

J003897-8205-DH-01

3rd December 2024

Richard Broadbent
Torsion Construction
1280 Century Way
Thorpe Park
Leeds
LS15 8ZB

Great Ducie Street – Noise Assessment of Rooftop Generators

Dear Richard,

It is understood that there are to be 3 no. rooftop generators introduced to the development located off of Great Ducie Street, Manchester. We have been informed that the generators are 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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The site plan shows the proposed development at 100-102 Great Duke Street. The building is divided into several units, each with a specific area measurement in square meters (sq m). The units are labeled as follows:

- 2A: 66.5 sq m
- 2B 4P: 66.5 sq m
- 3B 5P: 86.4 sq m
- 1B 2P: 52.1 sq m
- 1B 2P: 52.1 sq m
- 1B 2P: 53.8 sq m
- 2B 3P: 61.1 sq m
- 2B 4P: 67.1 sq m
- 2B 3P: 65.1 sq m
- ST: 37.0 sq m
- 2B 4P: 71.0 sq m
- 2B 3P: 61.1 sq m
- 2B 3P: 60.9 sq m

The plan also shows the Litecraft Car Park, the Beaumont Building, and the surrounding streets: Great Duke Street, Brecklyn St, and Minerva Street. The plan includes dimensions and area measurements for the building and car park, and labels for various units and structures.

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



locations. **Please note** that we have assumed the generator will only be tested during the day-time hours.

Generator Noise Levels

It is our understanding that whilst the specific generator unit has not been chosen, the intention is for a 170kVA generator which operates at 70dB(A) when measured at distance of 7 meters. We have then distance corrected this level to establish the sound power level at 95 dB(A). To determine a sound spectrum for the generator we have used noise data for similar units and corrected this to the stated noise emission levels of the proposed generators. The results are summarised in the table below:

Table 2. – Generator 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	
Rooftop Generator	83	88	89	87	90	89	87	84	95

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



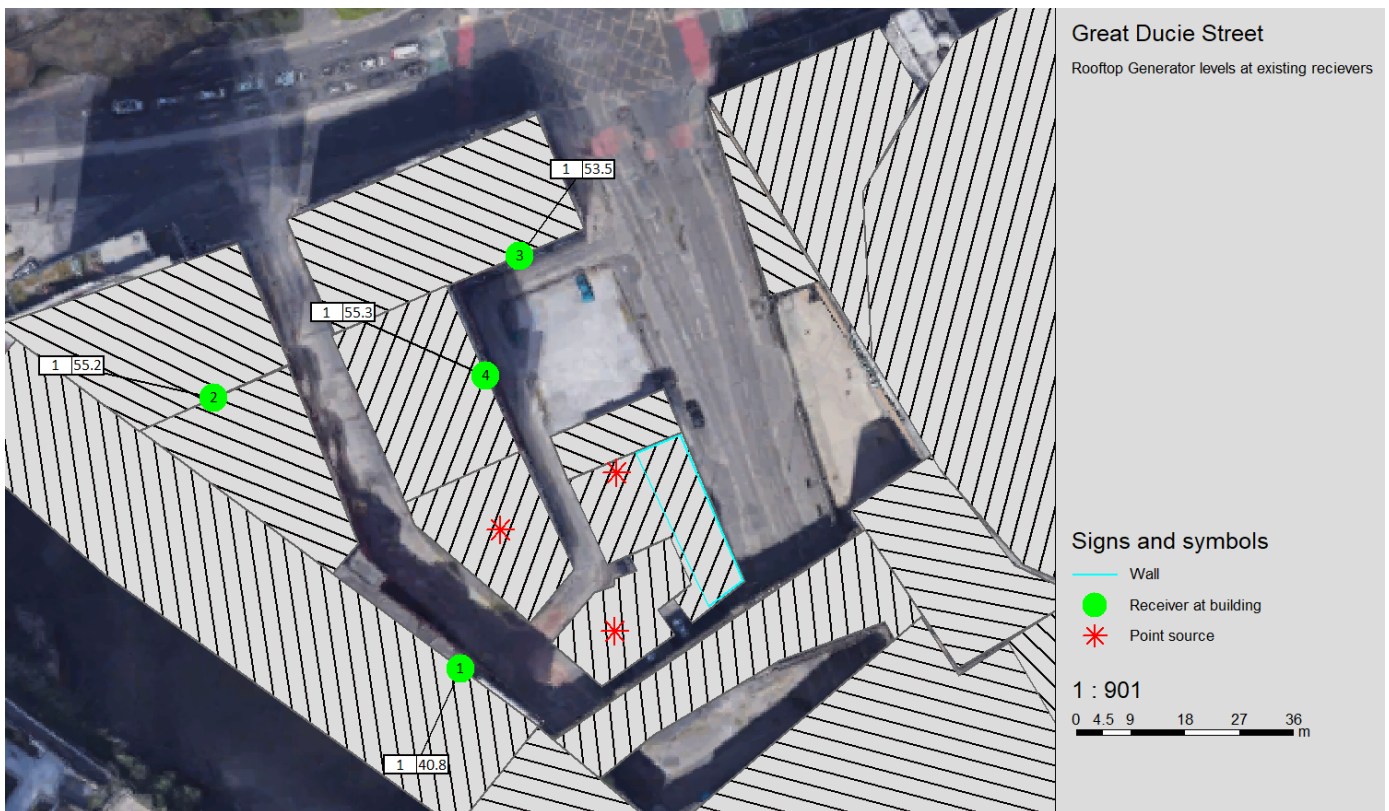
In order to predict the resultant noise levels from the rooftop generators we have utilised SoundPLAN to generate a 3-dimensional computer noise model. All calculations have followed the methodology contained within ISO 9613-2. The topographical data for the site and surrounding area is taken from Google 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 55dB(A) at Positions 2 and 4.

Discussion

We would point out that the highest predicted noise level is equal to the background sound level but 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 generator is on a temporary basis (tested once per month for 2 hours) then this reduces the impact of the noise source and may be deemed acceptable. In addition, the predicted noise level does not exceed the 55dB(A) upper limit of WHO Guidelines for Community Noise which suggests is the onset of serious annoyance. Furthermore, we would suggest that in accordance with BS4142 the assessment would indicate a low impact where the specific sound level does not exceed the typical background sound level.

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Where the noise levels of the generators 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 a sound power level of 90 dB(A) and a sound pressure level of 65 dB(A) at 7 meters

Yours Sincerely,



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