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**REPORT No. 1908009-6**

**18 Hendon Avenue  
Finchley  
London  
N3 1UE**

**ENVIRONMENTAL NOISE SURVEY  
&  
PLANT NOISE ASSESSMENT REPORT**

**PREPARED: 16<sup>th</sup> August 2021**

**Presented by: Paul Cotton**

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## **1.0 Introduction**

- 1.1 E+M Tecnica LLP has commissioned Noico Ltd to conduct an environmental noise survey at 18 Hendon Avenue, Finchley, N3 1UE.
- 1.2 The purpose of the survey is to obtain statistical noise data in order 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 (London Borough of Barnet Council).
- 1.3 The development site comprises a large three storey detached residential property situated on the western corner of Hendon Avenue and Kingswood Park. From observations made on site and generic mapping software, all surrounding properties in the local vicinity appear to be residential.

## **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 within the back garden of the property. This position was chosen as it was considered to be representative of the background noise environment which exists at the nearest noise affected properties. Note, from the observations made on site, the nearest noise affected properties are considered to be No.20 Hendon Avenue and No. 1 Kingswood Park. Note, the exact positions of the nearest noise-affected properties are 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 11:30 hrs on the 15<sup>th</sup> August 2019 through to 22:30 hrs on the 18<sup>th</sup> August 2019. 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, mild and with little to moderate breeze. Windspeed, although not recorded, was considered to be less than 5 m/s throughout the majority of the survey period.
- 3.4 Site Noise Characteristics: The ambient noise level was characterised in the main by local road traffic noise on Hendon Avenue and adjoining roads. Whilst no plant serving adjacent buildings was observed during our visit to the project site, should mechanical plant be serving nearby buildings, these items may be contributing to the ambient noise level in the area. 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 (rounded to the nearest whole number in accordance with BS4142:2014) measured during the survey period is as follows:

Daytime (07:00 to 23:00hrs)	- 34 $L_{A90}$
Night time (23:00 to 07:00hrs)	- 32 $L_{A90}$

#### 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 Barnet 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 5dB(A) below the minimum background noise level. Should noise from plant be deemed to be tonal, a further 5dB penalty is applicable (-10dB(A) total).
- 5.3 To conform to the above criteria, and in accordance with the minimum background noise levels measured during the survey (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)	- 29 dB $L_{Aeq}$
Night time (23:00 to 07:00hrs)	- 27 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 Plant Noise Assessment

- 6.1 It is understood that 5no. Mitsubishi Model PUMY-SP140VKM Heat Pumps are to be located in the rear garden at the boundary of the property and adjacent to the Garage of 1 Kingswood Park with the rear (coil face) of the units facing the receiver.

The manufacturer's published noise data, expressed as a Sound Pressure ( $L_p$ ) level measured at a distance of 1m from the plant, is as follows:

Frequency (Hz):	63	125	250	500	1k	2k	4k	8k
$L_p$ @ 1m (dB):	62	58	56	53	52	47	41	34

- 6.2 The distance from the plant to the nearest noise sensitive residential receiver, deemed to be No.1 Kingswood Park, is approximately 5m.

- 6.3 We understand the plant will be operational at any time over a 24 hour period and the night-time criterion of 27dB(A) therefore applies.
- 6.4 A review of the plant noise level indicates that the units have a smooth declining curve across the frequency spectrum. Assuming the plant is inverter controlled we feel that no acoustic feature correction need be added.
- 6.5 The following table shows our calculation for the condenser emissions to 1m from the window of the nearest affected property:

**Calculation of Intake Noise to 1 Kingswood Park**

Frequency (Hz)	63	125	250	500	1k	2k	4k	8k
Plant Lp @1m (dB) (Heating)	62	58	56	53	52	47	41	34
Correction for 5 no. units	7	7	7	7	7	7	7	7
Inlet correction	-3	-3	-3	-3	-3	-3	-3	-3
Correction for source reflections	3	3	3	3	3	3	3	3
5m Distance correction ( $20\log_{10} 1/5$ )	-14	-14	-14	-14	-14	-14	-14	-14
Barrier loss	-5	-5	-5	-5	-5	-5	-5	-5
600mm Long Attenuator Insertion Loss	-7	-10	-14	-25	-33	-30	-25	-22
A-weighting correction	-26	-16	-9	-3	0	1	1	-1
Resultant LP @ receiver	17	20	21	13	7	6	5	-1
Resultant							25	dB(A)
Target Noise Criterion							27	dB(A)
Level of Safety							2	dB(A)

- 6.6 It should be noted that the discharge of the heat pumps face away from the nearest receiver. Should a 450mm long attenuator be utilised on the discharge of the units, the required criterion will be met at a distance of 15m and 45°; more than sufficient for neighbours to the west and east of the project site (presumed to be No.20 & No.16 respectively) who are both located a minimum distance of 20m & 45° from the proposed plant location.
- 6.7 Our calculation shows that the plant will need to be installed within a suitably designed acoustic enclosure. The enclosure is to be manufactured from 50mm deep acoustic panel-work offering the following minimum transmission loss:

Frequency (Hz):	63	125	250	500	1k	2k	4k	8k
TL (dB):	19	19	25	31	40	42	45	41

Attenuated openings shall be required to allow fresh air into and discharge air out of the enclosure. These shall provide the following minimum insertion loss (IL) values:

Frequency (Hz):	63	125	250	500	1k	2k	4k	8k
Intake IL (dB):	07	10	14	25	33	30	25	22
Discharge IL (dB):	05	08	10	18	22	20	16	14

## 7.0 Conclusion

- 7.1 A background noise level survey has been carried out at 18 Hendon Avenue, Finchley, N3 1UE.
- 7.2 Based upon the survey results and discussions with the local planning authority, criteria applicable to noise from the mechanical services plant have been established.
- 7.3 A plant noise assessment for the proposed new equipment being installed at the project site has been undertaken. The provision of a suitably designed acoustic enclosure will reduce the excess noise in line with the requirements of the local authority (The London Borough of Barnet Council).

## 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 ( $L_p$ ) the reference quantity is $2 \times 10^{-5} \text{ N/m}^2$ . The sound pressure level existing when microphone measured pressure is $2 \times 10^{-5} \text{ N/m}^2$ is 0 dB, the threshold of hearing.
L	Instantaneous value of Sound Pressure Level ( $L_p$ ).
Frequency	Is related to sound pitch; frequency equals the ratio between velocity of sound and wavelength.
A weighting	Arithmetic corrections applied to values of $L_p$ 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 $L_p$ 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 $L_p$ actually measured.
$L_{n,T}$	$L_p$ 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
(2019/08/15 11:30:02.00)	53.6	42.8
(2019/08/15 11:45:03.00)	47.7	43.8
(2019/08/15 12:00:03.00)	48.4	44.5
(2019/08/15 12:15:02.00)	47.5	43.3
(2019/08/15 12:30:02.00)	46.5	43.2
(2019/08/15 12:45:02.00)	44.7	41.6
(2019/08/15 13:00:03.00)	44.2	40.6
(2019/08/15 13:15:04.00)	47.5	40.9
(2019/08/15 13:30:02.00)	47.9	42.0
(2019/08/15 13:45:02.00)	46.6	41.1
(2019/08/15 14:00:02.00)	47.1	42.4
(2019/08/15 14:15:03.00)	45.6	42.0
(2019/08/15 14:30:03.00)	49.5	41.5
(2019/08/15 14:45:02.00)	46.8	42.0
(2019/08/15 15:00:03.00)	45.5	41.6
(2019/08/15 15:15:02.00)	49.1	42.1
(2019/08/15 15:30:02.00)	45.1	41.2
(2019/08/15 15:45:02.00)	45.3	41.3
(2019/08/15 16:00:03.00)	44.1	40.3
(2019/08/15 16:15:03.00)	44.9	41.2
(2019/08/15 16:30:02.00)	46.1	40.5
(2019/08/15 16:45:02.00)	45.7	40.2
(2019/08/15 17:00:02.00)	45.5	41.0
(2019/08/15 17:15:02.00)	45.5	40.9
(2019/08/15 17:30:03.00)	46.1	41.4
(2019/08/15 17:45:03.00)	49.1	41.6
(2019/08/15 18:00:04.00)	45.6	41.3
(2019/08/15 18:15:02.00)	47.3	42.2
(2019/08/15 18:30:02.00)	53.6	42.2
(2019/08/15 18:45:03.00)	48.9	42.2
(2019/08/15 19:00:03.00)	48.2	41.5
(2019/08/15 19:15:03.00)	45.5	40.0
(2019/08/15 19:30:02.00)	46.3	39.8
(2019/08/15 19:45:03.00)	48.9	40.1
(2019/08/15 20:00:03.00)	44.9	40.4
(2019/08/15 20:15:02.00)	44.9	40.7
(2019/08/15 20:30:03.00)	47.7	40.5
(2019/08/15 20:45:02.00)	47.2	40.7
(2019/08/15 21:00:03.00)	47.7	41.0
(2019/08/15 21:15:03.00)	46.1	40.7
(2019/08/15 21:30:02.00)	44.7	41.0
(2019/08/15 21:45:03.00)	43.8	41.3
(2019/08/15 22:00:02.00)	45.4	41.1
(2019/08/15 22:15:02.00)	42.5	40.6

Date	LAeq	LA90
(2019/08/15 22:30:02.00)	44.1	40.9
(2019/08/15 22:45:03.00)	42.0	40.1
(2019/08/15 23:00:04.00)	41.8	39.6
(2019/08/15 23:15:02.00)	42.1	39.0
(2019/08/15 23:30:02.00)	46.1	40.0
(2019/08/15 23:45:02.00)	46.1	39.6
(2019/08/16 00:00:04.00)	40.9	39.2
(2019/08/16 00:15:03.00)	40.2	38.9
(2019/08/16 00:30:03.00)	41.4	39.1
(2019/08/16 00:45:03.00)	43.0	38.0
(2019/08/16 01:00:02.00)	40.0	38.4
(2019/08/16 01:15:03.00)	40.2	37.8
(2019/08/16 01:30:04.00)	49.6	37.4
(2019/08/16 01:45:02.00)	37.9	36.6
(2019/08/16 02:00:02.00)	36.6	35.7
(2019/08/16 02:15:03.00)	37.0	36.2
(2019/08/16 02:30:03.00)	42.2	35.8
(2019/08/16 02:45:03.00)	39.5	36.1
(2019/08/16 03:00:02.00)	37.8	36.6
(2019/08/16 03:15:03.00)	39.2	37.3
(2019/08/16 03:30:03.00)	38.0	36.7
(2019/08/16 03:45:03.00)	37.5	35.8
(2019/08/16 04:00:04.00)	37.1	35.7
(2019/08/16 04:15:03.00)	37.1	36.1
(2019/08/16 04:30:03.00)	37.6	35.8
(2019/08/16 04:45:03.00)	37.3	36.0
(2019/08/16 05:00:03.00)	38.4	36.3
(2019/08/16 05:15:03.00)	39.6	37.6
(2019/08/16 05:30:03.00)	39.5	37.8
(2019/08/16 05:45:03.00)	45.0	37.9
(2019/08/16 06:00:03.00)	46.9	39.3
(2019/08/16 06:15:02.00)	45.8	40.7
(2019/08/16 06:30:02.00)	44.9	40.9
(2019/08/16 06:45:03.00)	42.7	39.6
(2019/08/16 07:00:03.00)	47.9	39.9
(2019/08/16 07:15:04.00)	45.9	40.1
(2019/08/16 07:30:02.00)	45.9	40.6
(2019/08/16 07:45:02.00)	43.2	40.0
(2019/08/16 08:00:02.00)	45.3	39.1
(2019/08/16 08:15:03.00)	44.0	38.8
(2019/08/16 08:30:03.00)	43.3	39.5
(2019/08/16 08:45:02.00)	45.7	41.0
(2019/08/16 09:00:03.00)	43.8	39.7
(2019/08/16 09:15:03.00)	47.6	40.0
(2019/08/16 09:30:03.00)	49.1	39.5
(2019/08/16 09:45:03.00)	46.2	41.2



Date	LAeq	LA90
(2019/08/16 10:00:02.00)	45.4	41.2
(2019/08/16 10:15:03.00)	46.2	42.5
(2019/08/16 10:30:02.00)	44.4	41.3
(2019/08/16 10:45:03.00)	47.3	42.3
(2019/08/16 11:00:03.00)	46.0	41.7
(2019/08/16 11:15:02.00)	54.5	43.8
(2019/08/16 11:30:03.00)	55.4	44.6
(2019/08/16 11:45:02.00)	55.7	44.1
(2019/08/16 12:00:03.00)	47.6	42.4
(2019/08/16 12:15:04.00)	52.9	43.8
(2019/08/16 12:30:03.00)	50.6	44.2
(2019/08/16 12:45:02.00)	50.3	43.8
(2019/08/16 13:00:02.00)	49.1	44.6
(2019/08/16 13:15:03.00)	47.5	44.1
(2019/08/16 13:30:03.00)	48.6	44.6
(2019/08/16 13:45:02.00)	47.7	43.7
(2019/08/16 14:00:02.00)	45.5	41.5
(2019/08/16 14:15:02.00)	48.2	43.5
(2019/08/16 14:30:03.00)	47.8	44.0
(2019/08/16 14:45:04.00)	46.5	43.0
(2019/08/16 15:00:03.00)	48.1	42.7
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(2019/08/16 15:30:02.00)	46.7	42.4
(2019/08/16 15:45:03.00)	47.5	43.2
(2019/08/16 16:00:03.00)	47.5	43.6
(2019/08/16 16:15:02.00)	46.7	42.7
(2019/08/16 16:30:03.00)	44.3	41.4
(2019/08/16 16:45:02.00)	46.1	42.1
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(2019/08/16 19:00:03.00)	46.3	43.3
(2019/08/16 19:15:03.00)	47.1	42.6
(2019/08/16 19:30:03.00)	45.8	42.9
(2019/08/16 19:45:03.00)	45.7	42.1
(2019/08/16 20:00:03.00)	47.1	42.5
(2019/08/16 20:15:03.00)	46.0	42.3
(2019/08/16 20:30:03.00)	47.1	42.4
(2019/08/16 20:45:03.00)	45.9	41.6
(2019/08/16 21:00:03.00)	46.3	41.9
(2019/08/16 21:15:02.00)	44.8	41.3

Date	LAeq	LA90
(2019/08/16 21:30:03.00)	44.3	41.1
(2019/08/16 21:45:03.00)	44.9	41.6
(2019/08/16 22:00:03.00)	47.2	43.2
(2019/08/16 22:15:03.00)	47.3	42.7
(2019/08/16 22:30:02.00)	50.8	45.5
(2019/08/16 22:45:03.00)	49.4	46.4
(2019/08/16 23:00:03.00)	46.4	41.8
(2019/08/16 23:15:03.00)	44.2	40.4
(2019/08/16 23:30:03.00)	44.2	40.2
(2019/08/16 23:45:03.00)	41.9	39.0
(2019/08/17 00:00:05.00)	40.9	38.3
(2019/08/17 00:15:03.00)	40.7	37.9
(2019/08/17 00:30:02.00)	39.9	37.0
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(2019/08/17 01:45:02.00)	43.4	35.8
(2019/08/17 02:00:03.00)	37.6	35.2
(2019/08/17 02:15:03.00)	36.4	34.2
(2019/08/17 02:30:03.00)	35.6	34.0
(2019/08/17 02:45:03.00)	37.6	34.4
(2019/08/17 03:00:03.00)	35.7	32.9
(2019/08/17 03:15:03.00)	35.4	32.9
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(2019/08/17 03:45:02.00)	35.1	33.0
(2019/08/17 04:00:03.00)	35.5	33.2
(2019/08/17 04:15:03.00)	48.5	35.5
(2019/08/17 04:30:03.00)	43.0	41.3
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(2019/08/17 07:00:02.00)	42.5	39.4
(2019/08/17 07:15:03.00)	42.1	39.3
(2019/08/17 07:30:03.00)	42.2	38.7
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(2019/08/17 08:00:02.00)	46.5	39.3
(2019/08/17 08:15:03.00)	41.2	38.6
(2019/08/17 08:30:03.00)	42.2	38.6
(2019/08/17 08:45:02.00)	44.8	38.3

Date	LAeq	LA90
(2019/08/17 09:00:03.00)	42.9	37.5
(2019/08/17 09:15:02.00)	43.3	37.7
(2019/08/17 09:30:03.00)	44.4	38.7
(2019/08/17 09:45:03.00)	45.8	39.8
(2019/08/17 10:00:03.00)	44.1	39.1
(2019/08/17 10:15:03.00)	43.9	39.4
(2019/08/17 10:30:02.00)	45.6	39.2
(2019/08/17 10:45:03.00)	44.3	39.9
(2019/08/17 11:00:03.00)	46.1	40.5
(2019/08/17 11:15:03.00)	46.3	42.2
(2019/08/17 11:30:03.00)	46.9	42.5
(2019/08/17 11:45:03.00)	43.5	40.3
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(2019/08/17 15:15:02.00)	45.0	40.2
(2019/08/17 15:30:03.00)	45.5	39.4
(2019/08/17 15:45:03.00)	42.5	39.2
(2019/08/17 16:00:03.00)	44.5	38.0
(2019/08/17 16:15:02.00)	45.1	38.8
(2019/08/17 16:30:03.00)	41.6	38.2
(2019/08/17 16:45:03.00)	42.1	36.8
(2019/08/17 17:00:03.00)	41.4	36.8
(2019/08/17 17:15:03.00)	40.3	36.8
(2019/08/17 17:30:03.00)	44.7	38.9
(2019/08/17 17:45:03.00)	41.5	38.2
(2019/08/17 18:00:03.00)	43.9	38.0
(2019/08/17 18:15:02.00)	44.7	36.8
(2019/08/17 18:30:03.00)	40.0	36.7
(2019/08/17 18:45:03.00)	44.0	38.3
(2019/08/17 19:00:03.00)	42.7	39.0
(2019/08/17 19:15:03.00)	42.0	38.1
(2019/08/17 19:30:02.00)	45.3	39.3
(2019/08/17 19:45:03.00)	42.7	38.8
(2019/08/17 20:00:03.00)	43.0	40.0
(2019/08/17 20:15:03.00)	42.1	38.5

Date	LAeq	LA90
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(2019/08/17 21:00:03.00)	42.8	40.0
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(2019/08/17 21:30:03.00)	42.9	39.8
(2019/08/17 21:45:03.00)	42.0	38.9
(2019/08/17 22:00:02.00)	43.5	38.4
(2019/08/17 22:15:03.00)	41.4	38.1
(2019/08/17 22:30:03.00)	41.5	37.8
(2019/08/17 22:45:03.00)	41.7	37.6
(2019/08/17 23:00:03.00)	41.6	37.6
(2019/08/17 23:15:02.00)	42.0	37.6
(2019/08/17 23:30:03.00)	40.8	36.9
(2019/08/17 23:45:03.00)	37.3	35.3
(2019/08/18 00:00:04.00)	36.5	35.0
(2019/08/18 00:15:03.00)	36.9	34.8
(2019/08/18 00:30:03.00)	37.5	35.0
(2019/08/18 00:45:03.00)	47.0	34.6
(2019/08/18 01:00:03.00)	45.6	35.0
(2019/08/18 01:15:02.00)	37.5	34.2
(2019/08/18 01:30:03.00)	42.5	33.7
(2019/08/18 01:45:03.00)	36.9	33.4
(2019/08/18 02:00:03.00)	34.6	33.3
(2019/08/18 02:15:03.00)	34.6	33.6
(2019/08/18 02:30:02.00)	34.6	33.3
(2019/08/18 02:45:03.00)	34.5	33.2
(2019/08/18 03:00:03.00)	34.4	33.5
(2019/08/18 03:15:03.00)	34.9	33.8
(2019/08/18 03:30:03.00)	35.1	33.6
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(2019/08/18 04:00:03.00)	34.7	33.6
(2019/08/18 04:15:05.00)	40.0	34.1
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(2019/08/18 04:45:02.00)	34.8	33.3
(2019/08/18 05:00:03.00)	35.5	32.8
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(2019/08/18 05:30:03.00)	35.2	33.1
(2019/08/18 05:45:02.00)	39.0	33.7
(2019/08/18 06:00:02.00)	41.3	34.6
(2019/08/18 06:15:03.00)	40.6	34.9
(2019/08/18 06:30:03.00)	49.7	35.3
(2019/08/18 06:45:03.00)	46.1	34.6
(2019/08/18 07:00:02.00)	47.0	33.9
(2019/08/18 07:15:02.00)	41.3	34.2
(2019/08/18 07:30:02.00)	41.2	33.9
(2019/08/18 07:45:03.00)	40.7	33.8

Date	LAeq	LA90
(2019/08/18 08:00:03.00)	47.0	34.4
(2019/08/18 08:15:02.00)	41.4	34.4
(2019/08/18 08:30:03.00)	45.5	34.0
(2019/08/18 08:45:03.00)	49.2	35.1
(2019/08/18 09:00:03.00)	47.7	36.6
(2019/08/18 09:15:03.00)	43.8	38.6
(2019/08/18 09:30:02.00)	44.3	38.3
(2019/08/18 09:45:03.00)	48.4	40.4
(2019/08/18 10:00:02.00)	51.2	47.5
(2019/08/18 10:15:03.00)	48.4	44.6
(2019/08/18 10:30:03.00)	49.8	43.6
(2019/08/18 10:45:03.00)	43.0	39.0
(2019/08/18 11:00:03.00)	43.1	36.5
(2019/08/18 11:15:03.00)	44.5	35.7
(2019/08/18 11:30:03.00)	45.0	37.6
(2019/08/18 11:45:03.00)	47.6	36.4
(2019/08/18 12:00:02.00)	44.7	36.7
(2019/08/18 12:15:02.00)	45.0	38.5
(2019/08/18 12:30:03.00)	41.9	38.0
(2019/08/18 12:45:03.00)	44.9	40.0
(2019/08/18 13:00:03.00)	43.7	40.1
(2019/08/18 13:15:02.00)	47.9	40.7
(2019/08/18 13:30:02.00)	45.4	41.4
(2019/08/18 13:45:03.00)	47.1	39.3
(2019/08/18 14:00:03.00)	45.4	40.0
(2019/08/18 14:15:03.00)	45.9	41.2
(2019/08/18 14:30:02.00)	44.6	40.6
(2019/08/18 14:45:02.00)	42.7	38.9
(2019/08/18 15:00:02.00)	47.5	41.9
(2019/08/18 15:15:03.00)	47.9	42.0
(2019/08/18 15:30:03.00)	46.9	41.9
(2019/08/18 15:45:03.00)	47.4	41.4
(2019/08/18 16:00:03.00)	46.3	41.5
(2019/08/18 16:15:02.00)	50.0	44.0
(2019/08/18 16:30:03.00)	48.2	42.5
(2019/08/18 16:45:03.00)	47.1	42.1
(2019/08/18 17:00:02.00)	46.9	41.5
(2019/08/18 17:15:03.00)	45.2	40.8
(2019/08/18 17:30:03.00)	47.4	41.0
(2019/08/18 17:45:03.00)	46.4	41.7
(2019/08/18 18:00:03.00)	45.3	40.7
(2019/08/18 18:15:02.00)	46.8	41.0
(2019/08/18 18:30:03.00)	46.5	41.5
(2019/08/18 18:45:03.00)	43.8	40.3
(2019/08/18 19:00:03.00)	44.8	40.5
(2019/08/18 19:15:03.00)	44.2	40.0

Date	LAeq	LA90
(2019/08/18 19:30:02.00)	60.7	41.4
(2019/08/18 19:45:03.00)	47.5	44.0
(2019/08/18 20:00:02.00)	46.1	42.6
(2019/08/18 20:15:03.00)	45.1	41.1
(2019/08/18 20:30:03.00)	44.6	41.0
(2019/08/18 20:45:02.00)	43.0	40.7
(2019/08/18 21:00:03.00)	44.3	41.0
(2019/08/18 21:15:02.00)	44.8	41.4
(2019/08/18 21:30:03.00)	45.5	42.5
(2019/08/18 21:45:03.00)	43.3	41.8
(2019/08/18 22:00:02.00)	45.3	41.7
(2019/08/18 22:15:04.00)	42.9	40.7
(2019/08/18 22:30:03.00)	42.5	40.4

Figure 1

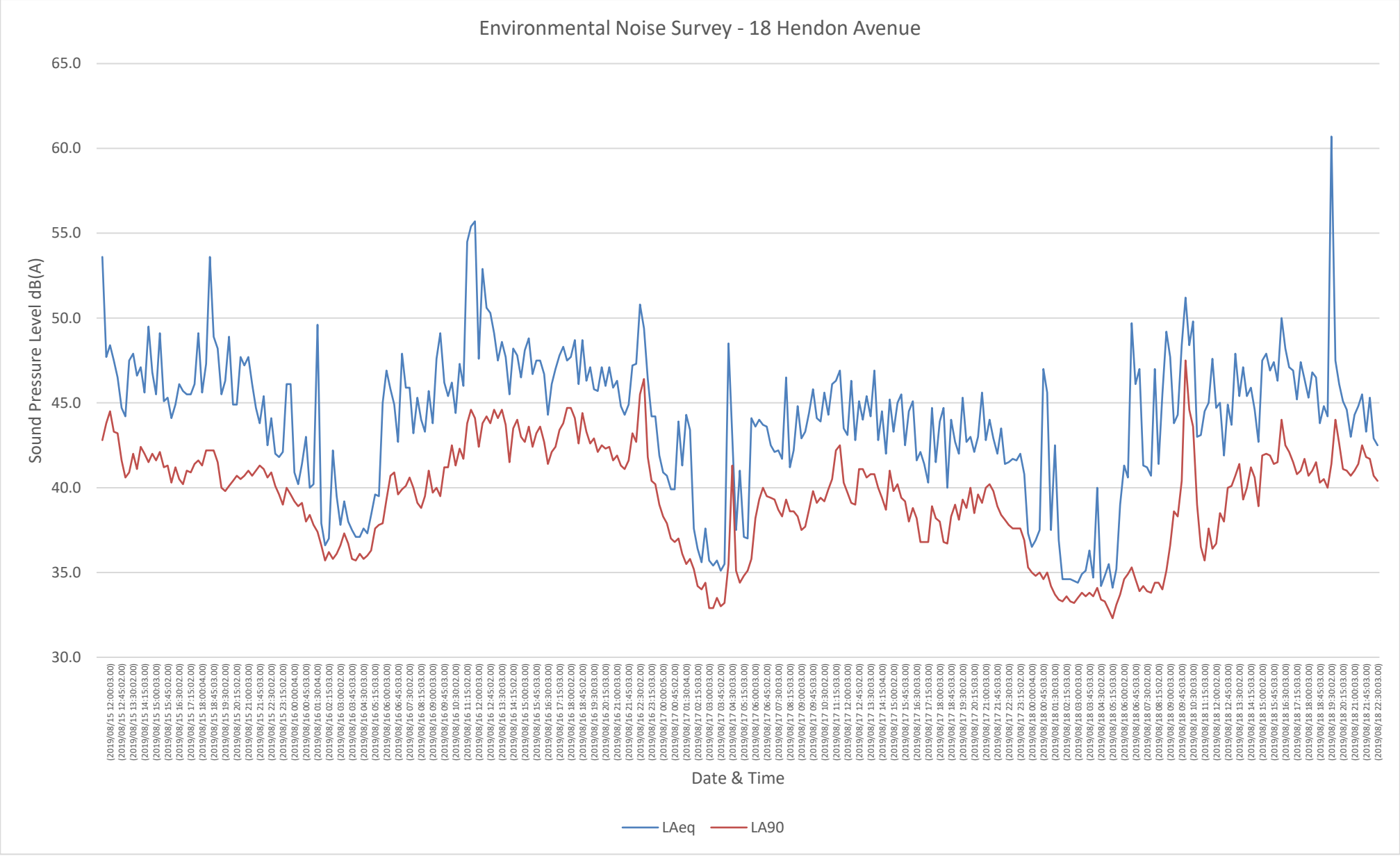


Figure 2

