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Date: 28th February 2024
Reference: R8791-4 Rev 0

Dear Tim,

Re: Horton Buildings, Goring Street, Goring - discharge of condition 30 of AWDM/0833/21 – Pre-Occupation Noise Measurements

Further to our recent noise measurement study, I am pleased to provide our technical report which summarises the findings.

1.0 CRITERIA

1.1 This report presents the results of noise measurements undertaken to assess compliance with Planning condition 30 of consent AWDM/0833/21.

1.2 The relevant planning condition for internal noise levels within dwellings, is as follows:

> *30 The development hereby permitted shall be carried out in full accordance with the recommendations of the Noise Impact Assessment (Technical Report: R8791-1 Rev 0, Dated 23rd October 2020) and all works which form part of the approved scheme shall be completed before the permitted dwelling is occupied. Following completion of the scheme, a test shall be undertaken in rooms closest to the main noise sources to demonstrate that the attenuation measures proposed in the scheme are effective and do not exceed the levels specified in BS8233:2014.*

1.3 For clarity, the requirements for maximum internal noise levels within habitable rooms, from technical Report R8791-1 Rev 0, are reproduced below.

> *BS 8233: 2014 and the WHO Guidelines for recommended internal noise levels, inside the properties. An upper internal daytime level of 35 dB $L_{Aeq,\ 16\ hour}$ for bedrooms, living rooms and communal lounges should apply; and a night-time level for bedrooms of 30 dB $L_{Aeq,\ 8\ hour}$ should apply. Similarly, a maximum night-time internal level of 45 dB $L_{Amax,\ fast}$ should apply in bedrooms for regular events (more than 10 per night).*

1.4 Goring Street was open to traffic and the railway was operating normally, as confirmed using the Real Time Trains historical data website.

1.5 An explanation of acoustical terms used in this report is provided in Appendix A. All noise levels in this report are quoted in dB relative to 20 µPa.

2.0 MEASUREMENT INSTRUMENTATION AND PROCEDURE

2.1 Internal noise levels were measured between Friday 23rd February and Tuesday 27th February 2024. The following instrumentation was used:

- 1 x Rion precision grade Class 1 sound level meter Type NL-52
- 3 x INM precision grade Class 1 sound level meter Type E-001
- Bruel and Kjaer acoustic calibrator Type 4231

2.2 Noise measurements were made in terms of overall A-weighted statistical parameters including L_{eq} and L_{max} (all measured on fast response) in 1 minute intervals. Octave bands were also recorded to aid source identification. The calibration was checked before and on completion of the measurements and no drift was found. Calibration of 24 Acoustics' equipment is traceable to National Standards.

2.3 Measurements were made in the following habitable rooms, as shown in Figure 1:

- Flat 19 – First floor living room
- Flat 19 – First floor bedroom
- Flat 28 – Second floor living room
- Flat 28 – Second floor bedroom

2.4 These plots were selected as representative of the closest plots to Goring Street and the railway line, i.e. sensitive properties for noise break-in. In all cases, windows were closed. It is relevant to note that the rooms will be ventilated by a MVHR system with summer bypass; no trickle-type ventilators were installed.

2.5 Noise from internal and external construction sources was controlled as far as possible by restricting access to the properties throughout the measurement duration. Data associated with periods of construction work has been excluded from the analysis. In addition, by measuring over the weekend period, the effects of site works were kept to a minimum.

3.0 RESULTS AND ASSESSMENT

3.1 The measured internal noise levels have been normalised to a reverberation time of 0.5 of a second for dwellings as per BS 8233: 2014.

3.2 Measured internal noise levels (as arithmetically averaged for each of the assessment periods) are shown below in Table 1. It is confirmed that the target criteria were met for each of the measurement assessment periods.

Location	Sound Pressure Level		
	Daytime dB $L_{Aeq,\ 16\ hour}$	**Night-time** dB $L_{Aeq,\ 8\ hour}$	**Night-time** dB $L_{Amax,f,\ 1\ min}$
Plot 19 Living Room	23.9	N/A	N/A
Plot 19 Bedroom	28.3	19.1	36.8
Plot 28 Living Room	24.6	N/A	N/A
Plot 28 Bedroom	25.1	19.8	35.6

Table 1: Measured Internal Ambient Noise Levels

3.3 Measured noise levels are comfortably lower than the required limits shown in section 1.3 above and therefore compliant with planning condition 30.

4.0 CONCLUSIONS

4.1 Internal noise measurements have been undertaken within plots at the Goring Street development site, to address planning condition 30.

4.2 Measured noise levels within habitable rooms are comfortably within defined upper limits and therefore meet the requirements of the planning condition.

I trust the above is in order. Please call if you have any queries.

Yours sincerely
For 24 Acoustics Ltd

Steve Gosling MIOA MAES FRSA
Principal Consultant



Project: Horton Buildings, Goring	**Title:** Noise Measurement Locations		
DWG No: Figure 1	**Scale:** N.T.S.	**Rev:** A	
Date: February 2024	**Drawn By:** SG	**Job No:** R8791-2	

APPENDIX A: ACOUSTIC TERMINOLOGY

Noise Levels

Noise is defined as unwanted sound. The range of audible sound is from 0 to 140 dB. The frequency response of the ear is usually taken to be around 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dBA weighting. This is an internationally accepted standard for noise measurements.

For variable sources, such as traffic, a difference of 3 dBA is just distinguishable. In addition, a doubling of traffic flow will increase the overall noise by 3 dBA. The 'loudness' of a noise is a purely subjective parameter, but it is generally accepted that an increase/ decrease of 10 dBA corresponds to a doubling/ halving in perceived loudness.

External noise levels are rarely steady, but rise and fall according to activities within an area. In attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:

i) The L_{Amax} noise level

This is the maximum noise level recorded over the measurement period.

ii) The L_{Aeq} noise level

This is "equivalent continuous A-weighted sound pressure level, in decibels" and is defined in British Standard BS 7445 as the "value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time internal, T, has the same mean square sound pressure as a sound under consideration whose level varies with time".

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

iii) The L_{A10} noise level

This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.

iv) The L_{A90} noise level

This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during the quieter periods. It is often referred to as the background noise level and is used in the assessment of disturbance from industrial noise.