

Design note.

To:	TMC Phase 2 Design Team
Cc:	
From:	Al Plail, Associate
Date:	03 January 2025
Project:	TMC Phase 2
File ref:	REP-1014837-5A-AP-20250102-Noise breakout assessment-Rev00.docx

Noise breakout assessment.

Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
00	03/01/2025	First issue	AP	PM	PM

Summary.

This document provides an assessment of noise breakout from activities proposed within the proposed building forming Phase 2 of The Manchester College City Centre Campus.

It is understood that the usage is just typical teaching activities, with no significant amplified sound. As such, the highest internal noise levels would be expected to be due to noisy teaching periods, such as group activities with multiple occupants speaking at once.

Based on the design of the building envelope, the level of noise breakout from teaching activities would be expected to be more than 35 dBA below the existing background noise level at the worst affected receptor, due to noisy teaching activity in a single large classroom.

If the noisy teaching activity were to occur in all classrooms simultaneously, which is considered to be a worst case / unrealistic scenario, the noise breakout level would be expected to be more than 20 dBA below the existing background noise level.

Given that the noise breakout is predicted to be significantly below the existing background noise level, no adverse impact is expected due to noise from teaching activities.

This document has been prepared for Willmott Dixon Construction only and solely for the purposes expressly defined herein. We owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. The consequences of climate change and the effects of future changes in climatic conditions cannot be accurately predicted. This document has been based solely on the specific design assumptions and criteria stated herein.

Nearby noise sensitive receptors.

The proposed development is located beside the Great Ducie Street site and the Old Brewery Gardens site which are currently under development. Further from the proposed development are the Travelodge Hotel and Beaumont Building which are pre-existing.

A mark-up of the local area has been presented with Figure 1, showing the proposed development site and the nearby receptors.



Figure 1: 3D rendered image of development site and nearby noise-sensitive receptors.

Existing noise levels.

An environmental noise survey has been carried out on site during February 2023. The full results are detailed in Hoare Lea report *REP-1014659-5A-AP-20230217-Noise assessment planning report-Rev01*.

From the results, the existing background sound level during the daytime was found to be **49 dB LA90**.

Proposed activities.

It is understood that the internal spaces are to be used for standard teaching activities with no significant amplified sound. As such, the highest internal noise levels would be expected to be due to noisy teaching periods, such as group activities with multiple occupants speaking at once.

The noise level due to noisy group activities would be expected to be in the region of **65-70 dB LAeq** during the loudest periods.

Noise breakout assessment.

The following has been considered in the assessment of noise breakout:

- The external glazing is specified to achieve a minimum sound insulation performance of R_w+C_{tr} 30 dB, with external wall specified to achieve a minimum performance of R_w+C_{tr} 42 dB.
- The worst affected 'Future Great Ducie Street' site is approximately 17 m from the north elevation of the TMC Phase 2 building.

Calculations have been carried out taking into account the sound insulation performance of the façade, and distance attenuation from an area source in line with BS EN 12354-4.

The table below presents the assumed internal noise level spectrum with a worst case internal noise level of 70 dBA, along with the calculated level of noise breakout outside the nearby receptor from a single large classroom. The noise spectrum is based on archive data of a space with many groups talking at once.

Table 1 Spectral noise levels, internal and predicted external

	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	$L_{Aeq,T}$
Internal noise level, $L_{eq,T}$ (dB)	59	59	62	68	66	63	58	70
Noise breakout level, outside Future Ducie Street site, $L_{eq,T}$ (dB)	12	10	16	11	-4	-15	-17	11

Based on an internal noise level of 65-70 dBA due to noisy teaching activity in a large classroom, a noise breakout level of **6-11 dBA** would be expected outside the worst affected residential receptor. This is significantly below the background noise level of 49 dBA, so would not be expected to be noticeable.

As there are multiple classrooms on the facade, there is a chance that multiple classrooms may operate with noisy teaching activities at once. Under the worst case / unrealistic scenario where all classrooms are operating at the 65-70 dBA group activity level at the same time, a higher noise level of **20-25 dBA** is predicted outside the worst affected receptor. This is still significantly below the background noise level of 49 dBA, so would not be expected to result in disturbance.