

# 40 KING HENRY'S ROAD LONDON NW3 3RP

## Environmental Noise Survey & Plant Assessment

25 February 2025

Client: Stacy Hutsell

40 King Henry's Road  
London  
NW33RP

25057/ENS-PNIA

## Document Control


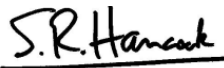
### Document Information

Information	Description
Reference	QA25057/ENS-PNIA

### Document History

Version	Issue Date	Changes
Rev 0	27 February 2025	

### Document Approvals

Role	Name	Signature	Date
Preparation	Nat Cartier Assistant Consultant BSc, MSc		27 February 2025
Approval	Eur Ing Simon Hancock Director BEng(Hons), CEng, FIOA, MIMechE, MCIBSE		27 February 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.....	4
2.0	SITE DESCRIPTION .....	5
3.0	ENVIRONMENTAL NOISE SURVEY METHODOLOGY.....	6
4.0	SURVEY FINDINGS .....	8
5.0	INTERNAL NOISE LEVELS & RELEVANT GUIDANCE .....	12
6.0	PLANT NOISE IMPACT ASSESSMENT .....	15
7.0	CONCLUSIONS.....	21

## 1.0 INTRODUCTION

40 King Henry's Road is to be redeveloped. This will involve installing new items of building services plant externally.

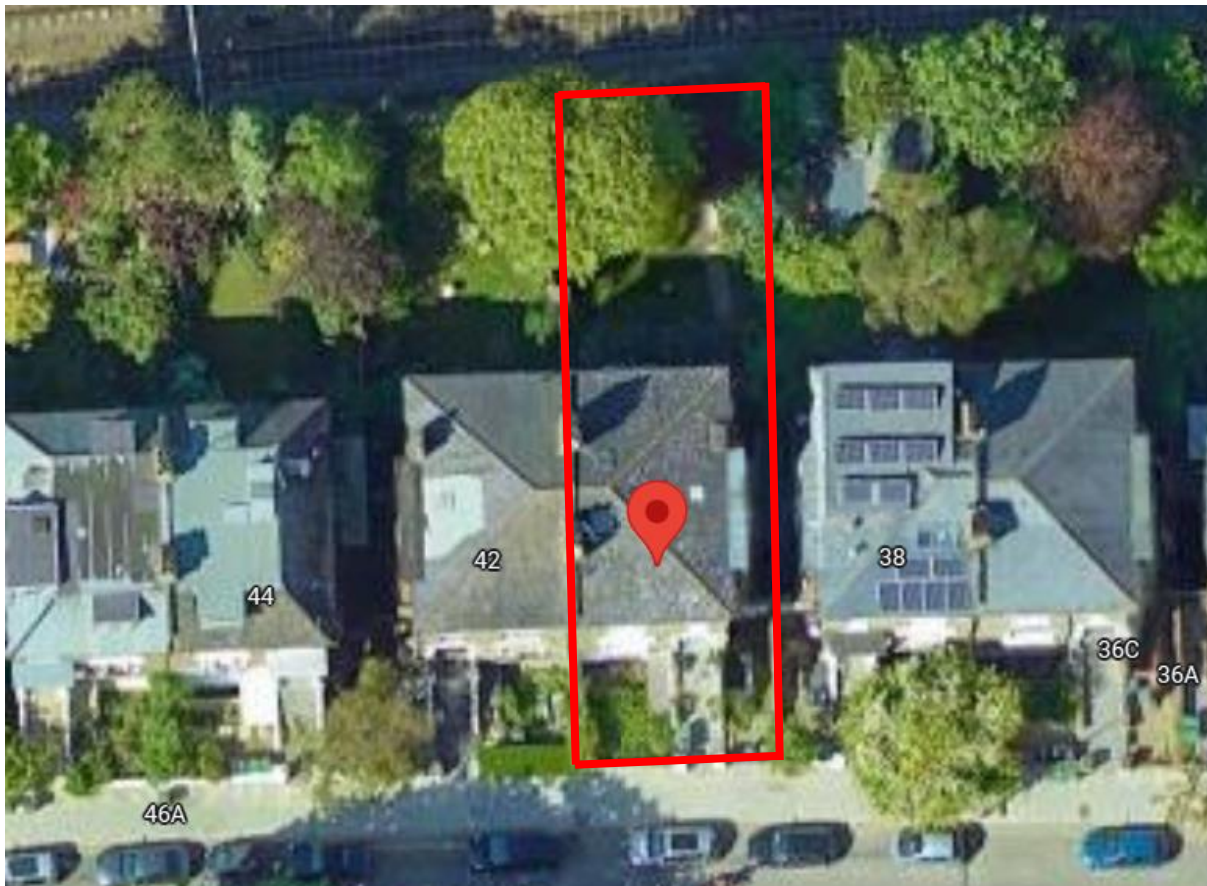
Quantum Acoustics have been appointed to undertake an environmental noise survey to establish appropriate plant noise emission criteria and assess the acceptability of atmospheric noise emission from the proposed plant.

We have also been appointed to compare the internal ambient noise levels in bedrooms with the windows open, with relevant guidance, to assess if windows are likely to be kept closed to achieve acceptable noise levels.

This report presents our methodology and findings.

## 2.0 SITE DESCRIPTION

40 King Henry's Road is located at NW3 3RP, London. The location is shown below, outlined in red:



Site Plan (Google Imagery 2025, The GeoInformation Group)

The surrounding area is residential.

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

## 3.0 ENVIRONMENTAL NOISE SURVEY METHODOLOGY

### 3.1 Site Description

An automated environmental noise survey was undertaken from approximately 10:45 hours on 13 February to approximately 13:00 hours on 14 February 2025.

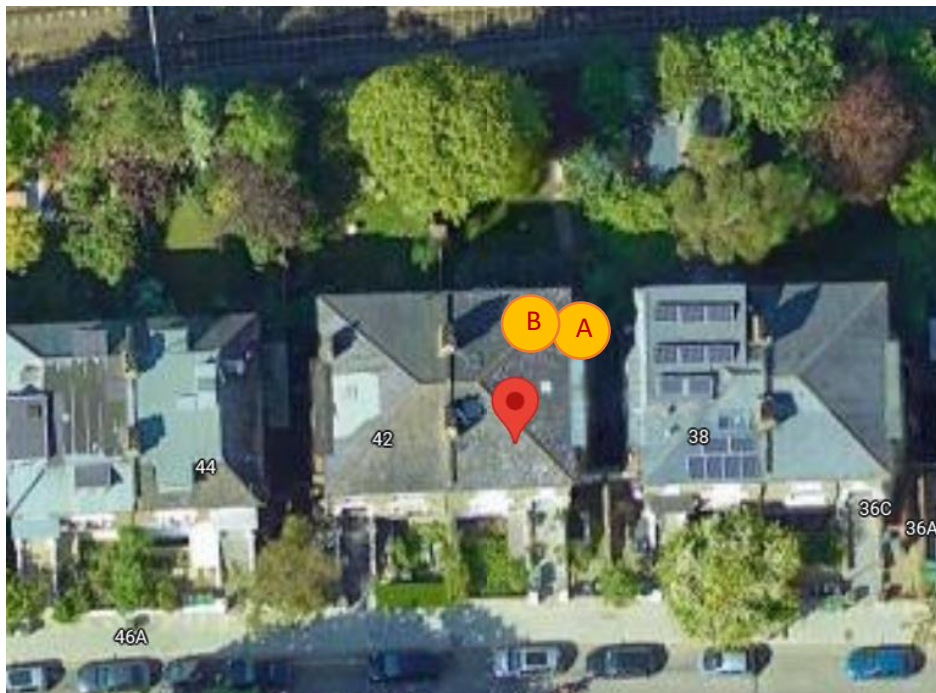
The atmospheric conditions were deemed suitable for the measurement of environmental noise.

### 3.2 Measurement Procedure

Noise monitoring equipment was located at the following positions:

Position	Description
Position A	Outside, off the handrail on the East side of the building, approximately 3 meters above ground level
Position B	Inside a North facing bedroom on the 3 <sup>rd</sup> floor, approximately 1.5 meters above floor level.

The noise monitoring positions are indicated on the following plan.



Plan Showing Measurement Positions (Google Imagery 2025, The GeoInformation Group)



The sound level meters were set up to continuously measure the A-weighted (dBA) L90, Leq and Lmax sound pressure levels over sampling periods of 15 minutes duration.

### 3.3 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	Convergence	nsrt_mk4	ANB8Jf2wWXe3oDFCYOJ5HD
B	Type 1 Sound Level Meter	Svantek	971A	124647
-	Acoustic Calibrator	Svantek	SV 33B	99005

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

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

## 4.0 SURVEY FINDINGS

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.

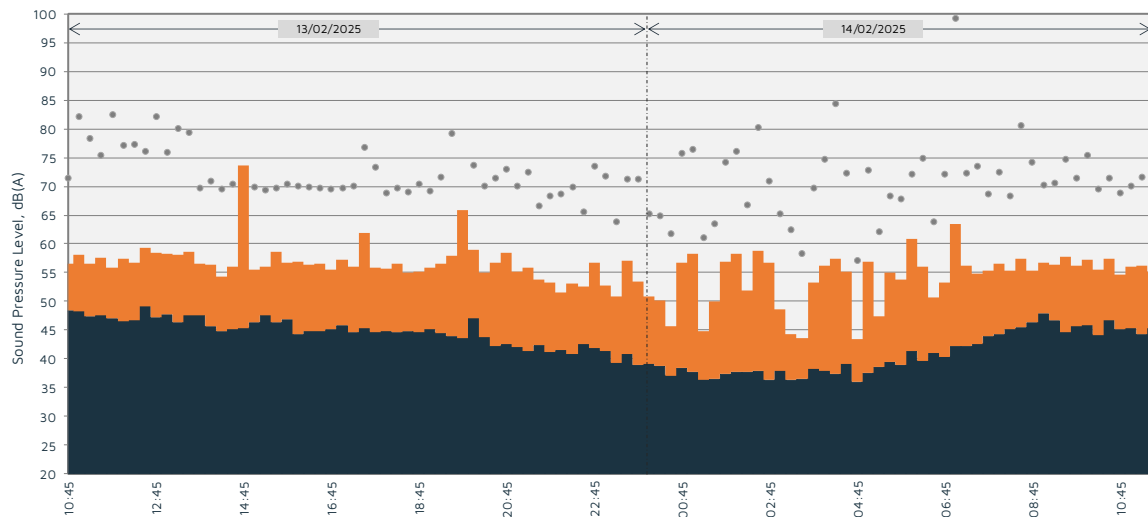
### 4.1 Noise Survey Results

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

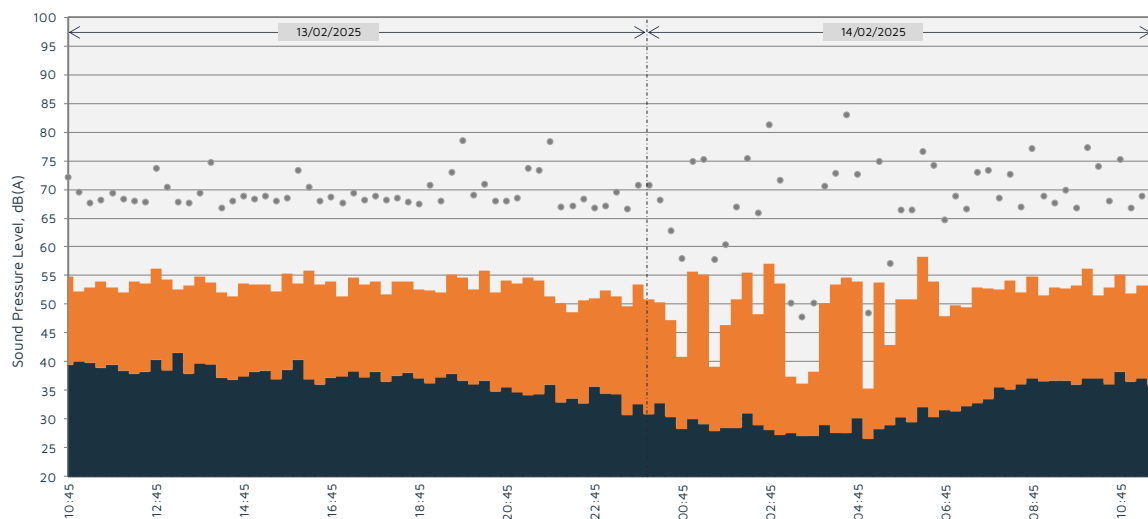
Project: 25057  
Measurement Location: A  
Survey Date: 13-14 February 2025



Key:  $L_{A90,15mins}$   $L_{Aeq,15mins}$   $L_{Amax,fast}$

## Graph B

Project: 25057  
Measurement Location: B  
Survey Date: 13-14 February 2025



Key:  $L_{A90,15mins}$   $L_{Aeq,15mins}$   $L_{Amax,fast}$

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

Leq Noise Levels		
Position	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Position A	60	55
Position B	53	52

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

Modal Background $L_{90}$ dB re2x10 <sup>-5</sup> Pa		
Position	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Position A	45	38
Position B	37	28

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

Minimum Background $L_{90}$ Noise Levels		
Position	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Position A	41	36
Position B	33	27

The typical  $L_{AFmax, fast}$  levels are presented in the table below:

$L_{AFmax, F}$ (90 <sup>th</sup> Percentile)		
Position	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Position B	73	75

## 4.2 Noise Climate

During the periods we were present on site, the subjectively dominant noise sources were passing trains and also distant road traffic noise.

At Position B (inside the bedroom) we measured a total 29 occurrences where the  $L_{Amax}$  over a fifteen-minute period exceeded 55dB during the night (23:00 to 07:00 hours).

## 5.0 INTERNAL NOISE LEVELS & RELEVANT GUIDANCE

### 5.1 Relevant Guidance

#### BS 8233: 2014 Guidance on sound insulation and noise reduction for buildings

British Standard 8233: 2014 *Guidance on sound insulation and noise reduction for buildings* advises that that internal ambient noise levels should not exceed the values in the following table:

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living Room	35 dB LAeq,16hour	-
Dining	Dining room/area	40 dB LAeq,16hour	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq,16hour	30 dB LAeq,8hour

*Note: Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.*

A note accompanying the above Table states:

*"Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or LAmax,F depending on the character and number of events per night. Sporadic noise events could require separate values."*

Despite identifying that maximum values 'may' be set, guidance values for differing types of noise/frequency of events is not given. It can, however, be noted that the recommendations of BS8233 are aligned with guidance set out in the World Health Organisation's "Guidelines for Community Noise", which is discussed later.

BS8233: 2014 also states:

*"Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5dB and reasonable internal conditions still achieved."*

## “Guidelines for Community Noise” (World Health Organisation, 1999)

The criteria outlined in this document provide a summary of research regarding the effects of noise on the community. Section 2 of the Guidelines presents a general discussion regarding the types of noise affecting communities and their measurement. The guidelines promote the use of the LAeq,T noise index. However, where there are distinct events to the noise, such as with aircraft or railway noise, the guidelines recommend that measures of the individual events should be obtained (using, for example, LAm<sub>ax</sub> or LAE), in addition to LAeq,T measurements.

The guidelines identify three critical effects of noise on dwellings – speech interference, annoyance and sleep disturbance. With regard to ‘sleep disturbance’, Section 3.4 of the guidelines states:

*“If negative effects on sleep are to be avoided the equivalent sound pressure level should not exceed 30dB(A) indoors for continuous noise. If the noise is not continuous, sleep disturbance correlates best with LAm<sub>ax</sub> and effects have been observed at 45dB or less. This is particularly true if the background noise level is low. Noise events exceeding 45dB(A) should therefore be limited if possible. For sensitive people an even lower limit would be preferred. It should be noted that it should be possible to sleep with a bedroom window slightly open (a reduction of outside to inside of 15dB). To prevent sleep disturbance, one should thus consider the equivalent sound pressure level and the number and level of sound events. Mitigation targeted to the first part of the night is believed to be effective for the ability to fall asleep”.*

In section 4.3.1, the above guidelines are presented in terms of external noise levels incident on buildings:

*“At night, sound pressure levels at the outside facades of the living spaces should not exceed 45dB LAeq and 60dB LAm<sub>ax</sub>, so that people may sleep with windows open”.*

With regard to the frequency of noise events, the WHO guidelines imply that indicated values should not be exceeded more than 10-15 time per night.

## “Night Noise Guidelines for Europe” (World Health Organisation, 2009)

This guidance presents the findings of further research regarding the potential significance of night-time noise impacts. The guidance provides the following advice relating to potential night-time noise impacts:

*“Below the level of 30 dB L<sub>night,outside</sub>, no effects on sleep are observed except for a slight increase in the frequency of body movements during sleep due to night noise. There is no sufficient evidence that the biological effects observed at the level below 40 dB L<sub>night,outside</sub> are harmful to health. However, adverse health effects are observed at the level above 40 dB L<sub>night,outside</sub>, such as self-reported sleep disturbance, environmental insomnia, and increased use of somnifacient drugs and sedatives.*

*Therefore, 40 dB L<sub>n</sub>ight, outside is equivalent to the lowest observed adverse effect level (LOAEL) for night noise. Above 55 dB the cardiovascular effects become the major public health concern, which are likely to be less dependent on the nature of the noise....."*

## Approved Document O

Approved documents are approved by the Secretary of State and give practical guidance on common building situations about how to meet the requirements of the Building Regulations 2010 for England. Approved Document O is related to overheating.

Page 12 of Approved Document O states:

*"3.2 In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).*

*3.3 Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.*

- a. 40dB L<sub>Aeq,T'</sub> averaged over 8 hours (between 11pm and 7am).*
- b. 55dB L<sub>AFmax'</sub> more than 10 times a night (between 11pm and 7am).*

*3.4 Where in-situ noise measurements are used as evidence that these limits are not exceeded, measurements should be taken in accordance with the Association of Noise Consultants' Measurement of Sound Levels in Buildings with the overheating mitigation strategy in use.*

Approved Document O is not mandatory for this project. Nevertheless, the above guidance is relevant when assessing if windows are likely to be kept closed to achieve acceptable noise levels.

## 5.2 Discussion

The noise survey results presented in Section 4 significantly exceed the guidance presented in Section 5.1 by substantial margins of circa 10dBA. It can thus be concluded that an overheating mitigation strategy which takes account of the likelihood that windows will be closed during sleeping hours would be appropriate.



## 6.0 PLANT NOISE IMPACT ASSESSMENT

### 6.1 Relevant Planning Policies and Noise Assessment Guidance

#### Noise Policy Statement for England

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."

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.

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

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

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)."

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 waking 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

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

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

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

Appendix 3 of the Camden Local Plan (2017) 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)."*

### BS 4142:2014

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.

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".

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.

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.

## 6.2 Proposed Plant Noise Emission Criteria

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 window}:

Plant Noise Emission Limits $L_{eq}$ dB re $2 \times 10^{-5}$ Pa		
Receptor	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
R1	35	28

As the above are very low (due to the low measured background) there may an argument for relaxation if the resulting plant attenuation requirements are unreasonably onerous.

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

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

## 6.3 Proposed Plant Location

The plant is proposed to be located on the Eastern external wall, opposite the plant of 38 King Henry's Road.

## 6.4 Nearest Noise Sensitive Receptor

The potentially most affected noise-sensitive receptor to the proposed plant is a residential window at 38 King Henry's Road, approximately 5metres from the proposed plant location. The identified noise sensitive receptors are indicated by the yellow circle below:



*Nearest Noise Sensitive Receptor (Google Imagery 2025, The GeoInformation Group)*

## 6.5 Proposed Plant Noise Impact

At the time of writing, the plant selections have not yet been made. When selections are made, we can assess their compliance with the above criteria. In the meantime, we advise we foresee no reason why the criteria proposed in this report cannot be achieved. Compliance with the proposed plant noise emission criteria will ensure the proposed plant has no significant adverse noise impact on nearby noise sensitive receptors.

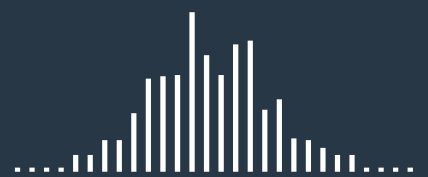


## 7.0 CONCLUSIONS

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

The internal ambient noise levels with the windows open significantly exceed the relevant guidance. Therefore an overheating mitigation strategy which takes account of the likelihood that windows will be closed during sleeping hours would be appropriate.

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. Compliance with the proposed plant noise emission criteria will ensure the proposed plant has no significant adverse noise impact on nearby noise sensitive receptors. With regard to atmospheric plant noise emissions, we therefore see no reason why planning permission cannot be granted.



[www.quantumacoustics.co.uk](http://www.quantumacoustics.co.uk)

+44 (0)203 376 7000

[hello@quantumacoustics.co.uk](mailto:hello@quantumacoustics.co.uk)

London Office: 151 Wardour Street, London, WC1F 8WE

Southern Office: Elm House, Tanshire Park, Elstead Surrey, GU8 6LB