RESULTS OF A DOUBLE 24-HOUR NOISE LEVEL SURVEY CARRIED OUT AT THE FRONT AND AT THE REAR OF THE RESIDENTIAL PROPERTY LOCATED AT NO 7 THE GROVE, LONDON N6 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	:	Nick & Emily Tomlinson
Project	:	7 The Grove, London N6
Emtec Ref.	:	QF10675/PF7130/PF7347/PF7396/RP1B
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1.0. INTRODUCTION

This report details the results of two 24-hour noise surveys carried out at the front and at the rear of the residential house located at No 7 The Grove in Highgate, London N6. The two surveys were carried out concurrently, over the same 24-hour period.

The locations of the microphones were as follows,

- Location A - At the front of the house on the first floor balcony
- Location B - At the rear of the house in the centre of the back garden

The objectives of the survey were as follows:

- To assess the proposal to install new mechanical plant on the side extension of the building and in the rear garden.

- 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 so 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.

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 property at No 7 The Grove is a semi-detached, four storey residential house located on the top of Highgate Hill in a very quiet residential area. The front of the building is shown on the attached Photo A and there is an adjacent residential property to the right which is also a four storey property and forms the other half of the building. On the left there is a flat on two floors which is designated as No 7A The Grove and takes up the left hand first and second floor areas of No 7. The residents of this property have no access to the rear garden. The Photo C indicates the property at No 7A.

To the rear of the building is a substantial garden and a further residential property is located at the bottom of this garden. This property is in Highfields Grove. The layout of the garden and the adjacent properties can be seen in the attached aerial view Photo F.

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 Meters fitted with Rion type UC-59 ½ inch condenser microphones. Serial No 01232570 & 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 was +/- 0.1 dB from the reference source.

3.1. Existing Noise Climate

Road traffic travelling on surrounding roads 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 10:31 am on Tuesday the 8th of March 2022 to 10:41 am on Wednesday the 9th of March 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 microphones were mounted onto tripods and positioned approximately in the centre of the front first floor balcony and in the centre of the back garden. The microphones were both oriented vertically and were approximately 1.5 metres above the level of the first floor at the front of the house and at ground level in the back garden. The microphone locations are shown on the attached Photos A, D and F.

Location A - At the front of the house on the first floor balcony
Location B - At the rear of the house in the centre of the back garden

Both of the microphones were connected by low impedance cables to their associated instrumentation which was contained within individual weatherproof housings.

4.2 Weather Conditions

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

Weather daytime: -	Clear	Weather night time: -	Clear
Wind daytime: -	Calm	Wind night time: -	Calm

The microphones were protected during the survey by acoustically transparent wind balloons.

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 bar graphs on the attached Sketches No QF/10675/T1 and -/T3 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 Sketches No QF/10675/T2 and -/T4 at the back of this report.

5.1. Summary of Results

The table QF/10675/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/10675/D1 – Summary of Maximum and Minimum Noise Levels

	Location	LA_{eq}	LA_{1}	LA_{10}	LA_{50}	LA_{90}	LA_{99}
Minimum	A	41dBA	48dBA	40dBA	34dBA	32dBA	31dBA
	B	30dBA	33dBA	31dBA	30dBA	29dBA	28dBA
Maximum	A	66dBA	74dBA	72dBA	60dBA	54dBA	54dBA
	B	57dBA	72dBA	56dBA	47dBA	42dBA	40dBA

The table QF/10675/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/10675/D2 – Minimum LA_{90} Noise Levels – Daytime/Evening and Night time

	Location	Minimum LA_{90}
Daytime/Evening (7am to 11pm)	A	41dBA
	B	35dBA
Night Time (11pm to 7am)	A	32dBA
	B	29dBA

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/10675/D2 above.

Applying the above criteria gives limiting rating levels as listed in table QF/10675/D3 below:

Table QF/10675/D3 – Proposed Design Rating Levels (LA_{eq})

Existing Noise sensitive receptor	Design Period	Location	Lowest measured background level	**Proposed rating level**	Proposed Local Authority criteria
Dwellings	Day	A	41dBA	**31dBA**	Green
		B	35dBA	**25dBA**	Green
	Night	A	32dBA	**22dBA**	Green
		B	29dBA	**19dBA**	Green

5.5. 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/10675/D4: -

Table QF/10675/D4 – recommended design rating levels $L_{Ar,T}$

Type of premises	**Location**	**$L_{Ar,T}$ (7am - 11pm)**	**$L_{Ar,T}$ (11pm - 7am)**
Noise sensitive	A - front of house	31dBA	22dBA
	B - rear of house	25dBA	19dBA

6.0. DISCUSSION OF RESULTS

It is proposed to install an air source heat pump condenser on the roof of the proposed new side extension to the rear of the house and also install an air source heat pump condenser at the rear of the ground floor terrace store. A third condenser will be installed half way down the rear garden in order to service the proposed swimming pool plant.

The location of these condensers is shown on the attached Lisa Shell Architects' drawings No GR07/GA/002AM, -/003AK, -/102AA and -/104Q.

The following Tables QF/10675/D5, -/D6 and -/D7 list the natural and required attenuation to achieve a noise level below the limiting LAeq noise levels listed in Table QF/10675/D4 above and thereby satisfy the planning requirements of the local authority.

Table QF/10675/D5 – Noise Level of Vaillant Condenser on side roof, operating at full duty, and natural and required attenuation to 1 metre from the nearest neighbour's window

Equipment/Attenuation	Sound Pressure Level (dB ref 2 x 10^{-5} N/m^2)								dBA
	63	125	250	500	1k	2k	4k	8k	
Vaillant VWL75/6 unit SWL	-	60	56	53	50	47	49	47	57
Distance correction to 3m – 10logA_3	-22	-22	-22	-22	-22	-22	-22	-22	
Reverberation off side wall	+3	+3	+3	+3	+3	+3	+3	+3	
Barrier Effect of side of wall to nearest window (100mm)	-6	-8	-9	-10	-11	-13	-16	-16	
Unattenuated SPL at 1 metre from nearest neighbour's window	-	33	28	24	20	15	14	12	26
Emtec LAAC15-105 acoustic louvred enclosure	-4	-4	-5	-7	-14	-16	-15	-12	
Resultant SPL at 1 metre from nearest window	-	29	23	17	6	-	-	-	19

The above calculation show that by placing the Vaillant VWL75/6 condenser inside an Emtec LAAC15-105 acoustic louvred enclosure the noise level at 1 metre from the nearest neighbour's window in flat 7A The Grove will be equal to the night time limiting LAeq noise level of 19dBA. This will allow the unit to be run on a 24 hour basis without exceeding the planning requirements of the local authority.

The Vaillant condenser should be mounted onto Emtec/VMC RD2-Blue anti-vibration mounts in order to separate the chassis of the condensers from the structure of the building. The layout of the necessary acoustic treatment to this condenser is shown on the attached sketch No QF/10675/GA2.

Table QF/10675/D6 – Noise Level of the Norsup Condenser installed half way down the rear garden and the natural attenuation to 1 metre from the nearest residential neighbour's window

Equipment/Attenuation	Sound Pressure Level (dB ref 2 x 10^{-5} N/m^2)								dBA
	63	125	250	500	1k	2k	4k	8k	
Norsup PV P24V/32 at 1m free field	57	58	55	55	51	46	40	32	56
Distance loss 35 metres 10logA_{34}/A_1	-27	-27	-27	-27	-27	-27	-27	-27	
Barrier Effect of boundary wall (200mm)	-7	-8	-10	-12	-14	-16	-18	-18	
Unattenuated SPL at 1 metre from nearest neighbour's window	23	23	18	16	10	1	-	-	16

Note: Norsup were unable to provide spectrum noise level data but confirmed that the noise level of the condenser was a maximum of 56dBA at 1 metre in free field conditions. The numbers in the above table that are in Italics are estimated spectrum levels based on the global dBA figure and spectrums for similar air cooled condensers.

The above calculation shows that by placing the Norsup PV P24V/32 condenser next to the shed half way down the rear garden the resultant noise level, at 1 metre from the windows of the nearest neighbouring residential property at the rear of 6 The Grove will be below the limiting LAeq noise level of 19dBA and will allow the unit to be run on a 24 hour basis without exceeding the planning requirements of the local authority.

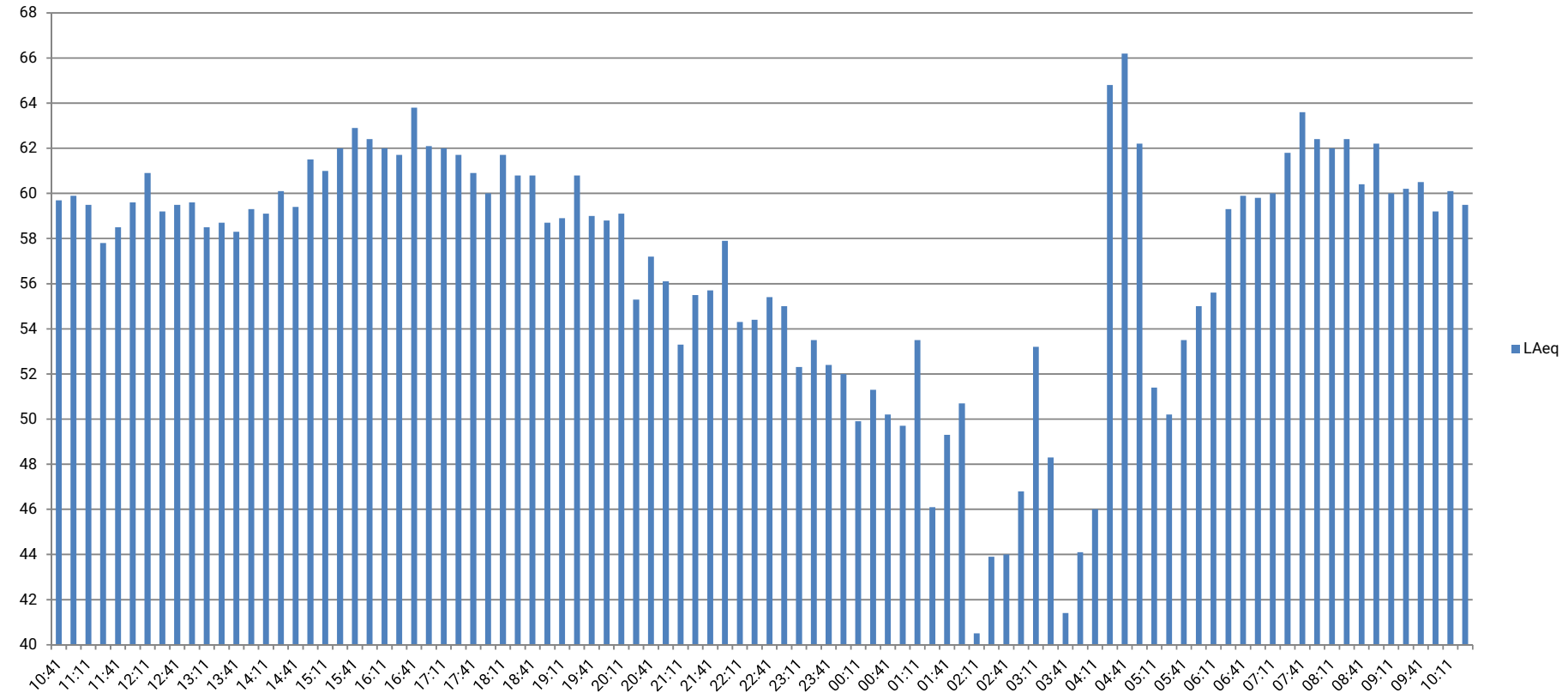
Table QF/10675/D7 – Noise Level of Vaillant Condenser to the rear of the ground floor terrace store, operating at full duty, and natural and required attenuation to 1 metre from the nearest neighbour's window

Equipment/Attenuation	Sound Pressure Level (dB ref 2 x 10^{-5} N/m^2)								dBA
	63	125	250	500	1k	2k	4k	8k	
Vaillant VWL125/6 unit SWL	-	69	62	57	54	50	48	47	60
Distance correction to 10m - 10logA_{10}	-31	-31	-31	-31	-31	-31	-31	-31	
Reverberation off store rear wall	+3	+3	+3	+3	+3	+3	+3	+3	
Barrier Effect of side of wall to nearest window (500mm)	-8	-10	-12	-14	-18	-20	-22	-24	
Unattenuated SPL at 1 metre from nearest neighbour's window	-	31	22	15	8	2	-	-	19

The above calculation shows that by placing the Vaillant VWL125/6 condenser on the rear wall of the terrace shed as shown on the attached drawing No GR07/GA/002AM with at least 500mm from the side and top of the condenser to the corner and roof edge of the terrace shed then the resultant noise level, at 1 metre from the windows of the nearest neighbouring residential property's windows at the rear of the flat in 7A, The Grove will be equal to the limiting LAeq noise level of 19dBA and will allow the unit to be run on a 24 hour basis without exceeding the planning requirements of the local authority.

If the above recommendations are followed the three new condensers will meet the planning requirements of the local authority and evoke no justifiable complaints from the neighbours under the guidelines of BS4142:2014.

Emtec Products Ltd
31st May 2023



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CLIENT: *The Watts Group*	*PF No: 7130*				*APPROVED BY:* *MGR*	*REVISION*							
PROJECT: *7 The Grove, London N6*	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* *MGR*	*SKETCH No. QF/10675/T1*							

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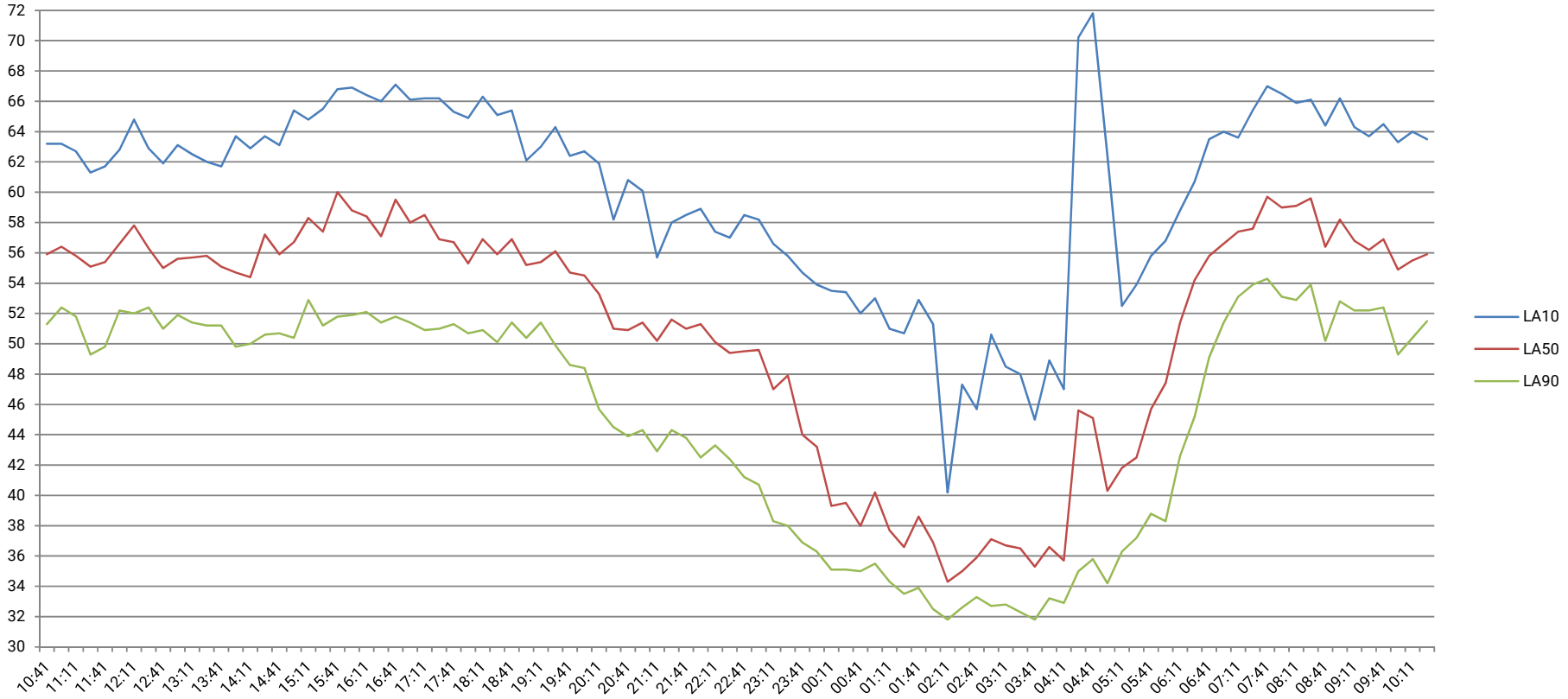

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CLIENT: *The Watts Group*	*PF No: 7130*				*APPROVED BY:* *MGR*	*REVISION*							
PROJECT: *7 The Grove, London N6*	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* *MGR*	*SKETCH No. QF/10675/T2*							

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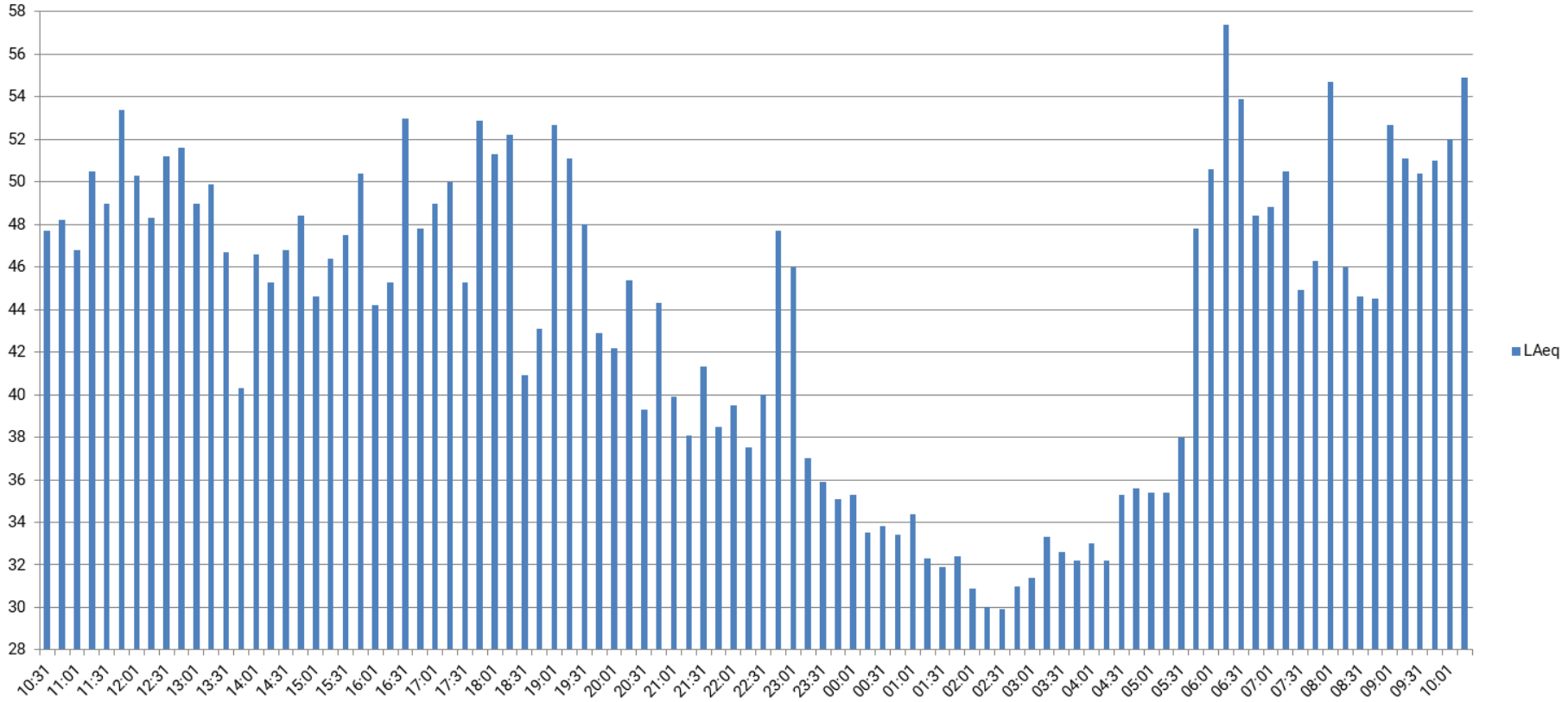

TITLE: *LAeq Levels (Location B - rear garden)*	*ISSUE DATE:* *12th March 2022*				*DRAWN BY:* *MGR*	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*
CLIENT: *The Watts Group*	*PF No: 7130*				*APPROVED BY:* *MGR*	*REVISION*							
PROJECT: *7 The Grove, London N6*	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* *MGR*	*SKETCH No. QF/10675/T3*							

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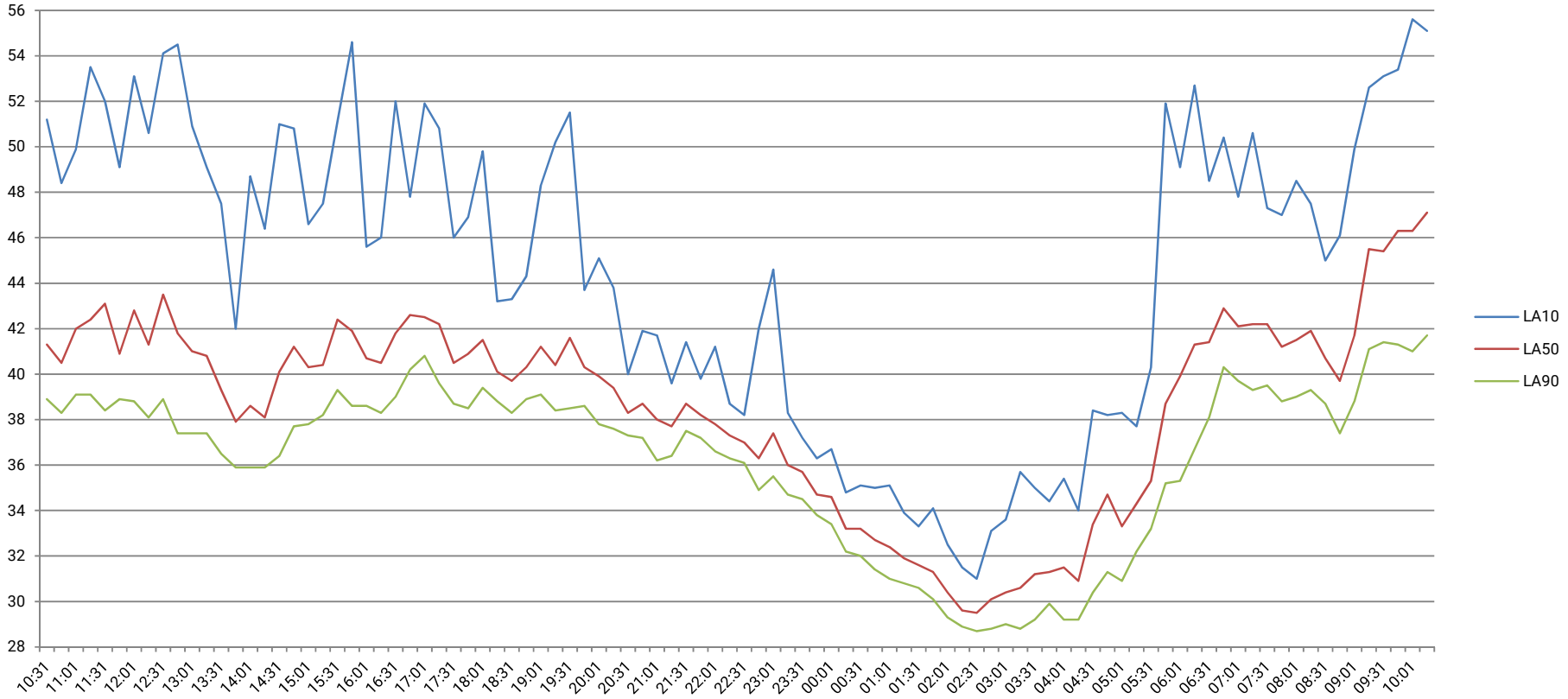

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CLIENT: The Watts Group	*PF No: 7130*				*APPROVED BY:* *MGR*	*REVISION*							
PROJECT: 7 The Grove, London N6	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* *MGR*	*SKETCH No. QF/10675/T4*							

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APPENDIX ‘A’

Raw Data – Noise Survey

8th of March 2022 to 9th of March 2022

Project: 7 The Grove, London N6 (Location A -front of house on first floor balcony)
Client: Nick & Emily Tomlinson
Date: 8th to 9th March 2022
Serial No: 01232570

Address	Start Time	LA_{eq}	LE	Lmax	Lmin	LA_{1}	LA_{10}	LA_{50}	LA_{90}	LA_{99}
1	10:41	60	89	74	44	66	63	56	51	49
2	10:56	60	90	80	46	65	63	56	52	51
3	11:11	60	89	78	45	66	63	56	52	50
4	11:26	58	87	70	44	63	61	55	49	48
5	11:41	59	88	79	46	64	62	55	50	49
6	11:56	60	89	75	47	65	63	57	52	51
7	12:11	61	91	74	44	66	65	58	52	50
8	12:26	59	89	72	46	65	63	56	52	51
9	12:41	60	89	77	46	65	62	55	51	50
10	12:56	60	89	73	45	66	63	56	52	51
11	13:11	59	88	70	46	64	63	56	51	50
12	13:26	59	88	72	45	64	62	56	51	50
13	13:41	58	88	78	45	64	62	55	51	49
14	13:56	59	89	75	45	65	64	55	50	48
15	14:11	59	89	75	43	65	63	54	50	48
16	14:26	60	90	73	45	66	64	57	51	49
17	14:41	59	89	71	45	65	63	56	51	49
18	14:56	62	91	78	45	68	65	57	50	49
19	15:11	61	91	74	47	67	65	58	53	52
20	15:26	62	92	79	47	68	66	57	51	50
21	15:41	63	93	78	48	68	67	60	52	51
22	15:56	62	92	76	47	68	67	59	52	51
23	16:11	62	92	73	45	68	66	58	52	51
24	16:26	62	91	79	47	68	66	57	51	50
25	16:41	64	93	79	46	69	67	60	52	50
26	16:56	62	92	77	44	68	66	58	51	49
27	17:11	62	92	74	46	68	66	59	51	49
28	17:26	62	91	74	47	68	66	57	51	50
29	17:41	61	91	76	45	67	65	57	51	50
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34	18:56	59	88	73	44	65	62	55	50	49
35	19:11	59	89	79	46	65	63	55	51	50
36	19:26	61	90	78	43	67	64	56	50	48
37	19:41	59	89	75	43	65	62	55	49	47
38	19:56	59	88	72	43	65	63	55	48	47
39	20:11	59	89	82	42	65	62	53	46	44
40	20:26	55	85	76	41	61	58	51	45	44
41	20:41	57	87	73	41	64	61	51	44	43
42	20:56	56	86	72	40	63	60	51	44	43
43	21:11	53	83	72	40	58	56	50	43	42
44	21:26	56	85	71	40	61	58	52	44	43
45	21:41	56	85	71	40	62	59	51	44	43
46	21:56	58	88	81	39	62	59	51	43	42
47	22:11	54	84	71	39	60	57	50	43	42
48	22:26	54	84	71	38	59	57	49	42	41
49	22:41	55	85	71	36	62	59	50	41	40

50	22:56	55	85	69	37	61	58	50	41	40
51	23:11	52	82	68	36	58	57	47	38	38
52	23:26	54	83	73	35	58	56	48	38	37
53	23:41	52	82	69	35	57	55	44	37	36
54	23:56	52	82	74	34	56	54	43	36	36
55	00:11	50	80	68	33	56	54	39	35	35
56	00:26	51	81	71	33	56	53	40	35	35
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60	01:26	46	76	61	32	53	51	37	34	33
61	01:41	49	79	67	32	56	53	39	34	33
62	01:56	51	80	75	31	54	51	37	33	32
63	02:11	41	70	57	30	48	40	34	32	32
64	02:26	44	74	61	31	52	47	35	33	32
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69	03:41	41	71	57	30	49	45	35	32	31
70	03:56	44	74	59	31	52	49	37	33	32
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73	04:41	66	96	81	32	74	72	45	36	35
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87	08:11	62	92	74	48	67	66	59	53	52
88	08:26	62	92	75	50	68	66	60	54	53
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94	09:56	59	89	73	44	66	63	55	49	48
95	10:11	60	90	75	43	67	64	56	50	49
96	10:26	60	89	74	43	65	64	56	52	50

Project: 7 The Grove, London N6 (Location B - in rear garden)
Client: Nick & Emily Tomlinson
Date: 8th to 9th March 2022
Serial No.: 01121378

Address	Start Time	LA_{eq}	LE	Lmax	Lmin	LA_1	LA_{10}	LA_{50}	LA_{90}	LA_{99}
1	10:31	48	77	64	36	59	51	41	39	38
2	10:46	48	78	76	37	59	48	41	38	37
3	11:01	47	76	65	37	58	50	42	39	38
4	11:16	51	80	70	37	63	54	42	39	38
5	11:31	49	79	67	36	61	52	43	38	37
6	11:46	53	83	74	37	68	49	41	39	38
7	12:01	50	80	68	37	62	53	43	39	38
8	12:16	48	78	67	36	60	51	41	38	37
9	12:31	51	81	68	36	63	54	44	39	37
10	12:46	52	81	70	35	64	55	42	37	36
11	13:01	49	79	70	36	62	51	41	37	36
12	13:16	50	80	69	35	64	49	41	37	36
13	13:31	47	76	68	34	59	48	39	37	35
14	13:46	40	70	57	34	51	42	38	36	35
15	14:01	47	76	69	34	59	49	39	36	35
16	14:16	45	75	62	34	58	46	38	36	35
17	14:31	47	76	63	34	58	51	40	36	35
18	14:46	48	78	67	35	61	51	41	38	36
19	15:01	45	74	62	36	56	47	40	38	37
20	15:16	46	76	68	35	59	48	40	38	37
21	15:31	48	77	64	35	58	51	42	39	37
22	15:46	50	80	67	36	62	55	42	39	37
23	16:01	44	74	64	36	55	46	41	39	37
24	16:16	45	75	72	36	55	46	41	38	37
25	16:31	53	83	75	37	67	52	42	39	38
26	16:46	48	77	69	37	60	48	43	40	38
27	17:01	49	79	70	39	61	52	43	41	40
28	17:16	50	80	71	37	63	51	42	40	38
29	17:31	45	75	65	37	57	46	41	39	38
30	17:46	53	83	74	37	68	47	41	39	38
31	18:01	51	81	72	37	65	50	42	39	38
32	18:16	52	82	78	37	67	43	40	39	38
33	18:31	41	71	51	37	47	43	40	38	38
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35	19:01	53	82	83	37	57	48	41	39	38
36	19:16	51	81	75	36	65	50	40	38	37
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38	19:46	43	73	60	37	54	44	40	39	38
39	20:01	42	72	57	36	51	45	40	38	37
40	20:16	45	75	63	36	59	44	39	38	36
41	20:31	39	69	61	36	43	40	38	37	37
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43	21:01	40	70	59	35	47	42	38	36	35
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67	03:01	31	61	43	27	37	34	30	29	28
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74	04:46	36	65	45	29	42	38	35	31	30
75	05:01	35	65	53	30	44	38	33	31	30
76	05:16	35	65	48	30	42	38	34	32	31
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81	06:31	54	84	77	35	69	49	41	38	36
82	06:46	48	78	70	37	59	50	43	40	38
83	07:01	49	78	73	37	61	48	42	40	38
84	07:16	51	80	72	36	63	51	42	39	38
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88	08:16	46	76	64	37	58	48	42	39	38
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91	09:01	53	82	74	36	67	50	42	39	37
92	09:16	51	81	72	37	64	53	46	41	39
93	09:31	50	80	70	38	61	53	45	41	39
94	09:46	51	81	72	37	62	53	46	41	39
95	10:01	52	82	73	36	63	56	46	41	38
96	10:16	55	85	76	37	69	55	47	42	39

APPENDIX ‘B’

Photos, Drawings and Sketch

Microphone location A on first floor balcony

Neighbour's windows

PHOTO A - Front of No7, The Grove with microphone on the first floor balcony

PHOTO B - Neighbouring residential property at 8 The Grove

PHOTO C - Next door neighbouring residential property at 7A The Grove

PHOTO D - Rear of No 7, The Grove with microphone in the back garden

PHOTO E - Residential property, in Highfields Grove, over the boundary wall at the bottom of the back garden

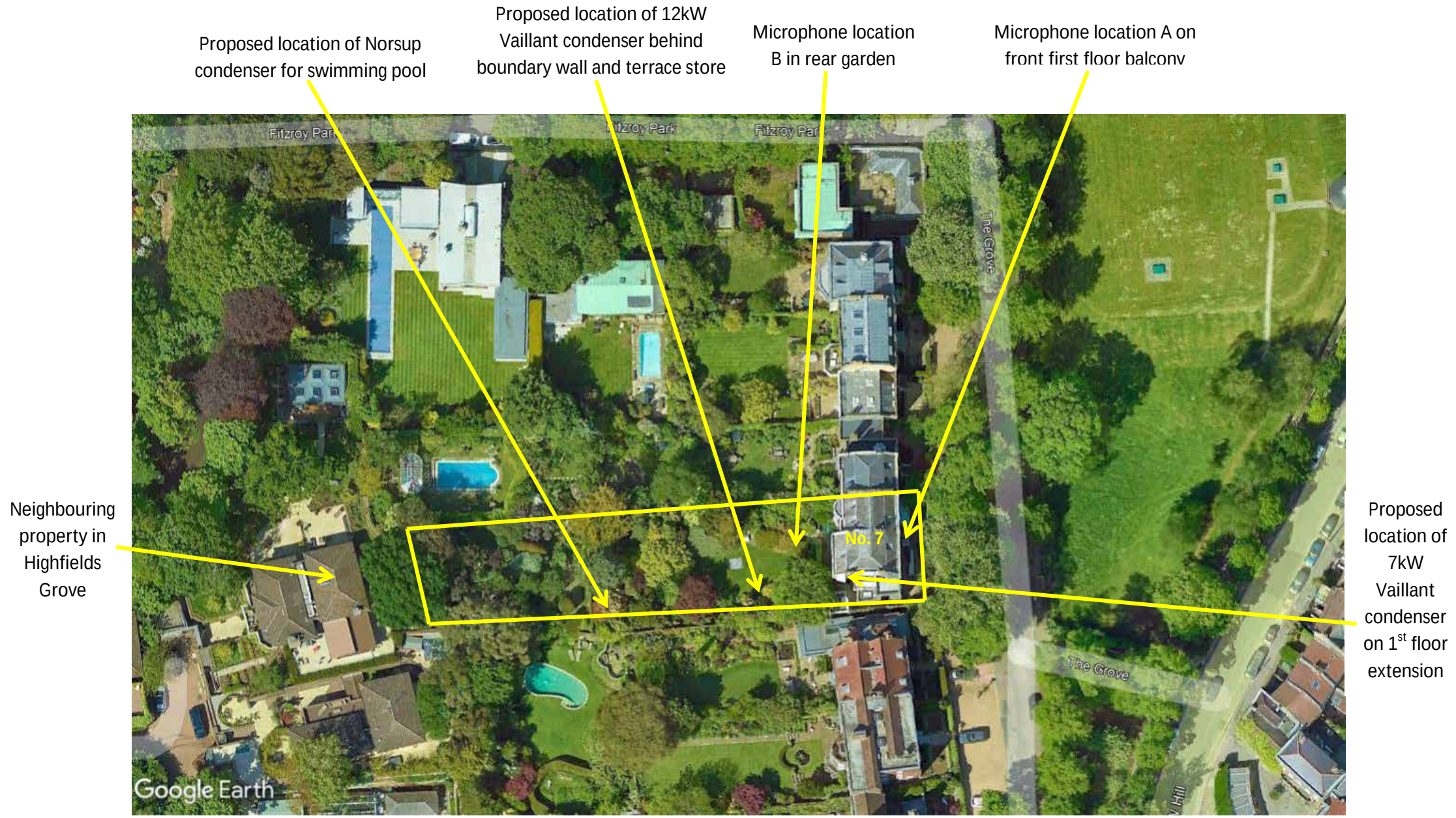
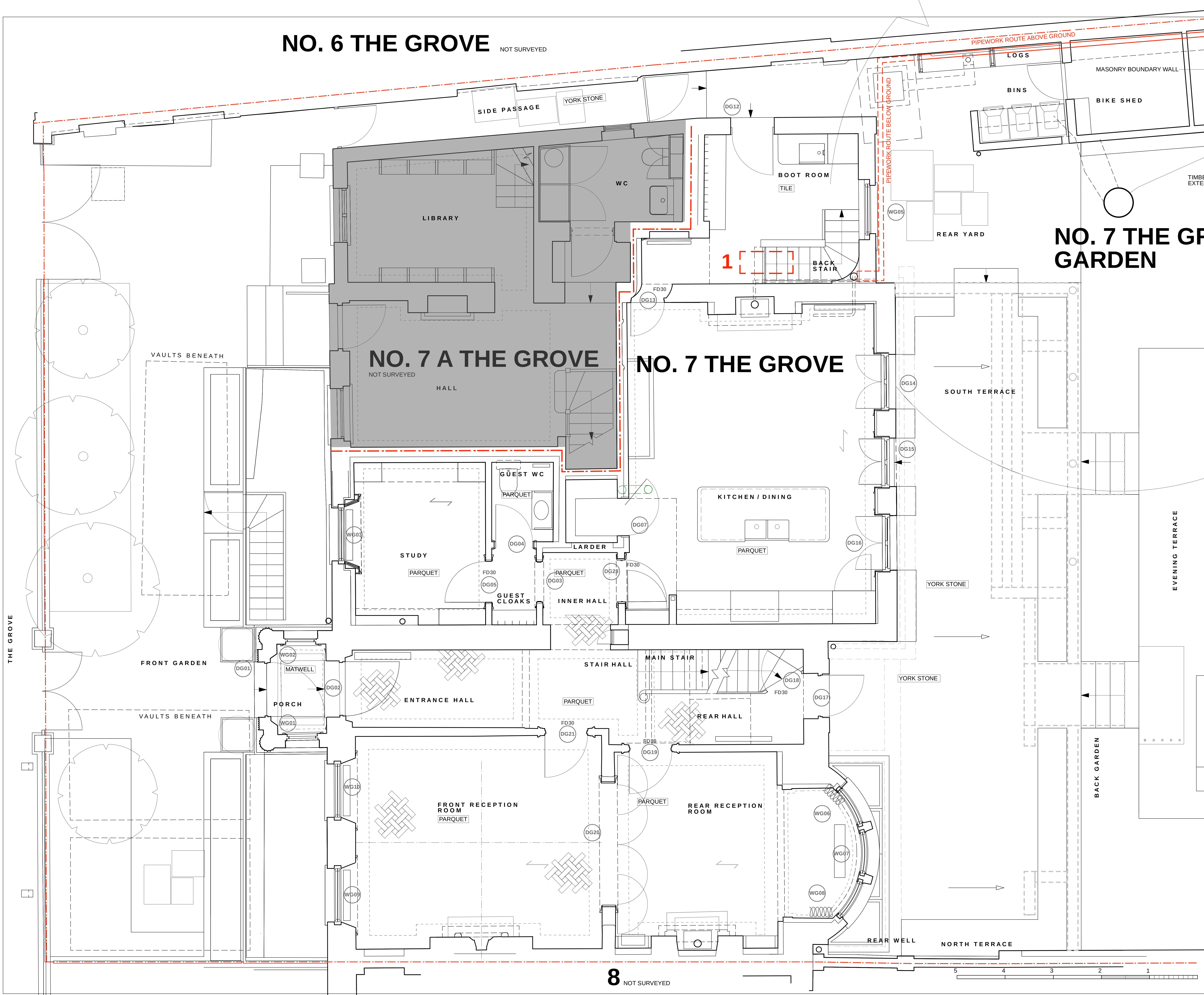


PHOTO F - Aerial view of the property at No 7, The Grove with microphone locations at front and rear



NO. 6 THE GROVE
NOT SURVEYED
PIPEWORK ROUTE ABOVE GROUND
PIPEWORK ROUTE BELOW GROUND
SIDE PASSAGE
YORK STONE
LOGS
BINS
MASONRY BOUNDARY WALL
BIKE SHED
TERRACE STORE
12KW AROTHERM PLUS
2
100
200
> 500
TIMBER FRAMED AND CLAD EXTERNAL WALLS
WC
LIBRARY
BOOT ROOM
TILE
REAR YARD
NO. 7 THE GROVE GARDEN
1
BACK STAIR
FD30
NO. 7 A THE GROVE
NOT SURVEYED
HALL
NO. 7 THE GROVE
VAULTS BENEATH
SOUTH TERRACE
GUEST WC
PARQUET
KITCHEN / DINING
STUDY
LARDER
GUEST CLOAKS
INNER HALL
YORK STONE
EVENING TERRACE
THE GROVE
FRONT GARDEN
MATWELL
PORCH
ENTRANCE HALL
STAIR HALL
MAIN STAIR
REAR HALL
FRONT RECEPTION ROOM
REAR RECEPTION ROOM
BACK GARDEN
REAR WELL
NORTH TERRACE
8
NOT SURVEYED

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7 THE GROVE, HIGHGATE, LONDON N6 6JU

GROUND FLOOR PLAN
AS PROPOSED
GRO7 / GA / 002 / AM
1 : 5 0 @ A 2
REFER ALL DISCREPANCIES TO ARCHITECT

REVISIONS/ ISSUE

14/05/22 AG
ISSUE TO **FIRE ENGINEER**
FOR **INFO**

14/06/22 AF
ISSUE TO **CONTRACTOR** & **CLIENT**
FOR CONTRACT

10/08/22 AG
ISSUE TO **CONTRACTOR** & **SE**
FOR SETTING OUT

10/10/22 AH
ISSUE TO **CONTRACTOR**
FOR CONSTRUCTION

09/12/22 AJ
ISSUE TO **ENVIRONMENTAL INVESTIGATIONS**
FOR INFO

11/01/23 AK
ISSUE TO **SUDS DESIGNER & SE**
FOR INFO

12/01/23 AK
ISSUE TO **CONTRACTOR**
FOR INFO

19/01/23 AL
ISSUE TO **ENVIRONMENTAL INVESTIGATOR**
FOR INFO

19/05/23 AM
ISSUE TO **EMTEC ACOUSTICS**
FOR ASSESSMENT

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Director: Lisa Shell RIBA Registered in England No. 5000193
Registered office: Ross House, Stow-on-the-Wold, Glos. GL54 1AF

7 THE GROVE, HIGHGATE, LONDON N6 6JU

FIRST FLOOR PLAN
AS PROPOSED
GRO7 / GA / 003 / AK
1:50 @ A2
REFER ALL DISCREPANCIES TO ARCHITECT

REVISIONS/ ISSUE

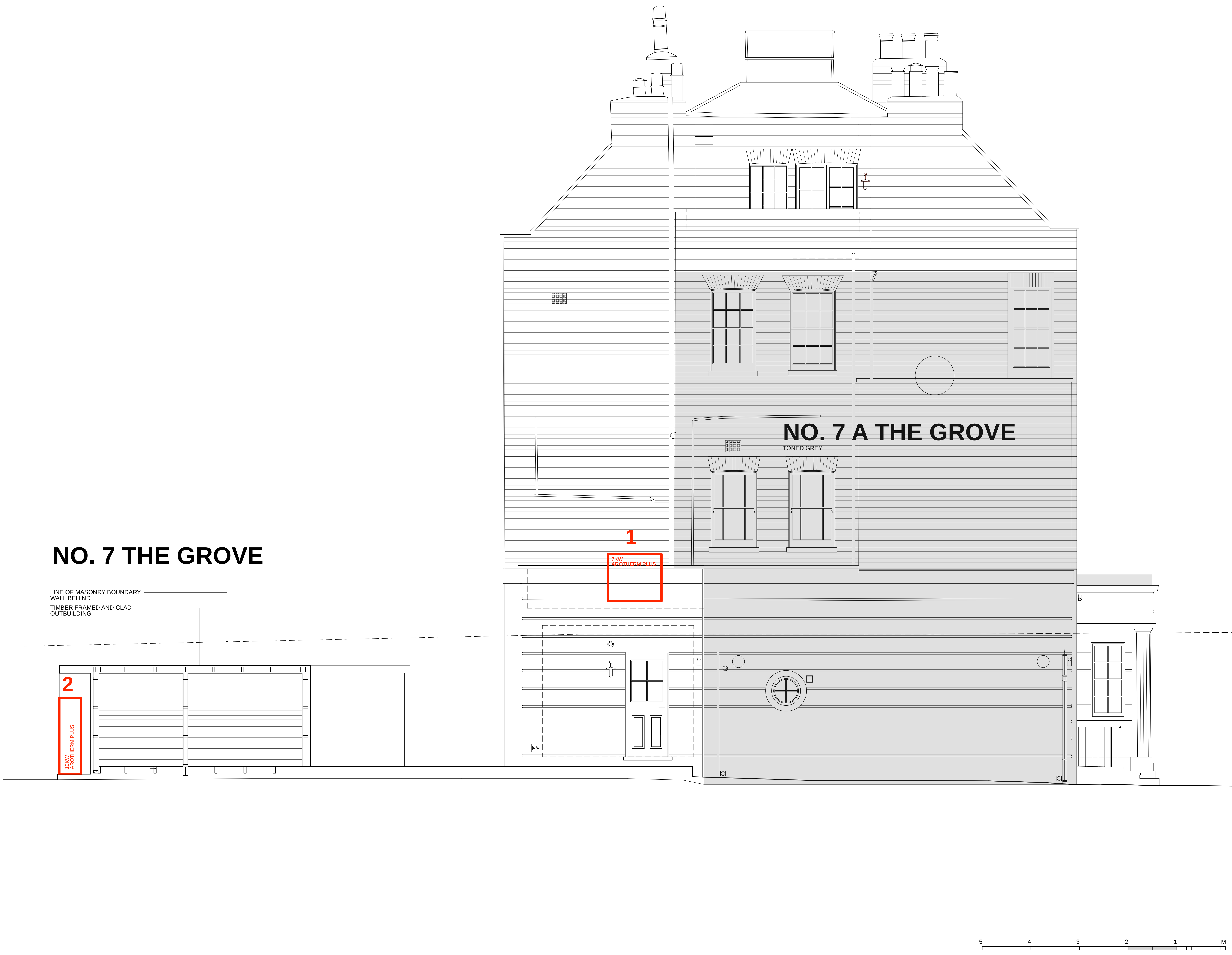
14/06/22 AE
ISSUE TO **CONTRACTOR** & **CLIENT**
FOR CONTRACT

09/08/22 AF
ISSUE TO **SE & CONTRACTOR**
FOR INFO

10/08/22 AG
ISSUE TO **CONTRACTOR** & **SE**
FOR SETTING OUT

02/12/22 AJ
ISSUE TO **CONTRACTOR/ SE**
FOR INFO/ COMMENT

19/05/23 AK
ISSUE TO **EMTEC ACOUSTICS**
FOR ASSESSMENT



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7 THE GROVE, HIGHGATE, LONDON N6 6JU

SIDE ELEVATION
AS PROPOSED
GRO7 / GA / 102 / AA
1 : 5 0 @ A 2
REFER ALL DISCREPANCIES TO ARCHITECT

REVISIONS/ ISSUE

14/06/22 P
ISSUE TO **CONTRACTOR** & **CLIENT**
FOR CONTRACT

19/10/22 Q
ISSUE TO **CONTRACTOR**
FOR CONSTRUCTION

09/12/22 R
ISSUE TO **ENVIRONMENTAL INVESTIGATIONS**
FOR INFO

19/01/23 S
ISSUE TO **CONTRACTOR AV**
FOR CONSTRUCTION

27/01/2023 T
ISSUE TO **CONTRACTOR**
FOR NEW EXTERNAL JOINERY REFS

30/01/2023 V
ISSUE TO **CONTRACTOR**
FOR ALL EXTERNAL JOINERY REFS

27/03/2023 W
ISSUE TO **CONTRACTOR**
FOR INFO/COMMENT

31/03/2023 X
ISSUE TO **CLIENT**
FOR INFO

12/05/2023 Y
ISSUE TO **CLIENT**
EXTERNAL SERVICES APPROVAL

16/05/2023 Z
ISSUE TO **CONTRACTOR**
FOR **CONSTRUCTION**

19/05/2023 AA
ISSUE TO **ID**
FOR INFO

19/05/23 AB
ISSUE TO **EMTEC ACOUSTICS**
FOR ASSESSMENT

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7 THE GROVE, HIGHGATE, LONDON N6 6JU

GARDEN ELEVATION
AS PROPOSED
GRO7 / GA / 104 / Q
1 : 5 0 @ A 2
REFER ALL DISCREPANCIES TO ARCHITECT

REVISIONS/ ISSUE

01/11/21 D
ISSUE TO **STRUCTURAL ENGINEER**
FOR **INFO/COMMENT**

09/11/21 E
ISSUE TO **PLANNING**
FOR **APPROVAL**

21/02/22 F
ISSUE TO **CONTRACTORS**
FOR **PART 1** OF **TENDER**

28/02/22 G
ISSUE TO **PARTY WALL SURVEYOR**
FOR INFO FOR NOTICES

02/03/22 H
ISSUE TO **PARTY WALL SURVEYOR**
FOR INFO FOR NOTICES

14/06/22 J
ISSUE TO **CONTRACTOR** & **CLIENT**
FOR CONTRACT

19/10/22 K
ISSUE TO **CONTRACTOR**
FOR CONSTRUCTION

16/11/22 L
ISSUE TO **LANDSCAPE CONSULTANTS**
FOR INFO/COMMENT

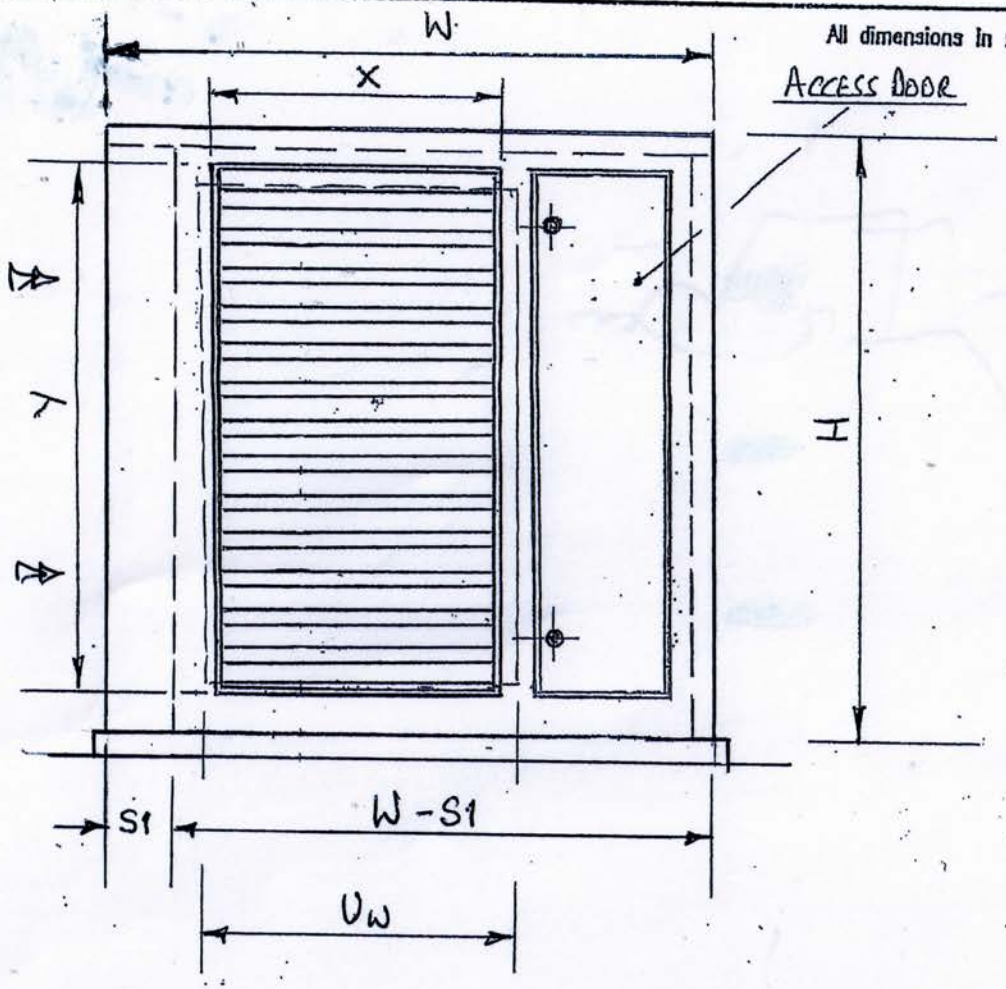
09/12/22 M
ISSUE TO **ENVIRONMENTAL INVESTIGATIONS**
FOR INFO

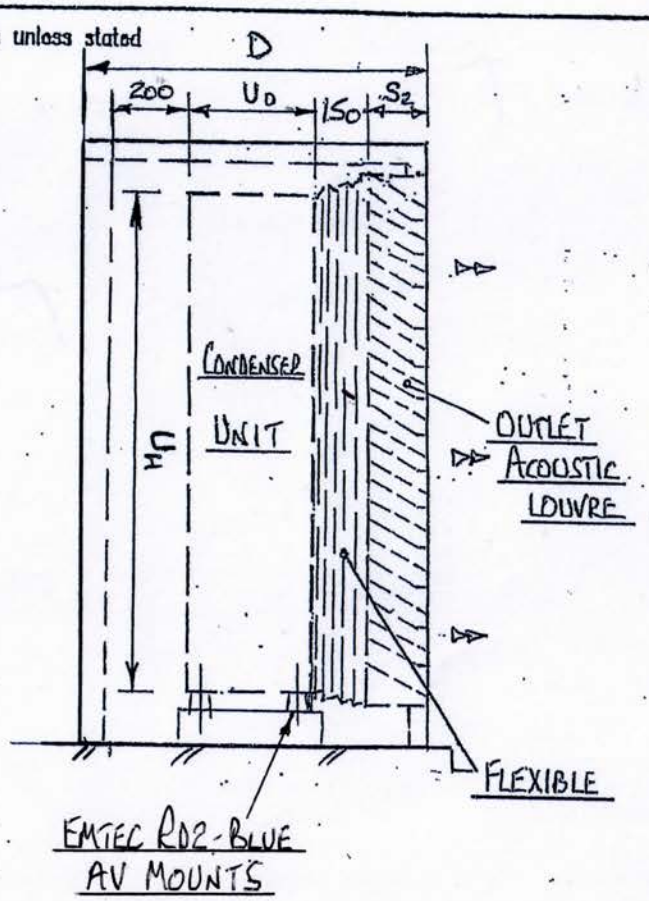
31/03/2023 N
ISSUE TO **CLIENT**
FOR INFO

12/05/2023 P
ISSUE TO **CLIENT**
EXTERNAL SERVICES APPROVAL

19/05/23 Q
ISSUE TO **EMTEC ACOUSTICS**
FOR ASSESSMENT

All dimensions in mm unless stated





REF.	E1
UNIT	VAILLANT VWL 75/6
U_W	1100
U_D	450
U_H	965
W	1400
D	1000
H	1200
INLET SILENCER	EMTEC LAAC1S-105
OUTLET ACOUSTIC LOUVRE	EMTEC LAAE1S-105
S1	150
S2	150
X	600
Y	1050
No. OFF	1
COLOUR	TBC

TITLE: AIR COOLED CONDENSER ACOUSTIC ENCLOSURE

CLIENT: NICK & EMILY TOMLINSON

PROJECT: 7, THE GROVE, HIGHGATE, LONDON N6

ISSUE DATE: 31/05/23

PF No.

STATUS: Q | A | M | I

DRAWN BY: MGR

APPROVED BY:

DESIGN AUTH: MGR.

A | B | C | D | E | F | G | H

REVISION:

SK No. QF/10675/GA2

EMTEC

Emtec Products Ltd.,
Enterprise House, Blyth Road, Hayes, Middx. UB3 1DD.
Tel: 0181-848 3031 Fax: 0181-573 3605