

ZONA ACOUSTICS

**101 Myddleton Road
London**

Plant Noise Assessment

27 September 2023

For
MYDDLETON ROAD COMMUNITY BENEFIT SOCIETY LIMITED
80 Clarence Road
London
N22 8PW

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Summary

Zona Acoustics has been appointed to carry out a noise assessment in relation to the proposed external plant installation at 101 Myddleton Road in London. Proposals are for the installation of two external condenser units.

The local authority, Haringey Council, has requirements in relation to external plant noise affecting noise sensitive properties.

A noise limit has been set for the plant, based on the existing background noise levels and the Haringey planning condition requirements.

The predicted rating noise level of the proposed condenser unit installation was found to be in line with the Haringey planning condition requirements.

Vibration has also been considered and it is seen that the proposed design will minimise the risk of structure-borne noise or vibration impacts on neighbouring dwellings by using suitable vibration dampening fixings (which are usually supplied as standard by the manufacturer).

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1.0 Introduction

Zona Acoustics has been appointed to carry out a noise assessment in relation to the proposed external plant installation at 101 Myddleton Road in London. Proposals are for the installation of two external condenser units.

This report presents the methodology and results of a noise survey to determine background noise levels that are representative of the nearest noise sensitive receptor, as well as an assessment of noise from the proposed plant in relation to the Haringey planning condition requirements.

The report is technical in nature, and such, a summary of noise units and acoustic terminology are included in Appendix A for reference.

2.0 Description of Site

The site is located at 101 Myddleton Road, London, N22 8NE.

The proposed condenser units will be located to the rear of the building on a west facing first floor level wall.

The nearest noise sensitive receptor is taken to be the nearest residential window, located on the first floor of the building at 101a Myddleton Road, approximately 7m from the units with direct line of sight.

Figure 2.1 shows the site extent in **red**, the approximate proposed plant locations in **green**, and the location of the nearest noise sensitive window in **blue**.

Figure 2.1 Site and Surroundings



3.0 Noise Policy and Guidance

3.1 Haringey Council Requirements

Haringey Council have set the following condition:

“Prior to the installation of any AC units, detailed drawings, including where the AC units will be located/installed with information on the type of brackets to be used shall be submitted to and approved in writing by the Local Planning Authority.

The rating level of the noise emitted from the AC units in connection with this permission shall at no time exceed the background noise levels by 5dB (or more) as measured according to British Standard 4142: 1997 at any adjoining or nearby residential property. Documentation or a statement from a suitably qualified person shall be submitted to and approved in writing by the Local Planning Authority to demonstrate compliance with the noise level specified above and any mitigation measures required before bringing such equipment into use.

The AC units shall thereafter be serviced regularly in accordance with the manufacturer's instructions and as necessary to ensure that the requirements of this condition are maintained.

Reason: In order to protect the amenities of nearby residential occupiers consistent with Policy D14 of the London Plan 2021 and Policy DM1 of The Development Management DPD 2017.”

3.2 British Standard 4142: 2014+A1: 2019

British Standard (BS) 4142: 2014+A1: 2019 provides a procedure for the measurement and rating of noise levels from industrial and commercial noise sources. A methodology for predicting the likelihood of adverse impact is provided in the document.

The rating level ($L_{Ar,Tr}$) is defined in BS 4142 and is used to rate the industrial source (known as the specific noise source) at the assessment location. This level is obtained by adding a correction of between 0 and 6 dB, for tonal noise sources, and a correction of between 0 and 9 dB for impulsive sources. Additionally, corrections of 3 dB can be made for other sound characteristics and intermittency of the noise source.

The rating level is assessed in terms of $L_{Ar,Tr}$, where 'T' is a reference period of one hour during the daytime period (07:00 - 23:00) and fifteen minutes during the night-time period (23:00 – 07:00).

The method for predicting the likelihood of complaints is based on differences between the rating level and the background $L_{A90,T}$ noise level. The standard states that:

- a) “Typically, the greater this difference, the greater the magnitude of the impact.
- b) A difference of around +10dB 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 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 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.”

In this case, the planning condition requirement is for the rating level not to exceed the existing background noise levels by 5dB or more at any time.

4.0 Noise Survey

4.1 Methodology

An unattended noise survey was carried out over a 4-day period between 15:00 on Thursday 10 August and 15:00 on Monday 14 August 2023 to determine existing background noise levels at a position representative of the nearest noise sensitive window.

The measurement microphone was positioned on the first-floor level roof at the rear of the property in the acoustic free-field. The measurement position is considered representative of the nearest noise sensitive window.

The approximate location of the measurement position is shown in **orange** in Figure 4.1 below.

Figure 4.1 Noise Measurement Position



The equipment used for the noise survey is summarised in Table 4.1

Table 4.1 Noise Survey Equipment

Item	Make & Model	Serial Number
Type 1 automated logging sound level meter	Casella CEL 633B	0221364
Type 1 ½" microphone	CEL 252	21198
Calibrator	Casella CEL 120-1	113251

L_{Aeq} and L_{A90} sound pressure levels were measured throughout the noise survey over continuous 15-minute intervals.

The noise monitoring equipment was calibrated before and after the noise survey period. No significant change was found. Laboratory equipment calibration certificates can be provided upon request.

Due to the nature of the noise survey, i.e. unattended, we are unable to comment on the weather conditions throughout the entire noise survey period, however at the beginning and end of the survey, there was noted to be a clear sky, no rainfall and only light wind. These conditions are understood to be representative of the survey period. Weather conditions are not considered to have had any significant effect on the measured noise levels.

4.2 Results

Appendix B presents a time history graph showing the sound pressure levels measured throughout the noise survey.

Due to the nature of the noise survey, i.e. unattended, we are unable to comment on the exact noise climate throughout the entire survey period. However, at the beginning and end of the survey period, the noise climate at the measurement position was noted to be dominated mostly by distant road traffic noise.

It is understood that the proposed condenser units will operate between 11:00 to 21:00 each day. Our assessment therefore considers the lowest measured background noise level during these periods of the survey.

The lowest measured background noise level during these times was **39 dB L_{A90} (15-minute)**.

5.0 Plant Noise Assessment

5.1 Proposed Plant Installation

The proposal is for the installation of 2 No. Daikin RZASG71MV1 – Manufacture's operating sound pressure level at 1m – 47/46 dBA (Heating/Cooling). Our assessment has considered the higher heating noise level as a worst case.

The manufacture's octave band noise levels are included in the detailed plant noise calculations in Appendix C. Analysis of the manufacturer's octave band data indicate that the noise is non-tonal in character. The plant is also expected to operate continuously i.e. non-intermittently. No additional rating level character corrections are therefore considered necessary.

5.2 Noise Limit

Based on the lowest measured background noise level of 39 dB $L_{A90(15\text{-minute})}$ and the Haringey requirements (as detailed in Section 3.1), the plant noise limit is **44 dB $L_{Ar,Tr}$** at the nearest noise sensitive window.

5.3 Assessment

We have carried out calculations to predict the plant noise level at the nearest noise sensitive window.

A summary of the assessment results are presented in Table 5.2 below. Detailed plant noise calculations are included in Appendix C.

Table 5.2 Plant Noise Assessment Results

Element	Noise Level (dB)
Calculated Rating Noise Level at Nearest Noise Sensitive Window ($L_{Ar,Tr}$)	42
Noise Limit	44
Difference	-2

As can be seen in Table 5.2 above - The predicted rating level of the proposed condenser unit installation is in line with the Haringey planning condition requirements.

5.4 Vibration

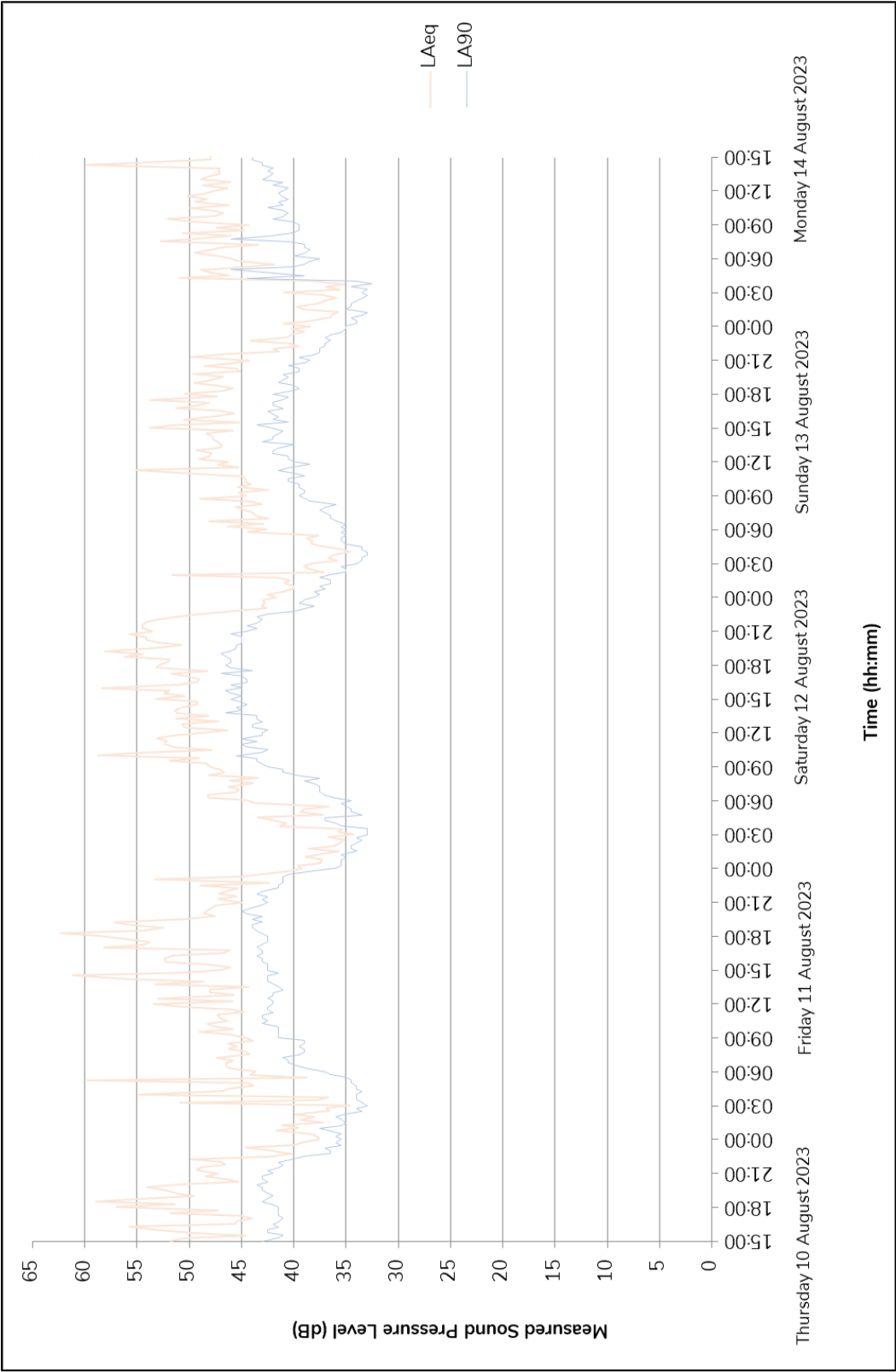
As is industry standard procedure with this type of plant, the external condenser units should be installed using anti-vibration fixings and rubber washings on screws/bolts, to dampen vibration transmitting through the fixings and radiating through any structures.

Such mounts would usually be made of a resilient material such as rubber and should be supplied by the manufacturer (as standard) and then applied to any connection with the structure, including floors, walls, and soffits.

Appendix A – Acoustic Terminology

Parameter	Description
Decibel (dB)	A logarithmic scale representing the sound pressure or power level relative to the threshold of hearing (20×10^{-6} Pascals).
Sound Pressure Level (L_p)	The sound pressure level is the sound pressure fluctuation caused by vibrating objects relative to the threshold of hearing.
Sound Power Level (L_w)	A measure of the acoustic energy emitted from a source of noise, expressed in decibels.
A-weighting (dBA)	The sound level in dB with a filter applied to increase certain frequencies and decrease others to correspond with the average human response to sound.
$L_{Aeq,T}$	The A-weighted equivalent continuous noise level over the time period T (typically T= 16 hours for daytime periods, T = 8 hours for night-time periods). This is the sound level that is equivalent to the average energy of noise recorded over a given period.
L_{A90} (15 min)	The noise level exceeded for 90% of the time (also referred to as the background noise level), measured over a 15-minute period

Appendix B – Time History Graph



Appendix C – Detailed Plant Noise Calculations

101 Myddleton Road	ZONA ACOUSTICS								
Plant Noise Calculations									
Daikin RZASG71MV1	dBA	63	125	250	500	1k	2k	4k	8k
Derived Sound Power Level based on Sound Pressure Level at 1m	61	67	62	57	61	56	49	50	40
Correction for 2 No. Units		+3	+3	+3	+3	+3	+3	+3	+3
Acoustic Reflections		+3	+3	+3	+3	+3	+3	+3	+3
Distance Attenuation (7m)		-25	-25	-25	-25	-25	-25	-25	-25
Sound Pressure Level at Nearest Noise Sensitive Window	42	48	43	38	42	37	30	31	21
Noise limit	44								
Difference	-2								