

JAMESON ACOUSTICS

Consultants in acoustics,
noise and vibration

Technical Note

Our Ref	22015-TN-4-R0
Date	30 May 2025
Author	Andrew Jameson
Client	Domis Construction
Issued To	Domis, Deloitte

Waterhouse Gardens, Manchester Block C & D – Response to EHO Comments on PC18 & 19

The memo presents a formal response to acoustic performance related queries received from Manchester City Council on our Report to discharge condition 18 & 19 with the aim of closing out all items for discharge.

Planning Condition 18

- 1. I have reviewed the Jameson Acoustics assessment reference 22015-RP-2-R0 dated 17th March 2025 which relates to Blocks C and D only for the gym, Cinema room and private dining space. Early indications for the cinema have also been provided but it is understood this space is still be to completed and will require actual assessment of noise limits once complete and commissioning noise measurements have taken place. We can accept the majority of the assessment and comments provided but still have the comments below.***
- 2. We can accept the breakout assessment to the external spaces from the commercial / amenity spaces listed. The maximum noise limits have been provided for the gym and private dining area which in reality are unlikely to ever be replayed / required which we can accept however, these would exceed the maximum allowable internal noise level to control noise transfer into the occupied residential spaces surrounding these uses as outlined in the table in section 3.3.2 on page 12. Therefore, the limits will need to be set and controlled to not exceed the limits on page 12 and we will need details of how these will be set and controlled, such as electronic noise limiter. We will need evidence this has been installed and the limits have been set accordingly at validation stage.***

Jameson Acoustics has returned to site to meet with the audio system installers and carry out measurements of sound pressure levels in all amenity rooms with ceiling mounted loudspeakers.

The audio supplier has confirmed (and demonstrated) that all loudspeakers are controlled centrally from an app, which each room representing a zone. Each zone has been assigned a maximum sound output level, which was calibrated by the audio suppliers. These maximum sound output levels are locked and only changeable with admin access to the software. The audio suppliers do not provide admin access to the software to the developer. Users can therefore change the sound level of the amplified loudspeakers in each room, but they cannot turn the loudness up higher than the maximum sound output level programmed by the installers. This acts as a secure electronic noise limiter.

Music noise levels were turned up to the maximum setting in each amenity space during our visit. Heavy bass-beat dance music was played (deemed to be worst case) in order to survey the spatial sound pressure levels in each room. The results, as surveyed by Jameson Acoustics on Wednesday 21 May 2025 using a Class 1 sound

level meter, are summarised below. For each space, the level is compared with the suggested maximum operational noise limits for internal noise transfer control, as presented in our Report, Section 3.3.2. Note, noise limits for external noise breakout are less onerous.

Final checks were also taken in the cinema during a loud 'fight' scene with high levels of bass effects and music. The cinema was fully complete at this stage, and the sound system was fully balanced and calibrated.

NB: All ceiling mounted loudspeakers are closed back to prevent excessive sound generation in the ceiling voids.

Room	Noise level, $L_{eq,5min}$ (dB) at OBCF (Hz)						
	63	125	250	500	1k	2k	4k
Gym – measured	67	73	71	71	70	70	63
Gym – Limits	89	85	76	74	87	84	85
Compliance?	✓	✓	✓	✓	✓	✓	✓

Room	Noise level, $L_{eq,5min}$ (dB) at OBCF (Hz)						
	63	125	250	500	1k	2k	4k
Games Room – measured	63	70	71	69	64	64	55
Games Room – Limits	89	85	76	74	87	84	85
Compliance?	✓	✓	✓	✓	✓	✓	✓

Receiver room	Maximum permissible noise levels, $L_{eq,5min}$ (dB) at OBCF (Hz)						
	63	125	250	500	1k	2k	4k
Cinema – measured	88	83	72	75	70	65	60
Cinema – Limits	90	98	87	86	88	87	87
Compliance?	✓	✓	✓	✓	✓	✓	✓

3. *The table on page 12 also includes the cinema room limits and we will need further comment once this area has been completed and final operational noise limits have been determined. Comment is provided on page 7 of the report to confirm the noise levels will be set and controlled by electronic limiter which we can accept and evidence that it has been installed and set accordingly at validation stage.*

MCC have confirmed this query has been dealt with by means of cinema commissioning evidence provided in our technical note 22015-TN-3-R0 dated 5 May 2025.

4. *The report also include noise transfer breakout to the adjacent and above residential uses and includes assessment of noise from the free weights area. The report confirms details of the separating floors, ceilings and walls for the amenity spaces and also the gym isolation treatment including the free weights floor area. The assessment has been based on the following restrictions will the developer will need to comply with and shall form the basis of any approval of the condition: 1. Free-weights (dumbbells) up to 50 kg only. 2. No leg press machines permitted. 3. Fixed weight machines to be supplied with acoustic dampener collars to pin loaded plates. 4. No free Olympic bar to be supplied (smith-press squat/bench weight machine only).*

A response has been provided to address point 4 with regard to the gym. The response advises that the activities listed in the restrictions 1 to 3 in the report (free weights area, leg press machine and fixed weight machine) will not be included within the gym which we can accept and will need to form part of the approval. A free Olympic bar is to be included and details of the proposed floor have been included in the response. The details of the proposed floor will need to be provided to the acoustic consultant and an updated memo submitting with assessment to confirm the proposed acoustic resilient floor system will be suitable along with maximum weights to be used for the free Olympic bar weights area.

We have liaised with Strom, the gym fit-out supplier for this project, who have confirmed that there was no intent to provide a free Olympic bar in the gym space. Through communications with Salboy, the developer, it has been confirmed that the free Olympic bar will be removed from the proposals. The gym will therefore not operate with a free Olympic bar.

Planning Condition 19

- 1. The above Jameson acoustics assessment includes validation assessment of the internal noise levels of the apartments to demonstrate compliance with the approved glazing and ventilation scheme and the façade construction and also confirm compliance with the internal noise criteria condition requirements for Blocks C&D. The assessment also includes assessment during an event at the Arena.***
- 2. The assessment demonstrates the performance requirements of the glazing, ventilation and façade construction has been complied with and indicates that with the ventilation system in normal use the criteria has been complied with.***
- 3. We can accept the assessment provided but only 4 units have been tested so far and we will require at least 10% of residential apartments to be tested for validation purposes. We will also require further comment with regard to the assessment during an event at the Arena as we will also need validation assessment of any apartments that over look the roof of the Arena. It is not clear if the apartments tested were of sufficient height or location to over look the Arena roof.***
- 4. Residential units for the remaining blocks (A, B, E and F) will also require assessment and validation as this report only covers Blocks C&D***

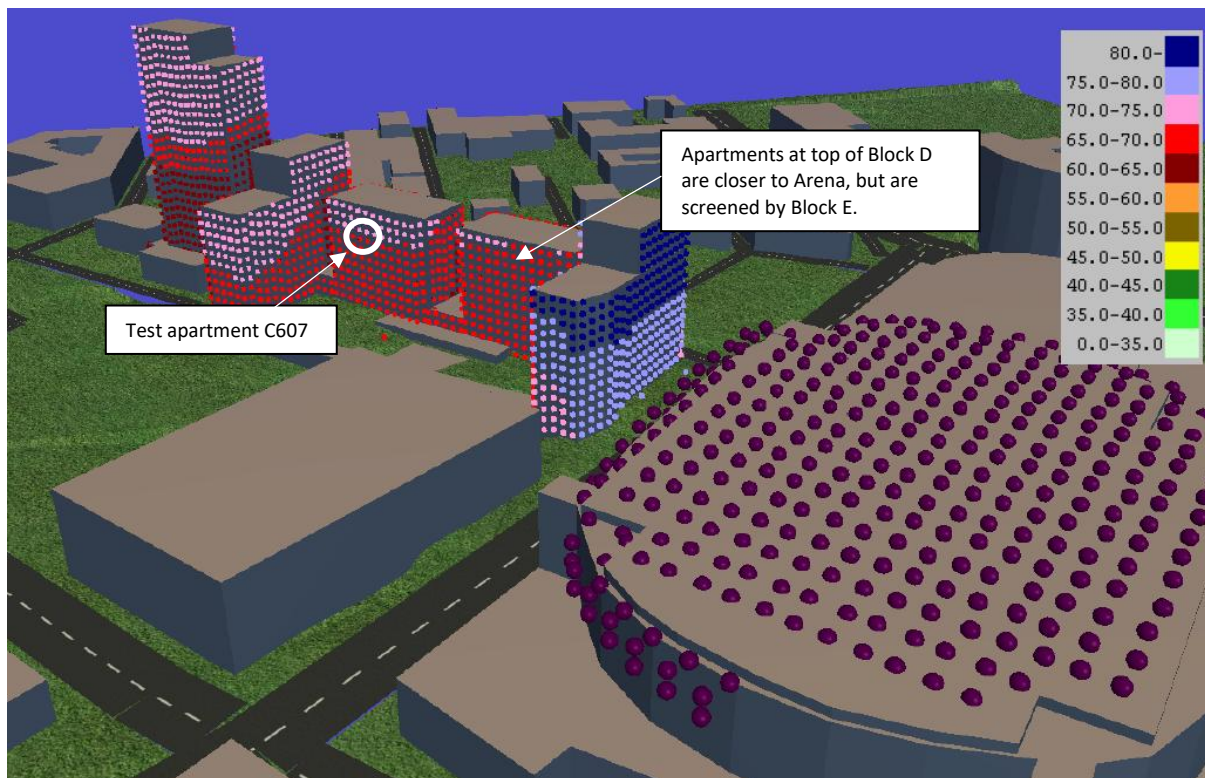
With regard to Points 3 and 4, our method for survey road traffic and event noise comprises the installation of noise loggers in selected apartments over a minimum 24-hour period (commonly over several days including a weekend to obtain daytime readings that are uninfluenced by site construction work noise). To undertake this survey across 10% of the development is not practically possible in the project timeframe. To capture surveys in the timeframe, we would need to revert to sample noise level measurements in apartments during the evening (when there is an event on) and during daytime hours only (for traffic). Thus, the results would not cover night-time LAeq or LAmix in bedrooms from environmental sources. This method of survey is therefore far less informative.

We have, on numerous previous schemes under MCC (including Transmission House, Viadux, Victoria House) always carried out full 24-hour (min) logger surveys in selected apartments on the most critical elevations. This will not cover 10%, but it provides full day/night period readings in the worst-case apartments.

During these measurements, MVHR units are switched off. Hence, to supplement the 24-hour (min) logger results, we shall carry out manned measurements of ventilation noise in randomly selected apartments. In the past, 5% coverage of MVHR ventilation noise checks has been agreed (again, we would reference Transmission House, Viadux and Victoria House). However, we shall agree to the minimum 10% coverage request for the combined environmental + MVHR noise level checks on this scheme. The 10% coverage shall be achieved 'site-wide'. We will therefore increase our testing in the remaining blocks to ensure we do sample environmental + MVHR noise levels in at least 66nr of the 660nr apartments across the full scheme. NB: MVHR units in Block C & D are the same specification as those in all remaining blocks.

So effectively, noise levels in 10% of apartments will be tested, but only a selection of those will/can be subject to detailed 24-hr (min) noise logging.

Referring back to the continuous noise logging (environmental and event noise) survey for Block C & D, measurements to the rear (south facing) apartments were undertaken at Level 6 in apartment C607 (Block C) which was the highest available apartment for testing and overlooked the roof of the Arena roof. It represents the most exposed area of the rear elevation of both Blocks C & D to noise breakout from the Arena roof. Note, upper level apartments in Block D benefit from screening afforded by Block E, whereas these apartments in the top corner of Block C do not. See below image from the noise map to help clarify the position.

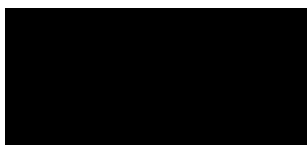


Noise from the Arena is of most concern for Block E. Hence, our proposals for this Block will allow for noise logger (over several days, capturing different events) in several apartments on the elevation facing the Arena, covering apartments at all different levels (low level, mid-level and high level).

Based on the noise model above, you will also notice the eastern face of Block B (upper floors) is exposed to Arena noise breakout. Incident music levels are likely to be equivalent to those on the upper floors of Block C & D. Again, we will increase the concentration of noise logging to capture apartments in this area.

All testing in other blocks will be presented in separate Block reports issued when possible, in line with the scheme's Block completion programme.

For and on behalf of
Jameson Acoustics Limited



Andrew Jameson
BSc(Hons) MIOA MIET
Director