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**REPORT No. 470535/1**

**SOVEREIGN HOUSE  
212-224 SHAFTESBURY AVENUE  
LONDON WC2H 8PR**

**ENVIRONMENTAL NOISE  
SURVEY REPORT**

**PREPARED: 11<sup>th</sup> June 2007**

**Presented By: Fred Blyth MIOA**

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## **1.0 Introduction**

- 1.1 Building Services Associates Ltd has commissioned Noico Ltd to conduct a noise survey at Sovereign house, London WC2H 8PR.
- 1.2 The purpose of the survey is to obtain statistical noise data and to determine the background noise levels at the site. Based on the noise survey data, noise criteria are to be established for limiting noise emission from the mechanical plant installations serving the premises. The noise criteria are to be set in accordance with the requirements of the local planning authority (Camden Council).

## **2.0 Instrumentation**

- 2.1 A precision grade Norsonic 118 'Type 1' Integrating Sound Level Meter was used for the survey. This was equipped with an environmental microphone and extension cable. The instrument was powered by an external battery and stored in a weatherproof case.
- 2.2 The instrument was calibrated prior and subsequent to use with no calibration drift recorded.

## **3.0 Survey Details**

- 3.1 Location: The environmental noise analyser microphone was located externally on a lower roof outside of the upper floor of the building and largely away from any other existing plant. This position was chosen as it was considered to be representative of the background noise environment, which exists at the nearest noise affected properties. Note, from the observations made on site, the nearest noise affected properties (flats) are considered to back onto Grape Street. The nearest top floor flat is approximately 8 metres from and level with the location of the nearest condenser units. There are flats on the floor below that are slightly closer to the building, but not in line of sight of the units. Note, the exact position of the nearest noise-affected properties is to be confirmed by the local planning authority, prior to final design of any necessary mechanical plant noise control measures.
- 3.2 Period: Monitoring was carried out continuously from approximately 11:00 hrs on the 29<sup>th</sup> May 2007 through to 13.30 hrs on the 30<sup>th</sup> May 2007. The instrument was set up to monitor noise levels continuously and store data in five-minute intervals.
- 3.3 Weather: The prevailing weather condition throughout the majority of the survey period was satisfactory for noise monitoring, being dry with occasional showers, mild and with little to moderate breeze. Windspeed, although not recorded, was considered to be less than 5 m/s throughout the survey period.
- 3.4 Site Noise Characteristics: The ambient noise level was characterised by road traffic noise from Shaftesbury Avenue and the other surrounding main roads. It is thought that no unusual events occurred during the survey period and the data are considered to be a true representation of ambient noise levels.

#### 4.0 Survey Results

- 4.1 The results of the environmental survey are presented in graphical and numerical format in the attached appendices, showing the recorded values of  $L_{Aeq}$  and  $L_{A90}$ .
- 4.2 See Appendix 1 for a glossary of terms.
- 4.3 With reference to the measured data, the minimum background noise level measured during the survey period was:

Daytime (08:00 to 18:00hrs)	- 52.1 $L_{A90}$
Nighttime (18:00 – 08:00hrs)	- 48.8 $L_{A90}$

#### 5.0 Environmental Noise Level Criteria

- 5.1 Criteria for mechanical services noise emission are normally based upon the prevailing level of background noise in the period of concern and may be set against this to a level as normally defined by the local planning authority.
- 5.2 Camden council has advised that noise arising from fixed plant installations should not cause an increase in the existing minimum background noise level (as expressed as a  $L_{A90}$ ) at the nearest noise affected property. In practical terms, this means that the noise arising from the plant should be at least 10 dB(A) below the minimum background noise level. The local authority also confirmed that tonal contributions from plant should be kept to a minimum wherever possible.
- 5.3 To conform to the above criteria, and in accordance with the minimum background noise levels measured during the survey (detailed summarised in 4.3 above); noise from the proposed plant installations should not exceed the following value.

Daytime plant operation (0700 to 2300hrs)	- 42.1 dB $L_{Aeq}$
Nighttime (2300 – 0700hrs)	- 38.8 dB $L_{Aeq}$

Note: These levels must be achieved cumulatively with all plant operating, and as measured at 1 metre from the window of the nearest affected property.

#### 6.0 Plant Noise Assessment

- 6.1 We have been advised that the new plant comprises seven small identical Daikin model RKS20D3VMB outdoor condensing units. The manufacturer's sound pressure data @ 1m for the units is shown in the Table below.

Item	SPL @ 1m per (dB) per Octave Band Frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
Condensing units	46	45	43	39	38	30	23	18

Table 1 – SPL Data

6.2 The nearest residential property appears to be at a distance of approximately 8m and would be directly in line of sight with five of the seven condensing units. Taking into account the sound pressure data shown above, it is predicted that the resultant noise level from these five units when running together would be 36dB(A). The remaining two condensing units at the other end of the building are further from the residential properties and far enough from the other units not to add to the cumulative level.

6.3 We understand these units would operate only during daytime office hours and it can be seen that this would meet the criterion of 42dB(A) defined above.

## 7.0 Conclusion

7.1 A background noise level survey has been carried out at Sovereign house, London WC2H 8PR.

7.2 Based upon the survey results and discussions with the local planning authority, criteria applicable to noise from the mechanical services plant have been established.

7.3 In addition, the noise arising from the proposed plant has been reviewed and found to operate within the defined limit.



## Appendix 1 - Glossary of Terms

Decibel, dB	A unit of level derived from the logarithm of the ratio between the value of a quantity and a reference value. For sound pressure level ( $L_p$ ) the reference quantity is $2 \times 10^{-5} \text{ N/m}^2$ . The sound pressure level existing when microphone measured pressure is $2 \times 10^{-5} \text{ N/m}^2$ is 0 dB, the threshold of hearing.
L	Instantaneous value of Sound Pressure Level ( $L_p$ ).
Frequency	Is related to sound pitch; frequency equals the ratio between velocity of sound and wavelength.
A weighting	Arithmetic corrections applied to values of $L_p$ according to frequency. When logarithmically summed for all frequencies, the resulting single "A weighted value" becomes comparable with other such values from which a comparative loudness judgement can be made, then, without knowledge of frequency content of the source.
$L_{eq,T}$	Equivalent continuous level of sound pressure which, if it actually existed for the integration time period T of the measurement, would possess the same energy as the constantly varying values of $L_p$ actually measured.
$L_{Aeq,T}$	Equivalent continuous level of A weighted sound pressure which, if it actually existed for the integration time period, T, of the measurement would possess the same energy as the constantly varying values of $L_p$ actually measured.
$L_{n,T}$	$L_p$ which was exceeded for n% of time, T.
$L_{An,T}$	Level in dBA which was exceeded for n% of time, T.
$L_{max,T}$	The instantaneous maximum sound pressure level which occurred during time, T.
$L_{Amax,T}$	The instantaneous maximum A weighted sound pressure level which occurred during time, T.
Background Noise Level	The value of $L_{A90,T}$ , ref. BS4142:1997.
Traffic Noise Level	The value of $L_{A10,T}$ .
Specific Noise Level	The value of $L_{Aeq,T}$ at the assessment position produced by the specific noise source, ref. BS4142:1997.
Rating Level	The specific noise level, corrected to account for any characteristic features of the noise, by adding a 5 dBA penalty for any tonal, impulsive or irregular qualities, ref. BS4142:1997.
Specific Noise Source	The noise source under consideration when assessing the likelihood of complaint.
Assessment Position	Unless otherwise noted, is a point at 1 m from the façade of the nearest affected sensitive property.

## Appendix 2

### Environmental Noise Monitoring Data

Date	LAeq	LA90
(2007/05/29 11:06:14.00)	56.9	54.9
(2007/05/29 11:11:16.00)	58.4	53.8
(2007/05/29 11:16:18.00)	58.9	53.8
(2007/05/29 11:21:20.00)	57.7	54.5
(2007/05/29 11:26:21.00)	56.2	54.1
(2007/05/29 11:31:23.00)	56.2	54.9
(2007/05/29 11:36:25.00)	56.6	53.7
(2007/05/29 11:41:27.00)	55.5	53.8
(2007/05/29 11:46:29.00)	55.4	53.6
(2007/05/29 11:51:30.00)	55.5	53.9
(2007/05/29 11:56:32.00)	56.7	54.5
(2007/05/29 12:01:34.00)	58.8	55.2
(2007/05/29 12:06:36.00)	58.6	55.2
(2007/05/29 12:11:38.00)	59.2	56.3
(2007/05/29 12:16:39.00)	60.8	56.1
(2007/05/29 12:21:41.00)	59	55.8
(2007/05/29 12:26:43.00)	57.6	55.3
(2007/05/29 12:31:45.00)	57.5	55
(2007/05/29 12:36:47.00)	59.1	55.5
(2007/05/29 12:41:49.00)	58.2	55.2
(2007/05/29 12:46:50.00)	57.9	55.2
(2007/05/29 12:51:52.00)	57.8	55.1
(2007/05/29 12:56:54.00)	58.1	55.7
(2007/05/29 13:01:56.00)	57.7	55.1
(2007/05/29 13:06:58.00)	58	55.4
(2007/05/29 13:11:59.00)	57.6	55
(2007/05/29 13:17:01.00)	57.9	55
(2007/05/29 13:22:03.00)	56.9	54.3
(2007/05/29 13:27:05.00)	57.3	54.6
(2007/05/29 13:32:06.00)	57.3	54.3
(2007/05/29 13:37:08.00)	58.1	55.4
(2007/05/29 13:42:10.00)	59	55
(2007/05/29 13:47:12.00)	58.2	54.6
(2007/05/29 13:52:14.00)	58.1	55.7
(2007/05/29 13:57:15.00)	57.1	54.5
(2007/05/29 14:02:17.00)	57.8	53.1
(2007/05/29 14:07:19.00)	54.7	53.2
(2007/05/29 14:12:21.00)	57.1	53.3
(2007/05/29 14:17:23.00)	54.1	52.5
(2007/05/29 14:22:25.00)	54.1	52.5
(2007/05/29 14:27:26.00)	54.4	52.8
(2007/05/29 14:32:28.00)	55.2	53.5
(2007/05/29 14:37:30.00)	54.6	53.2
(2007/05/29 14:42:32.00)	54.9	53.5

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Date	L <sub>Aeq</sub>	L <sub>A90</sub>
(2007/05/29 14:47:34.00)	60.9	54.7
(2007/05/29 14:52:36.00)	56.7	54.7
(2007/05/29 14:57:37.00)	56.5	54.5
(2007/05/29 15:02:39.00)	56.7	54.8
(2007/05/29 15:07:41.00)	57.6	55.2
(2007/05/29 15:12:43.00)	56.3	54.9
(2007/05/29 15:17:45.00)	60.6	54.6
(2007/05/29 15:22:46.00)	57.3	54.9
(2007/05/29 15:27:48.00)	55.6	53.6
(2007/05/29 15:32:50.00)	55.6	53.5
(2007/05/29 15:37:52.00)	55	53.8
(2007/05/29 15:42:54.00)	59.7	54.3
(2007/05/29 15:47:55.00)	55.4	53.8
(2007/05/29 15:52:57.00)	60.9	55
(2007/05/29 15:57:59.00)	59.3	54.5
(2007/05/29 16:03:01.00)	62.3	53.8
(2007/05/29 16:08:03.00)	58.9	54.6
(2007/05/29 16:13:04.00)	57.7	54.7
(2007/05/29 16:18:06.00)	59.6	56
(2007/05/29 16:23:08.00)	58.8	56.3
(2007/05/29 16:28:10.00)	58.4	56.2
(2007/05/29 16:33:12.00)	56.3	54.3
(2007/05/29 16:38:13.00)	56.4	54.8
(2007/05/29 16:43:15.00)	56	54.2
(2007/05/29 16:48:17.00)	55.9	54.1
(2007/05/29 16:53:19.00)	55.7	54
(2007/05/29 16:58:21.00)	59.2	53.9
(2007/05/29 17:03:22.00)	60.3	53.7
(2007/05/29 17:08:24.00)	57.8	54.8
(2007/05/29 17:13:26.00)	57.8	54.8
(2007/05/29 17:18:28.00)	58	54.9
(2007/05/29 17:23:30.00)	58.9	55.9
(2007/05/29 17:28:31.00)	58.9	55.9
(2007/05/29 17:33:33.00)	60.8	56
(2007/05/29 17:38:35.00)	57.5	53.7
(2007/05/29 17:43:37.00)	54.2	52.2
(2007/05/29 17:48:39.00)	54.6	52.6
(2007/05/29 17:53:40.00)	54.1	52.1
(2007/05/29 17:58:42.00)	56	52.2
(2007/05/29 18:03:44.00)	54.9	52.3
(2007/05/29 18:08:46.00)	55.6	52.5
(2007/05/29 18:13:48.00)	54.6	52.5
(2007/05/29 18:18:49.00)	54.2	52.3
(2007/05/29 18:23:51.00)	54.3	52.2
(2007/05/29 18:28:53.00)	55.2	52.5
(2007/05/29 18:33:55.00)	54	52
(2007/05/29 18:38:57.00)	55.3	53.3
(2007/05/29 18:43:58.00)	54.2	52.6



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Date	LAeq	LA90
(2007/05/29 18:49:00.00)	60	52.6
(2007/05/29 18:54:02.00)	54.8	52.8
(2007/05/29 18:59:04.00)	54.8	53
(2007/05/29 19:04:06.00)	53.5	51.9
(2007/05/29 19:09:07.00)	54.2	52.3
(2007/05/29 19:14:09.00)	56.5	52.1
(2007/05/29 19:19:11.00)	53.7	52.1
(2007/05/29 19:24:13.00)	54	51.9
(2007/05/29 19:29:15.00)	53.9	52
(2007/05/29 19:34:17.00)	54	52.3
(2007/05/29 19:39:18.00)	53.5	51.4
(2007/05/29 19:44:20.00)	55.7	52.4
(2007/05/29 19:49:22.00)	53.4	51.5
(2007/05/29 19:54:24.00)	58	52.1
(2007/05/29 19:59:25.00)	53.6	51.6
(2007/05/29 20:04:27.00)	56.1	52.4
(2007/05/29 20:09:29.00)	53.3	51.4
(2007/05/29 20:14:31.00)	53.3	51.7
(2007/05/29 20:19:33.00)	53.7	52.1
(2007/05/29 20:24:35.00)	54.5	51.5
(2007/05/29 20:29:36.00)	54.8	51.2
(2007/05/29 20:34:38.00)	53.2	51.5
(2007/05/29 20:39:40.00)	59.4	52.2
(2007/05/29 20:44:42.00)	58.4	51.8
(2007/05/29 20:49:44.00)	58.9	52.1
(2007/05/29 20:54:45.00)	52.9	51.5
(2007/05/29 20:59:47.00)	53.2	51.3
(2007/05/29 21:04:49.00)	52.9	51.3
(2007/05/29 21:09:51.00)	52.8	51.2
(2007/05/29 21:14:53.00)	53.4	51
(2007/05/29 21:19:54.00)	53.5	51.4
(2007/05/29 21:24:56.00)	53.1	51.4
(2007/05/29 21:29:58.00)	52.9	51.4
(2007/05/29 21:35:00.00)	55.8	51.3
(2007/05/29 21:40:02.00)	53.7	51.1
(2007/05/29 21:45:04.00)	53	51.1
(2007/05/29 21:50:05.00)	53.5	51.3
(2007/05/29 21:55:07.00)	55	52.5
(2007/05/29 22:00:09.00)	62.2	52.2
(2007/05/29 22:05:11.00)	57.5	51.9
(2007/05/29 22:10:13.00)	55.6	53.1
(2007/05/29 22:15:14.00)	54.1	51.5
(2007/05/29 22:20:16.00)	54.2	52.1
(2007/05/29 22:25:18.00)	56.9	51.8
(2007/05/29 22:30:20.00)	53.2	51.6
(2007/05/29 22:35:22.00)	53.3	51.6
(2007/05/29 22:40:23.00)	53.4	51.7
(2007/05/29 22:45:25.00)	53.2	51.6

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Date	LAeq	LA90
(2007/05/29 22:50:27.00)	53	51.5
(2007/05/29 22:55:29.00)	52.9	51.6
(2007/05/29 23:00:31.00)	51.9	50.2
(2007/05/29 23:05:33.00)	57.7	50.8
(2007/05/29 23:10:34.00)	52.5	50.2
(2007/05/29 23:15:36.00)	52.4	50.5
(2007/05/29 23:20:38.00)	52.6	50.7
(2007/05/29 23:25:40.00)	54.3	50.7
(2007/05/29 23:30:42.00)	53.5	51.2
(2007/05/29 23:35:43.00)	53.5	50.7
(2007/05/29 23:40:45.00)	52.5	50.5
(2007/05/29 23:45:47.00)	53.7	50.2
(2007/05/29 23:50:49.00)	51.8	50.2
(2007/05/29 23:55:51.00)	52.3	50.5
(2007/05/30 00:00:53.00)	52.6	50.4
(2007/05/30 00:05:54.00)	53.4	50.7
(2007/05/30 00:10:56.00)	53.3	50.6
(2007/05/30 00:15:58.00)	53.4	50.3
(2007/05/30 00:21:00.00)	52.1	50.3
(2007/05/30 00:26:02.00)	51.8	50
(2007/05/30 00:31:04.00)	53.3	50.3
(2007/05/30 00:36:05.00)	51.4	49.9
(2007/05/30 00:41:07.00)	52.2	49.7
(2007/05/30 00:46:09.00)	51.1	49.5
(2007/05/30 00:51:11.00)	50.5	49
(2007/05/30 00:56:13.00)	51.3	49.9
(2007/05/30 01:01:14.00)	51.1	49.5
(2007/05/30 01:06:16.00)	52.8	49.8
(2007/05/30 01:11:18.00)	52	49.5
(2007/05/30 01:16:20.00)	50.8	49.4
(2007/05/30 01:21:22.00)	51.6	49.3
(2007/05/30 01:26:23.00)	51.9	49.4
(2007/05/30 01:31:25.00)	50.8	49.1
(2007/05/30 01:36:27.00)	53.6	48.9
(2007/05/30 01:41:29.00)	50.5	49.1
(2007/05/30 01:46:31.00)	50.5	48.9
(2007/05/30 01:51:32.00)	50.9	49.1
(2007/05/30 01:56:34.00)	50.3	48.8
(2007/05/30 02:01:36.00)	51.8	50
(2007/05/30 02:06:38.00)	50.4	49.4
(2007/05/30 02:11:40.00)	51.3	50
(2007/05/30 02:16:41.00)	51.4	50
(2007/05/30 02:21:43.00)	51.5	50
(2007/05/30 02:26:45.00)	51.2	49.9
(2007/05/30 02:31:47.00)	51.1	49.9
(2007/05/30 02:36:49.00)	51.6	50
(2007/05/30 02:41:51.00)	51.8	50.3
(2007/05/30 02:46:52.00)	53.2	51

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Date	LAeq	LA90
(2007/05/30 02:51:54.00)	51.1	49.6
(2007/05/30 02:56:56.00)	51	49.6
(2007/05/30 03:01:58.00)	51.3	49.8
(2007/05/30 03:07:00.00)	51.6	50.1
(2007/05/30 03:12:01.00)	51.6	50.1
(2007/05/30 03:17:03.00)	51	50
(2007/05/30 03:22:05.00)	51.3	50
(2007/05/30 03:27:07.00)	51.4	49.7
(2007/05/30 03:32:09.00)	51.9	50
(2007/05/30 03:37:10.00)	51.6	49.9
(2007/05/30 03:42:12.00)	51.4	50.1
(2007/05/30 03:47:14.00)	51	49.7
(2007/05/30 03:52:16.00)	51.2	50.2
(2007/05/30 03:57:18.00)	51.3	50.2
(2007/05/30 04:02:20.00)	51.2	49.9
(2007/05/30 04:07:21.00)	51.2	50.1
(2007/05/30 04:12:23.00)	58	50.1
(2007/05/30 04:17:25.00)	52.5	50.4
(2007/05/30 04:22:27.00)	54	52.4
(2007/05/30 04:27:29.00)	51.6	49.8
(2007/05/30 04:32:31.00)	51.5	50.2
(2007/05/30 04:37:32.00)	51	50
(2007/05/30 04:42:34.00)	55.9	50.1
(2007/05/30 04:47:36.00)	52.1	50.3
(2007/05/30 04:52:38.00)	51.7	50.2
(2007/05/30 04:57:40.00)	51.3	50.1
(2007/05/30 05:02:41.00)	52.2	50.3
(2007/05/30 05:07:43.00)	51.6	50.2
(2007/05/30 05:12:45.00)	53.5	50.2
(2007/05/30 05:17:47.00)	51.3	50.1
(2007/05/30 05:22:49.00)	51.9	50.5
(2007/05/30 05:27:50.00)	52.1	50.3
(2007/05/30 05:32:52.00)	52.2	50.9
(2007/05/30 05:37:54.00)	64.3	50.2
(2007/05/30 05:42:56.00)	54.3	51
(2007/05/30 05:47:58.00)	52.5	50.5
(2007/05/30 05:52:59.00)	54.4	51.7
(2007/05/30 05:58:01.00)	53.5	51.2
(2007/05/30 06:03:03.00)	53	51.2
(2007/05/30 06:08:05.00)	53.8	51.9
(2007/05/30 06:13:07.00)	55.5	53.5
(2007/05/30 06:18:08.00)	55.2	52.7
(2007/05/30 06:23:10.00)	53.3	50.8
(2007/05/30 06:28:12.00)	55.3	52
(2007/05/30 06:33:14.00)	56.8	51.2
(2007/05/30 06:38:15.00)	55.4	52.5
(2007/05/30 06:43:17.00)	57	53.7
(2007/05/30 06:48:19.00)	55.2	52.8

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Date	LAeq	LA90
(2007/05/30 06:53:21.00)	54.2	51.9
(2007/05/30 06:58:23.00)	55.5	52.6
(2007/05/30 07:03:24.00)	55.1	52.6
(2007/05/30 07:08:26.00)	55.2	53.1
(2007/05/30 07:13:28.00)	55.6	52.7
(2007/05/30 07:18:30.00)	58.6	53.8
(2007/05/30 07:23:32.00)	57.9	54.9
(2007/05/30 07:28:34.00)	55.8	53.5
(2007/05/30 07:33:35.00)	56.5	53.2
(2007/05/30 07:38:37.00)	57.3	54
(2007/05/30 07:43:39.00)	59.2	53.9
(2007/05/30 07:48:41.00)	59.6	52.8
(2007/05/30 07:53:43.00)	58.4	53.8
(2007/05/30 07:58:44.00)	56.6	53.4
(2007/05/30 08:03:46.00)	58.8	54
(2007/05/30 08:08:48.00)	58.7	56
(2007/05/30 08:13:50.00)	59	56.5
(2007/05/30 08:18:52.00)	59.7	57.1
(2007/05/30 08:23:53.00)	59.2	56.5
(2007/05/30 08:28:55.00)	58.3	55.7
(2007/05/30 08:33:57.00)	58.7	55.6
(2007/05/30 08:38:59.00)	61.9	57.8
(2007/05/30 08:44:00.00)	60.3	58.3
(2007/05/30 08:49:02.00)	61.8	58.2
(2007/05/30 08:54:04.00)	60.1	56.8
(2007/05/30 08:59:06.00)	61.1	56
(2007/05/30 09:04:08.00)	61	56.2
(2007/05/30 09:09:10.00)	59.6	56.9
(2007/05/30 09:14:11.00)	60.1	57.5
(2007/05/30 09:19:13.00)	59.9	56.8
(2007/05/30 09:24:15.00)	60.5	57.6
(2007/05/30 09:29:17.00)	59.8	57
(2007/05/30 09:34:19.00)	60	56.9
(2007/05/30 09:39:20.00)	59.4	56.6
(2007/05/30 09:44:22.00)	59.3	56.5
(2007/05/30 09:49:24.00)	59.4	55.9
(2007/05/30 09:54:26.00)	60.5	57.8
(2007/05/30 09:59:27.00)	57.2	54.2
(2007/05/30 10:04:29.00)	55	52.8
(2007/05/30 10:09:31.00)	57.6	54.8
(2007/05/30 10:14:33.00)	55.4	53.1
(2007/05/30 10:19:35.00)	55.6	53.6
(2007/05/30 10:24:36.00)	55.2	53.2
(2007/05/30 10:29:38.00)	55.2	53.4
(2007/05/30 10:34:40.00)	54.7	52.9
(2007/05/30 10:39:42.00)	55.5	53.4
(2007/05/30 10:44:44.00)	55.6	53.6
(2007/05/30 10:49:45.00)	55.7	53.7

Sovereign House  
Environmental Noise Survey Report

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Date	LAeq	LA90
(2007/05/30 10:54:47.00)	55.6	54.1
(2007/05/30 10:59:49.00)	56.3	54.7
(2007/05/30 11:04:51.00)	55.8	54.2
(2007/05/30 11:09:53.00)	56.5	54.4
(2007/05/30 11:14:54.00)	55.8	54.4
(2007/05/30 11:19:56.00)	56.1	54.1
(2007/05/30 11:24:58.00)	57.6	55.5
(2007/05/30 11:30:00.00)	57.4	55.5
(2007/05/30 11:35:02.00)	56.3	53.9
(2007/05/30 11:40:04.00)	57.9	55
(2007/05/30 11:45:05.00)	58.2	55
(2007/05/30 11:50:07.00)	57.6	55.2
(2007/05/30 11:55:09.00)	57.5	55.6
(2007/05/30 12:00:11.00)	60.2	57.6
(2007/05/30 12:05:13.00)	60.1	57.1
(2007/05/30 12:10:14.00)	59.8	57.2
(2007/05/30 12:15:16.00)	60.9	58.7
(2007/05/30 12:20:18.00)	60.4	58.1
(2007/05/30 12:25:20.00)	59.2	57
(2007/05/30 12:30:22.00)	59.9	57.2
(2007/05/30 12:35:23.00)	59.2	56.9
(2007/05/30 12:40:25.00)	58.8	56.8
(2007/05/30 12:45:27.00)	59.8	56.8
(2007/05/30 12:50:29.00)	59.2	56.7
(2007/05/30 12:55:31.00)	59.8	56.9
(2007/05/30 13:00:32.00)	61	57.8
(2007/05/30 13:05:34.00)	60	56.5
(2007/05/30 13:10:36.00)	59.9	56.6
(2007/05/30 13:15:38.00)	63.2	58
(2007/05/30 13:20:40.00)	58.8	55.8
(2007/05/30 13:25:42.00)	60.2	57.4
(2007/05/30 13:30:43.00)	62.1	58.5



Figure 1

Environmental Noise survey - Sovereign house

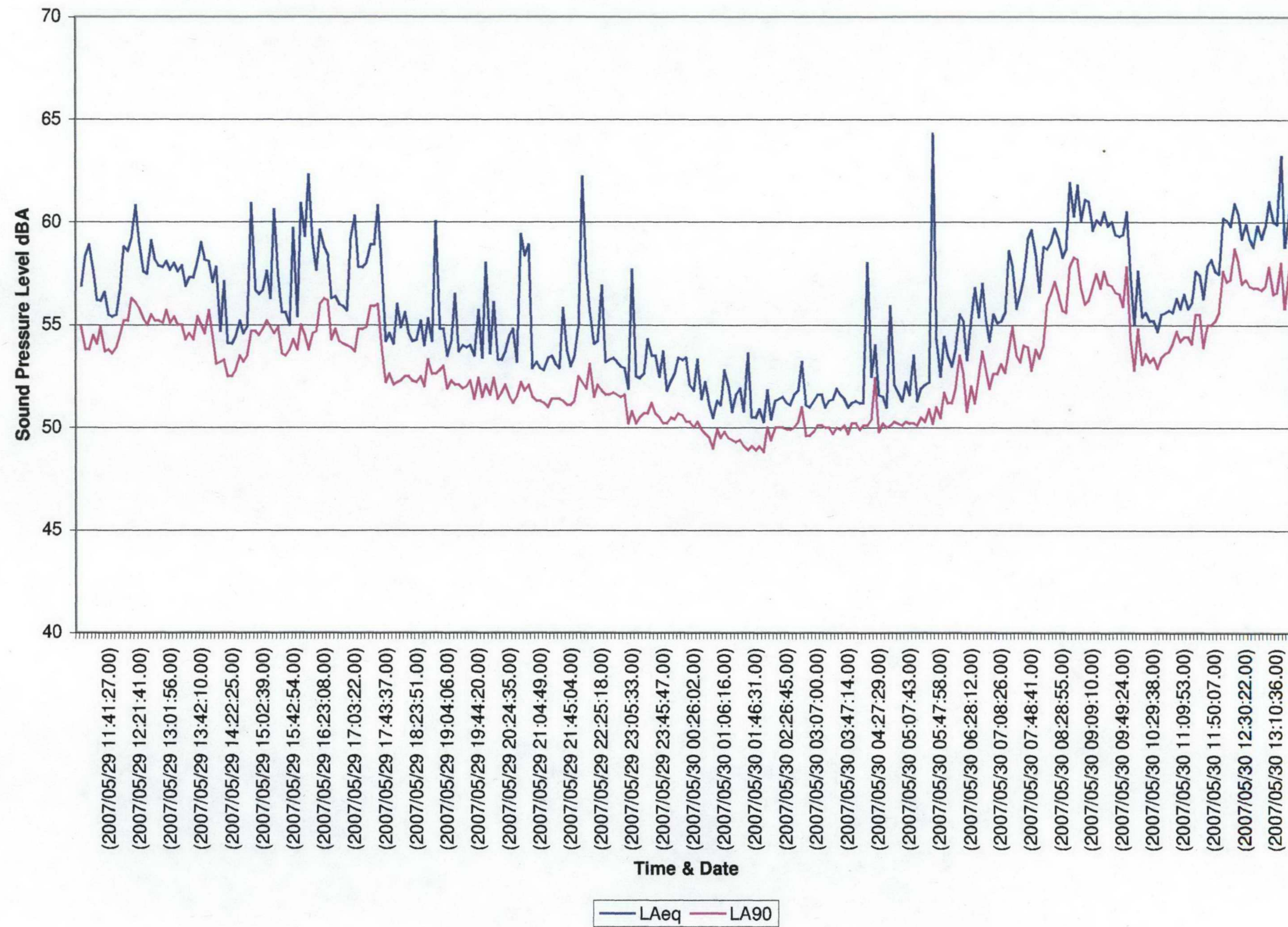
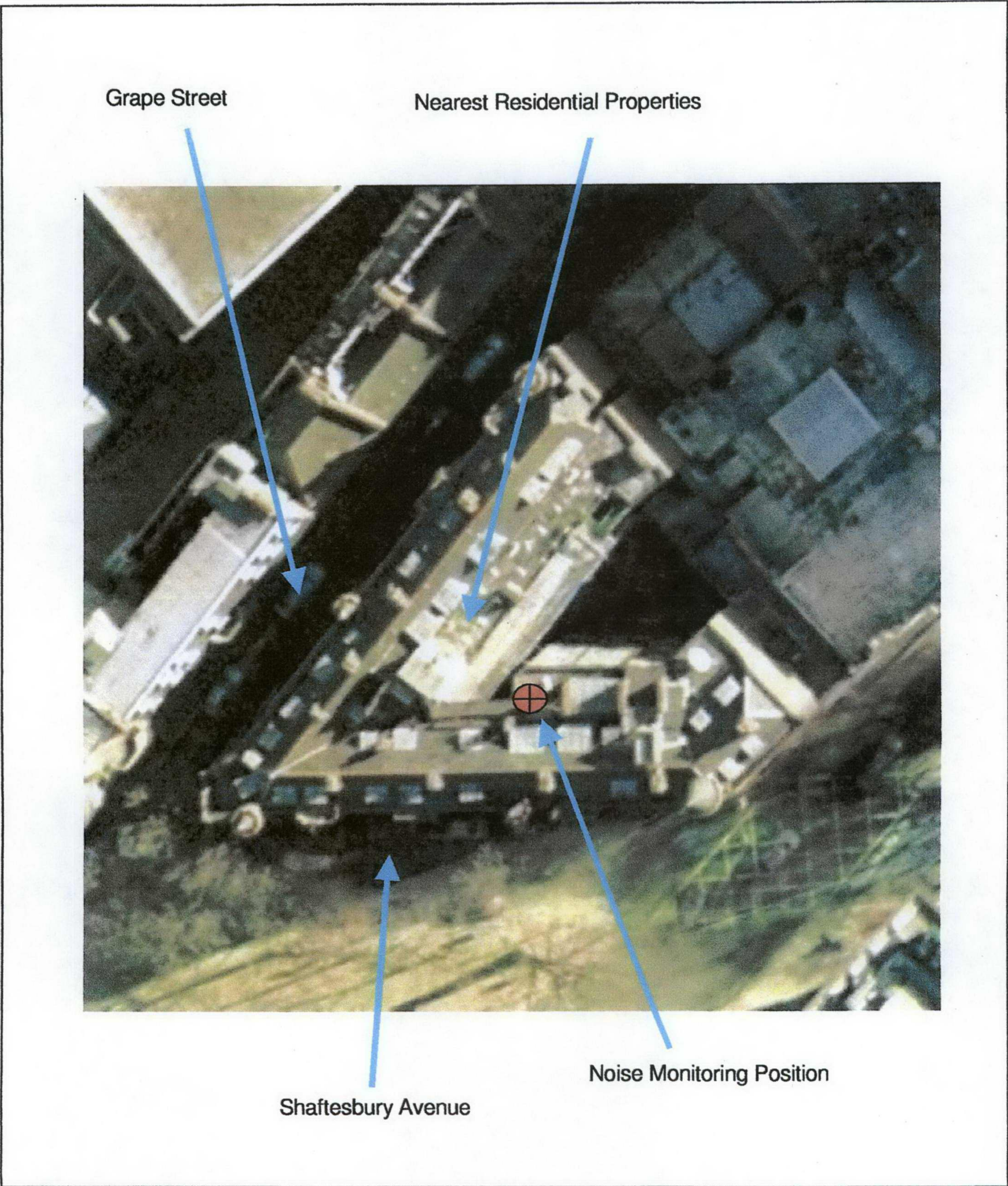





Figure 2



 Noise Control Engineers	Project: Sovereign House	Title: Noise Survey Position
	Dwg No. 470535 Rev A	Date: 11 <sup>th</sup> June 2007
Patrick House, Station Road Hook, Hampshire RG27 9HU		Tel: 01256 766207 Fax: 01256 768413