53-54 GROSVENOR STREET

W1K 3HU

Environmental Noise Survey & Plant Noise Assessment Report

27 September 2023

Client:

East India Produce Company
4th Floor East
53-54 Grosvenor Street
London
W1K 3HU

QA23284/ENS

Document Control

Document Information

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Document Approvals

Role	Name	Signature	Date
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Approval	**John Gibbs** Director MIOA		27/09/2023

For Information

Please Note
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Contents

1.0 INTRODUCTION

Quantum Acoustics Ltd have been appointed to undertake an environmental background noise survey and plant noise assessment at 53-54 Grosvenor Street located in the London district of Mayfair.

The application seeks permissions for the installation of three new air conditioning units on the roof of the building.

2.0 SITE DESCRIPTION

The site is located is outlined in red:

Figure 1. Site Plan (Google Imagery 2022, The GeoInformation Group)

The site is in an area which is mainly comprised of commercial and residential properties. It is located within the jurisdiction of the City of Westminster.

3.0 ENVIRONMENTAL NOISE SURVEY

An automated environmental noise survey was undertaken from approximately 13:45 hours on Thursday 14th August 2023 to approximately 10:15 hours on Friday 18th August 2023.

Weather conditions were mainly dry and with light winds. The conditions were therefore deemed generally suitable for the measurement of environmental noise.

3.1 Measurement Procedure

Two sound level meters were used for the survey which were positioned towards the northern and southern boundaries of the site respectively. Both sound level meters were set up approximately 1m above roof level.

Figure 2. Measurement Location Plan (Google Imagery 2022, The Geoinformation Group)

3.2 Equipment

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

Description	Manufacturer	Type	Serial Number
Type 1 Sound Level Meter	Svantek	971A	124167
Type 1 Sound Level Meter	Svantek	971A	124647

The sound level meters were placed inside a weatherproof case and were connected via an extension cable and fitted with a microphone windshield.

Calibration of the equipment is traceable to national standards. Calibration certificates are available on request. 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.

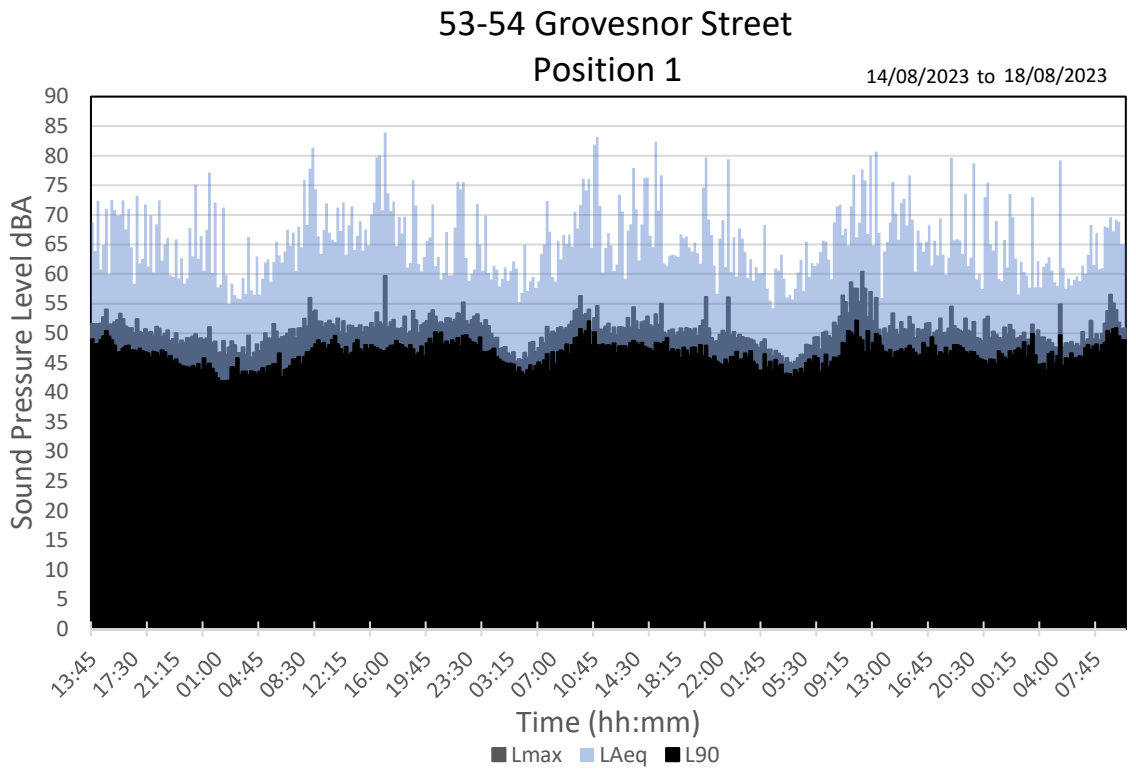
L_{90} is the noise levels that is exceeded for 90% of the measurement period. It reflects the quiet periods during that time and is often referred to as the "background noise level". It is often used as a basis for setting noise emission criteria.

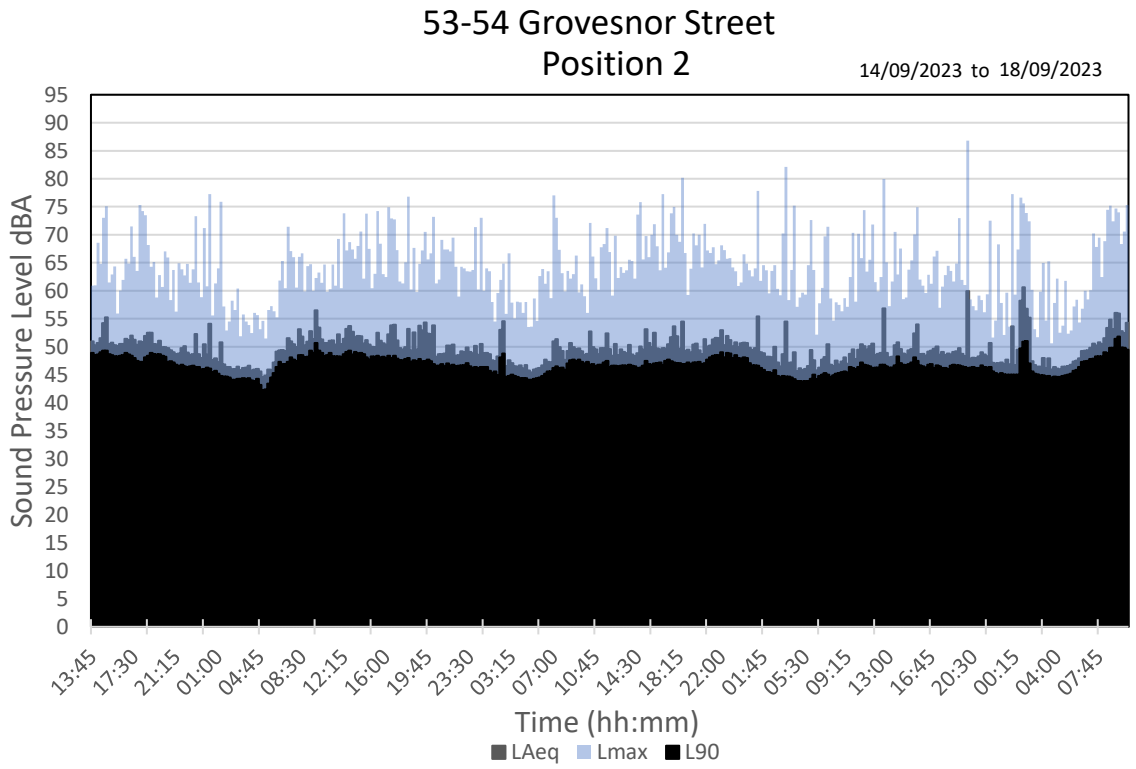
L_{eq} is the level of a notional continuous sound that would deliver the same sound energy as the actual fluctuating sound over the measurement period. This may be thought of as the "average" level during the measurement period.

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

4.1 Noise Level 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.


53-54 Grovesnor Street
Position 1
14/08/2023 to 18/08/2023
Sound Pressure Level dBA
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
13:45
17:30
21:15
01:00
04:45
08:30
12:15
16:00
19:45
23:30
03:15
07:00
10:45
14:30
18:15
22:00
01:45
05:30
09:15
13:00
16:45
20:30
00:15
04:00
07:45
Time (hh:mm)
Lmax
LAeq
L90


53-54 Grovesnor Street
Position 2
14/09/2023 to 18/09/2023
Sound Pressure Level dBA
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
13:45
17:30
21:15
01:00
04:45
08:30
12:15
16:00
19:45
23:30
03:15
07:00
10:45
14:30
18:15
22:00
01:45
05:30
09:15
13:00
16:45
20:30
00:15
04:00
07:45
Time (hh:mm)
LAeq
Lmax
L90

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

Modal Background L_{90} dB re2x10^{-5}Pa		
Position	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
1	49	46
2	48	45

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)
1	45	43
2	45	42

4.2 Noise Climate

During the periods that we were present at site, the subjectively dominant noise sources were noted to be local road traffic and noise from the existing plant.

5.0 RELEVANT PLANNING POLICIES AND NOISE ASSESSMENT GUIDANCE

5.1 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.

5.2 Planning Practice 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 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

5.3 National Planning Policy Framework

The following paragraph is from the National Planning Policy Framework (NPPF). The NPPF was revised in July 2021.

'185. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effect (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 impact 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'

5.4 Local Authority Requirements

The site lies within the jurisdiction of City of Westminster. Their advice regarding criteria for noise generation is given in the Westminster City Plan 2019-2040 is as follows:

"33. Local environmental impacts"

"NOISE AND VIBRATION

"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.*

"People come to the city for work, culture, education and entertainment, and noise and vibration are inevitable by-products of these activities. Some of these activities are focused in areas, such as the Central Activities Zone, and as a result the noise environment changes significantly across different parts of the city. However, not all noise and vibration can be attributed to city living and if uncontrolled, can be of nuisance and severely impact on health and quality of life. Defra's Noise Action Plan and our noise data show that ambient noise levels in Westminster are higher than national and regional averages. We therefore not only seek to avoid adverse noise impacts, but also reduce noise in the city.

"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) do 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.

"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."

…

"Noise sensitive receptors

Comprises residential use, educational establishments, hospitals, hotels, hostels, concert halls, theatres, law courts, and broadcasting and recording studios."

…

Draft Noise Technical Guidance Note (September 2020) states the following:

"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 Receptors
Exceed WHO Guideline levels. L_{Aeq} 55 dB over periods of daytime (07.00-23.00hrs) and L_{Aeq} 45 dB at nighttime (23.00-07.00hrs).	Does not contain tones or intermittent noise sufficient to attract attention.	10 dB below the minimum external background noise level
	Contains tones or be intermittent noise sufficient to attract attention	15 dB below the minimum external background noise level.

	Noise emitted from emergency plant or an emergency life supporting generators[4]	10 dB above the lowest background noise level within a 24-hour period.
Does not exceed WHO Guideline levels.	Does not contain tones or intermittent noise sufficient to attract attention.	5 dB below the minimum external background noise level
LAeq 55 dB over periods of daytime (07.00-23.00hrs) and LAeq 45 dB night-time (23.00-07.00hrs).	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

Westminster Noise Strategy (2010-2015) states the following:

"Noise Policy 1: Noise conscious city management, planning and licensing

"a) Noise emissions and noise impacts of new developments (including plant, equipment and machinery) will be minimised by:

- *requiring developers to demonstrate there will be no increase in noise levels at the nearest noise sensitive development, including vigorous protection of the quiet side of properties (frequently the rear) from noise intrusion*
- *resisting the installation of air conditioning units in favour of quieter, low energy systems of ventilation and better building design wherever technically possible*
- *requiring developers to limit and contain noise from construction activities.*

"b) A healthy internal sound environment will be ensured and noise impacts minimised by:

- *encouraging and ensuring, where possible, that development of noise sensitive uses includes highly effective protection against internal noise transmission*
- *ensuring that new residential developments are designed and constructed to provide sufficient protection from external noise*
- *incorporating high quality innovative design measures to protect against external noise*
- *locating noise sensitive uses at the quietest part of a site when part of mixed use developments*
- *encouraging the inclusion of tranquil areas in major developments*
- *incorporating measures in new development schemes which enable sounds with potentially positive roles, in particular, natural sounds.*

"c) The impact of noise-generating activities on noise sensitive developments will be minimised by

- *restricting the introduction of new noise generating uses in areas with a strong residential character*

- *limiting large scale development of new entertainment venues and resisting expansion of these uses in stress areas*
- *placing appropriate limits on the servicing and hours of operation of new developments*
- *continuing to work with the entertainment sector to manage and reduce noise impacts and wider environmental impacts of their operations."*

6.0 PLANT NOISE EMISSION

6.1 Proposed Plant

The proposed plant units are intended to be installed on the roof of the building adjacent to each other.

Figure 3. Proposed Plant Locations

The noise data for the units has been taken from the databook of both manufacturers.

Quantity	Manufacturer	Model	Sound Pressure Level Total dB(A) @ 1m
2	Toshiba	RAV-GP561ATP-E	65
1	Toshiba	RAV-GP801ATP-E	65
CUMULATIVE TOTAL OF PLANT		**70 dBA**	

6.2 Nearest Noise Sensitive Receptor

The identified potentially noise-sensitive receptors are nearest to Position 1. We consider these noise-sensitive receptors to be:

- A 6th floor window belonging to 1 Grosvenor Square, an apartment building.
- A 5th floor office window on 31 Grosvenor Street.

Figure 4. Nearest Identified Receptor Location (Google Imagery 2022, The GeoInformation Group)

A 1 Grosvenor Square (Apartment Building) **B** 31 Grosvenor Street (Office)

7.0 PLANT NOISE IMPACT ASSESSMENT

Predictions have been undertaken in general accordance with *"ISO:9613-2:1996 – The attenuation of sound during propagation outdoors: Part 2 General Method of Calculation"* and are based on the manufacture's technical datasheets, aerial photography and site observations.

Corrections have been applied throughout to account for directivity of the noise source relative to the receiver. It is assumed that all plant may operate at any time.

Predicted noise levels at the respective receptor location as identified earlier are presented in the tables below:

7.1 31 Grosvenor Street (Office)

Predicted Noise Level, L_{Aeq}, 1hour (dBA) @ Receptor	31 Grosvenor Street
Noise level of Plant Units @ 1m dB(A)	70
Distance to Noise Receptor (m)	27
Geometrical Divergence dB(A)	-29
Cumulative Total @ Receptor dB(A)	**41**

7.2 1 Grosvenor Square (Apartment Building)

Predicted Noise Level, L_{Aeq}, 1hour (dBA) @ Receptor	1 Grosvenor Square
Noise level of Plant Units @ 1m dB(A)	70
Distance to Noise Receptor (m)	70
Geometrical Divergence dB(A)	-37
Cumulative Total @ Receptor dB(A)	**33**

7.3 Criteria

To comply with the City of Westminster requirements, the plant noise emission must be 10dB below the minimum background noise L_{90} at 1 metre from the nearest noise sensitive receptor.

We also recommend in addition to the criteria above for noise sensitive residential windows noise levels at 1m from openable windows of nearby offices do not exceed 55dBA in the daytime (07:00-23:00) and 45dBA at night-time (23:00 – 07:00).

Based on this information and the noise survey results, this equates to the following criteria:

Receptor	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
31 Grosvenor Street (Office)	55	55
1 Grosvenor Square (Residential)	39	36

The above criteria apply to the noise level of the plant operating under normal operating conditions.

Relaxations of the above criteria maybe acceptable for emergency plant by should be considered on a case-by-case basis.

7.4 Compliance

The table below compares the predicted noise level against the background levels measured at Position 1.

Receptor	Minimum Required Noise Levels @ Receptors (dBA)		Calculated Noise Level 1m From Receiver Window Lar, T	Comment
	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)		
31 Grosvenor Street	55	55	**41**	Both values are meet the criteria required by the City of Westminster. We believe that the plant will not have an adverse impact on the local vicinities.
1 Grosvenor Square	39	36	**33**	

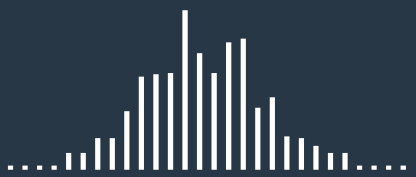
8.0 CONCLUSIONS

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

Environmental plant noise emission criteria have been proposed based on the noise survey results and in accordance with the relevant guidance including the requirements of the City of Westminster.

Environmental noise emissions from the proposed plant have been assessed to nearby noise sensitive receptors.

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



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