

24 Eaton Place London

Environmental Noise Survey and Plant Noise Assessment Report

31239/PNA1

9 January 2024

For:
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Document Control

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1.0 Introduction

It is proposed to install 2No. new air conditioning units to serve residential properties on 24 Eaton Place, London.

Hann Tucker Associates have therefore been commissioned to undertake a detailed daytime and night-time fully automated environmental noise survey of the site to establish the currently prevailing noise climate and propose suitable plant noise emission criteria, based on the results of the survey and the requirements of the Local Authority.

At the time of this report, the proposed plant has not been selected. Therefore, an assessment has been carried out to determine the plant noise limiting level at 1 metre from the plant.

2.0 Objectives

To establish by means of an unmanned survey the existing L_{Amax} , L_{Aeq} and L_{A90} environmental noise levels at a single secure and accessible on-site position, using fully computerised noise monitoring equipment.

The survey will enable noise emission limits from the development to be identified with reference to the requirements of the Local Authority and/or the application of BS 4142: 2014 and to minimise the possibility of noise nuisance to neighbours.

To propose suitable plant noise limiting levels at 1 metre from the plant.

To advise on suitable noise control measures, if required, with reference to the requirements of the Local Authority.

3.0 Acoustic Terminology

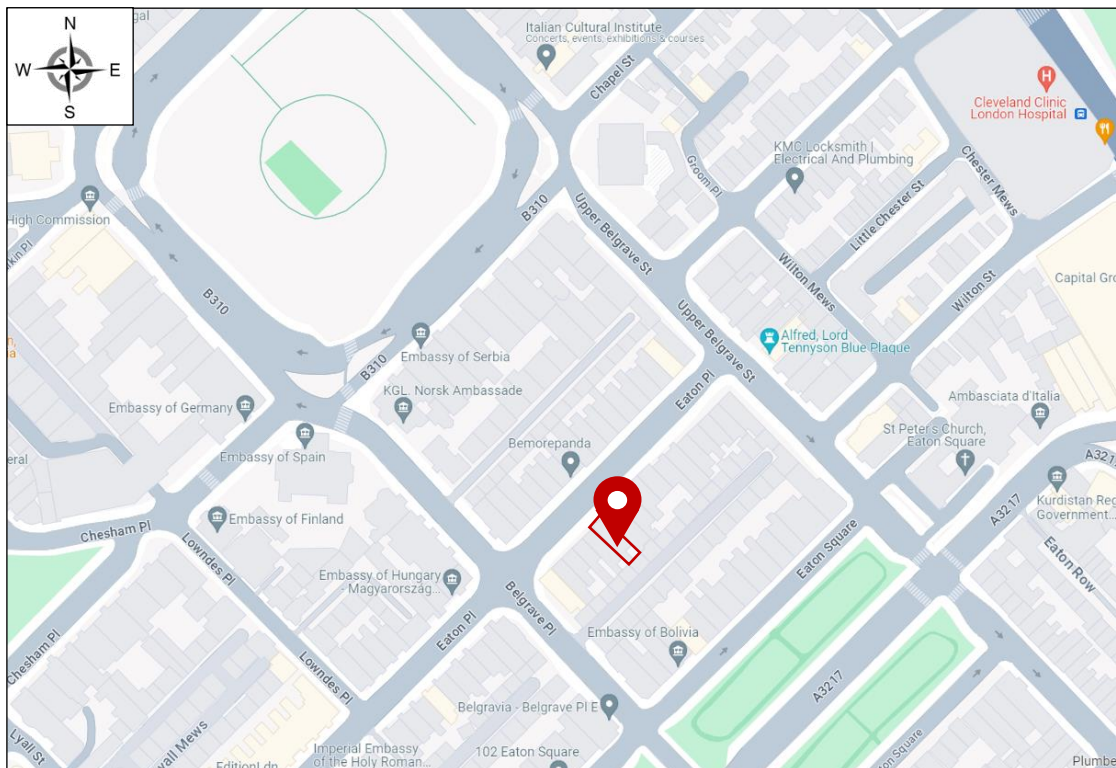
For an explanation of the acoustic terminology used in this report please refer to Appendix A enclosed.



4.0 Site Description

4.1 Location

The site is located at 24 Eaton Place, London, SW1X 8AE. The location is shown in the Location Map below.



Location Map (Map data © 2024 Google)

The site falls within the jurisdiction of City of Westminster.

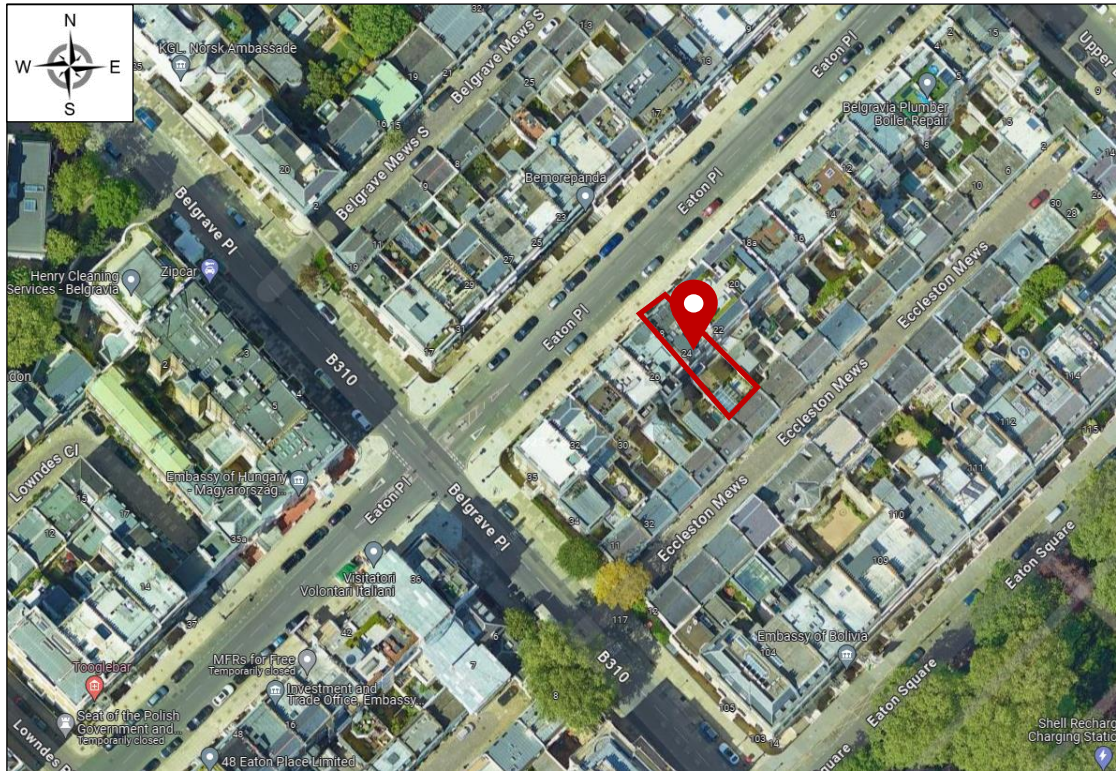
4.2 Description

The site is located in a predominately residential area. The site is bounded to the north-west by Eaton Place, to the north-east, south and west by residential premises. The residential dwellings at the north, east and west have a height of ground floor plus four stories and at least one basement level. The residential dwellings at the south have a height of ground floor plus one story.

The nearby road network includes Eaton Place to the north-west, Eccleston Mews approximately 7 metres away from the east boundary of the property and Belgrave Place approximately 40 metres away from the south-west boundary of the property.



The site is shown in the Site Plan below.



Site Plan (Imagery © 2024 Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies, The GeoInformation Group, Map Data © 2024 Google)

5.0 Project Proposals

5.1 Proposed Plant

We understand the proposed plant comprises 2No. air conditioning units located at roof level.

5.2 Operating Hours

We understand that the operating hours of the proposed plant could be 24 hours.

5.3 Drawings

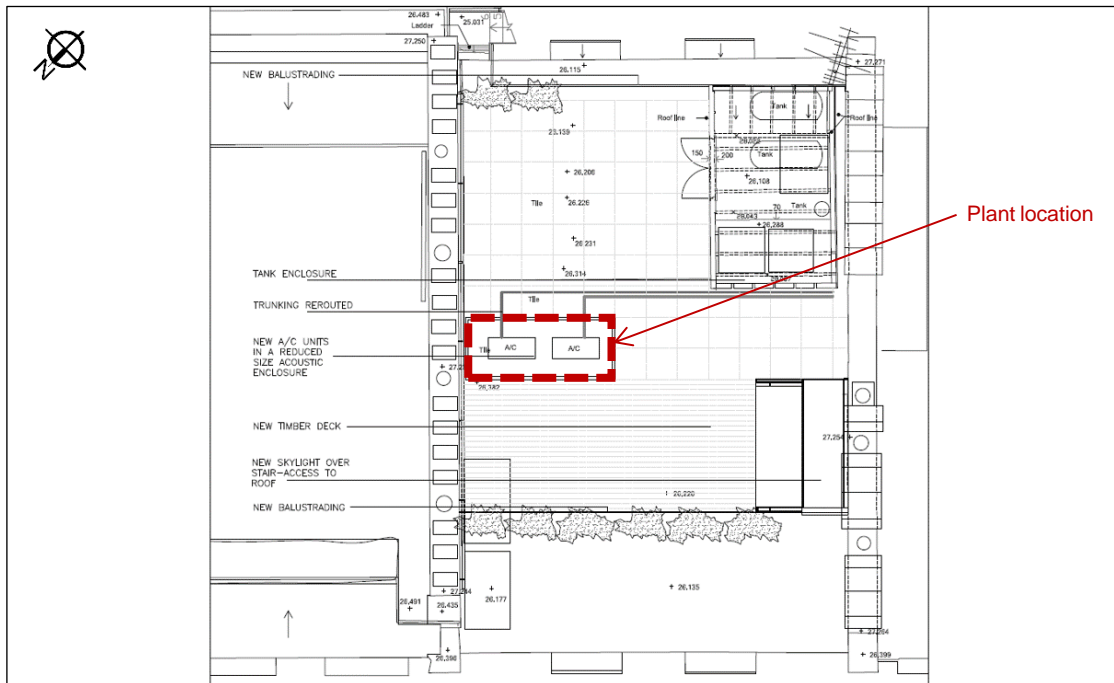
Our acoustic analyses is based on the following drawings by Vernon Architects.

Reference	Title	Date
VA(PL)-150	Roof Plan - Existing	Nov 2023
VA(PL)-151	Roof Plan - Proposed	Nov 2023
VA(PL)-300	Rear elevation - Existing	Nov 2023



Reference	Title	Date
VA(PL)-301	Rear elevation - Proposed	Nov 2023

A proposed plant location is shown below.



Roof plan – proposed (Plan by Vernon Architects)

6.0 Acoustic Standards and Guidelines

6.1 Noise Policy Statement for England

The Noise Policy Statement for England (NPSE) was published in March 2010 (i.e. before the NPPF). The NPSE is the overarching statement of noise policy for England and applies to all forms of noise other than occupational noise, setting out the long term vision of Government noise policy which is to:

“Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.”

“Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *avoid significant adverse impacts on health and quality of life;*
- *mitigate and minimise adverse impacts on health and quality of life; and*



- *where possible, contribute to the improvement of health and quality of life.”*

The Explanatory Note to the NPSE has three concepts for the assessment of noise in this country:

NOEL – No Observed Effect Level

This is the level below which no effect can be detected and below which there is no detectable effect on health and quality of life due to noise.

LOAEL – Lowest Observable Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.

None of these three levels are defined numerically and for the SOAEL the NPSE makes it clear that the noise level is likely to vary depending upon the noise source, the receptor and the time of day/day of the week, etc. The need for more research to investigate what may represent an SOAEL for noise is acknowledged in the NPSE and the NPSE asserts that not stating specific SOAEL levels provides policy flexibility in the period until there is further evidence and guidance.

The NPSE concludes by explaining in a little more detail how the LOAEL and SOAEL relate to the three NPSE noise policy aims listed above. It starts with the aim of avoiding significant adverse effects on health and quality of life, then addresses the situation where the noise impact falls between the LOAEL and the SOAEL when “*all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development.*” The final aim envisages pro-active management of noise to improve health and quality of life, again taking into account the guiding principles of sustainable development which include the need to minimise travel distance between housing and employment uses in an area.

6.2 National Planning Policy Framework (NPPF)

The following paragraphs are from the NPPF (published September 2023):

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.”

Paragraph 191 also references the Noise Policy Statement for England (NPSE). This document does not refer to specific noise levels but instead sets out three aims:

- “Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
- Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
- Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.”

6.3 Planning Practice Guidance on Noise

Planning Practice Guidance (PPG) under the NPPF has been published by the Government as a web based resource at <http://planningguidance.planningportal.gov.uk/blog/guidance/>. This includes specific guidance on Noise although, like the NPPF and NPSE the PPG does not provide any quantitative advice. It seeks to illustrate a range of effect levels in terms of examples of outcomes as set out in the following table:



Perception	Examples of Outcomes	Increasing effect level	Action
Not noticeable	No effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
		Lowest Observed Adverse Effect Level	
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable hard, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

6.4 Local Authority Requirements

The site lies within the jurisdiction of Westminster City Council. We understand that Policy ENV 7 titled “Controlling Noise from Plant, Machinery and Internal Activity” included in Chapter 9 of City of Westminster Unitary Development Plan (UDP) 2007 was superseded by Policy 33 titled “Local environmental impacts” of City of Westminster City Plan 2019-2040 dated April 2021. This policy sets out the principles for managing noise in Westminster under clause C:

“C. Development should prevent adverse effects of noise and vibration and improve the noise environment in compliance with the council’s Noise Thresholds, with particular attention to:

1. minimising noise impacts and preventing noise intrusion to residential developments and sensitive uses;



- 2. *minimising noise from plant machinery and internal activities;*
- 3. *minimising noise from servicing and deliveries; and*
- 4. *protecting the relative tranquillity in and around open spaces.”*

Additionally, it states that “33.5 / *Developments should ensure that any noise and vibration impacts are mitigated. They should be constructed and operated to achieve appropriate noise levels and ensure that any cumulative effects of new noise sources (for example additional plant machinery or music) does not contribute to the existing background noise level. Careful consideration must be given to the design and location of schemes that could impact or be impacted by noise from development that includes: plant machinery, internal activities, amplified noise, transport (including servicing and deliveries) and other noise generating activities.*

33.6 / *Our Noise Strategy (2010-2015) sets out our overarching framework for controlling noise in the city. Our Noise Technical Guidance Note sets out the Noise Thresholds developments are expected to meet and shows where existing tranquil spaces exist.”*

Their advice regarding criteria for atmospheric noise emissions from building service plant is detailed in section 2.4 of the Noise Technical Guidance Note titled “*Minimising noise from plant machinery and internal/external activities*”. It states that “*Development including plant or machinery, or contains activities that cause noise from amplified and unamplified music or human voices both internally and externally should achieve the following standards:*”

Table 3: *Noise criteria for plant machinery and internal/external activities*

Existing External Ambient Noise Level	Tonal or Intermittent Noise/ Noise Source	Sound Emission Level that should not be Exceeded at the nearest Noise Sensitive Receptor³
<i>Exceed WHO Guideline levels. LAeq 55 dB over periods of daytime (07.00-23.00hrs) and LAeq 45 dB at night-time (23.00-07.00hrs).</i>	<i>Does not contain tones or intermittent noise sufficient to attract attention.</i>	<i>10 dB below the minimum external background noise level</i>
	<i>Contains tones or be intermittent noise sufficient to attract attention.</i>	<i>15 dB below the minimum external background noise level.</i>
	<i>Noise emitted from emergency plant or an emergency life supporting generators.⁴</i>	<i>10 dB above the lowest background noise level within a 24-hour period.</i>



Existing External Ambient Noise Level	Tonal or Intermittent Noise/ Noise Source	Sound Emission Level that should not be Exceeded at the nearest Noise Sensitive Receptor³
Does not exceed WHO Guideline levels. LAeq 55 dB over periods of daytime (07.00-23.00hrs) and LAeq 45 dB night-time (23.00-07.00hrs).	Does not contain tones or intermittent noise sufficient to attract attention.	5 dB below the minimum external background noise level.
	Contains tones or be intermittent noise sufficient to attract attention.	10 dB below the minimum external background noise level.
	Noise emitted from emergency plant or an emergency life supporting generators.	10 dB above the lowest background noise level within a 24-hour period.
Below 30 dB LA90,15min at the nearest noise sensitive receptors Both daytime (07.00-23.00hrs) and night-time (23.00-07.00hrs).	Noise contains and/or does not contain tones or intermittent noise	Site specific standards that avoid noise disturbance to nearest noise sensitive receptors may be considered.

³ Measured at the nearest noise sensitive receptors 1m from the most affected façade, relative to the existing external background noise level in this location and including assessment at the quietest time during which the plant operates or when there is internal activity at the development site. The background noise level should be expressed in terms of the lowest LA90,15min during day time or night time (depending on the hours of use being applied for).

⁴ Where emergency plant or a generator is installed testing times will be regulated.

In section 1.3 of the Noise Technical Guidance Note, City of Westminster also defines noise sensitive properties as follows:

“Noise sensitive receptors include (as defined in the City Plan) all residential uses; educational establishments; hospitals; hotels; hostels; concert halls; theatres; law courts; broadcasting and recording studios. Tranquil open spaces are also given specific protection from noise and should be considered noise sensitive. Developers should have regard to the times at which noise would cause disturbance to each of these. For residential properties, night time and evening are the most sensitive times. For other noise sensitive properties, daytime and evening will be the most sensitive times. Hospital activities will be sensitive to noise at all times.”

6.5 BS 4142:2014 + A1:2019

When setting plant noise emission criteria reference is commonly made to BS 4142:2014 “Methods for rating and assessing industrial and commercial sound”.

The procedure contained in BS 4142:2014 provides an assessment of the likely effects of sound on people when comparing the specific noise levels from the source with representative background noise levels. Where the noise contains “a tone, impulse or other characteristic” then various corrections can be added to the specific (source) noise level to obtain the “rating



level”.

BS 4142 states that: *“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 estimation of the impact of the specific noise can be obtained by the difference of the rating noise level and the background noise level and considering the following:*

- *“Typically, the greater this difference, the greater the magnitude of the impact.”*
- *“A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.”*
- *“A difference of around +5dB 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.”*

The determination of the “rating level” and the “background level” are both open to interpretation, depending on the context.

In summary it is not possible to set plant noise emission criteria purely on the basis of BS 4142:2014+A1:2019. It is reasonable to infer from the above, however, that a difference of around -5dB corresponds to “No Observed Effect Level” as defined in the Noise Policy Statement for England. It is also reasonable to infer from the above that if the plant noise rating level does not exceed the existing background noise level outside any noise sensitive residential window then the plant noise is of “low impact”.



6.6 World Health Organisation Guidelines on Community Noise

BS8233:2014 is based upon the current World Health Organisation (WHO) guidance “*Guidelines on Community Noise*”. A summary of the noise guidelines relevant to the proposed scheme is presented in the table below.

Residential Environment	Critical Health Effect(s)	L _{Aeq}	L _{AFmax}	Time Base
Outdoor living area	Serious annoyance, daytime and evening	55	-	07:00-23:00
	Moderate annoyance, daytime and evening	50	-	07:00-23:00
Dwelling, indoors	Speech intelligibility and moderate annoyance, daytime and evening	35	-	07:00-23:00
Inside bedrooms	Sleep disturbance, night-time	30	45	23:00-07:00
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	60	23:00-07:00

These WHO guidelines are based, in almost all cases, on the lower threshold below which the occurrence rates of any particular effect can be assumed to be negligible.

6.7 British Standard BS8233: 2014

British Standard 8233: 2014 “Guidance on sound insulation and noise reduction for buildings” provides guidance for the control of noise in and around buildings.

BS8233:2014 Section 7.7.2 titled “Internal ambient noise levels for dwellings” states:

“In general for steady external noise sources, it is desirable that internal ambient noise levels do not exceed the following guideline values:

Activity	Location	Desirable Internal Ambient Criteria	
		07:00 - 23:00	23:00 - 07:00
Resting	Living Rooms	35 dB L _{Aeq,16hour}	-
Dining	Dining Room/Area	40 dB L _{Aeq,16hour}	-
Sleeping (Daytime Resting)	Bedroom	35 dB L _{Aeq,16hour}	30 dB L _{Aeq,8hour}



7.0 Survey Methodology

The survey was undertaken by Rebeca Sanchez LArch, MSc(Hons), AMIOA.

7.1 Procedure

Fully automated environmental noise monitoring was undertaken from approximately 10:30 hours on Thursday 04 January 2024 to 14:30 hours on Monday 08 January 2024.

During the periods we were on site the wind conditions were calm. The sky was generally patchy cloud. We understand that generally throughout the survey period the weather conditions were dry. These conditions are considered suitable for obtaining representative measurement results.

Measurements were taken continuously of the A-weighted (dBA) L_{90} , L_{eq} and L_{max} sound pressure levels over 15-minute periods.

7.2 Measurement Positions

The noise level measurements were undertaken at 2No. positions as described in the table below.

Position No	Description
1	The sound level meter was located at third floor level overlooking Eaton Place. The microphone was attached to a pole approximately 1 metre above third floor level, on the north-west boundary of the property, near a noise sensitive receptor, and approximately 0.5 metres from the façade.
2	The sound level meter was located at third floor level overlooking Eccleston Mews. The microphone was attached to a pole approximately 1 metre above third floor level, on the south-east boundary of the dwelling, near a noise sensitive receptor, and approximately 0.5 metres from the façade.

The levels measured include local reflections.



The microphone positions are shown in the Site Plan below.



Plan Showing Measurement Positions (Imagery © 2024 Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies, The GeoInformation Group, Map Data © 2024 Google)

7.3 Instrumentation

The instrumentation used during the survey is presented in the Table below:

Description	Manufacturer	Type	Serial Number	Calibration
Position 1 Type 1 Data Logging Sound Level Meter	Svantek	971	80233	Calibration on 02/08/2023
Position 1 Type 1 ½" Condenser Microphone	ACO Pacific	7052E	67983	Calibration on 02/08/2023
Position 1 Preamp	Svantek	SV18	71464	Calibration on 02/08/2023
Position 2 Type 1 Data Logging Sound Level Meter	Svantek	971	74415	Calibration on 02/08/2023
Position 2 Type 1 ½" Condenser Microphone	ACO Pacific	7052E	71839	Calibration on 02/08/2023



Description	Manufacturer	Type	Serial Number	Calibration
Position 2 Preamp	Svantek	SV18	75733	Calibration on 02/08/2023
Type 1 Calibrator	Bruel & Kjaer	4230	1511010	Calibration on 26/07/2023

Each sound level meter, including the extension cable, was calibrated prior to and on completion of the surveys. No significant changes were found to have occurred (no more than 0.1 dB).

Each sound level meter was located in an environmental case with the microphone connected to the sound level meter via an extension cable. Each microphone was fitted with a windshield.

8.0 Results

The results have been plotted on Time History Graphs 31239/TH1 and 31239/TH2 enclosed, presenting the 15-minute A-weighted (dBA) L_{90} and L_{eq} noise levels at each measurement position throughout the duration of the survey.

The lowest L_{A90} (15 min) measurements recorded during the survey are presented in the table below:

Position	Date	Lowest Measured $L_{A90}(15min)$ Background Noise Level (dB re 2×10^{-5} Pa)		
		Daytime (07:00 – 23:00) Hours	Night-Time (23:00 – 07:00) Hours	24 Hours
1	Thursday 04/01/2024	46 dBA ¹	44 dBA	44 dBA
	Friday 05/01/2024	47 dBA	39 dBA	39 dBA
	Saturday 06/01/2024	45 dBA	42 dBA	42 dBA
	Sunday 07/01/2024	44 dBA	40 dBA	40 dBA
	Monday 08/01/2024	51 dBA ¹	-	-
	Lowest	44 dBA	39 dBA	39 dBA
2	Thursday 04/01/2024	46 dBA ¹	41 dBA	41 dBA
	Friday 05/01/2024	45 dBA	39 dBA	39 dBA
	Saturday 06/01/2024	45 dBA	40 dBA	40 dBA
	Sunday 07/01/2024	42 dBA	39 dBA	39 dBA
	Monday 08/01/2024	47 dBA ¹	-	-
	Lowest	42 dBA	39 dBA	39 dBA

¹ Insufficient data for specified time period due to survey start/end time.



The above levels are as measured at the measurement position and include local reflections.

The following table presents the measured $L_{Aeq,T}$ noise levels during the survey:

Position	Date	Measured $L_{Aeq,T}$ Noise Level (dB re 2×10^{-5} Pa)	
		Daytime (07:00 – 23:00) Hours, $L_{Aeq,16hr}$	Night-Time (23:00 – 07:00) Hours, $L_{Aeq,8hr}$
1	Thursday 04/01/2024	62 dBA ¹	56 dBA
	Friday 05/01/2024	61 dBA	54 dBA
	Saturday 06/01/2024	60 dBA	55 dBA
	Sunday 07/01/2024	59 dBA	55 dBA
	Monday 08/01/2024	62 dBA ¹	-
	Time Weighted Log Average	61 dBA	55 dBA
	2	Thursday 04/01/2024	55 dBA ¹
Friday 05/01/2024		55 dBA	49 dBA
Saturday 06/01/2024		53 dBA	48 dBA
Sunday 07/01/2024		51 dBA	53 dBA
Monday 08/01/2024		54 dBA ¹	-
Time Weighted Log Average		54 dBA	50 dBA

¹ Insufficient data for specified time period due to survey start/end time.

9.0 Discussion Of Noise Climate

Due to the nature of the survey, i.e. unattended, it is not possible to accurately describe the dominant noise sources, or specific noise events throughout the entire survey period. However, at the beginning and end of the survey period the noise climate was noted to be dominated by noise from the nearby road network.

10.0 Plant Noise Emission Criteria

The development would incorporate 2No. items of fixed plant, which would have the potential to generate noise.

Atmospheric noise emissions from the proposed building services plant will be designed to comply with the planning conditions imposed by City of Westminster and statutory noise nuisance legislation. The requirements imposed by City of Westminster are stated on Section 6.4 of this report.

On the basis of the above and the results of the environmental noise survey, we propose that



the following plant noise emission criteria be achieved at 1 metre from the nearest worst affected noise sensitive windows.

Position/Location	Plant Noise Emission Criteria (dB re 2×10^{-5} Pa)		
	Daytime (07:00 – 23:00 hours)	Night-time (23:00 – 07:00 hours)	24 hours
1 North-west façade	34 dBA	29 dBA	29 dBA
2 South-east façade	32 dBA	29 dBA	29 dBA

The above criteria are to be achieved with all of the proposed plant operating simultaneously. It should be noted that the above are subject to the final approval of the Local Authority.

11.0 Plant Limiting Noise Levels

We understand the proposed plant comprises 2No. air conditioning units located at roof level. Model and make of the air conditioning units has not been selected yet.

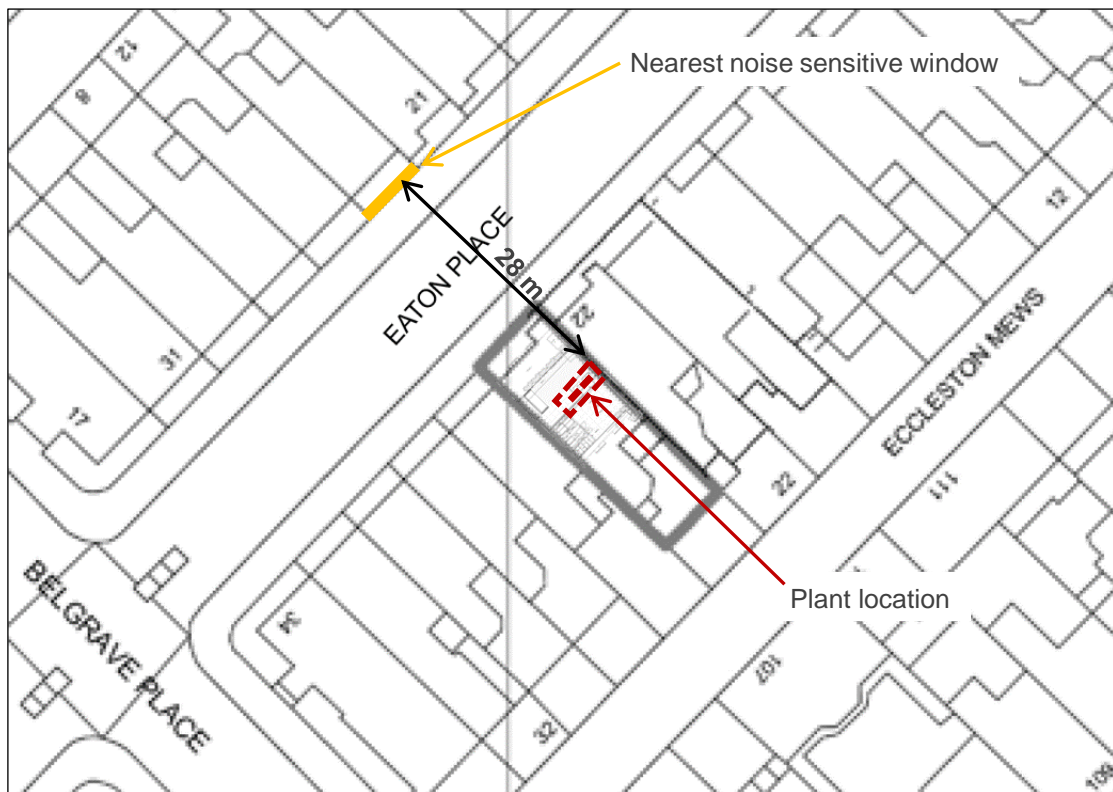
11.1 Location of Plant

We understand that all plant items will be located at roof level of 24 Eaton Place, which has a height of ground floor plus four stories.

We have identified the worst affected noise sensitive residential window near the site, which is located to the north-west, approximately 28 metres away from the plant location, at 4th floor level.



The location of the plant and the nearest noise sensitive window is shown on the plan below.



Plant location at roof level (Plan by Vernon Architects)

11.2 Mitigation Measures

Plant will be selected, located and attenuated such that the planning conditions imposed by Westminster City Council are satisfied. It is likely that the following noise control techniques would be implemented as appropriate:

- selecting suitably quiet 'low noise' plant;
- enclosing noisy plant within acoustic screening/enclosures;
- positioning air intake/discharge louvres away from noise sensitive receptors;
- orientating air intake/discharge louvres away from noise sensitive receptors;
- attenuation of air intake/discharge louvres with duct-mounted attenuators and/or acoustic louvres;
- and anti-vibration mounts to control structure-borne noise and vibration.

With these measures atmospheric noise emissions from the proposed building services plant will comply with the planning conditions imposed by City of Westminster and statutory noise nuisance legislation.



11.3 Plant Limiting Noise Levels

We understand that the proposed units will be operational during daytime/night-time hours.

The following table summarises our predictions of plant limiting atmospheric noise levels based on the lowest background noise levels at the nearest noise sensitive residential window.

Description	Sound Pressure Level (dBA) Night-time (23:00 – 07:00 hours)
Limiting noise level at receptor	29
Distance Correction	+29
Correction for 2No. units	-3
Calculated Plant Noise Emission Limit at 1 m	55 dBA @ 1 m

12.0 Conclusions

An environmental noise survey has been undertaken in order to establish the currently prevailing noise levels.

Plant noise emission criteria and plant limiting noise levels have been recommended based on the results of the noise survey and with reference to the Local Authority's requirements.

Appendix A

The acoustic terms used in this report are defined as follows:

dB Decibel - Used as a measurement of sound level. Decibels are not an absolute unit of measurement but an expression of ratio between two quantities expressed in logarithmic form. The relationships between Decibel levels do not work in the same way that non-logarithmic (linear) numbers work (e.g. 30dB + 30dB = 33dB, not 60dB).

dBA The human ear is more susceptible to mid-frequency noise than the high and low frequencies. The 'A'-weighting scale approximates this response and allows sound levels to be expressed as an overall single figure value in dBA. The _A subscript is applied to an acoustical parameter to indicate the stated noise level is A-weighted

It should be noted that levels in dBA do not have a linear relationship to each other; for similar noises, a change in noise level of 10dBA represents a doubling or halving of subjective loudness. A change of 3dBA is just perceptible.

L_{90,T} L₉₀ is the noise level exceeded for 90% of the period *T* (i.e. the quietest 10% of the measurement) and is often used to describe the background noise level.

L_{eq,T} L_{eq,T} is the equivalent continuous sound pressure level. It is an average of the total sound energy measured over a specified time period, *T*.

L_{max} L_{max} is the maximum sound pressure level recorded over the period stated. L_{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L_{eq} noise level.

Sound Pressure Level (L_p) is the sound pressure relative to a standard reference pressure of 2 x 10⁻⁵ Pa. This level varies for a given source according to a number of factors (including but not limited to: distance from the source; positioning; screening and meteorological effects).

Sound Power Level (SWL or L_w) is the total amount of sound energy inherent in a particular sound source, independent of its environment. It is a logarithmic measure of the sound power in comparison to a specified reference level (usually 10⁻¹² W).

24 Eaton Place, London

Position 1

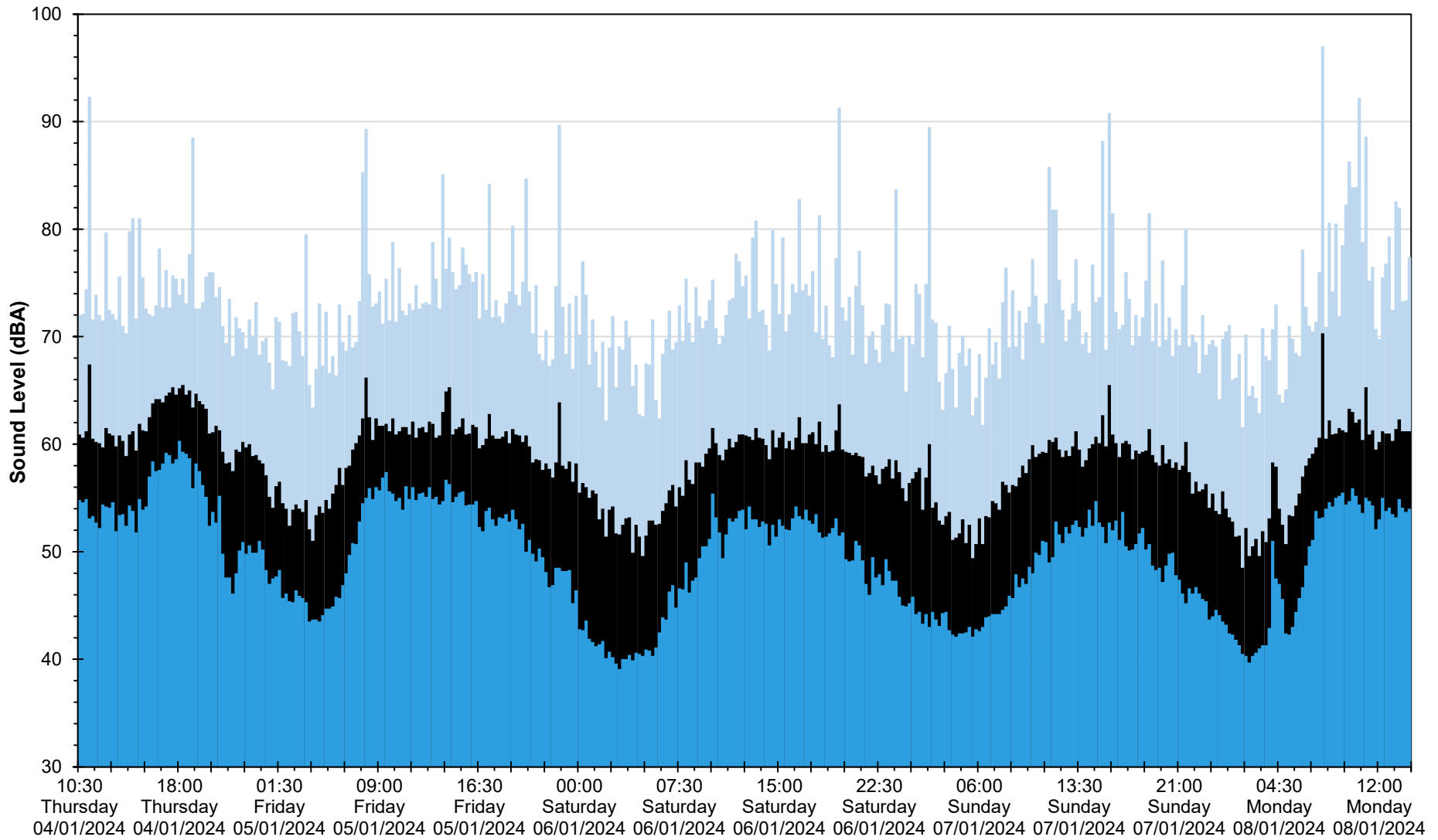
L_{eq} , L_{max} and L_{90} Noise Levels

Thursday 4 January 2024 to Monday 8 January 2024

■ L_{max}

■ L_{eq}

■ L_{90}



Date and Time

31239/TH1

24 Eaton Place, London

Position 2

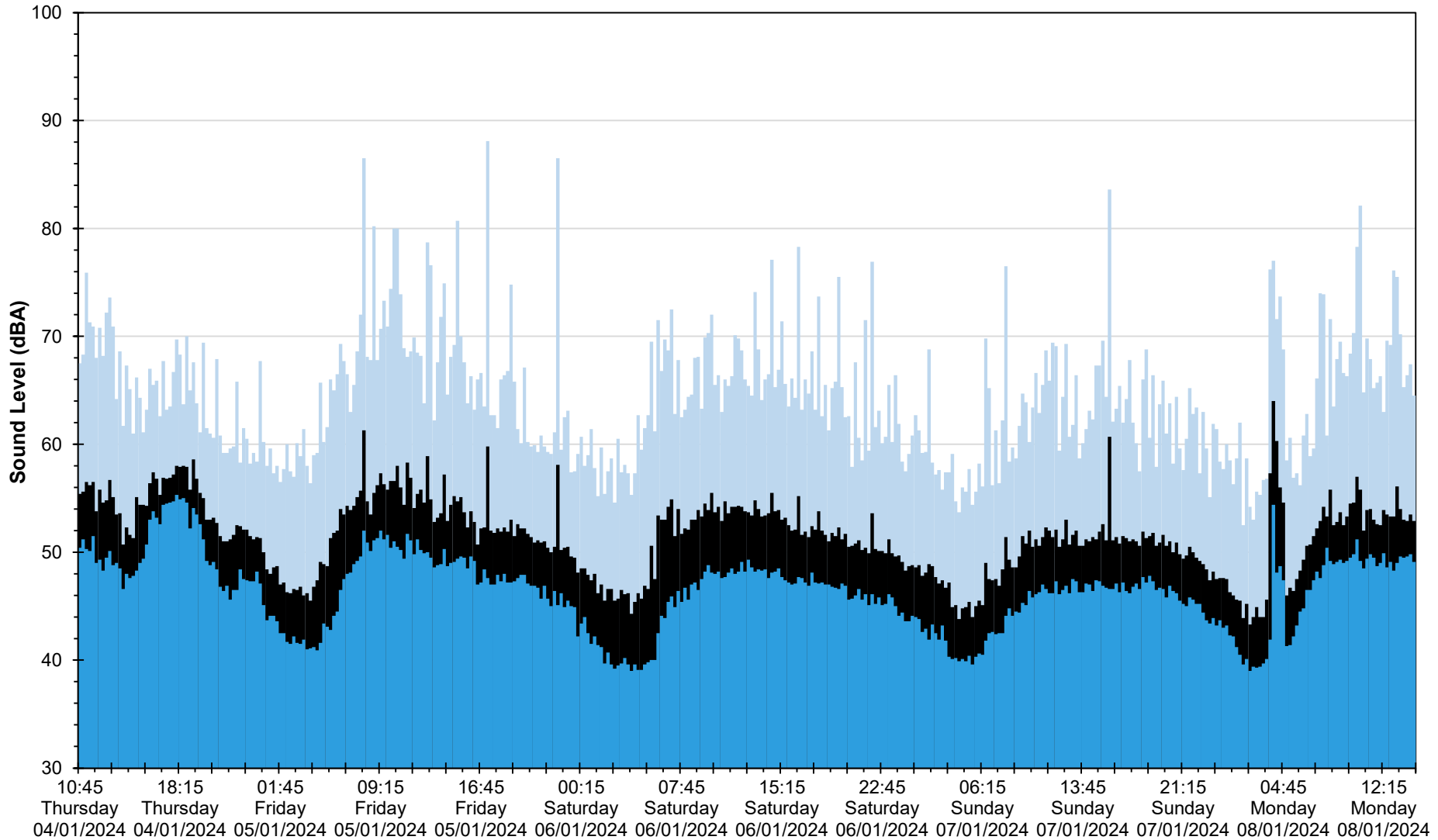
L_{eq} , L_{max} and L_{90} Noise Levels

Thursday 4 January 2024 to Monday 8 January 2024

■ L_{max}

■ L_{eq}

■ L_{90}



Date and Time

31239/TH2