Project

4 Murray Mews
Noise and Vibration Assessment

Prepared for

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P1	07/11/2022	-	Dave Clarke

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Summary

Tasou Associates are preparing a planning application for the development of 4 flats on the site of 4 Murray Mews, Camden, London, NW1 9RJ.

SRL have been appointed to complete a noise and vibration assessment to support this application.

We have reviewed the proposed scheme using BS 8233:2014: '*Guidance on sound insulation and noise reduction for buildings*' and can confirm that all facades can have standard double glazing and be ventilated using non-acoustic trickle ventilators.

Vibration is also negligible and therefore will have no impact.

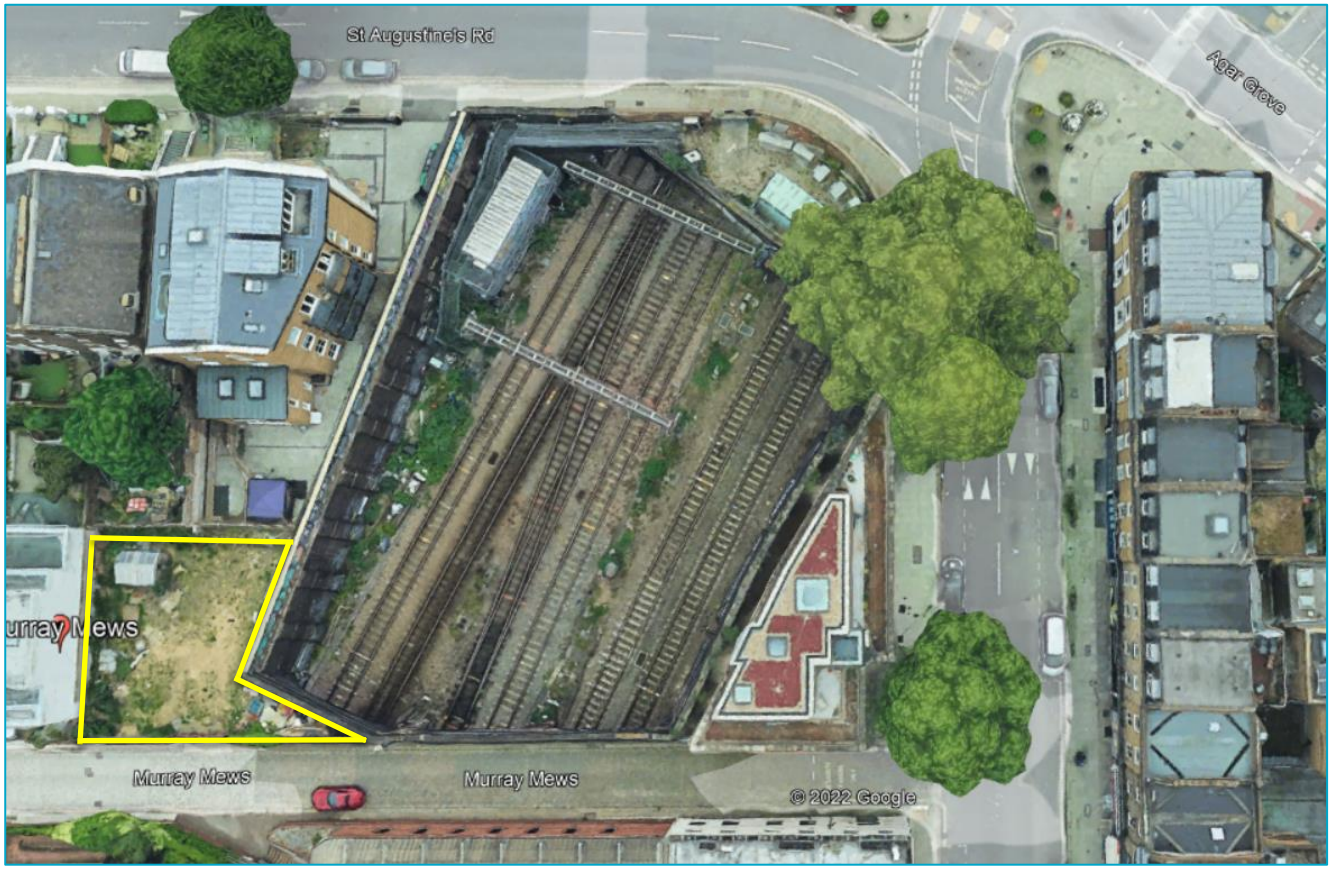
Planning therefore should not be refused on the basis of noise or vibration.

Contents

Introduction

Tasou Associates are preparing a planning application for the development of 4 flats on the site of 4 Murray Mews, Camden, London, NW1 9RJ. The main noise sources affecting the site are road traffic on Murray Street to the west, Agar Grove to the south of the site and from the railway line. Therefore, SRL have been appointed to assess the impact the surrounding noise will have on the proposed development. A Plan of the proposed development (marked with a yellow border) is given in Figure 1 below.

Figure 1 – Proposed Site Plan



Noise and Vibration Policy and Guidelines

ProPG Planning and Noise

Professional Practice Guidance on Planning and Noise (ProPG) was published in June 2017. It provides guidance on a recommended approach for managing noise appropriately within the planning system for new housing. It is not an official government code of practice, nor does it replace or provide an authoritative interpretation of the law or government policy, but it does help to draw together existing policies, such as the National Planning Policy Framework (NPPF) and provides additional guidance which helps fill in some of the current gaps.

This document has been jointly created by three bodies: The Institute of Acoustics, the Association of Noise Consultants and the Chartered Institute of Environmental Health. The key message is the drive to adopt Good Acoustic Design for every new housing scheme to protect people from the harmful effects of noise.

ProPG aims to establish a framework for assessing proposed developments by looking at the potential 'risks' from noise affecting the site and establishing suitable noise criteria. The fundamental approach is to do an initial Risk Assessment of the site in terms of noise and unless the risk is deemed to be negligible, you are expected to do a full noise assessment. This involves establishing suitable noise criteria and developing a Good Acoustic Design to achieve them, wherever possible.

However, the foreword of ProPG also points out that:

'Good acoustic design does not mean "gold plating" or significantly increasing costs. This guidance seeks to encourage and promote design outcomes that are proportionate and reasonable in the particular circumstances of each development site.'

Hence, while the aim of a noise assessment like this is to provide acceptable amenity, it is recognised that the scheme sits within an existing community already exposed to similar road traffic along the routes around the site itself.

British Standard 8233:2014 - 'Guidance on sound insulation and noise reduction for buildings'

In residential developments, external noise levels must be controlled so that acceptable internal noise levels are achieved. For this assessment, I have used the guidance in British Standard 8233:2014 '*Guidance on sound insulation and noise reduction for buildings*' (BS 8233). These are summarised in Table 1.

Table 1 - Summary of indoor ambient noise levels from BS 8233:2014

Room Type	Time Period, hh:mm	
	07:00 to 23:00	23:00 to 07:00
Living Room	35 dB $L_{Aeq,T}$	-
Dining Room/Area	40 dB $L_{Aeq,T}$	-
Bedroom	35 dB $L_{Aeq,T}$	30 dB $L_{Aeq,T}$

The latest version of BS8233 does not include a maximum noise level criterion. Note 4 (pg 29) of the standard states:

'NOTE 4 Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or L_{AFmax}, depending on the character and number of events per night. Sporadic noise events could require separate values.'
For regular external vehicular movements, I recommend maximum noise levels are controlled as best as practicable to no more than 45-50dB L_{AFmax} internally, which is considered appropriate for the site location. For outdoor areas, such as gardens, BS 8233:2014 states the following design guidance:

'it is desirable that the external noise level does not exceed 50 $L_{Aeq,T}$ dB, with an upper guideline value of 55 $L_{Aeq,T}$ dB which would be acceptable in noisier environments. However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but, should not be prohibited.'

Vibration

Section 6 of BS 6472-1:2008 "*Guide to evaluation of human exposure to vibration measurement. Vibration sources other than blasting*" describes methods for assessing vibration with respect to human response. It sets out the probability of adverse comment at different VDVs (Vibration Dose Values) over a given period. I have summarised this guidance below in Table 2.

Table 2 - Vibration dose value ranges and probabilities of adverse comment within residential buildings

Time	Probability of adverse comment		
	Low $ms^{-1.75}$	**Possible** $ms^{-1.75}$	**Probable** $ms^{-1.75}$
Daytime	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Night-time	0.1 to 0.2	0.2 to 0.4	0.4 to 0.8

Noise and Vibration Survey

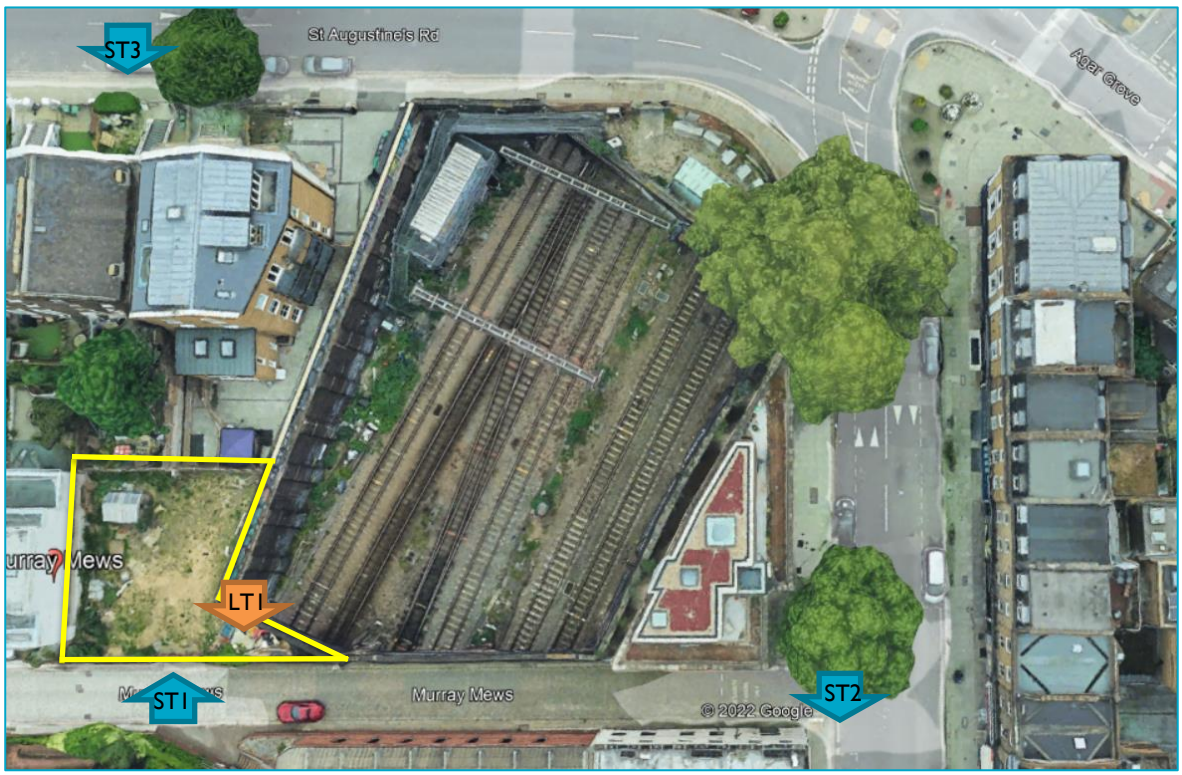
Daytime attended noise measurements were taken from 12:00 to 15:00 on Thursday 6th October 2022. Night-time measurements were taken from 23:00 to 00:00 on Thursday 6th October 2022 and 06:00 to 07:00 on Friday 7th October 2022.

Details of the survey are in Appendix A and tabulated results are detailed in Appendix B.

The main noise sources near the development are road traffic along both Murray Street and Agar Grove as well as the railway line. Road traffic was noted as regular during the day, and less frequent at night.

During the attended daytime measurements, we measured noise levels over 15-minute intervals. Attended night-time measurements were over 15-minute intervals per hour which were broken down into three 5-minute intervals. These periods were chosen to obtain a steady noise level from road traffic and train noise sources, and sample typical maximum noise levels from both vehicular and train movements.

Figure 2 - Measurement locations used for this assessment in relation to the existing site layout



Daytime noise levels

Noise levels across the site are characterised by vehicular movements. Table 3 provides a summary of the noise levels measured during the attended daytime.

Table 3 - Measured noise levels (daytime)

Measurement Position	Description of measurement location	Measured Noise Levels dB $L_{Aeq,16hr}$*
ST1	Murray Mews	54
ST2	Murray Street, corner of Murray Mews	59
ST3	St Augustine Road	57

* *Calculated from the measured LA10 using the shortened measurement procedure given in Department of Transport's 'Calculation of Road Traffic Noise' (CRTN) and the methodology in Transport Research Laboratory "Method for Converting the UK Road Traffic Noise Index LA10,18h to the EU Noise Indices for Road Noise Mapping"*

Night-time noise levels

Noise levels across the site are characterised by vehicular movements. Table 4 presents the key information from night-time unattended noise survey.

Table 4 - Measured noise levels (night-time 23:00 to 01:00)

Measurement Position	Description of Measurement Location	Measured Noise Levels	
		dB $L_{Aeq,T}$	dB L_{AFMax}
ST1	Murray Mews	41	61
ST2	Murray Street, corner of Murray Mews	50	70
ST3	St Augustine Road	45	65

Noise Assessment

1.1 Façade specification

The external walls of the residential dwellings will be brick or blockwork, with internal plasterboard linings. These types of construction will provide sufficient sound insulation against external noise, and it will be the windows and ventilation openings that will be the weakest elements acoustically.

All facades can have "standard" double glazing (with a minimum sound insulation performance of 27 dB $R_w + C_{tr}$) and all rooms can be ventilated using non-acoustic trickle ventilators. Glazing performance criteria must be met by the glass and frame.

Vibration Assessment

No vibration due to trains (nor traffic) could be felt anywhere on the site and therefore we do not expect any adverse comment due to vibration.

Appendix A Survey Details

A1. Location of Survey

4 Murray Mews, Camden, London, NW1 9RJ.

A2. Date & Time of Survey

Day: 12:00 to 15:00 on Thursday 6h October 2022.

Night: 23:00-00:00 Thursday 6th to Friday 7th October 2022

A3. Personnel Present During Survey

Sam Finch (SRL)

A4. Weather Conditions during Survey

Day: Light cloud cover, average temperature approx. 13˚C average, light wind.

A5. Instrumentation

Bruel & Kjaer - Noise Meter HE2

Description	SRL No.	Make	Type	S/N
Sound Level Meter (HE2)	615	Brüel & Kjær	2250	2579806
Pre-amp	616	Brüel & Kjær	ZC0032	22126
Microphone	617	Brüel & Kjær	4189	2584598
Calibrator	618	Brüel & Kjær	4231	2583398

Norsonic - Noise Logger HL1

Description	SRL No.	Make	Type	S/N
Sound Level Meter (HL1, Green)	777	Norsonic	Nor 140	1404560
Calibrator	753	Brüel & Kjaer	Type 4231	2545771
Pre-amp	777	Norsonic	Type 1209	13927
Microphone	777	Norsonic	Type 1225	157421
De-humidifier	777	Norsonic	Type 1284	255

Svantek - Noise & Vibration Kit HL6

Description	SRL No.	Make	Type	S/N
Noise & Vibration Analyser (HL6, Blue)	826	Svantek	826	28410
Pre-amp	842	Svantek	SV12L	42428
Microphone	842	Microtech Gefell	MK255	11683
Calibrator	1092	Svantek	SV33B	112681
Accelerometer in SV207A housing	827	Dytran	Type 3233A	878

A6. Calibration Procedure

Before and after the survey the measurement apparatus was check calibrated to an accuracy of ±0.3 dB using the type 4231 Sound Level Calibrator. The Calibrator produces a sound pressure level of 93.8 dB re 2 x 10^{-5} Pa at a frequency of 1 kHz.

Before and after the survey the measurement apparatus was check calibrated to an accuracy of ±0.3 dB using the type SV33 Sound Level Calibrator. The Calibrator produces a sound pressure level of 114 dB re 2 x 10^{-5} Pa at a frequency of 1 kHz.

Appendix B – Noise Survey Data

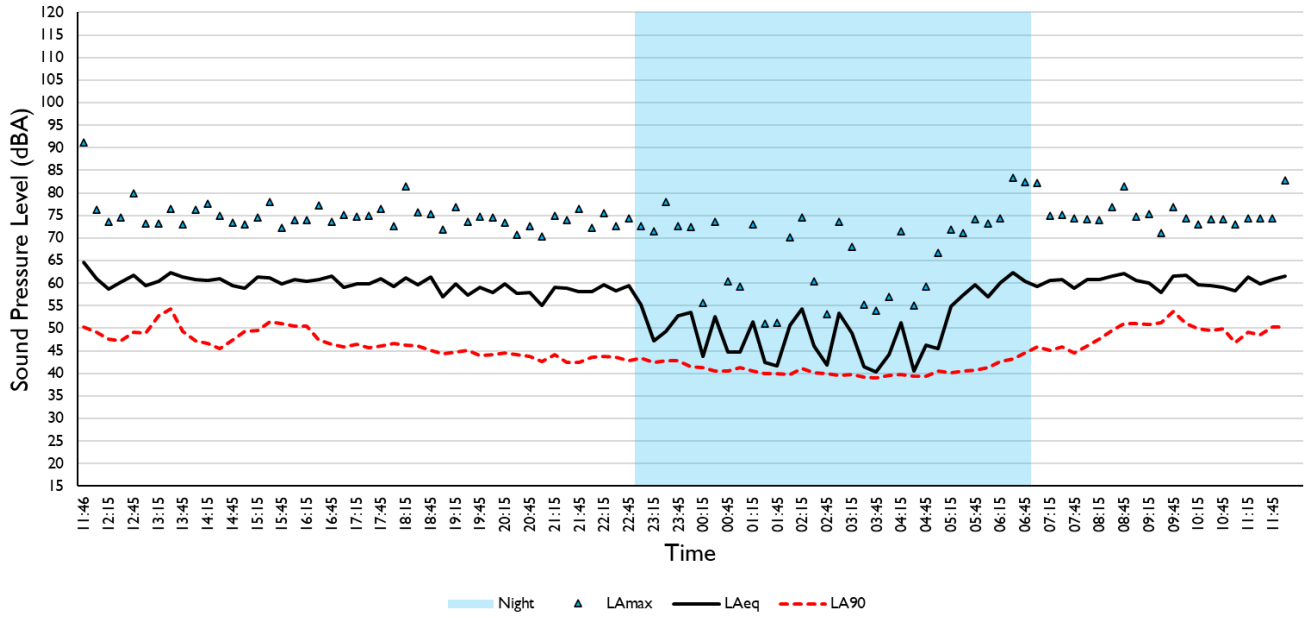
B1. Attended Daytime Measured Ambient Noise Levels

Position	Time	dB $L_{Aeq,15mins}$
1	12:05	52.3
	13:04	54.8
	14:00	54.8
2	12:28	59.1
	13:20	58.4
	14:17	60.2
3	12:45	56.3
	13:38	58.5
	14:34	57.5

B2.Attended Night-time Measured Ambient Noise Levels

Position	Time	dB $L_{Aeq,5mins}$	dB $L_{Amax,5mins}$
1	23:11	43.8	59.6
2	23:30	53.8	69.2
3	23:44	48.1	66.2
1	06:00	46.9	61
2	06:12	50.5	70.1
3	06:24	47.6	64.5

B1. Unattended Measured Ambient Noise Levels



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