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From: Steve Skingle

Company: Bowker Sadler Architecture

SLR Consulting Limited

cc: Andrea Peak
Great Places Housing Group

Date: 8 September 2023

Project No. 403.064791.00001

**RE: Chain Road, Manchester (Planning ref: 131891/FO/2021, Condition 17a)
Acoustic Technical Memorandum**

Introduction

SLR Consulting Ltd (SLR) has been appointed by Bowker Sadler Architecture (BSA) to assist with the discharge of Condition 17(a) of Manchester City Council (MCC) planning approval 131891/FO/2021 for the following scheme development:

“Proposal: Erection of 12, two storey dwellinghouses (Use Class C3a) together with the erection of a three storey building to form 20 residential apartments (Use Class C3a) with associated car parking, landscaping, boundary treatment and other associated works

Location: Land On The Corner Of Victoria Avenue And Chain Road, Manchester”

Detail of MCC Condition 17(a) subject to review within this memorandum has been replicated as follows:

“17) (a) Notwithstanding the noise report stamped as received by the City Council, as Local Planning Authority, on the 11 October 2021

(a) a scheme for acoustically insulating and ventilating 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 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 LAeq (individual noise events shall not exceed 45 dB L_{Amax,F} by more than 15 times)

Living Rooms (daytime - 07.00 - 23.00) 35 dB LAeq

Gardens and terraces (daytime) 55 dB LAeq

Where applicable (entertainment/music): Additionally, where entertainment noise is a factor in the noise climate the sound insulation 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, respectively...”

This document has been prepared on review of the contractor's proposals being compliant with the recommended acoustic and ventilation measures. further to that provided at planning stage (herein, “the planning NIA”¹) for a discharge condition application.

¹ Chain Road, Manchester. Noise Impact Assessment. Report Ref: 410.12096.0001, Version 1. SLR Consulting Limited, August 2021.

Acoustic Requirements

Planning Stage Summary Recommendations

The planning NIA for the scheme provided the following summary advice:

- Use of Manchester City Council Planning & Noise Technical Guidance (2015), as replicated in Condition 17(a).
- Incident noise predominantly from road traffic (with no entertainment or music sources in the local area).
- Recommendation for continuous mechanical extract or MVHR ventilation schemes.
- Minimum specifications for windows and ventilators (Table A and Figure 1 below)
- Additional provisions for mechanical ventilation units to assist adverse effects from opening windows in an overheating ventilation stage, along Victoria Avenue.
- Compliance with criteria for inward facing gardens and terraces by design (Figure 2 below), requiring no mitigation measures.

Schedule and Illustrations

Table A: Minimum Specifications for Windows and Ventilators

Building Element and Location	Specification	Metric	Typical Configuration
Windows facing Victoria Avenue	≥ 35	$\text{dB } R_w + C_{tr}$	Double glazing 8-16-8.8 acoustic laminate glass
Windows perpendicular to above	≥ 31	$\text{dB } R_w + C_{tr}$	Double glazing 4-14-6 standard glass types
Windows facing all other areas	≥ 27	$\text{dB } R_w + C_{tr}$	Double glazing 4-16-4 standard glass types
Ventilators facing Victoria Avenue	≥ 41	$\text{dB } D_{ne, w} + C_{tr}$	High performance acoustic trickle vent as rated*
Ventilators perpendicular to above	≥ 36	$\text{dB } D_{ne, w} + C_{tr}$	Acoustic trickle vent as rated*
Ventilators facing other areas	≥ 30	$\text{dB } D_{ne, w} + C_{tr}$	Acoustic trickle vent as rated*
*Only one ventilator accounted per habitable room, using continuous mechanical extract strategy.			



Figure 1: Illustration of Sound Insulation Schemes



Figure 2: Daytime Noise Levels in External Amenity Areas



Contractors Proposal

Site Detail

Planning of the scheme has related to the full site shown in BSA Drawing 2001, comprising of subdivisions of the development termed:

- Block 1 (4 No. houses).
- Block 2 (20 No. flats).
- Block 3 (2 No. houses).
- Block 4 (2 No. houses).
- Block 5 (2 No. houses).
- Block 6 (2 No. houses).

Proposed Ventilation Strategy and Windows

The proposed ventilation strategy has included for continuous mechanical extract ventilation in wet rooms in all plots, matched with 2,500 mm² EA trickle ventilation per habitable room.

Rooms facing Victoria Avenue have been proposed to be ventilated via Positive Input Ventilation (PIV), operating as a high-performance acoustic trickle vent when mechanical systems are disabled. When mechanical systems are operative, these devices allow large input airflow rates as part of an overheating ventilation strategy so as to enable windows to remain closed whilst still providing sufficient air changes to ensure occupant comfort.

The ventilation strategy, including the use of PIV along Victoria Avenue, has aligned with acoustic recommendations of the planning NIA.

Table B: Proposed Specifications for Windows and Ventilators

Building Element and Location	Laboratory Specification	Metric	Typical Configuration
Windows facing Victoria Avenue	34*	dB $R_w + C_{tr}$	C70 6-14-8.8 acoustic laminate glass
Windows perpendicular to above	31*	dB $R_w + C_{tr}$	C70 4-18-6.4 acoustic laminate glass
Windows facing all other areas	28*	dB $R_w + C_{tr}$	C70 4-20-4 standard glass
Ventilators facing Victoria Avenue	56**	dB $D_{ne, w} + C_{tr}$	Titon Sonair 3
Ventilators perpendicular to above	36**	dB $D_{ne, w} + C_{tr}$	Titon TA5223 (V50) + TA5005 (SF 418) 2500EA
Ventilators facing other areas	32**	dB $D_{ne, w} + C_{tr}$	TA5220 (SF Xtra Vent) + TA5005 (SF 418) 2500EA
*AIRO Report No. L/3202, May 2011 [Confidential].			
** Data obtained via https://www.titon.com/ .			



Validation and Conclusions

Sample validation calculations have been carried out using rigorous methods of BS 8233 G2.1 to confirm that the contractors' proposals would maintain the intent of the requirements of the acoustic design strategy in compliance with the details of Condition 17a.

Note: the performance requirement would be the resultant internal ambient noise levels in dwellings, in compliance with BS 8233:2014 design guidance.

The planning stage glazing, and ventilation performance recommendations were indicative measures based on the scheme details as available at the time of the submission to achieve these goals.

On this basis the following BSA architectural schedules have also been reviewed as including suitable reference to review the suitability of contractor proposals for performance standards of windows and ventilators.

- 5010 - Block 1 Window and Door Schedules – RevD
- 5020 - Block 2 - Window Schedule – RevC
- 5021 - Block 2 - Door Schedule – RevD
- 5030 - Block 3 Window and Door Schedules
- 5040 - Block 4 - Window and Door Schedules – RevD
- 5050 - Block 5 - Window and Door Schedules – RevC
- 5060 - Block 6 Window and Door Schedules – RevD

In following it has been reviewed that the details of approval 131891/FO/2021 Condition 17(a) would be achieved by the architectural specifications and contractors' proposals, such that a recommendation is made that Part (a) of this condition can be discharged.

SLR remain under appointment with BSA to satisfy the requirements of Condition 17(b). Verification exercises have been planned for a sample of habitable rooms approaching pre-completion stage of the project.

(b) Prior to the first occupation 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.



Closure

The technical memorandum has required a suitable level of technical ability and has been undertaken by a Suitably Qualified Person (SQP). An individual with all the following credentials has been considered a SQP for this assessment:

- Has a minimum of three years' verifiable experience (within the last five years) of providing noise impact assessments in planning. Such experience has clearly demonstrated a practical understanding of factors affecting acoustics in relation to the proposed development use and in the built environment in general, including acting in an advisory capacity to provide recommendations and design advice in planning, and;
- Holds a recognised acoustic qualification and membership of an appropriate professional body. The primary professional body for acoustics in the UK is the Institute of Acoustics.

This assessment has been led and managed by a SQP as defined above.

Where some elements of the assessment (e.g. measurements) have been carried out by an acoustician who does not meet the requirements above, this has been undertaken with the direct guidance and supervision of a SQP who has reviewed, agreed and overseen the measurement methodology and any results obtained.

The SQP confirms that the relevant measurements and calculations:

- Represent good industry practice in accordance with available guidance.
- Are appropriate given the development being assessed and scope of works proposed.
- Avoid invalid, biased and exaggerated claims.

The checker and author of this document confirm that they both comply with the definition of a SQP defined in this Section.

Regards,

SLR Consulting Ltd.



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