



46C TOTTENHAM
LANE, LONDON N8
7ED

Noise Impact Assessment

Reference: 13213.RP01.NIA.0
Prepared: 08 December 2023
Revision Number: 0

Jalal Karima
46c Tottenham Lane
London
N8 7ED

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Revision	Comment	Date	Prepared By	Approved By
0	First issue of report	08 December 2023	Sameer Verma	Martin Raisborough

Terms of contract:

RBA Acoustics Ltd has prepared this report in accordance with our Scope of Work 13213.SW01.0 dated 16 November 2023. RBA Acoustics Ltd shall not be responsible for any use of the report or its contents for any purpose other than that for which it was provided. Should the Client require the distribution of the report to other parties for information, the full report should be copied. No professional liability or warranty shall be extended to other parties by RBA Acoustics Ltd. without written agreement from RBA Acoustics Ltd.

The recommendations within this report relate to acoustics performance only and any mitigation recommendations will need to be integrated within the overall design by the lead designer to incorporate all other design disciplines such as fire, structural integrity, setting-out, etc. Similarly, any sketches appended to this report illustrate acoustic principles only and will need to be developed into full working drawings by the lead designer to incorporate all other design disciplines.



LONDON
44 Borough Road
London SE1 0AJ
T. +44 (0) 20 7620 1950

MANCHESTER
Bloc, 17 Marble Street
Manchester, M2 3AW
T. +44 (0) 161 661 4504

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1. INTRODUCTION

RBA Acoustics has been commissioned to undertake a noise impact assessment regarding a proposal to open a tyre garage within an existing industrial unit located at 46c Tottenham Lane, London, N8 7ED. As part of the planning application, the London Borough of Haringey (LB0H) requires consideration be given to atmospheric noise emissions associated with the trading of the tyre garage that may impact the nearest noise-sensitive receptors

This report presents the results of an environmental noise survey undertaken at the site and provides an assessment of the potential noise impact the tyre garage would have on the Nearby affected noise sensitive properties.

A summary of acoustic terminology is included in Appendix A.

2. SITE DESCRIPTION

46c Tottenham Lane is a single storey light industrial unit located opposite Hornsey mainline railway station, the entrance of which faces onto the A103, Tottenham Lane. The unit is currently disused.

The proposed operating hours of the garage are between 09:00 to 18:00 Monday to Saturday. As the operating hours fall within daytime hours (07:00-23:00), only the daytime noise impact has been assessed.

The worst affected noise-sensitive receptors are identified to be the office of Ham Estates, located approximately 20 metres to the south of the site, at 46b Tottenham Lane and the residential properties are also situated to the south of the site along Ribblesdale Road, approximately 20 metres to the south of the site.

Tottenham Lane is a busy road that sees high traffic and pedestrian volume. This is mainly due to the bus routes that pass through the road and the local railway station. During visits to the site, it was identified that the prevailing noise climate was noisy, generally dominated by noise from vehicles passing by.

The site is shown in relation to its surroundings in the site plan in Figure A (Appendix C).

3. ASSESSMENT CRITERIA

The relevant and appropriate assessment criteria for this scheme are presented in the following sections.

3.1 BS 4142:2014 'Method for Rating and Assessing Industrial & Commercial Sound

BS 4142 is the generally adopted method for assessing plant noise emissions affecting residential areas and is specifically referenced as the assessment methodology in POL05 of BREEAM 2011 and is also specified by the majority of local authorities for such instances commercial & industrial sound affecting residential properties. In this case, both commercial and residential properties have also been considered as potential noise-sensitive receptors, based on previous communications with the LB0H.

The BS 4142 Standard describes methods for rating and assessing the following:

- Sound from industrial and manufacturing processes;
- Sound from fixed installations which comprise mechanical and electrical plant and equipment;
- Sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and

- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train movements on or around an industrial and/or commercial site.

The methods use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

If appropriate, the specific sound level of the source ($L_{Aeq,T}$) is corrected, by the application of one or more corrections for acoustic features such as tonal qualities and/or distinct impulses, to give a 'rating' level ($L_{Ar,Tr}$). The Standard effectively compares and rates the difference between the rating level of the specific sound and the typical background sound level ($L_{A90,T}$) in the absence of the specific sound.

The Standard advises that the time interval ('T') of the background sound measurement should be sufficient to obtain a representative or typical value of the background sound level at the time(s) the source in question operates or is proposed to operate in the future. Comparing the rating level with the background sound level, BS 4142 states:

- "Typically, the greater this difference, the greater the magnitude of impact.
- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."

4. ENVIRONMENTAL NOISE MONITORING

4.1 Survey Methodology

Monitoring of the prevailing background noise was undertaken over the following period:

- 18:15 Friday 24th November to 16:30 Tuesday 28th November 2023.

As the survey was unattended it is not possible to comment with certainty regarding meteorological conditions throughout the entire survey period. However, based on observations during the site visits and weather reports for the area, conditions were generally considered suitable for obtaining representative noise measurements, being predominantly dry with little wind.

Measurements were made of the L_{A90} , L_{Amax} and L_{Aeq} noise levels over sample periods of 15 minutes.

4.2 Measurement Location

To determine the existing noise climate around the site measurements were undertaken at the following location:

Measurement Position 1 – 46c Tottenham Lane Façade

A microphone was attached to the front façade of 46c Tottenham Lane. The microphone was positioned approximately 2.5m above the ground. The microphone was attached close to the wall, which would act as a reflective surface – this has been accounted for in calculations. The general noise climate was noisy and made up of typical urban noise. Tottenham Lane has a constant flow of traffic, including buses serving

Hornsey Station bus stop. The location sees high pedestrian footfall from both local residents and those making use of the public transport links, situated opposite to the unit.

The measurement position is also illustrated on the site plan attached in Figure A and Figure B (Appendix C).

4.3 Instrumentation

For information regarding the equipment used for the measurements please refer to Appendix B.

The sound level meter was calibrated both prior to and on completion of the survey with no significant calibration drift observed.

4.4 Results

The noise levels measured are shown as time-histories on the attached Graphs 1-3 (Appendix C).

The lowest L_{A90} and the period averaged L_{Aeq} noise levels measured during the survey, representative of the hours that the unit is proposed to be trading (i.e. between 09:00 to 18:00 Monday to Saturday), are summarised below.

Table 1 – Measured Baseline Noise Levels

Measurement Period	Position 1 – 46c Tottenham Lane Façade	
	Period-Averaged Noise Level $L_{Aeq,T}$ (09:00-18:00) (dBA)	Lowest Background Noise Level $L_{A90,T}$ (09:00-18:00) (dBA)
Daytime (09:00 – 18:00)	69	40

5. NOISE IMPACT ASSESSMENT

Based on the proposed use of the site, the key potential issues related to the impact of noise are considered to be from tools and machinery used during the regular servicing of vehicle wheels and tyres. Based on previous experience and communications with the site owner, typical tools, machinery and activities within a tyre garage have been identified and assessed for their expected noise impact.

5.1 Assessment of Noise Impact

The following noise levels associated with the typical tyre garage operations have been assumed based on RBA Acoustics' library noise data from measurements undertaken within similar tyre garage facilities. Corrections have been made of typical 'on times' of each item of equipment and process in any one-hour period in order to determine the specific sound level of each item of equipment/process.

Corrections have been applied to the calculated specific sound levels, in line with BS 4142, to take account of specific acoustic features of each item of equipment/process audible at the nearest noise sensitive receptors that is likely to increase the significance of the impact.

In relation to the above, BS 4142 states:

- “For sound ranging from not tonal to prominently tonal the Joint Nordic Method gives a correction of between 0 dB and +6 dB for tonality. Subjectively, this can be converted to a penalty of 2 dB for a

tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible.”

- “A correction of up to +9 dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible, and 9 dB where it is highly perceptible.”
- “When the specific sound has identifiable on/off conditions, the specific sound level should be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time. This can necessitate measuring the specific sound over a number of shorter sampling periods that are in combination less than the reference time interval in total, and then calculating the specific sound level for the reference time interval allowing for time when the specific sound is not present. If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.”
- “Where the specific sound features characteristics that are neither tonal nor impulsive, nor intermittent, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.”

Table 2 below presents the results of the above calculations to determine the rating level of each item of equipment/process within the proposed tyre garage.

Table 2 – BS 4142 Assessment of Noise Sources

Noise Source	Calculated Specific Sound Level at 1m <i>L_{Aeq, 1 hour}</i> (dBA)	BS 4142 Rating Corrections	BS 4142 Rating Level <i>L_{A,r}</i> , 1 hour
Trolley jack dragged	48	Other: +3 dB	51
Compressor	59	Intermittency: +3 dB	62
Removing wheel	51	Impulsivity: +3 dB Intermittency: +3dB	57
Bead breaking	48	Impulsivity: +3 dB	51
Tyre machine	31	+0 dB	31
Inflating tyre	48	+0 dB	48
Fitting balance weights	31	+0 dB	31
Refitting wheel	51	Impulsivity: +3 dB Intermittency: +3dB	57
Impact wrench	45	Impulsivity: +3 dB Intermittency: +3 dB	51
Vehicle entering/leaving	20	+0 dB	20
Ramp	20	Tonality: +6 dB	26
Total Rating Level within Tyre Garage			73

Table 3 – BS 4142 Assessment of Predicted Noise Levels at Receptor

Receptor	BS 4142 Rating Level $L_{A,T,1}$ hour (dB)	Screening Loss (dB)	Distance Loss (dB) (20 metres)	Resultant Rating Level at Receptor (dBA)	Lowest Background Noise Level $L_{A90,T}$ (dBA)	Level Difference (dB)	BS 4142 Outcome
Ham Estates, 46b Tottenham Lane	73	10	26	35	40	-5	Low Impact

From the results of our assessments above it can be concluded that the risk of complaints from the occupants of the nearby noise sensitive receptors is very low according to BS 4142.

In addition to the above rating, it is important to consider the above impacts in the context of the overall conditions at the site. To this end, BS 4142 states:

The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context.

BS 4142 suggests taking into account the absolute level of sound, the character and level of residual sound compared to the specific sound and the sensitivity of the receptor into account when considering the context. To this end, the following observations are made:

- The residential receptors are located within a typical urban environment, and would have been exposed to noise of a similar nature from the previous commercial use of the unit. It is not considered that service yard activity will be more intensive than the existing situation.
- All trading will be carried out during a standard working days. No activities are expected during more sensitive early morning or late evening periods

Taking the above context into account, the impact of noise associated with the operation of the tyre garage upon the nearby noise sensitive receptors is considered to be further reduced from that suggested in the quantitative BS 4142 assessment. As such, no mitigation measures are considered necessary in relation to the control of noise from the site.

5.2 Uncertainty

Uncertainty is an unavoidable feature of measurements in the field, which can be subject to many factors; the weather typically being the most significant of which with respect to the measurement of sound. Uncertainty is also unavoidable in the prediction of sound levels, where naturally, before the scenario being considered becomes a reality, a number of assumptions need to be relied upon. There is also the uncertainty of people's reactions, which can be influenced by a number of factors, not just the magnitude or character of the sound in question.

In keeping with the scale of each project, therefore, it is the aim of RBA Acoustics to minimise uncertainty at each stage as far as reasonably practicable. With this in mind, RBA Acoustics follow the best practise methodologies based on the guidance within BS 4142:2014 and our experience in undertaking assessments of these nature.

Crucially, it has been determined that environmental noise measurements have been undertaken by suitably qualified staff, using in calibration equipment and avoiding adverse weather conditions.

The predictions have also been undertaken by suitably qualified staff, whilst using the best available information, an industry standard calculation method, and the most applicable calculation procedures.

Notwithstanding this, naturally some uncertainty remains. Given the sheer number of factors involved, however, it is not feasible to place a value on the level of uncertainty, without resulting in an unhelpful range of possible outcomes. It is the professional position of RBA Acoustics that uncertainty has been kept to a realistic minimum and that the outcome of this assessment is sufficiently representative.

6. CONCLUSIONS

RBA Acoustics have been commissioned to undertake a noise impact assessment regarding a proposal to open a tyre garage within an industrial unit located at 46c Tottenham Lane, London, N8 7ED. As part of the planning application, the London Borough of Haringey (LBH) requires consideration be given to atmospheric noise emissions that may impact the nearest noise-sensitive receptors.

Environmental noise monitoring surveys have been undertaken at 46c Tottenham Lane. A noise impact assessment has been carried out, based on the measured environmental noise data and using representative data to estimate the impact of typical noise sources expected to exist in a tyre garage.

A BS 4142 assessment has been carried out and indicates that the tyre garage would have a low impact on the existing noise climate. There is no need for any specific mitigation measures at the site. Therefore, the proposed tyre garage and its associated activities should be considered acceptable in terms of environmental noise emissions.

Appendix A – Acoustic Terminology

A-weighting (e.g. dB(A))	A correction applied across the frequency bands to take into account the response of the human ear, and therefore considered to be more representative of the sound levels people hear.
DeciBel (dB)	Unit used for many different acoustic parameters. It is the logarithmic ratio of the level being assessed to a standard reference level.
L_{eq}	The level of a notional steady sound which, over a stated period of time, T , would have the same acoustic energy as the fluctuating noise measured over that period. Typically used to represent the average or ambient noise level.
$L_{Aeq,T}$	The A-weighted level of a notional steady sound which, over a stated period of time, T , would have the same acoustic energy as the fluctuating noise measured over that period. Typically used to represent the average or ambient noise level.
L_{An} (e.g. L_{A10} , L_{A90})	The sound level exceeded for n% of the time. E.g. L_{A10} is the A-weighted level exceeded for 10% of the time and as such can be used to represent a typical maximum level. Similarly, L_{A90} is the level exceeded for 90% of the measurement period, and is often used to describe the underlying background noise.
$L_{Amax,T}$	The instantaneous maximum A-weighted sound pressure level which occurred during the measurement period, T . It is commonly used to measure the effect of very short duration bursts of noise, e.g. sudden bangs, shouts, car horns, emergency sirens etc. which audibly stand out from the ambient level.
NR	Noise Rating – A single figure term to describe a measured noise level which considers the frequency content of the noise, generally used for internal noise level measurements (particularly mechanical services plant).

Appendix B – Instrumentation

The following equipment was used for the measurements.

Table B1– Equipment Calibration Details				
Manufacturer	Model Type	Serial No.	Calibration	
			Certificate No.	Valid Until
Norsonic Type 1 Sound Level Meter	Nor140	1406255	U44039	18 April 2025
Norsonic Pre Amplifier	1209	20491		
Norsonic ½” Microphone	1225	225529	44038	18 April 2025
Norsonic Sound Calibrator	1251	34391	U440373	18 April 2025

Appendix C – Graphs and Site Plans

46c Tottenham Lane, London

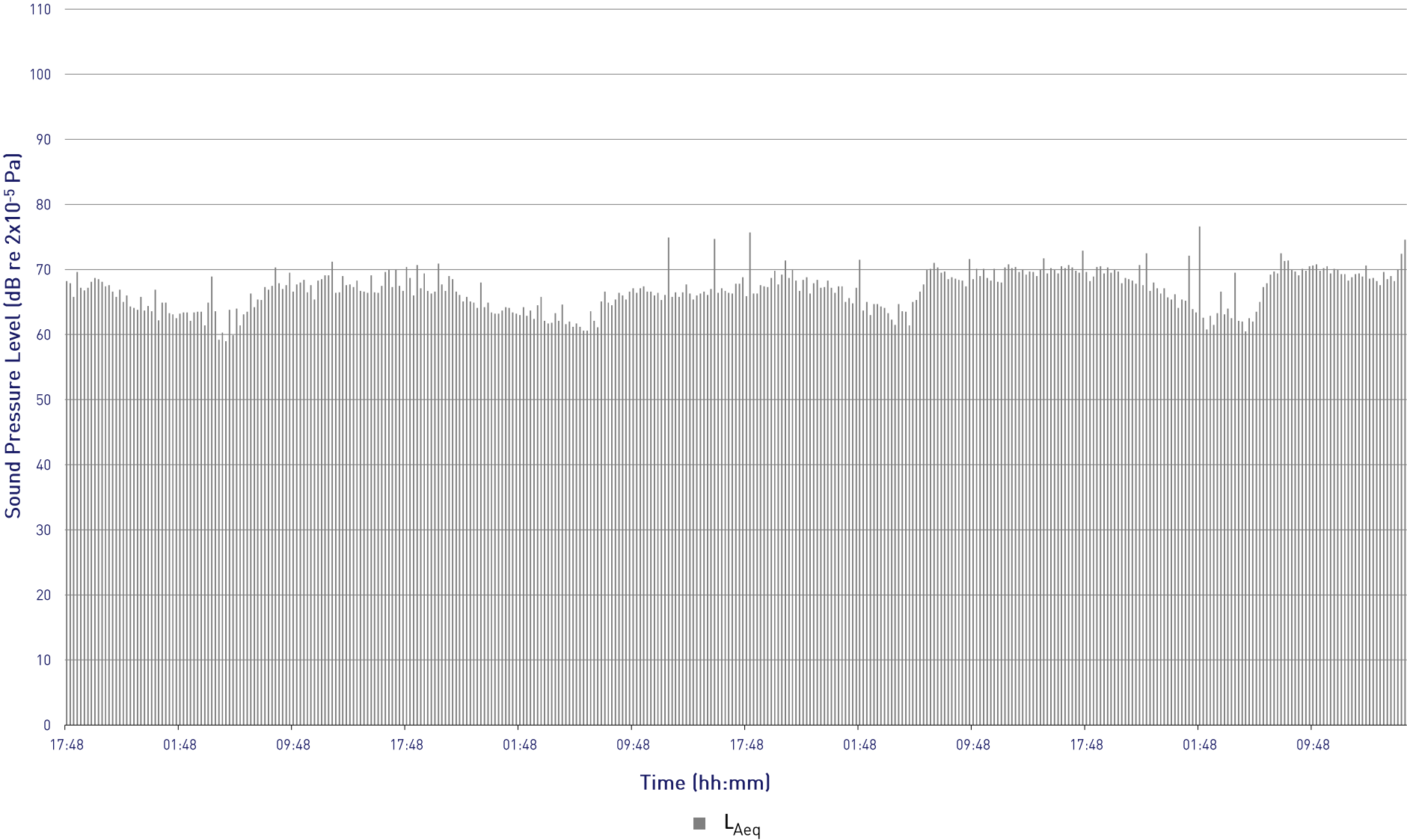
L_{Aeq} Time History

Garage façade



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Graph 1



46c Tottenham Lane, London

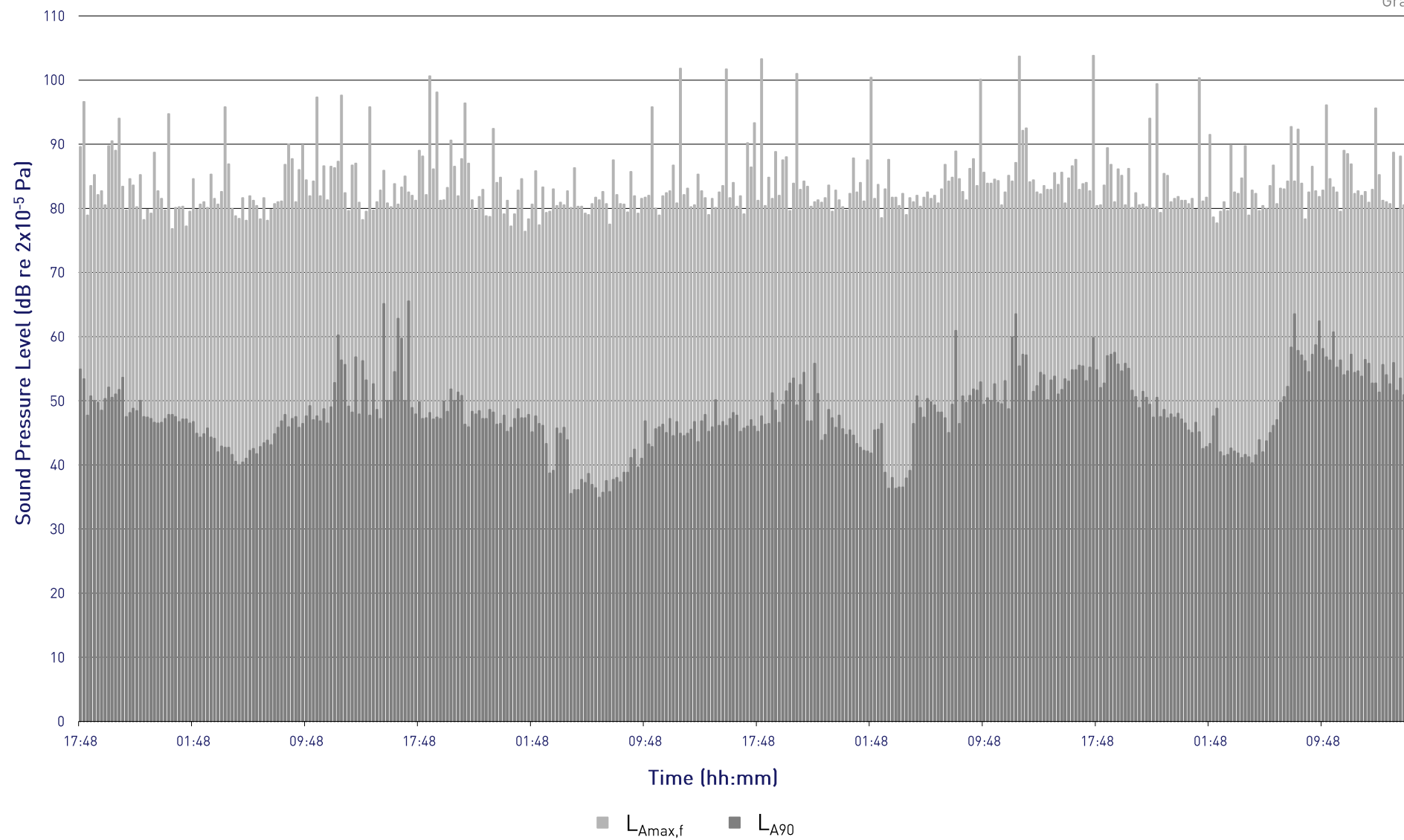
$L_{Amax,f}$ and L_{A90} Time History

Garage façade



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Graph 2



46c Tottenham Lane, London

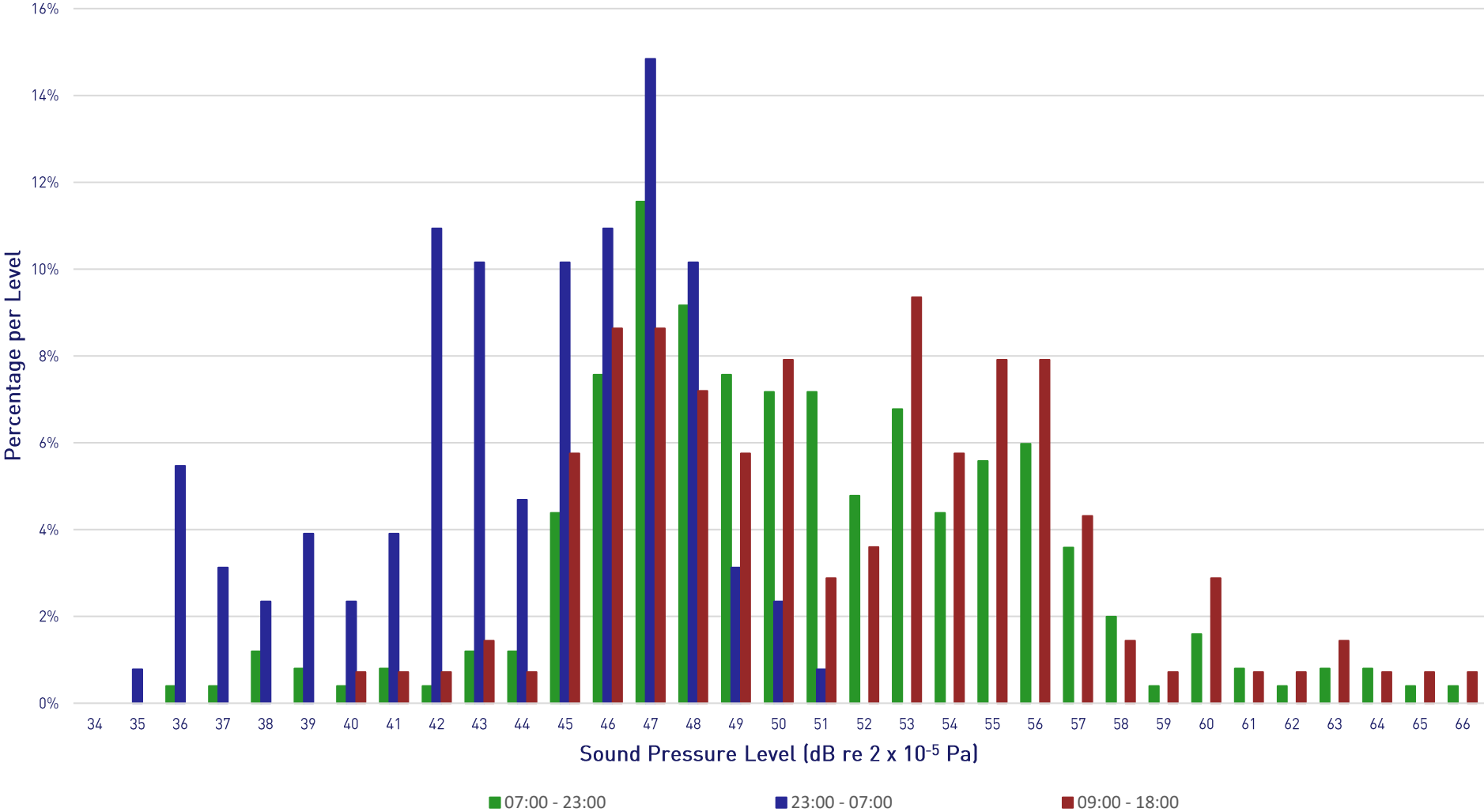
L_{A90,15 minutes} Histogram

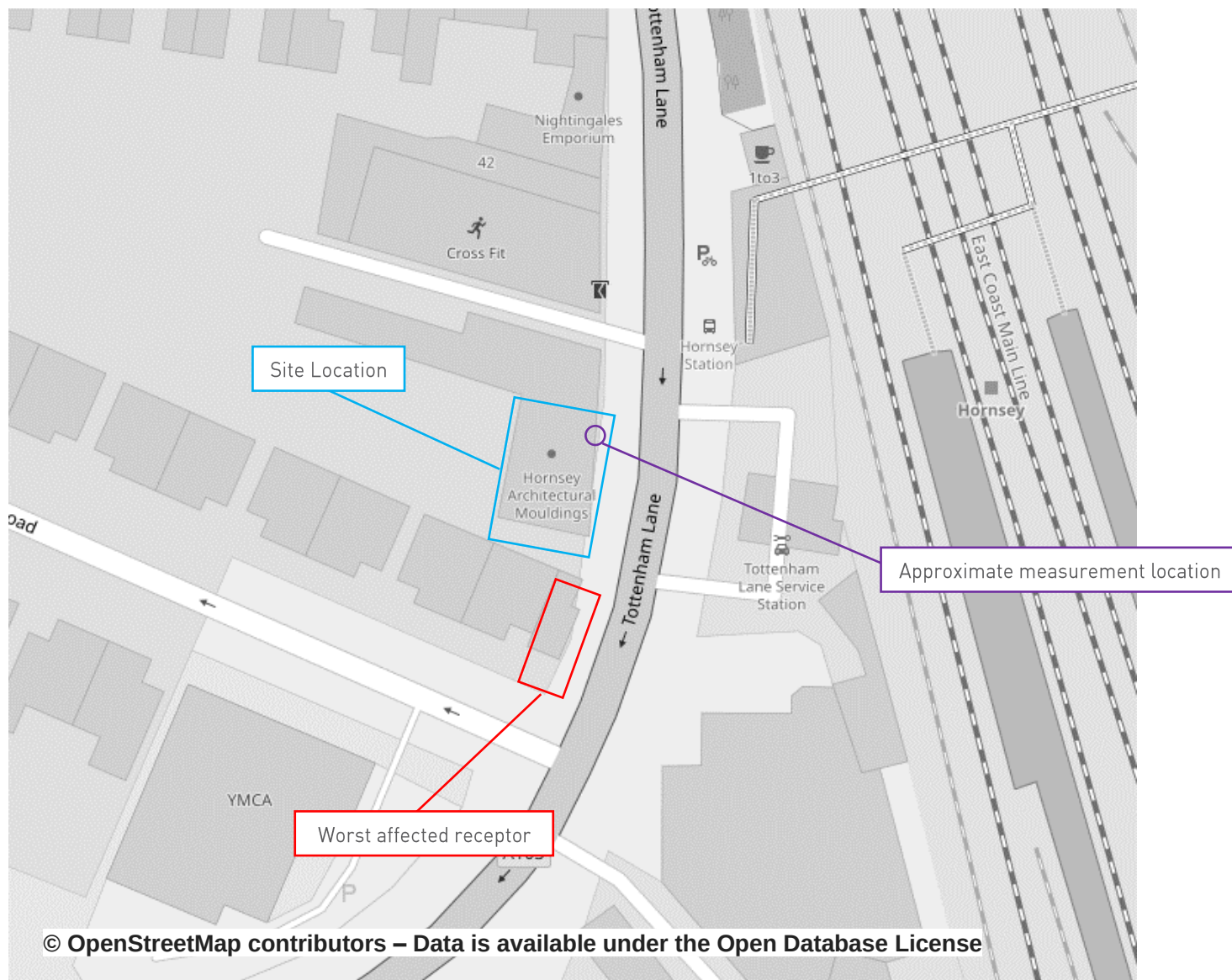
Garage façade



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Graph 3





46c Tottenham Lane, London N8 7ED

Site location with measurement and receptor positions indicated

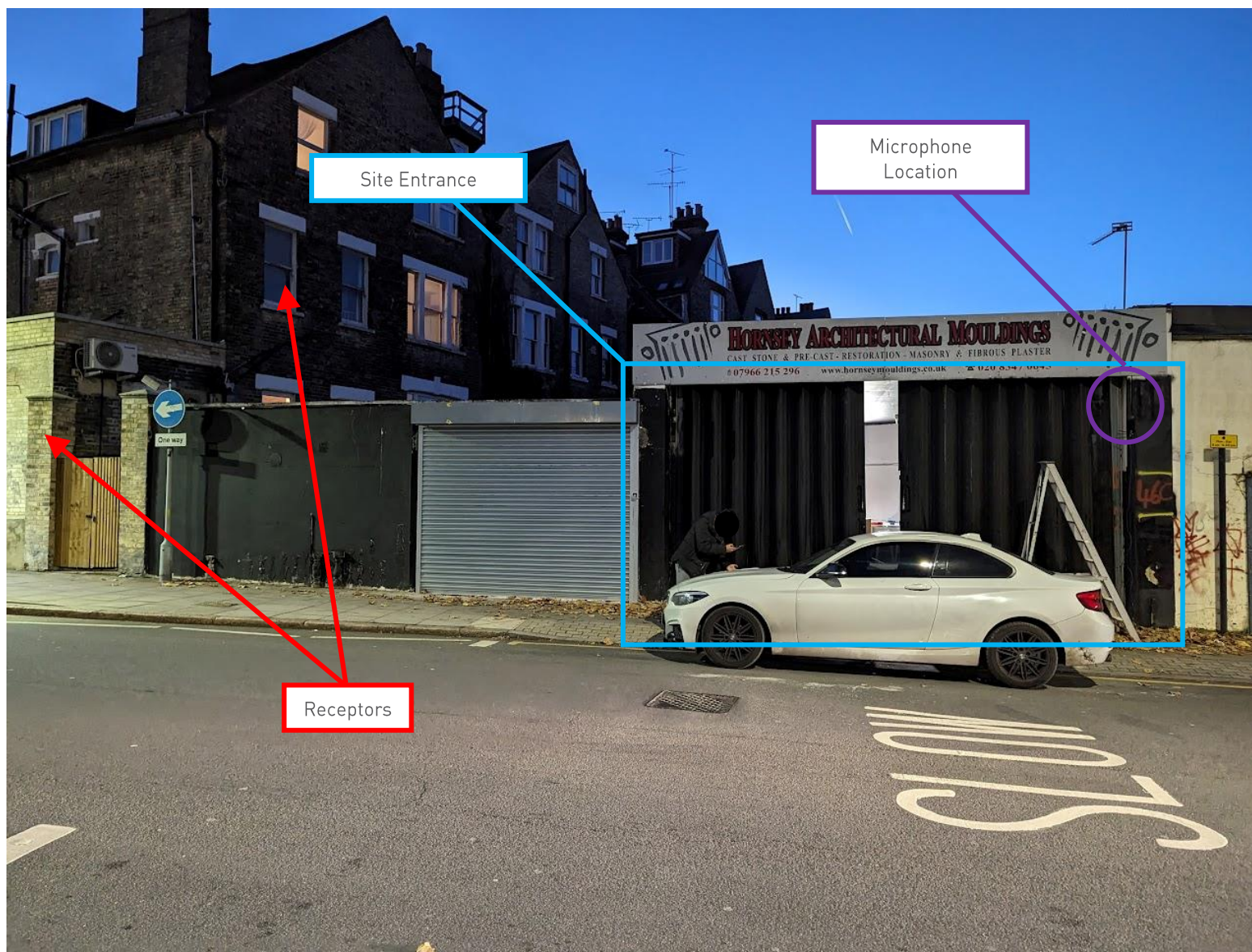
Project 13213

Figure A

08 December 2023

Not to Scale





46c Tottenham Lane, London N8 7ED

Photo of site entrance with receptor and microphone positions indicated

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Figure B

08 December 2023

Not to Scale



RBA ACOUSTICS

W. www.rba-acoustics.co.uk

E. info@rba-acoustics.co.uk

London:

44 Borough Road

London SE1 0AJ

T. +44 (0) 20 7620 1950

Manchester:

Bloc, 17 Marble Street

Manchester M2 3AW

T. +44 (0) 161 661 4504

