10 John Street
London

Environmental Noise Survey and Plant Noise Assessment Report

24502/PNA1 Rev3

2 October 2017

For:
Oury Clark Solicitors
10 John Street
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WC1N 2EB

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Hann Tucker Associates

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Document Control

Rev	Date	Comment	Prepared by	Authorised by
0	22/06/2017	-	Jack Bowden Trainee Assistant Consultant	Andrew Fermer Director BSc(Hons), MIOA
1	28/06/2017	Revision based on comments received from Malcolm Cook.	Jack Bowden Trainee Assistant Consultant	Andrew Fermer Director BSc(Hons), MIOA
2	10/07/2017	Revision to include attenuation from "Night Set-Back Card".	Jack Bowden Trainee Assistant Consultant	Andrew Fermer Director BSc(Hons), MIOA
			Prepared and authorised by	
3	02/10/2017	Revision to Local Authority Requirements	 Andrew Fermer Director BSc(Hons), MIOA	

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Attachments

1.0 Introduction

It is proposed to install 3No. condensers at the roof level of 10 John Street, London.

Hann Tucker Associates have therefore been commissioned to undertake an environmental noise survey at the site to assess the existing noise levels and to comment on the suitability of the new external plant in support of the planning application.

This report presents the survey methodology and assessment findings.

2.0 Objectives

To establish the existing noise levels by means of fully automated noise monitoring over a period of approximately 24 hours at a up to two secure and accessible positions.

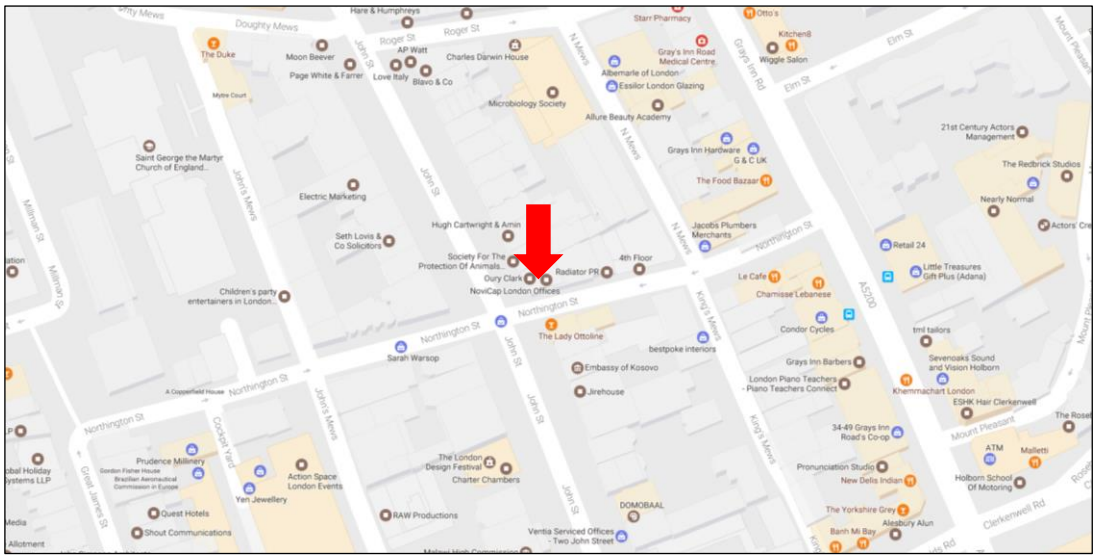
To assess the noise and vibration emissions from the proposed plant, based upon data with which we are provided, and comment upon the acceptability relative to the requirements of the Local Authority.

To advise on noise control measures if required to satisfy the requirements of the Local Authority and/or the landlord.

3.0 Site Description

3.1 Location

The site is located at 10 John Street, London, WC1N 2EB. The location is shown on the Location Map below.



Location Map (Map Data © 2017 Google.)

The site falls within the jurisdiction of the London Borough of Camden.

3.2 Description

The site is a ground plus three story building bordered by John Street to the west, Northington Street to the South and residential properties to the north and east. Surrounding buildings range from ground to ground plus 3 storeys. The main noise sources are pedestrian thoroughfare and traffic flow on John Street and Northington Street.

The site is shown in the Site Plan below.

Site Plan (Imagery ©2017 The GeoInformation Group, Map Data ©2017 Google.)

4.0 Acoustic Terminology

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

5.0 Survey Methodology

5.1 Procedure

Fully automated environmental noise monitoring was undertaken from approximately 12:45 hours on Tuesday 20 June 2017 to 12:45 hours on Wednesday 21 June 2017.

During the periods we were on site the wind conditions were calm and the sky was generally clear. We understand that generally throughout the survey period the weather conditions were dry. These conditions are considered suitable for obtaining representative measurement results.

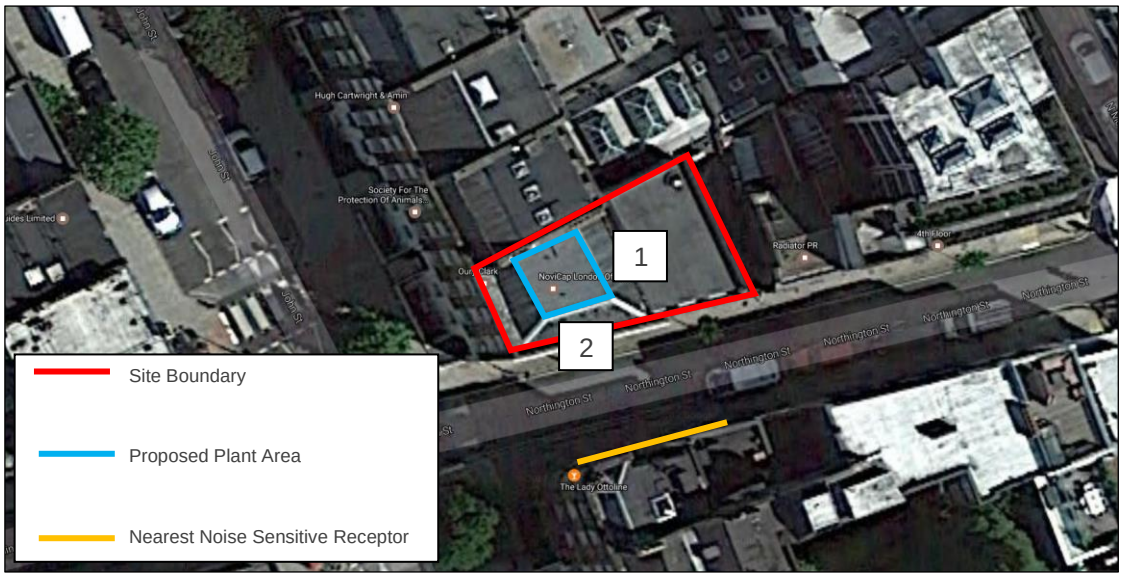
Measurements were taken continuously of the A-weighted (dBA) L_{90}, L_{eq} and L_{max} sound pressure levels over 15 minute periods.

5.2 Measurement Positions

The noise level measurements were undertaken at 2 positions as described in the table below.

Position No	Description
1	The microphone was attached to a pole extending from a third storey window facing north east, to the rear of the property. The microphone was 15 metres above ground level and at least 1 metre from reflecting surfaces.
2	The microphone was attached to a pole extending from a third storey window on Northington street. The microphone was 15 metres above ground level and at least 1 metre from reflecting surfaces.

Measurement positions are shown on the plan below.



Plan Showing Measurement Positions (Imagery ©2017 The GeoInformation Group, Map Data ©2017 Google.)

5.3 Instrumentation

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

Description	Manufacturer	Type	Serial Number	Calibration
Position 1 Type 1 Data Logging Sound Level Meter	Larson Davis	824	3155	Calibration on 13/03/2017
Position 1 Type 1 ½" Condenser Microphone	PCB	377B02	107427	Calibration on 13/03/2017
Position 1 Type 1 Preamp	Larson Davis	PRM902	4154	Calibration on 13/03/2017
Position 2 Type 1 Data Logging Sound Level Meter	Larson Davis	824	3699	Calibration on 27/02/2017
Position 2 Type 1 ½" Condenser Microphone	PCB	377B02	104946	Calibration on 27/02/2017
Position 2 Type 1 Preamp	Larson Davis	PRM902 L	3949	Calibration on 27/02/2017
Type 1 Calibrator	Larson Davis	CAL200	3082	LD calibration on 09/06/2016

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

Each sound level meter was located in an environmental case with the microphone connected to the sound level meter via an extension cable.

Each microphone was fitted with a windshield.

6.0 Results

The results have been plotted on Time History Graphs 24502/TH1 and 24502/TH2 enclosed, presenting the 15 minute A-weighted (dBA) L_{max}, L_{90} and L_{eq} noise levels at each measurement position throughout the duration of the survey.

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

Position	Lowest Measured $L_{A90(15min)}$ Background Noise Level (dB re 2 x 10^{-5} Pa)		
	Daytime (07:00 – 23:00) Hours	Night-Time (23:00 – 07:00) Hours	24 Hours
1	48 dBA	44 dBA	44 dBA
2	51 dBA	43 dBA	43 dBA

7.0 Discussion Of Noise Climate

During the periods we were on site the dominant noise sources was noted to be traffic flow on John Street and Northington Street.

8.0 Plant Noise Emission Criteria

The site at 10 John Street falls within the London Borough of Camden. we understand the London Borough of Camden's advice relating to noise emissions from air conditioning plant is as follows:

"Noise levels at a point 1 metre external to sensitive facades shall be at least 10dB(A) less than the existing background measurement (L_{A90}), expressed in dB(A) when all plant/equipment are in operation. Where it is anticipated that any plant/equipment will have a noise that has a distinguishable, discrete continuous note (whine, hiss, screech, hum) and/or if there are distinct

impulses (bangs, clicks, clatters, thumps) special attention should be given to reducing the noise levels from that piece of plant/equipment at any sensitive façade to at least 15dB(A) below the L_{A90}, expressed in dB(A)".

In order to meet the above advice, noise emissions from the proposed plant should not exceed a level of 10dB below the lowest measured $L_{A90(15min)}$. Therefore, based on the results of the noise survey and the advice above, we recommend the following plant noise emission levels to be achieved with all plant running simultaneously at 1m external to the nearest noise sensitive façade.

Plant Noise Emission Criteria (dBA re:$2x10^{-5}$Pa)		
Daytime (07:00 – 23:00 hours)	**Night Time (23:00 – 07:00 hours)**	**24 Hours**
38 dBA	33 dBA	33 dBA

It should be noted that the above criteria are subject to final approval by the London Borough of Camden.

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

9.0 Plant Noise Impact Assessment

We understand the proposed plant comprises 3No. Daikin RXYSCQ5TV1.

9.1 Plant Noise Data

We understand the manufacturer's noise data for each condenser 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	
Daikin RXYSCQ5TV1	51	53	52	53	46	41	34	26	53

We have been informed that the proposed units will be operational during daytime and night-time hours. A "Night Set-Back Card" will be installed from each of the condensers, reducing the level at each condenser by 4dB during the night-time periods.

9.2 Location of Plant

All plant is to be positioned at the central, raised section of the sites roof area. This is approximately 10 metres from the nearest noise sensitive receptor. The plant will be positioned within an absorbent lined sunken well in the roof providing screening to the nearest potentially affected windows.

9.3 Plant Noise Impact Assessment

9.3.1 Daytime

The following table summarises our predictions of atmospheric noise emissions during daytime periods from the proposed plant 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	
Sound Pressure Level at 1m (3No.)	56	58	57	58	51	46	39	31	58
Distance Correction	-17	-17	-17	-17	-17	-17	-17	-17	
Screening Losses	-5	-5	-5	-5	-5	-5	-5	-5	
Calculated Noise Level at Receptor	34	36	35	36	29	24	17	9	36

9.3.2 Night-Time

The following table summarises our predictions of atmospheric noise emissions during night-time periods from the proposed plant 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	
Sound Pressure Level at 1m (3No.)	52	54	53	54	47	42	35	27	54
Distance Correction	-17	-17	-17	-17	-17	-17	-17	-17	
Screening Losses	-5	-5	-5	-5	-5	-5	-5	-5	
Calculated Noise Level at Receptor	30	32	31	32	25	20	13	5	32

9.3.3 Discussion

Our calculations indicate that the proposed plant, should be capable of achieving the requirements of the Local Authority outlined in Section 8.0.

10.0 Conclusions

An environmental noise survey has been undertaken in order to establish the currently prevailing noise levels.

Plant noise emission criteria have been recommended based on the results of the noise survey and with reference to the Local Authority's requirements.

An assessment has been carried out to determine the plant noise emissions at the nearest noise sensitive window.

The assessment indicates that the proposed plant should be capable of achieving the proposed environmental noise criteria at the nearest noise sensitive residential window with the installation of the Night Set-Back Card.

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 — 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

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.

$L_{90,T}$ — L_{90} is the noise level exceeded for 90% of the period *T* (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, *T*.

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.

Sound Pressure Level (L_p) 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).

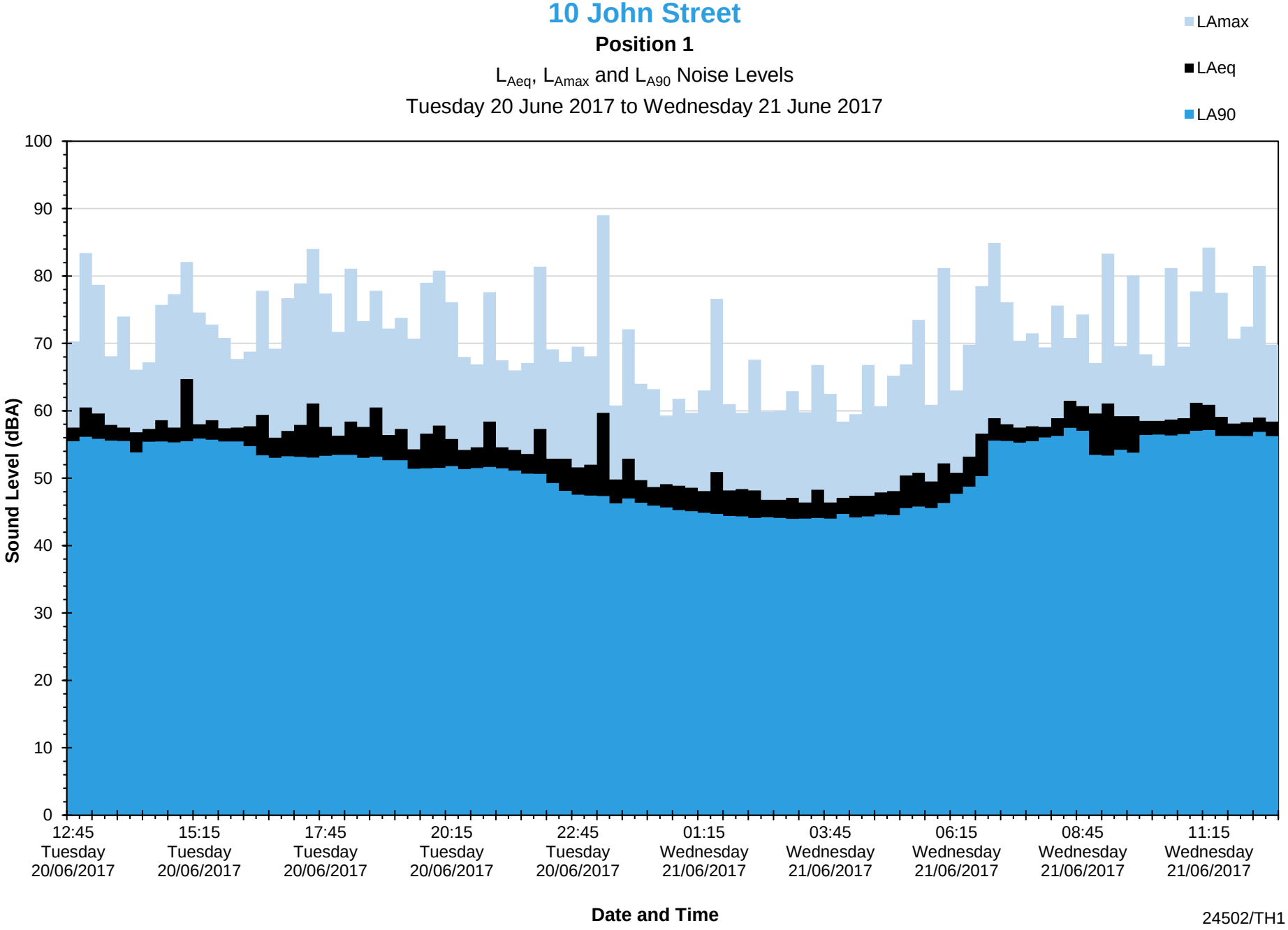
Sound Power Level (SWL or L_w) is the total amount of sound energy inherent in a particular sound source, independent of its environment. It is a logarithmic measure of the sound power in comparison to a specified reference level (usually 10^{-12} W).

10 John Street

Position 1

L_{Aeq}, L_{Amax} and L_{A90} Noise Levels

Tuesday 20 June 2017 to Wednesday 21 June 2017



24502/TH1

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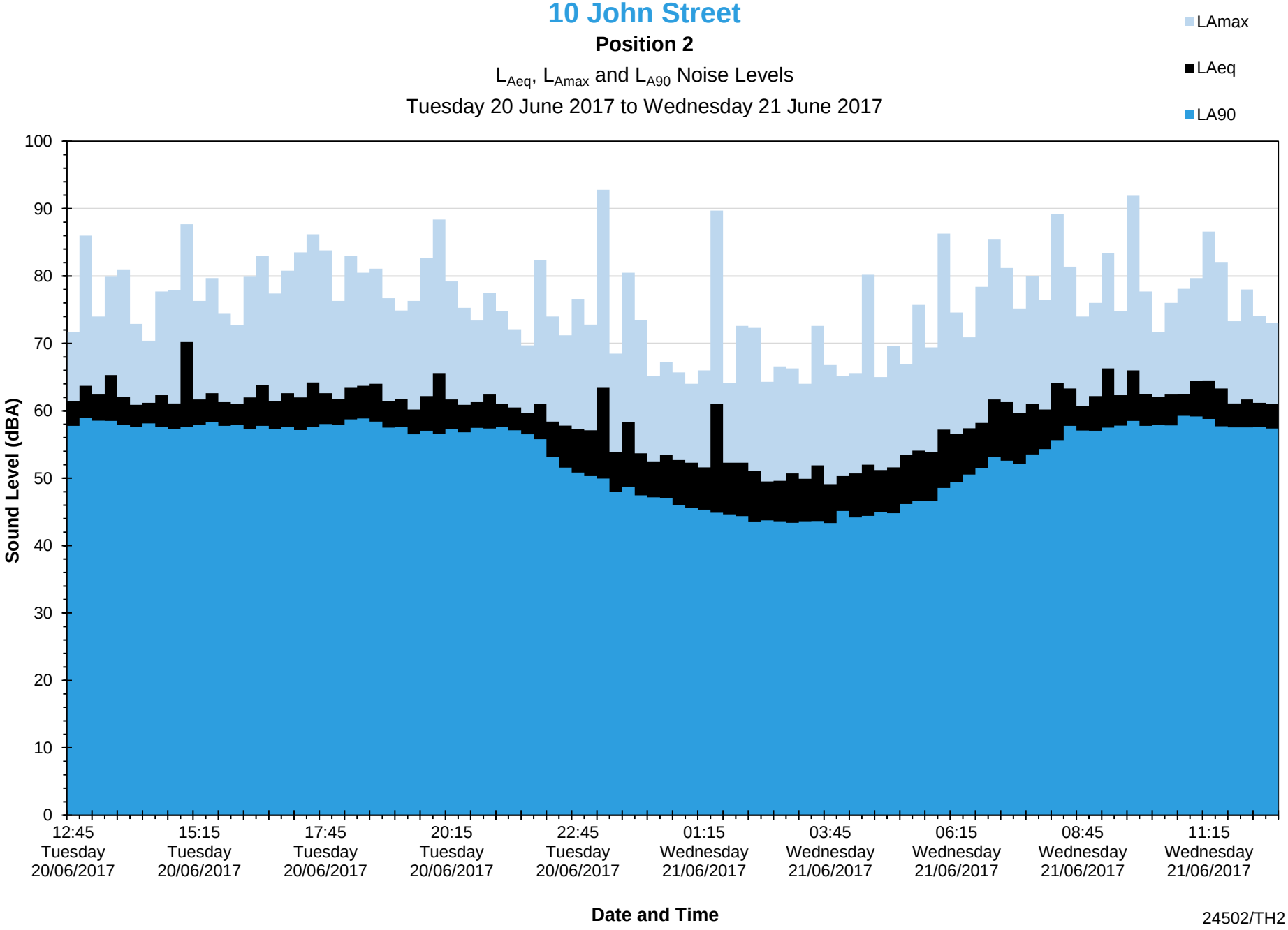
Position 2

L_{Aeq}, L_{Amax} and L_{A90} Noise Levels

Tuesday 20 June 2017 to Wednesday 21 June 2017



24502/TH2