

J003897-8205-DH-02

6th January 2025

Connor Eastell
Torsion Construction
1280 Century Way
Thorpe Park
Leeds
LS15 8ZB

Great Ducie Street – Noise Assessment of Rooftop Generators

Dear Connor,

It is understood that there are to be 3 no. generators and 3 no. smoke fans introduced to the rooftop of the residential development located off of Great Ducie Street, Manchester. We have been informed that the plant use is for emergency purposes only and are to be tested for 2 hours once a month.

Criteria – Manchester City Council

We would note that within the decision notice '122280/F0/2019' the following condition is set out:

21) a) Any 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 (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location.

Site Survey and Limits

A noise survey has been conducted on-site to establish the existing noise levels prior to the new residential development. The details of the surveys which have been carried out by PDA Ltd and Azymuth Acoustics are detailed within 'J003897-5694-DH-04 Environmental Noise Assessment – Great Ducie Street, Manchester' and '122280_FO_2019 – Environmental_Noise_Report – 1070250' respectively.

We would note that the closest noise sensitive receivers are located on Mirabel Street and Breslyn Street. The positions have been measured within the Azymuth Acoustics report and are reproduced as follows:

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Figure 1 – ‘Figure 2: Site plan with noise measurement positions marked in red’ – ‘122280_FO_2019 – Environmental_Noise_Report – 1070250’



Figure 2: Site plan with noise measurement positions marked in red

Table 1. – ‘Table 1: Results of Azimuth Acoustics noise measurements July 2018’– ‘122280_FO_2019 – Environmental_Noise_Report – 1070250’

Location	Time	L _{Amax} *	L _{Aeq}	L _{A1}	L _{A10}	L _{A50}	L _{A90}
1. Mirabel Street	Day	77	60	67	62	59	55
	Night	75	55	62	58	53	48
2. Gt. Ducie Street Litecraft Car Park	Day	88	66	72	68	64	61
	Night	87	66	73	68	63	59
2A. Gt. Ducie Street onsite	Day	94	66	73	68	63	60
	Night	75	61	70	66	56	51
2 & 2A. Gt Ducie St Average	Day	93	66	72	68	64	60
	Night	81	63	71	66	58	53
3. Breslyn Street	Day	75	59	64	61	58	55
	Night	72	57	66	61	54	47

*Percentile analysis, worst 5%

Table 1: Results of Azimuth Acoustics noise measurements, July 2018

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We would therefore consider that the limit at the nearest noise sensitive receivers would be 50 dB(A) based upon a 5 dB reduction from the typical background L_{A90} measured at these locations. This is considered to be worst-case as Position 1 and 3 are the lowest measured values due to screening from Great Ducie Street and Trinity Way. **Please note** that we have assumed the roof plant will only be tested during the day-time hours.

Generator Noise Levels

We have been provided with the manufacturers noise data for the rooftop plant units ref: '627589-TS-XX-ZZ-001-R-04' and 'MSP-4161a'. We have summarised the sound power levels provided below. Please note that we have utilised the noise levels under a 100% load/speed as a worst-case scenario.

Table 2. – Rooftop Plant Sound Power Levels

Unit	Sound power level (dB) Octave band centre frequency (Hz)								Sound Power Level dB(A)
	63	125	250	500	1k	2k	4k	8k	
Generator – Enclosed (Mounted Muffler)	77	89	88	87	88	88	85	78	96
Smoke Fan – AXF 1 & 2 (Combined Inlet and Outlet)	105	101	99	100	100	101	99	96	106
Smoke Fan – AXF 3 - 6 (Combined Inlet and Outlet)	94	96	93	91	90	95	91	87	99

Noise Level Predictions

The locations of the rooftop generators have been derived from the supplied Kimpton plans ref: '204-KIM-BA-RF-DR-E-4001' and '204-KIM-BB-RF-DR-E-4001' which have been reproduced as follows:

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Figure 2 – Rooftop Generator Locations - '204-KIM-(BA/B)-RF-DR-E-4001'

– Block A

– Block B



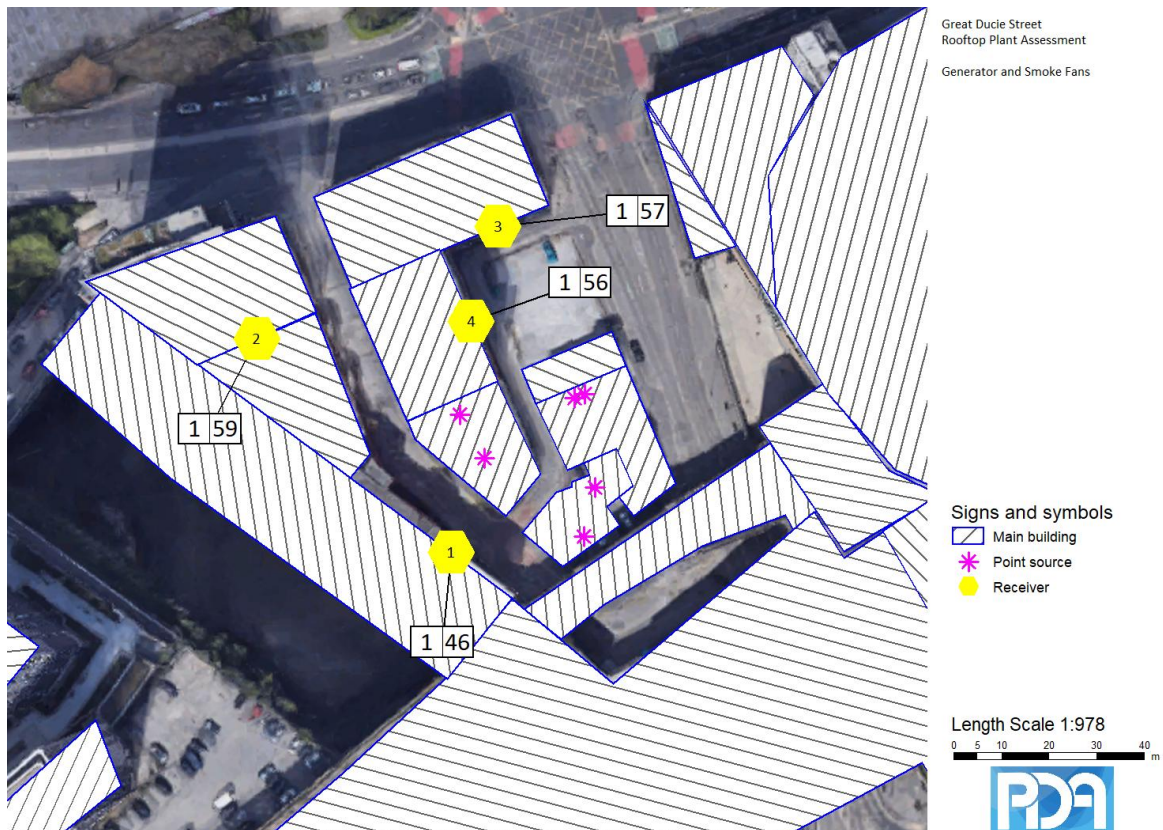
In order to predict the resultant noise levels from the rooftop generators we have utilised SoundPLAN to generate a 3-dimensional computer noise model. All calculations have followed the methodology contained within ISO 9613-2. The topographical data for the site and surrounding area is taken from Google Maps terrain height data. The noise levels from Table 2 have been used to inform the noise model.

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Figure 3 – Predicted noise levels at nearest noise sensitive receivers



As a result of the modelling process we would note that the highest predicted noise level is 59dB(A) at Position 2

Discussion

We would point out that the highest predicted noise level is 4 dB higher than the background sound level and does not achieve the lowered criteria of 50 dB(A) in accordance with Manchester City Council guidelines and Condition 21(a). However, we would highlight that as the operation of the rooftop plant is on a temporary basis (tested once per month for 2 hours) then this significantly reduces the impact of the noise source and may be deemed acceptable. Notwithstanding this, a sound level 4 dB higher than the existing background sound level would be considered to be below the threshold of an adverse impact in accordance with BS4142 and is therefore deemed to have a low impact. In addition, we would note that the predicted noise

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levels are below or equal to the measured absolute noise levels (L_{Aeq}) and would therefore have a low impact on the existing noise climate.

Where the noise levels of the rooftop plant are still considered necessary to meet the Manchester City Council criteria derived at 50 dB(A) then we would note that the noise emissions of the proposed generators should be limited to the following sound power levels. Please note that the reductions are approximately -5dB for generators and -10dB for smoke fans.

Table 3. – Rooftop Plant Sound Power Levels – Reduced to meet MCC Criteria

Unit	Sound power level (dB) Octave band centre frequency (Hz)								Sound Power Level dB(A)
	63	125	250	500	1k	2k	4k	8k	
Generator – Enclosed (Mounted Muffler)	72	84	83	82	83	83	80	73	91
Smoke Fan – AXF 1 & 2 (Combined Inlet and Outlet)	95	91	89	90	90	91	89	86	96
Smoke Fan – AXF 3 - 6 (Combined Inlet and Outlet)	84	86	83	81	80	85	81	77	89

Yours Sincerely,



David Hible BA(Hons) MIOA
Acoustic Consultant

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