary of Terms

Decibel (dB) The unit used to quantify sound pressure levels; it is derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is $20 \mu\text{Pa}$, the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is usually only perceptible under laboratory conditions.

dB L_A Decibels measured on a sound level meter incorporating a frequency weighting (A-weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB L_A broadly agree with an individual's assessment of loudness. A change of 3 dB L_A is the minimum perceptible under normal conditions, and a change of 10 dB L_A corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB L_A ; normal conversation about 60 dB L_A at 1 meter; heavy road traffic about 80 dB L_A at 10 meters; the level near a pneumatic drill about 100 dB L_A .

$L_{A90,T}$ The A weighted noise level exceeded for 90% of the specified measurement period (T). In BS 4142: 2014+A1:2019 it is used to define background noise level.

$L_{Aeq,T}$ The equivalent continuous sound level. The sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter.

$L_{AF,max}$ The highest A-weighted noise level recorded during the time period using a Fast time-weighting. It is usually used to describe the highest noise level that occurred during the event.

