57 ELSWORTHY ROAD
LONDON, NW3 3BS

Plant Noise Impact Assessment

15 April 2025

Client: Quartz Project Services

34 Dover Street
London
W1S 4NG

25116/PNIA

Document Control

Document Information

Information	Description
Reference	QA25116/PNIA

Document History

Version	Issue Date	Changes
0	26 March 2025	-
1	15 April 2025	*Condenser position updated*

Document Approvals

Role	Name	Signature	Date
Preparation	*Nat Cartier* *Assistant Consultant* *BSc, MSc*		15/04/2025
Approval	*Harry Gee* *Consultant* *BEng(Hons)*		15/04/2025
Reviewed	*Andrew Fermer* *Director* *BSc(Hons) MIOA*		15/04/2025

For Information

Please Note
Quantum Acoustics Ltd have prepared this report with generally accepted acoustic consultancy principles, using all reasonable skill, care and diligence. This is as per the terms agreed between Quantum Acoustics Ltd and our Client. Information referred to herein which may have been provided by third parties should not be assumed to have been checked and verified by Quantum Acoustics Ltd, unless specifically confirmed to the contrary. Both confidential and commercially sensitive information is contained within this document, and as such it should not be disclosed to third parties. Any third party choosing to rely on this document does so at their own risk.

Contents

1.0 INTRODUCTION

Site Details

1.1 57 Elsworthy Road comprises a residential dwelling. The building is to be refurbished. This will involve installing new items of building services plant.

1.2 Quantum Acoustics have been appointed by Quartz Project Services to undertake an environmental noise survey to establish appropriate plant noise emission criteria and subsequently assess the acceptability of atmospheric noise emission from the proposed plant.

1.3 This report presents our methodology and findings.

2.0 SITE DESCRIPTION

Location

2.1. The site is located at 57 Elsworthy Road, London, NW3 3BS outlined in red.

Site Plan (Google Imagery 2020)

2.2. The surrounding area is residential.

2.3. The site is located within the London Borough of Camden.

3.0 ENVIRONMENTAL NOISE SURVEY METHODOLOGY

Site Description

3.1 An automated environmental noise survey was undertaken from approximately 13:30 hours on 18 March 2025 to approximately 15:00 hours on 20 March 2025.

3.2 The atmospheric conditions were deemed suitable for the measurement of environmental noise. Where conditions have been found to affect the measurement survey, this is reported.

Measurement Procedure

3.3 Noise monitoring equipment was located at the following positions:

Position	Description
Position A	Secured to scaffolding at a height of approximately 3m above ground level above the garage
Position B	Secured to scaffolding at a height of 3.5m above ground, rear of garage

3.4 The noise monitoring positions are indicated on the following plan.

Plan Showing Measurement Positions (Google Imagery 2020)

3.5 The sound level meters were set up to continuously measure the A-weighted (dBA) L_{90}, L_{eq} and L_{max} sound pressure levels over sampling periods of 15 minutes duration.

Equipment

Details of the equipment used for the survey are summarized in the following table:

Location ID	Description	Manufacturer	Type	Serial Number
A	Type 1 Sound Level Meter	Svantek	971A	124647
B	Type 1 Sound Level Meter	Convergence	Nsrt_mk4	CHveJHWa0de1ghPCT6h5PD
-	Acoustic Calibrator	Svantek	SV 33B	99005

3.6 Calibration certificates for the equipment, traceable to national standards, used in this survey are available upon request.

3.7 Calibration checks were carried out prior to and on completion of the survey, with no significant calibration drift observed.

4.0 SURVEY FINDINGS

4.1 The following section uses the following acoustic terms:

A-weighted noise levels are frequency-weighted in a way that approximates the frequency response of the human ear and allows sound levels to be expressed as a single figure value. The A-weighted level is therefore a measure of the subjective loudness, rather than physical amplitude.

L_{90} is the noise levels that is exceeded for 90% of the measurement period. It reflects the quiet periods during that time and is often referred to as the "background noise level". It is often used as a basis for setting noise emission criteria.

L_{eq} is the level of a notional continuous sound that would deliver the same sound energy as the actual fluctuating sound over the measurement period. This may be thought of as the "average" level during the measurement period.

L_{max} is the maximum noise level during the measurement period.

Noise Survey Results

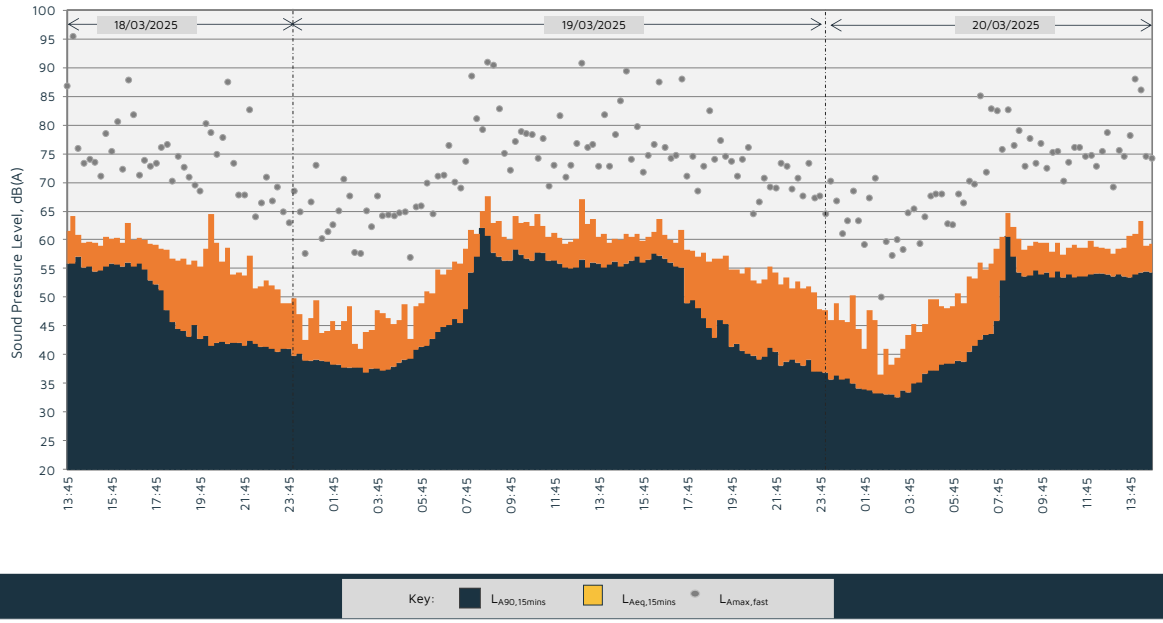
4.2 The noise survey results are presented in the graphs below, showing the A-weighted L_{90}, L_{eq} and L_{max} noise levels measured during each consecutive 15-minute period of the survey.

Graph A

Project: 25116

Measurement Location: Position A

Survey Date: 18 March - 20 March 2025

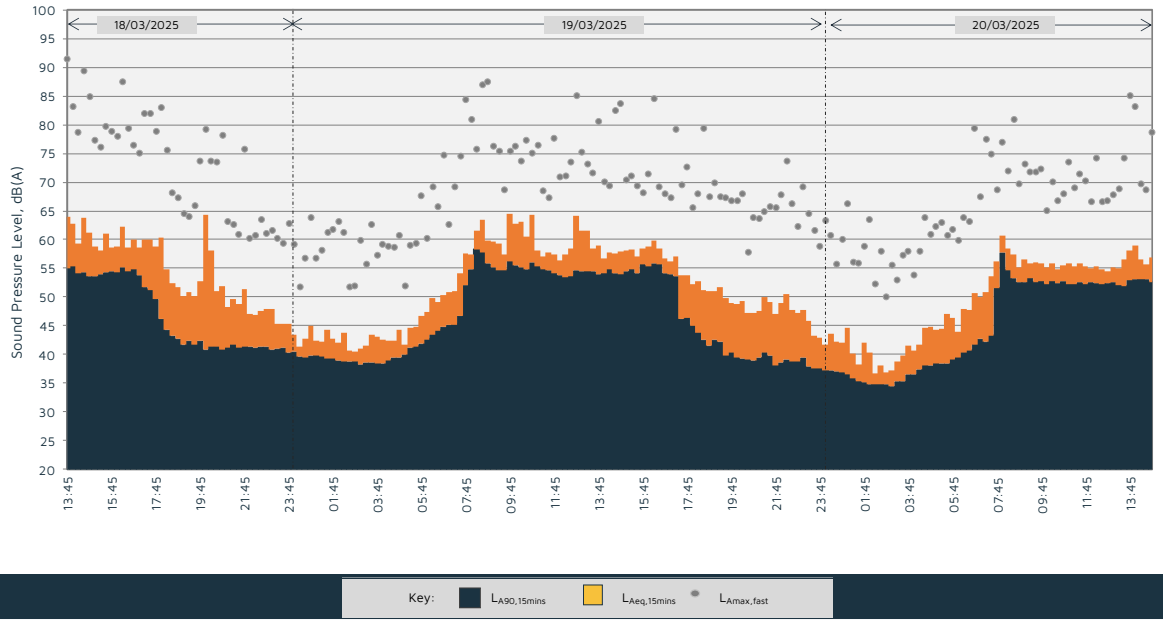


Graph B

Project: 25116

Measurement Location: Position B

Survey Date: 18 March - 20 March 2025



4.3 The measured daytime $L_{Aeq\ (16\ hour)}$ and night-time $L_{Aeq\ (8\ hour)}$ noise levels are presented in the table below:

L_{eq} Noise Levels		
Position	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Position A	60	49
Position B	58	45

4.4 The measured modal background (L_{90}) noise levels are presented in the table below:

Position	Modal Background L90 dB re2x10-5Pa	
	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Position A	54	38
Position B	52	39

4.5 The measured minimum background (L_{90}) noise levels are presented in the table below:

Minimum Background L90 Noise Levels		
Position	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Position A	43	35
Position B	42	37

Noise Climate

4.6 During the periods we were present on site, the subjectively dominant noise source was traffic noise from Elsworthy Road, and some distant traffic noise.

5.0 RELEVANT PLANNING POLICIES AND NOISE ASSESSMENT GUIDANCE

Noise Policy Statement for England

5.1 The Noise Policy Statement for England (NPSE) was published in March 2010. The NPSE is the primary statement of noise policy for England and applies to all forms of noise other than occupational noise. The NPSE sets 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."*

5.2 The Explanatory Note to the NPSE introduces guidance to assist in defining the adverse impacts:

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.

5.3 These categories are further discussed in the Planning Practice Guidance section below.

5.4 The NPSE acknowledges that it is not possible to have a single objective noise level based measure that is mandatory and applicable to all sources of noise in all situations.

Planning Practise Guidance

5.8 The government's Planning Practice Guidance is a web based resource and provide advice on various issues, including noise (https://www.gov.uk/guidance/noise--2). The advice (March 2014, latest update July 2019) states in the context of considering when noise is relevant to planning, "noise needs to be considered when new development may create additional noise, or would be sensitive to the prevailing acoustic environment (including any anticipated changes to that environment from activities that are permitted but not yet commenced)."

5.9 The Planning Practice Guidance pages also include more explanation of the effect level categories noted above, providing an explanatory Noise Exposure Hierarchy Table, which explores how actions such as a requirement for noise mitigation, or prevention of a development, might be assessed with respect to whether noise levels are considered above the category thresholds.

Response	Examples of outcomes	Increasing effect level	Action
No Observed Effect Level			
Not present	No effect	No Observed Effect	No specific measures required
Present 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			
Present 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			
Present 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
Present 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

National Planning Policy Framework

5.10 The following paragraph is from the National Planning Policy Framework (NPPF). The NPPF was revised in December 2024.

> *'198. 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'*

London Plan 2021

5.11 The London Plan 2021 Policy D14 advises the following:

> *In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:*
>
> *1) avoiding significant adverse noise impacts on health and quality of life*
>
> *2) reflecting the Agent of Change principle as set out in Policy D13 Agent of Change*
>
> *3) mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on existing noise-generating uses*
>
> *4) improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity*
>
> *5) separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation*
>
> *6) where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable*

development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles

7) promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver.

Local Authority Requirements

5.12 The site lies within the jurisdiction of London Borough of Camden.

5.13 *Appendix 3: Noise thresholds* of the Camden Local Plan states the following:

"A relevant standard or guidance document should be referenced when determining values for LOAEL and SOAEL for non-anonymous noise. Where appropriate and within the scope of the document it is expected that British Standard 4142:2014 'Methods for rating and assessing industrial and Camden Local Plan | Appendices 347 commercial sound' (BS 4142) will be used. For such cases a 'Rating Level' of 10 dB below background (15dB if tonal components are present) should be considered as the design criterion)."

Table C: Noise levels applicable to proposed industrial and commercial developments (including plant and machinery)

Existing Noise sensitive receptor	Assessment Location	Design Period	LOAEL (Green)	LOAEL to SOAEL (Amber)	SOAL (Red)
Dwellings**	Garden used for main amenity (free field) and Outside living or dining or bedroom window (façade)	Day	'Rating level' 10dB* below background	'Rating level' between 9dB below and 5dB above background	'Rating level' greater than 5dB above background
Dwellings**	Outside bedroom window (façade)	Night	'Rating level' 10dB* below background and no events exceeding 57dBL_{Amax}	'Rating level' between 9dB below and 5dB above background or noise events between 57dB and 88dB L_{Amax}	'Rating level' greater than 5dB above background and/or events exceeding 88dBL_{Amax}

BS 4142:2014

5.14 BS 4142:2014+A1:2019 "Methods for Rating and Assessing Industrial and Commercial Sound" addresses the likelihood of adverse impact from noise generated by plant equipment. A noise rating is determined and compared with the existing local background sound level, and several cumulative acoustic feature corrections to the noise rating are available to apply where appropriate. For example, if the noise includes a distinguishable tone, impulse, intermittency or other readily distinguishable sound characteristic.

5.15 BS 4142:2014 seeks to determine a "representative" background sound level, stating that "...the objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods".

5.16 The assessment of the impact depends upon the margin by which the rating level of the specific sound source exceeds the background sound level but also promotes a consideration of the context in which the sound occurs when making an assessment. BS 4142:2014 states that an initial estimate of the impact of the specific sound is made by subtracting the measured background sound level from the rating level, while considering the following points:

a) Typically, the greater this difference, the greater the magnitude of the impact.

b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

d) 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.

5.17 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.

6.0 PLANT NOISE EMISSION CRITERIA

6.1 To comply the aforementioned guidance including the Local Authority's requirements, and on the basis of the noise survey results, the following environmental plant noise emission criteria are proposed to be achieved at 1 metre from the noise sensitive residential windows:

Plant Noise Emission Limits L_{eq} dB re2x10^{-5}Pa		
Receptor	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
R1	44	28
R2	44	28

6.2 The above criteria apply to cumulative noise level of all plant operating simultaneously, under normal operating conditions.

6.3 If plant contains tonal characteristics, the above criteria should be reduced by 5dBA.

7.0 PLANT NOISE IMPACT ASSESSMENT

Nearest Noise Sensitive Receptors

7.1 The potentially most affected noise-sensitive receptors to the proposed plant are residential windows of 55 Elsworthy Road (R1) to the east of site and 66 Elsworthy Road (R2) to the north of the site.

7.2 The 55 Elsworthy Road receptor is approximately 8 metres from the proposed plant with significant screening provided by the existing building structure.

7.3 The 66 Elsworthy Road receptor is approximately 25m from the proposed plant.

7.4 The identified noise sensitive receptors are indicated below:

Nearest Noise Sensitive Receptor (Google Imagery 2020)

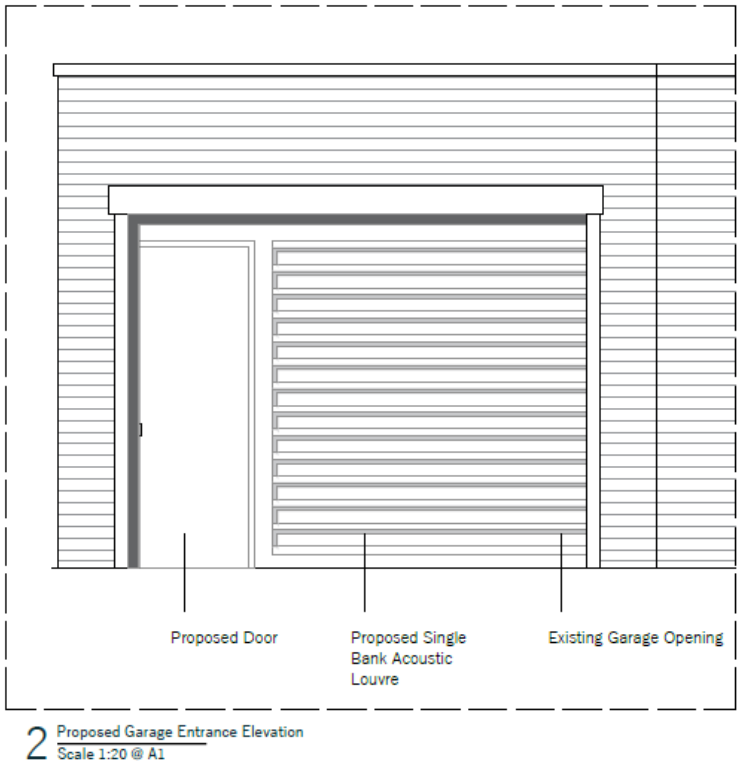
Proposed Plant Selections

7.5 We understand the proposed plant comprises:

Manufacturer	Model
DAIKIN	RXYSCQ6TMV1B

7.6 The proposed condenser location is within the garage behind the louvred screen shown below.

Front elevation



Front garage elevation showing louvre

7.7 According to the manufacturer's noise data, the octave band sound pressure levels are shown below:

Plant	Sound Pressure Level @ 1m at Octave Band Centre Frequencies, dB								Sound Pressure Level (Lp) (dBA) @1m
	63	125	250	500	1k	2k	4k	8k	
DAIKIN RXYSCQ6TMV1B	58	56	53	51	47	42	36	29	52

7.8 Below are the estimated sound pressure levels at each sensitive noise receptor:

Sound Pressure Level at Noise Sensitive Receptor		
Item	Receptor	
	R1	R2
Plant Noise @ 1m	52 dB	52 dB
Propagation Loss	-14 dB	-25 dB
Screening Loss	-12 dB	0 dB
Estimated Level at receptor	26 dB	27 dB
Criterion	28 dB	28 dB
Compliance	YES	YES

7.9 Please note these calculations assume reverberant levels in the garage plantroom are controlled through internal absorbent panelling. If this is not currently the case, provision should be made for the installation of such treatment to the space as part of installation of the assessed plant.

8.0 CONCLUSIONS

8.1 Quantum Acoustics have undertaken an automated environmental noise survey to establish the existing noise levels.

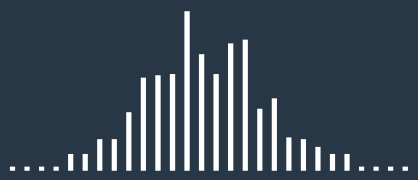
8.2 Environmental plant noise emission criteria have been proposed based on the noise survey results and in accordance with the relevant guidance including the Local Authority's requirements.

8.3 Environmental noise emissions from the proposed plant have been assessed to noise sensitive receptors. No further attenuation is required.

8.4 Our calculations indicate that environmental plant noise emissions should comply with the proposed criteria set by the London Borough of Camden.

8.5 Compliance with the proposed plant noise emission criteria will ensure the proposed plant has no significant adverse noise impact on nearby noise sensitive receptors.

8.6 With regard to atmospheric plant noise emissions, we therefore see no reason why planning permission cannot be granted.



www.quantumacoustics.co.uk

+44 (0)203 376 7000
hello@quantumacoustics.co.uk
London Office: 151 Wardour Street, London, WC1F 8WE
Southern Office: Ash House, Tanshire Park, Elstead Surrey, GU8 6LB