

MILLER GOODALL
ACOUSTICS - AIR QUALITY - LIGHTING

NOISE IMPACT ASSESSMENT

on behalf of

RP TYSON CONSTRUCTION LTD

for the site at

PLANT HILL ROAD, BLACKLEY M9 8LY

TECHNICAL NOTE DATE: 01 JULY 2026

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0	04/06/2026	-	-	-
1	29/06/2026	CI	LWT	Update according to client's comments

1 Introduction

1.1 Miller Goodall Ltd (MGL) has undertaken an investigation to determine the sound reduction performance requirements of the ventilation and glazing elements associated with the proposed residential development at Plant Hill Road, Blackley, M9 8LY, within the administrative boundary of Manchester City Council (MCC).

1.2 MGL previously undertook verification measurements for the purpose of discharging Condition 15 of planning approval reference 137915/FO/2023. Condition 15 states:

"15) a) The development shall be implemented in accordance with the mitigation measures in the Environmental Noise Assessment, ref. ENA-22522a-23-34 dated January 2023. The approved noise insulation and ventilation scheme shall be completed before any of the dwelling units are occupied.

b) Prior to first occupation of the residential units, a verification report shall be required to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic consultant's report. The report shall also undertake post completion testing to confirm that the internal noise criteria have been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the internal noise criteria."

1.3 The measurements identified instances of non-compliance with the internal noise criteria specified within the approved Environmental Noise Assessment (ref. ENA-22522a-23-34, dated January 2023).

1.4 In anticipation of a response from MCC, further investigation works have subsequently been undertaken to inform the client of the likely causes of the identified non-compliance and to assess potential mitigation measures necessary to achieve compliance with the approved internal noise criteria.

1.5 This technical note summarises the scope of the investigation undertaken, presents the findings of the assessment, and provides mitigation measures in terms of specifying appropriate glazing and ventilation products that can achieve the relevant internal sound level criteria within the proposed residential development.

2 Initial Investigation

Original Noise Impact Assessment

2.1 The original Noise Impact Assessment (NIA) prepared by IDOM (dated: 27/01/2023) reported existing external sound levels of 61 dB $L_{Aeq,T}$ during the daytime period and 52 dB $L_{Aeq,T}$ during the night-time period, with corresponding maximum sound levels of 74 dB L_{AFmax}. To account for the road-facing façades, these levels were increased within the assessment to 62 dB $L_{Aeq,T}$ during daytime, 55 dB $L_{Aeq,T}$ during night-time with 76 dB L_{AFmax}.

2.2 Based on these external sound levels, the IDOM report identified overall façade sound reduction requirements (inclusive of glazing, ventilation and external wall elements) of 27 dB (for $L_{Aeq,16hour}$ daytime levels), 25 dB (for $L_{Aeq,8hour}$ night-time levels) and 31 dB (for L_{AFmax} night-time levels) respectively for the road facing façades. However, a review of the assessment methodology indicates that the derivation of the required sound insulation performance underestimates the mitigation necessary to achieve the internal noise criteria.

Verification measurements and Current Design

2.3 The external verification measurements, that were undertaken on site in April 2026, were used to derive the spectral content of the external ambient sound levels during daytime and night-time.

2.4 An assessment of the likely external ambient noise levels at the façade of the most exposed dwelling were undertaken based on the current glazing and ventilation specifications and external wall build-up provided by the client.

2.5 Based on the provided information it is understood that the external wall build up consists of:

- Masonry (a 70 mm brick layer has been assumed with min. density of 1600 kg/m^3)
- 50 mm cavity
- 9 mm OSB
- Reflective membrane
- Insulated timber frame 140 mm thick
- Reflective membrane
- 25 mm baton
- 12.5 mm plasterboard & skim

2.6 The sound insulation performance of the proposed build-up was modelled using Insul version 9.0.23 and was calculated to achieve a sound reduction performance of 54 dB R_w+C_{tr}. The calculated minimum sound reduction indices of the external wall are given in **Table 1**.

2.7 Based on the available information, the installed glazing and ventilation systems are considered representative of standard double glazing with a performance of approximately R_w (C;C_{tr}) = 30 (-1;-5) dB and standard non-acoustic background ventilators with a performance of approximately D_{new} (C;Ctr) = 31 dB.

2.8 The provided test data for the procured ventilator are given in **Table 1**.

2.9 Based on the provided information, the minimum sound reduction indices for the glazing have been assumed to be as given in **Table 1**.

Table 1: External Wall, Glazing and Ventilator - Minimum Sound Reduction Indices

Element	Sound Reduction Indices (dB) at Octave Band Centre Frequencies (Hz)								
	63 Hz	125 Hz	250 Hz	500 Hz	1.0 kHz	2.0 kHz	4.0 kHz	8.0 kHz	R_w+C_{tr} / D_{new}
External wall	29	44	55	58	56	49	49	49	54
Standard Frame vent	22*	36	33	33	31	29	31	36	31
Standard double glazing	24	21	15	25	39	44	41	32	25

** Value assumed for calculation as it was not provided within the test data.*

2.10 The measured internal sound levels from the April 2026 verification survey and the performance of the external wall, glazing and ventilator given in **Table 1**, were used to derive the external ambient sound levels at the most exposed dwelling of the proposed development. The estimated external ambient sound levels are given in **Table 2**.

Table 2: Estimated External Ambient Sound Levels

Time Period	Unweighted Sound Levels at Octave Band Centre Frequencies (Hz)								A-weighted Broadband Sound Levels (dBA)
	63 Hz	125 Hz	250 Hz	500 Hz	1.0 kHz	2.0 kHz	4.0 kHz	8.0 kHz	
Daytime	75	68	65	62	62	63	57	40	68
Night-time	60	54	51	49	49	48	42	31	54
Night-time L_{AFmax}	86	80	76	74	74	72	66	52	78

2.11 It should be noted that the validation survey results showed that while daytime noise levels in the living room (ground floor north-facing living room of Plot 5-6) achieved the relevant internal noise level criteria, noise levels recorded in the bedroom (first floor south-facing bedroom of Plot 9-10) significantly exceeded the relevant noise criteria.

2.12 The type of exceedances indicate that the sound insulation performance of the installed glazing and ventilation are not sufficient to provide the necessary mitigation to comply with the validation criteria.

2.13 Therefore, alternative glazing and ventilation elements should be considered to ensure that compliance with the internal ambient noise level criteria is achieved at all development plots, as requested by the planning condition.

Proposed Upgraded Mitigation Measures

2.14 A noise break-in calculation was undertaken for the worst-case bedroom façade of Plot 9-10 identified as being most exposed to external noise sources considering the current external wall build-up (as given in **Table 1**) construction and the following glazing and ventilation products:

- 8 mm /20 mm / StadipSilence 66.A2 triple glazing with a performance of R_w ($C;C_{tr}$)= 42(-1 ; -5) dB, and
- A single[1] Rytons AAC125HPCWL wall vent with a performance of $D_{n,e,w}$ ($C;C_{tr}$)= 45(-1 ; -3) dB

[1] The calculation considered only one ventilation opening at the façade. It should be noted that if more ventilators need to be installed, the acoustic performance value for **each** ventilator will need to be increased by 10log10(n), where n is the number of ventilators.

2.15 The assessment results are given in **Table 3**.

Table 3: Noise Break-In Calculation for Most Exposed Bedroom Façade of Plot 9-10

Term	Overall Level dB(A)	Criteria	Exceedance
Internal Sound pressure level (SPL) - $L_{eq,2}$ - Daytime $L_{Aeq,\ 16hrs}$	33	35	-
Internal SPL - $L_{eq,2}$ - Night-time $L_{Aeq,\ 8hrs}$	19	30	-
Internal SPL - $L_{eq,2}$ - Night-time L_{AFmax}	44	45	-

2.16 The assessment has shown that with the installation of the 8 mm /20 mm / StadipSilence 66.A2 triple glazing and the Rytons AAC125HPCWL wall vent, the internal sound levels criteria at the most exposed to noise bedroom will be met for the daytime, night-time and maximum night-time sound levels.

2.17 The new glazing and through wall vent should be installed at the bedrooms of the plots that are facing Plant Hill Road and Bank House Road, i.e., Bedroom 1 (first floor) and Bedroom 3 (second floor) of Plots 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12. It should be noted that all glazing of the above bedrooms would need to be replaced by the 8 mm /20 mm / StadipSilence 66.A2 triple glazing and any existing trickle vents would need to be removed and the resulting openings be properly sealed.

2.18 As the assessment demonstrates compliance at the worst-case bedroom façade of Plots 9–10, which represents the most exposed to noise room within the development, it follows that the same glazing and ventilation specification will also meet the relevant internal noise criteria at the remaining bedrooms where this specification is proposed to be installed.

2.19 It should be noted that the acoustic performance of the proposed glazing and ventilation element is dependent upon correct installation and overall quality of workmanship on site. It is therefore important that all components are installed in accordance with the manufacturers' recommendations and that good construction practices are followed throughout. Any gaps, poor sealing, or deviations from the specified installation details could reduce the overall sound insulation performance of the external wall build-up. Subject to appropriate installation and good workmanship, the proposed glazing and ventilation specification is expected to achieve the acoustic performance assumed within this assessment.

3 Conclusion

3.1 A review of the original Noise Impact Assessment and subsequent verification measurements has been undertaken in order to assess the acoustic performance requirements of the glazing and ventilation systems of the most exposed dwellings within the proposed development.

3.2 This review identified that the sound insulation requirements within the original Noise Impact Assessment underestimate the level of mitigation necessary to achieve compliance with the internal ambient noise level criteria required by the planning condition. The verification measurements undertaken in April 2026 identified exceedances of the internal noise criteria, which are considered consistent with the performance of the glazing and ventilation systems currently understood to be installed.

3.3 A noise break-in calculation was undertaken for the worst-case bedroom façade of Plots 9–10, which is the most exposed to external noise sources. The assessment has demonstrated that, when the existing external wall construction and the following glazing and ventilation products are incorporated, the internal sound level criteria for the most exposed bedroom are achieved during the daytime, night-time, and for maximum night-time sound levels:

- 8 mm /20 mm / StadipSilence 66.A2 triple glazing with a performance of R_w (C;Ctr)= 42(-1 ; -5) dB, and
- A single Rytons AAC125HPCWL wall vent with a performance of $D_{n,e,w}$ ($C;C_{tr}$)= 45(-1 ; -3) dB

3.4 It is therefore concluded that, subject to the glazing and ventilation systems being installed in accordance with the manufacturers' recommendations and to a good standard of workmanship, the proposed specification is considered suitable as a remedial solution to achieve the relevant internal noise criteria.

3.5 The new glazing and through wall vent should be installed at the bedrooms of the plots that are facing Plant Hill Road and Bank House Road, i.e., Bedroom 1 (first floor) and Bedroom 3 (second floor) of Plots 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12. It should be noted that all glazing of the above bedrooms would need to be replaced by the 8 mm /20 mm / StadipSilence 66.A2 triple glazing and any existing trickle vents would need to be removed and the resulting openings be properly sealed.

3.6 As the assessment demonstrates compliance at the worst-case bedroom façade of Plots 9–10, which represents the most exposed to noise room within the development, it follows that the same glazing and ventilation specification will also meet the relevant internal noise criteria at the remaining bedrooms where this specification is proposed to be installed.

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Glossary of Terms

Decibel (dB) The unit used to quantify sound pressure levels; it is derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 μPa, the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is usually only perceptible under controlled conditions.

dB L_A Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB L_A broadly agree with an individual's assessment of loudness. A change of 3 dB L_A is the minimum perceptible under normal conditions, and a change of 10 dB L_A corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB L_A; normal conversation about 60 dB L_A at 1 meter; heavy road traffic about 80 dB L_A at 10 meters; the level near a pneumatic drill about 100 dB L_A.

$L_{A90,T}$ The A weighted noise level exceeded for 90% of the specified measurement period (T). In BS 4142: 2014+A1:2019 it is used to define background noise level.

$L_{Aeq,T}$ The equivalent continuous sound level. The sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter.

L_{Amax} The highest A weighted noise level recorded during the time period. It is usually used to describe the highest noise level that occurred during the event.


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