

**55 Neal Street
London**

**Environmental Noise Survey and
Plant Noise Assessment
Report**

25815/PNA1/Rev3

01 October 2018

For:
Shaftesbury Covent Garden Ltd
c/o Fresson & Tee
6th floor, Queens House
55-56 Lincoln's Inn Fields
London
WC2A 3LJ



Hann Tucker Associates
Consultants in Acoustics Noise & Vibration



Head Office: Duke House, 1-2 Duke Street, Woking, Surrey, GU21 5BA (t) +44 (0) 1483 770 595
Manchester Office: First Floor, 346 Deansgate, Manchester, M3 4LY (t) +44 (0) 161 832 7041
(w) hanntucker.co.uk (e) enquiries@hanntucker.co.uk



Hann Tucker Associates

Environmental Noise Survey and Acoustic Design Statement Report 25815/PNA1/Rev3

Document Control

Rev	Date	Comment	Prepared by	Authorised by
0	16/07/2018	-	Giovanni De Rienzo Senior Consultant BSc(Hons), AMIOA	Gareth Evans Associate BSc(Hons), MIOA
1	20/08/2018	-	Giovanni De Rienzo Senior Consultant BSc(Hons), AMIOA	Gareth Evans Associate BSc(Hons), MIOA
2	20/09/2018	Re-assessment based on latest proposals	Giovanni De Rienzo Senior Consultant BSc(Hons), AMIOA	Gareth Evans Associate BSc(Hons), MIOA
3	01/10/2018	Wording changes following Rolfe Judd comments		
			Giovanni De Rienzo Senior Consultant BSc(Hons), AMIOA	Gareth Evans Associate BSc(Hons), MIOA

This report has been prepared by Hann Tucker Associates Limited (HTA) with all reasonable skill, care and diligence in accordance with generally accepted acoustic consultancy principles and the purposes and terms agreed between HTA and our Client. Any information provided by third parties and referred to herein may not have been checked or verified by HTA unless expressly stated otherwise. This document contains confidential and commercially sensitive information and shall not be disclosed to third parties. Any third party relies upon this document at their own risk.

**Environmental Noise Survey and Acoustic Design Statement
Report
25815/PNA1/Rev3**

Contents	Page
1.0 Introduction	1
2.0 Objectives	1
3.0 Site Description	1
4.0 Acoustic Terminology	3
5.0 Methodology	3
6.0 Results	5
7.0 Discussion Of Noise Climate	5
8.0 Relevant Planning Policies and Guidance	5
9.0 Plant Noise Emission Criteria	12
10.0 Plant Noise Assessment	13
11.0 Conclusions	15

Attachments

Appendix A – Acoustic Terminology

Acoustic Specification for Acoustic Louvre



1.0 Introduction

We understand that new plant is proposed at 55 Neal Street, London, serving the basement/ground floor level commercial areas.

Hann Tucker Associates have therefore been commissioned to undertake an environmental noise survey and plant noise impact assessment.

Plant noise emission criteria have been set in accordance with the requirements of the Local Authority.

2.0 Objectives

To establish by means of an unmanned 24 hour survey the existing L_{Amax} , L_{Aeq} and L_{A90} environmental noise levels at 1No. **secure** and **accessible** on-site position, using fully computerised noise monitoring equipment.

Measurement procedures shall be in general accordance with those described in BS 4142: 2014, Method for rating industrial noise affecting mixed residential areas, published by the British Standards Institution.

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 by neighbours.

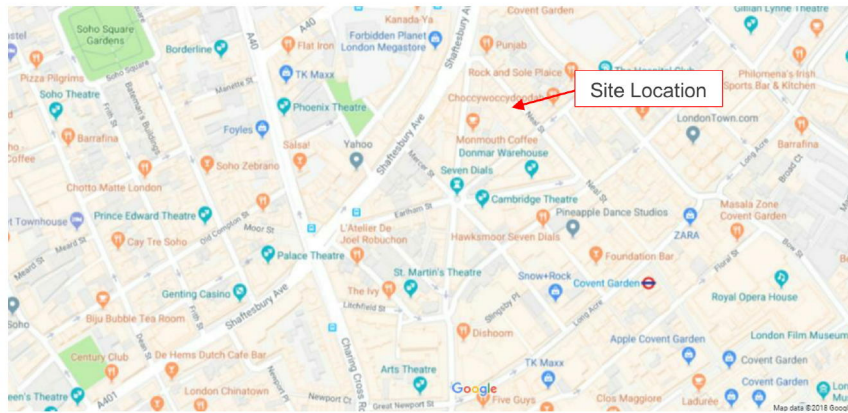
To assess the noise emissions from the proposed plant, based upon data with which we are provided, and comment upon the acceptability.

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

3.0 Site Description

3.1 Location

The site is located at 55 Neal Street, London, and falls within the jurisdiction of London Borough of Camden. The location is shown in the Location Map below.

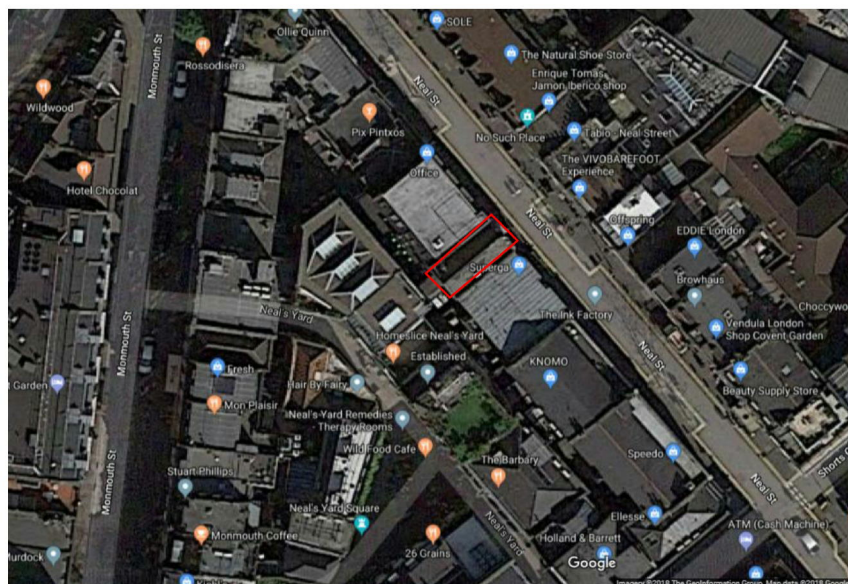


Location Map (maps.google.co.uk)

3.2 Description

The site is bordered to the north east by Neal Street, and either side by 57 and 53 Neal Street. The building has commercial use at basement and ground floors, and existing residential dwellings above.

The site is shown in the Site Plan below.



Site Plan (maps.google.co.uk)



4.0 Acoustic Terminology

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

5.0 Methodology

The survey was undertaken by R. Fernandez.

5.1 Procedure

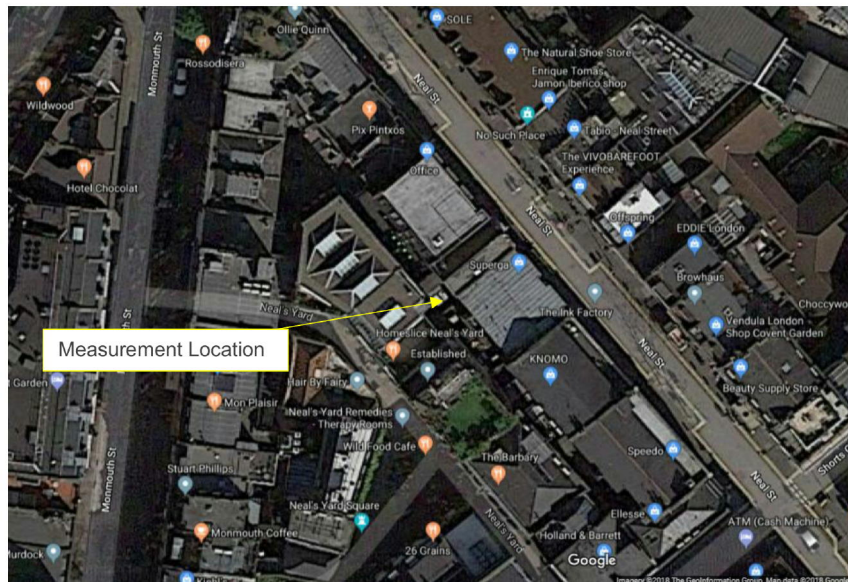
Fully automated environmental noise monitoring was undertaken from approximately 12:30 hours on 10 July 2018 to 12:30 hours on 11 July 2018.

During the periods we were on site the wind conditions were calm. The sky was generally clear. We understand that generally throughout the survey period the weather conditions were similar to this. 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.

5.2 Measurement Position

The microphone was attached to an extendable pole outside of a ground floor roof light. The position is shown on the plan below.



Plan Showing Unmanned Measurement Position (maps.google.co.uk)

5.3 Instrumentation

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

Description	Manufacturer	Type	Serial Number	Calibration
Type 1 ½" Condenser Microphone	PCB	377B02	104946	Calibration on 21/03/2018
Type 1 Preamp	Larson Davis	PRM902L	3949	Calibration on 21/03/2018
Type 1 Data Logging Sound Level Meter	Larson Davis	824	3699	Calibration on 21/03/2018

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

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



6.0 Results

The results have been plotted on Time History Graph 25815/TH1 enclosed presenting the 15 minute A-weighted (dBA) L_{90} , L_{eq} and L_{max} levels at the measurement position throughout the duration of the survey.

6.1 L_{90} Noise Levels

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

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
56	56

7.0 Discussion Of Noise Climate

During the periods we were on site the dominant noise source was noted to be existing plant noise.

8.0 Relevant Planning Policies and Guidance

8.1 Noise Policy Statement for England

The Noise Policy Statement for England (NPSE) was published in March 2010. 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.”

That vision is supported by the following aims which are reflected in three of the four aims for planning policies and decisions in paragraph 123 of the NPPF (see paragraph 8.2 (b) below):

“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 aims listed in paragraph (b) 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.

8.2 National Planning Policy Framework (NPPF)

The following paragraphs are from the NPPF (revised July 2018):

“180. 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.*

182. 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 180 also references the Noise Policy Statement for England. 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.”

8.3 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.		
		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.		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.		Prevent

8.4 The London Plan

The London Plan, published in 2011 with minor revisions in 2013, 2015 and 2016, provides an overall strategic plan for London, and it sets out a fully integrated economic, environmental, transport and social framework for the development of the capital to 2031. The Plan brings together the Mayor's strategies, including policy on a range of environmental issues, such as climate change, air quality, noise and waste. London boroughs' local plans need to be in general conformity with the London Plan, and its policies guide decisions on planning applications by councils and the Mayor.

Policy 7.15 specifically relates to noise and states:

"Development proposals should seek to reduce noise by:



- a) *Minimising the existing and potential; adverse impacts of noise on, from, within, or in the vicinity of, development proposals;*
- b) *Separating new noise sensitive development from major noise sources wherever practicable through the use of distance, screening, or internal layout in preference to sole reliance on sound insulation;*
- c) *Promoting new technologies and improving practices to reduce noise at source."*

8.5 Local Planning Policy

The Local Plan was adopted by Camden Council on 3 July 2017 and has replaced the Core Strategy and Camden Development Policies documents as the basis for planning decisions and future development in the borough.

8.5.1 Plant Noise Criteria

The site comes under the jurisdiction of Camden. The Local Plan 2017: Policy A4 outlines:

"The Council will seek to ensure that noise and vibration is controlled and managed.

*Development should have regard to Camden's Noise and Vibration Thresholds (Appendix 3).
We will not grant planning permission for:*

- a. *development likely to generate unacceptable noise and vibration impacts; or*
- b. *development sensitive to noise in locations which experience high levels of noise, unless appropriate attenuation measures can be provided and will not harm the continued operation of existing uses.*

We will only grant permission for noise generating development, including any plant and machinery, if it can be operated without causing harm to amenity. We will also seek to minimise the impact on local amenity from deliveries and from the demolition and construction phases of development."

Camden's Local Plan 2017: Appendix 3 outlines the following requirements:

"Note: NOAL – No Observed Effect Level, LOAEL- Lowest Observed Adverse Effect Level, SOAEL – Significant Observed Adverse Effect Level.

"...a 'Rating Level' of 10 dB below background (15dB if tonal components are present) should be considered as the design criterion.



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 window (façade)	Day	'Rating level' 10dB below background	'Rating level' 9dB below and 5dB above background	'Rating level' greater than 5dB above background
Dwellings **		Night	'Rating level' 10dB below background and no events exceeding 57dBL _{Amax}	'Rating level' 9dB below and 5dB above background or noise events between 57dB and 88dBL _{Amax}	'Rating level' greater than 5dB above background and/or events exceeding 88dBL _{Amax}

*10dB should be increased to 15dB if the noise contains audible tonal elements. (day and night). However, if it can be demonstrated that there is no significant difference in the character of the residual background noise and the specific noise from the proposed development then this reduction may not be required. In addition, a frequency analysis (to include, the use of Noise Rating (NR) curves or other criteria curves) for the assessment of tonal or low frequency noise may be required.

**Levels are given for dwellings, however, levels are use specific and different levels will apply dependant on the use of premises"

8.6 BS 4142:2014

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

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. 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.

8.7 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.



8.8 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 to 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 $L_{Aeq,8hour}$

8.9 Statutory Noise Nuisance

There is no quantitative definition of statutory noise nuisance. It is generally accepted however, that if the plant noise level is at least 5dB (or 10dB if tonal) below the minimum background $L_{90(15minutes)}$ at 1m from the nearest noise sensitive window, then the risk of a statutory noise nuisance is avoided. By adopting this as a design criterion the guidance contained in BS 4142:2014 should also be complied with.

9.0 Plant Noise Emission Criteria

On the basis of the aforementioned acoustic standards and guidance, together with the results of the environmental noise survey, we propose that the following plant noise emission criteria be achieved at 1 metre from the nearest noise sensitive residential window with all plant operating simultaneously.

Plant Noise Emission Criteria (dB re 2×10^{-5} Pa)	
Daytime (07:00 – 23:00 hours)	Night-time (23:00 – 07:00 hours)
46 dBA	46 dBA

The above criteria are to be achieved with all plant operating simultaneously.

If plant contains tonal or impulsive characteristics the external design criteria should be reduced by 5dBA.

It should be noted that the above are subject to the final approval of the Local Authority.



10.0 Plant Noise Assessment

10.1 Proposed Tenant Plant

All plant will be installed by future tenants and as such, some selections have not yet been made, however we understand the following plant is proposed to be installed.

Plant Description	Plant Location
Condenser Unit	1 st Floor Plant Room
Vent System Extract	To be ducted from inside to louvered vent at first floor level
Vent System Intake	
Toilet Extract	

We understand the proposed condenser unit will be a Mitsubishi PUMY-P200YKM. We understand the manufacturer's noise data for the equipment to be as follows:

Plant Description	Sound Pressure Level (dB re 2x10 ⁻⁵ Pa) at 1 metre at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
PUMY-P200YKM (Worst-Case)	63	61	61	58	57	52	49	41	61

10.2 Nearest Noise Sensitive Window

The nearest noise sensitive window differs in this case dependant on plant location. As some plant is located at first floor level, and other ductwork terminates at roof level we have assessed each item to their corresponding nearest noise sensitive window. In each case the nearest noise sensitive window is located on the rear elevation of 53, 55, and 57 Neal Street.

10.3 Limiting Noise Levels

In order that the plant noise emission criteria set out in Section 8.5.1 are achieved, the following limiting sound pressure levels for the proposed plant should not be exceeded when measured at 1 metre in any direction on-site.

Unit	Period	Limiting A-weighted sound pressure level at 1 metre
Vent System Extract Louvre	24hr	48 dB
Vent System Intake Louvre	24hr	48 dB
Toilet Extract Louvre	24hr	49 dB



10.4 1st Floor Plant Room Assessment

The condenser unit is proposed to be located within a first floor plant room and will have a louvre opening for ventilation purposes. We understand the plantroom will be lined with mineral wool. See image below.

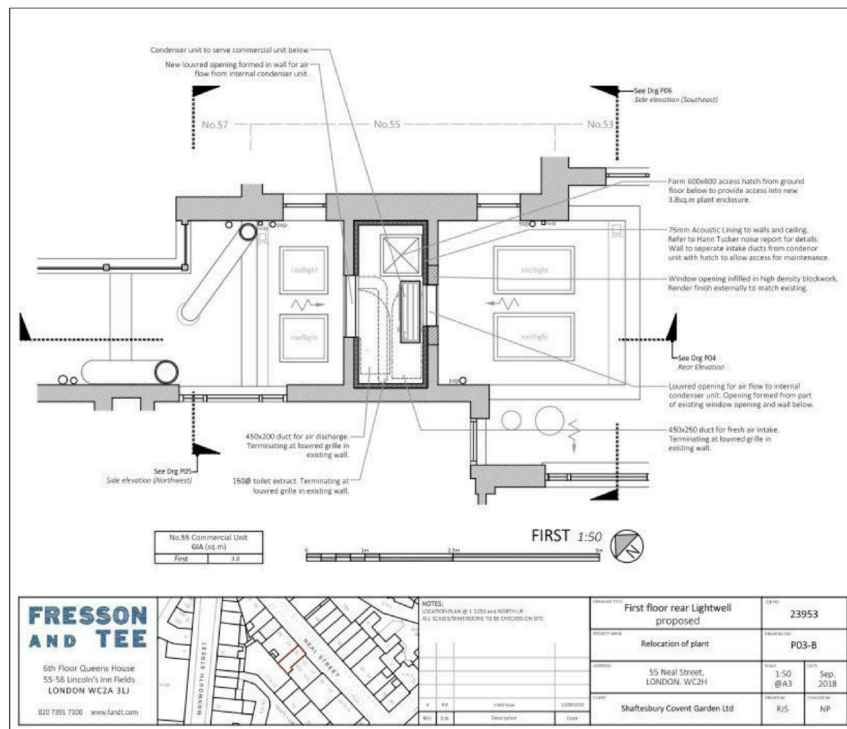


Image provided by Fresson & Tee

The following table summarises our predictions of atmospheric noise emissions from the plantroom louvres to the nearest noise sensitive residential window.



	Sound Pressure Level (dB re 2x10 ⁻⁵ Pa) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
PUMY-P200YKM (Worst-Case) Noise Level at Plantroom Louvre	72	69	67	64	63	58	55	47	67
Proposed Acoustic Louvre Loss	-5	-7	-10	-12	-14	-16	-13	-12	
Screening Correction	-5	-5	-5	-5	-5	-5	-5	-5	
Distance Correction	-8	-8	-8	-8	-8	-8	-8	-8	
Façade Reflection	+3	+3	+3	+3	+3	+3	+3	+3	
Calculated Noise Level at Receptor	57	52	47	42	39	32	32	25	45

Our calculations indicate that the proposed plant, in conjunction with the propose mitigation measures, should be capable of achieving the requirements of the Local Authority.

11.0 Conclusions

A detailed environmental noise survey has been undertaken in order to establish the currently prevailing environmental noise climate around the site.

Plant noise emission criteria have been set based on the requirements of the Local Authority.

A plant noise impact assessment has been carried out and limiting sound pressure levels have been set for future items of tenant plant to achieve.

55 NEAL STREET, LONDON

ACOUSTIC SPECIFICATION FOR

ACOUSTIC LOUVRE

Performance

The acoustic louvres shall be at least 300mm deep and provide, in their as-installed condition, the following minimum combined sound reduction indices (SRI's) when tested in accordance with BS 2750 Part 3 – 1980 (ISO 140 Part 3 – 1995).

Minimum Sound Reduction Index (dB) at Octave Band Centre Frequency (Hz)							
63	125	250	500	1k	2k	4k	8k
5	7	10	12	14	16	13	12

Construction

The louvre frame shall be constructed from a suitable gauge of galvanised mild steel, or aluminium, supporting louvre blades of like material. The acoustic material in the blades shall be packed to a density of not less than 45kg/m³ and be inert, rot and vermin proof, non-hygroscopic incombustible mineral fibre. This shall be faced with glass fibre cloth, or other approved infill protection membrane, and retained on the lower blade face by perforated galvanised mild steel or aluminium (not "expamet" or similar derivative) having a minimum thickness of 0.5mm fixed at 200mm (max) centres.

All junctions between the acoustic screen and adjacent structures shall be made good and sealed with a heavy grout and/or non-hardening dense mastic.

The supplier shall ensure that the assembled enclosure is designed and constructed to withstand site operating conditions such as wind and snow loads, etc., as appropriate, and is suitably weatherproofed.

The acoustic media shall not comprise materials which are generally composed of mineral fibres, either man made or naturally occurring, which have a diameter of 3 microns or less and a length of 200 microns or less or which contain any fibres not sealed or otherwise stabilised to ensure that fibre migration is prevented.

Any deviations from the above specification must be agreed by, and confirmed in writing to, Hann Tucker Associates.

Appendix A

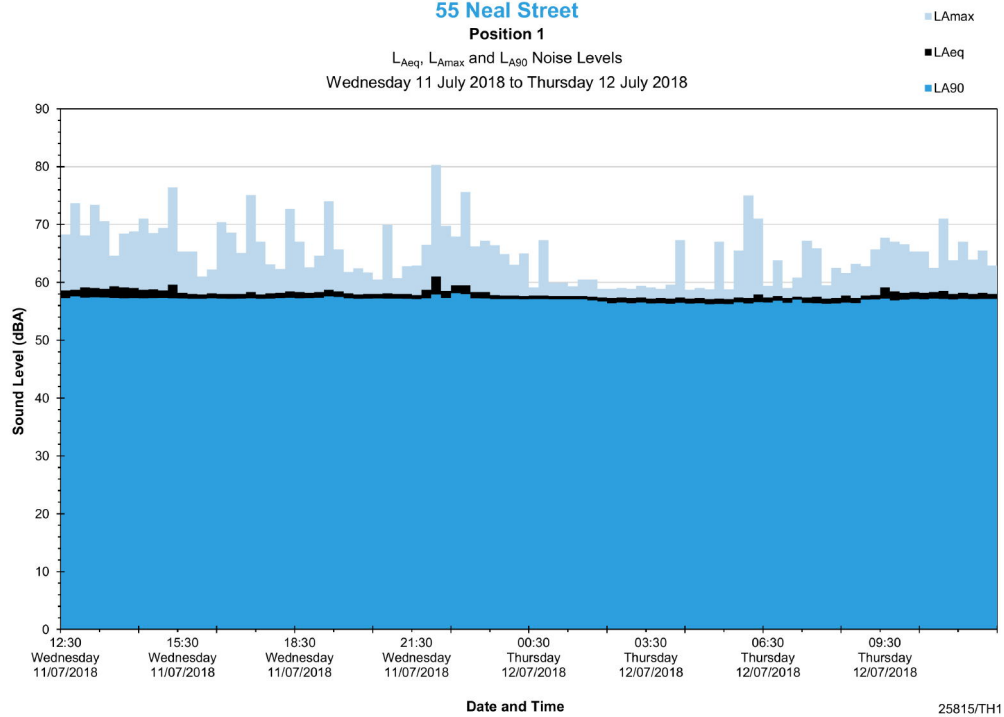
The acoustic terms used in this report are defined as follows:

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	<p>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</p> <p>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.</p>
L _{90,T}	L ₉₀ is the noise level exceeded for 90% of the period <i>T</i> (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, <i>T</i> .
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.
L _p	Sound Pressure Level (SPL) is the sound pressure relative to a standard reference pressure of 2×10^{-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).
L _w	Sound Power Level (SWL) 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).

55 Neal Street

Position 1

L_{Aeq} , L_{Amax} and L_{A90} Noise Levels
Wednesday 11 July 2018 to Thursday 12 July 2018



25815/TH1