

# SANDY BROWN

*Consultants in Acoustics, Noise & Vibration*

**20270-R07-A**

**18 June 2024**

## 58-66 King Street, Manchester

*Planning condition 9 discharge report*

London, Manchester, Edinburgh, Birmingham, Belfast, Leeds, Bristol

**Sandy Brown Ltd**

Registered in England & Wales

No. 13227735

**post@sandybrown.com**

**www.sandybrown.com**

Registered Office: 55 Charterhouse Street, London EC1M 6HA

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| Version | Date      | Comments | Author | Reviewer |
|---------|-----------|----------|--------|----------|
| A       | 18 Jun 24 |          | JP     | MR       |

## Disclaimer

This report has been prepared for the sole benefit and use of our client based on their instructions and requirements. Sandy Brown Ltd extends no liability in respect of the information contained in the report to any third party.

## Summary

Sandy Brown has been commissioned by Recom Solutions Limited to provide acoustic advice in relation to the proposed development at 58-66 King Street, Manchester.

Attended measurements have been undertaken to determine the external noise levels outside the nearest/most affected noise sensitive receptors.

Attended measurements were undertaken between 15:00- 18:00 on 7 June 2024.

This report sets out relevant information to discharge Planning Condition 9 imposed by Manchester City Council as per planning references 129850/FO/2021.

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## 1 Introduction

Sandy Brown has been commissioned by Recom Solutions Limited to provide acoustic advice in relation to the proposed development at 58-66 King Street, Manchester.

Attended measurements have been undertaken to determine the external noise levels in the surrounding areas.

The report sets out relevant information to discharge Planning Condition 9 for the development.

## 2 Acoustic criteria

### 2.1 Local authority criteria

#### 2.1.1 Planning Condition 9

Planning Condition 9 states the following:

*‘9) a) Any plant and associated equipment shall be implemented in accordance with the noise levels and attenuation targets as set out in Section 7 (Plant Noise Egress) of the Noise and Vibration Planning Report prepared by Sandy Brown Associates (Reference 20270-R02-F dated 08 October 2021).*

*b) Prior to occupation of the development a verification report shall be submitted to and approved in writing by the City Council as local planning authority to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic report. The report shall also undertake post completion testing to confirm that the noise criteria have 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*

*Reason - To safeguard the amenities of the occupiers of the building and occupiers of nearby properties and in accordance with saved Unitary Development Plan Policy DC26 and Core Strategy Policy DM1’*

#### 2.1.2 Sandy Brown Report (Reference 20270-R02-F)

The planning conditions refer to the criteria set out in the Sandy Brown noise and vibration report 20270-R02-F. The relevant information from this report is repeated below for reference.

*‘The cumulative noise level resulting from amplified sound egress at 1 m from the most affected windows of the nearest noise sensitive premises should not exceed 10 dB below the existing background sound level in octave bands.’*

These limits are reproduced in Table 1.

Table 1 Plant noise limits at 1 m from the nearest noise sensitive premises

| Time of day                | Maximum sound pressure level at 1 m from noise sensitive premises, $L_{Aeq,15min}$ (dB) |
|----------------------------|-----------------------------------------------------------------------------------------|
| Daytime (07:00 – 23:00)    | 45                                                                                      |
| Night-time (23:00 – 07:00) | 44                                                                                      |

<sup>[1]</sup> The limits set out in Table 1 do not include any attention catching features. The penalty corrections for attention catching features may be significant and will need to be considered as the building services design progresses. This is discussed in Appendix D.

## 3 Site description

### 3.1 The site and its surroundings

The site location in relation to its surroundings is shown in Figure 1 with the site highlighted in red. To the north of the site is King Street, to the east is Cross Street, to the south is South King Street and to the east is Deansgate Road. The Manchester Metrolink tram line runs to the east of the site along Cross Street, between Manchester Victoria and St Peters Square.



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

### 3.2 Adjacent premises

To the north of the site are 37, 49 and 51 King Street which are a mix of office and commercial premises. These are highlighted in pink in Figure 1.

To the east of the site is 50 King Street, which is also a mix of office and commercial premises. This is highlighted in yellow in Figure 1.

To the south of the site is St James's Square, which is an office premises highlighted in blue in Figure 1.

Directly to the west of the site is 56 King Street which is further commercial premises and highlighted in brown within Figure 1. Further to the west highlighted in green are a number of residential apartments located within 33 and 35 South King Street.

## 4 Plant information

### 4.1 Plant locations

The following plant items are proposed.

- MVHR to each apartment with an external fresh air intake and exhaust.

Locations of the MVHR terminations at each measurement position are indicated with blue boxes on the photographs taken on-site given in Figure 2 – 4.

It is understood that all plant equipment was operational and running at normal duty throughout the entirety of the first set of measurements. It was then confirmed that all plant equipment was turned off for the second set of measurements.



Figure 2 Photograph showing visible MVHR terminations at position 'X'



Figure 3 Photographs showing visible MVHR terminations at position 'Y'

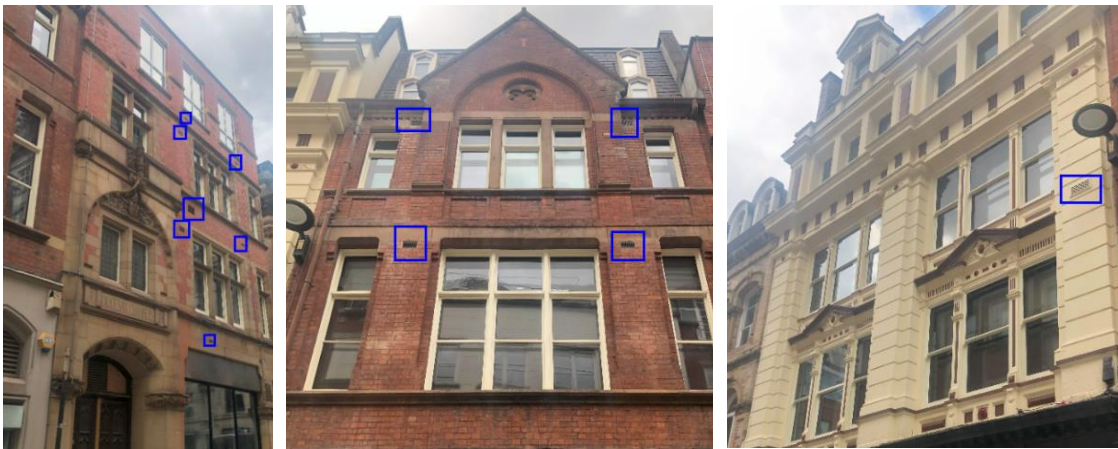


Figure 4 Photographs showing visible MVHR terminations at position 'Z'

## 5 Measurements

### 5.1.1 Attended measurements

Attended sample measurements were taken at 3 locations around the site. These are indicated in Figure 1 as positions X to Z. The measurements were carried out between 15:00 - 18:00 on 7 June 2024.

Measurements were undertaken for 3 x 5 minutes in duration at each location. The first set of measurements was undertaken with all plant equipment operational and running at normal duty. The second set of measurements was undertaken with all plant equipment turned off.

At each position, the microphone was mounted on a tripod approximately 1.5 m above the ground level and at least 1 m from any other reflective surface.

Details of the equipment used and the noise indices measured are provided in Appendix A.

Dominant noise sources occurring during the measurements were noted as noise from passing trams, road traffic noise and passing pedestrians. No noise from the mechanical ventilation systems was audible during any of the testing with the plant equipment on.

## 5.1.2 Results

The results of the attended measurements with all plant equipment operational and running at normal duty are given in Table 2. Measurements with all plant equipment off are given in

Table 2 Summary of assessment results

| Ref. (see Figure 1)                     | Measured sound pressure level, $L_{Aeq,5min}$ (dB) |
|-----------------------------------------|----------------------------------------------------|
| <i>Position X (plant equipment on)</i>  |                                                    |
| Measurement 1                           | 60                                                 |
| Measurement 2                           | 59                                                 |
| Measurement 3                           | 59                                                 |
| Average                                 | 59                                                 |
| <i>Position X (plant equipment off)</i> |                                                    |
| Measurement 4                           | 61                                                 |
| Measurement 5                           | 60                                                 |
| Measurement 6                           | 62                                                 |
| Average                                 | 61                                                 |
| <i>Position Y (plant equipment on)</i>  |                                                    |
| Measurement 7                           | 60                                                 |
| Measurement 8                           | 61                                                 |
| Measurement 9                           | 64 <sup>[1]</sup>                                  |
| Average                                 | 61                                                 |

| Ref. (see Figure 1)                     | Measured sound pressure level, $L_{Aeq,5min}$ (dB) |
|-----------------------------------------|----------------------------------------------------|
| <i>Position Y (plant equipment off)</i> |                                                    |
| Measurement 10                          | 60                                                 |
| Measurement 11                          | 61                                                 |
| Measurement 12                          | 60                                                 |
| Average                                 | 60                                                 |
| <i>Position Z (plant equipment on)</i>  |                                                    |
| Measurement 13                          | 62                                                 |
| Measurement 14                          | 63                                                 |
| Measurement 15                          | 60                                                 |
| Average                                 | 62                                                 |
| <i>Position Z (plant equipment off)</i> |                                                    |
| Measurement 16                          | 62                                                 |
| Measurement 17                          | 63                                                 |
| Measurement 18                          | 61                                                 |
| Average                                 | 62                                                 |

[1] Measurement 9 at position 'Y' was disregarded as a higher measured sound pressure level was noted due to three trams passing within the 5 minute measurement.

At all receiver positions, no notable difference between the plant equipment being on and the plant equipment being off was noted.

## 6 Assessment

A comparative assessment between the on site measurements and the criteria in Table 1 has been undertaken. The measurement locations are considered representative of the surrounding worst case noise sensitive receptors.

There is no assessed change in the ambient sound level when the plant equipment is switched on in comparison to when the plant equipment is switched off. When inspected on site, no noticeable noise was audible at any of the MVHR termination points. This is a positive indication that plant equipment is operating in line with the criteria given in Table 1.

Regarding intermittency, the specific sound level of each plant item is predicted to be at least 10 dB below the representative background sound level and as such any intermittency is not expected to be readily distinctive against the residual acoustic environment. Therefore, no corrections for intermittency are considered to be appropriate.

No tonal characteristics are expected to be perceptible at the receptors as the specific sound level for each plant item is at least 10 dB below the representative background sound level. As such no corrections for tonality are considered to be appropriate.

The results of this assessment verify that all plant equipment must be operating below the measured background sound level and meet the relevant plant noise egress limits given in Table 1.

Therefore, Planning Condition 9 imposed by Manchester City Council as per planning references 129850/FO/2021 can be discharged.

## Appendix A

### Survey details

## Equipment

The attended noise measurements were taken using a Brüel & Kjær 2250 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     | 2250/3011964       | Brüel & Kjær | 11 Sep 25          | UCRT23/2163<br>UCRT23/2167       |
| Microphone            | 4189/3100176       | Brüel & Kjær | 11 Sep 25          | UCRT23/2163<br>UCRT23/2167       |
| Pre-amp               | ZC0032/26376       | Brüel & Kjær | 11 Sep 25          | UCRT23/2163<br>UCRT23/2167       |
| Calibrator            | 4231/3019123       | Brüel & Kjær | 11 Sep 25          | UCRT23/2162                      |

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 1 m/s and 3 m/s.