Enterprise House, Blyth Road, Hayes, Middx. UB3 1DD

Telephone: 020 8848 3031 Fax: 020 8573 3605

24 HOUR NOISE LEVEL SURVEY CARRIED OUT ON THE ROOF OF THE RESIDENTIAL UNITS AT NO. 34-36 JAMESTOWN ROAD, LONDON NW1 AND A REPORT ON THE NOISE CONTROL MEASURES REQUIRED TO MINIMISE THE NOISE IMPACT OF THE PROPOSED NEW STANDBY GENERATOR PLANT

Test Engineer : M G Roberts

Report Author : M G Roberts

Authorised for Release by : I J Marchant

Client	:	Peter Deer and Associates
Project	:	334-36 Jamestown Road
Emtec Ref.	:	QF2973B/PF3803/RP3
Date	:	21st July 2009

24 HOUR NOISE LEVEL SURVEY CARRIED OUT ON THE ROOF OF THE RESIDENTIAL UNITS AT NO 34-36 JAMESTOWN ROAD, LONDON NW1 AND A REPORT ON THE NOISE CONTROL MEASURES REQUIRED TO MINIMISE THE NOISE IMPACT OF THE PROPOSED NEW STANDBY GENERATOR PLANT

1.0. INTRODUCTION

This report details the results of a 24 hour noise level survey carried out on the roof of the residential properties at the rear of No. 34-36 Jamestown Road, London NW1. The front section of the building has been developed as offices and is now being used. The building has existing roof mounted air conditioning and ventilation plant.

The objectives of this survey were as follows:

- To establish the background noise level on the roof of the residential properties to the rear of No. 34-36 Jamestown Road.

- To assess the proposed new standby generator plant that is to be installed on the front of the roof of the office building and to recommend areas that may require particular treatment to ensure that the operation of the new plant does not disturb the occupants of the residential properties either adjacent to or at the rear of the development.

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

2.0. TEST INSTRUMENTATION

All measurement equipment used during the survey complied with the requirements of BS4142:1990 "Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas". Details of the equipment are as follows:

Integrating Sound Level Meters	: Bruel & Kjaer type 2231 fitted with a Bruel & Kjaer type 4155 ½ inch condenser microphone.
Statistical Analysis Modules	: Bruel & Kjaer type BZ 7115 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.

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

3.0. TEST PROCEDURE

The survey was conducted during a continuous 23 hour period from 8.35am on Monday the 20th of July 2009 to 8.15am on Tuesday the 21st of July 2009.

Data was continuously acquired throughout the measurement period with the individual averaging time for statistical noise data set to 20 minutes. The following statistical measurements were recorded concurrently:

LA1 - The Sound Pressure Level exceeded for 1% of the measurement period.

LA10 - The Sound Pressure Level exceeded for 10% of the measurement period.

LA50 - The Sound Pressure Level exceeded for 50% of the measurement period.

LA90 - 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).

LA99 - The Sound Pressure Level exceeded for 99% of the measurement period.

LAeq - The continuous steady state Sound Pressure Level that has the same acoustic energy as the real fluctuating level.

All noise levels recorded were filtered using a standard 'A' Weighting filter.

3.1. Measurement Position

The noise levels were measured at a position on the roof of the residential units to the rear of the site at No. 34-36 Jamestown Road. The location is shown on our attached PHOTO A.

The microphone was positioned so that it was pointing towards the rear of the building on the canal side of the site.

The microphone was approximately 1.2 metres above roof level. The rest of the measurement equipment was located under a protective cover with the microphone cable running from the instrumentation to the microphone location.

3.2. Weather Conditions

The weather conditions prevailing during the measurement period were in line with those recommended in BS 4142:1990 with no precipitation and no wind. The weather was bright and clear throughout the daytime and nightime period.

The microphone was protected throughout the tests by an acoustically transparent wind balloon.

4.0. RESULTS

The raw test data, gathered during the 24 hour noise survey, is given in Appendix 'A 'of this report.

The 'A' Weighted Leq levels measured over each 20 minute interval throughout the 24 hour periods (denoted by LAeq, (20 mins)) are displayed as bar graphs on the attached Sketch No. QF/2973B/T1 at the back of this report.

The 'A' Weighted percentile levels measured over each 20 minute interval denoted by LA10 (20 mins), LA50 (20 mins) and LA90 (20 mins) are displayed as line graphs on the attached Sketch No. QF/2973B/T2 at the back of this report.

4.1. Summary of Results

The table QF/2973B/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/2973B/D1 – Summary of Maximum and Minimum Noise Levels

	LA1	**LA10**	**LA50**	**LA90**	**LA99**	**Laeq**
Min.	50.2 dBA	47.7 dBA	47.2 dBA	46.7 dBA	46.2 dBA	47.3 dBA
Max.	69.7 dBA	65.2 dBA	55.7 dBA	52.7 dBA	51.2 dBA	60.2 dBA

5.0. DISCUSSION OF RESULTS

The lowest recorded LA_{90} noise level was 46.7dBA which occurred during five consecutive time period between 1.15am and 2.35am. The LA_{90} noise level was fairly constant between the hours of 10.00pm and 6.00am between 48.7 and 46.7dBA.

If the external plant is to be operated on a 24 hour basis the new plant will have to meet an external noise criteria of at least 5dB below the lowest background LA_{90} level. This would mean the plant should be designed to achieve no more than 41.7dBA at 1 metre from the nearest adjacent residential property.

Normal new plant noise criteria are based on not increasing the existing LA_{90} background noise level at 1 metre from the nearest residential property's windows. As the proposed generator is a standby unit and should only be used in emergency there is normally a 5dBA relaxation in this criteria due to the standby nature of the plant's operation.

To achieve no increase in background LA_{90} noise level the noise criteria would have to be 10dB below the lowest LA_{90} background noise level (ie: 36.7dBA). However with the 5dBA relaxation this gives a noise criteria of 41.7dBA.

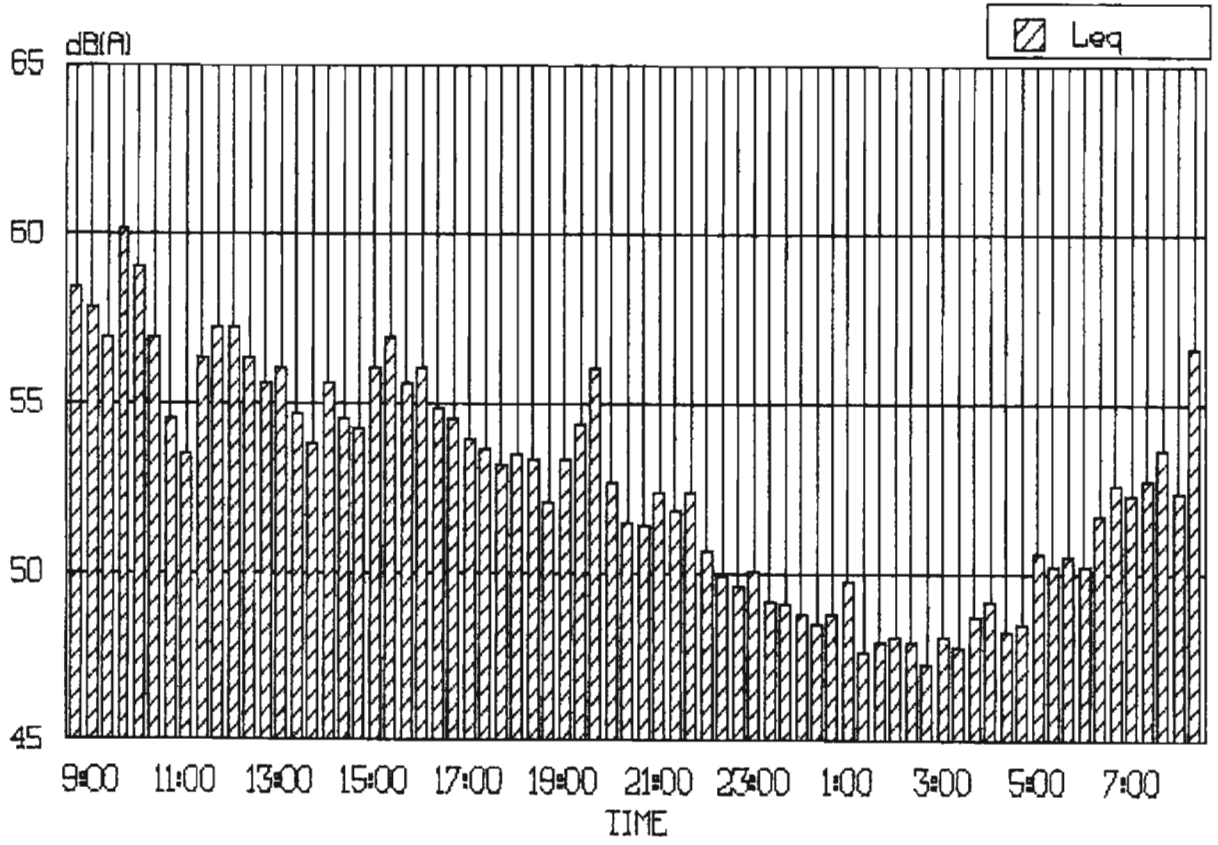
The proposed generator is an F G Wilson set, 250KVA power output and driven by a Perkins 1306C turbocharged engine. The unit is 7600mm long x 1400mm wide x 2000mm high and the unit is to be supplied with an acoustic enclosure which will achieve 65dBA at 1 metre from the enclosure. It is assumed that air will enter at one end of the enclosure and exit at the opposite end and that the generator enclosure will have one end facing Jamestown Road and one end looking towards the rear of the site.

The nearest window of the rear residential block will be approximately 20 metres from the end of the generator and one floor down from the roof. So long as this minimum distance can be maintained the generator should achieve approximately 40 dBA at 1 metre from the nearest window as shown on our attached PHOTO C. The location of the generator will be in the area shown on PHOTO D.

The nearest adjacent residential property's windows is at a similar distance from the side of the generator as shown on PHOTO B. Again, so long as a minimum distance of 20 metres from the generator to the nearest window can be maintained the noise level should be 40dBA at 1 metre from these residential property's windows.

EMTEC PRODUCTS LTD
22nd July 2009

Roof of flats at 34-36, Jamestown Road. 20th to 21st July 2009



TITLE: LAeq Levels	*ISSUE DATE:* 22/7/09				*DRAWN BY:* MGR	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*
CLIENT: Peter Deer & Associates	*PF No:3803*				*APPROVED BY:* MGR	*REVISION*							
PROJECT: 34-36 Jamestown Road	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* MGR	*SKETCH No. QF/2973B/T1*							

EMTEC
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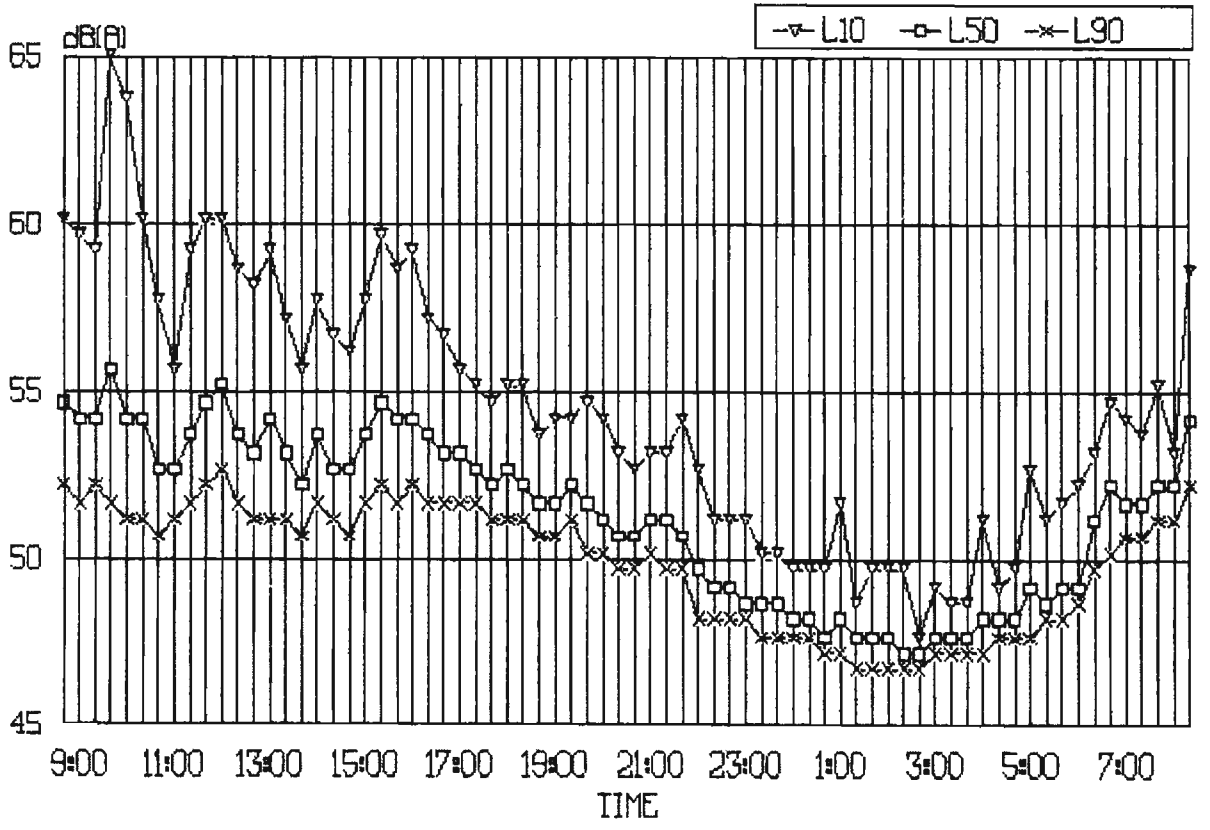
Roof of flats at 34-36, Jamestown Road. 20th to 21st July 2009



TITLE: LA10; LA50 and LA90 Levels	*ISSUE DATE:* 22/7/09				*DRAWN BY:* MGR	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*
CLIENT: Peter Deer & Associates	*PF No:3803*				*APPROVED BY:* MGR	*REVISION*							
PROJECT: 34-36 Jamestown Road	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* MGR	*SKETCH No. QF/2973B/T2*							

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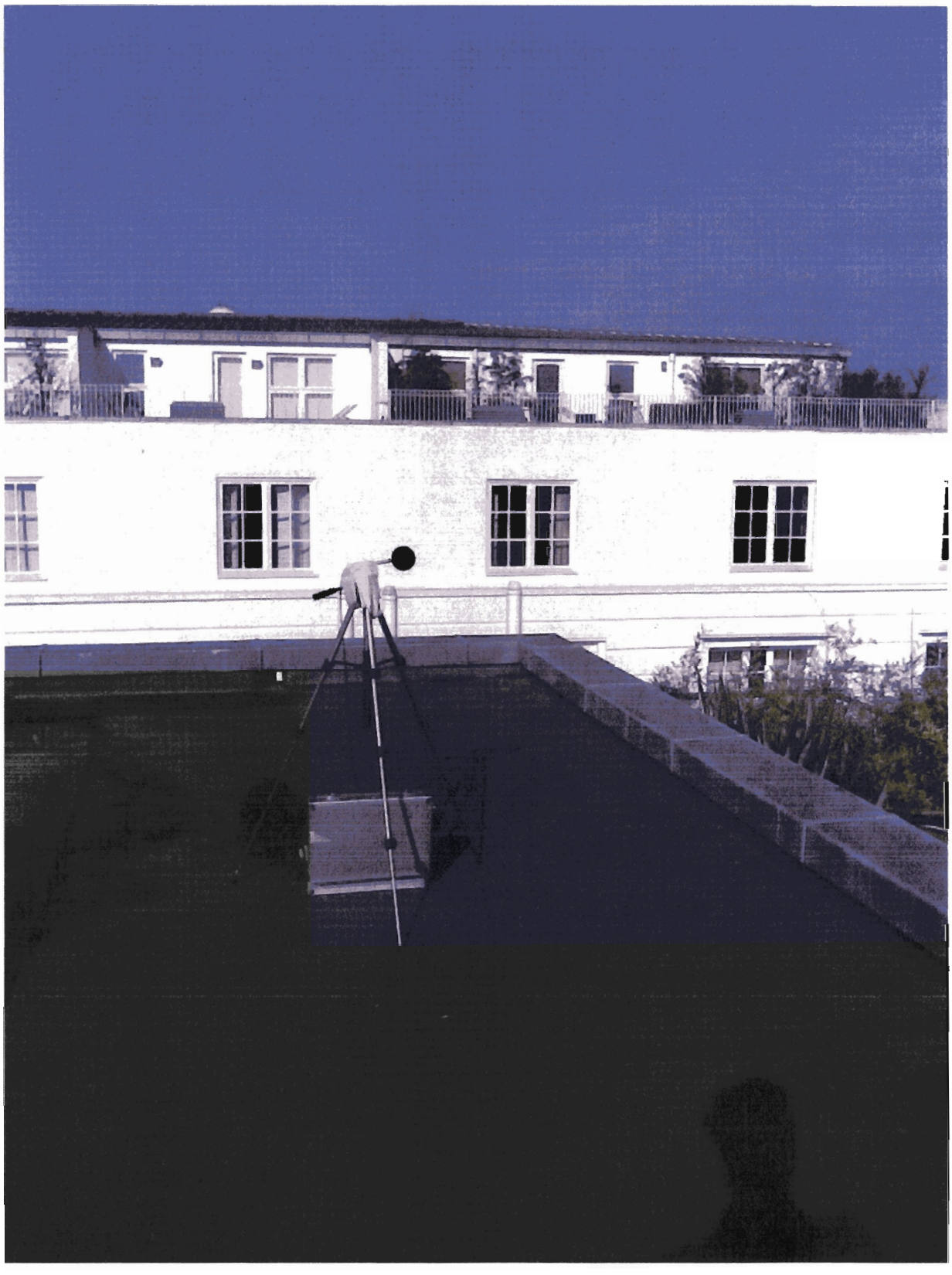

PHOTO A: Microphone position on roof of residential block to rear of 34-36 Jamestown Road

PHOTO B: Residential block on left hand side of roof of 34-36 Jamestown Road

PHOTO C: Nearest window of residential block to rear of 34-36 Jamestown Road

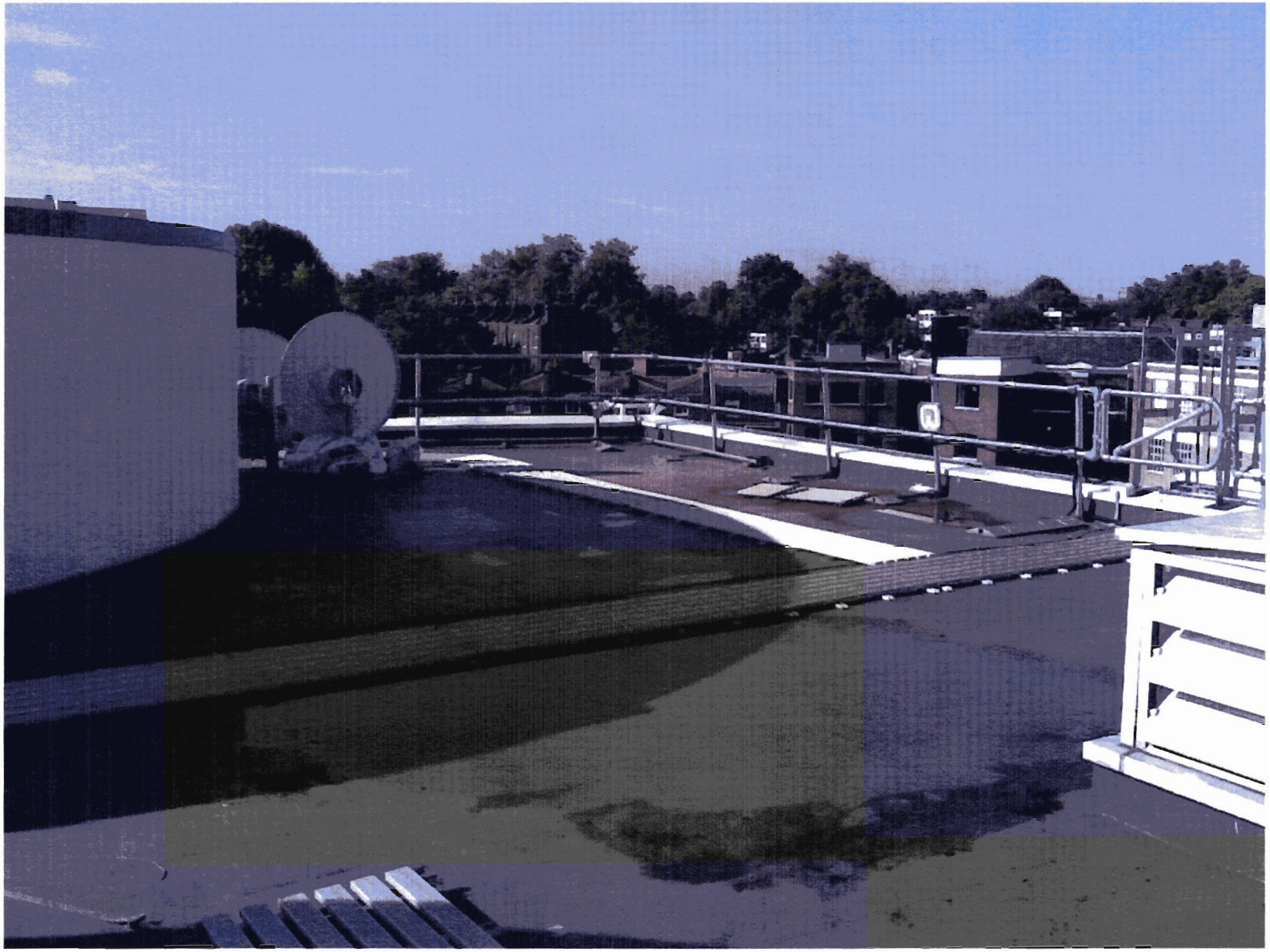

PHOTO D: Area of roof proposed for standby generator set location

APPENDIX A

Raw Data – Noise Survey
20th to 21st July 2009

Project : 34-36, Jamestown Road, London NW1.
Client : Peter Deer & Associates
Ref : QF2973B
Date : 21st July 2009

Measure No.	Finish Time	MaxP (dBA)	L1 (dBA)	L10 (dBA)	L50 (dBA)	L90 (dBA)	L99 (dBA)	Leq (dBA)
1	08:35	95.6	69.7	60.2	54.7	52.2	50.7	58.5
2	08:55	96.6	67.7	59.7	54.2	51.7	50.7	57.9
3	09:15	92.5	66.2	59.2	54.2	52.2	50.7	56.9
4	09:35	93.6	68.2	65.2	55.7	51.7	50.2	60.2
5	09:55	95.9	68.2	63.7	54.2	51.2	50.2	59
6	10:15	89.3	65.2	60.2	54.2	51.2	50.2	56.9
7	10:35	86.6	61.7	57.7	52.7	50.7	49.7	54.5
8	10:55	86.2	59.7	55.7	52.7	51.2	49.7	53.5
9	11:15	93.7	65.2	59.2	53.7	51.7	50.7	56.3
10	11:35	88.9	65.7	60.2	54.7	52.2	51.2	57.2
11	11:55	96.6	65.2	60.2	55.2	52.7	51.2	57.3
12	12:15	88.3	66.7	58.7	53.7	51.7	50.7	56.3
13	12:35	87.7	64.7	58.2	53.2	51.2	50.2	55.6
14	12:55	96.5	69.7	59.2	54.2	51.2	50.2	56.1
15	13:15	92.7	62.2	57.2	53.2	51.2	50.2	54.7
16	13:35	83.6	61.2	55.7	52.2	50.7	49.7	53.8
17	13:55	92.8	64.2	57.7	53.7	51.7	50.2	55.6
18	14:15	84.8	62.2	56.7	52.7	51.2	50.7	54.6
19	14:35	82.9	63.2	56.2	52.7	50.7	50.2	54.3
20	14:55	94.4	63.7	57.7	53.7	51.7	50.7	56.1
21	15:15	95.1	64.2	59.7	54.7	52.2	51.2	56.9
22	15:35	88.4	61.7	58.7	54.2	51.7	51.2	55.6
23	15:55	87.5	62.7	59.2	54.2	52.2	51.2	56.1
24	16:15	88	61.7	57.2	53.7	51.7	51.2	54.8
25	16:35	85.2	60.7	56.7	53.2	51.7	50.7	54.5
26	16:55	82.2	59.2	55.7	53.2	51.7	50.7	53.9
27	17:15	84.8	59.2	55.2	52.7	51.7	50.7	53.6
28	17:35	79.9	60.2	54.7	52.2	51.2	50.7	53.2
29	17:55	78.5	58.7	55.2	52.7	51.2	50.7	53.5
30	18:15	78.9	59.7	55.2	52.2	51.2	50.2	53.3
31	18:35	81.4	55.2	53.7	51.7	50.7	50.2	52.1
32	18:55	80.9	63.7	54.2	51.7	50.7	49.7	53.4
33	19:15	87	65.7	54.2	52.2	51.2	50.2	54.4
34	19:35	95.1	59.2	54.7	51.7	50.2	49.2	56
35	19:55	80.7	60.2	54.2	51.2	50.2	49.7	52.7
36	20:15	75.3	56.7	53.2	50.7	49.7	49.2	51.5
37	20:35	73.3	55.7	52.7	50.7	49.7	49.2	51.4
38	20:55	88.9	58.2	53.2	51.2	50.2	49.2	52.4
39	21:15	75.7	58.7	53.2	51.2	49.7	48.7	51.9
40	21:35	80.5	60.2	54.2	50.7	49.7	48.7	52.4
41	21:55	82.1	57.2	52.7	49.7	48.2	47.7	50.7
42	22:15	85.7	54.7	51.2	49.2	48.2	47.7	49.9
43	22:35	72.5	54.2	51.2	49.2	48.2	47.7	49.6
44	22:55	76.9	57.2	51.2	48.7	48.2	47.7	50.1
45	23:15	76.7	53.7	50.2	48.7	47.7	47.2	49.2
46	23:35	70.2	54.7	50.2	48.7	47.7	47.2	49.1
47	23:55	73	52.7	49.7	48.2	47.7	47.2	48.8
48	00:15	66.9	51.2	49.7	48.2	47.7	47.2	48.5
49	00:35	78.7	53.2	49.7	47.7	47.2	46.7	48.8
50	00:55	75.2	57.7	51.7	48.2	47.2	46.7	49.8
51	01:15	68	50.2	48.7	47.7	46.7	46.7	47.7
52	01:35	69.1	52.2	49.7	47.7	46.7	46.7	48
53	01:55	73.8	52.2	49.7	47.7	46.7	46.2	48.1
54	02:15	68.5	53.2	49.7	47.2	46.7	46.2	48
55	02:35	72.6	50.2	47.7	47.2	46.7	46.2	47.9
56	02:55	70.7	52.7	49.2	47.7	47.2	46.7	48.1
57	03:15	67.4	50.2	48.7	47.7	47.2	46.7	47.8
58	03:35	73.6	57.7	48.7	47.7	47.2	46.7	48.7
59	03:55	70.9	55.7	51.2	48.2	47.2	46.7	49.2
60	04:15	73.7	51.2	49.2	48.2	47.7	47.2	48.3
61	04:35	73.6	51.7	49.7	48.2	47.7	46.7	48.5
62	04:55	74.6	57.7	52.7	49.2	47.7	47.2	50.6
63	05:15	84	58.2	51.2	48.7	48.2	47.7	50.2
64	05:35	75	59.2	51.7	49.2	48.2	47.7	50.5
65	05:55	80.2	54.7	52.2	49.2	48.7	48.2	50.2
66	06:15	91.5	55.7	53.2	51.2	49.7	49.2	51.7
67	06:35	86.1	56.7	54.7	52.2	50.2	49.7	52.6
68	06:55	81.4	55.7	54.2	51.7	50.7	50.2	52.3
69	07:15	80.3	60.2	53.7	51.7	50.7	50.2	52.8
70	07:35	88.4	61.2	55.2	52.2	51.2	50.7	53.6
71	07:55	78.6	55.2	53.2	52.2	51.2	50.7	52.4
72	08:15	96.5	65.7	58.7	54.2	52.2	51.2	56.7