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| **From:** | JP | **Reviewer:** | JA |

# MCFC North Stand Expansion

**Entertainment noise breakout assessment – Planning Condition 37**

This memo provides an assessment of entertainment noise breakout to nearby noise sensitive receptors from gym, retail, museum and F&B units located with hotel and commercial building to satisfy Part A of Condition 37.

Hotel rooms and offices have not been included in this assessment as it is understood that entertainment noise will not be required in these spaces.

Guidance on maximum amplified sound limits within these spaces is provided at the end of this document. These have been based on the sound insulation performance of the build envelope and compliance with the requirements of Condition 37.

It should be noted that this assessment only considers entertainment noise breakout to nearby noise sensitive receptors (outside the MCFC development). In practice, entertainment noise levels would likely be lower or operationally managed to mitigate noise disturbance within the development itself.

Verification testing is also proposed following construction to satisfy Part B of the Condition.

## Basis

Technical submittals for cladding systems to the hotel and commercial building, as detailed in:

- NSE-FKG-CM-ZZ-TEC-X-100026 (Glass type EP-110A Vision glass – Commercial Ground Floor)
- NSE-FKG-CM-ZZ-TEC-X-100027 (Glass type EP-110B Vision glass – Commercial Upper Floors)
- NSE-FKG-HT-ZZ-TEC-X-100028 (Glass type EP-120A Vision glass – Hotel Ground Floor & Level 1)

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# Criteria

## Planning condition 37 (Planning ref 136763/FO/2023)

Planning Condition 37 states the following in regard to entertainment noise breakout:

> *(a) Notwithstanding Noise response (ref. 053810-0820-1-PN-02-P0) received by the City Council, as Local Planning Authority, on the 27 June 2023 and Chapter and Appendices 11 of the Environmental Statement received by the City Council, as Local Planning Authority, on the 18 April 2023, prior to the first use of commercial units, workspaces, hotel, gymnasium (and any other ancillary commercial spaces excluding the North Stand) in each phase of the development hereby approved as shown on Plan Ref: ZZ-ZZ-DR-J000083 RevP01, received by the City Council on 15 July 2025, a scheme of acoustic insulation for those spaces shall be submitted for approval in writing by the City Council, as Local Planning Authority.*
>
> *Where entertainment noise is proposed the LAeq (entertainment noise) shall be controlled to 5dB below the LA90 (without entertainment noise) in each octave band at the facade of the nearest noise sensitive location, and internal noise levels at structurally adjoined residential properties in the 63HZ and 125Hz octave frequency bands shall be controlled so as not to exceed (in habitable rooms) 47dB and 41dB (Leq,5min), respectively.*
>
> *(b) Prior to the first use of those spaces within a relevant phase 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.*

## Local authority criteria

Manchester City Council (MCC) states the following in regard to entertainment noise for a new entertainment venue that is structurally detached from other buildings:

> *'Entertainment noise ($L_{Aeq,5min}$) should be controlled to 5dB below the typical background noise level ($L_{A90}$) in each octave band at the nearest noise sensitive location'.*

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MCC planning noise guidance also states that the following may be applicable for a new entertainment venues:

- A suitable noise limiting device may be necessary to install
- Music noise levels in the 63Hz and 125Hz octave centre frequency bands ($L_{eq}$) should be controlled so as not to exceed (in habitable rooms) 47dB and 41dB ($L_{eq,5min}$), respectively.

### Entertainment noise limits at receptors

Limits for entertainment noise egress have previously been provided in the Vanguardia ES noise and vibration chapter and these are reproduced below for reference. It is unclear whether the levels presented in Table 1 are facade or free-field noise levels. For the purpose of this assessment these have been assumed to be facade levels, which represents a worst-case scenario.

Table 1 Maximum entertainment noise egress levels

| Location | Maximum sound pressure level due to entertainment noise $L_{Aeq}$ (dB) | |
|---|---|---|
| | Day (07:00-23:00) | Night (23:00-07:00) |
| 6 Cromarty Walk | 47 | 44 |
| 12 Biscay Close | 47 | 44 |
| The Cube | 52 | 37 |
| The Drum | 52 | 37 |

A supplemental environmental noise survey has since been undertaken, as detailed in Sandy Brown report *023771-R09-D Noise impact assessment*. It is noted that the limits given Table 1 are given as broadband levels and have been converted to octave band sound pressure levels as per the requirements of Planning Condition 37.

The cumulative noise level resulting from entertainment noise at 1 m from the worst affected windows of the nearest noise sensitive premises (outside the MCFC development) should not exceed the limits set out in Table 2. This is based on entertainment noise being controlled to be 5 dB below the background noise levels at the receptors in octave bands.

Table 2 Spectral entertainment noise egress limits at 1 m from the nearest noise sensitive premises

| Item | Maximum sound pressure level at 1 m from noise sensitive premises, $L_{eq,5min}$ (dB) Octave band centre frequency, Hz | | | | | | | | Total $L_{Aeq}$ (dB) |
|---|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | |
| Day (07:00-23:00) | 52 | 46 | 44 | 43 | 45 | 40 | 32 | 24 | 48 |
| Night (23:00-07:00) | 41 | 35 | 33 | 32 | 34 | 29 | 21 | 13 | 37 |

Music noise levels in the 63 Hz and 125 Hz octave centre frequency bands to be controlled to ensure $L_{eq,5min}$ 47 dB and 41 dB respectively are not exceeded in habitable rooms. These limits are expected to be achieved based on the external limits set out above.

## The site and its surroundings

The site location in relation to its surroundings is shown in Figure 1, with the noise sensitive receptors identified as part of *Chapter 11 of the Environmental Statement: Volume 1* from the original planning application (Planning ref 136763/FO/2023). The site is bounded by Alan Turing Way (A6010) to the west, Ashton New Road (A662) to the south and the Metrolink tramline to the north and west.




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

The nearest noise sensitive residential receptors have been identified as part of the original Environmental Statement, dated April 2023, and are summarised below:

- Residential premises located at 6 Cromarty Walk, approximately 380 m southwest of the commercial and hotel buildings, highlighted in yellow
- Residential premises located at 12 Biscay Close, approximately 380 m south of the commercial and hotel buildings, highlighted in green
- Residential premises located at 2b The Waterfront (The Cube), Gibbon Street, approximately 185 m east of the commercial and hotel buildings, highlighted in red
- Residential premises located at 2 Stuart Street (The Drum), approximately 190 m east of the commercial and hotel buildings, highlighted in blue

An additional noise sensitive receptor has also been identified and is included due to its proximity to the North Stand expansion:

- Residential premises located along Alan Turing Way, approximately 270 m east of the commercial and hotel buildings,, highlighted in orange.

## Proposals

The following spaces proposed to the hotel and commercial building require limits for any amplified sound systems that may be proposed:

- Hotel F+B units (ground floor)
- Hotel gym (level 1)
- Hotel all day dining/bar area (level 1).
- Museum within commercial building (level 3 to level 4)
- Retail spaces within commercial building (ground floor to level 2).

Office floors and hotel rooms have not been included in this assessment, as it is understood that amplified sound systems are not required in these spaces.

### Facade build-ups

The values provided are understood to have been obtained in Saint-Gobain laboratories so the sound insulation performances provided are assumed to be tested results, though it is possible that the results are based on computer modelling and calculation.

If the results have been obtained from modelling and calculation then there is increased risk that the values presented will not be met in practice.

*Hotel ground floor & level 1*

Glazing type EP-120A Vision glass is proposed in this location. The stated sound insulation performance of the glass is $R_w$ 48 dB, $R_w$+$C_{tr}$ 42 dB.

For the purpose of this assessment, external doors are assumed to have a sound insulation performance of $R_W$ 31 dB, in line with the acoustic requirements for hotel ground floor facade.

*Commercial ground floor*

Glazing type EP-110A Vision glass is proposed in this location. The stated sound insulation performance of the glass is $R_w$ 48 dB, $R_w+C_{tr}$ 42 dB.

For the purpose of this assessment, external doors are assumed to have a sound insulation performance of $R_W$ 30 dB, in line with the acoustic requirements for commercial block facade.

Commercial upper floors

Glazing type EP-110B Vision glass is proposed in this location. The stated sound insulation performance of the glass is $R_w$ 51 dB, $R_w+C_{tr}$ 45 dB.

For the purpose of this assessment, external doors are assumed to have a sound insulation performance of $R_W$ 30 dB, in line with the acoustic requirements for commercial block facade.

# Assessment

A desktop assessment has been undertaken to set appropriate limits for any amplified sound systems that may be proposed to the areas listed within the condition that is required to be submitted to satisfy under Condition 37(a). I

This assessment takes into account the geometry of the proposed spaces facade sound insulation performance of glazing configurations and doors. The following assumptions have also been made:

- The expected reverberation times within the spaces once fitted out
- Amplified sound systems in each space operating simultaneously.
- Two scenarios have been assessed:
    - Scenario 1: Spaces with external doors carefully managed to ensure that these are not held open. It has been assumed that doors would not be open for more than 10 % of the time.
    - Scenario 2: External door held open (100% of the time).

## Operational noise egress limits

Based on the above, guidance on amplified sound system sound pressure level limits are set out in Table 3 based on compliance with Planning Condition 37(a). These limits apply within the spaces themselves.

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Table 3 Entertainment noise limits within proposed spaces - day

| Item | Maximum sound pressure level due to amplified sound systems $L_{eq,5min}$ (dB) during the day (0700-2300) Octave band centre frequency, Hz | | | | | | | | Total $L_{Aeq}$ (dB) |
|---|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | |
| *Scenario 1: Doors open 10% of the time* | | | | | | | | | |
| Hotel F&B units 1-4 | 92 | 87 | 86 | 86 | 86 | 81 | 76 | 67 | 90 |
| Hotel gym | 95 | 90 | 89 | 89 | 89 | 84 | 79 | 74 | 93 |
| Hotel all day dining/bar area. | 90 | 85 | 85 | 85 | 85 | 80 | 75 | 67 | 88 |
| Museum within commercial building | 85 | 85 | 80 | 80 | 80 | 80 | 80 | 80 | 87 |
| Retail spaces within commercial building | 86 | 81 | 80 | 80 | 80 | 75 | 70 | 64 | 84 |
| *Scenario 2: Doors open 100 % of the time* | | | | | | | | | |
| Hotel F&B units 1-4 | 78 | 73 | 73 | 73 | 73 | 68 | 63 | 55 | 76 |
| Hotel gym | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 97 |
| Hotel all day dining/bar area. | 80 | 75 | 75 | 75 | 75 | 67 | 63 | 55 | 78 |
| Museum within commercial building | 85 | 85 | 80 | 80 | 80 | 80 | 80 | 80 | 87 |
| Retail spaces within commercial building | 81 | 71 | 70 | 70 | 70 | 70 | 58 | 50 | 75 |

There is a possibility that proposed F&B units and hotel dining areas may operate past 23:00, which is considered as night by MCC.

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As such, night entertainment noise limits are presented below to comply with criteria stipulated in Table 1.

Table 4 Entertainment noise limits within proposed spaces - night

| Item | Maximum sound pressure level due to amplified sound systems $L_{eq,5min}$ (dB) during night (2300 to 0700) Octave band centre frequency, Hz | | | | | | | | Total $L_{Aeq}$ (dB) |
|---|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | |
| *Scenario 1: Doors open 10% of the time* | | | | | | | | | |
| Hotel F&B units 1-4 | 85 | 80 | 79 | 79 | 79 | 74 | 69 | 60 | 83 |
| Hotel gym | 88 | 83 | 82 | 82 | 82 | 77 | 72 | 67 | 86 |
| Hotel all day dining/bar area. | 83 | 78 | 78 | 78 | 78 | 73 | 68 | 60 | 81 |
| Museum within commercial building | 78 | 78 | 73 | 73 | 73 | 73 | 73 | 73 | 80 |
| Retail spaces within commercial building | 79 | 74 | 73 | 73 | 73 | 68 | 63 | 57 | 77 |
| *Scenario 2: Doors open 100 % of the time* | | | | | | | | | |
| Hotel F&B units 1-4 | 71 | 66 | 66 | 66 | 66 | 61 | 56 | 48 | 69 |
| Hotel gym | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 90 |
| Hotel all day dining/bar area. | 73 | 68 | 68 | 68 | 68 | 60 | 56 | 48 | 71 |
| Museum within commercial building | 78 | 78 | 73 | 73 | 73 | 73 | 73 | 73 | 80 |
| Retail spaces within commercial building | 74 | 64 | 63 | 63 | 63 | 63 | 51 | 43 | 68 |

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It should be noted that this assessment only considers entertainment noise breakout to nearby noise sensitive receptors (outside the MCFC development) to satisfy the condition. In practice, entertainment noise levels would be lower to mitigate noise disturbance within the development itself.

### Verification testing

Verification testing is also proposed following construction to satisfy Part B of the Condition.

The commercial building and hotel F+B units are being completed to shell and core only at this stage, so there are no defined areas for entertainment noise, or any amplified sound systems being installed at this stage. As such, post completion verification testing using artificially generated noise will be carried out. This approach has previously been detailed in memo *023771-M068-C Comments on Planning Condition 32 and 37 discharge methodology* has been agreed with MCC.