# RESULTS OF A 24-HOUR NOISE LEVEL SURVEY CARRIED OUT IN THE REAR GARDEN OF THE RESIDENTIAL PROPERTY KNOWN AS THE COTTAGE LOCATED IN SPANIARDS ROAD, HAMPSTEAD, LONDON NW3 AND A REPORT ON THE NOISE IMPACT OF THE PROPOSED NEW EXTERNAL PLANT

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Authorised for
Release by : I J Marchant

| | | |
|---|---|---|
| Client | : | Chloe & Dan Kershan |
| Project | : | The Cottage, Spaniards Road, London NW3 |
| Emtec Ref. | : | QF10722/PF7147/RP1 |
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# RESULTS OF A 24-HOUR NOISE LEVEL SURVEY CARRIED OUT IN THE REAR GARDEN OF THE RESIDENTIAL PROPERTY KNOWN AS THE COTTAGE LOCATED IN SPANIARDS ROAD, HAMPSTEAD, LONDON NW3 AND A REPORT ON THE NOISE IMPACT OF THE PROPOSED NEW EXTERNAL PLANT

## 1.0. INTRODUCTION

This report details the results of a 24-hour noise survey carried out in the middle of the rear garden behind the residential property known as "The Cottage" in Spaniards Road next to Hampstead Heath in London NW3.

The objectives of the survey were as follows:

- To assess the proposal to install new air cooled condensers on the roof of the building.
- To identify the nearest residential properties that might be affected by noise from the new plant.
- To establish the existing background noise level outside the nearest affected properties.
- To recommend noise limits and any necessary mitigating measures to ensure that the operation of the new plant does not disturb the occupants of the nearest affected properties and meets the planning directives of the local authority with regard to noise.

This report has been divided into the following sections for ease of analysis:

1.0. INTRODUCTION
2.0. SITE DESCRIPTION
3.0. TEST INSTRUMENTATION
4.0. TEST PROCEDURE
5.0. RESULTS AND EVALUATION OF NOISE CRITERIA
6.0. DISCUSSION OF RESULTS

## 2.0. SITE DESCRIPTION

"The Cottage" is a two storey, detached, private house situated at the north end of Spaniards Road in Hampstead. The property is adjacent to Hampstead Heath with the nearest residential properties being a larger house on the same side of Spaniards Road and two residential properties on the other side of the road.

The property is, at present, in a poor state of repair and the rear of the house can be seen on the attached Photo A. The rear garden backs onto Hampstead Heath and this can be seen on the attached Photos B and D.

The nearest neighbouring residential property, further up Spaniards Road, can be seen on Photo C.

An aerial overview of the site can be seen in the attached Photo D.

## 3.0. TEST INSTRUMENTATION

All measurement equipment used during the survey complied with the requirements of BS4142:2014 "Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas". Details of the equipment are as follows:

Integrating Sound Level Meter: Rion type NL-52 class 1 Sound Level Meter fitted with a Rion type UC-59 ½ inch condenser microphone. Serial No: 01121378

Statistical Analysis Modules: Built in module capable of computing the percentile levels $LA_1$, $LA_{10}$, $LA_{50}$, $LA_{90}$ and $LA_{99}$ and also the $LA_{eq}$ level.

Acoustic Calibrator: Bruel & Kjaer type 4231 electronic calibrator. Serial No: 1934160

Calibration was performed before and after the survey and as +/- 0.1 dB from the reference source.

### 3.1. Existing Noise Climate

Road traffic travelling on Spaniards Road could be heard at the start and end of the survey, so the noise levels measured will include contributions from road vehicles.

Commercial jet aircraft were observed at medium and high altitude during the manned periods at the start and the end of the survey, so it is possible that the noise levels measured could include contributions from medium altitude jet aircraft.

There are no overland railways nearby, so the noise levels measured will not include contributions from rail noise.

Construction works were not observed being carried out in the vicinity during the manned periods at the start and end of the survey so the sound levels recorded should be typical of normal daytime background noise levels.

## 4.0. TEST PROCEDURE

The survey was conducted during a continuous 24-hour period from 9:18 am on Tuesday the 5th of April 2022 to 9:03 am on Wednesday the 6th of April 2022.

Data was continuously acquired throughout the measurement period with the individual averaging time for statistical noise data set to 15 minutes. The following 'A' weighted statistical measurements were recorded concurrently: -

$LA_1$ - The Sound Pressure Level exceeded for 1% of the measurement period.

$LA_{10}$ - The Sound Pressure Level exceeded for 10% of the measurement period.

$LA_{50}$ - The Sound Pressure Level exceeded for 50% of the measurement period.

$LA_{90}$ - The Sound Pressure Level exceeded for 90% of the measurement period. $LA_{90}$ is considered to represent the "background noise level" during the measurement period and is used for the assessment of noise to determine the likelihood of complaints (See BS 4142:2014).

$LA_{99}$ - The Sound Pressure Level exceeded for 99% of the measurement period.

$LA_{eq}$ - The continuous steady state Sound Pressure Level that has the same acoustic energy as the real fluctuating level.

4.1. Measurement Positions

The microphone was mounted on a tripod and positioned approximately in the centre of the rear garden of the property. The microphone was oriented vertically and was approximately 1.2m above ground level. The location of the microphone can be seen on the attached Photos A, B and D.

The microphone was connected by a low impedance cable to the associated instrumentation which was contained within a weatherproof housing.

4.2 Weather Conditions

The weather conditions prevailing during the measurement period were in line with those recommended in BS 4142:2014: -

| | | | |
|---|---|---|---|
| Weather daytime: - | Overcast | Weather night time: - | Overcast |
| Wind daytime: - | Calm | Wind night time: - | Calm |

The microphone was protected during the survey by an acoustically transparent wind balloon.

5.0. RESULTS AND EVALUATION OF NOISE CRITERIA

The raw test data, gathered during the noise survey, is given in Appendix 'A 'of this report.

The 'A' Weighted $L_{eq}$ levels measured over each 15 minute interval throughout the 24-hour period, denoted by $LA_{eq}$, (15 mins), are displayed as a bar graph on the attached Sketch No QF/10722/T1 at the back of this report.

The 'A' Weighted percentile levels measured over each 15 minute interval throughout the 24-hour period, denoted by $LA_{10}$ (15 mins), $LA_{50}$ (15 mins) and $LA_{90}$ (15 mins) are displayed as line graphs on the attached Sketch No QF/10722/T2 at the back of this report.

5.1. Summary of Results

The table QF/10722/D1 below summarises the noise levels taken over the 24-hour period in terms of the maximum and minimum Sound Pressure Levels recorded.

Table QF/10722/D1 – Summary of Maximum and Minimum Noise Levels

| | **$LA_{eq}$** | **$LA_{1}$** | **$LA_{10}$** | **$LA_{50}$** | **$LA_{90}$** | **$LA_{99}$** |
|---|---|---|---|---|---|---|
| **Minimum** | 39dBA | 48dBA | 43dBA | 37dBA | 34dBA | 32dBA |
| **Maximum** | 54dBA | 67dBA | 57dBA | 50dBA | 48dBA | 47dBA |

The table QF/10722/D2 below states the minimum $LA_{90}$ noise levels recorded during the time periods of 7.00am to 23.00pm ( Daytime / Evening ) and 23.00pm and 7.00am ( Night time )

Table QF/10722/D2 – Minimum $LA_{90}$ Noise Levels – Daytime/Evening and Night time

| | **Minimum $LA_{90}$** |
|---|---|
| **Daytime/Evening ( 7am to 11pm )** | 40dBA |
| **Night Time ( 11pm to 7am )** | 34dBA |

5.2. Summary of the Local Authority's planning requirements regarding noise for noise sensitive properties

The local planning authority is the London Borough of Camden.

The Camden Local Plan sets out the Council's planning policies and replaces the Core Strategy and Development Policy planning documents (adopted in 2010). It ensures that Camden continues to have robust, effective and up-to-date planning policies that respond to changing circumstances and the borough's unique characteristics and contribute to delivering the Camden Plan and other local priorities.

The Local Plan will cover the period from 2016-2031. Policy A4 of The Local Plan is entitled Noise and Vibration and states:

*The Council will seek to ensure that noise and vibration is controlled and managed. Development should have regard to Camden's Noise and Vibration thresholds (Appendix 3). We will not grant planning permission for a) a development likely to generate unacceptable noise and vibration impacts or b) a development sensitive to noise in locations which experience high levels of noise, unless appropriate attenuation measures can be provided and will not harm the continued operation of existing uses. We will only grant permission for noise generating development, including any plant and machinery, if it can be operated without causing harm to amenity. We will also seek to minimise the impact on local amenity from deliveries and from the demolition and construction phases of development.*

The parts of Appendix 3 that we have identified as relevant to this application are as follows:

*Appendix 3: Noise thresholds*

*The significance of noise impact varies dependent on the different noise sources, receptors and times of operation presented for consideration within a planning application. Therefore, Camden's thresholds for noise and vibration evaluate noise impact in terms of various 'effect levels' described in the National Planning Policy Framework and Planning Practice Guidance:*

- *NOEL – No Observed Effect Level*
- *LOAEL – Lowest Observed Adverse Effect Level*
- *SOAEL – Significant Observed Adverse Effect Level*

*Three basic design criteria have been set for proposed developments, these being aimed at guiding applicants as to the degree of detailed consideration needed to be given to noise in any planning application. The design criteria outlined below are defined in the corresponding noise tables. The values will vary depending on the context, type of noise and sensitivity of the receptor:*

- *Green – where noise is considered to be at an acceptable level.*
- *Amber – where noise is observed to have an adverse effect level, but which may be considered acceptable when assessed in the context of other merits of the development.*
- *Red – where noise is observed to have a significant adverse effect.*

***Table C: Noise levels applicable to proposed industrial and commercial developments (including plant and machinery)***

| *Existing Noise sensitive receptor* | *Assessment Location* | *Design Period* | *LOAEL (Green)* | *LOAEL to SOAEL (Amber)* | *SOAL (Red)* |
|---|---|---|---|---|---|
| *Dwellings*** | *Garden used for main amenity (free field) and Outside living or dining or bedroom window (façade)* | *Day* | *'Rating level' 10dB* below background* | *'Rating level' between 9dB below and 5dB above background* | *'Rating level' greater than 5dB above background* |
| *Dwellings*** | *Outside bedroom window (façade)* | *Night* | *'Rating level' 10dB* below background and no events exceeding 57dB $L_{Amax}$* | *'Rating level' between 9dB below and 5dB above background or noise events between 57dB and 88dB $L_{Amax}$* | *'Rating level' greater than 5dB above background and/or events exceeding 88dB $L_{Amax}$* |

**10dB should be increased to 15dB if the noise contains audible tonal elements (day and night). However, if it can be demonstrated that there is no significant difference in the character of the residual background noise and the specific noise from the proposed development then this reduction may not be required. In addition, a frequency analysis (to include, the use of Noise Rating (NR) curves or other criteria curves) for the assessment of tonal or low frequency noise may be required.*

***levels given are for dwellings, however, levels are use specific and different levels will apply dependent on the use of the premises.*

*The periods in Table C correspond to 0700 hours to 2300 hours for the day and 2300 hours to 0700 hours for the night. The Council will take into account the likely times of occupation for types of development and will be amended according to the times of operation of the establishment under consideration.*

*There are certain smaller pieces of equipment on commercial premises, such as extract ventilation, air conditioning units and condensers, where achievement of the rating levels (ordinarily determined by a BS:4142 assessment) may not afford the necessary protection. In these cases, the Council will generally also require an NR curve specification of NR35 or below, dependant on the room (based upon measured or predicted $L_{eq}$ (5mins) noise levels in octave bands, 1 metre from the façade of affected premises, where the noise sensitive premise is located in a quiet background area.*

5.3. Determination of noise sensitive property design criteria

We believe that the sound produced by the new plant will not be intermittent or contain tones. To comply with a green rating from the table above the new plant should therefore have a Sound Pressure Level 10dB below the lowest $LA_{90}$ background noise level at 1 metre from the nearest noise sensitive window.

The lowest recorded $LA_{90}$ background noise levels measured during the 24 hour survey period are given in Table QF/10722/D2 above.

Applying the above criteria gives limiting rating levels as listed in table QF/10722/D3 below:

Table QF/10722/D3 – Proposed Design Rating Levels ($LA_{eq}$)

| *Existing Noise sensitive receptor* | *Design Period* | *Lowest measured background level* | ***Proposed rating level*** | *Proposed Local Authority criteria* |
|---|---|---|---|---|
| *Dwellings* | *Day* | 40*dBA* | ***30dBA*** | *Green* |
| | *Night* | *34dBA* | ***24dBA*** | *Green* |

5.4. Summary of external noise criteria

Based upon the lowest measured $LA_{90}$ background noise levels during the survey and the Council's requirements outlined above we summarise the design rating levels to be adopted for this project in table QF/10722/D4: -

Table QF/10722/D4 – recommended design rating levels $L_{Ar,T}$

| **Type of premises** | **$L_{Ar,T}$ (7am - 11pm)** | **$L_{Ar,T}$ (11pm - 7am)** |
|---|---|---|
| Noise sensitive | 30dBA | 24dBA |

6.0. DISCUSSION OF RESULTS

It is proposed to install a single NIBE F2040-12 air source heat pump unit on the flat roof of the building. The NIBE F2040-12 is a single fan unit, 1035mm wide x 895mm high x 422mm deep and has a published Sound Power level of 57dbA(W).

The distance from the proposed location of the condenser to the nearest neighbours' windows is 45 metres to the adjacent house and 31 metres to house on the other side of Spaniards Road. Applying a $10\log A_{44}$ and $10\log A_{31}$ correction to the Sound Power level ( where A is the area around the condenser at the distances shown ) gives noise levels of 13dBA at the adjacent house and 17dBA at the house on the other side of Spaniards Road. Both these noise levels are below the limiting LAeq levels listed in Table QF/10722/D4 above for 24 hour operation of the plant.

To ensure that structural borne noise is not transferred into the house it is suggested that the NIBE condenser unit be mounted oonto neoprene-in-shear anti-vibration mounts having a minimum static deflection of 6mm.

The installation of the condenser should satisfy the local authority's planning requirements with regard to noise and evoke no justifiable complaints under the guidance given in BS4142:2014.

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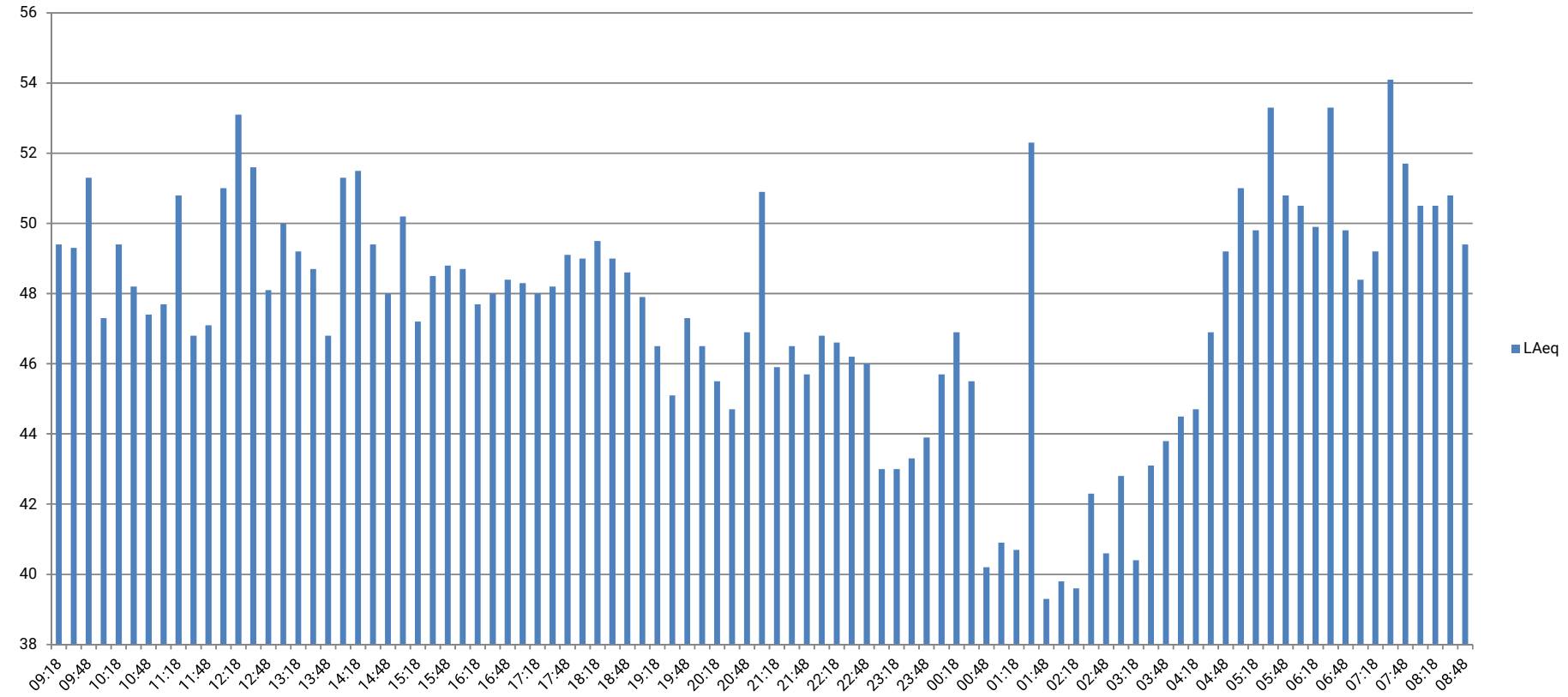
**19th April 2022**




| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *TITLE:* *LAeq Levels* | *ISSUE DATE:* *16th April 2022* | | | | *DRAWN BY:* *MGR* | *A* | *B* | *C* | *D* | *E* | *F* | *G* | *H* |
| *CLIENT:* *Chloe & Dan Kershan* | *PF No: 7147* | | | | *APPROVED BY:* *MGR* | *REVISION* | | | | | | | |
| *PROJECT:* *The Cottage, Spaniards Road, NW3* | *Q* | *A* | *M* | *I* | *DESIGN AUTH:* *MGR* | *SKETCH No. QF/10722/T1* | | | | | | | |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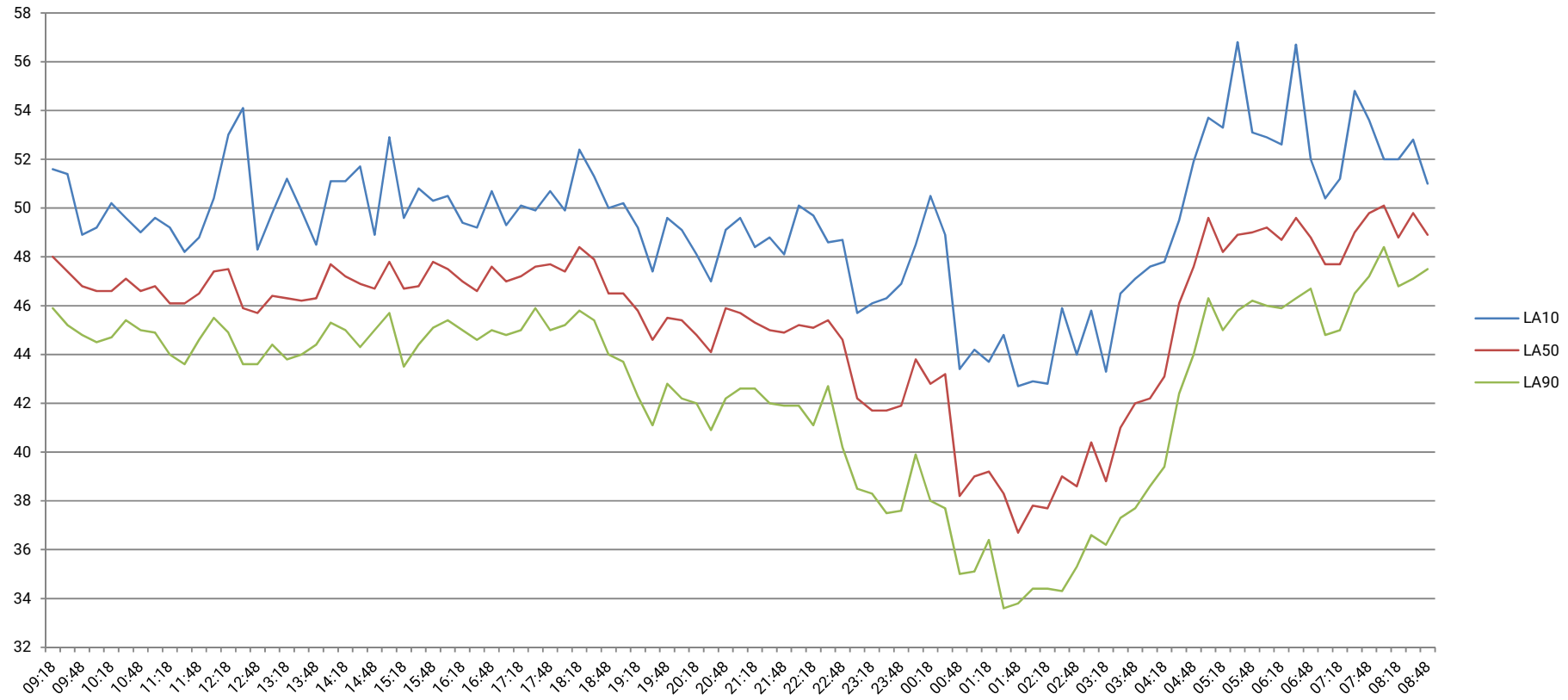


| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *TITLE:* *LA10; LA50 & LA90 Levels* | *ISSUE DATE:* *16th April 2022* | | | | *DRAWN BY:* *MGR* | *A* | *B* | *C* | *D* | *E* | *F* | *G* | *H* |
| *CLIENT:* *Chloe & Dan Kershan* | *PF No: 7147* | | | | *APPROVED BY:* *MGR* | *REVISION* | | | | | | | |
| *PROJECT:* *The Cottage, Spaniards Road, NW3* | *Q* | *A* | *M* | *I* | *DESIGN AUTH:* *MGR* | *SKETCH No. QF/10722/T2* | | | | | | | |


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# APPENDIX 'A'

Raw Data – Noise Survey

5th of April 2022 to 6th of April 2022

Project: The Cottage, Spaniards Road, London NW3
Client: Chloe & Dan Kershan
Date: 5th to 6th April 2022
Serial No: 01121378

| Address | Start Time | $LA_{eq}$ | LE | Lmax | Lmin | $LA_{1}$ | $LA_{10}$ | $LA_{50}$ | $LA_{90}$ | $LA_{99}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 09:18 | 49 | 79 | 63 | 43 | 57 | 52 | 48 | 46 | 44 |
| 2 | 09:33 | 49 | 79 | 74 | 42 | 56 | 51 | 47 | 45 | 43 |
| 3 | 09:48 | 51 | 81 | 72 | 42 | 63 | 49 | 47 | 45 | 43 |
| 4 | 10:03 | 47 | 77 | 64 | 41 | 53 | 49 | 47 | 45 | 42 |
| 5 | 10:18 | 49 | 79 | 69 | 40 | 59 | 50 | 47 | 45 | 43 |
| 6 | 10:33 | 48 | 78 | 65 | 42 | 56 | 50 | 47 | 45 | 44 |
| 7 | 10:48 | 47 | 77 | 62 | 42 | 54 | 49 | 47 | 45 | 43 |
| 8 | 11:03 | 48 | 77 | 60 | 43 | 54 | 50 | 47 | 45 | 44 |
| 9 | 11:18 | 51 | 80 | 76 | 42 | 54 | 49 | 46 | 44 | 43 |
| 10 | 11:33 | 47 | 76 | 63 | 39 | 54 | 48 | 46 | 44 | 40 |
| 11 | 11:48 | 47 | 77 | 60 | 42 | 52 | 49 | 47 | 45 | 43 |
| 12 | 12:03 | 51 | 81 | 70 | 41 | 64 | 50 | 47 | 46 | 44 |
| 13 | 12:18 | 53 | 83 | 71 | 42 | 66 | 53 | 48 | 45 | 43 |
| 14 | 12:33 | 52 | 81 | 70 | 41 | 64 | 54 | 46 | 44 | 41 |
| 15 | 12:48 | 48 | 78 | 68 | 41 | 58 | 48 | 46 | 44 | 42 |
| 16 | 13:03 | 50 | 80 | 66 | 40 | 64 | 50 | 46 | 44 | 42 |
| 17 | 13:18 | 49 | 79 | 70 | 41 | 58 | 51 | 46 | 44 | 42 |
| 18 | 13:33 | 49 | 78 | 67 | 41 | 58 | 50 | 46 | 44 | 42 |
| 19 | 13:48 | 47 | 76 | 57 | 41 | 52 | 49 | 46 | 44 | 43 |
| 20 | 14:03 | 51 | 81 | 72 | 41 | 61 | 51 | 48 | 45 | 43 |
| 21 | 14:18 | 52 | 81 | 70 | 42 | 65 | 51 | 47 | 45 | 43 |
| 22 | 14:33 | 49 | 79 | 65 | 41 | 59 | 52 | 47 | 44 | 43 |
| 23 | 14:48 | 48 | 78 | 67 | 41 | 55 | 49 | 47 | 45 | 43 |
| 24 | 15:03 | 50 | 80 | 65 | 43 | 59 | 53 | 48 | 46 | 45 |
| 25 | 15:18 | 47 | 77 | 58 | 39 | 52 | 50 | 47 | 44 | 40 |
| 26 | 15:33 | 49 | 78 | 64 | 41 | 57 | 51 | 47 | 44 | 42 |
| 27 | 15:48 | 49 | 78 | 64 | 41 | 57 | 50 | 48 | 45 | 43 |
| 28 | 16:03 | 49 | 78 | 66 | 42 | 56 | 51 | 48 | 45 | 43 |
| 29 | 16:18 | 48 | 77 | 61 | 42 | 54 | 49 | 47 | 45 | 43 |
| 30 | 16:33 | 48 | 78 | 66 | 41 | 56 | 49 | 47 | 45 | 43 |
| 31 | 16:48 | 48 | 78 | 64 | 42 | 54 | 51 | 48 | 45 | 44 |
| 32 | 17:03 | 48 | 78 | 66 | 41 | 56 | 49 | 47 | 45 | 43 |
| 33 | 17:18 | 48 | 78 | 60 | 42 | 54 | 50 | 47 | 45 | 44 |
| 34 | 17:33 | 48 | 78 | 64 | 43 | 53 | 50 | 48 | 46 | 44 |
| 35 | 17:48 | 49 | 79 | 67 | 42 | 58 | 51 | 48 | 45 | 43 |
| 36 | 18:03 | 49 | 79 | 71 | 42 | 53 | 50 | 47 | 45 | 43 |
| 37 | 18:18 | 50 | 79 | 61 | 43 | 55 | 52 | 48 | 46 | 44 |
| 38 | 18:33 | 49 | 79 | 59 | 42 | 55 | 51 | 48 | 45 | 43 |
| 39 | 18:48 | 49 | 78 | 67 | 41 | 59 | 50 | 47 | 44 | 43 |
| 40 | 19:03 | 48 | 78 | 64 | 40 | 55 | 50 | 47 | 44 | 42 |
| 41 | 19:18 | 47 | 76 | 55 | 39 | 52 | 49 | 46 | 42 | 40 |
| 42 | 19:33 | 45 | 75 | 58 | 38 | 50 | 47 | 45 | 41 | 39 |
| 43 | 19:48 | 47 | 77 | 64 | 40 | 56 | 50 | 46 | 43 | 41 |
| 44 | 20:03 | 47 | 76 | 55 | 39 | 53 | 49 | 45 | 42 | 40 |
| 45 | 20:18 | 46 | 75 | 53 | 38 | 51 | 48 | 45 | 42 | 39 |
| 46 | 20:33 | 45 | 74 | 54 | 38 | 51 | 47 | 44 | 41 | 39 |
| 47 | 20:48 | 47 | 77 | 62 | 38 | 53 | 49 | 46 | 42 | 39 |
| 48 | 21:03 | 51 | 81 | 72 | 39 | 65 | 50 | 46 | 43 | 41 |
| 49 | 21:18 | 46 | 76 | 53 | 39 | 51 | 48 | 45 | 43 | 41 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 21:33 | 47 | 76 | 62 | 39 | 54 | 49 | 45 | 42 | 41 |
| 51 | 21:48 | 46 | 75 | 56 | 38 | 52 | 48 | 45 | 42 | 39 |
| 52 | 22:03 | 47 | 76 | 57 | 39 | 54 | 50 | 45 | 42 | 40 |
| 53 | 22:18 | 47 | 76 | 56 | 38 | 53 | 50 | 45 | 41 | 39 |
| 54 | 22:33 | 46 | 76 | 54 | 40 | 52 | 49 | 45 | 43 | 41 |
| 55 | 22:48 | 46 | 76 | 64 | 37 | 53 | 49 | 45 | 40 | 39 |
| 56 | 23:03 | 43 | 73 | 55 | 36 | 48 | 46 | 42 | 39 | 37 |
| 57 | 23:18 | 43 | 73 | 53 | 36 | 50 | 46 | 42 | 38 | 37 |
| 58 | 23:33 | 43 | 73 | 55 | 34 | 51 | 46 | 42 | 38 | 35 |
| 59 | 23:48 | 44 | 74 | 59 | 35 | 52 | 47 | 42 | 38 | 36 |
| 60 | 00:03 | 46 | 75 | 61 | 36 | 54 | 49 | 44 | 40 | 38 |
| 61 | 00:18 | 47 | 77 | 64 | 34 | 55 | 51 | 43 | 38 | 35 |
| 62 | 00:33 | 46 | 75 | 62 | 33 | 54 | 49 | 43 | 38 | 35 |
| 63 | 00:48 | 40 | 70 | 54 | 33 | 48 | 43 | 38 | 35 | 34 |
| 64 | 01:03 | 41 | 71 | 54 | 33 | 48 | 44 | 39 | 35 | 34 |
| 65 | 01:18 | 41 | 70 | 53 | 33 | 48 | 44 | 39 | 36 | 34 |
| 66 | 01:33 | 52 | 82 | 74 | 31 | 67 | 45 | 38 | 34 | 32 |
| 67 | 01:48 | 39 | 69 | 52 | 32 | 48 | 43 | 37 | 34 | 33 |
| 68 | 02:03 | 40 | 69 | 51 | 32 | 48 | 43 | 38 | 34 | 33 |
| 69 | 02:18 | 40 | 69 | 52 | 32 | 48 | 43 | 38 | 34 | 33 |
| 70 | 02:33 | 42 | 72 | 58 | 33 | 51 | 46 | 39 | 34 | 33 |
| 71 | 02:48 | 41 | 70 | 51 | 33 | 48 | 44 | 39 | 35 | 34 |
| 72 | 03:03 | 43 | 72 | 55 | 34 | 51 | 46 | 40 | 37 | 35 |
| 73 | 03:18 | 40 | 70 | 53 | 34 | 48 | 43 | 39 | 36 | 34 |
| 74 | 03:33 | 43 | 73 | 54 | 34 | 52 | 47 | 41 | 37 | 35 |
| 75 | 03:48 | 44 | 73 | 53 | 35 | 51 | 47 | 42 | 38 | 36 |
| 76 | 04:03 | 45 | 74 | 59 | 37 | 53 | 48 | 42 | 39 | 38 |
| 77 | 04:18 | 45 | 74 | 57 | 37 | 52 | 48 | 43 | 39 | 38 |
| 78 | 04:33 | 47 | 77 | 57 | 38 | 53 | 50 | 46 | 42 | 40 |
| 79 | 04:48 | 49 | 79 | 62 | 40 | 58 | 52 | 48 | 44 | 41 |
| 80 | 05:03 | 51 | 81 | 64 | 43 | 58 | 54 | 50 | 46 | 44 |
| 81 | 05:18 | 50 | 79 | 60 | 41 | 56 | 53 | 48 | 45 | 43 |
| 82 | 05:33 | 53 | 83 | 66 | 43 | 64 | 57 | 49 | 46 | 44 |
| 83 | 05:48 | 51 | 80 | 65 | 43 | 60 | 53 | 49 | 46 | 44 |
| 84 | 06:03 | 51 | 80 | 63 | 43 | 59 | 53 | 49 | 46 | 44 |
| 85 | 06:18 | 50 | 80 | 62 | 43 | 57 | 53 | 49 | 46 | 44 |
| 86 | 06:33 | 53 | 83 | 70 | 42 | 63 | 57 | 50 | 46 | 44 |
| 87 | 06:48 | 50 | 79 | 65 | 44 | 56 | 52 | 49 | 47 | 45 |
| 88 | 07:03 | 48 | 78 | 62 | 41 | 54 | 50 | 48 | 45 | 43 |
| 89 | 07:18 | 49 | 79 | 64 | 42 | 58 | 51 | 48 | 45 | 43 |
| 90 | 07:33 | 54 | 84 | 72 | 43 | 67 | 55 | 49 | 47 | 45 |
| 91 | 07:48 | 52 | 81 | 70 | 44 | 61 | 54 | 50 | 47 | 45 |
| 92 | 08:03 | 51 | 80 | 64 | 46 | 55 | 52 | 50 | 48 | 47 |
| 93 | 08:18 | 51 | 80 | 67 | 44 | 60 | 52 | 49 | 47 | 45 |
| 94 | 08:33 | 51 | 80 | 64 | 44 | 57 | 53 | 50 | 47 | 45 |
| 95 | 08:48 | 49 | 79 | 64 | 45 | 54 | 51 | 49 | 48 | 46 |

APPENDIX ‘B’

Photos and Drawing

Back wall of Cottage

Microphone location

PHOTO A - View of the back of the Cottage with microphone in centre of rear garden


PHOTO B - Microphone in the centre of the rear garden

Windows of nearest neighbouring residential property

PHOTO C - Front of neighbouring residential property seen from Spaniards Row

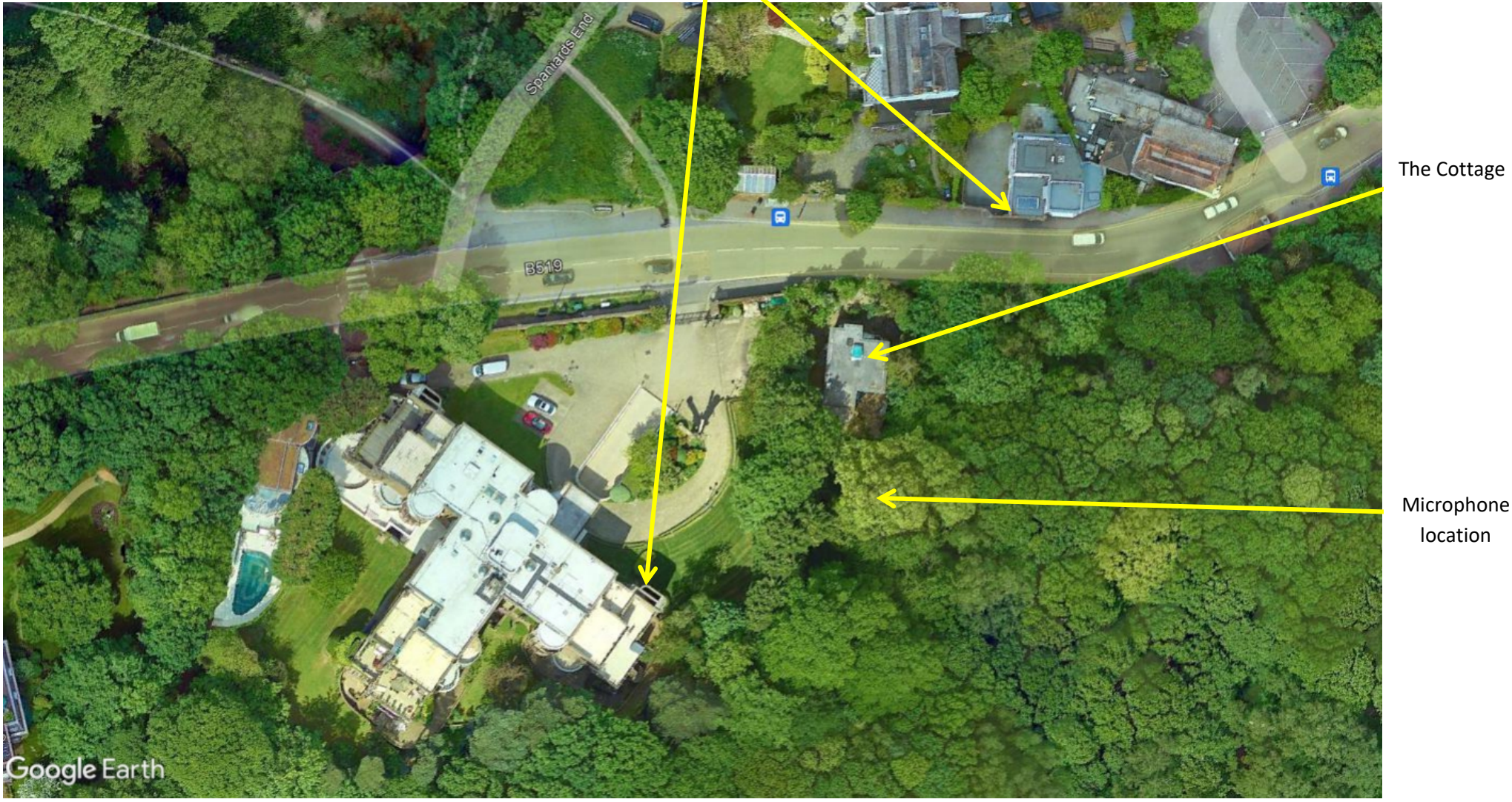


PHOTO D - Aerial view of the The Cottage and the adjacent residential property