auricl
acoustic consulting

40 Great James Street, London

Noise Impact Assessment Report

3 March 2017

For

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40 Great James Street

London

WC1N 3HB

Contents

Project Number	13309	**Issue Date**	3 March 2017
Document Reference	R/NIA/1/170303	**Version**	01

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EXECUTIVE SUMMARY

Condenser units are proposed on the roof of 40 Great James Street in London, which will be subject to noise limitations imposed by Camden Council.

auricl has undertaken a noise survey to determine background noise levels at a position considered to be representative of the nearest noise sensitive properties to the proposed condenser units.

A noise assessment has been undertaken to predict noise emissions associated with the proposed plant.

The total noise level due to all relevant plant operating simultaneously is predicted to achieve the Camden Council requirements.

1.0 Introduction

Condenser units are proposed on the roof of 40 Great James Street in London, which will be subject to noise limitations imposed by Camden Council.

auricl has been instructed to undertake an acoustic assessment of the noise emissions associated with proposed plant in relation to Camden Council's requirements.

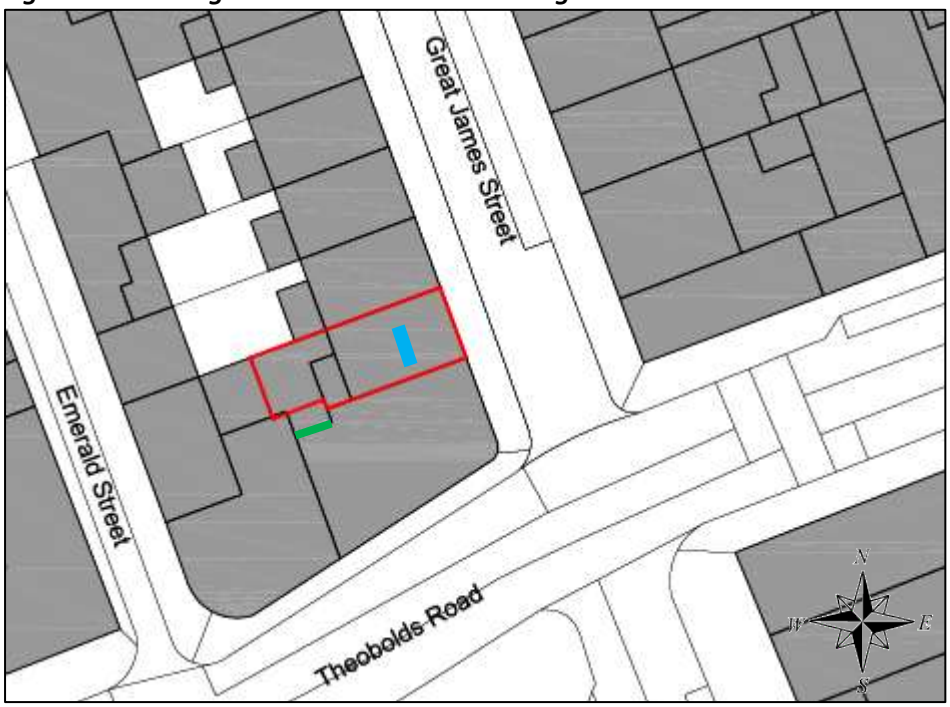
This report presents the methodology and results of a noise survey to determine background noise levels that are representative of the nearest noise sensitive property, as well as an acoustic assessment of the proposed plant.

2.0 Description of Site and Proposals

The site is located on the western side of Great James Street in central London and is surrounded by mainly commercial properties along Great James Street. The nearest noise sensitive properties were noted to be to the rear/west of the site.

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

Figure 2.1 Existing Site Extent and Surroundings



3.0 Camden Council Noise Requirements

The proposed site lies within the boundary of Camden Council, whose typical requirements regarding plant noise are presented in Table E of Policy DP28 as follows:

Noise levels from plant and machinery at which planning permission will not be granted

Noise description and location of measurement	***Period***	***Time***	***Noise Level***
Noise at 1 metre external to a sensitive façade	*Day, evening and night*	*0000-2400*	*5dB(A) < L_{A90}*
Noise that has a distinguishable discrete continuous note (whine, hiss, screech, hum) at 1 metre external to a sensitive façade	*Day, evening and night*	*0000-2400*	*10dB(A) < L_{A90}*
Noise that has distinct impulses (bangs, clicks, clatters, thumps) at 1 metre external to a sensitive façade	*Day, evening and night*	*0000-2400*	*10dB(A) < L_{A90}*
Noise at 1 metre external to a sensitive façade where L_{A90}>60dB	*Day, evening and night*	*0000-2400*	*55 dB L_{Aeq}*

4.0 Background Noise Survey Methodology

An unmanned environmental noise survey was undertaken over a typical 24-hour weekday period between Tuesday 28 February 2017 and Wednesday 1 March 2017. This measurement period was selected to assess background noise levels during typical periods when the proposed plant is intended to be operational.

The equipment used for the noise survey is described in Table 4.1.

Table 4.1 Description of Equipment used for Noise Survey

Item	Make & Model	Serial Number
Type 1 sound level meter	01 dB Duo	10846
Type 1 ½" microphone	GRAS 40 CD	161976
Calibrator	01 dB CAL21	35054818

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

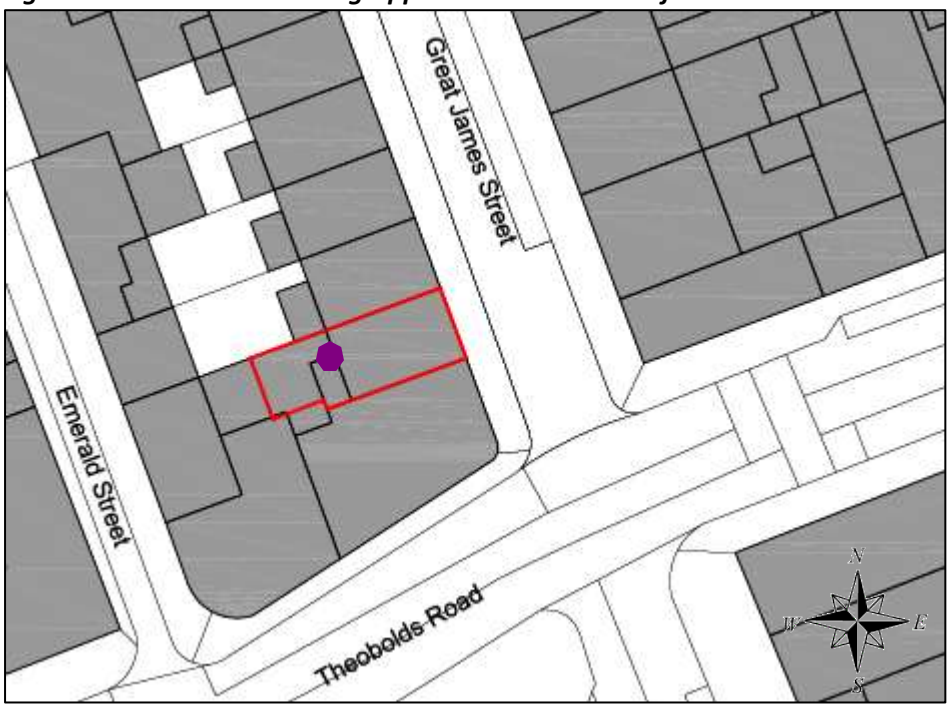
The noise monitoring equipment was calibrated before and after the noise survey period. No significant change was found. Laboratory equipment calibration certificates can be provided upon request.

The measurement position was located on the western boundary of the site, attached to a railing at roof level in free-field (i.e. away from vertical acoustically reflective surfaces). The measurement position is considered to be representative of background noise levels at the nearest noise sensitive

properties to the west of the site, whilst minimising the effect of plant items mounted on adjacent buildings.

The measurement position is indicated on Figure 4.1.

Figure 4.1 Site Plan Indicating Approximate Location of Measurement Position



Due to the nature of the noise survey, i.e. unmanned, we are unable to comment on the weather conditions throughout the entire noise survey period. However, at the beginning and end of the survey period, there was noted to be no rainfall, a clear sky and only light wind. These conditions are understood to be representative of the survey period and are considered appropriate for undertaking environmental noise measurements.

5.0 Noise Survey Results

Appendix B presents a time history graph showing the L_{Aeq} and L_{A90} sound pressure levels measured throughout the noise survey.

The lowest $L_{A90\,(15\,min)}$ background noise levels measured during daytime and night-time portions of the noise survey are summarised in Table 5.1.

Table 5.1 Lowest Measured Background Noise Levels

Lowest Measured $L_{A90\,(15\,min)}$ Background Noise Level (dB)	
Daytime (07:00 – 23:00 hours)	**Night-time (23:00 – 07:00 hours)**
46	46

We would consider the levels measured to be reasonable, considering the location of the measurement position and the dominant nearby noise sources.

Due to the nature of the unmanned noise survey 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 daytime noise climate at the measurement position was dominated by road traffic using surrounding roads. Building services plant serving nearby buildings was also just audible at the measurement position.

We would expect this to also be true of night-time periods.

6.0 Plant Noise Assessment

This section presents our assessment and calculations of noise emissions from the proposed building services plant at roof level, in relation to the proposed noise limits.

6.1 Proposed Plant

Three condenser units are proposed in a plant are at roof level. The plant area has been located between two pitched roofs, thereby maximising the distance between the plant and the nearest noise sensitive properties and utilising screening from the pitched roofs, which will also provide acoustic attenuation.

The sound power level for each condenser unit is 69 dB L_{wA}. As a worst-case, all three of the units could operate simultaneously during daytime periods, however none of the units are expected to operate during the night-time.

6.2 Nearest Noise Sensitive Property

The nearest noise sensitive property considered by this assessment is the residential property located at the south west of the site with the nearest noise sensitive window being located to the rear of the adjacent property, as indicated in green in Figure 6.1.

Figure 6.1 Nearest Noise Sensitive Property

6.3 Plant Noise Predictions

Our calculations to predict the plant noise level at the nearest noise sensitive property are shown in Table 6.1.

Table 6.1 Plant Noise Emission Calculations

Element	Level
Single Condenser Unit Sound Power Level (dB)	69
Quantity Correction for Three Units Operating (dB)	+5
Distance Attenuation Loss (dB)	-26
Screening Attenuation Loss (dB)	-15
Reflection Correction (dB)	+6
Total Predicted Noise Level at Receiver (dB)	**39**
Lowest Daytime Background Noise Level (dB)	**46**
Difference (dB)	**-7**

It can be seen the predicted noise level achieves the Camden Council requirements.

Appendix A – Acoustic Terminology

Parameter	Description
Decibel (dB)	A logarithmic scale representing the sound pressure or power level relative to the threshold of hearing ($20x10^{-6}$ 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.
A-weighting (L_A or 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
L_{wA}	The A-weighted sound power level.

Appendix B – Time History Graph