

**11 Briardale Gardens** 

London

**Plant Noise Assessment Report** 

19 February 2020

For

Mr & Mrs Burns 11 Briardale Gardens London NW3 7PN



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### **SUMMARY**

A new condenser unit is proposed to serve a residential property at 11 Briardale Gardens, London, NW3 7PN.

The plant is subject to Camden Council's plant noise emission criteria.

A background noise survey was undertaken at the nearest noise sensitive property and an assessment of plant noise emissions has been carried out.

Results of the assessment show that noise emissions from the proposed external plant meet Camden Council's requirements, subject to the installation of a suitable acoustic enclosure as specified in this report.

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## **1.0 Introduction**

A new condenser unit is proposed to serve a residential property at 11 Briardale Gardens in London.

The plant is subject to Camden Council's plant noise emission criteria.

**auricl** has been appointed to carry out a background noise survey at the site and undertake an assessment of noise emissions from the proposed condenser unit to the nearest noise sensitive property.

The following report presents the methodology and results of the survey, and an assessment of noise emissions from the proposed plant to determine compliance with the Camden Council 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 Site Description

The site is located at 11 Briardale Gardens in London (NW3 7PN) within a predominantly residential area.

A new condenser unit is proposed to serve the property as part of a refurbishment of the building. The unit is to be installed at second floor level on the western façade of the building.

The nearest noise sensitive window is located on the eastern façade of the neighboring property to the west at 13 Briardale Gardens, approximately 4m from the proposed plant location.

Figure 2.1 shows the site extent in **red**, approximate plant location in **blue** and location of the nearest noise sensitive window in **green** in relation to the surrounding area.



Figure 2.1 Site Extent and Surroundings



## **3.0 Camden Council Requirements**

Camden Council's external plant noise emission criteria is provided in Appendix 3 of the Camden Local Plan 2017.

It is required that the rating level of fixed external plant be controlled to a level at least 10 dB (15dB if tonal components are present) below the measured background noise level outside the nearest noise sensitive window when assessed in accordance with BS 4142:2014.

## 4.0 Noise Survey Methodology and Results

#### 4.1 Methodology

An unmanned noise survey was carried out over a 24-hour period between 13:00 hours on Thursday 6 February 2020 and 13:00 hours on Friday 7 February 2020 to determine existing background noise levels at the nearest noise sensitive property.

Noise measurements were captured in a façade measurement position with the measurement microphone attached to an extendable pole protruding 1m out of a second-floor window on the west facing façade of the site. The measurement position is considered representative of the nearest neighbouring noise sensitive window.

The measurement position is indicated in **purple** in Figure 4.1 below.



#### Figure 4.1 Site Plan Indicating Noise Measurement Position



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

Item	Make & Model	Serial Number			
Type 1 automated logging sound level meter	01dB FUSION	11388			
Type 1 ½" microphone	GRAS 40CE	259634			
Calibrator	01dB CAL21	34375252			

 Table 4.1 Description of Equipment used for Noise Survey

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

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 majority of the survey period and are considered appropriate for undertaking environmental noise measurements.

#### 4.2 Noise Survey Results & Observations

Appendix B presents time history graphs showing the  $L_{Amax}$ ,  $L_{Aeq}$  and  $L_{A90}$  sound pressure levels measured throughout the noise survey (shown as 15-minute intervals).

The proposed plant will serve a residential property and therefore has the potential to operate at any time during the day and night-time periods. We have therefore considered the noise levels captured during the night-time period (23:00 hours to 07:00 hours) when background levels are lowest to provide a worst-case assessment.

The typical background noise level captured during the night-time period of the survey was **34 dB**  $L_{A90 (15 min)}$ . This includes a -3dB correction to approximate free-field conditions in accordance with BS 4142 guidance.

During our site visits the noise climate was observed to be dominated by distant road traffic noise.

### **5.0 Plant Noise Assessment**

#### 5.1 Proposed Plant

One new Daikin RXYSCQ 4TV1 condenser unit is to be installed at second floor level on the western façade of the building. The manufacturer's noise data for the unit presents a sound power level of 68 dB  $L_{wA}$  (heating/cooling).

Octave band noise data for the unit is shown in the detailed plant noise calculations in Appendix C. Examination of the manufacturer's octave band noise data (in accordance with the methodology described in Annex C of BS 4142: 2014) confirmed that the noise is not tonal.

#### 5.3 Plant Noise Limit

Based on the background noise level presented in Section 4.2 and the requirements of Camden Council outlined in Section 3, the plant noise limit at the nearest noise sensitive window is **24 dB L**<sub>Aeq</sub>.



#### 5.4 Assessment

We have undertaken calculations to predict noise emissions associated with the proposed condenser unit at the nearest noise sensitive window.

Detailed plant noise calculations and spectral noise data for the plant are included in Appendix C.

As previously noted, noise from the units is not tonal or intermittent, therefore no character corrections have been applied in the calculations.

The plant noise calculation results at the nearest noise sensitive window are summarised in Table 5.1 below.

Element	Calculated Noise Level (dBA)
Plant Noise Rating Level at Window	24
Noise Limit	24
Difference	0

The results presented above are subject to the installation of an acoustic enclosure surrounding the unit. An example of the required enclosure attenuation is shown in the detailed plant noise calculations included in Appendix C.

The results show that noise emission from the condenser unit meet the Camden Council requirement following installation of the recommended acoustic enclosure.



# 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 <sub>p</sub> )	The sound pressure level is the sound pressure fluctuation caused by vibrating objects relative to the threshold of hearing.					
A-weighting (L <sub>A</sub> 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 <sub>Amax</sub>	The A-weighted maximum noise level measured during the measurement period.					
L <sub>Aeq,T</sub>	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 <sub>A90</sub> (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					











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Plant Noise Caulcualtions						ad	oustic co	nsulting
Daikin RXYSCQ 4TV1	dBA	125	250	500	1k	2k	4k	8k
Sound power level Lw	68	70	67	68	64	55	49	43
Distance attenuation (4m) - 20*LOG(4)-8		-20	-20	-20	-20	-20	-20	-20
Acoustic enclosure attenuation		-15	-20	-26	-28	-27	-23	-23
Sound pressure level at window	24	35	27	22	16	8	6	0
Noise limit	24							
Difference	0							

# Appendix C – Detailed Plant Noise Calculations