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229 CAMDEN HIGH STREET, LONDON

NOISE IMPACT ASSESSMENT

Report **17554-NIA-01**

Prepared on 30 May 2022

Issued For:

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Executive Summary

This report has been compiled in order to set noise emissions criteria for a proposed plant installation for commercial use at the 229 Camden High Street, London.

The proposed plant installation has not yet been finalised.

A background noise survey has been undertaken as detailed in the report, in order to determine an appropriate noise emission criterion, in accordance with the requirements of the London Borough of Camden and British Standard 4142: 2014.

Calculations will be undertaken for the nearest identified receivers (to be confirmed once the plant location has been decided).

Once full plant details are known, calculations will aim to demonstrate that compliance with the established criterion is feasible, with mitigation applied as necessary.

Contents

List of Attachments

Document Revision	Date of Revision	Reasons for Revision	Revision By
0	30/05/2022	First Issue	Tom Price TechIOA

1.0 INTRODUCTION

Clement Acoustics has been commissioned by Hassan Malick to measure existing background noise levels at the 229 Camden High Street, London. Measured noise levels have been used to determine noise emissions criteria for a proposed plant installation in agreement with the planning requirements of the London Borough of Camden.

This report presents the results of the environmental survey followed by a discussion of typical mitigation measures that could be required (once details of the plant installation are known).

An acoustic terminology glossary is provided in Appendix A.

2.0 SITE DESCRIPTION

The site is bound by Camden High Street to the front and a small access road, Early Mews, to the rear. It is flanked either side by commercial units. The surrounding area is commercial in nature.

Current proposals are to install mechanical plant for commercial use on the ground floor rear façade of the building, but exact plant details have not been finalised at this stage. The proposed operating hours of the commercial unit are 12:00 to 20:00 Monday to Sunday.

The nearest affected receivers would be expected to be one of the surrounding buildings; however, this will be confirmed once the exact location of plant has been provided.

Locations are shown in attached site plan 17554-SP1.

3.0 ENVIRONMENTAL NOISE SURVEY

3.1 Unattended Noise Survey Procedure

Measurements were undertaken at one position as shown on indicative site drawing 17554-SP1. The choice of the position was based both on accessibility and on collecting representative noise data in relation to the surrounding residential receivers.

The surroundings and position used for the monitoring location are described in Table 3.1.

Position No.	Description
1	The microphone was mounted on a 1st floor handrail at the rear of the building. The microphone was positioned 1 m in front of the nearest vertical reflective surface. [1]

Table 3.1: Description of unattended monitoring locations

Note [1]: The position was not considered to be free-field according to guidance found in BS 4142: 2014, and a correction for reflections has therefore been applied. Based on the presence of the reflective surface and the nature of surrounding noise sources, a correction for reflections of 3 dB has been applied, in line with the recommendations of the standard.

Continuous automated monitoring was undertaken for the duration of the survey between 10:00 on 9 May 2022 and 11:00 on 11 May 2022.

The measurement procedure generally complied with BS 7445: 1991: '*Description and measurement of environmental noise, Part 2- Acquisition of data pertinent to land use*'.

3.2 Weather Conditions

At the time of set-up and collection of the monitoring equipment, the weather conditions were generally dry with light winds. It is understood that the weather conditions during the unattended survey remained dry with light winds.

It is considered that the weather conditions did not significantly adversely affect the measurements and are therefore considered suitable for the measurement of environmental noise.

3.3 Equipment

The equipment calibration was verified, by means of a field verification check, before and after use and no abnormalities were observed.

The equipment used was as follows.

- 1 No. Svantek Type 957 Class 1 Sound Level Meter
- Rion Type NC-74 Class 1 Calibrator

4.0 RESULTS

4.1 Unattended Noise Survey Results

The $L_{Aeq:\,5min}$, $L_{Amax:\,5min}$, $L_{A10:\,5min}$ and $L_{A90:\,5min}$ acoustic parameters were measured at the location shown in site drawing 17554-SP1.

Measured noise levels are shown as a time history in Figures 17554-TH1, with average ambient and minimum background noise levels summarised in Table 4.1.

Due to the commercial nature of the area, plant noise from surrounding properties appears to have dominated the background levels for periods throughout the day. For this reason, the min L_{A90} was used whilst plant was not dominating the background levels, during the proposed operating times, to provide a robust assessment.

Time Period	Average ambient noise level $L_{eq:\,T}$	Minimum background noise level $L_{90:\,5min}$
Operating Hours (12:00 - 20:00)	63 dB(A)	50 dB(A)

Table 4.1: Average ambient and minimum background noise levels

5.0 NOISE CRITERIA

5.1 Relevant Local Policy

The assessment and recommendations in this report have been undertaken in accordance with Policy D14 of the London Plan 2021, which contains the following relevant sections:

"*D14. 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:*

> *5) 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*".

5.2 Local Authority Criteria

The London Borough of Camden general criteria for noise emissions, as stated in the *'Camden Local Plan (2017)'* are as follows:

> *"Where appropriate and within the scope of the document it is expected that British Standard 4142:2014 'Methods for rating and assessing industrial and 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)."*

It is understood that the proposed plant will be for commercial use and could be operational at any time between the hours of 12:00 and 20:00 Monday to Sunday.

Based on the results of the environmental noise survey and requirements of the London Borough of Camden, Table 5.1 presents the proposed plant noise emission criteria to be achieved at 1 m from the nearest noise sensitive receiver:

Period	Plant Noise Emission Limit $L_{eq;T}$
Operating Hours (12:00 - 20:00)	40 dB(A)

Table 5.1: Plant noise emission limits

6.0 PLANT NOISE IMPACT ASSESSMENT

6.1 Proposed Installation

The exact details of the proposed plant installation are currently unknown.

British Standard 4142: 2014 +A1 2019 *'Methods for rating and assessing industrial and commercial sound'* provides guideline penalties that can be applied to noise emissions to account for tonality, impulsivity and intermittency. Where a sound source is neither tonal nor impulsive, but is still distinctive against the residual acoustic environment, a penalty may still be applied.

The available penalties for different characteristics are summarised in Table 6.2.

Characteristic	Comments	Maximum Penalty
Tonality	Can be converted to 2 dB for a tone which is just perceptible, 4 dB where it is clearly perceptible and 6 dB where it is highly perceptible	+6 dB
Impulsivity	Can be converted to 3 dB for impulsivity which is just perceptible, 6 dB where it is clearly perceptible and 9 dB where it is highly perceptible	+9 dB
Intermittency	When the sound has identifiable on/off conditions	+3 dB
Distinctiveness	Intended for sources that are neither tonal nor impulsive, but distinctive against background noise sources	+3 dB

Table 6.2: Available penalties according to BS 4142: 2014

Once further details of the proposed plant installation are known, penalties will be applied as appropriate.

The proposed plant location will be on the rear ground floor façade of the of the building.

6.2 Typical Mitigation Measures

In order to meet the proposed criteria stated in Section 5.0, it may be necessary to recommend mitigation measures such as louvred enclosures for any condenser units and suitable inline attenuators for any fans.

The exact specifications will be given once the plant installation details have been finalised.

6.3 Noise Impact Assessment

The closest receivers would be expected to be windows on surrounding residential properties, but this will be confirmed once the proposed plant location is known.

The resulting noise level at the identified residential windows would then be calculated.

7.0 CONCLUSION

An environmental noise survey has been undertaken at 229 Camden High Street, London. The results of the survey have enabled criteria to be set for noise emissions from the proposed plant in accordance with the requirements of the London Borough of Camden.

A full noise impact assessment will be undertaken using manufacturer noise data to predict the noise levels, due to the proposed plant, at the nearby noise sensitive receivers once plant details are known.

Calculations would aim to show that noise emissions from the proposed units would meet the requirements of the London Borough of Camden with the recommended mitigation installed as necessary.

Author	**Tom Price** Assistant Consultant BSc (Hons) TechIOA		30 May 2022
Reviewed	**Andrew Thomas** Principal Consultant BSc (Hons) MIOA		30 May 2022
Approved	**John Smethurst** Director BSc (Hons) MIOA		30 May 2022

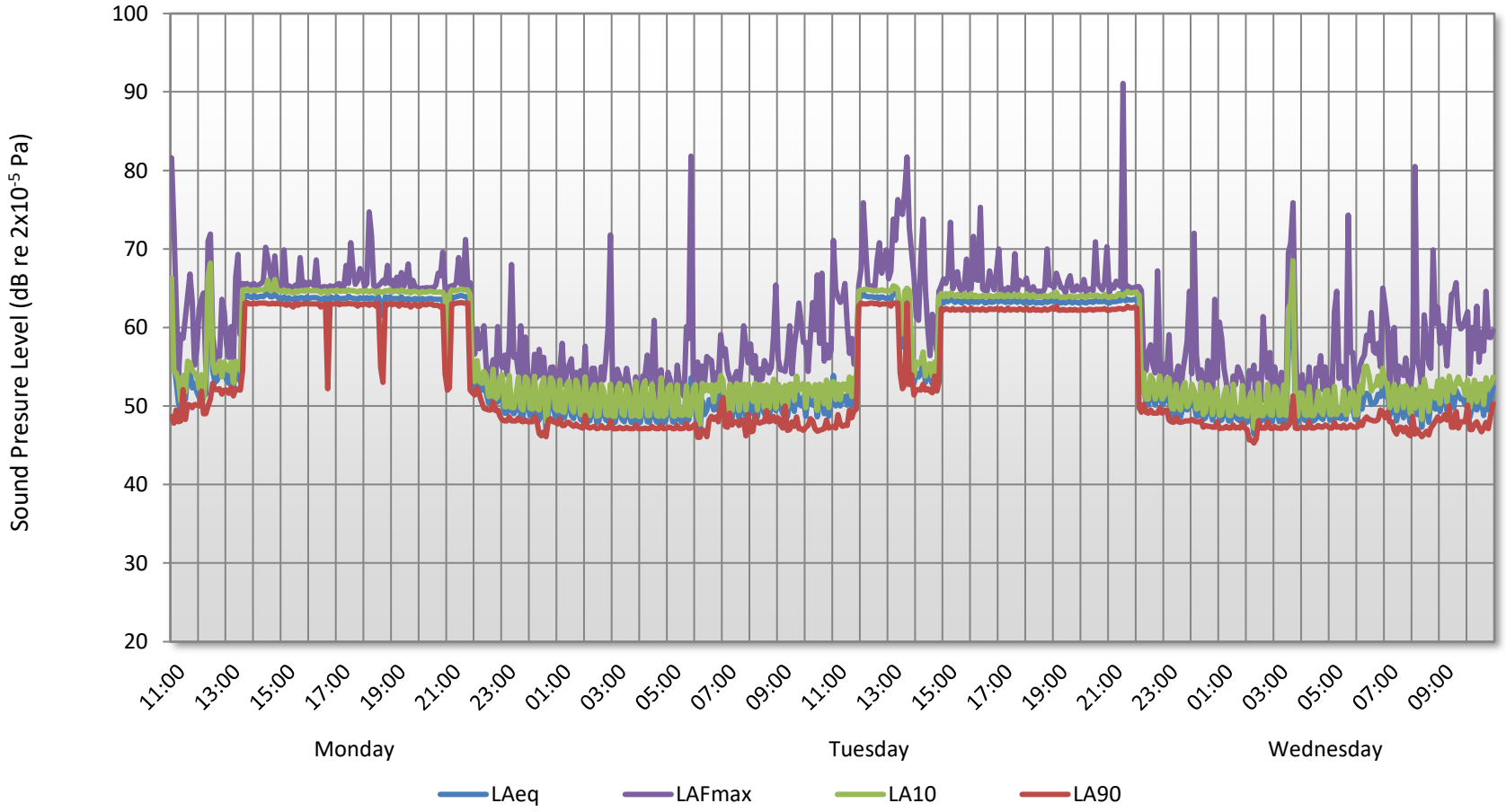
17554-SP1 Indicative site plan indicating noise monitoring position

Date: 30 May 2022

229 Camden High Street, London

Position 1

Environmental Noise Time History
09 May 2022 to 11 May 2022



17554-TH1

APPENDIX A

GLOSSARY OF ACOUSTIC TERMINOLOGY

dB(A)

The human ear is less sensitive to low (below 125Hz) and high (above 16kHz) frequency sounds. A sound level meter duplicates the ear's variable sensitivity to sound of different frequencies. This is achieved by building a filter into the instrument with a similar frequency response to that of the ear. This is called an A-weighting filter. Measurements of sound made with this filter are called A-weighted sound level measurements and the unit is dB(A).

L_{eq}

The sound from noise sources often fluctuates widely during a given period of time. An average value can be measured, the equivalent sound pressure level L_{eq}. The L_{eq} is the equivalent sound level which would deliver the same sound energy as the actual fluctuating sound measured in the same time period.

L_{10}

This is the level exceeded for not more than 10% of the time. This parameter is often used as a "not to exceed" criterion for noise

L_{90}

This is the level exceeded for not more than 90% of the time. This parameter is often used as a descriptor of "background noise" for environmental impact studies.

L_{max}

This is the maximum sound pressure level that has been measured over a period.

Octave Bands

In order to completely determine the composition of a sound it is necessary to determine the sound level at each frequency individually. Usually, values are stated in octave bands. The audible frequency region is divided into 10 such octave bands whose centre frequencies are defined in accordance with international standards.

Addition of noise from several sources

Noise from different sound sources combines to produce a sound level higher than that from any individual source. Two equally intense sound sources operating together produce a sound level which is 3dB higher than one alone and 10 sources produce a 10 dB higher sound level.

Attenuation by distance

Sound which propagates from a point source in free air attenuates by 6dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3 dB for each doubling of distance.

Subjective impression of noise

Sound intensity is not perceived directly at the ear; rather it is transferred by the complex hearing mechanism to the brain where acoustic sensations can be interpreted as loudness. This makes hearing perception highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a reasonable guide to help explain increases or decreases in sound levels for many acoustic scenarios.

Change in sound level (dB)	Change in perceived loudness
1	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	About twice as loud
20	About 4 times as loud

Barriers

Outdoor barriers can be used to reduce environmental noises, such as traffic noise. The effectiveness of barriers is dependent on factors such as its distance from the noise source and the receiver, its height and its construction.

Reverberation control

When sound falls on the surfaces of a room, part of its energy is absorbed and part is reflected back into the room. The amount of reflected sound defines the reverberation of a room, a characteristic that is critical for spaces of different uses as it can affect the quality of audio signals such as speech or music. Excess reverberation in a room can be controlled by the effective use of sound-absorbing treatment on the surfaces, such as fibrous ceiling boards, curtains and carpets.