

Ref: 50-477-TN1-2
Date: 26th January 2024

Tom Williams
NEO PROJECTS

BY Email

DISCHARGE OF CONDITIONS 12 AND 22 CHARLESTOWN, BENMORE ROAD

BACKGROUND & OBJECTIVES

E3P have been commissioned to produce a technical note that provides information sufficient in order to discharge conditions 12 and 22 of the planning approval (135788/FO/2022). The conditions are given below:

12 a) Before the development commences a scheme for acoustically insulating the proposed residential accommodation against noise from White Moss Road shall be submitted to and approved in writing by the City Council as local planning authority. There may be other actual or potential sources of noise which require consideration on or near the site, including any local commercial/industrial premises. The potential for overheating shall also be assessed and the noise insulation scheme shall take this into account. The approved noise insulation and ventilation scheme shall be completed before any of the dwelling units are occupied. Noise survey data shall include measurements taken during a rush-hour period and night time to determine the appropriate sound insulation measures necessary.

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. Reason- To secure a reduction in noise from traffic or other sources in order to protect future residents from noise disturbance, pursuant to policies SP1 and DM1 of the Core Strategy for the City of Manchester.



Charlestown Phase 2

Technical Note on Noise

January 2024

22) Prior to any above ground works, details of any locations of enclosures and samples of the materials, design and colouration to be used for any acoustic enclosures of the development hereby permitted shall be submitted to and approved in writing by the local planning authority. The development shall be constructed only using the approved materials and shall be retained as such at all times thereafter. Reason - To ensure that the appearance of the development is acceptable to the City Council as local planning authority in the interests of the visual amenity of the area within which the site is located, pursuant to policy DM1 of Manchester's Core Strategy

As such, E3P have drawn upon the previously completed Noise Assessment (50-477-R1-1 dated November 2021) which was undertaken by E3P in order to consider the above conditions.

The completed NIA included two separate sites, one close to Whitemoss Road and one at the former Whitemoss Day Care, this site. The layout is shown below:



FIGURE 1 SITE LAYOUT



Charlestown Phase 2

Technical Note on Noise

January 2024

In addition to the findings and surveys of the original reports, E3P have conducted additional noise surveys in order to satisfy the requirements of the planning condition, specifically to include rush hour and night-time measurements.

NOISE SURVEY DATA – JANUARY 2024

Due to the requirements of the planning conditions, an additional noise survey was conducted in order to capture road traffic sound from White Moss Road during rush hour and night-time periods. As such, the following survey was conducted:

The survey was undertaken during the following period:

 16:30 Wednesday 24th January to 09:00 Thursday 25th January 2023.

The following noise measurement position was chosen for the Road Traffic Noise Survey:

 Noise Measurement Position: Located in a position considered representative of the proposed facades of blocks 7, 8 and 9, as shown in Figure 1. The microphone was located at a height of 1.5 m above ground level and in free-field conditions. Sound sources consisted of road traffic along White Moss Road.

Table 1 details the measured sound pressure levels.

TABLE 1 MEASURED ROAD TRAFFIC SOUND LEVELS – WHITE MOSS ROAD

MEASUREMENT START TIME	MEASURED SOUND PRESSURE LEVELS (dB)			
	$L_{Aeq,T}$	10th Highest $L_{Amax,fast}$	$L_{A90,T}$	$L_{A10,T}$
17:00	50.9	N/A	48.7	52.6
18:00	49.8		48.2	50.8
19:00	47.9		46.0	49.3
20:00	46.0		44.3	47.0
21:00	44.7		43.0	45.3
22:00	44.0		41.9	44.7
23:00	41.7	54.4	38.8	43.1
00:00	38.5		35.7	40.1
01:00	35.2		33.2	36.8
02:00	34.9		33.2	36.1
03:00	36.8		34.8	38.4
04:00	37.5		35.0	39.4
05:00	41.3		38.5	42.8



Charlestown Phase 2

Technical Note on Noise

January 2024

MEASUREMENT START TIME	MEASURED SOUND PRESSURE LEVELS (dB)			
	L _{Aeq,T}	10th Highest L _{Amax,fast}	L _{A90,T}	L _{A10,T}
06:00	45.9	N/A	42.5	47.8
07:00	46.7		44.8	48.1
08:00	48.0		45.3	49.3
Derived Daytime Noise Level, 17:00-23:00 and 07:00-09:00				48
Derived Night-time Noise Level, L _{Aeq,8hr}				41

Noise levels during perceived rush hours were noted to be 50 dB between 17:00 and 19:00 and 47 dB between 07:00 and 09:00. Interestingly, the averaged daytime noise level from the 3-hour Calculation of Road Traffic Noise produced a level of 48 dB within the development which falls within this range. Furthermore, the derived daytime noise level which includes rush hour periods is equal to that E3P predicted within the noise model.

During the survey, conditions remained dry and wind speeds rarely exceeded 5 m/s.

Figure 2 shows the measurement position chosen.



FIGURE 2 JANUARY 2024 SURVEY MEASUREMENT POSITION



ASSESSMENT AND DISCUSSION

The planning conditions specifically relate to the impact of sound from White Moss Road, however, as noted in the NIA, noise from White Moss Road at this site was suitably screened so as not to exceed levels of 48 dB during the day and 42 dB during the night within the original NIA.

As such, no mitigation measures were proposed for this site as noise levels were suitably controlled. Indeed, garden noise levels fell below the lower criterion of 50 dB.

Even when considering worst case rush hour periods, 50 dB between 17:00 and 19:00, the levels achieve the 50 dB criterion.

In addition to external noise levels, an assessment of internal noise levels is also required, along with consideration of Part O requirements in relation to overheating.



INTERNAL NOISE LEVEL ASSESSMENT

With regards internal noise levels, E3P has assumed a standard glazing specification of 4 mm glass/20 mm air space/4 mm glass is assumed which affords a sound insulation performance in the order of 29 dB R_w however this is for a pink noise spectrum. The same unit, weighted for road traffic noise using the '+C_{tr}' correction, has a sound insulation performance value of approximately 25 dB and so this value has been used to calculate internal noise levels.

The model and worst-case measured values have been used to predict façade noise levels at ground, first and second floors for the worst affected facades. To determine any requirements for mitigation, E3P has added the reduction provided by the glazing (25 dB) to the relevant criterion for day (35 dB) and for night (30 dB). The below details the allowable external noise levels for each building, dependant on the glazing assumed:

 Limits of 60 dB daytime and 55 dB night-time before higher specification glazing is needed.

The highest predicted/measured day and night façade levels are 50 dB during the day and 42 dB at night. As such, standard thermal double glazing will be sufficient for all plots.

It is also important to consider maximum noise levels at bedroom windows. As such, the measured value of 54 dB $L_{Amax,fast}$ at the location of the worst-case plots has been taken as representative. With a reduction of 29 dB provided by standard glazing, internal maximum noise levels would be no more than 25 dB, 20 dB below the criterion.

With regards opening windows, there is a requirement to consider the need to open windows for ventilation and the mitigation of overheating. At this stage, the assessment assumes that ventilation would be provided by way of extract fans in kitchens and bathrooms and openable windows.

VENTILATION CONDITION

It is assumed that the developer would be installing a whole dwelling ventilation system in accordance with Part F of the Building Regulations as it is assumed Natural Ventilation is not appropriate for these dwellings.

Where background ventilators form part of the system, consideration is required to the sound reduction provided by these when in the open position and, as such, are discussed in Section 5.0.

OVERHEATING CONDITION

E3P has considered the potential impact of noise, internally, should windows be opened to mitigate overheating, as per the criteria stipulated in ADO. Any plots/facades that pass this test can open windows for this without resulting in unacceptable internal noise levels. Those that fail the test would be subject to a Part O Overheating Assessment by a suitably qualified consultant.

Part O only applied to bedrooms at night in relation to the average 8-hour noise level and 10th highest maximum noise level.



Charlestown Phase 2

Technical Note on Noise

January 2024

Given that the site is within a moderate risk location, as per guidance within Approved Document O, the external noise limit threshold is 49 dB during the night-time ($L_{Aeq,8hr}$) and 64 dB more than 10 times a night ($L_{A_{f,max}}$).

As can be seen from the above, worst-case facades are subject to average noise levels of 42 dB and maximum noise levels of 54 dB. Both of which fall below these threshold levels. As such, all plots are compliant with ADO requirements and open windows are acceptable to mitigate overheating without unacceptable internal noise levels.

As such, the previously submitted NIA and this Technical Note are sufficient in discharging conditions 12 and 22 for this site with no acoustic mitigation required for this site.

The technical note has been completed by Lee Faulkner, Associate Director at E3P, with over 12 years' experience in the measurement and assessment of noise and vibration. I hold the Post Graduate Diploma in Acoustics and Noise Control and I am a full corporate member of the Institute of Acoustics (MIOA).

Yours sincerely,
For and on behalf of E3P Ltd

Lee Faulkner
Associate Director

