



## Hann Tucker Associates

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### PROJECT TECHNICAL MEMORANDUM

**JOB TITLE** : Hanover Retail (NOMA)

**REF** : HT: 28411/PTM1

**DATE** : 15 May 2024

**FROM** : James Hardacre

**ISSUED TO** : Workman

### RE: HANOVER RETAIL (NOMA) UNIT 3 CONDITION 5b

The Hanover Retail (NOMA) development has been granted planning permission subject to a number of conditions. Condition 5b relates to the control of noise break-out and this Technical Memorandum sets out the on-site testing and subsequent assessment of the façade sound insulation with respect to the proposed use of unit 3.

#### 1.0 Condition 5b

Planning condition 5b is as follows:

*“Condition 5b) (Noise – breakout) requires submission of a ‘post completion report to verify that all the recommended mitigation measures have been installed and effectively mitigate any potential noise impacts.”*

We understand that significant façade works have not been included as part of the fitout of unit 3. As such, the façade as tested remains the same as previously tested and is expected to have similar acoustic performance, however, this has been re-tested to establish the current levels of sound insulation and to provide an updated assessment.

#### 2.0 Methodology

##### 2.1 Procedure

Hann Tucker Associates has attended site to undertake sound insulation testing across the 2No. external façades of unit 3.

Testing was undertaken on Thursday 2<sup>nd</sup> May 2024 by James Hardacre, BEng (Hons), AMIOA to evaluate unit 3 in line with the proposed use and criteria as outlined in the Hann Tucker Noise Impact Assessment (28411/NIA1 Rev1, dated 11 April 2022).

Sponsor Member of The Institute of Acoustics; Members of UKELA & IEMA, The Association of Noise Consultants,  
A UKAS Accredited testing laboratory No.4083 for Sound Insulation Testing; ISO 9001 Accredited  
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Due to the external site conditions, i.e. busy public realm, sound insulation testing in full accordance with BS EN ISO 140-4: 1998 '*Acoustics – Measurement of airborne sound insulation in buildings and of building elements*' was not possible. As such, testing was carried out with the speaker situated inside the unit and receive measurements taken externally at a distance of approximately 2.5m from the façade. Background measurements were also taken at the same positions and corrections applied to the receive levels.

The tests were undertaken with the premises quiet and generally empty of fixtures and fittings.

## 2.2 Equipment

The following equipment was used for the testing

| Description                                 | Manufacturer    | Type   | Serial Number | Calibration                  |
|---------------------------------------------|-----------------|--------|---------------|------------------------------|
| Type 1<br>Data Logging<br>Sound Level Meter | Bruel & Kjaer   | 2250   | 3025254       | Calibration on<br>21/02/2024 |
| Type 1<br>½" Condenser<br>Microphone        | Bruel & Kjaer   | 4189   | 3004879       | Calibration on<br>21/02/2024 |
| Type 1<br>Preamp                            | Bruel & Kjaer   | ZC0032 | 28066         | Calibration on<br>21/02/2024 |
| SLM Calibrator                              | Bruel & Kjaer   | 4231   | 2308993       | Calibration on<br>20/02/2024 |
| Sound Source                                | dB Technologies | N/A    | L183000199    | N/A                          |

## 2.3 Results

The results of the airborne sound insulation testing are presented in the table below:

| Description                        | Element | Measured Level Difference (dB D)<br>at Octave Band Centre Frequency (Hz) |     |     |     |      |      |      |
|------------------------------------|---------|--------------------------------------------------------------------------|-----|-----|-----|------|------|------|
|                                    |         | 63                                                                       | 125 | 250 | 500 | 1000 | 2000 | 4000 |
| Unit 3 Ground to Hanover Street    | Façade  | 26                                                                       | 30  | 31  | 36  | 35*  | 37   | 36   |
| Unit 3 Ground to Federation Street | Façade  | 25                                                                       | 28  | 28  | 33  | 30   | 30   | 33   |

\*Background Limited

## 3.0 Noise Impact Assessment (Overview)

The following section outlines out assessment of the suitability of the measured façade sound insulation performance in line with the proposed restaurant opening hours. We understand that the restaurant is typically open between 12:00 and 00:00 Thursday – Saturday, and 18:00 – 00:00 on Wednesdays.



To inform the assessment of unit 3, we have drawn upon previously measured noise levels for typical restaurant use, as set out below, to be considered as typical highest 1-hour noise levels during reasonable operation.

| Description                                                              | Reverberant Noise Level (dB L <sub>eq,1hr</sub> )<br>at Octave Band Centre Frequency (Hz) |     |     |     |      |      |      | dBA |
|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-----|-----|-----|------|------|------|-----|
|                                                                          | 63                                                                                        | 125 | 250 | 500 | 1000 | 2000 | 4000 |     |
| <b>Food and Drink</b><br><i>Typical restaurant with background music</i> | 60                                                                                        | 67  | 69  | 71  | 70   | 66   | 60   | 74  |

## 4.0 Operational Noise Breakout via Façade

### 4.1 Criteria

As of the issue of the original assessment (Dec. 2020) MCC recommended that noise (L<sub>eq</sub>) breaking through the building frontage of an entertainment venue should not exceed 10dB below the background noise level (L<sub>90</sub>) at all octave band frequencies at the nearest noise sensitive windows.

It should be noted that this criteria has since been revised to be controlled to 5dB below the background noise level (L<sub>90</sub>) at all octave band frequencies. However, for consistency, the criteria used in this assessment are retained at 10 dB below background.

As such, the noise level emission criteria are outlined in the following table.

| Description                   | Entertainment Noise Level Limit (dB L <sub>eq, 15min</sub> )<br>at Octave Band Centre Frequency (Hz) |     |     |     |      |      |      |
|-------------------------------|------------------------------------------------------------------------------------------------------|-----|-----|-----|------|------|------|
|                               | 63                                                                                                   | 125 | 250 | 500 | 1000 | 2000 | 4000 |
| Daytime<br>(07:00 – 23:00)    | 55                                                                                                   | 44  | 43  | 39  | 38   | 36   | 29   |
| Night-time<br>(23:00 – 07:00) | 47                                                                                                   | 41  | 42  | 36  | 34   | 29   | 22   |

### 4.2 Assessment

The façade comprises solid masonry walls with punched in single glazed window systems. Openable windows will not be utilised as a means of ventilation in any instance.

The measured sound level differences for each façade are detailed in section 2.3, these were measured at a distance of 2.5m from the façade.

We have assessed noise breakout to the worst affected receptors as follows:



- **Operational Hours (Food and Drink uses) (12:00 – 18:00)** Federation House, 9m away from Unit 3.
- **Operational Hours (Food and Drink uses) (18:00 – 00:00)** New Vic, 80m away from Unit 3.

Based on the intended use of unit 3 during the office hours period (food and drink), the following table details the noise break-out assessment to Federation House.

| Operational Hours (12:00 – 18:00)                       | Octave Band Centre Frequency (Hz) |     |     |     |      |      |      |
|---------------------------------------------------------|-----------------------------------|-----|-----|-----|------|------|------|
|                                                         | 63                                | 125 | 250 | 500 | 1000 | 2000 | 4000 |
| Noise Level in retail unit (dB L <sub>eq</sub> )        | 60                                | 67  | 69  | 71  | 70   | 66   | 60   |
| Level difference provided by façade (dB D)              | 25                                | 28  | 28  | 33  | 30   | 30   | 33   |
| Distance loss from 2.5m to 9m (dB, Rathe Method)        | 10                                | 10  | 10  | 10  | 10   | 10   | 10   |
| Criteria at receptor (dB L <sub>eq</sub> )              | 55                                | 44  | 43  | 39  | 38   | 36   | 29   |
| Predicted Noise Level at receptor (dB L <sub>eq</sub> ) | 25                                | 29  | 31  | 28  | 30   | 26   | 17   |
| Difference                                              | -30                               | -15 | -12 | -11 | -8   | -10  | -12  |

Based on the intended use of unit 3 during the office hours period (food and drink), the following table details the noise break-out assessment to New Vic.

| Operational Hours (12:00 – 00:00)                       | Octave Band Centre Frequency (Hz) |     |     |     |      |      |      |
|---------------------------------------------------------|-----------------------------------|-----|-----|-----|------|------|------|
|                                                         | 63                                | 125 | 250 | 500 | 1000 | 2000 | 4000 |
| Noise Level in retail unit (dB L <sub>eq</sub> )        | 60                                | 67  | 69  | 71  | 70   | 66   | 60   |
| Level difference provided by façade (dB D)              | 25                                | 28  | 28  | 33  | 30   | 30   | 33   |
| Distance loss from 2.5m to 80m (dB, Rathe Method)       | 26                                | 26  | 26  | 26  | 26   | 26   | 26   |
| Criteria at receptor (dB L <sub>eq</sub> )              | 47                                | 41  | 42  | 36  | 34   | 29   | 22   |
| Predicted Noise Level at receptor (dB L <sub>eq</sub> ) | 9                                 | 13  | 15  | 12  | 14   | 10   | 1    |
| Difference                                              | -38                               | -28 | -27 | -24 | -20  | -19  | -21  |

Based on the above the, the noise breakout associated with the intended-hours of use should be in-line with both the day and night-time criteria.

It should be noted that the calculated egress levels from the unit are significantly below the criteria for typical restaurant use as such the unit could accommodate higher noise levels and the levels of noise egress still be suitable.



## **5.0 Conclusions**

Sound insulation testing has been undertaken to establish the acoustic performance of the existing façade of unit 3.

Our assessments indicates that noise from unit 3 operation is unlikely to impact on the nearby receptors during operational hours. As such, Condition 5b is likely to be achieved for the intended use.

Yours sincerely

James Hardacre

for HANN TUCKER ASSOCIATES