fisher acoustics

MPF/PR0680/L05

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Dear Bohdan

TARIFF STREET, MANCHESTER – PLANNING CONDITION 13C

I write to confirm the results of the internal noise measurements conducted within the apartments of Tariff Street, Manchester. The measurements have been conducted to respond to condition 13c of the planning permission for the development.

INTRUSIVE NOISE CRITERIA - PLANNING CONDITION 13C

Planning condition 13 of the planning permission for Trinity Islands, planning reference 137807/JO/2023, dated 18 August 2023, states:

> *13) Notwithstanding the recommendation within the Environmental Noise Study by Fisher Acoustics, dated November 2022 before any above ground works commence details of the following shall be submitted:*
>
> *(a) a scheme for acoustically insulating and mechanically ventilating the residential accommodation against local road traffic network, any local commercial/industrial noise sources and the insulation requirements and specification for service risers /lift shafts;*
>
> *(b) An assessment of the potential for overheating and any required mitigation which the noise insulation scheme shall take into account shall be submitted to and approved in writing by the City Council as local planning authority.*
>
> *The approved noise insulation and ventilation scheme and shall be completed before any of the dwelling units are occupied.*
>
> *The following noise criteria will be required to be achieved whilst providing adequate ventilation as defined by Approved Document F of the Building Regulations (whole dwelling ventilation):*
>
> *Bedrooms (night time - 23.00 - 07.00) 30 dB LAeq (individual noise events shall not exceed 45 dB LAmax,F by more than 15 times)*
>
> *Living Rooms (daytime - 07.00 - 23.00) 35 dB LAeq*
>
> *The scheme shall be designed to achieve internal noise levels in the 63Hz and 125Hz octave centre frequency bands so as not to exceed (in habitable rooms) 47dB and 41dB (Leq,5min), respectively.*
>
> *(c) Prior to occupation a post completion report to verify that all of the recommended mitigation measures have been installed and effectively mitigate any potential adverse noise impacts in the residential accommodation (within at least 10% of the apartments) shall be submitted and agreed in writing by the City Council as local planning authority.*

Prior to occupation any non compliance shall be suitably mitigated in accordance with an agreed scheme.

The approved details shall be implemented and remain in place for as long as the unit is in use (and any subsequent permitted changes of use under Class E)

Reason - To secure a reduction in noise in order to protect future residents from noise nuisance, pursuant to policies SP1, H1 and DM1 of the Core Strategy

The applicable internal noise criteria for apartments are reproduced in Table 1.

Room Type	Time of day	
	07:00 to 23:00	**23:00 to 07:00**
Living room	35 dB $L_{Aeq,\ 16\ hours}$	-
Bedroom	-	30 dB $L_{Aeq,\ 8\ hours}$ Individual noise events should not normally exceed 45 dB (LAmax) more than 15 fifteen times a night

Table 1: Intrusive noise criteria

MEASUREMENT METHODOLOGY

The measurement methodology to demonstrate compliance with the criteria identified in Table 1 above is as follows:

1) Daytime internal ambient noise levels shall be measured in 10% of apartments, the location of which will be determined by Fisher Acoustics based on exposure to road traffic noise.

2) Night-time noise levels within bedrooms will be interpolated from the daytime noise levels, based on daytime and night-time external noise measurements.

3) The testing on each day is expected to take place between approximately 4.30pm and 7.30pm (i.e. at a time when internal and external construction noise at Tariff Street has ceased but road traffic levels can be assumed to be typical).

4) Install sound level meters in a living room and bedroom of each apartment under test.

5) Measure internal noise levels in each room for approximately 5 minutes with the MEV (mechanical extract ventilation) unit switched off. If the average (LAeq) noise level in the room has not stabilised after 5 minutes, the measurement will be continued until a stable LAeq noise level has been established (up to approx. 10 minutes if required).

6) Measure internal noise levels in each room with the MEV operating in continuous ventilation mode.

7) Measure the reverberation time in each room to allow the measured noise levels to be corrected to allow for the reduction in internal noise level that will occur upon furnishing of the rooms.

8) Analyse the data to determine the 16-hour daytime noise level in the rooms due to external noise intrusion. With reference to the results of external noise survey measurements, determine the expected 8-hour night-time internal noise levels within bedrooms based on the change in external noise levels between the daytime and night time.

9) Advise the noise level in each of the measured rooms due to the operation of the MEV units.

10) Issue a letter report which tabulates the results of the measurements and compares the measured internal noise levels within each room with the requirements of the planning condition.

The measurements were conducted by Fisher Acoustics Ltd between the following times:

- 1615 hours and 1945 hours on Monday 14 September 2026
- 1635 hours and 1815 hours on Wednesday 16 September 2026

The Tariff Street development comprised two buildings dented Block 1 (B1) and Block 2 (B2). Measurements have been conducted within both buildings.

There was minimal construction activity within the buildings during the internal measurements. Traffic flows on the roads adjacent to the site were found to be typical for the duration of the internal noise measurements.

The measurements were undertaken with the windows closed. The tested rooms were unfurnished.

The measurements were conducted in general accordance with 'ANC Guidelines -Noise Measurements in Buildings, Part 2: Noise from External Sources (e.g. traffic noise) within Buildings'.

The measurements were conducted in rooms on various levels of the building with a bias to measuring noise in apartments on the closest elevations of the building to Port Street and Tariff Street, as these are the most dominant noise sources in the area. At the time of the measurements, apartments on the ground floor and Level 1 were not in a suitable condition for testing and solid site hoardings around the site screened these lower levels apartments from traffic noise. The lowest level of the building in which measurements were taken was therefore Level 2,

At the time of the measurements only the MEV units in Block 2 of the development were operational. Thus the measurements in Building 1 include only traffic noise ingress. Further measurements will be conducted to determine the noise levels in the required number of apartments due to the operation of MEV units.

MEASUREMENT TOLERANCE

As described in the ANC Guidelines, BS EN 61672-1: 2013 'Electroacoustics. Sound level meters – Specifications' gives the tolerance limits that are applicable to noise level measurements carried out using Class 1 sound level meters. These tolerance limits are given in 1/3 octave bands (ie across the sound spectrum), from which it is possible to determine the influence of the tolerance limits on an overall dB(A) measured noise level.

Using the 1/3 octave band data, the overall measurement tolerance on the measured internal noise levels is +/- 1.2 dB(A). It follows that a measured noise level within 1.2dB(A) of the applicable criterion could be compliant with the criterion.

MEASURED INTERNAL NOISE LEVELS

The reverberation times of the rooms were greater than will be the case when the rooms are fully furnished. Therefore, the measured noise levels have been corrected to allow for the expected reduction in reverberation time following the full furnishing of the rooms.

The measured reverberation times have been corrected to 0.5 seconds for living rooms and 0.45 seconds for bedrooms. In addition, a correction must also be applied to the measured 5-minute daytime internal noise levels in order to determine the expected 16-hour daytime internal noise levels within living rooms. In order to determine the correction,

reference has been made to external noise survey data gathered at the same time as the internal noise measurements and to the results of night time external noise surveys.

The measured daytime noise levels were determined by road traffic on Port Street, Tariff Street and to a lesser extent Great Ancoats Street.

Table 2 shows the measured, RT-corrected average ($L_{Aeq,16h}$) daytime noise levels in living rooms with the MEV switched off.

Apartment Number	Corrected Average Daytime Noise Level, dB (LAeq,16h)
	Living Room/ Kitchen Limit = 35 dB LAeq,16h (Measurement tolerance 1.2 dB(A))
B1 - 02.04	17.2
B1 - 02.06	17.4
B1 - 02.07	23.6
B1 - 02.14	22.2
B1 - 02.15	21.0
B1 - 02.18	22.0
B1 - 03.06	23.3
B1 - 03.11	26.8
B1 - 03.17	26.2
B1 - 04.05	20.3
B1 - 04.16	18.8
B1 - 05.05	26.6
B1 - 05.05	25.8
B1 - 05.15	21.4
B1 - 05.15	21.2
B1 - 06.07	18.5
B1 - 06.11	20.1
B1 - 07.18	24.5
B1 - 08.08	26.9
B1 - 08.18	18.6
B1 - 08.21	19.9
B1 - 09.02	26.5
B1 - 09.06	25.6
B2 - 01.02	20.1
B2 - 02.03	18.1
B2 - 04.02	20.5
B2 - 05.04	22.1
B2 - 06.03	25.0

Table 2: Measured, RT-corrected average daytime noise levels in living rooms – external road traffic noise ingress only

It can be seen that compliance with the daytime internal noise criterion for living rooms has been achieved in all of the rooms under test due solely to external noise sources (i.e. with the MEV switched off).

Table 3 shows the measured, RT-corrected average ($L_{Aeq,16h}$) daytime noise levels in living rooms of the Block 2 apartment with the MEV in each apartment operating continuously.

Apartment Number	Corrected Average Daytime Noise Level, dB (LAeq,16h)	
	Traffic noise + MEV noise	MEV Only, dBA
B2 - 01.02	28.7	28.1
B2 - 02.03	28.4	28.0
B2 - 04.02	27.5	26.5
B2 - 05.04	24.9	21.7
B2 - 06.03	31.7	30.7

Table 3: Measured, RT-corrected average daytime noise levels in living rooms – MEV On

A correction must be applied to the measured daytime noise levels in the bedrooms in order to determine the expected night time internal noise levels in the rooms. In order to determine the correction, reference has been made to external noise survey data gathered at the same time as the internal noise measurements in addition to previously measured night time noise survey data.

Table 4 shows the interpolated, RT-corrected average ($L_{Aeq,8h}$) night time noise levels in bedrooms with the MEV switched off.

Apartment Number	Corrected Average Night time Noise Level, dB (LAeq,8h)
	Bedroom Limit = 30 dB LAeq,8h (Measurement tolerance 1.2 dB(A))
B1 - 02.04, Bedroom 1	17.7
B1 - 02.06, Bedroom 1	16.4
B1 - 02.07, Bedroom 1	19.6
B1 - 02.14, Bedroom 1	18.3
B1 - 02.15, Bedroom	16.5
B1 - 02.18, Bedroom	16.8
B1 - 03.06, Bedroom 1	20.9
B1 - 03.11, Bedroom	20.8
B1 - 03.17, Bedroom	23.5
B1 - 04.05, Bedroom 1	15.6
B1 - 04.16, Bedroom 1	15.5
B1 - 05.05, Bedroom	22.9
B1 - 05.05, Bedroom 1	16.2
B1 - 05.15, Bedroom	16.7
B1 - 05.15, Bedroom 1	17.5
B1 - 06.07, Bedroom	17.2
B1 - 06.11, Bedroom	18.9
B1 - 07.18, Bedroom 1	18.4
B1 - 08.08, Bedroom 1	23.5
B1 - 08.18, Bedroom 1	16.8
B1 - 08.21, Bedroom 1	17.9
B1 - 09.02, Bedroom 1	14.3
B1 - 09.06, Bedroom	21.5
B2 - 01.02, Bedroom 1	21.3
B2 - 02.03, Bedroom 1	16.0
B2 - 04.02, Bedroom 1	17.1
B2 - 05.04, Bedroom 2	20.5
B2 - 06.03, Bedroom 1	20.9

Table 4: Measured, RT-corrected average night time noise levels in bedrooms – external road traffic noise ingress only

It can be seen that compliance with the night time internal noise criterion for bedrooms has been achieved in all of the rooms under test due solely to external noise sources (i.e. with the MEV switched off).

Table 5 shows the interpolated night time average noise levels in bedrooms with the MEV switched off and the MEV operating continuously. The specific contribution from the MEV only is also shown.

Apartment Number	Interpolated Average Night Time Noise Level, dB ($L_{Aeq,8h}$)	
	Traffic noise + MEV noise	MEV Only, dBA
B2 - 01.02, Bedroom 1	22.6	16.9
B2 - 02.03, Bedroom 1	27.6	27.3
B2 - 04.02, Bedroom 1	20.5	17.8
B2 - 05.04, Bedroom 2	21.2	13.1
B2 - 06.03, Bedroom 1	22.4	17.2

Table 5: Measured, RT-corrected average noise levels in bedrooms

Table 6 shows the maximum (L_{Amax}) noise levels in bedrooms measured during the daytime noise measurement.

Apartment Number/ Room	Measured Maximum Daytime Noise Level, dB (L_{Amax}) (Limit = 45 dB L_{Amax})
B1 - 02.04, Bedroom 1	30.2
B1 - 02.06, Bedroom 1	35.3
B1 - 02.07, Bedroom 1	26.6
B1 - 02.14, Bedroom 1	26.8
B1 - 02.15, Bedroom	25.5
B1 - 02.18, Bedroom	33.8
B1 - 03.06, Bedroom 1	31.9
B1 - 03.11, Bedroom	31.9
B1 - 03.17, Bedroom	31.0
B1 - 04.05, Bedroom 1	28.7
B1 - 04.16, Bedroom 1	33.0
B1 - 05.05, Bedroom	28.5
B1 - 05.05, Bedroom 1	30.4
B1 - 05.15, Bedroom	33.0
B1 - 05.15, Bedroom 1	22.3
B1 - 06.07, Bedroom	34.4
B1 - 06.11, Bedroom	40.2
B1 - 07.18, Bedroom 1	22.6
B1 - 08.08, Bedroom 1	25.9
B1 - 08.18, Bedroom 1	32.2
B1 - 08.21, Bedroom 1	23.8
B1 - 09.02, Bedroom 1	20.2
B1 - 09.06, Bedroom	32.0
B2 - 01.02, Bedroom 1	36.0
B2 - 02.03, Bedroom 1	27.7
B2 - 04.02, Bedroom 1	36.0
B2 - 05.04, Bedroom 2	39.8
B2 - 06.03, Bedroom 1	36.6

Table 6: Measured, RT-corrected average ($L_{Amax,5mins}$) noise levels in bedrooms

During the daytime measurements within bedrooms there were no excesses over the night time internal noise criterion of 45 dB L_{Amax}. As road traffic during the measurements was considered typical of normal traffic volumes and vehicle types, it is expected that compliance with the night time maximum internal noise criterion would be achieved in the tested bedrooms due to typical external noise events.

CONCLUSION

Compliance with the daytime average internal noise criterion of 35dB $L_{Aeq,16h}$ due to road traffic noise ingress has been achieved in all of the tested living rooms.

Compliance with the night time average internal noise criterion of 30dB $L_{Aeq,8h}$ due to road traffic noise ingress has been achieved in all of the tested bedrooms.

The noise levels in the living rooms and bedrooms of apartments that had operational MEV units (mechanical extract ventilation) comply with the daytime and night time criteria.

During the daytime measurements within bedrooms, there were no excesses over the night time internal noise criterion of 45dB L_{Amax}. It is therefore expected that compliance with the night time maximum internal noise criterion would be achieved in the tested bedrooms due to typical external night time noise events.

The achieved noise levels are considered to be compliant with the requirements of condition 13.

