



157-159 HORNSEY
PARK ROAD, WOOD
GREEN

Acoustic Report

Reference: 13206.RP01.AR.4

Prepared: 16 February 2024

Revision Number: 4

Trinity International Properties
Ltd

Acoustic Report



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Revision	Comment	Date	Prepared By	Approved By
0	First issue of report	5 December 2023	Matt Wildman	Struan Carmichael
1	Minor amendments following comments from client	12 December 2023	Matt Wildman	Struan Carmichael
2	Minor amendments and updated site plan included	2 February 2024	Matt Wildman	Struan Carmichael
3	Updated to include plant noise assessment	15 February 2024	Struan Carmichael	Martin Raisborough
4	Minor amendments following comments from Planning Team	16 February 2024	Struan Carmichael	Martin Raisborough

Terms of contract:

RBA Acoustics Ltd have prepared this report in accordance with our Scope of Work 13206.ACB01.1 dated 15 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 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.



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1.0 INTRODUCTION

A new residential development is proposed on the land at 157-159 Hornsey Park Road, Wood Green. The development consists of thirty-two apartments across two blocks of part-four and part-five, and part-four and part-six storeys, with commercial uses at ground floor.

An assessment has been carried out in relation to the noise levels likely to be incident on the proposed building façades and to provide acoustic performance specifications such that acceptable internal noise criteria can be achieved.

As part of the planning application, consideration has also been given to atmospheric noise emissions from the proposed plant equipment to the nearest off-site noise-sensitive receptors.

This report details the results of the noise survey and sets out the acoustic performance requirements of the external building fabric elements. The report also outlines the results of the plant noise assessment which has been developed based upon the survey results and the likely requirements of Haringey Council.

A summary of acoustic terminology is included in Appendix A.

2.0 SITE DESCRIPTION

The site is shown in relation to its surroundings in the existing site plan in Figure 1 and proposed site plan in Figure 2 (Appendix E).

The land at 157-159 Hornsey Park Road is located in a residential area to the south of Wood Green within the London Borough of Haringey. The site is currently occupied by warehouse buildings which are set back approximately 40m from Hornsey Park Road by a long driveway.

The site is surrounded mostly by residential properties on Hornsey Park Road to the east and south. To the west, the site is bordered by a residential development currently under construction. To the north, the site is bordered by a car park and several commercial receptors on Brook Road. The typical noise climate on site was noted to consist mainly of road traffic from the surrounding road network. During our time on site, some construction noise was audible from the site to the west. Periods affected by construction noise have been excluded from our assessment.

3.0 ENVIRONMENTAL NOISE SURVEY

3.1 Survey Methodology

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

- 11:00 Friday 24 November to 10:45 Tuesday 28 November 2023.

As the survey was unattended it is not possible to comment with certainty regarding meteorological conditions throughout the entire survey period. According to weather reports for the area, some rain did occur over the survey period, however, these periods are thought to have had an insignificant effect on the data and conditions overall were generally considered suitable for obtaining representative noise measurements, being predominantly dry with little wind.

Measurements were made of the L_{A90} and L_{Aeq} noise levels over sample periods of 15 minutes. Measurements of the L_{Amax} noise levels were made over sample periods of 5 minutes.

3.2 Measurement Locations

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

- Measurement Position 1 – Hornsey Park Road

Measurements were taken with the microphone elevated on an A-frame out of a first-floor window of the building located approximately in the centre of the existing site overlooking Hornsey Park Road approximately 40m to the east. The noise climate at this location was noted to consist mainly of road traffic.

- Measurement Position 2 – Brook Road

Measurements were taken with the microphone elevated on an A-frame out of a first-floor window of the building located approximately in the centre of the existing site overlooking Brook Road approximately 35m to the west. The noise climate at this location was noted to consist mainly of road traffic.

The measurement positions are also illustrated on the site plan attached in Figure 1 and photos in Figures 4-5 (Appendix E).

3.3 Instrumentation

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

The sound level meters were calibrated both prior to and on completion of the survey with no significant calibration drifts observed.

3.4 Results

The noise levels measured are shown as time-histories on the attached Graphs 1-6 (Appendix E).

The lowest L_{A90} and the period averaged L_{Aeq} noise levels measured are summarised in Table 1, along with typical L_{AFmax} levels (90th percentile of 5-minute samples) measured during the night-time.

Table 1 – Measured Levels

Position	Time-Averaged Noise Level, L_{Aeq} (dB)		Lowest Background Noise Level, $L_{A90,15min}$ (dB)		Typical Maximum Noise Level, $L_{AFmax,5min}$ (dB)
	Daytime (07:00-23:00)	Night-time (23:00-07:00)	Daytime (07:00-23:00)	Night-time (23:00-07:00)	Night-time (23:00-07:00)
1	53	47	36	34	65
2	55	47	39	37	63

4.0 PLANNING ASSESSMENT CRITERIA

The sections below outline the assessment criteria we have adopted for the assessment of noise affecting the Proposed Development.

4.1 National Planning Policy Framework

The Ministry for Levelling Up, Housing and Communities (2023) *National Planning Policy Framework* (NPPF), sets out the Government's planning policies for England. In respect of noise, Paragraphs 180, 191 and 193 of the NPPF state the following:

"180) 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

191) 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*

193) 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."

4.2 ProPG

The Association of Noise Consultants, the Institute of Acoustics and the Chartered Institute of Environmental Health (2017) *Professional Planning Guidance on Planning & Noise* (ProPG) provides guidance on a recommended approach to the management of noise within the planning system in England. Although the guide does not form part of government policy itself, it is referenced in PPG(N) as useful guidance.

ProPG encourages better acoustic design for new residential development and aims to protect people from the harmful effects of noise.

ProPG advocates a two stage approach to the early assessment of noise. Stage 1 involves the assessment of the noise climate at the development site against the Noise Risk Assessment scale provided in Table 2. The levels used in the assessment should be the result of environmental noise monitoring conducted at the site

coupled with predictions of future free-field levels assuming “no subsequent mitigation is to be included as part of the development proposal”.

Table 2 – ProPG Noise Risk Assessment

Noise Risk	Indicative $L_{Aeq, period}$ Noise Levels (dBA)		Comments
	Daytime $L_{Aeq, 16\text{ hr}}$ (07:00 – 23:00)	Night-time $L_{Aeq, 8\text{ hr}}$ (23:00 – 07:00)	
Negligible	<50 dB	<40 dB	These noise levels indicate that the development site is likely to be acceptable, and the application need not normally be delayed on noise grounds.
Low	50 – 59 dB	40 – 49 dB	At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.
Medium	60 – 69 dB	50 – 59 dB	As noise levels increase, the site is likely to be less suitable from a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised, and which clearly demonstrate that a significant adverse noise impact will be avoided in the finished development.
High	≥ 70 dB	≥ 60 dB	High noise levels indicate that there is an increased risk that development may be refused on noise grounds. This risk may be reduced by following a good acoustic design process that is demonstrated in a detailed ADS. Applicants are strongly advised to seek expert advice.

It should be noted that a site in the High noise risk category should not necessarily be refused planning permission on grounds of noise, but rather that the site will present more acoustic challenges and the importance of applying the principles of good acoustic design will increase. A site identified as in the negligible risk category are likely to be acceptable in terms of noise; sites in low, medium and high risk categories will require a further Stage 2 assessment to establish a recommendation.

Stage 2 of the ProPG approach considers four elements:

- Good acoustic design process: minimising unreasonable acoustic conditions and preventing unacceptable acoustic conditions
- Internal noise level guidelines: in line with guidance within BS 8233:2014 (or justified alternative)
- External Amenity Area Noise Assessment: in line with guidance within BS 8233:2014 (or justified alternative)
- Assessment of other relevant issues: assessment of outcomes in accordance with national and local planning policy to form part of a recommendation.

4.3 London Plan

The Greater London Authority (2021) *The London Plan* policies D13 Agent of Change and D14 Noise provide outline guidance for the assessment and approach to noise within London Boroughs. The Plan does not provide criteria to be achieved but does reference the guidance provided in BS 8233:2014 and BS 4142:2014+A1 2019.

Important to note is that the London Plan is increasingly being adopted by Local Authorities as a benchmark for good acoustic design.

4.4 British Standard 8233:2014

Internal Ambient Noise Levels

British Standards Institution (2014) *BS 8233:2014: Guidance on Sound Insulation and Noise Reduction for Buildings* draws on the results of research and experience to provide information on achieving internal acoustic environments appropriate to their functions.

The noise level values given are in terms of an average (L_{Aeq}) level.

The standard advises internal ambient noise levels for achieving suitable resting and sleeping conditions within residential properties as set out in Table 3.

Table 3 – BS 8233:2014 Residential Criteria

Room	07:00 to 23:00	23:00 to 07:00
Living Rooms	35 dB $L_{Aeq,16hour}$	--
Dining Room/area	40 dB $L_{Aeq,16hour}$	--
Bedrooms	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

4.5 World Health Organisation Guidelines

WHO (2018) *Environmental Noise Guidelines for the European Region* sets out to define “recommended exposure levels for environmental noise in order to protect population health”. The guidance document relates specifically to external noise levels, and recommends that “all CNG [WHO (1999) *Guidelines for Community Noise*] indoor guideline values and any values not covered by the current guidelines (such as industrial noise and shopping areas) should remain valid”. RBA therefore make reference to *Guidelines for Community Noise* for recommendations on internal noise levels.

Guidelines for Community Noise describes guideline levels that are “essentially values for the onset of health effects from noise exposure”. A table of guideline values is included, relating to adverse health effects, defined as any temporary or long-term deterioration in physical, psychological, or social functioning that is associated with noise exposure. The following is an extract from Table 4.1: Guideline values for community noise in specific environments, as stated in the WHO document.

Table 4 – Guideline Values for Community Noise

Specific Environment	Critical Health Effect(s)	L_{Aeq} (dB)	Time Base (hours)	$L_{Amax,f}$ (dB)
Dwelling, indoors	Speech intelligibility and moderate annoyance, daytime and evening	35	16	-
Inside bedrooms	Sleep disturbance, night-times	30	8	45
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60
Outdoor living area	Serious annoyance, daytime and evening	55	16	-
	Moderate annoyance, daytime and evening	50	16	-

With reference to maximum noise levels the following guidance is provided within the WHO guidance:

“For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45dB L_{Amax} more than 10-15 times per night (Vallet & Vernet 1991) and most studies show an increase in the percentage of awakenings at SEL values of 55-60 dBA (Passchier-Vermeer 1993; Finegold et al. 1994; Pearsons et al. 1995). For intermittent events that approximate aircraft noise, with an effective duration of 10-30s, SEL values of 55-60 corresponds to a L_{Amax} value of 45dB. Ten to 15 of these events during an 8 hour night-time implies a $L_{Aeq, 8h}$ of 20-25dB. This is 10-15dB below the $L_{Aeq, 8h}$ or 30dB for continuous night-time noise exposure, and shows that intermittent character of noise must be taken into account when setting night-time noise limits for noise exposure. For example, this can be achieved by considering the number of noise events and the difference between the maximum sound pressure level and the background of these events.”

Therefore the frequency of occurrence of maximum noise events should not typically exceed 10-15 times in any night.

4.6 Summary

The project criteria adopted are therefore as follows;

- Bedroom Night-time (23:00-07:00 hours) 30dB L_{Aeq}
Typically <45dB $L_{Amax,f}$ *
- Living Rooms Daytime (07:00-23:00 hours) 35dB L_{Aeq}

* Under WHO, 10-15 occurrences during the night-time in excess of 45dBA are “allowable”. The new 2014 version of BS 8233 states L_{max} levels in the region of 45-55dBA could be considered acceptable.

5.0 EXTERNAL NOISE ASSESSMENT

The acoustic survey has been used to determine the daytime and night-time L_{Aeq} noise levels at the different areas of site.

For the purposes of the ProPG assessment, the site has been categorised in to two zones: the façade overlooking Hornsey Park Road and the façade overlooking Brook Road.

With reference to Section 4.2, the noise levels for each of the zones within the following Noise Risk categories as defined in ProPG for both daytime and night-time periods.

Table 5 – ProPG assessment

Zone	Noise Risk Category	
	Daytime	Night-time
Façade Overlooking Hornsey Park Road	Low	Low
Façade Overlooking Brook Road	Low	Low

As shown in the table above, both façade zones are classed as low risk for adverse effect in terms of noise for both the daytime and night-time.

ProPG states that as noise levels increase, a good acoustic design process should be followed and demonstrated. A further Stage 2 assessment is required to be undertaken which will consider the four elements outlined below.

- Good acoustic design process: minimising unreasonable acoustic conditions and preventing unacceptable acoustic conditions
- Internal noise level guidelines: in line with guidance within BS 8233:2014 (or justified alternative)
- External Amenity Area Noise Assessment: in line with guidance within BS 8233:2014 (or justified alternative)
- Assessment of other relevant issues: assessment of outcomes in accordance with national and local planning policy to form part of a recommendation.

6.0 EXTERNAL BUILDING FABRIC ASSESSMENT

6.1 Background

Analyses of the external building fabric have been undertaken in order to ascertain the required acoustic performance of the glazing and other external fabric elements to achieve the project criteria.

6.2 Assumptions

Our external building fabric analyses have assumed the following:

(a) Drawings

The assessment has been based on the information provided in the drawings issued by Stephen Davy Peter Smith Architects.

(b) Noise Levels

The assessment has been based on the measured noise levels as detailed in Section 3.4.

(c) Room Absorption

The bedrooms are assumed to be acoustically “soft” with carpets, curtains and other soft furnishings. For the purposes of our analyses we have assumed the absorption coefficients detailed in Tables 6 and 7.

Table 6 – Bedroom Absorption Coefficients

Absorption Coefficient (a) at Octave Band Centre Frequency (Hz)							
63	125	250	500	1k	2k	4k	8k
0.15	0.18	0.25	0.27	0.31	0.32	0.32	0.32

The living rooms are assumed to be less acoustically absorptive (with a hard floor finish, although with furnishings). For the purposes of our analyses we have assumed the following absorption coefficients.

Table 7 – Living Room Absorption Coefficients

Absorption Coefficient (a) at Octave Band Centre Frequency (Hz)							
63	125	250	500	1k	2k	4k	8k
0.15	0.18	0.20	0.22	0.22	0.22	0.23	0.27

(d) External Wall

External non-glazed areas are to comprise the following build-up:

- Brickwork/blockwork cavity wall

As such, RBA Acoustics has assumed the following sound reduction indices (equating to an overall R_w of 52 dB) for all non-glazed façade areas:

Table 8 – Sound Reduction Indices of Non-Glazed Elements

Assumed Sound Reduction Index (dB) at Octave Band Centre Frequency (Hz)							
63	125	250	500	1k	2k	4k	8k
36	41	45	45	54	58	58	58

Should the proposals for non-glazed areas change, it is critical RBA are informed at the earliest opportunity as this could have a significant impact on the sound insulation performance requirements of the glazing systems.

(e) Ventilation

It is understood the chosen strategy is via a mechanical ventilation and heat recovery system (MVHR). Should the proposals for ventilation change to include mechanisms such as trickle ventilators, it is important that RBA Acoustics is informed at the earliest opportunity as alternative vents could have a significant impact on the sound insulation performance for the building.

6.3 Guidance Glazing Constructions

For guidance purposes we would typically expect the following glazing configurations detailed below to prove commensurate with achieving a sound insulation performance such that acceptable internal noise levels (see Section 3.0) are capable of being achieved.

- The glazing should take the form of double-glazed units, such as a 4 mm glass / 12 mm cavity / 6 mm laminated glass configuration achieving a minimum R_w 32 dB.

It should be noted that due to the non-acoustic reasons (security, thermal or structural purposes), the specifications may exceed those stated above in some locations.

7.0 PLANT NOISE ASSESSMENT

7.1 Noise Emissions Criteria

Noise generating plant items associated with the development will be required to meet noise emission limits in line with the anticipated requirements of the London Borough of Haringey.

Note that these requirements have been based on previous projects undertaken by RBA Acoustics in the London Borough of Haringey and from correspondence with officers from the Borough. It is understood that there are no written policies for requirements of plant noise, and that they are ultimately decided through planning condition by planning officers. The criterion advised previously to RBA Acoustics is that the plant noise level should not exceed a level of 10 dB below the lowest measured L_{A90} noise level on site.

In line with the above requirements, total noise from the combined operation of future items of building services mechanical services should be designed so that 'Specific' sound level emissions from the plant, as defined by BS 4142, do not exceed the following limits when assessed at the nearest noise sensitive residential window:

Table 9 – Plant Noise Emission Limits

Receptor Location	Period	Plant Noise Emission Limit
Receptors Representative of Measurement Location 1 (Overlooking Hornsey Park Road)	Daytime (07:00 – 23:00)	26
	Night-time (23:00 – 07:00)	24
Receptors Representative of Measurement Location 2 (Overlooking Brook Road)	Daytime (07:00 – 23:00)	29
	Night-time (23:00 – 07:00)	27

Should the plant have tonal, impulsive or intermittent qualities, then appropriate penalties should be applied (again following the guidance of BS 4142) to determine its 'Rating' level. The 'Rating' levels shall not exceed the L_{90} values given in Table 1 at the nearest noise sensitive receptors.

7.2 Proposed Plant Items

The following plant is proposed for the scheme:

Table 10 – Plant Types

No. of Units	Manufacturer/Model/Duty	Plant Type
4No.	Mitsubishi CAHV-P500YA-HPB	Condenser Unit
1No.	Mitsubishi PUMY-SP140VKM	Condenser Unit

From discussions with the design team, we understand that only 3No. of the Mitsubishi CAHV units will be operating at one time and therefore, this has been considered in our assessment.

7.3 Plant Locations

The proposed plant is to be located on the roof of Block B at fifth floor level. The equipment positions are indicated on the site plan in Figure 3 in Appendix E.

7.4 Plant Noise Levels

Information regarding the noise levels of the proposed plant has been provided by the manufacturer of the units. The associated plant noise levels are detailed as follows:

Table 11 – Plant Noise Levels

Unit	Parameter	Sound Level [dB] at Octave Band Centre Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
CAHV-P500YA-HPB (100% Duty – Daytime)	L _p at 1m	70	65	61	57	51	47	49	45
CAHV-P500YA-HPB (75% Duty – Night-time)	L _p at 1m	64	63	58	56	50	47	42	39
PUMY-SP140VKM	L _p at 1m	62	58	56	53	52	47	40	33

From discussions with the design team, we understand the Mitsubishi CAHV unit will be set to operate at a maximum 75% duty during the night-time period and therefore, these noise levels have been considered in our assessment.

Review of the octave band data provides no indication of any tonal characteristics associated with the proposed plant.

7.5 Location of the Nearest Noise-Sensitive Receptors

Based on observations made on site and discussions with the design team we understand the nearest noise-sensitive receptors to the proposed plant to be as follows:

Receptor 1 – Residences on Hornsey Park Road (Existing)

There are existing residences to the East of site which are located approximately 22m from the proposed plant locations. The nearest and worst affected window belonging to these residences are at 1st floor level, however, due to the difference in height, the proposed plant will be screened due to the roof edge of the proposed development.

Receptor 2 – Development to the South-West (Under Construction)

There is a residential development that is currently under construction to the South-West of the site on Brook Road and is located approximately 55m from the proposed plant locations.

Receptor 3 – Development to the North-West (Planning Approved)

We understand there is a residential development which has planning approval to the North-West of the site on Brook Road and is to be located approximately 21m from the proposed plant locations.

The receptors are shown in the site plan in Figure 1 in Appendix E.

7.6 Calculation of Noise Levels at Nearest Noise-Sensitive Receptors

Our calculation method for predicting noise levels from the proposed external plant at the nearest noise-sensitive receptors, based on the information above, is summarised below.

- Source Term SPL / SWL
- Distance Attenuation
- Reflections
- Screening / Mitigation

An example calculation sheet is attached for further information in Appendix C. The results of the calculations indicate the following noise levels at the nearest affected residential windows:

Table 12 – Predicted Plant Noise Levels

Operating Period	Noise Level (dB) at Receptor 1 – Residences on Hornsey Park Road		Noise Level (dB) at Receptor 2 – Development to South-West		Noise Level (dB) at Receptor 3 – Development to North-West	
	Prediction	Criterion	Prediction	Criterion	Prediction	Criterion
Daytime (07:00 – 23:00)	30	26	32	29	40	29
Night-time (23:00 – 07:00)	28	24	30	27	38	27

Noise from the proposed plant installations is predicted to be above the criteria required by the London Borough of Haringey. We therefore recommend the following mitigation measures be included in the design and installation.

7.7 Mitigation

To ensure the criteria is met, all condenser units should be fully enclosed with louvres capable of achieving the performance levels detailed in the specification below:

Table 13 – Performance Specification of Acoustic Louvres

Sound Reduction Indices (dB) in each Octave Band Centre Frequency (Hz)							
63	125	250	500	1k	2k	4k	8k
7	7	10	17	29	30	27	21

An example of a louvre capable of achieving the above performance is the Caice SH300. The manufacturer datasheet is provided in Appendix D.

With the specified mitigation measures outlined above, the resultant predicted noise levels are outlined in Table 14.

Table 14 – Predicted Noise Levels with Mitigation

Operating Period	Noise Level (dB) at Receptor 1 – Residences on Hornsey Park Road		Noise Level (dB) at Receptor 2 – Development to South-West		Noise Level (dB) at Receptor 3 – Development to North-West	
	Prediction	Criterion	Prediction	Criterion	Prediction	Criterion
Daytime (07:00 – 23:00)	20	26	20	29	28	29
Night-time (23:00 – 07:00)	17	24	17	27	25	27

Noise from the proposed plant with the mitigation measures incorporated is within the criteria anticipated to be required by Haringey Council

7.8 Vibration Control

In addition to the control of airborne noise transfer, it is also important to consider the transfer of noise as vibration to adjacent properties (as well as to any sensitive areas of the same building).

We would typically advise that condensing units be isolated from the supporting structure by means of either steel spring isolators or rubber footings. For particularly sensitive locations, or when on lightweight structures the mounts should ideally be caged and be of the restrained type.

It is important the isolation is not “short-circuited” by associated pipework or conduits. To this end, any conduits should be looped and flexible connectors should be introduced between the condenser and any associated pipework. Pipework should be supported by brackets containing neoprene inserts.

8.0 CONCLUSION

RBA Acoustics have undertaken noise monitoring at the proposed development site at 157-159 Hornsey Park Road, Wood Green. The measured noise levels are presented within this report.

The resultant noise levels have been used in the assessment of the glazing requirements to ensure suitable internal noise levels are achieved at the proposed development with reference to BS 8233:2014 and WHO Guidelines. Guidance glazing constructions have been suggested that are capable of providing the required level of sound insulation such that acceptable internal noise conditions are achieved. This report therefore demonstrates that the proposed residential development can be designed such that existing environmental noise conditions can be adequately controlled and are not a reason for planning refusal.

The measured noise levels have also been used to determine the likely criteria required for atmospheric noise emissions from the proposed plant installations. To suitably control plant noise emissions, the following mitigation measures are proposed within this report:

- Condenser units should be enclosed in louvres capable of achieving the performance specification outlined in Table 13.

Provided the above mitigation measures are included in the design and installation, the results of the assessment indicate atmospheric noise emissions from the proposed plant are within the criteria anticipated to be required by Haringey Council and, as such, can be considered acceptable in terms of noise.

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.
$L_{eq,T}$	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.
Octave band	A frequency band in which the upper limit of the band is twice the frequency of the lower limit.
1/3 Octave band	A frequency band which is one-third of an octave band.
R_w	A single number quantity which characterises the airborne sound insulation of a material or building element in a laboratory test.

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	1406971	U45246	31 August 2025
Norsonic Pre Amplifier	1209	21571		
GRAS ½" Microphone	40AF	207393	45245	31 August 2025
Norsonic Sound Calibrator	1251	35016	U45244	31 August 2025
Norsonic Type 1 Sound Level Meter	Nor140	1406970	U44407	05 June 2025
Norsonic Pre Amplifier	1209	21205		
Norsonic ½" Microphone	1225	271055	44406	05 June 2025
Norsonic Sound Calibrator	1251	35020	U44405	05 June 2024

Appendix C – Example Plant Calculation

Table C1 – Example Calculation (Daytime CAHV Units to Receptor 3)

Parameter	Octave-band Noise Levels (dB) at Octave-band Centre Frequency (Hz)								dBA
	63	125	250	500	1000	2000	4000	8000	
CAHV-P500YA-HPB - L_p at 1m	70	65	61	57	51	47	49	45	
Hemi-spherical Spreading	+3	+3	+3	+3	+3	+3	+3	+3	
3No. Units Operating	+5	+5	+5	+5	+5	+5	+5	+5	
Distance losses @ 22m	-27	-27	-27	-27	-27	-27	-27	-27	
Acoustic Enclosure	-7	-7	-10	-17	-29	-30	-27	-21	
Noise level at receiver	44	39	32	21	3	0	3	5	28

*Levels have been rounded to the nearest decimal point

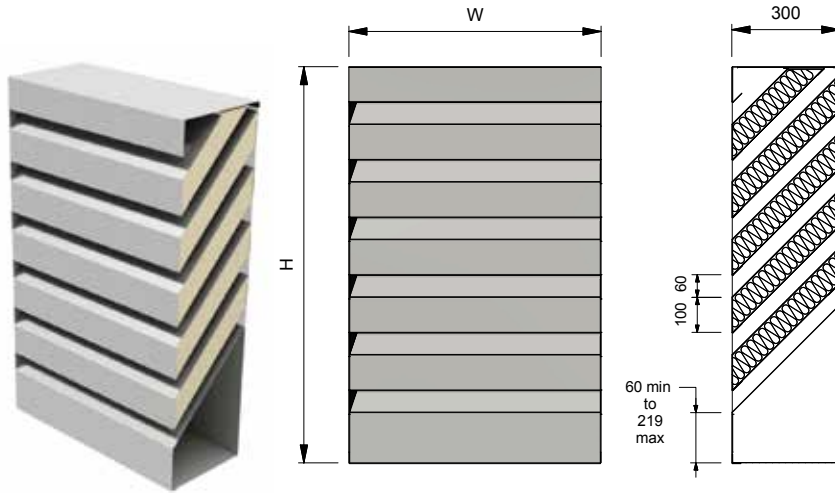
Appendix D – Caice SH300 Acoustic Louvre

SH300 Acoustic Louvre

Technical Data



Single Bank Acoustic Louvre, Higher Performance Profile, 300mm Deep



Typical weight 53kg/m²

Generally louvres above 50kg will be supplied in modules for assembly on site. Joining brackets and fixings will be provided for assembly.

Installation services, support steelwork, flashings, fixings to the structure and mastic will not be provided unless stated.

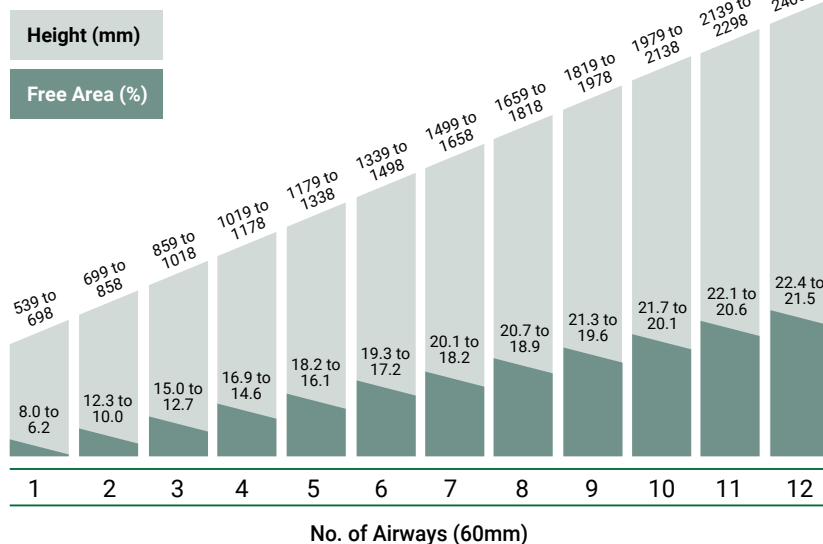
Refer to the Acoustic Louvre Schedule and Product Code Definitions for the size and specification of each Acoustic Louvre.

A minimum of 10mm clearance should be allowed between the structure and the Acoustic Louvre sizes shown.

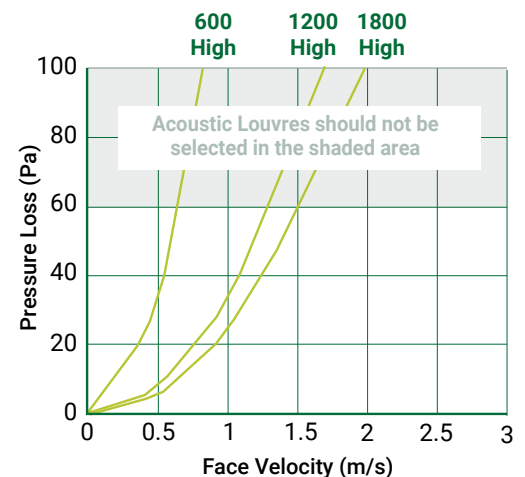
Performance

Acoustic Data	dB in each Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Sound reduction index	7	7	10	17	29	30	27	21
Weighted sound reduction index (R _w)	21							
Static insertion loss	6	7	10	18	31	28	26	25
Regenerated sound power level at 1m/s face velocity	50	44	39	34	30	26	17	12
Regenerated sound power level at 2m/s face velocity	70	60	55	52	49	49	43	35

Free Area and Height range



Free area shown is based on an 1150mm wide single piece louvre fitted with bird mesh and will vary slightly for different widths and bigger heights. Pressure losses for Class A rated louvres are available upon request.



Appendix E – Graphs and Site Plans

157 Hornsey Park Road, London N8

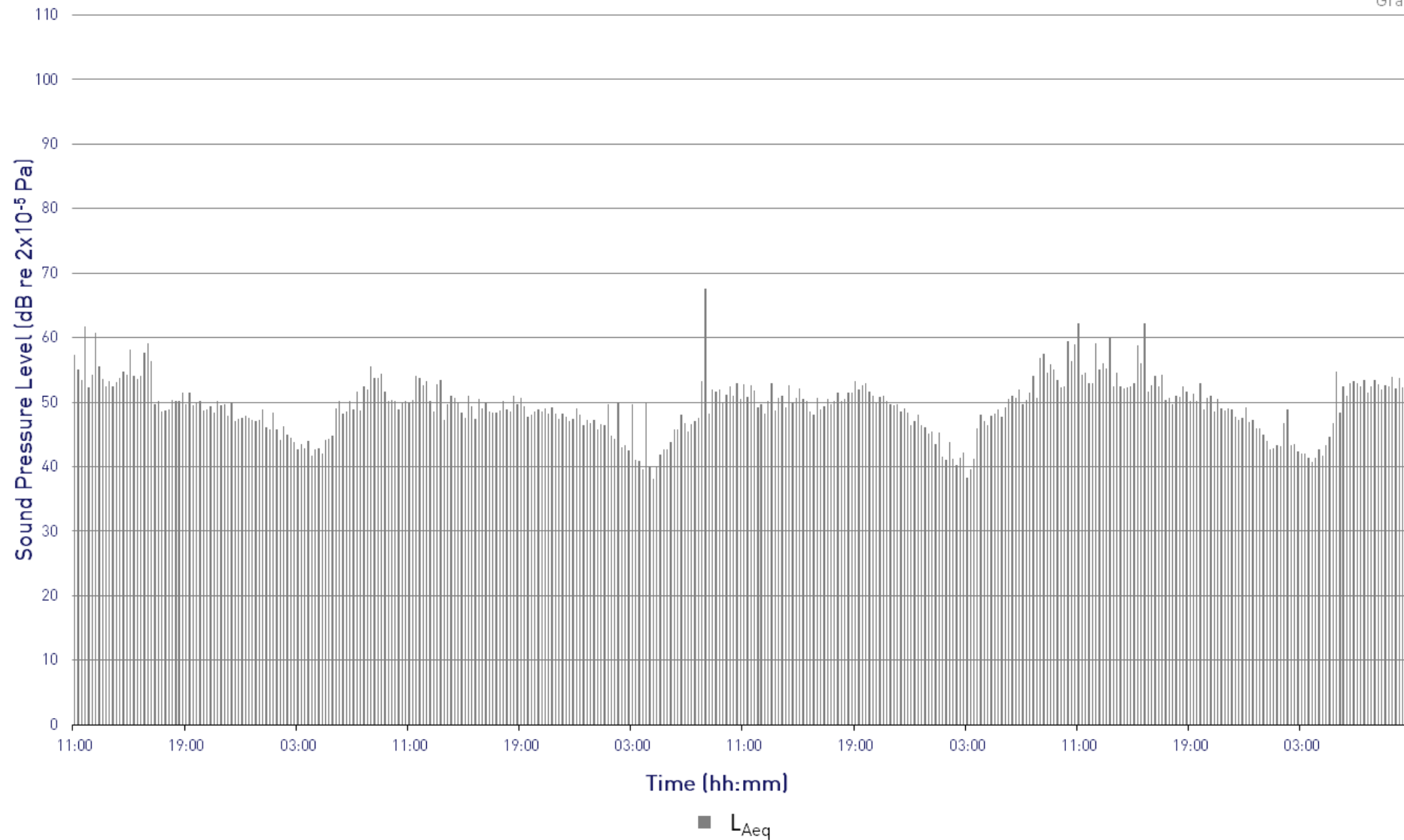
L_{Aeq} Time History

Measurement Position 1, Friday 24th November to Tuesday 28th November 2023



Project: 13206

Graph 1



157 Hornsey Park Road, London N8

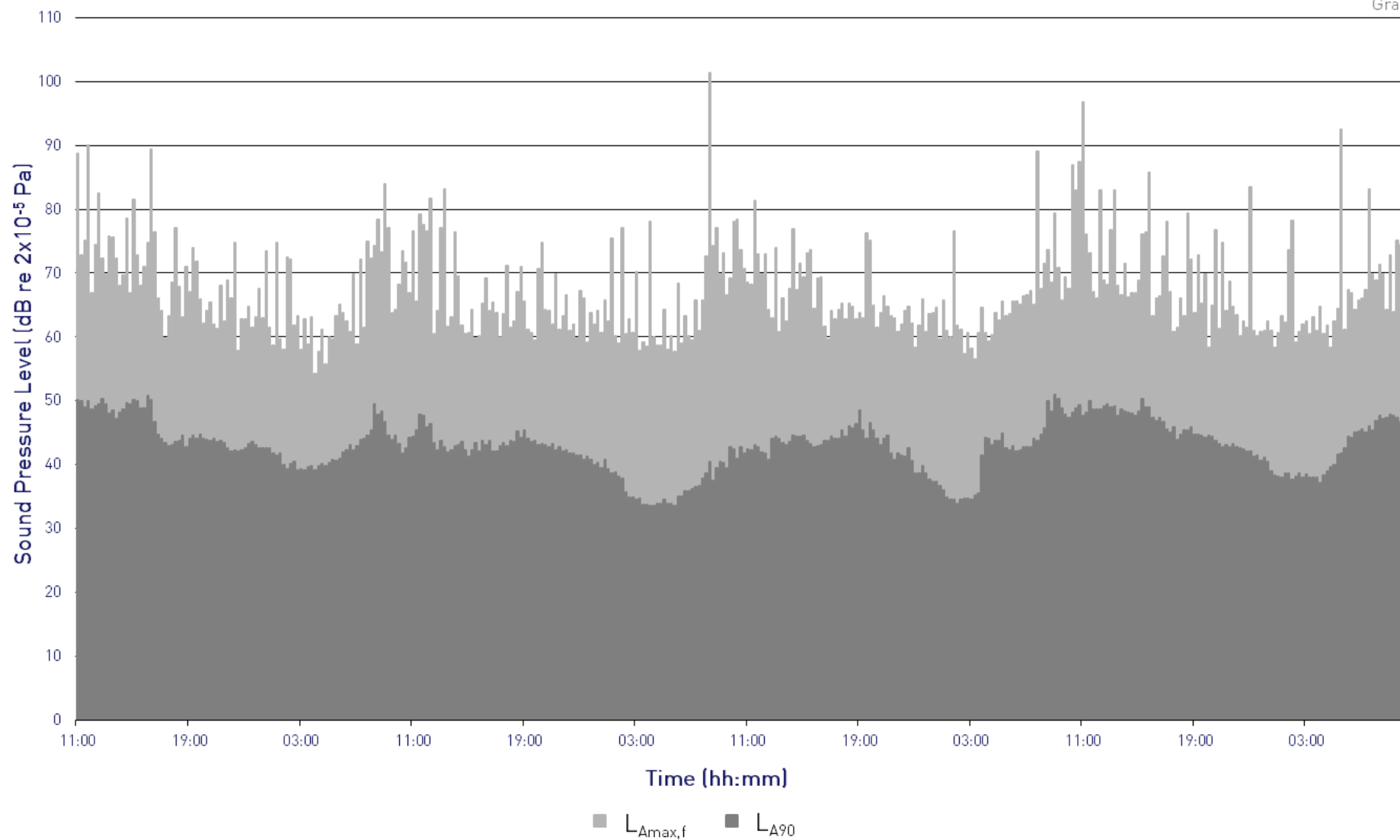
$L_{Amax,f}$ and L_{A90} Time History

Measurement Position 1, Friday 24th November to Tuesday 28th November 2023



Project: 13206

Graph 2



157 Hornsey Park Road, London N8

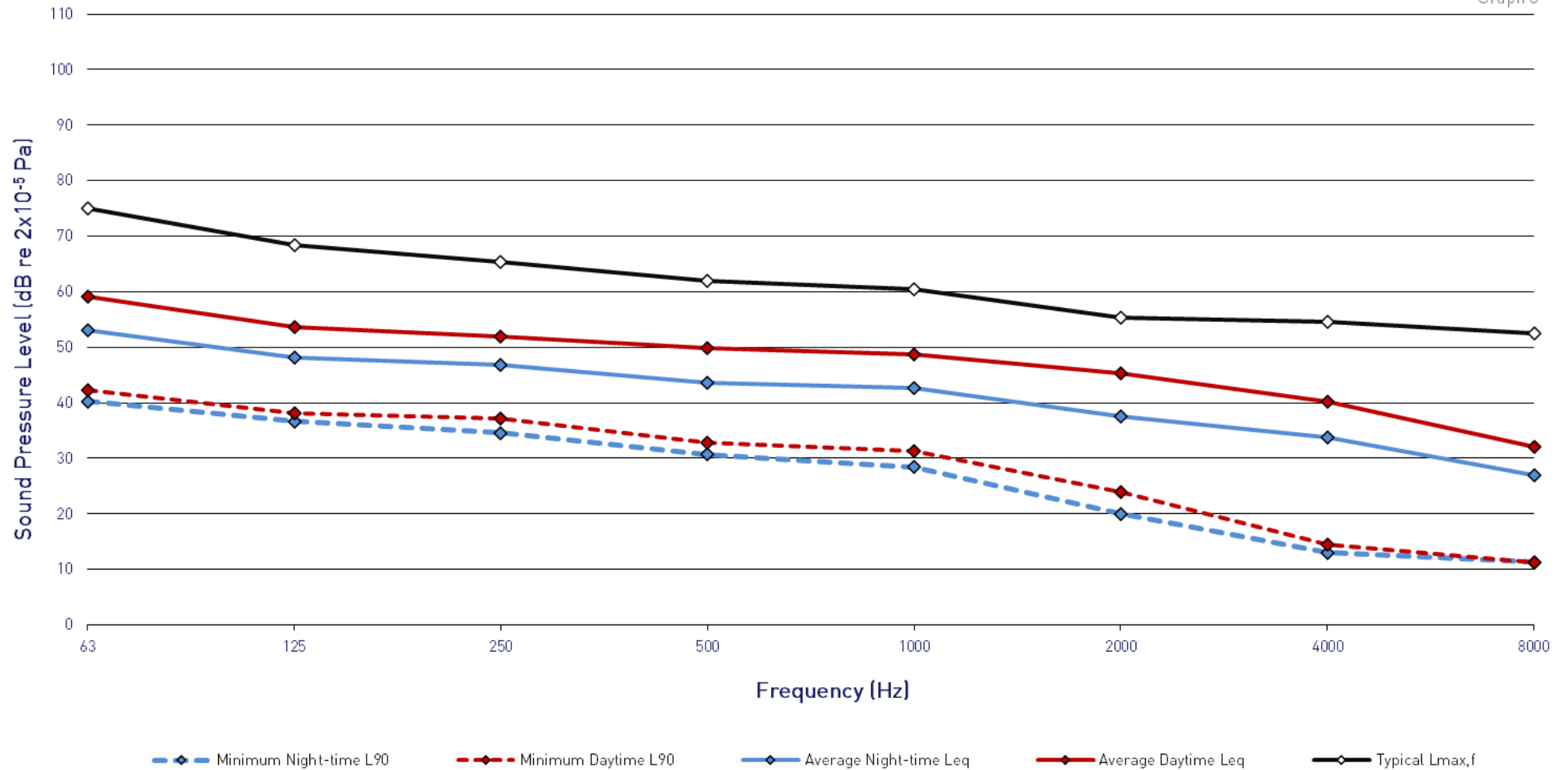
Spectral Noise Levels

Measurement Position 1, Friday 24th November to Tuesday 28th November 2023



Project: 13206

Graph 3



157 Hornsey Park Road, London N8

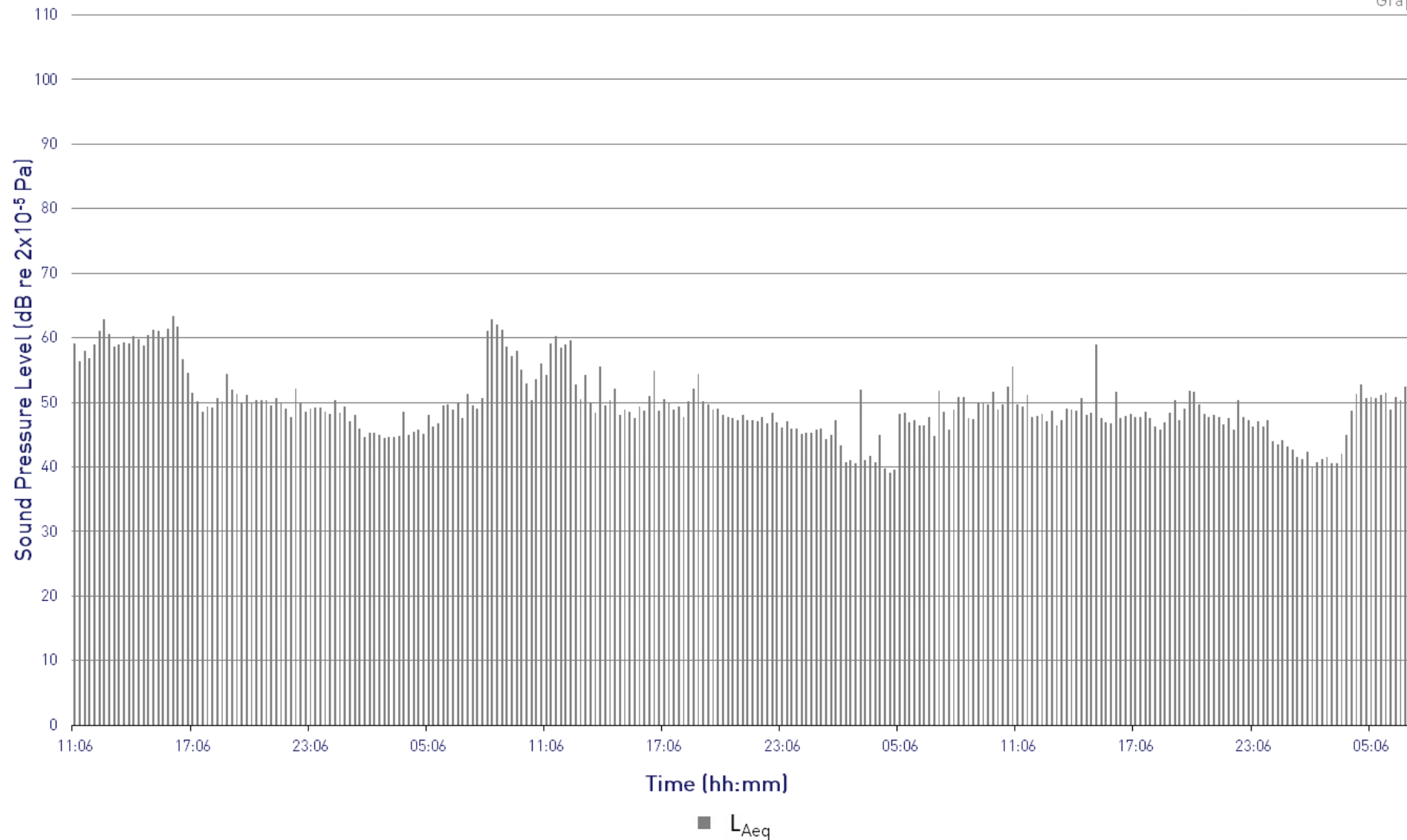
L_{Aeq} Time History

Measurement Position 2, Friday 24th November to Monday 27th November 2023



Project: 13206

Graph 4



157 Hornsey Park Road, London N8

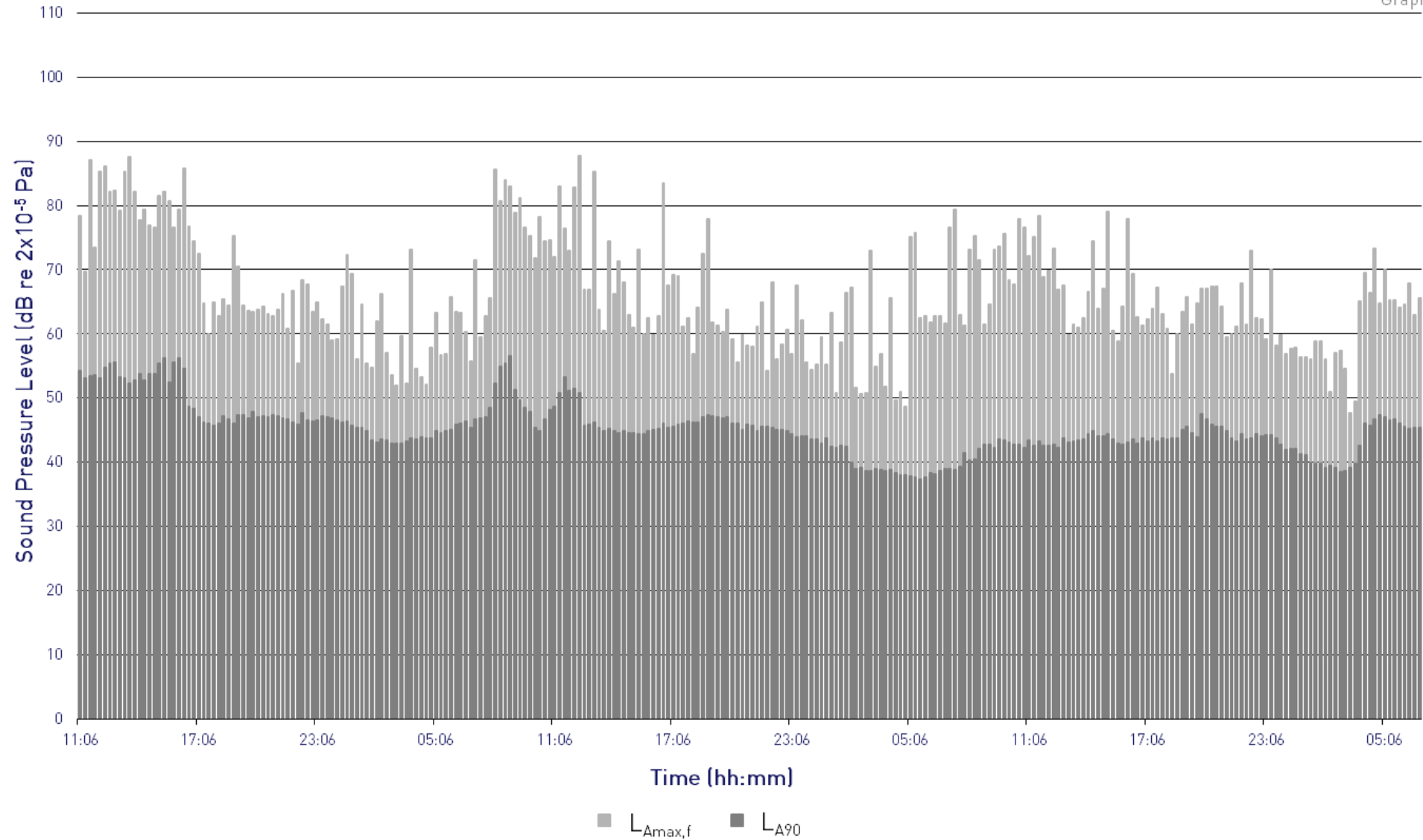
$L_{Amax,f}$ and L_{A90} Time History

Measurement Position 2, Friday 24th November to Monday 27th November 2023



Project: 13206

Graph 5



157 Hornsey Park Road, London N8

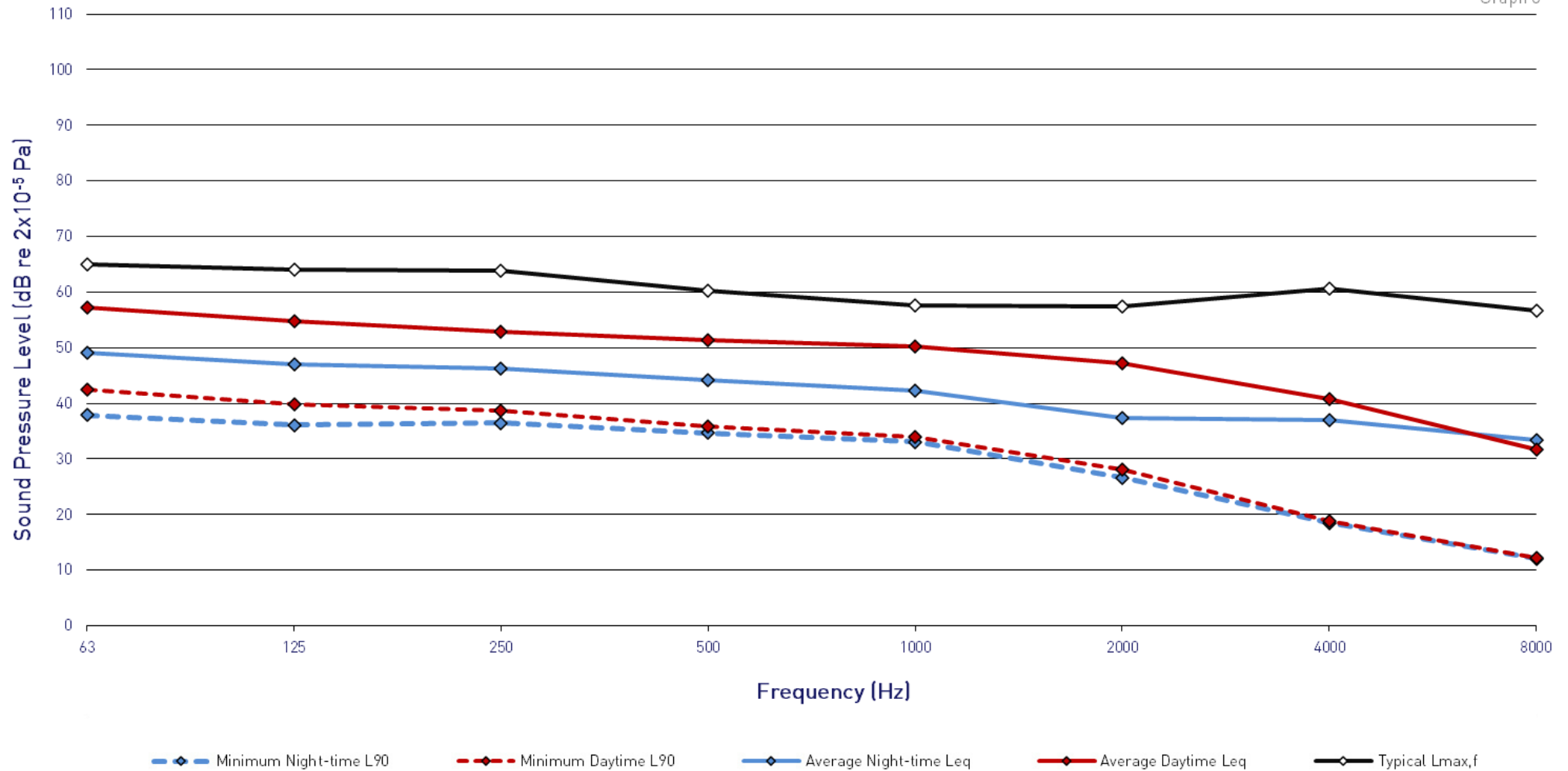
Spectral Noise Levels

Measurement Position 2, Friday 24th November to Monday 27th November 2023



Project: 13206

Graph 6

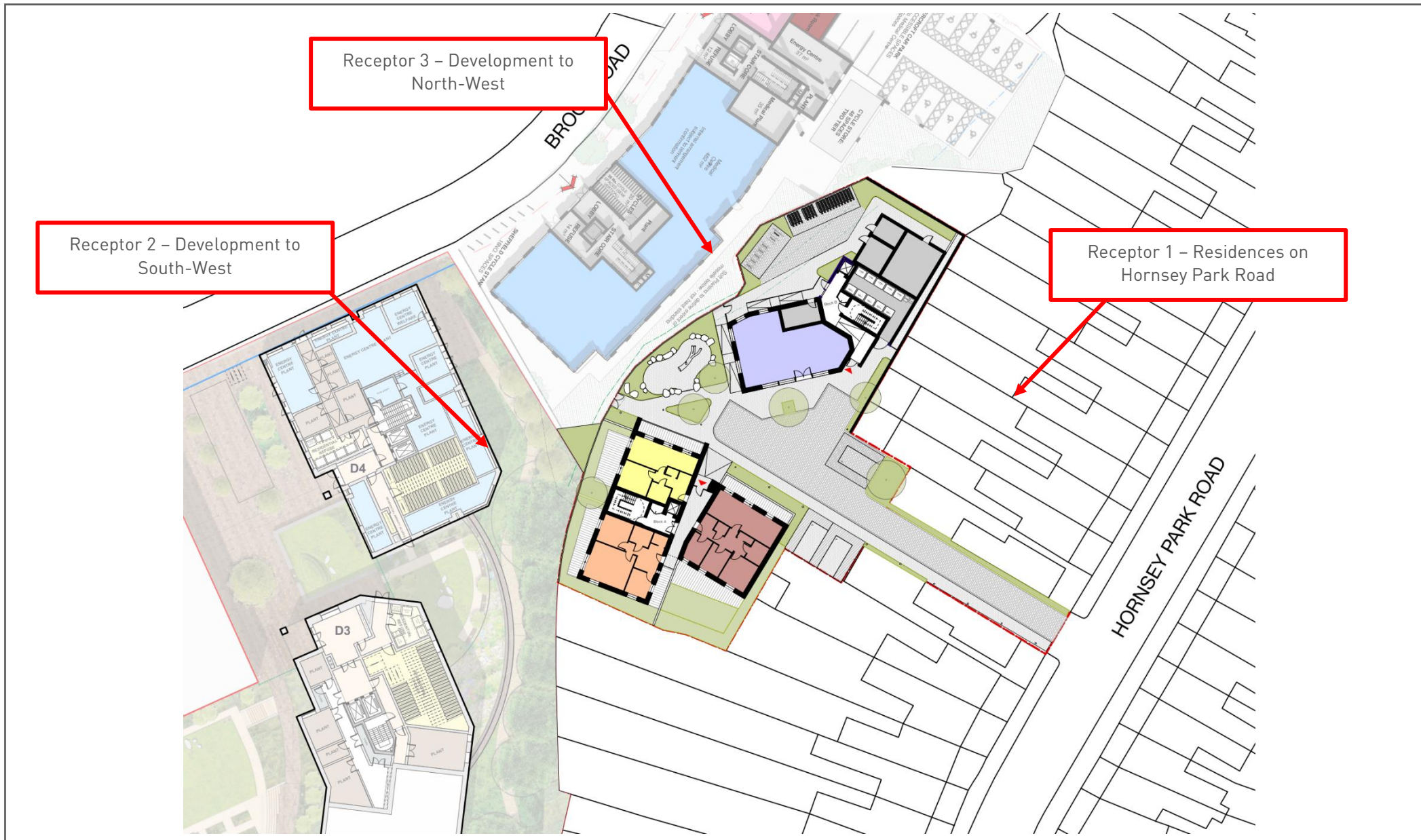




157-159 Hornsey Park Road, Wood Green
Existing Site Plan Showing Measurement Locations
Project 13206

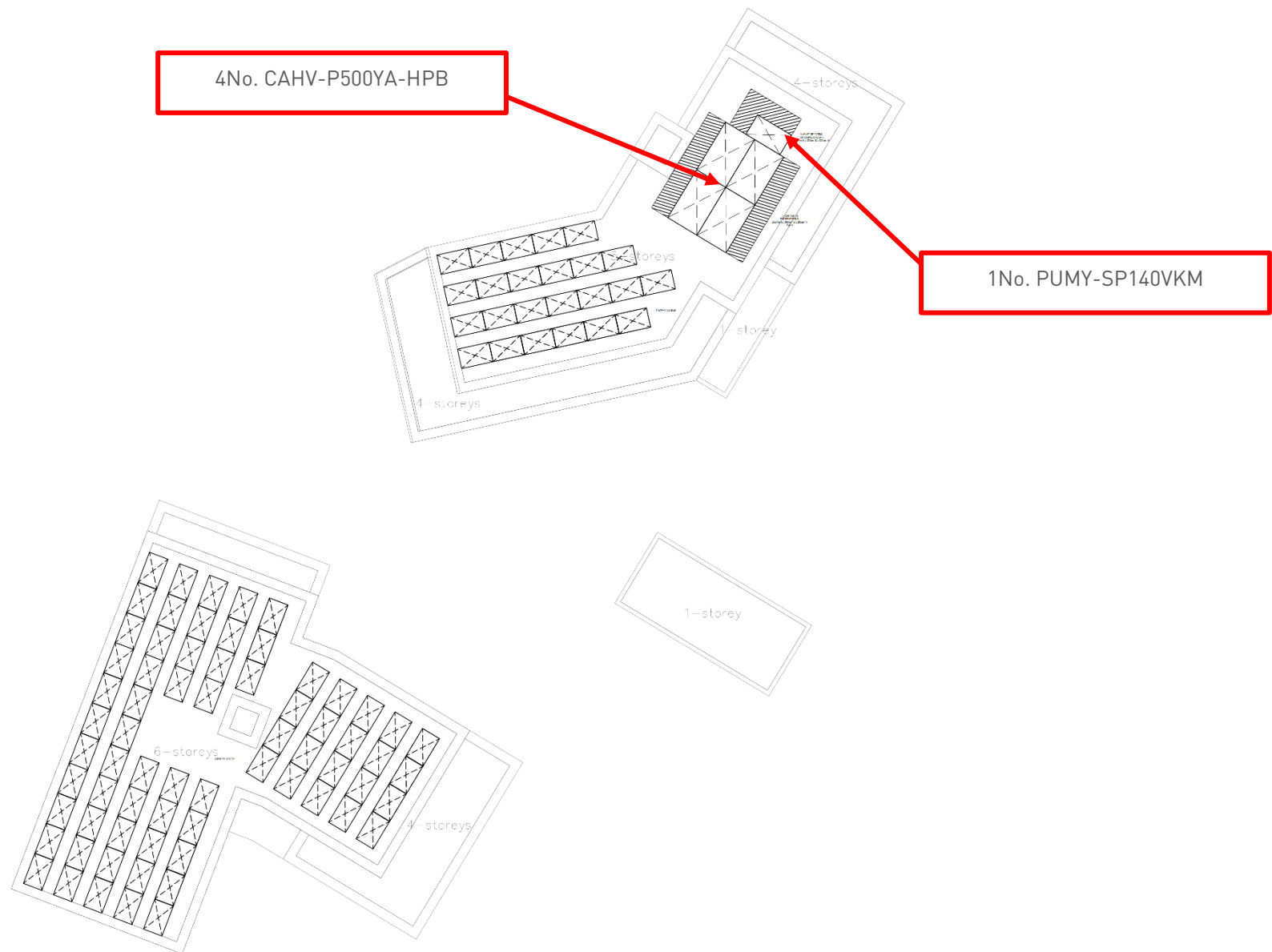
Figure 1
16 February 2024
Not to Scale





157-159 Hornsey Park Road, Wood Green
 Proposed Site Plan Showing Nearest Noise Sensitive Receptors
 Project 13206

Figure 2
 16 February 2024
 Not to Scale



157-159 Hornsey Park Road, Wood Green
Proposed Roof Drawing Showing Plant Locations
Project 13206

Figure 3
16 February 2024
Not to Scale



157-159 Hornsey Park Road, Wood Green
Photographs, Measurement Position 1
Project 13206

Figure 4
16 February 2024
Not to Scale





157-159 Hornsey Park Road, Wood Green
Photographs, Measurement Position 2
Project 13206

Figure 5
16 February 2024
Not to Scale

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