

Ref: 50-477-TN2-1
Date: 6th December 2024

CASEY GROUP

BY Email

DISCHARGE OF CONDITION 12 WHITE MOSS ROAD

1. BACKGROUND & OBJECTIVES

E3P have been commissioned to produce a technical note that provides information sufficient in order to discharge conditions 12 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.

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 condition. Only Part a is to be discharged here with part b considered upon completion of the development.

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



White Moss Road

Technical Note on Noise

December 2024

FIGURE 1 SITE LAYOUT



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.



White Moss Road

Technical Note on Noise

December 2024

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).



2. 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 on the Whitemoss Care Home siter for security reasons, as shown in Figure 2. 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
06:00	45.9		42.5	47.8
07:00	46.7	N/A	44.8	48.1
08:00	48.0		45.3	49.3



White Moss Road

Technical Note on Noise

December 2024

MEASUREMENT START TIME	MEASURED SOUND PRESSURE LEVELS (dB)			
	$L_{Aeq,T}$	10th Highest $L_{Amax,fast}$	$L_{A90,T}$	$L_{A10,T}$
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.

For maximum noise levels, the 10th highest from the road side shortened measurement is used, which is noted to be 72.3 dB at 5 m.

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

Figure 2 shows the measurement position chosen.



White Moss Road

Technical Note on Noise

December 2024

FIGURE 2 JANUARY 2024 SURVEY MEASUREMENT POSITION



3. ASSESSMENT AND DISCUSSION

In order to assess road traffic sound from White Moss Road, a 3D noise model, using CadnaA, is used to assess road traffic sound upon the development site.

The following inputs have been included in the model:

-  White Moss Road Proposed Site Plan Rev N.
-  Site elevations have been taken as existing by way of a 2 m grid Digital Terrain Model (DTM) which contains public sector information licensed under the Open Government License v3.0.
-  A reflection order of 2 has been used in all calculations.
-  Noise levels generated using ISO 9613-1 and ISO 9613-2 "*Acoustics – Attenuation of sound during propagation outdoors*" as incorporated into CadnaA software.

Figures 3 and 4 determine the noise levels across the Site during the daytime and night-time periods, respectively, due to road traffic. These are appended to the rear of the report.

3.1. EXTERNAL NOISE LEVEL ASSESSMENT

The noise model has been used to predict noise levels in external amenity areas. Only rear garden areas are assumed to be used for relaxation purposes.

The predicted levels range from 30 to 58 dB in these areas.

As such, the predicted levels are considered acceptable and fall within the design range given in BS 8233:2014 with no adverse impact predicted in the majority of gardens. Therefore, no mitigation measures are required.

However, the gardens side on to White Moss Road, associated with plots 20 and 23, are subject to noise levels of up to 58 dB. As such, acoustic barriers are required for this garden area and are discussed in Section 4.0.

3.2. 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 56 dB during the day and 48 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 72 dB $L_{Amax,fast}$ at 5 m is distance correction to the closest plots, plots 20 to 23, resulting in a predicted level of 68 dB at the facade. With a reduction of 29 dB provided by standard glazing, internal maximum noise levels would be no more than 39 dB, 6 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.

3.2.1. 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.

3.2.2. 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.

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 ($L_{Af,max}$).

As can be seen within Figure 4, worst-case facades are subject to average noise levels of 48 dB and maximum noise levels of 68 dB. The average noise levels fall below the threshold. However, maximum noise levels exceed for plots 21 to 23. As such, anyt overheating assessment should consider that bedroom windows of these plots would need to be closed at night to avoid exceeding the noise threshold internally.



4. MITIGATION

4.1. REAR GARDENS

As noted in Section 3.1, rear gardens of plots 20 and 23 would experience noise levels of up to 58 dB without mitigation measures in place.

As such, barriers are required in order to reduce these to 55 dB or below. Figure 5 details the resultant grid noise map with the following barriers required:

 1.8 m high barrier at plot 20.

 1.8 m high barrier at plot 23.

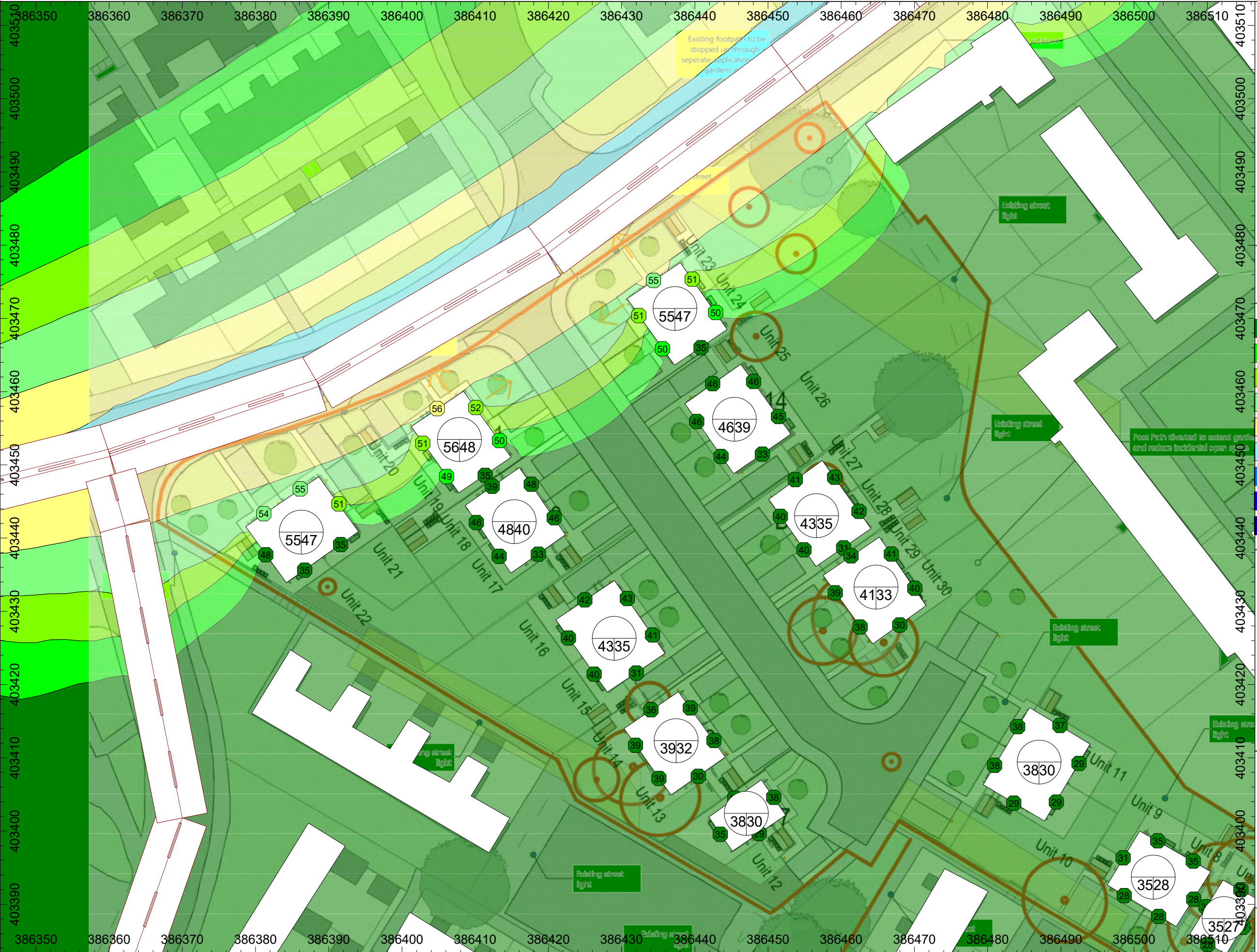
The barriers can be of close boarded wooden fence or brick wall construction but must be free from holes, be sealed at the base and have a minimum mass of 10 kg/m².

Yours sincerely,
For and on behalf of E3P Ltd

Lee Faulkner
Associate Director



Figure 3 - Daytime Grid Noise Map - Grid calculated at a height of 1.5 m above ground level



Project:
White Moss Road

Project-No:
50-477

Client:
Casey Group

Daytime Noise Level, LAeq,16hr (dB)

...	≤ 48
48 < ...	≤ 50
50 < ...	≤ 52
52 < ...	≤ 56
56 < ...	≤ 58
58 < ...	≤ 60
60 < ...	≤ 62
62 < ...	≤ 65
65 < ...	

Noise Map Objects

- Road
- Railway
- Building
- Barrier
- Building Evaluation
- Calculation Area

e3p

Project Engineer: L Faulkner
Date: 28/08/2024

Figure 4 - Night-time Grid Noise Map - Grid calculated at a height of 4 m above ground level



Figure 5 - Daytime Grid Noise Map with Mitigation - Grid calculated at a height of 1.5 m above ground level



Project:
White Moss Road

Project-No:
50-477

Client:
Casey Group

Daytime Noise Level, LAeq,16hr (dB)

...	<= 48
48 < ...	<= 50
50 < ...	<= 52
52 < ...	<= 56
56 < ...	<= 58
58 < ...	<= 60
60 < ...	<= 62
62 < ...	<= 65
65 < ...	

Noise Map Objects

- Road
- Railway
- Building
- Barrier
- Building Evaluation
- Calculation Area

e3p

Project Engineer: L Faulkner
Date: 28/08/2024