

Emtec Products Ltd, Unit L Turnpike Way,  
High Wycombe, Bucks, HP12 3TF

Telephone: 020 8848 3031 Fax: 020 8573 3605  
Web: www.emteproducts.co.uk Email: sales@emteproducts.co.uk

RESULTS OF A 24-HOUR NOISE LEVEL SURVEY  
CARRIED OUT IN THE REAR COURTYARD OF  
No. 33 COPTIC STREET, LONDON WC1  
AND A REPORT ON THE NOISE CONTROL MEASURES  
REQUIRED TO MINIMISE THE NOISE IMPACT  
OF THE PROPOSED NEW EXTERNAL PLANT

Test Engineer : C Harlow

Report Author : A L F Freeman

Authorised for  
Release by : M G Roberts

Client : Kingly Developments Ltd  
Project : No. 33 Coptic Street, London WC1  
Emtec Ref. : QF9039/PF5971 /RP1  
Issue Date : 21<sup>st</sup> June 2017  
Revision : 'A' – 11<sup>th</sup> September 2017



Reg. No. 3164658. VAT Reg. No. GB675017042  
Directors: I.J.Marchant MIOA (Managing) – J.R.Tait B.Eng, AMIMechE, MIOA  
M.G.Roberts BSc., C.Eng., MIMechE, MIOA – R.T.H.Roberts FCA. (Co.Sec.)



RESULTS OF A 24-HOUR NOISE LEVEL SURVEY  
CARRIED OUT IN THE REAR COURTYARD OF  
No. 33 COPTIC STREET, LONDON WC1  
AND A REPORT ON THE NOISE CONTROL MEASURES  
REQUIRED TO MINIMISE 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 rear courtyard of the residential property at No. 33 Coptic Street, London WC1.

The objectives of this survey were as follows:

- To assess the proposal to install new external plant.
- To identify the nearest properties that might be affected by noise.
- To establish the existing background noise level outside the nearest affected properties.
- To recommend noise limits and any necessary measures to ensure that the operation of the new plant does not disturb the occupants of the nearest affected properties.

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
- 7.0. SUMMARY

## 2.0. SITE DESCRIPTION

The property at 33 Coptic Street is a four storey, mid-terraced, residential building. There is a courtyard to the rear of the property offering light to the lower floor windows. The attached Photo A shows an aerial view of the area and the front of the property can be seen on the attached Photo B.

## 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 L1, L10, L50, L90 and L99 and also the Leq level.

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

Calibration was performed before and after the surveys and found to be, in all cases, +/- 0.1 dB from the reference source.

### 3.1. Existing Noise Climate

Road traffic travelling on nearby Great Russell Street could be heard during the manned periods at the start and the 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.

It was judged that traffic noise would be the dominant source affecting the measured ambient noise levels in the area.

#### 4.0. TEST PROCEDURE

The survey was conducted during a continuous 24-hour period from 9.23am on Tuesday 13<sup>th</sup> June 2017 to 9.23am on Wednesday 14<sup>th</sup> June 2017.

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<sub>1</sub> - The Sound Pressure Level exceeded for 1% of the measurement period.
- LA<sub>10</sub> - The Sound Pressure Level exceeded for 10% of the measurement period.
- LA<sub>50</sub> - The Sound Pressure Level exceeded for 50% of the measurement period.
- LA<sub>90</sub> - The Sound Pressure Level exceeded for 90% of the measurement period. LA90 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<sub>99</sub> - The Sound Pressure Level exceeded for 99% of the measurement period.
- LA<sub>eq</sub> - The continuous steady state Sound Pressure Level that has the same acoustic energy as the real fluctuating level.

#### 4.1. Measurement Positions

Noise levels were measured in the rear courtyard of the property, at a position considered equivalent to the closest receptor property in order to enable noise predictions from the proposed plant to be compared and assessed against.

The microphone was fixed to a tripod and was approximately 1.5m above the ground. The orientation of the microphone can be seen on the attached Photo C.

The rest of the measurement equipment was placed in a weatherproof enclosure with a low impedance cable running from the microphone to the instrumentation.

#### 4.2. Weather Conditions

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

Weather daytime: -	Sunny	Weather night time: -	Cloudy
Wind daytime: -	Calm	Wind night time: -	Calm

The microphone was protected throughout the tests 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 Leq 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/9039/T1 at the back of this report.

The 'A' Weighted percentile levels measured over each 15 minute interval 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/9039/T2 at the back of this report.

### 5.1. Summary of Results

The table QF/9039/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/9039/D1 – Summary of Maximum and Minimum Noise Levels

	$LA_{eq}$	$LA_1$	$LA_{10}$	$LA_{50}$	$LA_{90}$	$LA_{99}$
<b>Minimum</b>	37dBA	40dBA	38dBA	36dBA	35dBA	34dBA
<b>Maximum</b>	59dBA	71dBA	57dBA	49dBA	48dBA	47dBA

## 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 Council.

The Camden Local Plan sets out the Council's planning policies and replaces the Core Strategy and Development Policies 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 titled Noise and Vibration. It 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. development likely to generate unacceptable noise and vibration impacts; or b. 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)**

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

*\*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 a NR curve specification of NR35 or below, dependant on the room (based upon measured or predicted Leq,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

The new plant will not emit noise that has a distinguishable discrete continuous note, or emit noise that has distinct impulses.

The lowest recorded LA<sub>90</sub> level measured during the 24-hour period was 35dBA. This occurred during the time periods starting at 3.53am and 4.23am.

Applying a rating level of 10dB below the background noise level will result in the recommended design rating level for this project of 25dBA, this is 5dB lower than the recommended internal noise level for bedrooms suggested by the World Health Organisation (WHO) and BS8233:2014 'Guidance on sound Insulation and noise reduction for buildings'.

Applying a rating level of 5dB below the background noise level will result in the recommended design rating level for this project of 30dBA, which is equivalent to the recommended internal noise level for bedrooms suggested by the World Health Organisation (WHO) and BS8233:2014 'Guidance on sound Insulation and noise reduction for buildings'.

For this particular project we deem a rating level of 5dB below the measured LA<sub>90</sub> background noise level to be adequate.

5.4. Determination of commercial design criteria

The uses of the commercial premises that surround the development site generally consist of offices. It is therefore proposed that the recommendations given in BS8233:1999, Section 7.6 be considered.

	Good	Reasonable
Open plan office: L <sub>Aeq,T</sub>	45dBA	50dBA

Assuming a 10dB noise reduction due to a partially open window, as per the lower limit of the range given in BS8233:2014 section 8.4.7, the rating level at 1 metre external to the nearest affected office windows would be 45dBA + 10dB = 55dBA.

5.5. Summary of external noise criteria

Based upon the results of the survey and the above design criteria we summarise the recommended design rating levels to be adopted for this project in table QF/9039/D2: -

Table QF/9039/D2 – recommended design rating levels L<sub>Ar,T</sub>

Type of premises	L <sub>Ar,T</sub> (24-hour)
Noise sensitive	30dBA
Commercial	55dBA



## 6.0. DISCUSSION OF RESULTS

It is proposed that six Daikin condensing units be installed in the rear courtyard of the building.

- 1x Daikin 2MXS40H with SPL 47dBA at 1 metre in free field conditions
- 2x Daikin RXS20L3 with SPL 44dBA at 1 metre in free field conditions
- 3x Daikin 3MXS52E with SPL 49dBA at 1 metre in free field conditions

It is understood the new plant will operate on a 24 hour basis.

The nearest noise sensitive window has been identified as a 1<sup>st</sup> floor rear window of the residential property at 32 Coptic Street which is 7 metres from the proposed location of the new units. The window can be seen on the attached Photo C.

Table QF/9039/D3 below lists the attenuation of the external units to 1 metre from the window of the nearest neighbouring property. The Sound Pressure Levels have been obtained from the manufacturer and are as measured in free field conditions with the microphone positioned at a distance of 1 metre from the condenser.

Table QF/9039/D3 – Natural attenuation of condensers to 1 metre from the window of the neighbouring property at 33 Coptic Street

Speed/ Noise Level/ Attenuation	Sound Pressure Level (dB ref $2 \times 10^{-5} \text{ N/m}^2$ )								dBA
	63	125	250	500	1k	2k	4k	8k	
Daikin 2MXS40H	52	53	48	45	41	36	28	23	47
Daikin RXS20L3	43	44	47	43	39	33	26	20	44
Daikin RXS20L3	43	44	47	43	39	33	26	20	44
Daikin 3MXS52E	52	57	50	43	42	40	38	33	49
Daikin 3MXS52E	52	57	50	43	42	40	38	33	49
Daikin 3MXS52E	52	57	50	43	42	40	38	33	49
Reverberation effect	+6	+6	+6	+6	+6	+6	+6	+6	
SPL at 1 metre from condensers	64	68	63	57	55	52	49	44	61
Distance correction $20 \log A_0/A_1$	-10	-10	-10	-10	-10	-10	-10	-10	
Resultant untreated SPL at 1 metre from neighbour's window	54	58	53	47	45	42	39	34	51

EMTEC PRODUCTS LTD.

Based upon the above calculations, the overall Sound Pressure Level due to the operation of all six condensers will be 51dBA at 1 metre from the window of the nearest residential property. This is 21dB above the recommended noise limit.

To reduce the noise output of the new condensing units to a level below the recommended noise limit of LA<sub>eq</sub>: 30dB, it will be necessary to acoustically treat them.

In order to achieve this level of noise reduction it will be necessary to place the condensers into an acoustic enclosure with inlet and outlet attenuators orientated so as to provide an additional screening effect.

Air should enter and exit the enclosure through suitable acoustic louvres such as the Emtec Type LAAC15 Acoustic Louvres which provide the following minimum sound reduction indices:

Type	Sound Reduction Index (dB ref 2 x 10 <sup>-5</sup> N/m <sup>2</sup> )							
	63	125	250	500	1k	2k	4k	8k
Emtec type LAAC15 Acoustic Louvres	5	7	9	12	18	19	15	15

The roof of the enclosure should be made of suitable acoustic panels to ensure there is no direct line of sight from the condensing units to the nearest noise sensitive windows.

Resultant untreated SPL at 1 metre from neighbour's window	54	58	53	47	45	42	39	34	51
Emtec Type LAAC15 Acoustic Louvres	-5	-7	-9	-12	-18	-19	-15	-15	
Screening effect (pd = 0.5)	-8	-10	-12	-15	-18	-21	-24	-27	
Resultant treated SPL at 1m from neighbours window	41	41	32	20	8	2	0	0	28

The enclosure should be built as indicated on the attached Sketch QF9039-S01.

If installed as shown on the attached Sketch QF9039-S01, the acoustic enclosure will reduce the airborne noise of the six new condensing units down to a level below the recommended noise limit of LA<sub>eq</sub>: 30dB at 1 metre from the nearest affected noise sensitive window.

To minimise the transmission of structure borne noise, the new condensers should be isolated from the ground using double deflection neoprene-in-shear anti-vibration mounts having a minimum static deflection of 6mm.

7.0. SUMMARY

A 24 hour noise survey has been undertaken at No. 33 Coptic Street, London, WC1.

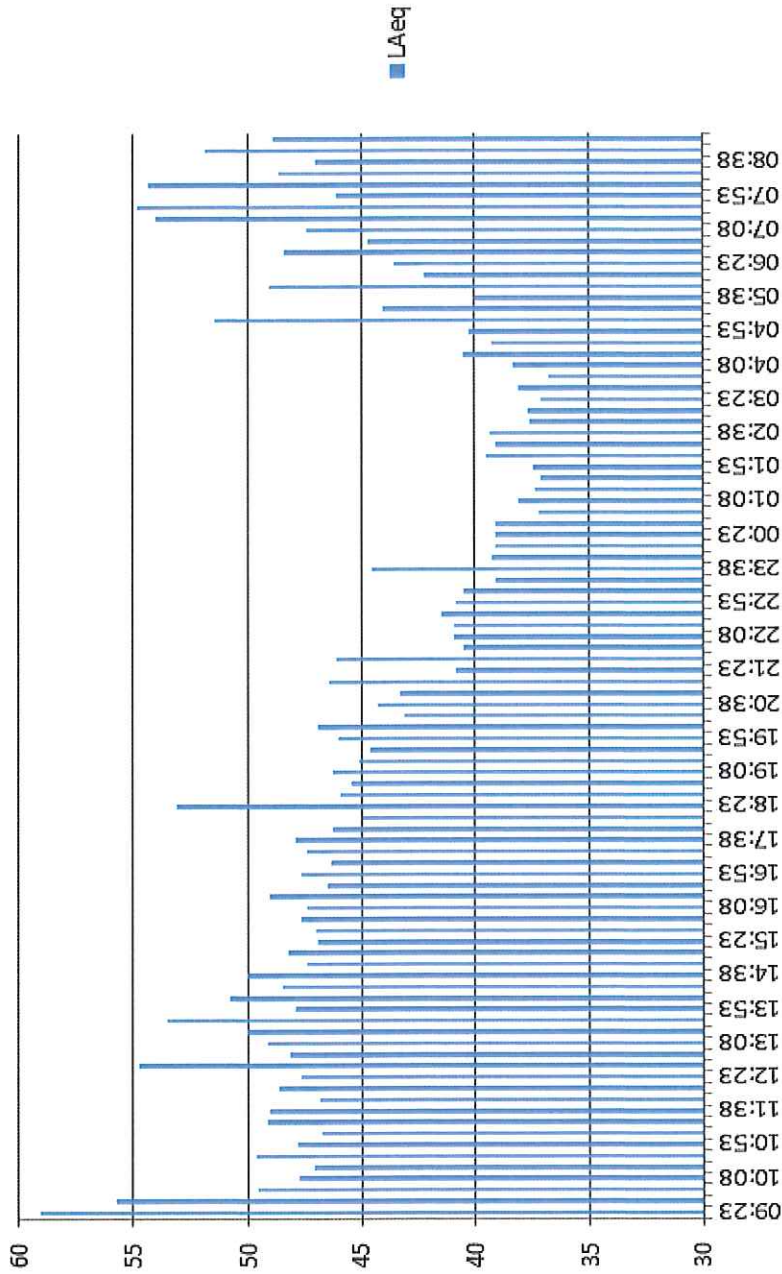
Design noise limits have been recommended, based upon the results of the survey and the local authority's planning guidelines.


Plant noise levels have been predicted and an assessment has been carried out to determine whether the plant meets the recommended design noise limits.

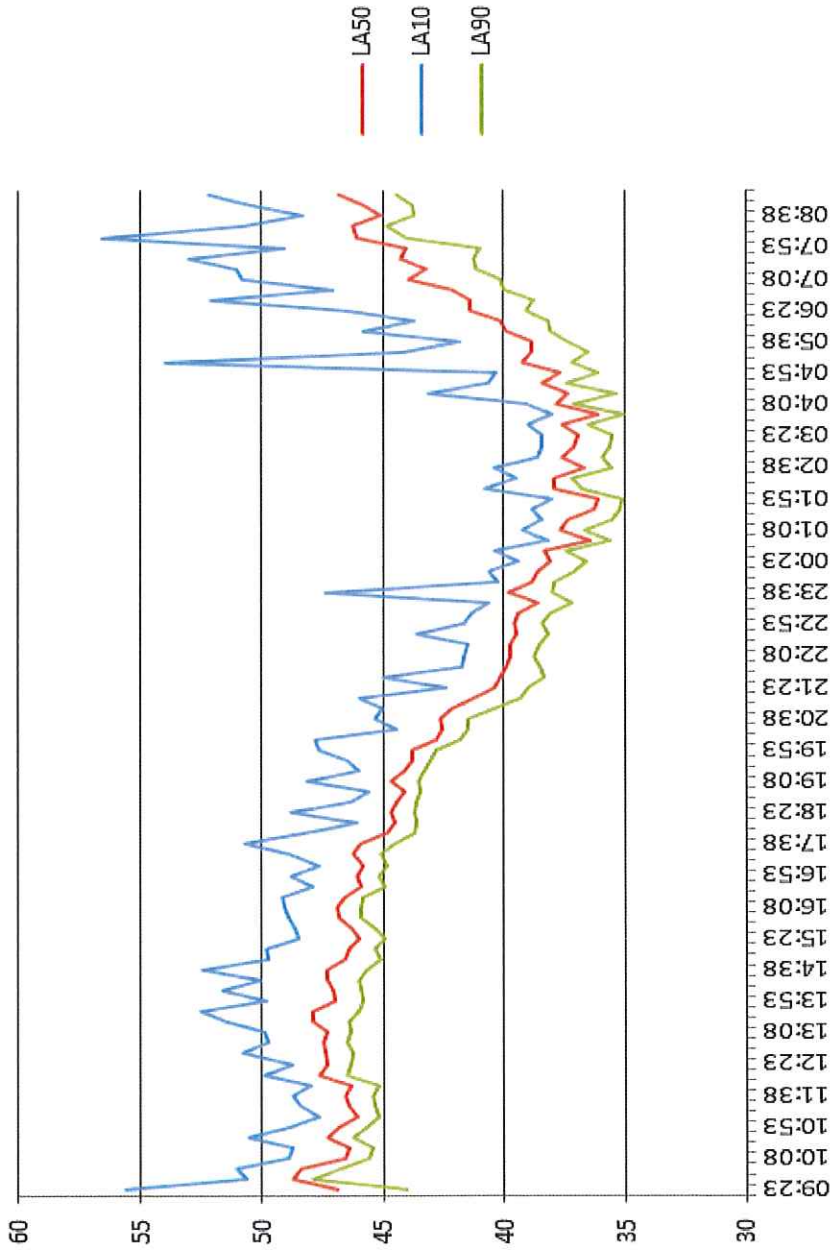
Noise control measures have been described for the external plant.

If the recommended noise control measures are implemented and the design rating levels achieved, it is predicted that the operation of the plant should meet the conditions set out in the Borough of Camden Councils planning policies and therefore reservation would not be expected from the planning authority on the grounds of noise.

**EMTEC PRODUCTS LTD**  
**21<sup>st</sup> June 2017**



TITLE: LAeq Levels	ISSUE DATE: 15/06/2017	DRAWN BY: MGR	A	B	C	D	E	F	G	H	
	CLIENT: Kingly Developments Ltd	APPROVED BY: MGR	REVISION								
PROJECT: 33 Coptic Street, London WC1	PF No: 5971	DESIGN AUTH: MGR	Q	A	M	I	SKETCH No. QF/9039/T1				
 <p>Unit L, Turnpike Way, High Wycombe Bucks HP12 3TF Tel: 020 8848 3031 Fax: 020 8573 3605</p>											



<b>TITLE:</b> LA10; LA50 & LA90 Levels  <b>CLIENT:</b> Kingly Developments Ltd  <b>PROJECT:</b> 33 Coptic Street, London WC1	<b>ISSUE DATE:</b> 15/06/2017	<b>DRAWN BY:</b> MGR	A	B	C	D	E	F	G	H	
	<b>PF No:</b> 5971	<b>APPROVED BY:</b> MGR	REVISION								
	Q    A    M    I	<b>DESIGN AUTH:</b> MGR	SKETCH No. QF/9039/T2								



Unit L, Turmpike Way, High Wycombe  
 Bucks HP12 3TF  
 Tel: 020 8848 3031 Fax: 020 8573 3605

APPENDIX 'A'

Raw Data – Noise Survey

13<sup>th</sup> – 14<sup>th</sup> June 2017

**RAW NOISE DATA - 33 Coptic Street, London WC1**

Ref: QF9039/PF5971/RP1  
 Client: Kingly Developments Ltd  
 Date: 13th to 14th June 2017

Address	Start Time	LAeq	LE	Lmax	Lmin	LA1	LA10	LA50	LA90	LA99
1	09:23	59	89	88	41	71	56	47	44	42
2	09:38	56	85	84	46	62	51	49	48	47
3	09:53	50	79	70	45	56	51	48	47	46
4	10:08	48	77	63	44	55	49	47	46	45
5	10:23	47	77	60	44	53	49	46	45	45
6	10:38	50	79	70	45	59	51	47	46	46
7	10:53	48	77	70	44	54	49	47	46	45
8	11:08	47	76	65	44	52	48	46	45	45
9	11:23	49	79	80	44	54	48	46	45	45
10	11:38	49	79	74	44	56	49	47	45	45
11	11:53	47	76	67	44	51	48	46	45	45
12	12:08	49	78	70	45	55	50	48	47	46
13	12:23	48	77	58	45	52	49	47	46	46
14	12:38	55	84	79	45	67	51	47	46	46
15	12:53	48	78	60	45	53	50	48	47	46
16	13:08	49	79	72	45	58	50	47	46	46
17	13:23	50	80	73	45	57	51	48	46	46
18	13:38	54	83	74	44	67	53	48	46	45
19	13:53	48	78	67	44	53	50	47	46	45
20	14:08	51	80	71	44	63	52	47	46	45
21	14:23	49	78	67	45	56	50	47	46	45
22	14:38	50	80	70	44	59	52	47	46	45
23	14:53	47	77	57	44	53	50	47	45	45
24	15:08	48	78	63	44	58	50	46	45	45
25	15:23	47	77	61	44	53	49	46	45	44
26	15:38	47	77	57	44	53	49	46	45	45
27	15:53	48	77	61	45	55	49	47	46	45
28	16:08	47	77	57	44	52	49	47	46	45
29	16:23	49	79	69	45	60	49	47	46	45
30	16:38	47	76	65	44	50	48	46	45	44
31	16:53	48	77	64	44	55	49	46	45	45
32	17:08	46	76	55	44	52	48	46	45	44
33	17:23	47	77	61	44	56	49	46	45	45
34	17:38	48	78	63	43	57	51	46	45	44
35	17:53	46	76	59	42	55	48	45	44	43
36	18:08	45	75	54	42	50	46	45	44	43
37	18:23	53	83	75	42	68	49	45	44	43
38	18:38	46	76	62	42	55	46	44	44	43
39	18:53	45	75	71	42	49	46	44	43	43
40	19:08	46	76	61	42	54	48	45	44	43
41	19:23	45	75	69	42	50	46	44	43	43
42	19:38	45	74	55	42	50	47	44	43	43
43	19:53	46	76	67	41	54	48	44	43	42
44	20:08	47	77	65	41	60	48	43	42	41
45	20:23	43	73	59	40	48	44	43	42	41
46	20:38	44	74	65	40	52	45	43	42	41
47	20:53	43	73	58	39	51	45	42	40	39
48	21:08	46	76	67	38	60	46	41	39	39
49	21:23	41	70	53	37	45	42	40	39	38
50	21:38	46	76	70	37	59	45	40	38	38

51	21:53	41	70	55	36	47	42	40	39	37
52	22:08	41	71	54	37	50	42	40	39	38
53	22:23	41	71	62	37	47	42	40	39	38
54	22:38	42	71	65	37	49	44	40	38	38
55	22:53	41	70	61	36	49	42	40	38	37
56	23:08	41	70	56	37	49	41	39	38	37
57	23:23	39	69	50	36	44	41	39	37	36
58	23:38	45	74	61	35	55	47	40	38	36
59	23:53	39	69	53	37	43	40	39	38	37
60	00:08	39	69	47	35	44	41	39	37	36
61	00:23	39	69	57	35	47	39	38	37	36
62	00:38	39	69	57	36	44	40	38	37	37
63	00:53	37	67	51	34	44	38	36	36	35
64	01:08	38	68	46	34	43	39	38	37	35
65	01:23	37	67	47	34	40	38	37	36	35
66	01:38	37	67	47	34	43	39	36	35	35
67	01:53	37	67	52	34	48	38	36	35	35
68	02:08	40	69	57	34	49	41	38	37	35
69	02:23	39	69	54	36	49	40	38	37	37
70	02:38	39	69	54	34	50	40	37	36	35
71	02:53	38	67	44	34	41	39	38	36	35
72	03:08	38	67	55	34	45	38	37	36	35
73	03:23	37	67	46	34	41	38	37	36	35
74	03:38	38	68	60	35	41	39	38	37	36
75	03:53	37	66	49	34	43	38	36	35	34
76	04:08	38	68	55	36	44	39	38	37	37
77	04:23	41	70	56	34	51	43	37	35	35
78	04:38	39	69	61	35	45	41	38	37	37
79	04:53	40	70	67	34	45	40	38	36	35
80	05:08	51	81	67	34	64	54	39	37	36
81	05:23	44	74	63	35	57	44	39	37	36
82	05:38	40	70	52	35	48	42	39	37	36
83	05:53	49	79	67	36	64	46	40	38	37
84	06:08	42	72	65	36	51	44	40	38	37
85	06:23	44	73	56	37	53	47	41	39	38
86	06:38	48	78	65	36	60	52	41	39	37
87	06:53	45	74	59	38	54	47	42	40	39
88	07:08	47	77	67	38	56	51	44	40	39
89	07:23	54	84	78	39	67	51	43	41	40
90	07:38	55	84	77	40	66	53	44	41	40
91	07:53	46	76	65	39	54	49	44	41	40
92	08:08	54	84	70	42	67	57	46	44	43
93	08:23	49	78	75	43	57	51	46	45	44
94	08:38	47	77	65	42	56	48	45	44	43
95	08:53	52	81	72	42	65	50	46	44	43
96	09:08	49	79	69	42	56	52	47	44	43



APPENDIX 'B'

Photos and sketches

Nearest Noise Sensitive Window  
(7m away)

33 Coptic Street

Proposed Condenser Location

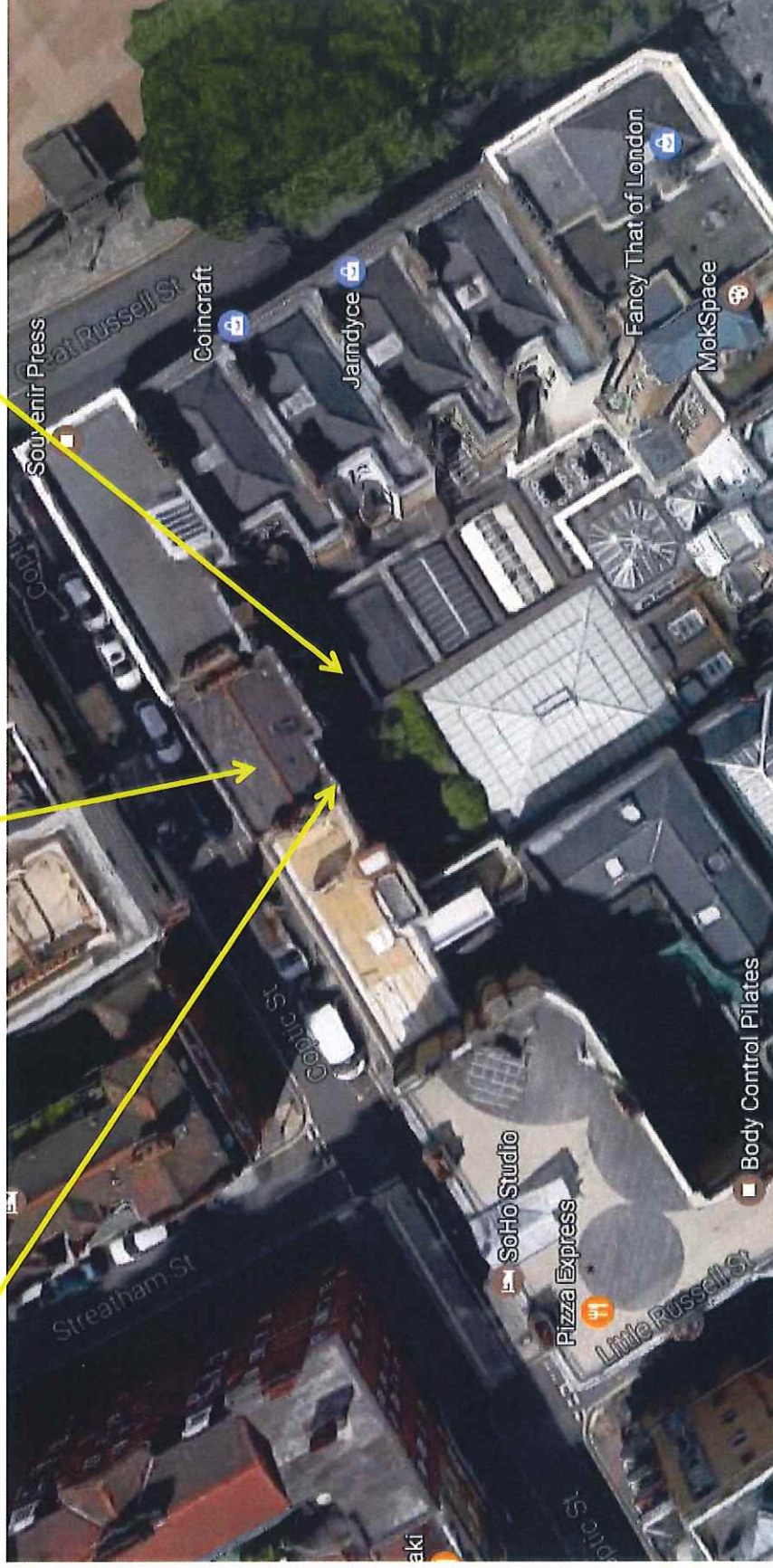


Photo A – An Aerial View of the Surrounding Area

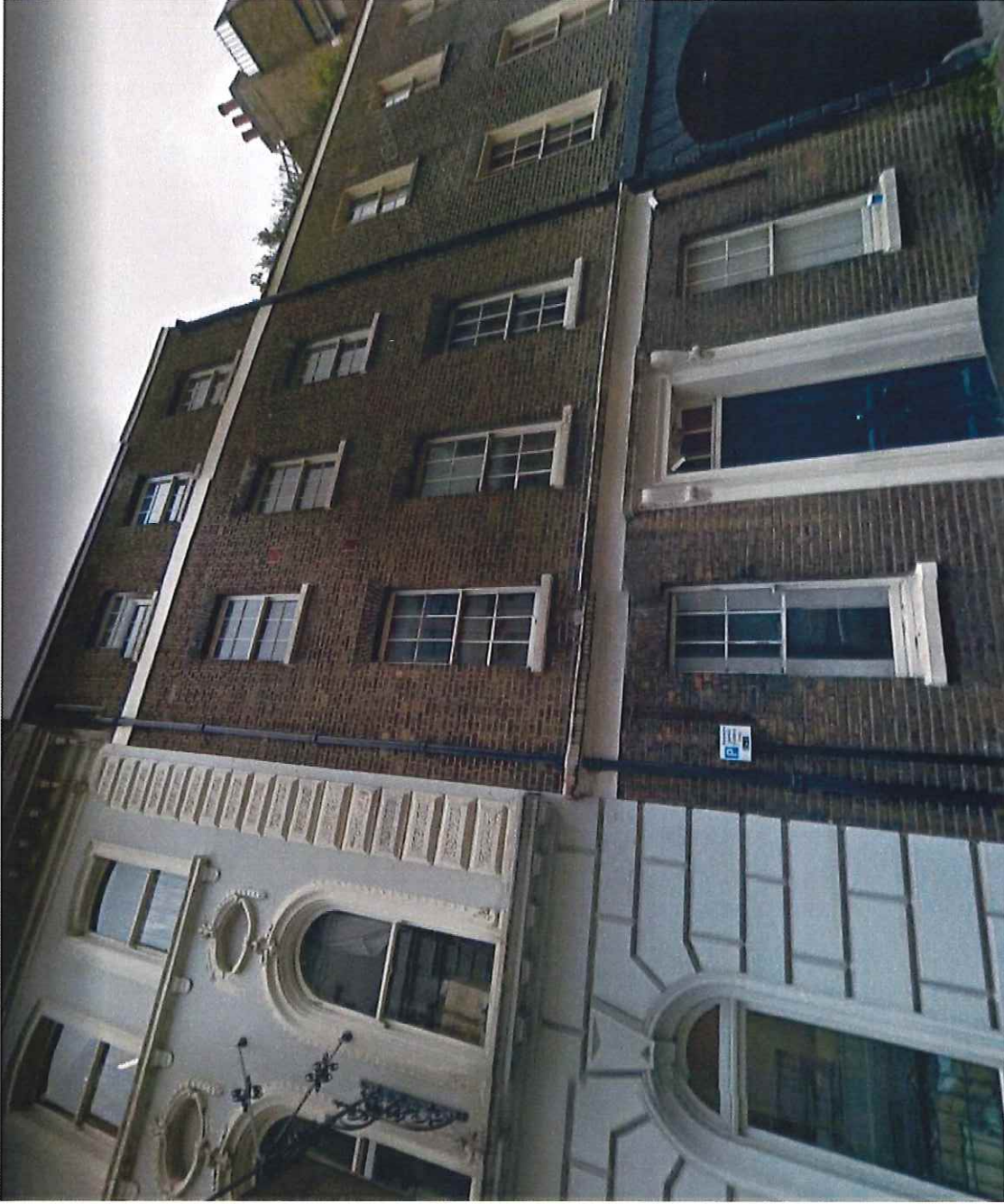


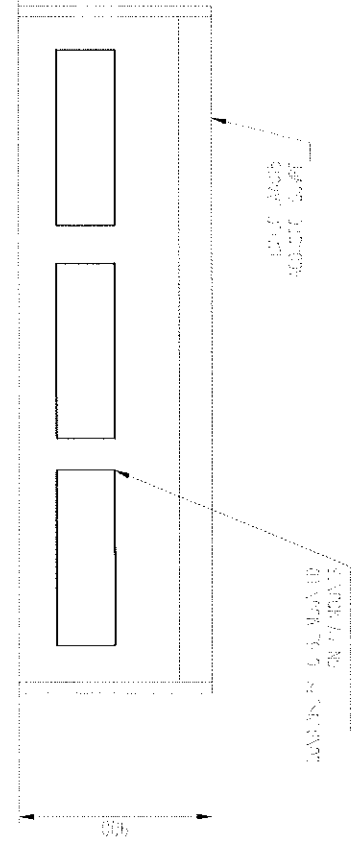
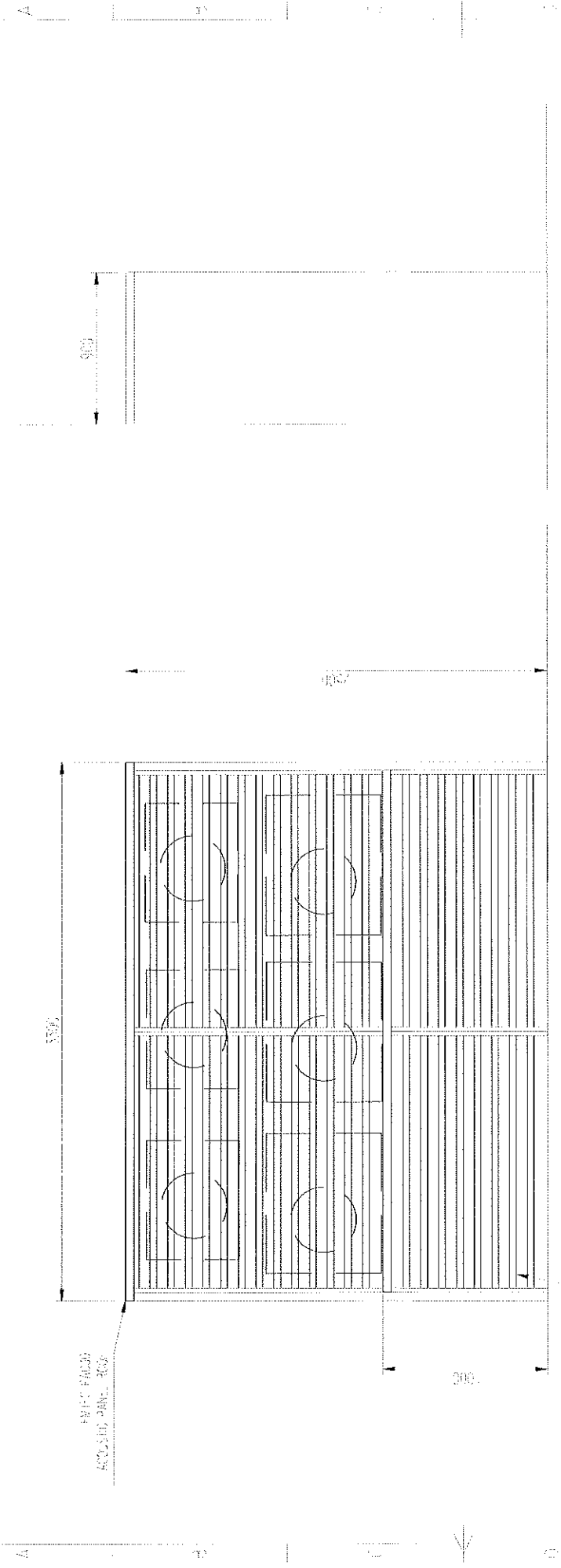
Photo B – A Front View of the Property at 33 Coptic Street


Nearest Noise  
Sensitive Window  
(7m away from units)

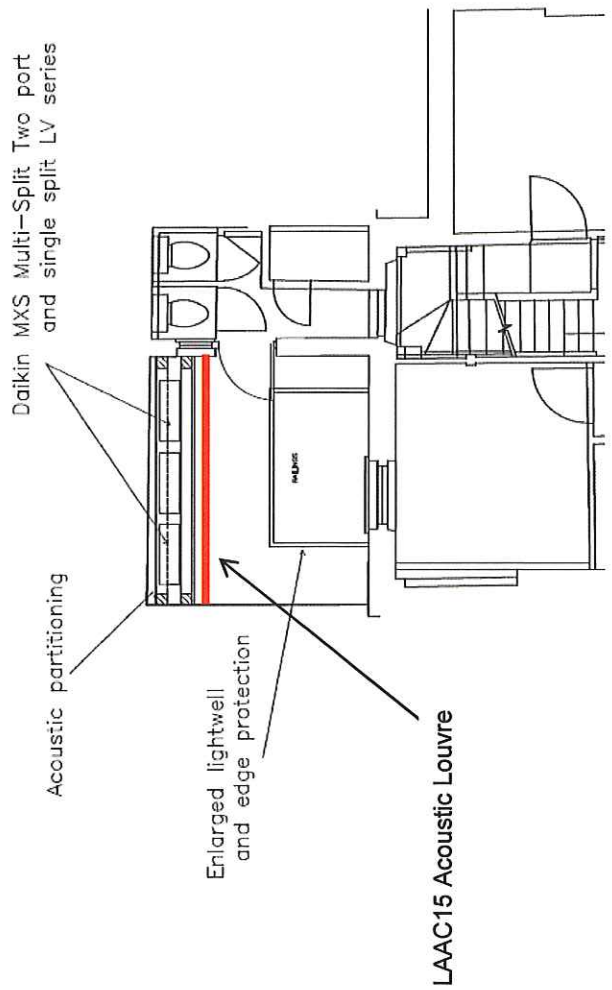


Photo C – The Microphone Location

RevNo	Revisão	6.	7.	8.
				Signaliza (Elet) (Rev)



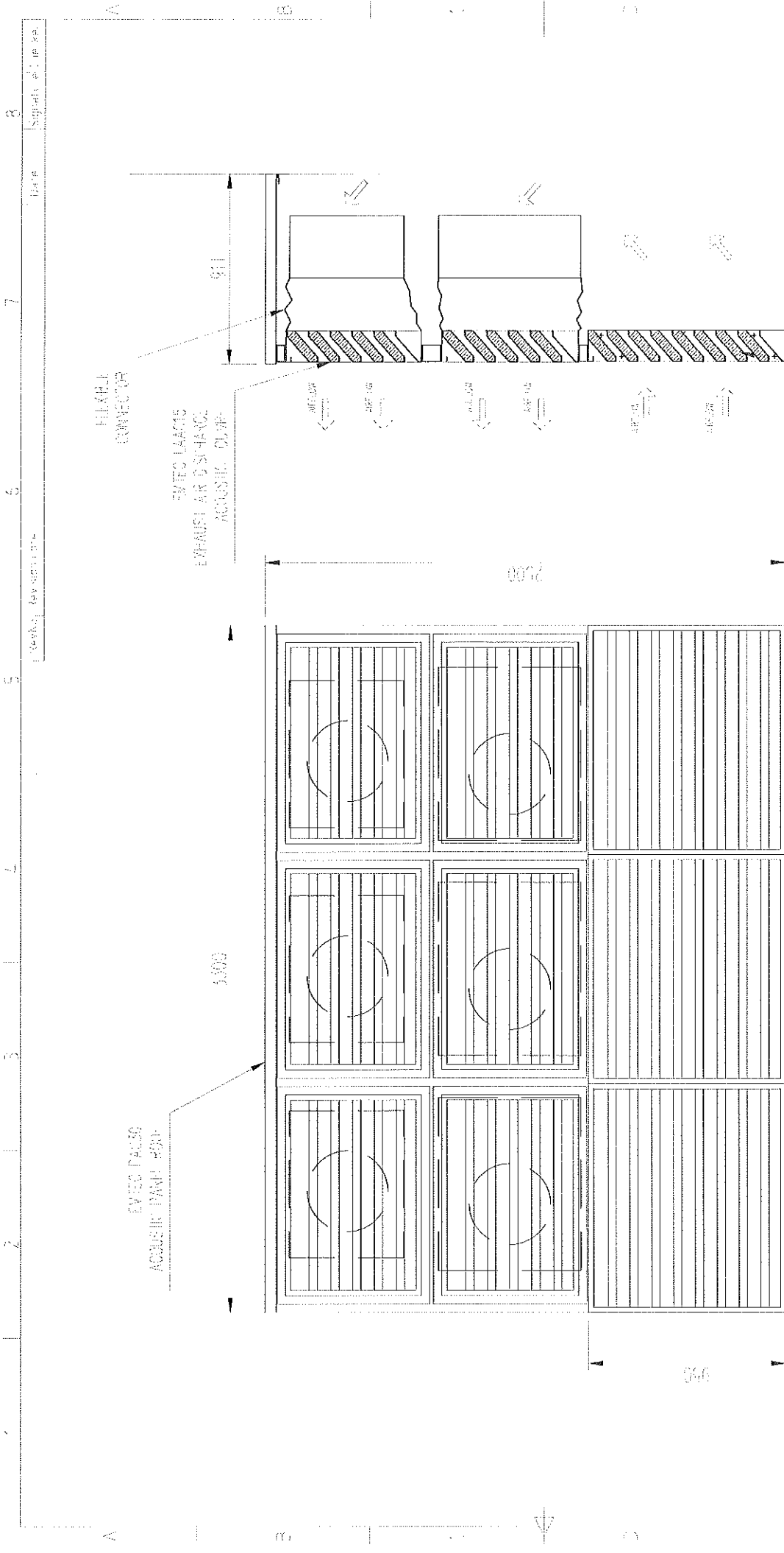
Proj	Projeto	15.10	15.10	15.10
Reviz	Revisão	1	1	1
Des	Desenho	1	1	1
Aut	Autor	1	1	1
Ver	Verificador	1	1	1
Tit	Título	Cálculo Estrutural Layout		
Proj	Projeto	15.10		
Reviz	Revisão	15.10		
Des	Desenho	15.10		
Aut	Autor	15.10		
Ver	Verificador	15.10		
Tit	Título	15.10		
				
<small>ENTEC Engenharia e Arquitetura</small> <small>Av. Paulista, 1508 - Bela Vista - São Paulo - SP - CEP: 01310-100</small> <small>Fone: (11) 3066-1000 - Fax: (11) 3066-1001 - E-mail: entec@entec.com.br</small>				



TITLE: Acoustic Louvre Layout	ISSUE DATE: 23/06/2017	DRAWN BY: AF	A	B	C	D	E	F	G	H
	CLIENT: Kingly Developments Ltd	PF No: 5971	REVISION							
PROJECT: 33 Coptic Street, London WC1	Q	A	M	I	DESIGN AUTH: MGR					
			SKETCH No. QF/9039/SK02							



Unit L, Tumpike Way, High Wycombe  
Bucks HP12 3TF  
Tel: 020 8848 3031 Fax: 020 8573 3605



REV	AKHIL S. RAJAN S. D.	PROJ	30 YOTIC STREET, 6007X
Drawn by	AKHIL S. RAJAN S. D.	Approved by	AKHIL S. RAJAN S. D.
Checked by		Scale	NTS
		FILE ACUSTIC ENCLOSURE	
EVTEC LACRIS EXHAUST AIR DUCTING ACUSTIC CLAMP		Qty	1
EVTEC LACRIS EXHAUST AIR DUCTING ACUSTIC CLAMP		Part No	EVTEC/9108