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REPORT No. 72009018-1

4 THE OLD ORCHARD
LONDON
NW3 2TR

ENVIRONMENTAL NOISE SURVEY REPORT
&
PLANT NOISE ASSESSMENT

PREPARED: 14th October 2020

Presented by:

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CONTENTS

1.0 Introduction

1.1 Yuri Bedny has commissioned Noico Ltd to conduct an environmental noise survey at number 4 The Old Orchard, London, NW3 2TR.

1.2 The purpose of the survey is to obtain statistical noise data and to determine the background noise levels at the site. Based on the noise survey data, noise criteria are to be established for limiting noise emission from the mechanical plant installations serving the premises. The noise criteria are to be set in accordance with the requirements of the local planning authority (The London Borough of Camden Council).

1.3 Noico Ltd have also been instructed to carry out a plant noise assessment for the proposed new equipment being installed to ensure it meets the council requirement and offer recommendations should it not.

1.4 The development site is located in a primarily residential area with the building layout/configuration providing some shielding to the residential properties from the surrounding roads.

2.0 Instrumentation

2.1 A precision grade Norsonic 140 'Type 1' Integrating Sound Level Meter was used for the survey. This was equipped with an environmental microphone and extension cable. The instrument was powered by an external battery and stored in a weatherproof case.

2.2 The instrument was calibrated prior and subsequent to use with no calibration drift recorded.

3.0 Survey Details

3.1 Location: The environmental noise analyser microphone was located externally at ground floor level at the rear of the premises in the approximate proposed plant location. This position was chosen as it was considered to be representative of the background noise environment that exists at the nearest noise affected properties. Note, the exact position of the nearest noise-affected properties is to be confirmed by the local planning authority, prior to final design of any necessary mechanical plant noise control measures.

3.2 Period: Monitoring was carried out continuously from approximately 10:30 hrs on the 9th September 2020, through to 10:30 hrs on the 14th September 2020. The instrument was set up to monitor noise levels continuously and store data in fifteen-minute intervals.

3.3 Weather: The prevailing weather condition throughout the majority of the survey period was satisfactory for noise monitoring, being dry, dunny and mild with little to moderate breeze. Windspeed, although not recorded, was considered to be less than 5 m/s throughout the survey period.

3.4 Site Noise Characteristics: The ambient noise level was characterised by road traffic noise around the site. It is thought that no unusual events occurred during the survey period and the data are considered to be a true representation of ambient noise levels.

4.0 Survey Results

4.1 The results of the environmental survey are presented in graphical and numerical format in the attached appendices, showing the recorded values of L_{Aeq} and L_{A90}.

4.2 See Appendix 1 for a glossary of terms.

4.3 With reference to the measured data, the minimum background noise level measured during the survey period was:

Daytime (07:00 to 23:00hrs)	- 35.1 L_{A90}
Night time (23:00 to 07:00hrs)	- 33.0 L_{A90}

5.0 Environmental Noise Level Criteria

5.1 Criteria for mechanical services noise emission are normally based upon the prevailing level of background noise in the period of concern and may be set against this to a level as normally defined by the local planning authority.

5.2 The London Borough of Camden Council has advised that noise arising from fixed plant installations should not cause an increase in the existing minimum background noise level (as expressed as a L_{A90}) at the nearest noise affected property. In practical terms, this means that the noise arising from the plant should be at least 10 dB(A) below the minimum background noise level.

5.3 To conform to the above criteria, and in accordance with the minimum background noise levels measured during the survey (detailed summarised in 4.3 above), noise from the proposed plant installations should not exceed the following value.

Daytime plant operation (07:00 to 23:00hrs)	- 25.1 dB L_{Aeq}
Night time (23:00 to 07:00hrs)	- 23.0 dB L_{Aeq}

Note: These levels must be achieved cumulatively with all plant operating, and as measured at 1 metre from the window of the nearest affected property.

6.0 BS 4142

6.1 Using BS 4142 the likelihood of complaints from local residents due to plant noise emissions is assessed by the difference between noise from the new source(s) and the existing background level. The noise from the new source(s) is expressed in terms of a rating level, calculated from the specific noise source(s) plus any ‘acoustic feature corrections’ and is given as an $L_{Aeq,T}$ noise level.

6.2 The acoustic feature correction is applied where the source emits a noise of a tonal, impulsive or intermittent nature.

6.3 The existing background noise level is expressed in terms of an $L_{A90,T}$ noise level. The rating level can be subtracted from the background noise level to determine noise impact against the design criteria.

7.0 BS 4142 Assessment

7.1 We understand the following new equipment is to be installed at the ground floor level at the rear of the site, also listed for reference is the associated dB(A) level of the plant.

1no. PUZ-HWM140VHA(-BS) 53dB(A) @ 1m

7.2 Being a residential property we have assumed for the purposes of this report that the plant will have the opportunity to run 24hours a day.

7.3 A review of the plant noise level indicates that there is no evidence of any tonal content and no acoustic feature correction is required.

7.4 There are numerous residential properties in the immediate vicinity, each with differing sight lines and distances. However, we estimate the rear windows of the properties at number 48 - 50 Parliament Hill and 20 Tanza Road are the nearest residential locations. Each location is estimated to be at a distance of 18m from the proposed plant location. Our acoustic assessment will therefore cover all of these locations with a single calculation, calling the calculation position Assessment Location A.

7.5 Our full calculations are contained within the appendices of this report, but we can now summarise our findings for the assessment location.

Considering the plant at this location our acoustic Calculation Sheet 1 indicates a noise level of 31dB(A) at 1m from this nearest noise sensitive windows without any mitigation measures. Once the proposed mitigation measures are put in place – a full acoustic enclosure with inlet and outlet acoustic louvres – this level reduces to 21dB(A). The 24hour design target is 23dB(A) and so with the proposed mitigation measures in place this plant installation will comply with the requirements of the local authority with a margin of 2dB(A) safety.

8.0 Conclusion

8.1 A background noise level survey has been carried out at 4 The Old Orchard, London, NW3 2TR.

8.2 Based upon the survey results and discussions with the local planning authority, criteria applicable to noise from the mechanical services plant have been established.

8.3 A plant noise assessment for the proposed new equipment being installed at the above has established that the required criterion – as required by the local authority – will only be achieved with the installation of suitable mitigation measures as outlined in this acoustic report.

Appendix 1 - Glossary of Terms

Decibel, dB	A unit of level derived from the logarithm of the ratio between the value of a quantity and a reference value. For sound pressure level (Lp) the reference quantity is $2x10^{-5}$ N/m^2. The sound pressure level existing when microphone measured pressure is $2x10^{-5}$ N/m^2 is 0 dB, the threshold of hearing.
L	Instantaneous value of Sound Pressure Level (Lp).
Frequency	Is related to sound pitch; frequency equals the ratio between velocity of sound and wavelength.
A weighting	Arithmetic corrections applied to values of Lp according to frequency. When logarithmically summed for all frequencies, the resulting single "A weighted value" becomes comparable with other such values from which a comparative loudness judgement can be made, then, without knowledge of frequency content of the source.
$L_{eq,T}$	Equivalent continuous level of sound pressure which, if it actually existed for the integration time period T of the measurement, would possess the same energy as the constantly varying values of Lp actually measured.
$L_{Aeq,T}$	Equivalent continuous level of A weighted sound pressure which, if it actually existed for the integration time period, T, of the measurement would possess the same energy as the constantly varying values of Lp actually measured.
$L_{n,T}$	Lp which was exceeded for n% of time, T.
$L_{An,T}$	Level in dBA which was exceeded for n% of time, T.
$L_{max,T}$	The instantaneous maximum sound pressure level which occurred during time, T.
$L_{Amax,T}$	The instantaneous maximum A weighted sound pressure level which occurred during time, T.

Background Noise Level	The value of $L_{A90,T}$, ref. BS4142:1997.
Traffic Noise Level	The value of $L_{A10,T}$.
Specific Noise Level	The value of $L_{Aeq,T}$ at the assessment position produced by the specific noise source, ref. BS4142:1997.
Rating Level	The specific noise level, corrected to account for any characteristic features of the noise, by adding a 5 dBA penalty for any tonal, impulsive or irregular qualities, ref. BS4142:1997.
Specific Noise Source	The noise source under consideration when assessing the likelihood of complaint.
Assessment Position	Unless otherwise noted, is a point at 1 m from the façade of the nearest affected sensitive property.

Appendix 2 - Environmental Noise Monitoring Data

Date	LAeq	LA90
(2020/09/09 10:30:01.00)	45.6	37.6
(2020/09/09 10:45:01.00)	44.6	36.8
(2020/09/09 11:00:01.00)	42.4	36.7
(2020/09/09 11:15:01.00)	43.5	37.2
(2020/09/09 11:30:01.00)	43.0	37.5
(2020/09/09 11:45:01.00)	44.2	36.8
(2020/09/09 12:00:01.00)	37.5	36.0
(2020/09/09 12:15:01.00)	38.1	35.3
(2020/09/09 12:30:01.00)	39.3	35.5
(2020/09/09 12:45:01.00)	40.6	37.4
(2020/09/09 13:00:01.00)	38.6	37.6
(2020/09/09 13:15:01.00)	39.2	37.9
(2020/09/09 13:30:01.00)	39.7	38.0
(2020/09/09 13:45:01.00)	39.4	37.8
(2020/09/09 14:00:01.00)	61.7	38.9
(2020/09/09 14:15:01.00)	62.0	38.5
(2020/09/09 14:30:01.00)	51.8	38.6
(2020/09/09 14:45:01.00)	41.9	37.8
(2020/09/09 15:00:01.00)	43.0	38.2
(2020/09/09 15:15:01.00)	40.1	38.0
(2020/09/09 15:30:01.00)	39.5	37.6
(2020/09/09 15:45:01.00)	39.7	37.3
(2020/09/09 16:00:01.00)	39.2	37.1
(2020/09/09 16:15:01.00)	38.2	37.1
(2020/09/09 16:30:01.00)	38.6	37.1
(2020/09/09 16:45:01.00)	39.8	37.3
(2020/09/09 17:00:01.00)	41.9	37.1
(2020/09/09 17:15:01.00)	39.3	37.0
(2020/09/09 17:30:01.00)	39.1	36.9
(2020/09/09 17:45:01.00)	38.4	37.1
(2020/09/09 18:00:01.00)	37.8	36.9
(2020/09/09 18:15:01.00)	39.4	37.1
(2020/09/09 18:30:01.00)	41.2	37.3
(2020/09/09 18:45:01.00)	39.4	37.1
(2020/09/09 19:00:01.00)	38.8	37.1
(2020/09/09 19:15:01.00)	38.0	36.9
(2020/09/09 19:30:01.00)	40.3	37.1
(2020/09/09 19:45:01.00)	41.0	36.8
(2020/09/09 20:00:01.00)	39.0	36.7
(2020/09/09 20:15:01.00)	37.4	36.7
(2020/09/09 20:30:01.00)	39.7	37.0
(2020/09/09 20:45:01.00)	38.3	37.2

(2020/09/09 21:00:01.00)	37.7	36.6
(2020/09/09 21:15:01.00)	38.4	36.7
(2020/09/09 21:30:01.00)	38.0	36.8
(2020/09/09 21:45:01.00)	38.0	37.3
(2020/09/09 22:00:01.00)	38.4	37.5
(2020/09/09 22:15:01.00)	39.7	37.2
(2020/09/09 22:30:01.00)	42.3	37.4
(2020/09/09 22:45:01.00)	39.5	37.4
(2020/09/09 23:00:01.00)	37.6	36.7
(2020/09/09 23:15:01.00)	37.6	36.8
(2020/09/09 23:30:01.00)	37.8	37.1
(2020/09/09 23:45:01.00)	37.1	35.2
(2020/09/10 00:00:01.00)	35.0	34.4
(2020/09/10 00:15:01.00)	40.5	34.5
(2020/09/10 00:30:01.00)	39.2	33.5
(2020/09/10 00:45:01.00)	38.8	33.8
(2020/09/10 01:00:01.00)	35.5	34.6
(2020/09/10 01:15:01.00)	35.0	34.4
(2020/09/10 01:30:01.00)	34.8	34.3
(2020/09/10 01:45:01.00)	34.8	34.1
(2020/09/10 02:00:01.00)	34.8	33.4
(2020/09/10 02:15:01.00)	33.8	33.0
(2020/09/10 02:30:01.00)	33.8	33.0
(2020/09/10 02:45:01.00)	34.2	33.1
(2020/09/10 03:00:01.00)	33.8	33.2
(2020/09/10 03:15:01.00)	33.6	33.1
(2020/09/10 03:30:01.00)	33.7	33.1
(2020/09/10 03:45:01.00)	34.2	33.3
(2020/09/10 04:00:01.00)	35.2	33.6
(2020/09/10 04:15:01.00)	45.8	33.9
(2020/09/10 04:30:01.00)	40.9	34.4
(2020/09/10 04:45:01.00)	35.1	33.7
(2020/09/10 05:00:01.00)	34.6	33.4
(2020/09/10 05:15:01.00)	35.0	34.4
(2020/09/10 05:30:01.00)	34.9	34.3
(2020/09/10 05:45:01.00)	40.5	34.7
(2020/09/10 06:00:01.00)	36.2	34.7
(2020/09/10 06:15:01.00)	35.8	34.7
(2020/09/10 06:30:01.00)	37.9	35.1
(2020/09/10 06:45:01.00)	37.4	35.2
(2020/09/10 07:00:01.00)	38.9	35.1
(2020/09/10 07:15:01.00)	41.0	35.2
(2020/09/10 07:30:01.00)	44.2	38.3
(2020/09/10 07:45:01.00)	40.7	37.8
(2020/09/10 08:00:01.00)	43.7	38.2
(2020/09/10 08:15:01.00)	44.0	38.0
(2020/09/10 08:30:01.00)	39.3	37.8
(2020/09/10 08:45:01.00)	39.0	37.2

(2020/09/10 09:00:01.00)	39.2	37.2
(2020/09/10 09:15:01.00)	40.1	37.0
(2020/09/10 09:30:01.00)	39.0	37.0
(2020/09/10 09:45:01.00)	40.2	37.3
(2020/09/10 10:00:01.00)	41.6	37.3
(2020/09/10 10:15:01.00)	49.2	37.3
(2020/09/10 10:30:01.00)	42.6	37.3
(2020/09/10 10:45:01.00)	43.1	37.2
(2020/09/10 11:00:01.00)	46.2	38.0
(2020/09/10 11:15:01.00)	45.1	37.6
(2020/09/10 11:30:01.00)	41.7	37.5
(2020/09/10 11:45:01.00)	41.6	37.5
(2020/09/10 12:00:01.00)	38.6	37.5
(2020/09/10 12:15:01.00)	42.3	37.9
(2020/09/10 12:30:01.00)	41.3	37.5
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(2020/09/10 13:00:01.00)	39.4	37.8
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(2020/09/10 13:45:01.00)	42.8	38.2
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(2020/09/10 14:15:01.00)	39.4	37.5
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(2020/09/10 16:15:01.00)	40.8	37.0
(2020/09/10 16:30:01.00)	38.0	36.8
(2020/09/10 16:45:01.00)	37.8	36.7
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(2020/09/10 17:30:01.00)	39.7	37.0
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(2020/09/11 07:30:01.00)	39.9	36.7
(2020/09/11 07:45:01.00)	38.5	36.8
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(2020/09/11 08:15:01.00)	40.8	37.1
(2020/09/11 08:30:01.00)	39.0	37.0
(2020/09/11 08:45:01.00)	41.9	37.0

(2020/09/11 09:00:01.00)	39.2	36.4
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(2020/09/11 14:15:01.00)	42.3	40.3
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(2020/09/11 15:00:01.00)	41.5	40.0
(2020/09/11 15:15:01.00)	42.9	40.7
(2020/09/11 15:30:01.00)	42.2	40.3
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(2020/09/11 16:30:01.00)	41.6	39.4
(2020/09/11 16:45:01.00)	42.0	39.1
(2020/09/11 17:00:01.00)	42.4	39.0
(2020/09/11 17:15:01.00)	42.2	39.2
(2020/09/11 17:30:01.00)	40.9	38.8
(2020/09/11 17:45:01.00)	44.2	39.9
(2020/09/11 18:00:01.00)	42.2	39.5
(2020/09/11 18:15:01.00)	41.3	39.7
(2020/09/11 18:30:01.00)	42.6	40.1
(2020/09/11 18:45:01.00)	42.1	39.8
(2020/09/11 19:00:01.00)	41.9	39.7
(2020/09/11 19:15:01.00)	41.8	39.4
(2020/09/11 19:30:01.00)	45.9	39.6
(2020/09/11 19:45:01.00)	41.8	39.5
(2020/09/11 20:00:01.00)	41.4	39.5
(2020/09/11 20:15:01.00)	41.6	40.0
(2020/09/11 20:30:01.00)	42.6	39.9
(2020/09/11 20:45:01.00)	41.8	40.1

(2020/09/11 21:00:01.00)	42.0	39.8
(2020/09/11 21:15:01.00)	42.2	40.0
(2020/09/11 21:30:01.00)	41.9	40.3
(2020/09/11 21:45:01.00)	42.7	40.9
(2020/09/11 22:00:01.00)	42.6	40.5
(2020/09/11 22:15:01.00)	42.1	40.5
(2020/09/11 22:30:01.00)	42.6	40.7
(2020/09/11 22:45:01.00)	42.0	40.3
(2020/09/11 23:00:01.00)	41.7	40.4
(2020/09/11 23:15:01.00)	42.0	40.0
(2020/09/11 23:30:01.00)	41.3	40.1
(2020/09/11 23:45:01.00)	41.3	39.9
(2020/09/12 00:00:02.00)	41.7	40.2
(2020/09/12 00:15:01.00)	41.9	40.0
(2020/09/12 00:30:01.00)	45.0	40.1
(2020/09/12 00:45:01.00)	41.8	40.0
(2020/09/12 01:00:01.00)	43.4	38.7
(2020/09/12 01:15:01.00)	41.0	38.8
(2020/09/12 01:30:01.00)	40.5	38.8
(2020/09/12 01:45:01.00)	40.5	38.7
(2020/09/12 02:00:01.00)	40.3	38.7
(2020/09/12 02:15:01.00)	40.2	38.6
(2020/09/12 02:30:01.00)	41.0	38.9
(2020/09/12 02:45:01.00)	40.9	38.8
(2020/09/12 03:00:01.00)	40.3	38.6
(2020/09/12 03:15:01.00)	40.8	38.8
(2020/09/12 03:30:01.00)	40.8	38.4
(2020/09/12 03:45:01.00)	40.2	38.6
(2020/09/12 04:00:01.00)	40.5	38.5
(2020/09/12 04:15:01.00)	40.4	38.8
(2020/09/12 04:30:01.00)	40.9	38.7
(2020/09/12 04:45:01.00)	40.3	38.4
(2020/09/12 05:00:01.00)	40.3	38.6
(2020/09/12 05:15:01.00)	40.1	38.5
(2020/09/12 05:30:01.00)	39.8	38.0
(2020/09/12 05:45:01.00)	43.5	38.6
(2020/09/12 06:00:01.00)	42.7	39.0
(2020/09/12 06:15:01.00)	41.3	38.7
(2020/09/12 06:30:01.00)	40.9	38.7
(2020/09/12 06:45:01.00)	42.3	38.9
(2020/09/12 07:00:01.00)	41.4	38.8
(2020/09/12 07:15:01.00)	42.7	39.2
(2020/09/12 07:30:01.00)	42.3	39.1
(2020/09/12 07:45:01.00)	43.7	38.9
(2020/09/12 08:00:01.00)	42.2	38.8
(2020/09/12 08:15:01.00)	40.1	38.4
(2020/09/12 08:30:01.00)	44.7	38.5
(2020/09/12 08:45:01.00)	42.0	38.5

(2020/09/12 09:00:01.00)	40.8	38.1
(2020/09/12 09:15:01.00)	41.4	38.8
(2020/09/12 09:30:01.00)	41.0	38.5
(2020/09/12 09:45:01.00)	41.9	38.4
(2020/09/12 10:00:01.00)	40.1	37.9
(2020/09/12 10:15:01.00)	41.2	37.8
(2020/09/12 10:30:01.00)	39.7	38.0
(2020/09/12 10:45:01.00)	42.0	37.9
(2020/09/12 11:00:01.00)	39.7	37.6
(2020/09/12 11:15:01.00)	41.1	38.1
(2020/09/12 11:30:01.00)	41.9	39.5
(2020/09/12 11:45:01.00)	43.3	39.3
(2020/09/12 12:00:01.00)	40.1	38.1
(2020/09/12 12:15:01.00)	41.1	38.7
(2020/09/12 12:30:01.00)	40.9	39.0
(2020/09/12 12:45:01.00)	44.1	39.8
(2020/09/12 13:00:01.00)	41.2	39.2
(2020/09/12 13:15:01.00)	41.8	39.6
(2020/09/12 13:30:01.00)	41.4	39.2
(2020/09/12 13:45:01.00)	49.4	40.4
(2020/09/12 14:00:01.00)	42.5	39.8
(2020/09/12 14:15:01.00)	42.5	40.1
(2020/09/12 14:30:01.00)	42.0	39.5
(2020/09/12 14:45:01.00)	42.4	39.7
(2020/09/12 15:00:01.00)	43.0	39.5
(2020/09/12 15:15:01.00)	41.4	39.2
(2020/09/12 15:30:01.00)	42.3	40.1
(2020/09/12 15:45:01.00)	41.9	39.5
(2020/09/12 16:00:01.00)	43.6	39.6
(2020/09/12 16:15:01.00)	43.0	39.9
(2020/09/12 16:30:01.00)	43.9	40.0
(2020/09/12 16:45:01.00)	42.7	40.0
(2020/09/12 17:00:01.00)	43.6	40.1
(2020/09/12 17:15:01.00)	44.3	40.7
(2020/09/12 17:30:01.00)	43.5	39.6
(2020/09/12 17:45:01.00)	44.3	40.5
(2020/09/12 18:00:01.00)	42.6	39.6
(2020/09/12 18:15:01.00)	41.7	39.6
(2020/09/12 18:30:01.00)	42.0	39.7
(2020/09/12 18:45:01.00)	42.1	40.0
(2020/09/12 19:00:01.00)	41.2	39.7
(2020/09/12 19:15:01.00)	43.4	39.6
(2020/09/12 19:30:01.00)	41.7	39.3
(2020/09/12 19:45:01.00)	41.8	39.4
(2020/09/12 20:00:01.00)	40.6	39.6
(2020/09/12 20:15:01.00)	41.4	40.1
(2020/09/12 20:30:01.00)	42.0	40.3
(2020/09/12 20:45:01.00)	41.7	40.1

(2020/09/12 21:00:01.00)	43.0	40.4
(2020/09/12 21:15:01.00)	42.9	40.5
(2020/09/12 21:30:01.00)	42.0	40.2
(2020/09/12 21:45:01.00)	41.7	40.3
(2020/09/12 22:00:01.00)	41.5	40.2
(2020/09/12 22:15:01.00)	42.0	40.4
(2020/09/12 22:30:01.00)	42.0	40.4
(2020/09/12 22:45:01.00)	42.5	40.4
(2020/09/12 23:00:01.00)	42.5	40.2
(2020/09/12 23:15:01.00)	42.6	40.6
(2020/09/12 23:30:01.00)	41.9	40.4
(2020/09/12 23:45:01.00)	41.3	40.1
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(2020/09/13 00:15:01.00)	41.5	40.1
(2020/09/13 00:30:01.00)	41.7	40.2
(2020/09/13 00:45:01.00)	41.2	40.0
(2020/09/13 01:00:01.00)	41.3	40.0
(2020/09/13 01:15:01.00)	41.6	40.1
(2020/09/13 01:30:01.00)	41.6	40.0
(2020/09/13 01:45:01.00)	41.2	40.0
(2020/09/13 02:00:01.00)	40.6	39.0
(2020/09/13 02:15:01.00)	40.1	38.6
(2020/09/13 02:30:01.00)	40.3	38.7
(2020/09/13 02:45:01.00)	40.4	38.8
(2020/09/13 03:00:01.00)	40.6	38.8
(2020/09/13 03:15:01.00)	40.8	38.6
(2020/09/13 03:30:01.00)	40.7	38.7
(2020/09/13 03:45:01.00)	40.6	39.0
(2020/09/13 04:00:01.00)	40.5	38.7
(2020/09/13 04:15:01.00)	40.5	38.6
(2020/09/13 04:30:01.00)	40.5	38.7
(2020/09/13 04:45:01.00)	40.5	38.6
(2020/09/13 05:00:01.00)	40.4	38.6
(2020/09/13 05:15:01.00)	42.0	38.8
(2020/09/13 05:30:01.00)	40.3	38.4
(2020/09/13 05:45:01.00)	46.0	38.9
(2020/09/13 06:00:01.00)	42.8	38.8
(2020/09/13 06:15:01.00)	41.2	38.7
(2020/09/13 06:30:01.00)	40.9	39.1
(2020/09/13 06:45:01.00)	41.9	39.3
(2020/09/13 07:00:01.00)	41.2	39.2
(2020/09/13 07:15:01.00)	41.6	39.2
(2020/09/13 07:30:01.00)	44.3	38.8
(2020/09/13 07:45:01.00)	43.3	39.3
(2020/09/13 08:00:01.00)	44.7	39.6
(2020/09/13 08:15:01.00)	44.8	39.0
(2020/09/13 08:30:01.00)	43.1	38.6
(2020/09/13 08:45:01.00)	46.2	38.6

(2020/09/13 09:00:01.00)	42.7	39.1
(2020/09/13 09:15:01.00)	41.9	39.4
(2020/09/13 09:30:01.00)	41.9	39.1
(2020/09/13 09:45:01.00)	43.3	39.8
(2020/09/13 10:00:01.00)	43.3	40.3
(2020/09/13 10:15:01.00)	41.9	40.1
(2020/09/13 10:30:01.00)	42.1	40.1
(2020/09/13 10:45:01.00)	41.9	40.1
(2020/09/13 11:00:01.00)	42.6	40.2
(2020/09/13 11:15:01.00)	46.1	40.4
(2020/09/13 11:30:01.00)	42.0	40.0
(2020/09/13 11:45:01.00)	43.8	40.4
(2020/09/13 12:00:01.00)	42.5	40.3
(2020/09/13 12:15:01.00)	41.8	39.9
(2020/09/13 12:30:01.00)	41.9	40.0
(2020/09/13 12:45:01.00)	41.9	40.0
(2020/09/13 13:00:01.00)	42.7	40.0
(2020/09/13 13:15:01.00)	41.6	39.9
(2020/09/13 13:30:01.00)	40.7	39.4
(2020/09/13 13:45:01.00)	43.0	39.9
(2020/09/13 14:00:01.00)	44.6	40.2
(2020/09/13 14:15:01.00)	42.9	40.3
(2020/09/13 14:30:01.00)	42.6	39.4
(2020/09/13 14:45:01.00)	40.6	39.3
(2020/09/13 15:00:01.00)	42.9	40.3
(2020/09/13 15:15:01.00)	41.3	40.0
(2020/09/13 15:30:01.00)	41.1	39.8
(2020/09/13 15:45:01.00)	42.0	40.0
(2020/09/13 16:00:01.00)	41.0	39.7
(2020/09/13 16:15:01.00)	41.2	39.7
(2020/09/13 16:30:01.00)	41.4	40.0
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(2020/09/13 17:00:01.00)	48.4	40.3
(2020/09/13 17:15:01.00)	42.0	40.0
(2020/09/13 17:30:01.00)	45.1	40.4
(2020/09/13 17:45:01.00)	43.1	40.6
(2020/09/13 18:00:01.00)	42.1	40.7
(2020/09/13 18:15:01.00)	42.0	39.8
(2020/09/13 18:30:01.00)	41.9	40.1
(2020/09/13 18:45:01.00)	45.8	40.4
(2020/09/13 19:00:01.00)	42.3	40.7
(2020/09/13 19:15:01.00)	42.3	40.5
(2020/09/13 19:30:01.00)	43.7	40.6
(2020/09/13 19:45:01.00)	42.4	40.3
(2020/09/13 20:00:01.00)	41.3	39.8
(2020/09/13 20:15:01.00)	41.2	40.0
(2020/09/13 20:30:01.00)	42.8	39.8
(2020/09/13 20:45:01.00)	41.2	39.8

(2020/09/13 21:00:01.00)	40.7	39.5
(2020/09/13 21:15:01.00)	40.5	39.5
(2020/09/13 21:30:01.00)	40.8	39.2
(2020/09/13 21:45:01.00)	40.2	38.9
(2020/09/13 22:00:01.00)	40.7	39.2
(2020/09/13 22:15:01.00)	40.2	39.2
(2020/09/13 22:30:01.00)	40.4	39.2
(2020/09/13 22:45:01.00)	40.7	39.6
(2020/09/13 23:00:01.00)	40.0	39.2
(2020/09/13 23:15:01.00)	43.0	39.1
(2020/09/13 23:30:01.00)	40.6	39.6
(2020/09/13 23:45:01.00)	40.2	39.5
(2020/09/14 00:00:01.00)	40.2	39.3
(2020/09/14 00:15:01.00)	39.7	38.9
(2020/09/14 00:30:01.00)	40.2	39.1
(2020/09/14 00:45:01.00)	41.5	39.0
(2020/09/14 01:00:01.00)	40.2	39.2
(2020/09/14 01:15:01.00)	42.0	39.5
(2020/09/14 01:30:01.00)	39.7	38.9
(2020/09/14 01:45:01.00)	40.2	39.5
(2020/09/14 02:00:01.00)	40.0	39.3
(2020/09/14 02:15:01.00)	40.9	39.3
(2020/09/14 02:30:01.00)	40.4	39.5
(2020/09/14 02:45:01.00)	40.0	39.3
(2020/09/14 03:00:01.00)	44.7	39.6
(2020/09/14 03:15:01.00)	42.1	39.7
(2020/09/14 03:30:01.00)	40.4	39.7
(2020/09/14 03:45:01.00)	40.5	39.6
(2020/09/14 04:00:01.00)	40.2	39.5
(2020/09/14 04:15:01.00)	40.6	39.7
(2020/09/14 04:30:01.00)	41.0	39.9
(2020/09/14 04:45:01.00)	41.2	40.0
(2020/09/14 05:00:01.00)	41.8	39.8
(2020/09/14 05:15:01.00)	40.8	39.4
(2020/09/14 05:30:01.00)	40.9	39.1
(2020/09/14 05:45:01.00)	44.4	39.0
(2020/09/14 06:00:01.00)	41.6	39.0
(2020/09/14 06:15:01.00)	41.2	39.7
(2020/09/14 06:30:01.00)	41.5	39.8
(2020/09/14 06:45:01.00)	41.8	39.9
(2020/09/14 07:00:01.00)	42.5	39.9
(2020/09/14 07:15:01.00)	43.9	40.4
(2020/09/14 07:30:01.00)	42.4	40.9
(2020/09/14 07:45:01.00)	45.1	40.6
(2020/09/14 08:00:01.00)	44.0	41.0
(2020/09/14 08:15:01.00)	44.9	40.9
(2020/09/14 08:30:01.00)	42.5	40.6
(2020/09/14 08:45:01.00)	43.6	40.7

(2020/09/14 09:00:01.00)	42.8	40.3
(2020/09/14 09:15:01.00)	42.0	40.1
(2020/09/14 09:30:01.00)	43.5	40.5
(2020/09/14 09:45:01.00)	42.8	40.3
(2020/09/14 10:00:01.00)	43.4	40.6
(2020/09/14 10:15:01.00)	44.1	40.1
(2020/09/14 10:30:01.00)	46.8	40.0

Appendix 3 – Acoustic Calculations

CALCULATION SHEET 1										
CLIENT:	**Yuri Bedny**		PROJECT:	**4 The Old Orchard London NW3 2TR**						
Job ref:	**72009018**		DATE:	**14th Oct 2020**						
Plant operation: 24Hours a day				Octave Band Centre Frequency (Hz)						
Description			**63**	**125**	**250**	**500**	**1K**	**2K**	**4K**	**8K**	**dB(A)**
ASSESSMENT LOCATION A											
PUZ-HWM140VHA(-BS)		Lp @ 1m	**61**	**55**	**52**	**51**	**48**	**43**	**38**	**30**	**53**
Combined Plant Total			**61**	**55**	**52**	**51**	**48**	**43**	**38**	**30**	**53**
Additional surface reflections		Two	6	6	6	6	6	6	6	6	
Distance Loss: 1m to 18m			-26	-26	-26	-26	-26	-26	-26	-26	
Screening via existing building		Line of sight	-5	-5	-5	-5	-5	-5	-5	-5	
Façade Correction			3	3	3	3	3	3	3	3	
Lp @1m from receivers façade			**39**	**33**	**30**	**29**	**26**	**21**	**16**	**8**	**31**
									Noise criteria external to nearest noise sensitive window for plant operating period =		**23**
										Excess =	**8**
Notes											
Calculations to nearest noise sensitive residential rear windows in Parliament Hill and/or Tanza Road											
No allowance has been made in the above calculations for any noise/vibration transfer through the structure											
Vibration isolation should be allowed for under the new plant											
Mitigation measures:	Required - in the form of an acoustic enclosure utilisng 300mm deep acoustic louvres										
	Mitigation measures to provide a minimum of 8dB(A) attenuation - see below.										
Lp @1m from receivers façade		**(no mitigation)**	**39**	**33**	**30**	**29**	**26**	**21**	**16**	**8**	**31**
Acoustic Louvre 300mm deep (44% FA)			-2	-2	-6	-12	-17	-16	-11	-12	
Lp @1m from receivers façade		**(with mitigation)**	**37**	**31**	**24**	**17**	**9**	**5**	**5**	**-4**	**21**
									Noise criteria external to nearest noise sensitive window =		**23**
										Excess =	**-2**
									The above mitigation measures allow a 2dB(A) margin for safety		

Figure 1

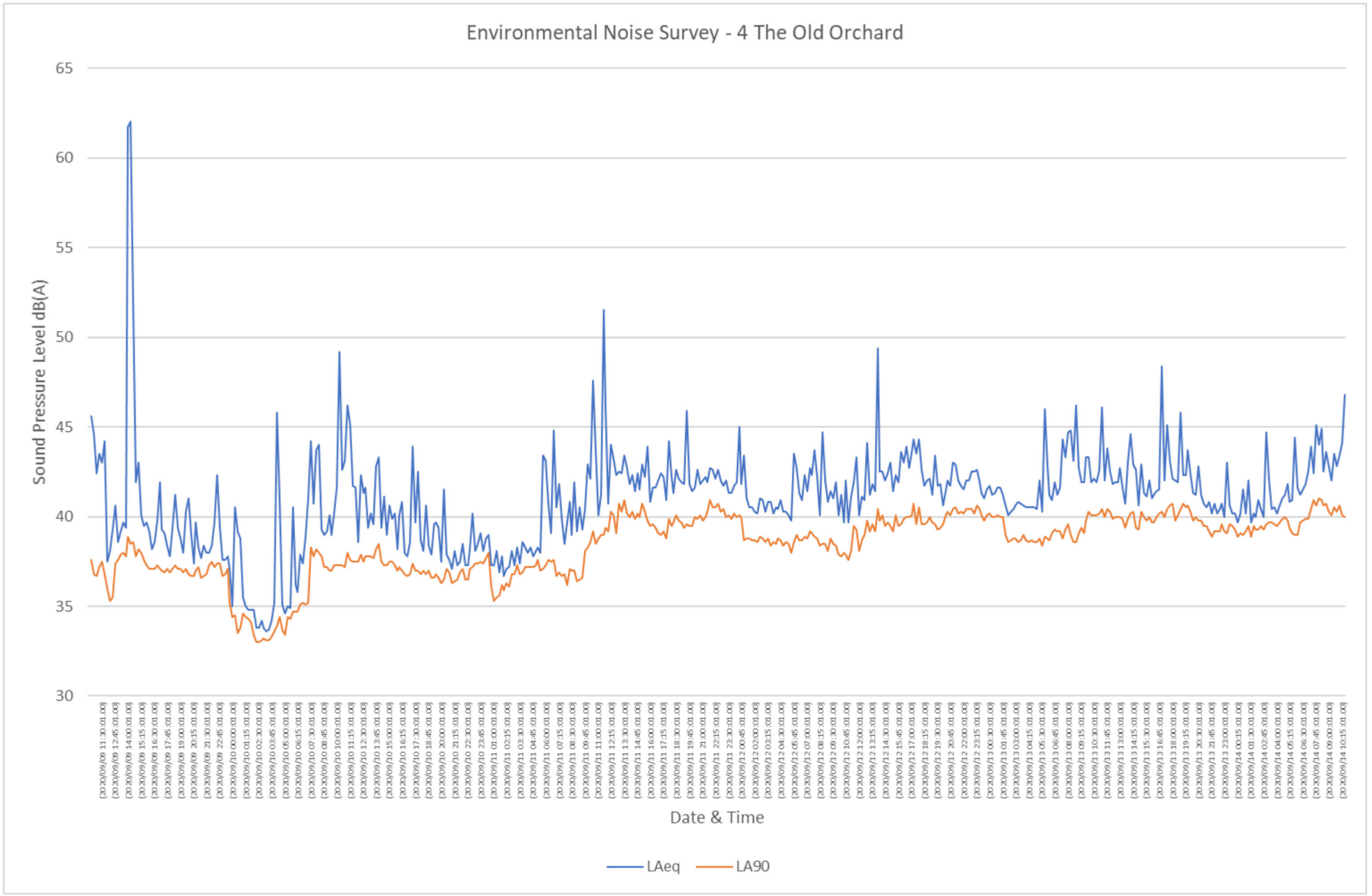
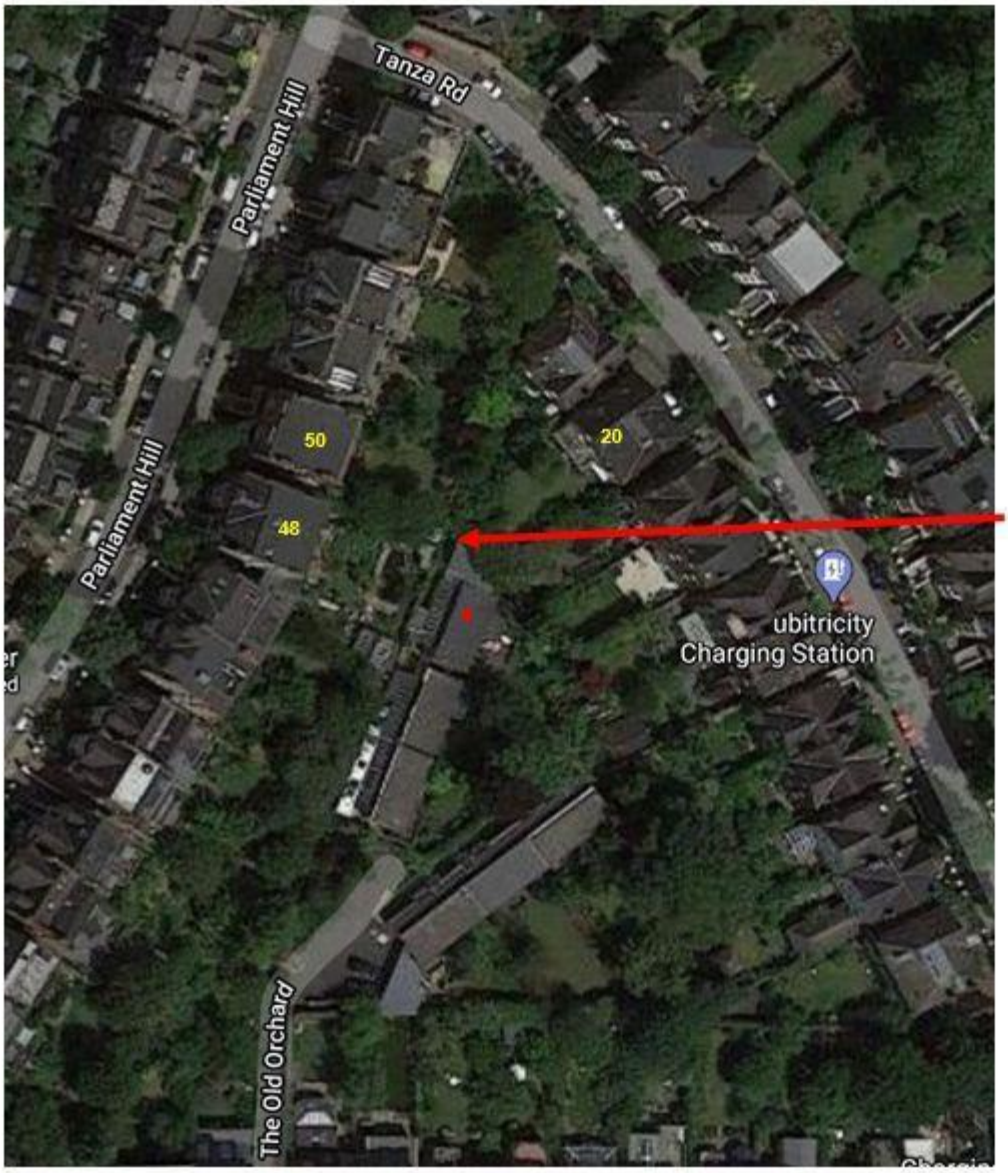

Environmental Noise Survey - 4 The Old Orchard
Sound Pressure Level dB(A)
65
60
55
50
45
40
35
30
Date & Time
LAeq
LA90

Figure 2



NOICO NOISE CONTROL	Project: 4 The Old Orchard	Title: Noise Survey Position
	Dwg No: 2009018-3 Rev A	Date: 14th October 2020

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