



ARMISTEAD PROPERTY

**59 UPPER CHORLTON ROAD,
WHALLEY RANGE**

NOISE ASSESSMENT FOR PLANNING PURPOSES

27 October 2021

AEC REPORT: P4465/R1a/PJK

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1.0 INTRODUCTION

- 1.1 Acoustic & Engineering Consultants Limited (AEC) has been instructed by Armistead Property to undertake a noise assessment in relation to the redevelopment of 59 Upper Chorlton Road, Whalley Range from 11 existing apartments into 16 apartments with external amenity space.
- 1.2 This report details the baseline noise levels measured at the development site, presents the assessment criteria and discusses the implications on the building design, to achieve acceptable internal noise levels as required by the Local Authority.
- 1.3 Acoustic terminology is discussed in brief in Appendix A.

2.0 BACKGROUND AND SITE DESCRIPTION

- 2.1 The proposed scheme will include the redevelopment of the existing 3-storey detached house and the construction of a new build 4-storey rear extension at 59 Upper Chorlton Road, Whalley Range, as identified on Figure 2.1. The site currently consists of the detached house, which contains 11 apartments, and sheds to the rear. The sheds have been used for industrial/commercial purposes and will be demolished as part of the scheme.

Figure 2.1 – Site Location



- 2.2 Upper Chorlton Road, to the north-west of the site, is an arterial road linking Chorlton-cum-Hardy and Hulme. On the opposite side of Upper Chorlton Road is a Tesco Express, which is open from 0600 to 2300h, Monday to Sunday.
- 2.3 The site is bound to the north-east by Sri Guru Gobind Singh Gurdwara Educational & Cultural Centre, which is used as a place of worship and a school. It is understood that the building is mainly used in the evenings and on a Sunday.
- 2.4 To the southwest is Early Days Day Nursery, which is open between 0730 and 1800h Monday to Friday. There is a small external play area to the rear.
- 2.5 To the southeast are residential properties which are accessed off Whalley Road. Whalley Road is a residential road which runs parallel with Upper Chorlton Road.

3.0 NOISE MEASUREMENTS

- 3.1 An unattended noise level survey was undertaken by AEC between approximately 1400h on Monday 20 September and 0700h on Tuesday 21 September 2021
- 3.2 Measurements were undertaken at two locations around the development site, identified as A and B on the attached Figure B1. A full measurement procedure is presented in Appendix B and the 15-minute daytime and night-time ambient noise level measurements are presented on Graphs B1 and B2 in Appendix B. Please note the highest maximum noise level measured during each 15-minute period is also presented on Graphs B1 and B2. The 1-minute maximum noise levels can be provided on request.
- 3.3 Measurements undertaken at Location A were undertaken at 1m from the external envelope of an existing first floor living room overlooking Upper Chorlton Road, in general accordance with BS7445-1: 2003 '*Description and measurement of environmental noise. Guide to quantities and procedures*'.
- 3.4 The daytime façade ambient noise level and night-time façade ambient and typical maximum noise level measured at Location A are presented in Table 3.1, below. It should be noted that four maximum noise levels were due to erroneous events (such as a revving motorbike engine and siren) and have been excluded from the assessment.
- 3.5 Based on a review of the recorded audio measured at Location A, the main noise source affecting this elevation is road traffic on Upper Chorlton Road. Based on a conversation with a member of staff at the Tesco's Express, it is understood that the measurement period included a delivery to the store.
- 3.6 Measurements at Location B were undertaken within an existing kitchen on the second floor on the rear elevation (facing away from Upper Chorlton Road). The measurements were undertaken in general accordance with the Association of Noise Consultants "*Measurement of Sound Levels in Buildings*" issued in June 2020.
- 3.7 The daytime internal ambient noise level and night-time internal ambient and typical maximum noise level measured at Location B are also presented in Table 3.1, below. It should be noted that six maximum noise levels due to erroneous events, such as a bird within the room have been excluded from the assessment.

Table 3.1 – Summary of Measured Noise Levels

Measurement Location	Period	Noise Level, dB	
		Ambient, $L_{Aeq,T}$	Maximum, $L_{Amax,F}$
A - External	Daytime	65	-
	Night-time	60	77
B - Internal	Daytime	39	-
	Night-time	33	49

4.0 BASIS OF ASSESSMENT

National Planning Policy Framework

- 4.1 Current national planning policies are set out in the National Planning Policy Framework (NPPF) published by the Department for Communities and Local Government and dated March 2012 and revised in February 2019.
- 4.2 The planning policies which relate specifically to noise, were updated in July 2021 and are presented in paragraphs 174, 185 and 187 which are reproduced below:

“174. Planning policies and decisions should contribute to and enhance the natural and local environment by:

- (e) *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.*

185. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- (a) *mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- (b) *identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.*

187. *Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed."*

- 4.3 Further to the above, the Governments 'Planning Practice Guidance' (PPG) published on 6 March 2014 and updated on 22 July 2019 states:

'Noise needs to be considered when development may create additional noise, or would be sensitive to the prevailing acoustic environment (including any anticipated changes to that environment from activities that are permitted but not yet commenced). When preparing plans, or taking decisions about new development, there may also be opportunities to make improvements to the acoustic environment. Good acoustic design needs to be considered early in the planning process to ensure that the most appropriate and cost-effective solutions are identified from the outset.'

- 4.4 In addition, the guidance indicates that, whilst noise can override other planning concerns, it is important to look at noise in the context of the wider characteristics of a development proposal, its likely users and its surroundings, as these can have an important effect as to whether or not noise is likely to pose a concern.

Internal Noise Level Limits

- 4.5 Manchester City Council (MCC) outlined their requirements for noise assessments to accompany planning applications in 'Planning & Noise – Technical Guidance' (2015) (PNTG).
- 4.6 Section 3.6.1.1 of this document states *"Manchester City Council has adopted the following internal limits for residential properties:*
- *Bedroom (night-time – 23.00 – 07.00) 30dBL_{Aeq} (individual noise events should not normally exceed 45dBL_{Amax,F} by more than 15 times);*
 - *Living Rooms (daytime – 07.00 – 23.00) 35dBL_{Aeq}."*
- 4.7 These levels are based on the desirable internal noise level limits presented in BS8233:2014 'Guidance on sound insulation and noise reduction for buildings' (BS8233) and The Association of Noise Consultants (ANC) document Professional Practice Guidance (ProPG) on Planning and Noise 'New Residential Development' (2017).
- 4.8 In relation to maximum noise levels in bedrooms during the night-time period, Note 4 of ProPG states that *"Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. In most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dBL_{Amax,F} more than 10 times a night."*

- 4.9 Based on this AEC would propose to design the façade in order that maximum noise levels in bedrooms do not typically exceed $45\text{dBL}_{\text{Amax,F}}$ during the night-time period 2300h to 0700h and any non-typical events such as a one-off emergency siren or noisy motorbike pass-by will be excluded in the assessment.

Ventilation and Control of Overheating

- 4.10 The ventilation specifications presented in BS8233 and ProPG are based on achieving the requirements of Approved Document F (ADF) 'Ventilation' (2010) of the Building Regulations only.
- 4.11 ADF requires that continuous whole dwelling ventilation be provided to limit the accumulation of moisture and other pollutants originating within a building. This is typically achieved either via a partially opened window, or by a whole building ventilation system through the provision of trickle ventilators or mechanical ventilators. ADF states that '*The ventilation provisions will not necessarily meet cooling needs*'.
- 4.12 It should be noted that, that ProPG notes the attenuation of external to internal noise levels provided by a window partially open for whole dwelling (background) ventilation is no more than 15dB.
- 4.13 Therefore, for rooms to have whole dwelling ventilation via a partially open window, external noise levels outside habitable rooms should not exceed $50\text{dBL}_{\text{Aeq,16h}}$ during the daytime, and $45\text{dBL}_{\text{Aeq,8h}}$ and $60\text{dBL}_{\text{Amax,F}}$ at night.
- 4.14 In relation to purge ventilation, ProPG suggests that as this should only occur occasionally (e.g. to remove odour from painting and decorating or from burnt food), the internal desired noise levels are not generally applicable. Therefore, internal noise levels due to windows being opened for purge ventilation has not been discussed further.
- 4.15 In order to provide guidance on the relationship between internal noise levels and the control of overheating in residential properties, the ANC issued '*Acoustic ventilation and Overheating – Residential Design Guide*' (AVO) in January 2020. It is important to note that this is a design guide only and not a statutory document and the Local Authority may have their own requirements.
- 4.16 At this stage, AEC are unaware of any specific Local Authority requirements in relation to acceptable internal noise level limits in habitable rooms with windows open to aid with the control of overheating. Therefore, this indicative assessment is based on the guidance presented AVO.
- 4.17 Table 3.3 of AVO presents guidance for allowable noise from transportation sources whilst windows are open for the control of overheating. With reference to this document AEC would propose that windows can be utilised in the control of overheating provided that the resultant internal ambient noise levels are below approximately $50\text{dBL}_{\text{Aeq, 16h}}$ during the daytime, and $42\text{dBL}_{\text{Aeq,8h}}$ and $65\text{dBL}_{\text{Amax,F}}$ during the night-time.

- 4.18 These internal noise levels are the upper end of the medium risk category for adverse effects. Where these internal noise levels would be exceeded, AVO states that “*noise causes a material change in behaviour (e.g. having to keep windows most of the time)*”. In this situation, AEC would suggest alternative means for the control of overheating are considered, which do not rely on open windows.
- 4.19 AVO states that where transportation is the main source of noise, “*it is assumed that a partially open window will provide an outside-to-inside level difference of 13dB and is considered representative of typical domestic rooms with simple façade openings of around 2% of the floor area*”.
- 4.20 Considering the above, it is considered acceptable to control summertime heating via opening windows where external free-field noise levels are no greater than those presented in the following Table 4.1. This is based on simple façade openings to around 2% of the floor area.

Table 4.1 – External Free-Field Noise Level Limits for the Control of Overheating via Openable Windows

Activity	Location	Noise Level Limit, dB		
		Daytime 0700 – 2300h	Night-Time 2300 – 0700h	
		L _{Aeq,16h}	L _{Aeq,8h}	L _{Amax,F}
Resting	Living Room	63	-	-
Dining	Dining Room/Area	63	-	-
Sleeping (daytime resting)	Bedroom	63	55	78

- 4.21 The limits presented in Table 4.1 are subject to agreement with the Local Authority and may be subject to change.

External Noise Level Limits

- 4.22 For traditional external areas that are used as an amenity space, such as gardens and patios, BS8223 states that it is desirable that ambient noise levels should not exceed 50dBL_{Aeq,16h} during the daytime, with an upper limit of 55dBL_{Aeq,16h}.
- 4.23 Furthermore, PNTG provides a limit for 50dBL_{Aeq,16h} to stop ‘*moderate annoyance*’, and an upper limit of 55dBL_{Aeq,16h} for ‘*serious annoyance*’.
- 4.24 These noise level limits have been used as the design aim for this assessment.

5.0 ASSESSMENT OF PROPOSED DEVELOPMENT

- 5.1 The required glazing and ventilation requirements for the habitable rooms on the north-western, north-eastern, and south-western elevations of the development have been determined based on the measured external noise levels measured at Location A.
- 5.2 The requirements for the glazing and ventilation for the habitable rooms on the south-eastern elevation are based on the internal noise levels measured at Location B.
- 5.3 These are discussed separately below.

Determining and Assessment of External Noise Levels

- 5.4 As identified in Section 3, measurements at Location A were undertaken under façade conditions. Therefore, in accordance with guidance presented in CRTN a -2.5dB correction has been applied to the measured façade levels to represent free-field levels.
- 5.5 The free-field external noise levels affecting north-western, north-eastern, and south-western elevations has been calculated using the noise levels presented in Table 3.1 of Section 3, taking into account the façade to free-field correction, distance attenuation and any acoustic screening, relative to the noise source. The calculated noise levels are presented on Figure 2 and in Table 5.1, below.

Table 5.1 – External Noise Levels Affecting Loom Street Facade

Elevation	Noise Level, dB		
	Daytime Ambient, $L_{Aeq,T}$	Night-Time	
		Ambient, $L_{Aeq,T}$	Maximum, $dBL_{Amax,F}$
North-western	≤ 62	≤ 57	≤ 74
North-eastern	≤ 56	≤ 51	≤ 68
South-western	≤ 56	≤ 51	≤ 68

- 5.6 As stated in Paragraph 4.13, for habitable rooms to have whole dwelling ventilation provided via a window partially open, external noise levels should not exceed $50dBL_{Aeq,T}$ during the daytime and $45dBL_{Aeq,T}$ and $60dBL_{Amax,F}$ at night.
- 5.7 A comparison between these levels and the determined noise levels presented in Table 5.1, indicates that alternate means of whole dwelling (background) ventilation would need to be provided to all habitable rooms on the north-western, north-eastern, and south-western elevations. The required glazing and ventilation requirements are discussed below.

Determining and Assessment of Internal Noise Levels

- 5.8 As identified in Section 3, measurements at Location B were undertaken within a kitchen on the south-eastern elevation.
- 5.9 The noise levels measured within the kitchen are around 3 to 4dB above the requirements presented in Table 4.1. It should be noted that the kitchen was small and acoustically reverberant and in larger rooms with acoustically absorbent material in the space, such as furniture/carpets/curtains, the internal ambient and maximum noise levels would be reduced.
- 5.10 However, as the rooms on this elevation will be part of the new extension it is recommended that in addition to standard double glazing, acoustic trickle ventilators with a sound insulation performance of 33dBD_{n,e,w}, when in the open position, are installed.

Assessment of Glazing Requirements

- 5.11 The sound insulation performance of the glazing, to meet the requirements, have been calculated based on the spectrum noise data measured on-site and the room sizes and glazing areas presented on the architectural drawings, and these are presented in Table 5.2, below.

Table 5.2 – Outline Requirements of Glazing and Ventilation to Achieve Internal Noise Levels in Habitable Rooms

Elevation	Sound Insulation Performance			
	Daytime		Night-Time	
	Glazing	Ventilator	Glazing	Ventilator
North-western	33dBR _w / 30dBR _w + C _{tr}	38dBD _{n,e,w}	38dBR _w / 33dBR _w + C _{tr}	41dBD _{n,e,w}
North-eastern	29dBR _w / 25dBR _w + C _{tr}	33dBD _{n,e,w}	32dBR _w / 28dBR _w + C _{tr}	38dBD _{n,e,w}
South-western	29dBR _w / 25dBR _w + C _{tr}	33dBD _{n,e,w}	32dBR _w / 28dBR _w + C _{tr}	38dBD _{n,e,w}
South-eastern	29dBR _w / 25dBR _w + C _{tr}	33dBD _{n,e,w}	29dBR _w / 25dBR _w + C _{tr}	33dBD _{n,e,w}

- 5.12 Please note that due to the layout of the habitable rooms within the development, there are some instances where rooms have windows on two elevations. Where this occurs, the higher performing glazing should be specified throughout the room. It is recommended that the glazing to each habitable room is confirmed by AEC prior to installation.
- 5.13 Example glazing build-ups to achieve the required sound insulation performances are presented in Table 5.3.

Table 5.3 – Example Glazing Constructions

Sound Insulation Performance	Example Construction
38dBR _w / 33dBR _w + C _{tr}	6mm Glass / 16mm TC/ 8mm Glass
33dBR _w / 30dBR _w + C _{tr}	6mm Glass / 16mm TC/ 6mm Glass
32dBR _w / 28dBR _w + C _{tr}	6mm Glass /TC/ 4mm Glass
29dBR _w / 25dBR _w + C _{tr}	4mm Glass /TC/ 4mm Glass (Standard Double Glazing)

TC = Thermal Cavity

- 5.14 Prior to any glazing being installed, octave band sound insulation performance data of the glazing build-ups and ventilators selected must be verified by AEC or others.
- 5.15 All ventilation requirements have been based on the use of a single ventilator per room. If more than one unit is required, such as may be required to satisfy Building Control requirements, the performance of each unit might need to be increased.

Purge Ventilation

- 5.16 Windows can be openable for purge ventilation provided that they are effectively acoustically sealed when closed, and it is important that any frames and seals do not downgrade the sound insulation performance of the glazing.

Control of Overheating

- 5.17 If it is determined by others that there is a need to control overheating within this development, by comparing the noise levels presented in Table 5.1, with those presented in Table 4.2, indicates that windows can be opened for control of overheating in the daytime on all elevations.
- 5.18 In relation to the night-time, external noise levels would be at a level where windows would need to be kept closed to the bedrooms on the north-western elevation and the control of overheating provided by alternative means. This could include the use of plenum windows; this would need to be discussed further if required.
- 5.19 The control of overheating could be provided to all other bedrooms via a partially opened window.

External Shared Amenity Spaces

- 5.20 There are shared lawned areas to the front, rear and side of the property. To control noise levels in the front lawned area to around 55dBL_{Aeq,16h}, it is recommended that a 1.8m high close boarded timber fence is installed along the north-western site boundary.
- 5.21 In relation to the rear garden, it is recommended that the existing 3m high wall with the adjacent children's nursery is retained.

- 5.22 Based on the above, noise from all possible sources within the area would not exceed 55dBL_{Aeq,T} within the shared amenity spaces. Therefore, the upper limits of BS8233, PNTG and ProPG would not be exceeded, and this should be deemed acceptable.

6.0 SUMMARY AND CONCLUSIONS

- 6.1 Acoustic & Engineering Consultants Limited (AEC) has been instructed by Armistead Property to undertake a noise assessment in relation to the redevelopment of 59 Upper Chorlton Road, Whalley Range into 16 apartments with an external amenity space.
- 6.2 The proposed scheme will include the redevelopment of the existing 3-storey detached house and the construction of a new build 4-storey rear extension at 59 Upper Chorlton Road, Whalley Range, as identified on Figure 2.1. The site currently consists of the detached house and sheds to the rear. The sheds have been used for industrial/commercial purposes and will be demolished as part of the work.
- 6.3 This noise assessment is required to accompany the associated planning application for the development.
- 6.4 The main noise sources effecting the site are road traffic on Upper Chorlton Road and the noise climate around the site is presented in Section 3.
- 6.5 Section 4 presents the design aim to achieve the desirable internal noise level limits as outlined by Manchester City Council in '*Planning & Noise – Technical Guidance*' (PNTG). These levels are based on the desirable internal noise levels limits presented in BS8233:2014 '*Guidance on sound insulation and noise reduction for buildings*' and the Association of Noise Consultants (ANC) document '*Professional Practice Guidance on Planning & Noise: New Residential Development*' (ProPG), issued in May 2017. These limits are based on achieving the whole dwelling ventilation requirements as set out in Approved Document F '*Ventilation*' (2010) of the Building Regulations only.
- 6.6 The noise levels presented in Section 3 have been assessed in Section 5 and the determined daytime and night-time noise levels external to each elevation is presented in Table 5.1.
- 6.7 Based on the measured noise levels affecting the proposed development site, the sound insulation requirements of the building envelope and ventilation have been determined and are presented in Table 5.2. The determined external noise levels indicate that habitable rooms on the north-western, north-eastern, and south-western elevations of the development would need their windows to be closed and alternate means of whole dwelling ventilation would be required.
- 6.8 The control of overheating has been assessed in outline terms using the guidance presented in ANC document '*Acoustic ventilation and Overheating – Residential Design Guide*' (AVO). If it is determined by others that the property may be susceptible to overheating, based on the noise levels mentioned in Section 5, the control of overheating can be controlled via opened windows during both the daytime and night-time periods for all habitable rooms except for those on the north-western elevation where alternative means of the control of overheating would be required.

- 6.9 In relation to the external amenity spaces, the requirements of PNTG would be achieved in the front garden with a 1.8m high close boarded timber fence and in the rear garden with the retention of the existing 3m high wall to the adjacent nursery.
- 6.10 Based on the above assessment, ensuring that the proposed measures are implemented appropriate internal and external noise level limits would be achieved at this development.

APPENDIX A – Acoustic Terminology in Brief

Sound Description

Sound is produced by mechanical vibration of a surface, which sets up rapid pressure fluctuations in the surrounding air. The rate at which the pressure fluctuations occur determines the pitch or *frequency* of the sound. The frequency is expressed in Hertz (*Hz*), that is, cycles per second. The human ear is sensitive to sounds from about 20 Hertz to 20,000 Hertz. Although sound can be of one discrete frequency - a 'pure tone' - most sound is made up of many different frequencies.

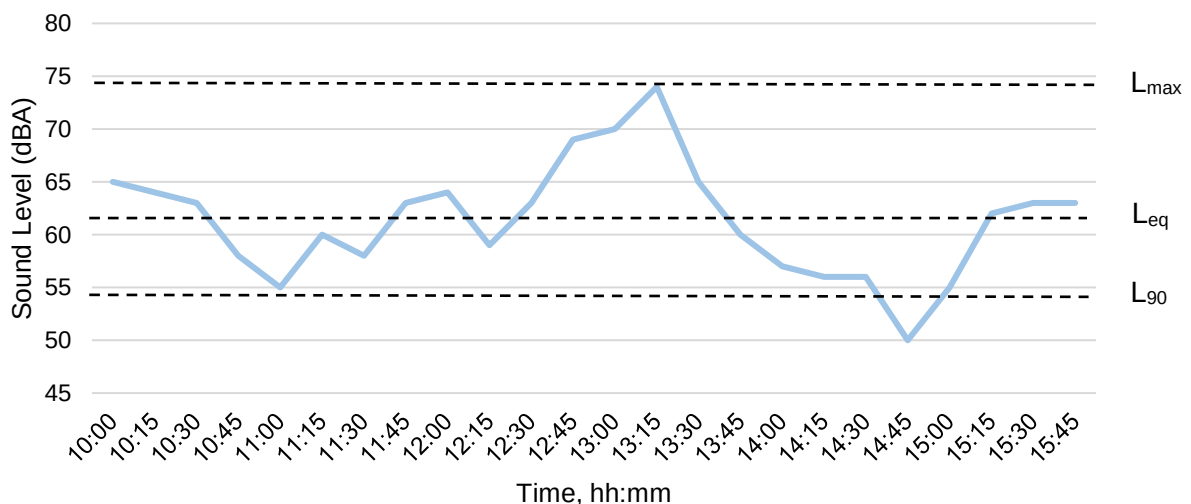
The human ear is more sensitive to some frequencies than others, and modern instruments can measure sound in the same subjective way. This is the basis of the A-weighted sound pressure level *dBA*, normally used to assess the effect of noise on people. The *dBA* weighting emphasises or reduces the importance of certain frequencies within the audible range.

Sound Units

In order to assess environmental noise, measurements are carried out by sampling over specific periods of time, such as fifteen minutes or one hour, the statistically determined results being used to quantify various aspects of the sound.

The figure below shows an example of sound level varying with time. Because of this time variation, the same period of sound can be described by several different levels. The most common of these are described below. It should be noted that in many instances in the main body of text, the unit will be preceded by a dB descriptor in the report e.g. $L_{Aeq,T}$ could be written $dBL_{Aeq,T}$.

Example of Sound Varying with Time



Unit Type	Acoustic Unit	Description
Ambient Sound Level	$L_{Aeq, T}$	The equivalent continuous (A-weighted) sound level. It may be thought of as the “average” sound level over a given time, T. It is used for assessing noise from various sources: industrial and commercial premises, construction sites, railways and other intermittent noises and can be considered as the “ambient” noise level.
Maximum Sound level	L_{Amax}	The maximum (A-weighted) sound level measured during a given time. ‘Fast’ or ‘Slow’ meter response should be cited.
Element normalized level difference	$D_{n,e,w}$	Single number rating used to describe the sound insulation performance of small elements.
Free-field Level	-	This refers to the sound level measured outside, away from reflecting surfaces.
Façade Level	-	This refers to the sound level measured outside, at 1m from a hard-reflecting surface, typically 3dB greater than the free-field level.
Sound reduction index	R_w	Single number rating used to describe the <u>laboratory</u> airborne sound insulation properties of a material or building element over a range of frequencies, typically 100-3150Hz.
A road traffic spectrum adaptation term	C_{tr}	Referenced to demonstrate the to the low frequency sound insulation performance of building elements. Makes reference to the A-weighted urban traffic noise spectrum.
Weighted standardized level difference	$D_{nT,w}$	Single number rating used to describe the on-site airborne sound insulation performance properties of a material or building element over a range of frequencies, typically 100-3150Hz, which is calculated in terms of a standardized reverberation time of 0.5 seconds.

APPENDIX B – Noise Survey Details

Date & Time of Survey:	1400h on Monday 20 September to 0700h on Tuesday 21 September 2021.					
Personnel:	Paul Knowles (AEC).					
Equipment Used:	Cirrus CR:171B Real Time Analyser (AEC Kit 3). Cirrus CR:171B Real Time Analyser (AEC Kit 5).					
Calibration:	The sound level analysers, which conforms to BS EN 61672-1: 2013 ' <i>Electroacoustics – Sound level meters - Part 1 Specifications</i> ' for Class 1 Type Z meters, was in calibration and check calibrated before and after the measurement periods using a Brüel & Kjær type 4231 (94dB) calibrator. There was no significant drift of calibration. Calibration certificates are available on request.					
Weather Conditions:	Date	Period	Wet/Dry	Temp°C	Wind Speed & Direction	Cloud Cover
	10/06/21	Day	Dry	15°C	Negligible	10%
	05/06/21	Night	Dry	18°C		20%
Measurement Locations:	Measurements were undertaken at two locations around the development site. Identified as A and B on Figure B1 and described below. A – 1m from the façade of the proposed development overlooking Upper Chorlton Road. B – In the kitchen on the rear elevation.					
Measurement Details:	Measurements were undertaken over various periods in terms of L_{eq} , and L_{max} .					
Façade / Free-Field:	A - Façade, B – Internal.					
	Full results for the attended measurements are given on Graphs B1 and B2					
Measured Data:	Full octave band centre frequency data was obtained for all measurements.					

FIGURE B1 – Existing Site Showing Monitoring Locations



