SANDY BROWN

Consultants in Acoustics, Noise & Vibration

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This City, Rodney Street, Ancoats

Planning discharge report for condition 17a

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

post@sandybrown.com
www.sandybrown.com

Sandy Brown Ltd
Registered in England & Wales No. 13227735

Registered Office: 55 Charterhouse Street, London EC1M 6HA

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Summary

Sandy Brown have been appointed by Wates Ltd to provide acoustic consultancy services in relation to This City, Rodney Street, Ancoats.

This report sets out relevant information to discharge part (a) of planning condition 17 (of MCC decision notice 134154/VO/2022).

The sound insulation performances for proposed building envelope constructions to control environmental noise ingress are detailed within this report. This includes the details for the following elements:

- External walls
- Roof
- External glazing
- Ventilation.

Based on the outcome of the reviews, it is recommended that Planning Condition 17(a) is discharged.

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1 Introduction

Sandy Brown have been appointed by Wates Ltd to provide acoustic consultancy services in relation to This City, Rodney Street, Manchester

This report sets out relevant information to discharge part (a) of planning condition 17 for the development (of MCC decision notice 134154/VO/2022).

2 Planning condition 17

Planning condition 17 (of MCC decision notice 134154/VO/2022) states the following:

> *"17) (a) Notwithstanding the Acoustic Planning Report (22013-R01-C) stamped as received by the City Council, as Local Planning Authority on 20 June 2022, prior to the first occupation of a building of the development a scheme for acoustically insulating the proposed residential accommodation against noise from the local traffic network shall be submitted for approval in writing by the City Council, as Local Planning Authority.*
>
> *The approved noise insulation scheme shall be completed before the first occupation each building of the development.*
>
> *Noise survey data must include measurements taken during a rush-hour period and night time to determine the appropriate sound insulation measures necessary. The following noise criteria will be required to be achieved:*
>
> *Bedrooms (night time - 23.00 - 07.00) 30 dB L Aeq (individual noise events shall not exceed 45 dB LAmax,F by more than 15 times)*
>
> *Living Rooms (daytime - 07.00 - 23.00) 35 dB L Aeq*
>
> *Gardens and terraces (daytime) 55 dB LAeq"*

3 Basis of review

The review has been based on the following documents:

- Sandy Brown acoustic planning report 22013-R01-C
- Residential Block A & B – Typical external wall details from Buttress rev C01 dated 29 July 2024.
- Townhouse external wall details from buttress rev C02 dated 5 September 2024.
- Glazing technical submittal from Internorm received via email on 31 October 2023.
- External glazing schedule from Buttress rev C01 dated 25 July 2024.
- External glazing technical submittal from Internorm dated 15 November 2023.

4 Environmental noise survey

Full details of the environmental noise survey carried out to establish the planning limits for this development can be found in Sandy Brown report 22013-R01-C *Acoustic planning report*.

Attended day, evening and night-time sample measurements were carried out at four locations around the site on 28 and 29 June 2021 over 5-minute periods.

An additional noise survey was carried out on 7 September 2021 to verify the noise levels to the north-west of the site close to the A62.

The survey data is expected to be representative of the existing noise levels at the site, and include both rush-hour and night-time periods as specified within the planning condition wording outlined in Section 2.

5 Acoustic requirements

Planning condition 17 part (a) is in relation to the residential section of the scheme. The acoustic design requirements of this element are defined by Manchester City Council (MCC) internal noise criteria set out in the Planning and Noise Technical Guidance document (2022) and the external noise level predicted at each facade.

5.1 External noise

The external noise levels predicted at the facades of the development are set out in Sandy Brown acoustic planning report 22013-R01-C.

The external noise levels were predicted from a 3D environmental noise model based on measured noise survey data. From this the facade sound insulation requirements were assessed to meet the MCC internal noise criteria.

5.2 Internal noise criteria

The internal noise criteria for the development have been set in line with MCC guidance for internal noise and entertainment noise set out in the *Planning and Noise Technical Guidance document (2022)*. The project criteria are outlined below.

5.2.1 Residential (background ventilation)

Manchester City Council (MCC) stipulates the criteria provided in Table 1 in the Planning and Noise Technical Guidance document (2022) with regards to internal noise in residential developments.

Table 1 Manchester City Council internal noise criteria for residential developments

Internal space	Internal noise limit, L_{Aeq} (dB)	
	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Living rooms	35	-
Bedrooms	35	30

It is also stipulates that individual noise events in bedrooms should not normally exceed L_{Amax} 45 dB by more than 15 times.

5.2.2 Residential (purge ventilation)

It is understood from discussion with MCC that the noise criteria in Section 5.2.1 do not apply during purge ventilation (ie, when windows are open to get rid of cooking /paint smells, etc).

5.2.3 Residential (summertime cooling)

For apartments where the AVO SOAEL thresholds are predicted to be exceeded with open windows, a boost feature is proposed for the MVHRs to control overheating, so opening windows are not required.

In line with the AVO guide, a 5 dB relaxation to the noise criteria during ventilative cooling or comfort is acceptable. On this basis, an overall cumulative internal ambient noise criteria of L_{Aeq} 40 dB is applicable in living/dining rooms during the overheating control condition for these apartments.

Further details relating to ventilation and overheating are provided in Section 6.4.

5.2.4 Building services noise limits

The noise limits in residential apartments assume equal noise contributions from external noise ingress and building services noise. Therefore, the building services noise shall be 3 dB below the internal noise criteria when providing background ventilation (ie, L_{Aeq} 27 dB in bedrooms and L_{Aeq} 32 dB in living rooms).

5.3 Sound insulation requirements

Overall facade sound insulation performance requirements have been set based on the predicted noise levels at the facade from environmental noise sources. The full facade sound insulation requirements assessment is presented within 22013-R01-C *Acoustic planning report.*

The highest overall facade sound insulation performance requirement is $R'_w + C_{tr}$ 30 dB for the dwellings.

Based on the external wall information, glazing information and ventilation strategy as set out in the following Sections, the facade sound insulation performance requirement is expected to be achieved.

6 Sound insulation assessment for proposed building envelope

6.1 External wall constructions

The external walls to dwellings in Block A and Block B comprise:

- 100 mm outer brickwork
- 300 mm cavity with 250 mm mineral fibre insulation
- 10 mm cement bonded particle board
- 10 mm mineral fibre insulation
- Internal lining comprising 12.5 mm standard density plasterboard both sides of 30 mm mineral fibre insulation.

The external walls to townhouse dwellings comprise:

- 100 mm outer brickwork
- 2 x 125 mm mineral fibre insulation
- 100 mm concrete blockwork (1800 kg/m^3 density)
- 15 mm standard plasterboard on 30 mm timber batten with mineral fibre insulation in the cavity.

Both constructions are predicted to be capable of providing a sound insulation performance of at least $R'_w + C_{tr}$ 40 dB, which is at least 10 dB higher than the minimum standards required.

6.2 External glazing

For mechanically ventilated rooms with no more than 50% of the facade glazed, the glazing sound insulation requirement can be 3 dB lower than the overall facade sound insulation requirement

The glazing area for apartments and townhouses is equal to or less than 50% of the facade to the living rooms and bedrooms, and the proposed external wall build-ups are expected to provide a sound insulation of at least 10 dB higher than overall sound insulation performance requirements.

As such, based on a composite sound insulation calculation, the glazing performance can be reduced by 3 dB compared to the overall minimum sound insulation performance. Therefore, the highest glazing maximum sound insulation performance is R'_w+C_{tr} 27 dB**.** This standard is achievable with standard thermal double glazing (e.g. 6/16/6).

A review of the glazing technical submittal provided by Internorm has been carried out for the development.

The proposed glazing to all window types comprises 48 mm triple glazing (4 mm toughened glass / 18 mm cavity / 4 mm glass / 18 mm cavity / 4 mm toughened glass. The stated sound insulation performance of the external glazing types is '34 dB'. It is assumed that the provided sound insulation parameters is a laboratory-tested sound reduction index (R_w), however it is unclear whether the quoted value includes for a '+C_{tr}' correction in line the specified requirements.

The external glazing schedule states that a sound insulation performance of R'_w+C_{tr} 27 dB is specified for each and every glazing type. It is therefore anticipated that the sound insulation requirements will be met with the proposed glazing.

6.3 Roof constructions

6.3.1 Blocks A and B

250 mm thick concrete roof slabs with insulation above are proposed for Blocks A and B. This construction is expected to provide a high sound insulation performance in the region of R'_w 55 dB which will sufficiently control environmental noise ingress.

6.3.2 Townhouses

The townhouse roof comprises interlocking roof tiles on horizontal counter battens to 50 mm x 38 mm timber battens fixed to 100 mm Rockwool Hardrock tapered insulation on 18 mm plywood on 22 mm timber battens with mineral fibre insulation in the cavity. This construction is proposed in flat roof and pitched variants.

A ceiling comprising12.5 mm normal density plasterboard on 25 mm timber battens is affixed beneath the roof construction.

The construction is expected to meet the sound insulation performance requirement and suitably control environmental noise ingress.

6.4 Ventilation strategy

6.4.1 Background ventilation

Natural ventilation is not relied upon to provide background ventilation. This is provided via MVHRs within each dwelling.

6.4.2 Control of overheating via opening windows

An assessment in line with Association of Noise Consultants *Acoustics Ventilation and Overheating, residential Design Guide* (AVO) has been carried out as presented in 22013-R01-C *Acoustic planning report.*

The assessment indicated that there is a potential risk of the AVO SOAEL thresholds being exceeded during the day for the following apartments which were selected for the TM-59 overheating assessment:

- Block A-07-Flat 004 (2B4P): Living room
- Block A-01-Flat 004 (2B4P): Living room and Bedroom
- Block A-00-Flat 007 (2B4P): Bedroom.

The other apartments predicted to be exposed to similar external noise levels which could lead to the SOAEL threshold being exceeded during the daytime with windows open these are summarised below:

- Block A-01-Flat 005(2B4P): Bedroom
- Block A-02-Flat 005(2B4P): Bedroom
- Block A-03-Flat 005(2B4P): Bedroom
- Block A -02-Flat 004(2B4P): Living room and Bedroom
- Block A -03-Flat 004(2B4P): Living room and Bedroom
- Block A -04-Flat 004(2B4P): Living room and Bedroom
- Block A -05-Flat 004(2B4P): Living room and Bedroom
- Block A-07-Flat 003(2B4P): Living room
- Block A-07-Flat 002(2B4P): Living room
- Block A-06-Flat 004(2B4P): Living room
- Block A-06-Flat 003(2B4P): Living room
- Block A-06-Flat 002(2B4P): Living room
- Block A-05-Flat 003(2B4P): Living room
- Block A-05-Flat 002(2B4P): Living room
- Block A-04-Flat 003(2B4P): Living room
- Block A-04-Flat 002(2B4P): Living room
- Block A-03-Flat 003(2B4P): Living room
- Block A-03-Flat 002(2B4P): Living room
- Block A-02-Flat 003(2B4P): Living room
- Block A-02-Flat 002(2B4P): Living room

- Block A-01-Flat 003(2B4P): Living room
- Block A-01-Flat 002(2B4P): Living room
- Block A-00-Flat 003(2B4P): Living room and Bedroom.

An enhanced mechanical ventilation strategy is proposed for the apartments listed above to allow windows to remain closed during the day, hence mitigating the potential AVO SOAEL noise issue.

In all of the other the instances assessed, the predicted levels are below the AVO SOAEL thresholds even if windows are open *'most of the time'* to control overheating. All of the night-time noise ingress levels predicted are within the AVO SOAEL thresholds.

Full details of the assessment can be found in Sandy Brown document 22013-R01-C *Acoustic planning report.*

7 Conclusion

Based on the reviews outlined above of the support technical submittals, it is recommended that Planning Condition 17(a) is discharged.