Westminster Noise Measurement Survey 2008

For Westminster City Council

FINAL REPORT

December 08

Scott Wilson Ltd

D119026_2

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FINAL REPORT

Issue No	Current Status	Date	Prepared by	Reviewed by	Approved by
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EXECUTIVE SUMMARY

Scott Wilson was commissioned by Westminster City Council to undertake the Westminster Noise Measurement Survey 2008. This survey comprised noise measurements at the front and rear of 35 properties across the City of Westminster.

The measurements were split into two phases. Phase 1 included measurements at one randomly selected residential address in each of the 20 wards in Westminster. Phase 2 include a further 15 measurement sites, at locations selected by Westminster City Council in and around the Central Activities Zone (CAZ).

The results from Phase 1 of the survey provide a new baseline for the noise measurements and also provide some figures for comparison with the previous 2003 Westminster Noise Survey. The average noise levels from Phase 1 of this survey are slightly below those from the 2003 survey, although by looking at data from individual sites, it is considered that this is most likely to be due to the different sampling methodologies used, and not necessarily an indication that average noise levels have reduced significantly over this period.

The Phase 1 results have been compared against the World Health Organisation Guidelines for Community Noise. The average levels at the front of the properties are considerably above these guidelines, whilst those at the rear are just below the daytime guideline of 55 dB $L_{Aeq,day}$ and approximately 3 dB above the night time guideline level. Eighteen out of the twenty front measurement sites exceed the day-time guideline figure of 55 dB L_{Aeq} and all front measurement sites exceed the night-time guideline figure of 45 dB L_{Aeq}. At the rear location, six sites exceed the day-time guideline, whilst all but three sites exceed the night-time guideline.

The data from Phase 1 of the survey have also been compared against average noise levels for the UK and for outer London, obtained from the 2000/2001 National Noise Incidence Study. This comparison shows significantly higher average noise levels within Westminster than in either Outer London or the UK. These differences are generally greater during the night time (with the variation between noise levels during the day and night smaller in Westminster), and are generally higher for the L_{A90} noise indicators.

Phase 2 of the survey has allowed typical noise levels at residential addresses within the Central Activities Zone to be compared with those from Phase 1 (average of Westminster). Some small differences are seen between the data for the two phases, with the Phase 2 sites showing slightly higher noise levels. Again it is the night time and L_{A90} indicators which show this difference the most.

1. INTRODUCTION

1.1 Background

1.1.1 A number of previous noise surveys across the City of Westminster, London and the UK have been undertaken over the last 20 years. Key studies are summarised below:

- **National Noise Incidence Study 1990 (NNIS 1990)[1]**

  A national survey of noise levels outside 1000 dwellings over England and Wales, carried out for the then Department of the Environment.

- **National Noise Incidence Study 2000/2001 (NNIS 2001)[2]**

  A follow on from NNIS 1990, measurements were undertaken outside 1160 dwellings over the UK, carried out for Defra and the Devolved Administrations. This survey allowed a new assessment of average noise levels over the country and comparisons against data from the 1990 survey.

- **Westminster Noise Survey 2003[3]**

  Due to the design of the National Noise Incidence Studies, no measurements were undertaken in central London boroughs, as the population weighting of site selection resulted in locations within the more populous outer boroughs. During March 2003, a separate survey was undertaken for Westminster City Council including measurements at 38 residential sites within the borough.

- **London Noise Survey 2004[4]**

  A survey during 2004 in three further inner London Boroughs (Camden, Southwark and Tower Hamlets), undertaken for the GLA. These data was also analysed in conjunction with that from the Westminster Noise Survey 2003 to provide a picture of inner London noise levels[5].

1.1.2 In order to provide data to assist the City of Westminster in the development of a noise strategy, and update the data from the 2003 Westminster Noise Survey, Scott Wilson were commissioned to carry out the 2008 Westminster Noise Measurement Survey against the background of these previous measurement surveys.

1.1.3 A summary of noise terminology and perception is included as Appendix A to this report.

1.2 Westminster Noise Measurement Survey 2008

1.2.1 The Westminster Noise Measurement Survey 2008 consisted of measurements at a total of 35 sites, and was split into two phases of measurements:

- **Phase 1**

A series of 20 measurements, one randomly selected address in each ward within the City of Westminster.

- **Phase 2**

Measurements at a further 15 sites selected by Westminster City council at locations within or close to the Central Activities Zone (CAZ).

1.2.2 At each site noise measurements were made for a continuous 24-hour weekday period, avoiding Monday morning and Friday evening rush hours. Measurement locations were standardised to 1.2 m above floor level and 1 m from the façade of the building wherever possible. Where the property was a flat above ground level, the measurements were undertaken at this height above floor level of the property, rather than ground level. In a small number of cases, it was necessary to install the measurement equipment at a higher level, such as on a first floor flat roof or balcony where no suitable location at ground floor level was available.

1.2.3 Measurements were made at the front and rear of a property at each location. In some cases, where it was not possible to take measurements at the front and rear of the same property, representative locations on two separate properties were used.

1.2.4 A summary of the data collected at each site, together with time histories of the noise levels measured are included as Appendix B (Phase 1 sites) and Appendix C (Phase 2 sites) of this report.

1.2.5 Additional parameters were measured at a small number of properties, including tri-axial vibration measurements and calibrated sound recordings. The measurement period was also extended over a weekend at some locations in order to provide noise measurement data over the weekend period in addition to the standard 24-hour period during the week. The results of the additional weekend monitoring are presented in Appendix D of this report, and the results of the vibration monitoring are included as Appendix E.

1.2.6 Long term noise measurements were made at one additional site. Measurements at this site were made over a period of some 6 weeks covering the duration of most site measurements. Data from this site is presented in Appendix F of this report.

2. BACKGROUND AND SITE SELECTION

2.1 Phase 1

2.1.1 Phase 1 of the Westminster Noise Measurement Survey 2008 consisted of 20 sites, one randomly selected residential address in each ward within the City of Westminster. This approach was chosen in order to ensure geographic coverage over the entirety of Westminster.

2.1.2 In contrast, Phase 1 of the 2003 survey was focussed on 2 wards within Westminster in order to maintain an identical site selection protocol to that used for the NNIS 2001. For the 2008 survey, it was decided that ensuring the geographic coverage was a higher priority than allowing direct comparison back to the 2003 survey.

2.1.3 For the two wards common to Phase 1 of the 2003 and 2008 surveys, the measurement address was selected at random from the ten addresses used in 2003. For all other wards, a random address was selected, with probability of selection proportional to population (using average figures based on populations of Census Super-Output Areas and residential property counts).

2.1.4 For each site, the selected address was identified, and where consent could not be obtained to measure at this address, or the property was not appropriate to install the monitoring equipment, an alternative was sought according to the methodology in Section 2.3 below.

2.2 Phase 2

2.2.1 Phase 2 of the survey focussed on the Central Activities Zone (CAZ) in the City of Westminster. 15 locations within the CAZ and close to its boundaries were selected by Westminster City Council, and two residential addresses were selected within a 100 yard radius of each of these locations. The measurement address was then selected from these two alternatives, again applying the alternative site selection criteria in Section 2.3 below where necessary.

2.3 Alternative Site Selection

2.3.1 Where consent could not be obtained to undertake the measurements at the selected address, an alternative address, with a noise environment as representative as possible of the selected location was used. In particular, the location of significant noise sources (normally the local road), orientation with respect to local roads, presence of any acoustic

barriers, and any other significant local noise sources were considered in selecting alternative addresses.

2.3.2 In a small number of cases, where no suitable measurement address was found at the selected location, or the selected address was not a unique residential address, an alternative, similar location was selected either by means of selection on site of an equivalent nearby location, or the drawing of a new random sample within the same Census Super-Output area.

2.3.3 The locations of the actual measurement positions used for each phase of the measurement survey are shown in Figure 1 and Figure 2 below.

Figure 1. Approximate locations of Phase 1 measurement sites.

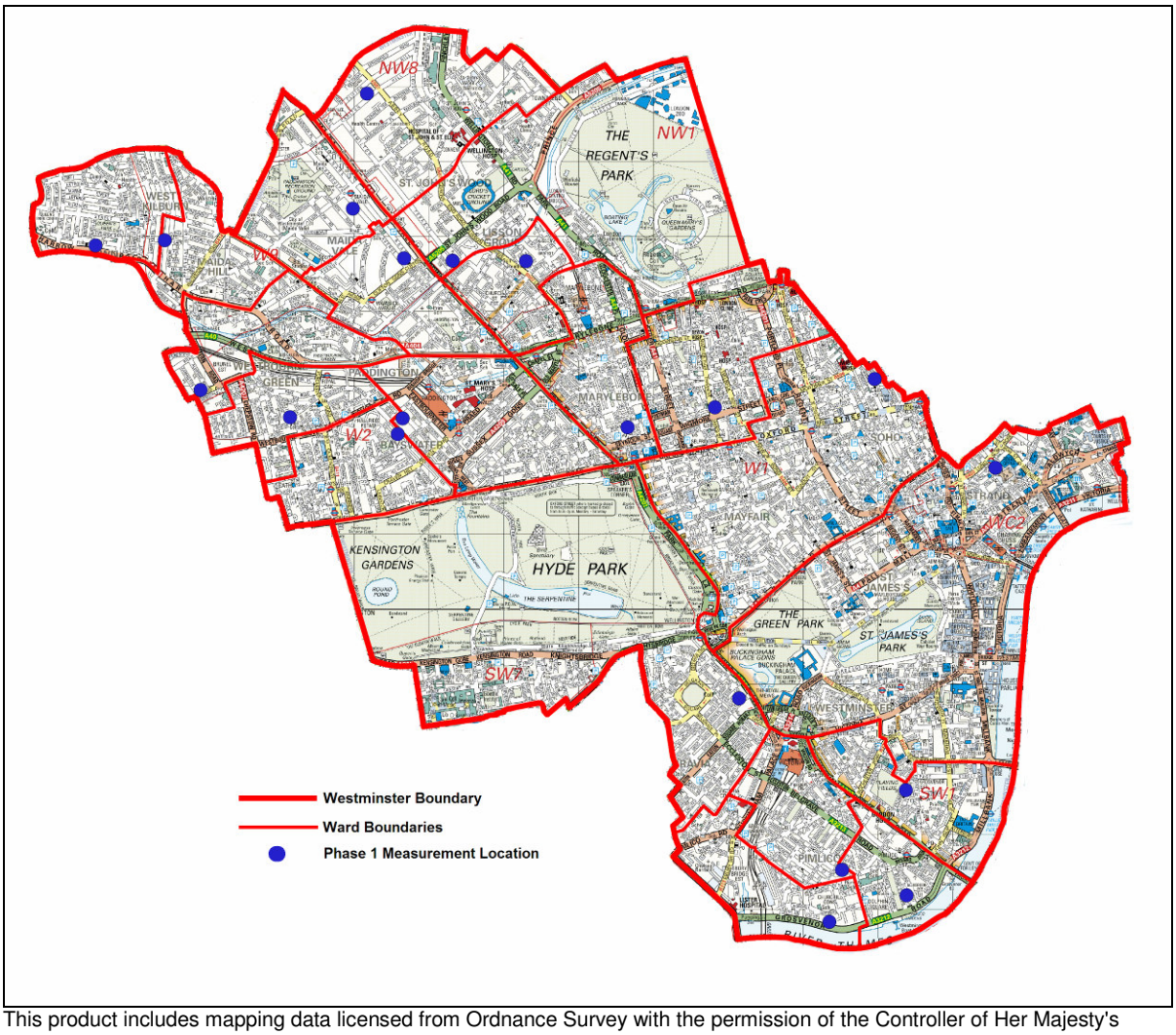
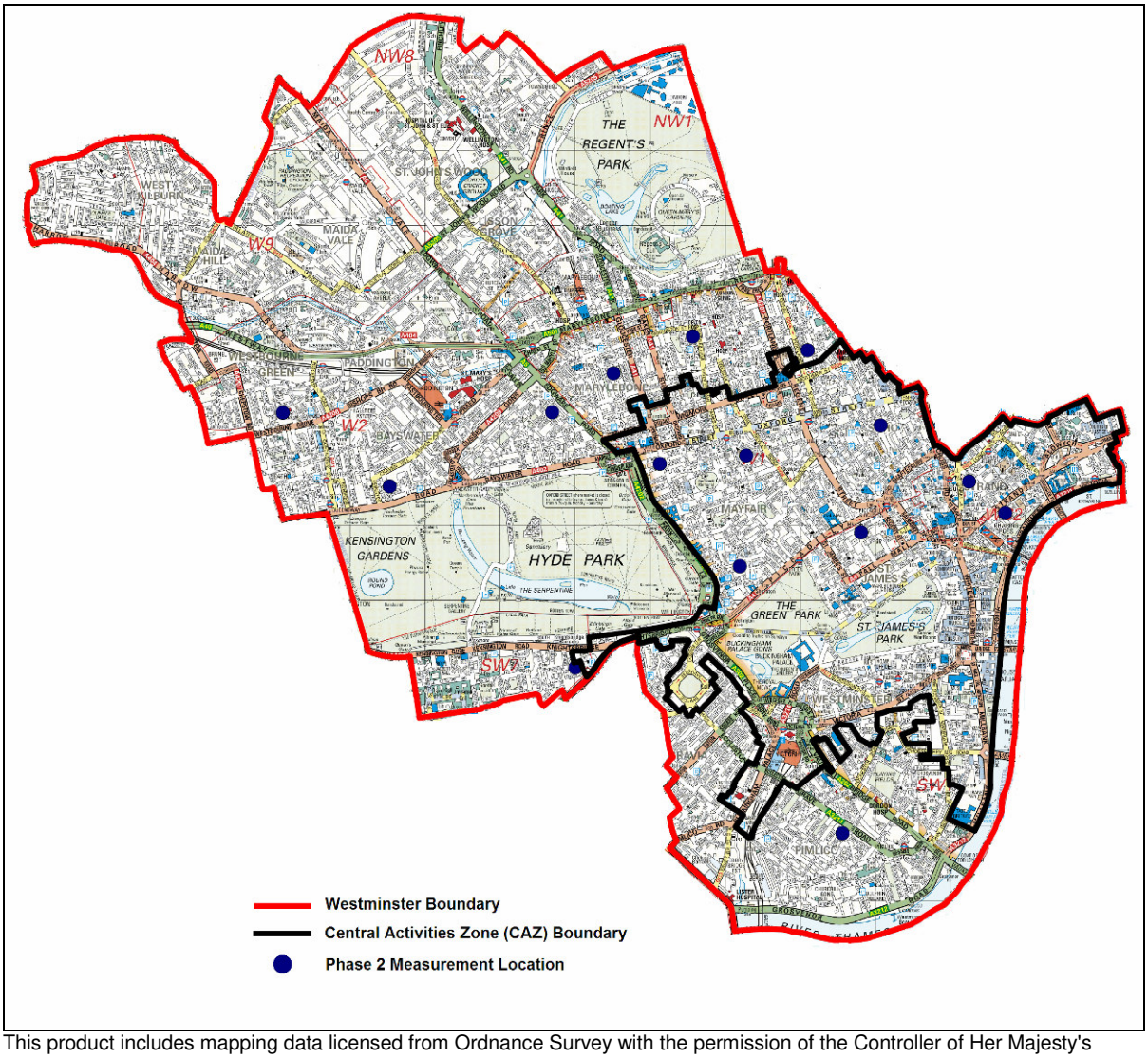


Figure 2. Approximate locations of Phase 2 measurement sites.



2.4 Instrumentation

2.4.1 The measurements were undertaken using a number of Type 1 Sound Level Meters. These mainly consisted of Norsonic 118 and Norsonic 140 instruments. At some sites measurements were undertaken using a Svantek 958 sound and vibration meter, which was used to log both sound pressure levels and tri-axial vibration levels.

2.4.2 Details of the instrumentation used for the survey are included as Appendix G.

2.5 Measurement Protocols and Site Pro-Forma

2.5.1 The measurement protocols used at all sites were based on those from the National Noise Incidence Studies, and hence consistent with these surveys, the Westminster Noise Survey 2003 and the London Noise Survey 2004.

2.5.2 Key elements of the measurement protocol were:

- Measurements at a height of 1.2 m above floor level and 1 m from the building façade wherever possible.
- All measurements to include 24-hours (synchronised on hours) on weekdays. Measurements during Monday morning and Friday afternoon rush-hours were avoided.
- Local school holiday periods and bank holidays avoided.
- Weather constraints were imposed on measurements, sustained periods of heavy rain and strong winds were avoided where these might have interfered with the operation of the instrumentation or the measurement results.

2.6 Timing of Measurements

2.6.1 The weather conditions during the survey were variable. Site selection was completed by mid-March 2008, but due to poor weather conditions, it was not possible to undertake any measurements until the week commencing 31st March.

2.6.2 No measurements were undertaken during the local school holiday period of 5th April to 20th April 2008. The majority of site measurements were undertaken during the period from 21st April 2008 to 15th May 2008, and the weather remained mostly dry with warm days and light winds. At the very end of the site measurements, the weather deteriorated, but some instruments were left in place for a longer duration in order to ensure that a 24-hour period during reasonable weather conditions was captured.

2.7 Data Analysis and Presentation

2.7.1 For the calculation of day, evening and night time indicators, and the 24-hour L_{den} indicator, the following time periods have been used:

- Day time: 07:00 – 19:00
- Evening: 19:00 – 23:00

- Night time: 23:00 – 07:00

2.7.2 All measurements were taken over contiguous 1-hour time frames, with further measurements over 5-minute or 125 ms intervals[a]. When calculating noise levels over longer periods (e.g. 12 hour day, 16 hour day, 8 hour night, etc.), these have been calculated by means of a logarithmic average for L_{eq} noise levels, or arithmetic averages for statistical noise levels. Whilst this gives a true longer duration L_{eq}, it does not necessarily provide a true statistical noise level over these longer assessment periods. However, this approach is consistent with that taken for the NNIS in 1990 and replicated for the NNIS 2001 and Westminster Noise Survey 2003.

2.7.3 Average levels calculated across a number of sites (for example all sites within Phase 1 or Phase 2 of the survey), have been calculated as arithmetic averages of the noise indicators concerned[b]. In the case of time histories, arithmetic average levels across the sites have been calculated for each hour period, and these averages presented graphically.

[a] Where statistical levels could not be recorded over 5-minute time frames a time-history of $L_{Aeq,125ms}$ noise levels was recorded to allow statistical levels over different time periods to be calculated. For sites where simultaneous noise and vibration measurements were undertaken, this was recorded as an $L_{Aeq,100ms}$ time history due to limitations of the instrument.
[b] Note that this arithmetic averaging has been applied for all noise indicators (including L_{Aeq} and statistical indicators).

3. PHASE 1 RESULTS

3.1 Phase 1

3.1.1 This section presents the results from Phase 1 of the Westminster Noise Measurement Survey 2008, and compares these results with World Health Organisation Guidelines, and the results from London and national noise surveys.

3.1.2 Table 1 below shows average noise levels for the measurements at the front of the 20 sites included in Phase 1 of the survey, whilst Table 2 presents the same data from the rear of the properties.

Table 1. Average noise levels at front of Phase 1 sites.

Time Period	$L_{Aeq,T}$ (dB)	$L_{A10,T}$ (dB)	$L_{A90,T}$ (dB)
12 hour day (0700-1900)	62.0	64.1	52.5
16 hour day (0700-2300)	61.6	63.5	52.1
18 hour day (0600-2400)	61.3	63.1	51.7
24 hour day (0000-2400)	60.4	61.3	49.6
4 hour evening (1900-2300)	59.5	61.7	50.9
8 hour night (2300-0700)	55.7	56.9	44.7

Table 2. Average noise levels at rear of Phase 1 sites.

Time Period	$L_{Aeq,T}$ (dB)	$L_{A10,T}$ (dB)	$L_{A90,T}$ (dB)
12 hour day (0700-1900)	54.9	55.5	47.3
16 hour day (0700-2300)	54.3	54.6	47.0
18 hour day (0600-2400)	54.0	54.2	46.7
24 hour day (0000-2400)	53.1	52.5	45.1
4 hour evening (1900-2300)	51.5	52.0	46.3
8 hour night (2300-0700)	48.0	48.4	41.2

3.1.3 It is interesting to compare these results with the World Health Organisation guidelines for Community Noise[6]. These guidelines state that *"to protect the majority of people from being seriously annoyed during the day-time, the sound pressure level on balconies, terraces and outdoor living areas should not exceed 55 dB L_{Aeq} for a steady continuous noise" … "At night, sound pressure levels at the outside façades of the living spaces should not exceed 45 dB L_{Aeq} and 60 dB L_{Amax}, so that people may sleep with bedroom windows open."*

3.1.4 In order to make comparisons with the above criteria, the conventional definitions of daytime as 0700 – 2300 and night time as 2300 – 0700 have been used. It has also been assumed that all the WHO values represent noise levels measured at the façade of dwellings.

3.1.5 Figures from the National Noise Incidence Study showed that 55% of the population of England and Wales live in dwellings exposed to levels above the WHO level of 55 dB

$L_{Aeq,day}$; and that 68% of the population of England and Wales live in dwellings exposed to levels above the night time WHO level of 45 dB $L_{Aeq,night}$.

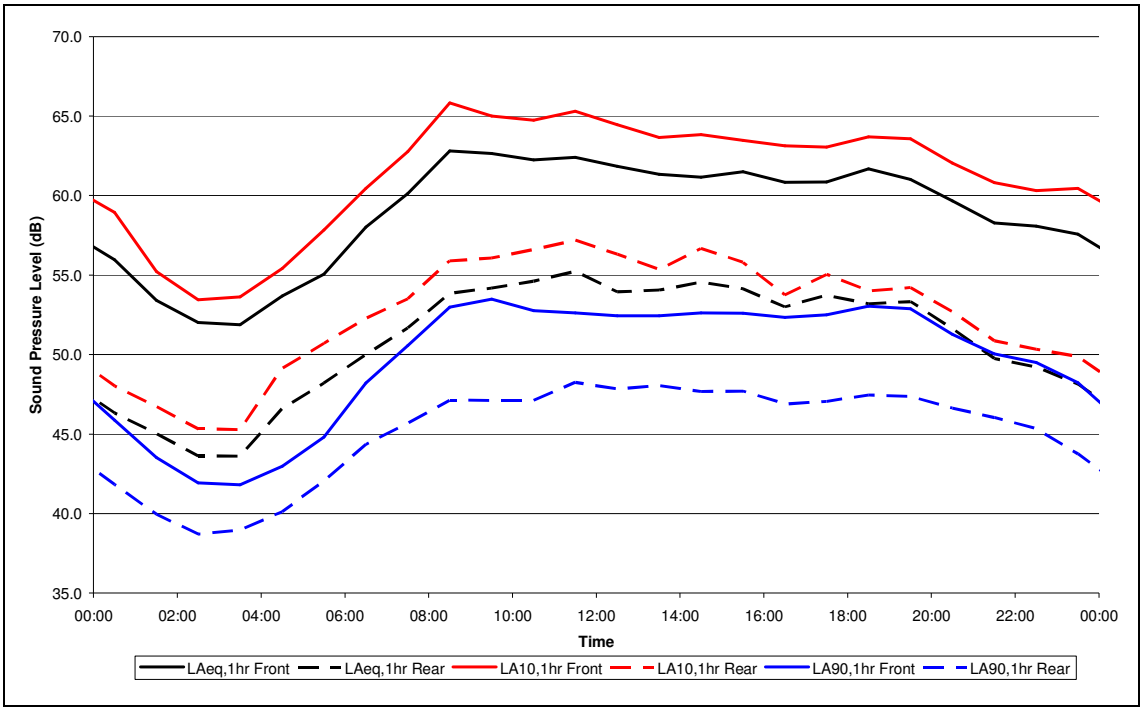
3.1.6 Calculations of equivalent percentages for Westminster cannot easily be made, as the uncertainties would be very large based on only 20 sites. However, it is interesting to note that the average levels at the front of the properties are considerably above these guidelines. Average levels at the rear of properties are just below the daytime guideline of 55 dB $L_{Aeq,day}$ and approximately 3 dB above the night time guideline level.

3.1.7 It is also interesting to note that 18 out of the 20 front measurement sites exceed the day-time guideline figure of 55 dB L_{Aeq} and all of the 20 front measurement sites exceed the night-time guideline figure of 45 dB L_{Aeq}.

3.1.8 When the measurements taken at the rear of the Phase 1 sites are compared against the WHO guidance, it can be seen that six sites exceed the day-time guideline, whilst all but 3 sites exceed the night-time guideline. The rear façades of the properties are generally significantly quieter than the front façades, although the night time levels at these are still generally above the WHO guideline level.

3.1.9 24-hour time histories for the average of the Phase 1 sites are shown in Figure 3 below. These show how the rear façade noise levels are generally significantly lower than those measured at the front façade, although this difference is greater for the L_{Aeq} and L_{A10} noise indicators than it is for the L_{A90} indicator.

Figure 3. 24-hour time-history at Phase 1 measurement sites.



3.2 Phase 1 Comparison to 2003 Survey

3.2.1 The results from Phase 1 of this survey can be compared against the equivalent Phase 1 results from the 2003 Westminster Noise Survey. When undertaking such comparisons, the different sampling strategies should be considered. The different sampling methodologies are summarised in Table 3 below.

Table 3. Phase 1 sampling methodologies, 2003 and 2008

	WNS 2003	WNS 2008
Total Number of sites	20	20
Number of wards included	2	20
Number of sites per ward	10	1
Selection of wards	Random with probability of selection proportional to population	N/A – all wards included
Selection of sites within ward	Random with probability of selection proportional to assumed no. of residents[c]	Random with probability of selection proportional to assumed no. of residents[c,d]

3.2.2 When making comparisons between the two surveys, two approaches have been taken. Firstly, the two sites which were repeated across both surveys (Abbey Road and Bayswater wards) can be directly compared. These can be seen in the 24-hour time histories included in Figure 4 and Figure 5 below. Figure 6 includes a similar comparison for Vincent Square ward, as the randomly selected property in this ward for the 2008 survey was co-incidentally located very close to one of the Phase 2 (typically quieter residential) sites from the 2003 survey, and hence provides another good direct comparison.

[c] Number of residents based on population and count of residential properties within each Census Super-Output Area
[d] Sites within Abbey Road and Bayswater wards selected at random from sites used in 2003 in each ward.

Figure 4. 24-hour $L_{Aeq,1hr}$ time-history in Abbey Road ward – 2003 and 2008.

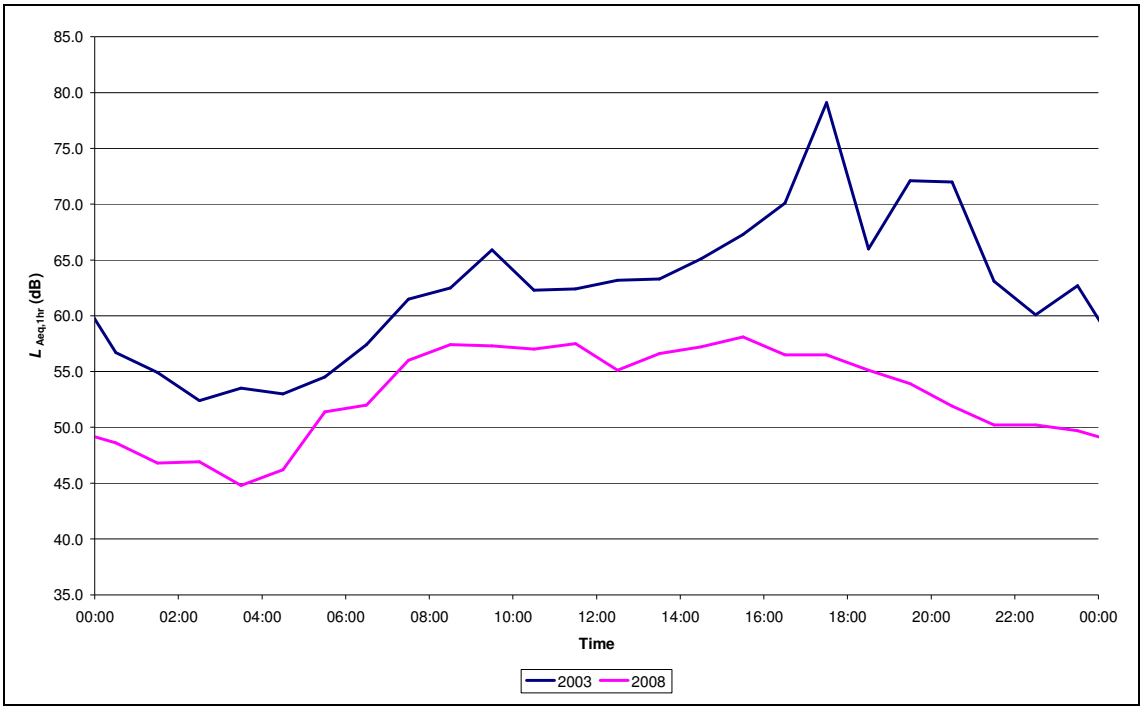


Figure 5. 24-hour $L_{Aeq,1hr}$ time-history in Bayswater ward – 2003 and 2008.

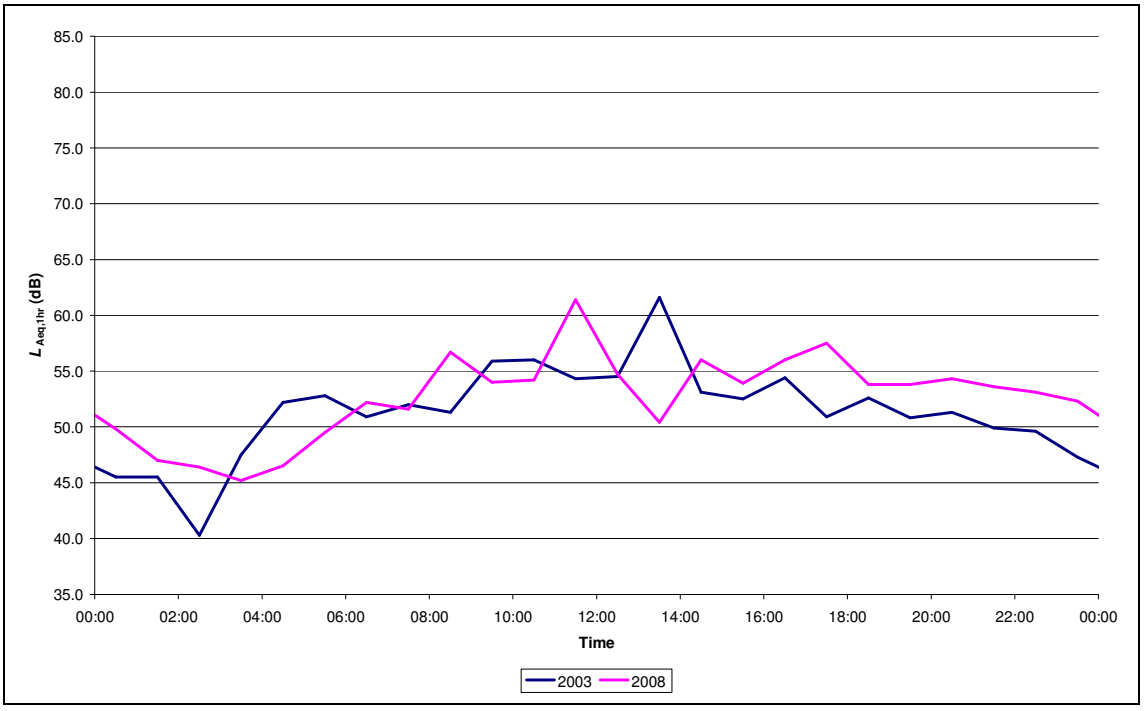
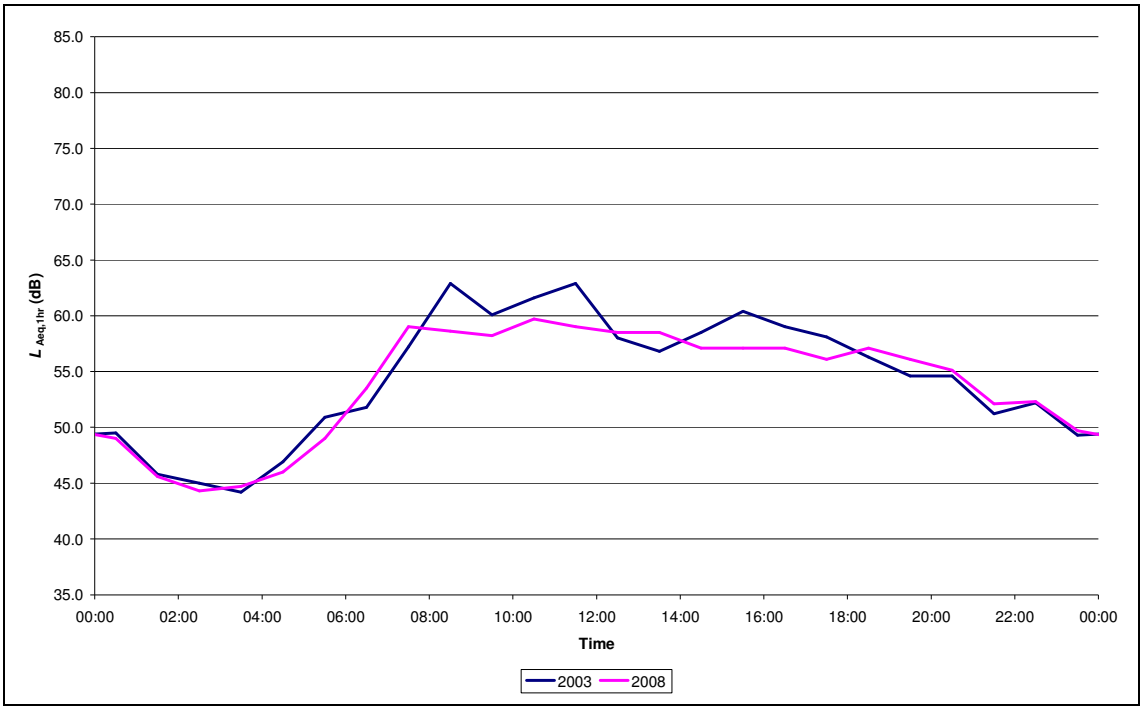


Figure 6. 24-hour $L_{Aeq,1hr}$ time-history in Vincent Square ward – 2003 and 2008.



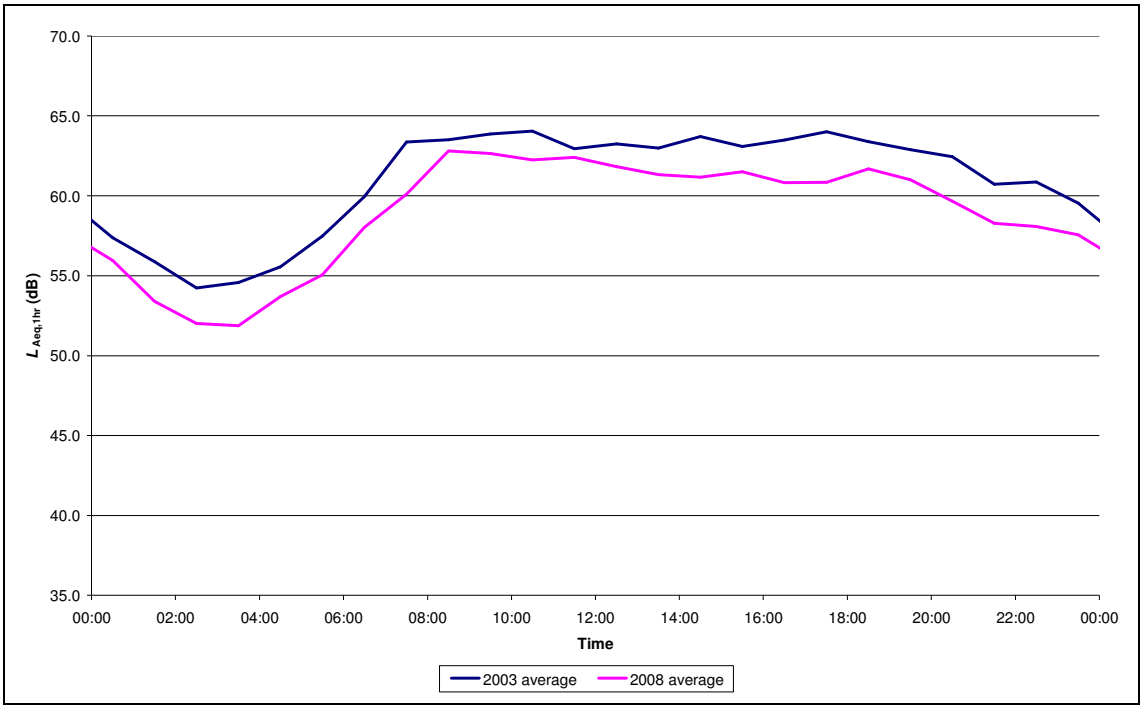
3.2.3 The graph for the Abbey Road site shows a significantly lower noise level in 2008 than 2003, whilst that for the Bayswater and Vincent Square sites shows very similar noise levels for the two years. As it was not possible to gain access to repeat either of the measurements at exactly the same location as used for the 2003 survey, nearby equivalent address were used in both these cases. It is considered likely that differences between the two measurement locations (the 2008 location was slightly further from the road, and further down the road from a set of traffic lights) may be a contributing factor to these differences at the Abbey Road sites.

3.2.4 A second set of comparisons has been made between the average noise levels across the 20 Phase 1 sites in each of the two surveys. However, it should be noted that different sampling strategies were used for the two surveys. These results are presented in terms of average figures in Table 4, and in the form of 24-hour time histories in Figure 7 below.

Table 4. Average noise levels at front of Phase 1 sites, 2003 and 2008.

Time Period	$L_{Aeq,T}$ (dB)		$L_{A10,T}$ (dB)		$L_{A90,T}$ (dB)	
	2003	2008	2003	2008	2003	2008
12 hour day (0700-1900)	64.1	62.0	66.0	64.1	55.2	52.5
16 hour day (0700-2300)	63.8	61.6	65.5	63.5	54.7	52.1
18 hour day (0600-2400)	63.5	61.3	65.1	63.1	54.2	51.7
24 hour day (0000-2400)	62.6	60.4	63.4	61.3	51.9	49.6
4 hour evening (1900-2300)	62.1	59.5	64.2	61.7	53.3	50.9
8 hour night (2300-0700)	57.5	55.7	59.2	56.9	46.3	44.7

Figure 7. Average 24-hour time-history at front of Phase 1 sites, 2003 and 2008.



3.2.5 It is interesting to note that the data presented above indicate that the average of the 2008 Phase 1 sites is some 2 dB below the 2003 data. However, given the good match over the two years at the Bayswater and Vincent Square sites, it is considered unlikely that this is a reflection of a true decrease over this time period.

3.3 Phase 1 Comparison to London and National Surveys

3.3.1 For the purposes of this section of the report, data for outer London have been taken from the seven outer London boroughs included in NNIS2000, and the data for the UK have been taken from all sites within NNIS2000.

3.3.2 Table 5 to Table 7 below include a comparison of different noise indicators across the UK, outer London and Westminster.

Table 5. Comparison of average L_{Aeq} noise levels – Westminster, Outer London and UK

Time Period	UK / Westminster			Outer London / Westminster		
	UK NNIS2000	Westminster WNS2008	Difference	Outer London NNIS2000	Westminster WNS2008	Difference
$L_{Aeq,12hr}$ (0700-1900)	57.1	62.0	+4.9	58.0	62.0	+4.0
$L_{Aeq,16hr}$ (0700-2300)	56.5	61.6	+5.1	57.5	61.6	+4.1
$L_{Aeq,18hr}$ (0600-2400)	53.1	61.3	+8.2	57.2	61.3	+4.1
$L_{Aeq,24hr}$ (0000-2400)	55.1	60.4	+5.3	56.2	60.4	+4.2
$L_{Aeq,4hr}$ (1900-2300)	56.2	59.5	+3.3	55.1	59.5	+4.4
$L_{Aeq,8hr}$ (2300-0700)	48.2	55.7	+7.5	49.6	55.7	+6.1

Table 6. Comparison of average L_{A10} noise levels – Westminster, Outer London and UK

Time Period	UK / Westminster			Outer London / Westminster		
	UK NNIS2000	Westminster WNS2008	Difference	Outer London NNIS2000	Westminster WNS2008	Difference
$L_{A10,12hr}$ (0700-1900)	57.6	64.1	+6.5	59.1	64.1	+5.0
$L_{A10,16hr}$ (0700-2300)	56.5	63.5	+7.0	58.2	63.5	+5.3
$L_{A10,18hr}$ (0600-2400)	53.3	63.1	+9.8	57.7	63.1	+5.4
$L_{A10,24hr}$ (0000-2400)	52.9	61.3	+8.4	54.8	61.3	+6.5
$L_{A10,4hr}$ (1900-2300)	55.8	61.7	+5.9	55.7	61.7	+6.0
$L_{A10,8hr}$ (2300-0700)	45.6	56.9	+11.3	47.8	56.9	+9.1

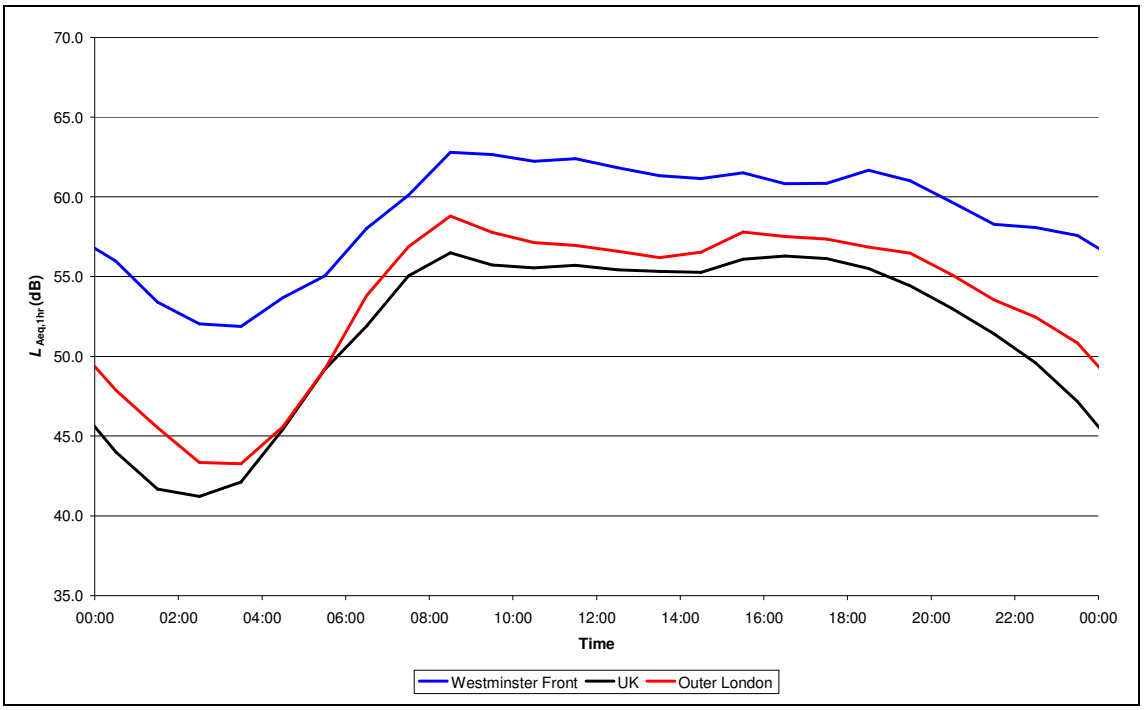
Table 7. Comparison of average L_{A90} noise levels – Westminster, Outer London and UK

Time Period	UK / Westminster			Outer London / Westminster		
	UK NNIS2000	Westminster WNS2008	Difference	Outer London NNIS2000	Westminster WNS2008	Difference
$L_{A90,12hr}$ (0700-1900)	44.9	52.5	+7.6	47.2	52.5	+5.3
$L_{A90,16hr}$ (0700-2300)	43.9	52.1	+8.2	46.6	52.1	+5.5
$L_{A90,18hr}$ (0600-2400)	40.8	51.7	+10.9	46.1	51.7	+5.6
$L_{A90,24hr}$ (0000-2400)	41.0	49.6	+8.6	43.8	49.6	+5.8
$L_{A90,4hr}$ (1900-2300)	43.3	50.9	+7.6	44.5	50.9	+6.4
$L_{A90,8hr}$ (2300-0700)	35.3	44.7	+9.4	38.3	44.7	+6.4

3.3.3 These data show that average L_{Aeq} noise levels are some 3 to 8 dB higher in Westminster than the UK average, whilst they are some 4 to 6 dB higher than the outer London average. The differences for both L_{A10} and L_{A90} noise levels are slightly higher than these.

3.3.4 Figure 8 below shows this same comparison, between the average $L_{Aeq,1hr}$ time histories for the front of Westminster Phase 1 sites, Outer London and the UK. This shows that Westminster average noise levels are significantly higher than those for outer London and the UK across the whole day, with the largest difference occurring during the night.

Figure 8. Average 24-hour time-history at front of Phase 1 sites, comparison with Outer London and UK



3.4 Rear Façades in Westminster

3.4.1 The same analysis as presented above, comparing the front façades from Phase 1 of the Westminster Noise Measurement Survey with the average for the UK and outer London (front façades) has been repeated below, but comparing the data from *rear* façades in Westminster with the front façades in Outer London and the UK. Unfortunately, no data were collected for rear façades during the National Noise Incidence Study, or Westminster Noise Survey 2003, so direct comparisons with rear façades nationally, or over time cannot be made.

3.4.2 Table 8 to Table 10 below show this comparison for various day and night time L_{Aeq}, L_{A10} and L_{A90} indicators.

Table 8. Comparison of average L_{Aeq} noise levels – Westminster rear facade, Outer London and UK

Time Period	UK / Westminster			Outer London / Westminster		
	UK NNIS2000	Westminster rear facade WNS2008	Difference	Outer London NNIS2000	Westminster rear facade WNS2008	Difference
$L_{Aeq,12hr}$ (0700-1900)	57.1	54.9	-2.2	58.0	54.9	-3.1
$L_{Aeq,16hr}$ (0700-2300)	56.5	54.3	-2.2	57.5	54.3	-3.2
$L_{Aeq,18hr}$ (0600-2400)	53.1	54.0	+0.9	57.2	54.0	-3.2
$L_{Aeq,24hr}$ (0000-2400)	55.1	53.1	-2.0	56.2	53.1	-3.1
$L_{Aeq,4hr}$ (1900-2300)	56.2	51.5	-4.7	55.1	51.5	-3.6
$L_{Aeq,8hr}$ (2300-0700)	48.2	48.0	-0.2	49.6	48.0	-1.6

Table 9. Comparison of average L_{A10} noise levels – Westminster rear façade, Outer London and UK

Time Period	UK / Westminster			Outer London / Westminster		
	UK NNIS2000	Westminster rear facade WNS2008	Difference	Outer London NNIS2000	Westminster rear facade WNS2008	Difference
$L_{A10,12hr}$ (0700-1900)	57.6	55.5	-2.1	59.1	55.5	-3.6
$L_{A10,16hr}$ (0700-2300)	56.5	54.6	-1.9	58.2	54.6	-3.6
$L_{A10,18hr}$ (0600-2400)	53.3	54.2	+0.9	57.7	54.2	-3.5
$L_{A10,24hr}$ (0000-2400)	52.9	52.5	-0.4	54.8	52.5	-2.3
$L_{A10,4hr}$ (1900-2300)	55.8	52.0	-3.8	55.7	52.0	-3.7
$L_{A10,8hr}$ (2300-0700)	45.6	48.4	+2.8	47.8	48.4	+0.6

Table 10. Comparison of average L_{A90} noise levels – Westminster rear façade, Outer London and UK

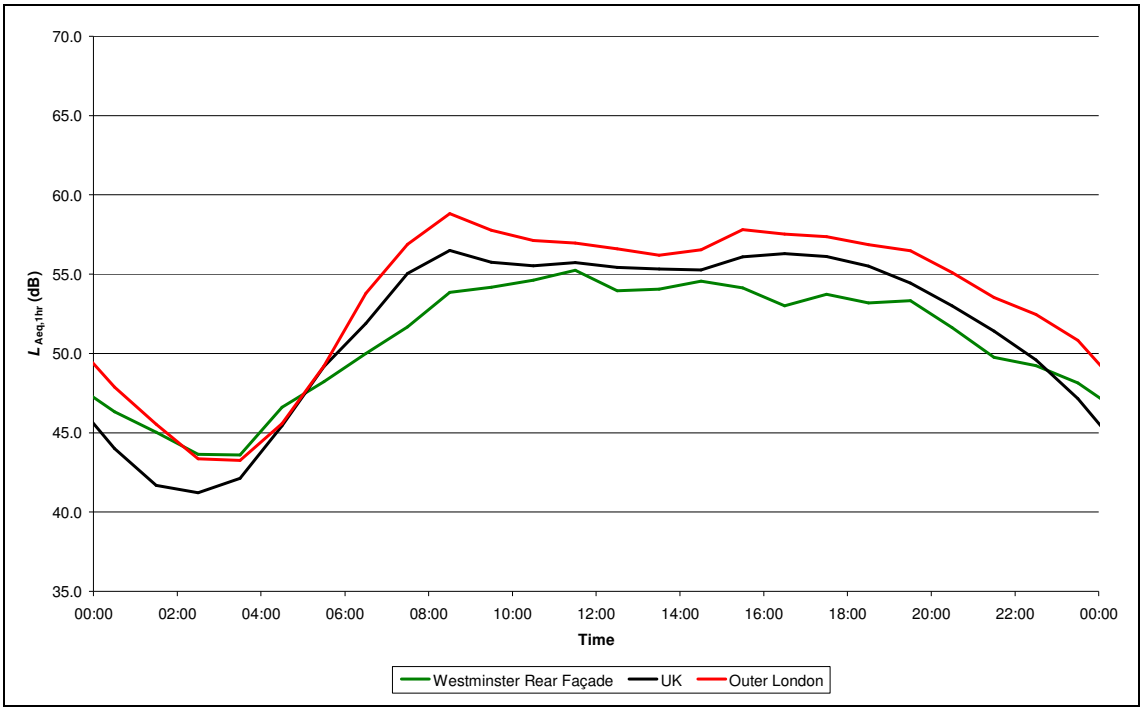
Time Period	UK / Westminster			Outer London / Westminster		
	UK NNIS2000	Westminster rear facade WNS2008	Difference	Outer London NNIS2000	Westminster rear facade WNS2008	Difference
$L_{A90,12hr}$ (0700-1900)	44.9	47.3	+2.4	47.2	47.3	+0.1
$L_{A90,16hr}$ (0700-2300)	43.9	47.0	+3.1	46.6	47.0	+0.4
$L_{A90,18hr}$ (0600-2400)	40.8	46.7	+5.9	46.1	46.7	+0.6
$L_{A90,24hr}$ (0000-2400)	41.0	45.1	+4.1	43.8	45.1	+1.3
$L_{A90,4hr}$ (1900-2300)	43.3	46.3	+3.0	44.5	46.3	+1.8
$L_{A90,8hr}$ (2300-0700)	35.3	41.2	+5.9	38.3	41.2	+2.9

3.4.3 For most times of day, the average L_{Aeq} and L_{A10} indicators for these rear façades are below the average front façade level for outer London (typically by about 3 dB during the day, and less at night). For many of the day-time indicators, the levels are even slightly below those for the UK average of front façades.

3.4.4 However, the L_{A90} indicators are still above the outer London and UK average front façade figures. The combination of these findings indicates that whilst average noise levels are substantially lower at the rear façades, this difference is much less evident for the background L_{A90} noise indicators, reinforcing the finding shown in Figure 3.

3.4.5 Figure 9 shows a comparison between the average $L_{Aeq,1hr}$ time histories for the rear of Westminster Phase 1 sites, with those for the front of sites in Outer London and the UK. This shows that Westminster average noise levels are slightly lower than the Outer London and UK figures during most of the day, with this difference reducing through the night, and disappearing all together for a period of two hours during the small hours of the morning. This is consistent with the data shown in Figure 8 where it can be seen that the difference between day and night time noise levels is generally less in Westminster than for the Outer London and UK averages.

Figure 9. Average 24-hour $L_{Aeq,1hr}$ time-history at rear of Phase 1 sites, comparison with Outer London and UK (front façades).



4. PHASE 2 RESULTS

4.1 Phase 2

4.1.1 Phase 2 of the 2008 Westminster Noise Measurement Survey consisted of measurements at a further 15 locations in the Central Activities Zone (CAZ) and its borders. These locations were selected by Westminster City Council as areas of interest representative of the CAZ. As for Phase 1 of the survey, measurements were undertaken at both the front and rear of one residential property at each location.

4.1.2 Table 11 below shows average noise levels for the measurements at the front of the 15 sites included in Phase 2 of the survey, whilst Table 12 presents the same data from the rear of the properties.

Table 11. Average noise levels at front of Phase 2 sites.

Time Period	$L_{Aeq,T}$ (dB)	$L_{A10,T}$ (dB)	$L_{A90,T}$ (dB)
12 hour day (0700-1900)	62.5	63.7	54.1
16 hour day (0700-2300)	62.0	62.9	53.7
18 hour day (0600-2400)	61.6	62.4	53.3
24 hour day (0000-2400)	60.7	60.5	51.8
4 hour evening (1900-2300)	58.8	60.4	52.7
8 hour night (2300-0700)	54.9	55.8	48.1

Table 12. Average noise levels at rear of Phase 2 sites.

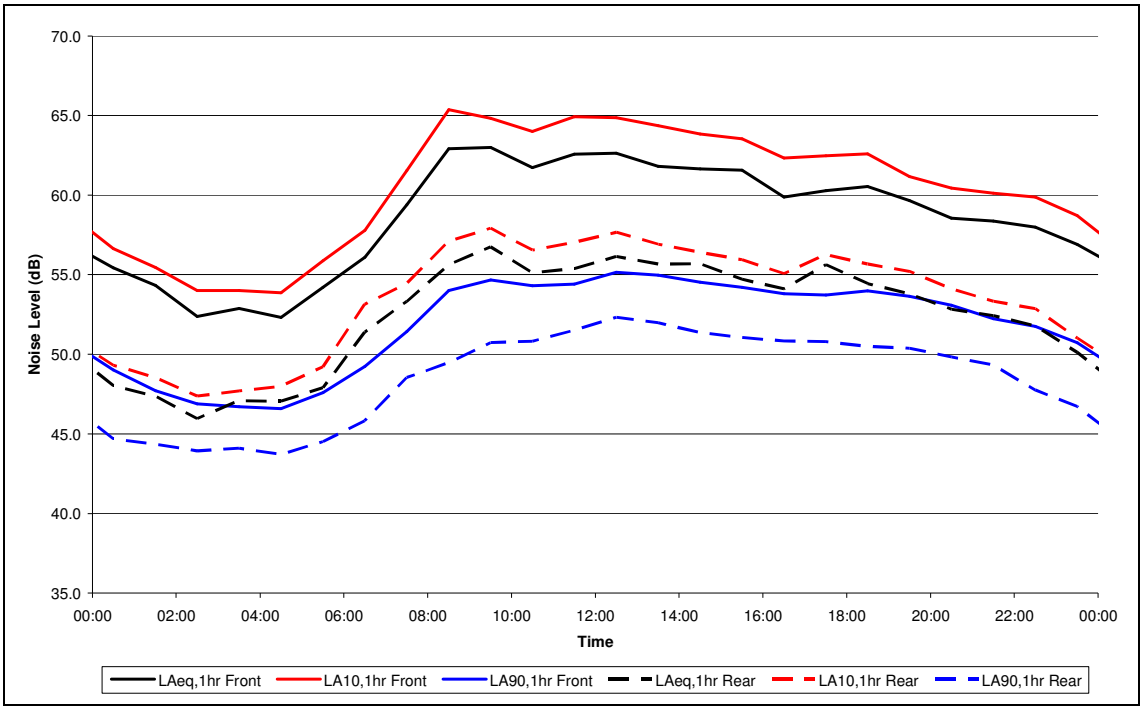
Time Period	$L_{Aeq,T}$ (dB)	$L_{A10,T}$ (dB)	$L_{A90,T}$ (dB)
12 hour day (0700-1900)	56.1	56.4	50.8
16 hour day (0700-2300)	55.5	55.8	50.4
18 hour day (0600-2400)	55.2	55.4	50.0
24 hour day (0000-2400)	54.3	53.6	48.5
4 hour evening (1900-2300)	52.9	53.9	49.3
8 hour night (2300-0700)	49.4	49.3	44.7

4.1.3 Again, these figures can be compared with the WHO Guidelines for Community Noise. The average levels both at the front and rear of the Phase 2 measurement locations exceed the night time guideline level of 45 dB $L_{Aeq,night}$, whilst the daytime guideline of 55 dB $L_{Aeq,day}$ is exceeded by the average measurement at the front of the Phase 2 properties, with the average level at the rear falling just above this guideline.

4.1.4 When the data from individual measurement sites are considered, it is seen that all but one of the measurement locations exceed the daytime guideline at the front, and eight of the fifteen sites exceed this guideline at the rear. The night time noise guideline is exceeded at the front and rear of all but two properties out of the sample of fifteen.

4.1.5 Figure 10 below shows average L_{Aeq}, L_{A10} and L_{A90} time histories at the front and rear of the Phase 2 addresses. Similarly to the results for Phase 1, this shows the measurements at the rear of the properties to be generally lower than those at the front, with this difference being slightly greater during the day than at night.

Figure 10. Average 24-hour time-history at front and rear of Phase 2 sites



4.2 Comparison between Phase 1 and Phase 2

4.2.1 Table 13 and Table 14 below compare a number of noise indicators across the Phase 1 and Phase 2 sites, showing differences between average noise levels in these two parts of the survey, for the front and rear of properties respectively.

Table 13. Average noise levels at front of Phase 1 and Phase 2 sites

Time Period	$L_{Aeq,T}$ (dB)		$L_{A10,T}$ (dB)		$L_{A90,T}$ (dB)	
	Phase 1	Phase 2	Phase 1	Phase 2	Phase 1	Phase 2
12 hour day (0700-1900)	62.0	62.5	64.1	63.7	52.5	54.1
16 hour day (0700-2300)	61.6	62.0	63.5	62.9	52.1	53.7
18 hour day (0600-2400)	61.3	61.6	63.1	62.4	51.7	53.3
24 hour day (0000-2400)	60.4	60.7	61.3	60.5	49.6	51.8
4 hour evening (1900-2300)	59.5	58.8	61.7	60.4	50.9	52.7
8 hour night (2300-0700)	55.7	54.9	56.9	55.8	44.7	48.1

Table 14. Average noise levels at rear of Phase 1 and Phase 2 sites.

Time Period	$L_{Aeq,T}$ (dB)		$L_{A10,T}$ (dB)		$L_{A90,T}$ (dB)	
	Phase 1	Phase 2	Phase 1	Phase 2	Phase 1	Phase 2
12 hour day (0700-1900)	55.0	56.1	55.7	56.4	47.5	50.8
16 hour day (0700-2300)	54.5	55.5	54.8	55.8	47.3	50.4
18 hour day (0600-2400)	54.2	55.2	54.4	55.4	46.9	50.0
24 hour day (0000-2400)	53.2	54.3	52.8	53.6	45.3	48.5
4 hour evening (1900-2300)	51.8	52.9	52.3	53.9	46.6	49.3
8 hour night (2300-0700)	48.3	49.4	48.7	49.3	41.5	44.7

4.2.2 These results show very similar noise levels across the two Phases of the survey at the front of the properties, with the exception of background L_{A90} noise indicators, where the levels at the Phase 2 sites are generally 2 to 3 dB higher. At the rear of the properties, this same trend is seen, more indicators show higher noise levels at the Phase 2 sites. This indicates that the difference between front and rear noise levels is slightly smaller at the Phase 2 sites than for Phase 1.

4.2.3 In order to further investigate these differences, and variations over the day and night times, 24-hour time histories have been produced for each of the L_{Aeq}, L_{A10} and L_{A90} indicators, comparing the Phase 1 and Phase 2 average noise levels. These are shown in Figure 11, Figure 12 and Figure 13 below.

Figure 11. Average 24-hour $L_{Aeq,1hr}$ time-histories for Phase 1 and Phase 2 sites

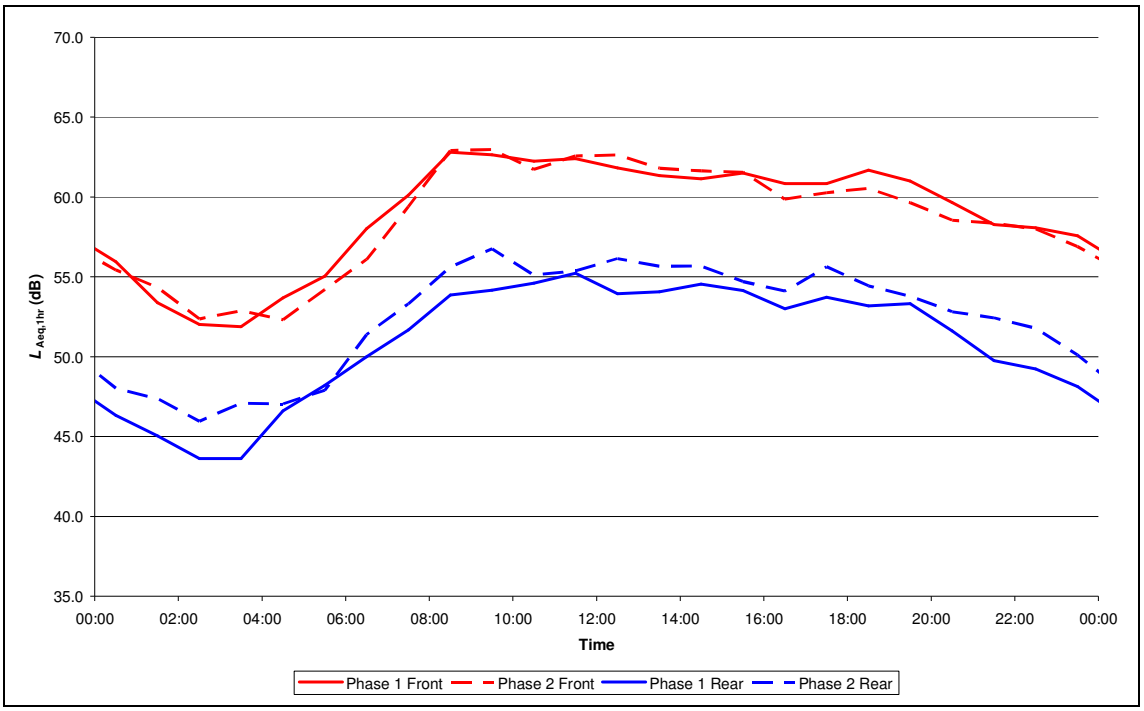


Figure 12. Average 24-hour $L_{A10,1hr}$ time-histories for Phase 1 and Phase 2 sites

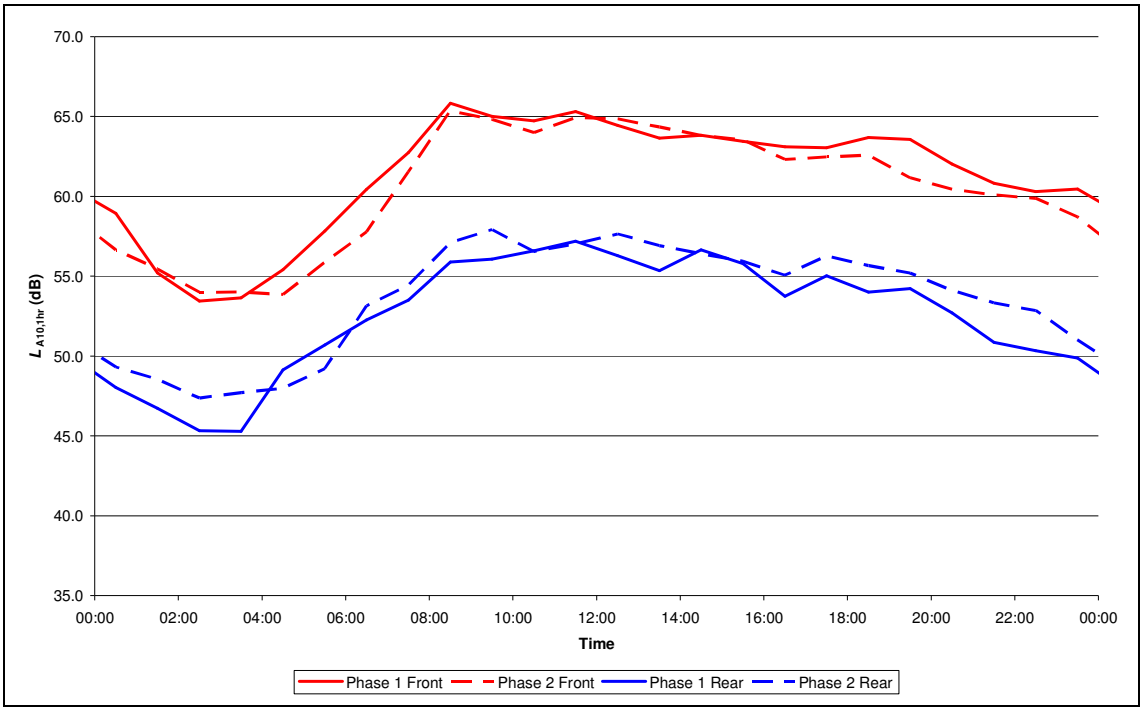
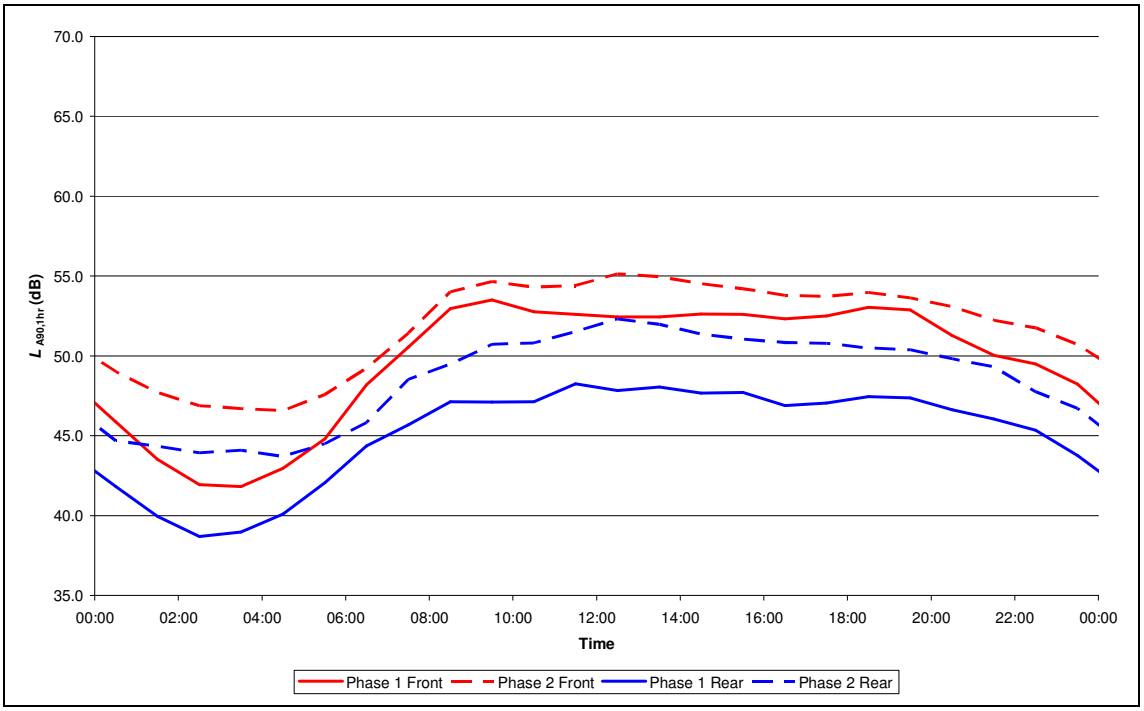


Figure 13. Average 24-hour $L_{A90,1hr}$ time-histories for Phase 1 and Phase 2 sites



4.2.4 These graphs show the slight differences between the Phase 1 and Phase 2 average noise levels, with the difference generally being greater at the rear façades and for the L_{A90} noise indicator. It can also be seen that the difference is generally larger during the night time, with the average noise level dropping less at night over the Phase 2 sites than is seen for the Phase 1 sites. Again, this is clearest for the L_{A90} noise indicators.

4.2.5 These findings of increased noise levels over Phase 2, with a reduced drop in noise level at night closely mirror the differences between Westminster and Outer London, which in turn mirrors the differences between Outer London and the UK.

5. AUDIBLE NOISE SOURCES

5.1.1 At each measurement site, information recorded on the measurement pro-forma included details of audible noise sources at the site. Table 15 below presents an analysis of these data for each phase of the survey, indicating at what proportion of sites particular noise sources were noted. Details of the sources recorded for each individual site are included in the measurement summaries in Appendix B (Phase 1 sites) and Appendix C (Phase 2 sites) of this report.

Table 15. Audible noise sources at Phase 1 and Phase 2 sites

Noise Source	Phase 1	Phase 2
Road Traffic	100% (20 sites)	100% (15 sites)
Aircraft	100% (20 sites)	100% (15 sites)
People in the street	45% (9 sites)	53% (8 sites)
Construction/Demolition/Renovation Works	25% (5 sites)	40% (6 sites)
Mechanical Plant	10% (2 sites)	20% (3 sites)
Birds	10% (2 sites)	0% (0 sites)
Industrial Noise	5% (1 sites)	0% (0 sites)
Road Works	5% (1 sites)	0% (0 sites)
Railway	5% (1 sites)	0% (0 sites)
School Children	5% (1 sites)	0% (0 sites)
Radio	0% (0 sites)	7% (1 sites)

5.1.2 It is apparent that both road traffic noise and aircraft noise were noted at all sites visited, with people in the street and construction/demolition/renovation works as other common sources of noise.

5.1.3 In the Phase 2 sites, people in the street, construction/demolition/renovation works and noise from mechanical plant were noted at a higher proportion of sites than for Phase 1. However, when comparing these figures, it is important to note the low numbers of sites, and hence high uncertainties in the proportions for many noise sources.

5.1.4 It should also be noted that this information only relates to the times when the noise monitoring equipment was set out and collected. As such, they do not necessarily reflect all noise sources contributing to the measured levels through the 24-hour duration of the measurements.

6. MAXIMUM NOISE LEVELS

6.1 Analysis of $L_{AFmax,}$ Noise Levels

6.1.1 Further analysis of maximum noise levels at all sites has been undertaken in order to investigate typical maximum noise levels experienced.

6.1.2 This analysis has been based on 5-minute time periods, as this is the shortest interval for which data was available at all sites. Where 5-minute maximum noise levels were not recorded directly, these have been calculated based on 125 ms or 100 ms measurements. In all cases, L_{AFmax} noise levels have been obtained for each five minute period at each site (for the front and rear façades separately)[e].

6.1.3 In order to put these maximum noise levels in context, they have been compared against suggested guideline levels.

6.1.4 For the night time period (23:00 to 07:00), the WHO Guidelines for Community Noise[6] recommend a maximum of 60 dB L_{AFmax} outside bedroom windows. Hence, the percentage of 5-minute periods during the night time where this level is exceeded has been calculated at each site.

6.1.5 No similar guidance on L_{AFmax} noise levels during the daytime is available. For this period, a level of 80 dB L_{AFmax} has been used in the analysis, and the number of 5-minute periods when this is exceeded has been calculated for each site.

6.1.6 It is important to note that the cause of these maximum noise levels cannot be identified. In some cases, maximum noise levels may come from within the property, or from the opening/closing of doors at the property, etc.

6.2 Results

6.2.1 Figure 14 and Figure 15 below show the percentage of 5-minute periods during the day time (07:00 – 23:00) when a level of 80 dB $L_{AFmax,5min}$ is exceeded, for each site. These are presented separately for Phase 1 and Phase 2 of the survey.

[e] At the rear measurement at site 13, the microphone was disconnected during the morning measurements. At the front measurement at site C12, 125 ms data was not stored by the instrument for a period of approximately 2 hours in the morning period. For both these sites calculations have been based on the reduced time period for which $L_{AFmax,5min}$ data was available.

Figure 14. Percentage of day time 5-minute periods during which $L_{AFmax,5min}$ exceeds 80 dB(A) – Phase 1

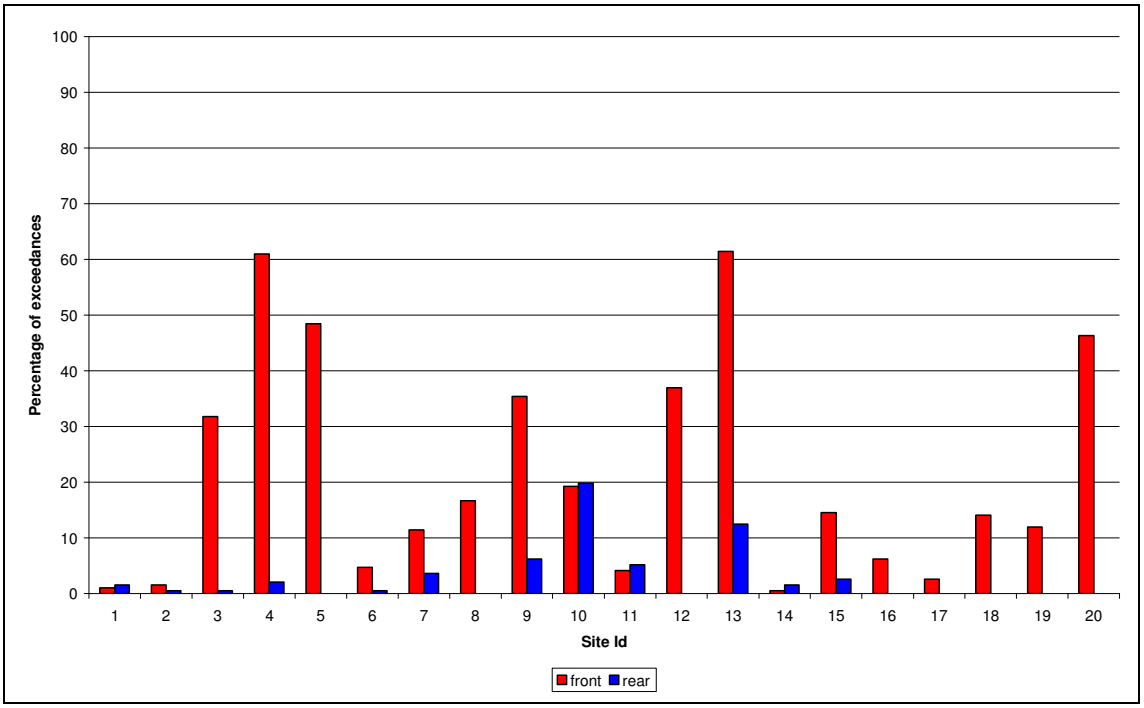
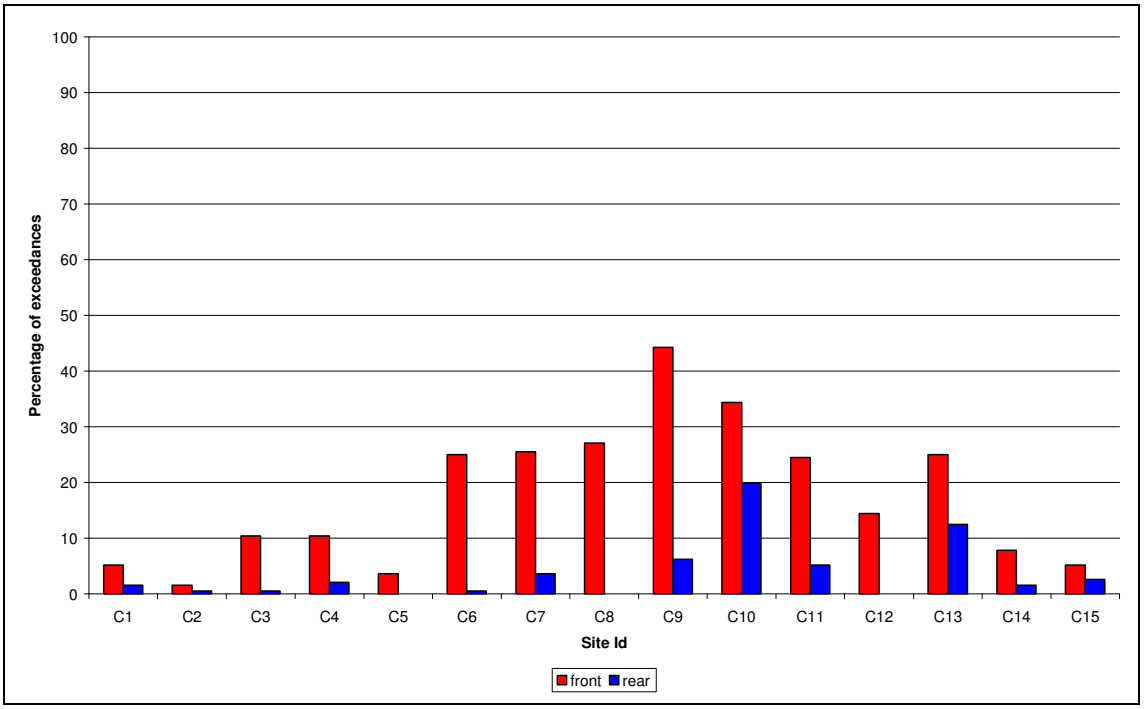


Figure 15. Percentage of day time 5-minute periods during which $L_{AFmax,5min}$ exceeds 80 dB(A) – Phase 2



6.2.2 Both these graphs show that this level of 80 dB $L_{AFmax,5min}$ is exceeded less frequently at the rear façade measurement position that at the front of the properties. However, at every property, this level is exceeded at some point during the day time at the front façade. In some cases, this value is exceeded during over 60% of the 5-minute time periods. At the

majority of rear façades, this level is exceeded at some point during the day, although never for more than 20% of the 5 minute time periods.

6.2.3 Figure 16 and Figure 17 show this same analysis for the night time period. Each graph shows the percentage of 5-minute periods during the night time (23:00 – 07:00) when the guideline level of 60 dB $L_{AFmax,5min}$ is exceeded, for each site. These are presented separately for Phase 1 and Phase 2 of the survey.

Figure 16. Percentage of night time 5-minute periods during which $L_{AFmax,5min}$ exceeds 60 dB(A) – Phase 1

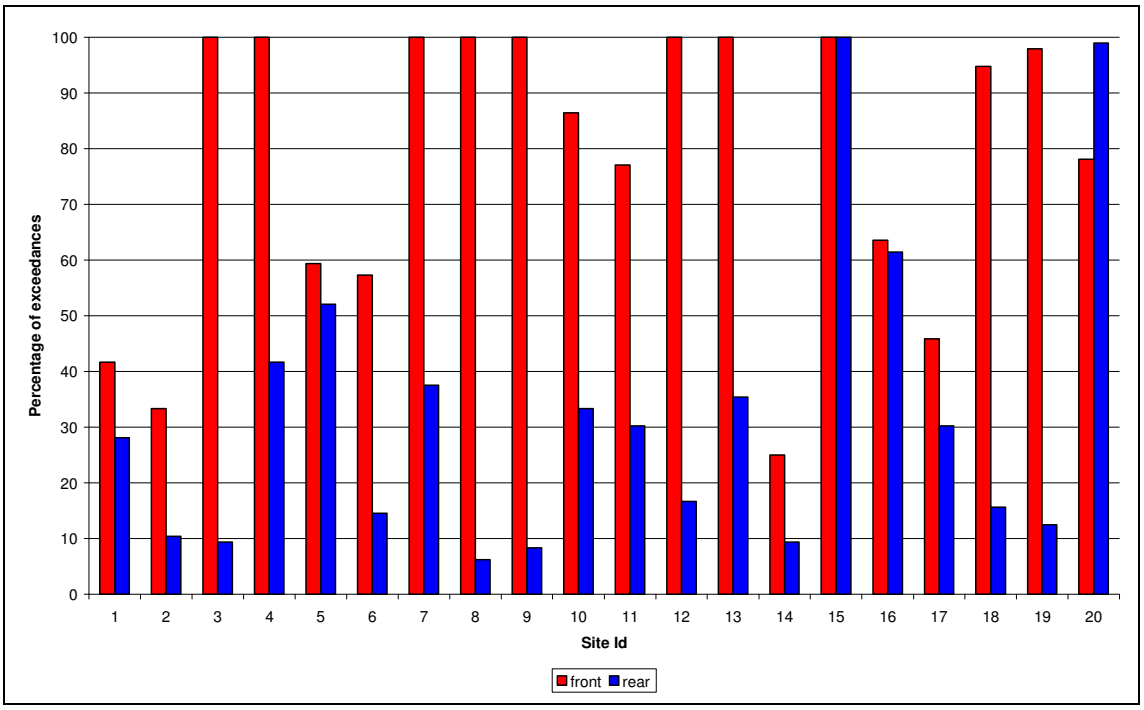
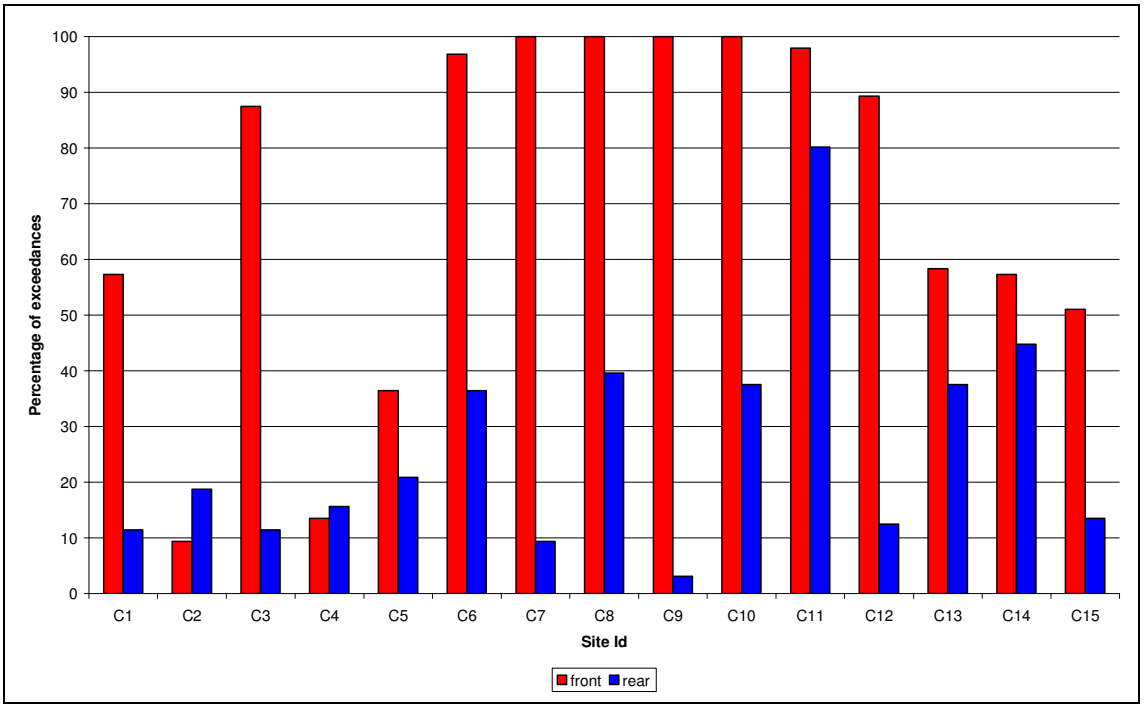


Figure 17. Percentage of night time 5-minute periods during which $L_{AFmax,5min}$ exceeds 60 dB(A) – Phase 2



6.2.4 These graphs show that this night time guideline level of 60 dB $L_{AFmax,5min}$ is exceeded much more frequently that the day time guideline level of 80 dB $L_{AFmax,5min}$, with some sites exceeding this during every 5-minute period of the night time period (particularly at the front façades). As for the daytime period, the proportion of periods during which this level is exceeded is generally much greater at the front façade than the rear façade, although there are some exceptions to this.

6.2.5 The average proportion of 5-minute periods during which the guideline maximum noise levels are exceeded have also been calculated for day and night time periods. These values are shown for the front and rear measurement locations in each of Phase 1 and Phase 2 in Table 16 below.

Table 16. Audible noise sources at Phase 1 and Phase 2 sites

	Average Percentage of time over which Reference $L_{AFmax,5min}$ is exceeded	
	Day time exceeding 80 dB	**Night time exceeding 60 dB**
Phase 1 Front	22	78
Phase 1 Rear	2	33
Phase 2 Front	18	70
Phase 2 Rear	4	26

6.2.6 Again, these results show the number of times the guideline values are exceeded to be significantly lower at the rear façades than the front. Slight differences are also seen

between the Phase 1 and Phase 2 sites, with the percentage of the time periods when the guideline levels are exceeded generally being higher for Phase 1 than Phase 2. Whilst this appears to be contrary to the findings of generally slightly higher noise levels at the Phase 2 measurement positions, these differences between the two phases are small, and are unlikely to be statistically significant given the relatively small sample sizes.

7. CONCLUSIONS

7.1.1 Key findings from Phase 1 of this survey are:

- Average noise levels from Phase 1 of this survey are slightly below those from the 2003 survey, although it is considered that this is most likely to be due to the different sampling methodologies used for site selection, and not necessarily an indication that average noise levels have reduced significantly over this period.

- A comparison with the World Health Organisation Guidelines for Community Noise shows that average levels at the front of the properties are considerably above these guidelines. Average noise levels at the rear of properties are significantly lower than those at the front, being just below the daytime guideline of 55 dB $L_{Aeq,day}$ and approximately 3 dB above the night time guideline level.

- Eighteen out of the twenty front measurement sites exceed the day-time WHO guideline figure of 55 dB L_{Aeq} and all of the 20 front measurement sites exceed the night-time guideline figure of 45 dB L_{Aeq}.

- At the rear location, six sites out of the twenty in Phase 1 exceed the WHO day-time guideline, whilst all but three sites exceed the night-time guideline.

- Significantly higher average noise levels within Westminster than in either outer London or the UK. These differences are generally largest during the night time (with the difference between noise levels during the day and night smaller in Westminster), and for the L_{A90} noise indicators.

7.1.2 Phase 2, looking at noise levels in typical locations within and close to the Central Activities Zone has shown key findings including:

- Some small differences are seen between the data for the two phases, with the Phase 2 sites showing slightly higher noise levels, for the following indicators:

    - Night time noise levels higher at Phase 2 sites, with a smaller difference between day and night time noise levels.

    - L_{A90} indicators higher at Phase 2 sites at many times of the day.

    - Higher noise levels for many indicators at the rear of Phase 2 sites, compared to the rear of Phase 1 sites.

8. RECOMMENDATIONS

8.1.1 Particular items of note identified from this survey, which may be worth further investigation include:

- The difference between front and rear façades in Westminster. This may include further measurements at a range of different types of location, and/or the collection of comparative rear façade data for areas outside of Westminster.

- The smaller difference between day time and night time noise levels in Phase 2 than Phase 1, and in all of Westminster than outer London and the UK average. Further investigation into this is likely to require further measurements at appropriately selected sites.

8.1.2 In order to add further value to the large database of noise measurements which exist within the City of Westminster, both from this survey and from the 2003 Westminster Noise Survey, the following items may be worth considering for future investigation:

- Repeating further elements of the 2003 Westminster Noise Survey to allow comparison between 2003 and the present (examples might include repeating more measurements in the Abbey Road and Bayswater wards, and/or repeating measurements at the 2003 Phase 2 “typical quieter residential sites”).

- Further long term noise measurements at a selection of sites over the City of Westminster to provide more information on the long term variations in noise levels. As well as weekday/weekend differences, this could provide more detailed information on seasonal variations, effects of school holidays, etc.

- Comparison between measured noise levels from the 2008 Westminster Noise Measurement Survey and predicted noise levels from noise maps (Westminster City Council noise map and/or Defra London noise map). With the inclusion of front and rear measurement positions, and the long-term measurement site, a total of 71 locations would be available for such comparisons.

- Further noise measurements focussing on residential sites affected by specific noise sources which may be of interest in developing the noise strategy. Examples of noise sources might include: industrial noise, railway noise, etc.

- Additional manned monitoring to further investigate the contribution of different noise sources throughout the day.

9. REFERENCES

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6. Guidelines for Community Noise, World Health Organisation, 2000.

Appendix A NOISE & VIBRATION TERMINOLOGY AND PERCEPTION

Noise Perception and Terminology

A.1 Between the quietest audible sound and the loudest tolerable sound there is a million to one ratio in sound pressure (measured in Pascals, Pa). Because of this wide range, a noise level scale based on logarithms is used in noise measurement called the decibel (dB) scale. Audibility of sound covers a range of approximately 0 to 140 dB. The human ear system does not respond uniformly to sound across the detectable frequency range and consequently instrumentation used to measure noise is weighted to represent the performance of the ear. This is known as the 'A weighting' and annotated as dB(A). Table 17 lists the sound pressure level in dB(A) for common situations.

Table 17. Noise Levels for Common Situations

Typical Noise Level dB (A)	Example
0	Threshold of hearing
30	Rural area at night, still air
40	Public library. Refrigerator humming at 2m
50	Quiet office, no machinery. Boiling kettle at 0.5m
60	Normal conversation
70	Telephone ringing at 2m. Vacuum cleaner at 3m
80	General factory noise level
90	Heavy goods vehicle from pavement. Powered lawnmower, operator's ear
100	Pneumatic drill at 5m
120	Discotheque – 1m in front of loudspeaker
140	Threshold of pain

A.2 The noise level at a measurement point is rarely steady, even in rural areas, and varies over a range dependent upon the effects of local noise sources. Close to a busy motorway, the noise level may vary over a range of 5 dB(A), whereas in a suburban area this variation may be up to 40 dB(A) and more due to the multitude of noise sources in such areas (cars, dogs, aircraft etc.) and their variable operation. Furthermore, the range of night-time noise levels will often be smaller and the levels significantly reduced compared to daytime levels. When considering environmental noise, it is necessary to consider how to quantify the existing noise (the ambient noise) to account for these second to second variations.

A.3 A parameter that is widely accepted as reflecting human perception of the ambient noise is the background noise level, L_{A90}. This is the noise level exceeded for 90 % of the measurement period and generally reflects the noise level in the lulls between individual noise events. Over a one hour period, the L_{A90} will be the noise level exceeded for 54 minutes.

A.4 The equivalent continuous A-weighted sound pressure level, L_{Aeq} is the single number that represents the total sound energy measured over that period. L_{Aeq} is the sound level of a

notionally steady sound having the same energy as a fluctuating sound over a specified measurement period. It is commonly used to express the energy level from individual sources that vary in level over their operational cycle.

A.5 The L_{A10} noise indicator is the noise level exceeded for 10% of the measurement period, and is hence an indicator of the higher noise levels experienced, whilst excluding very short duration high noise levels. This indicator is often used as an indicator of road traffic noise levels.

A.6 Human subjects are generally only capable of noticing changes in steady levels of no less than 3 dB(A). It is generally accepted that a change of 10 dB(A) in an overall, steady noise level is perceived to the human ear as a doubling (or halving) of the noise level. (These findings do not necessarily apply to transient or non-steady noise sources such as changes in noise due to changes in road traffic flow, or intermittent noise sources).

Vibration Perception and Terminology

A.7 When an object is in contact with a vibrating surface it is displaced about its reference (stationary) position. Displacement (in mm) is therefore one parameter that can be used to describe the magnitude of a vibration. For sinusoidal signals, displacement, velocity (ms^{-1}) and acceleration (ms^{-2}) amplitudes are related mathematically by a function of frequency and time. If phase is neglected, as is always the case when making time-average measurements, then the velocity can be obtained by dividing the acceleration signal by a factor proportional to frequency (measured in Hertz, Hz) and the displacement can be obtained by dividing the acceleration signal by a factor proportional to the square of frequency. Modern electronic integrating meters are capable of providing a wide range of measurement parameters during any single vibration measurement.

A.8 For a complex acceleration signal giving rise to a complicated time history, there are several additional quantities which can be used to describe this vibration:

- the peak value is the maximum instantaneous acceleration measured during the measurement time, T. It is a useful indicator of the magnitude of short duration shocks;
- the root mean square value (rms) is obtained by taking the square root of the mean of the sum of the squares of the instantaneous acceleration measured during the total measurement time, T;
- the peak particle velocity (ppv) is the maximum instantaneous velocity of a particle at a point during a given time interval;
- the Vibration Dose Value (VDV) is defined in BS 6472: 1992[6], and is used to assess the likelihood of adverse comment due to vibration.

[6] Since the completion of these measurements, this standard has been superseded by BS 6472:2008 (June 2008). This new version of the standard uses a different frequency weighting on the vertical ('z') axis VDV values.

A.9 Human perception to vibration is of the order of 0.15mms^{-1} to 0.3mms^{-1} ppv, in the frequency range 0.1 Hz to 1500 Hz. (The lowest note, 'A', on a full size piano keyboard has a fundamental frequency of 28 Hz). However, the human body is not equally sensitive to all frequencies of vibration and weighting curves to reflect the frequency dependency of the body have been developed and are contained within ISO Standards. Those frequencies to which the human body is most sensitive are given a much heavier weighting than those at frequencies to which the body is less sensitive. This weighting gives a good correlation between the measured vibration level and the subjective feeling or impact produced by the vibration.

A.10 The weightings can be incorporated into modern vibration meters, thus enabling measurement of vibration levels that correspond to human perception. Those vibrations occurring between 1-80 Hz are of particular interest when measuring exposure to whole-body vibration.

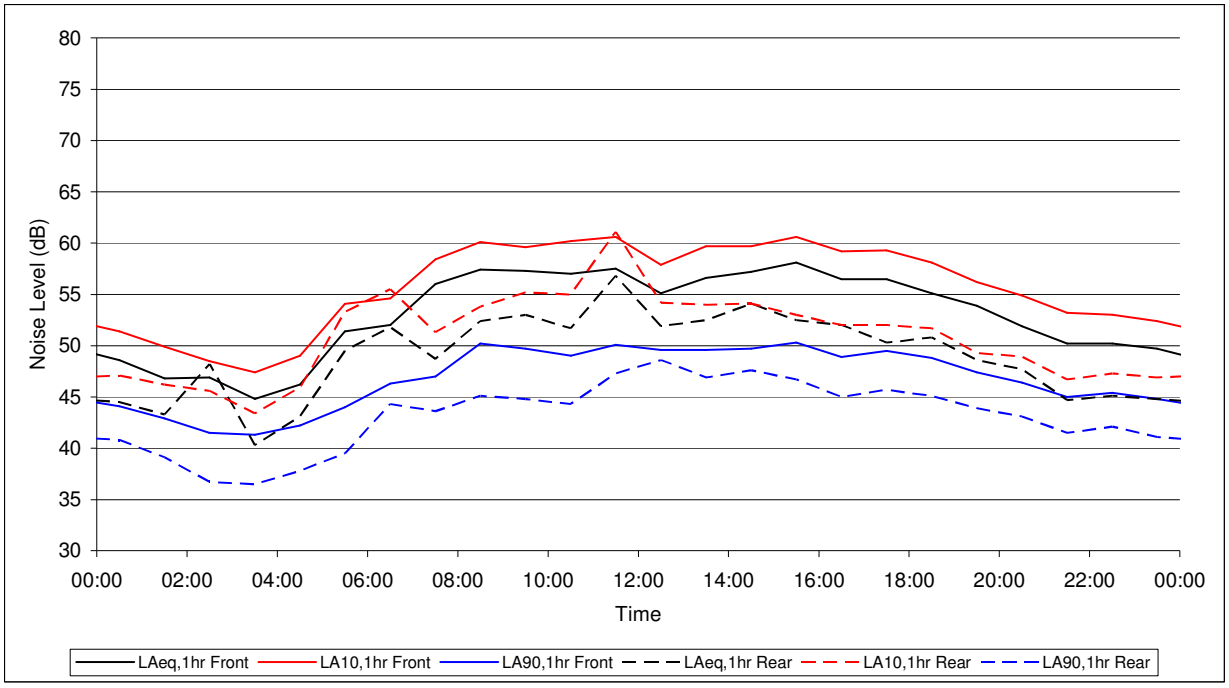
A.11 Sensitivity to mechanical vibration is also known to be dependent on the direction of excitation and also the human body responds differently when standing (longitudinal) compared to when lying down (lateral). Whole-body vibrations are consequently measured in the directions of an orthogonal co-ordinate system having its origins at the location of the heart.

Appendix B SITE-BY-SITE DATA – PHASE 1 SITES

B.1 The following pages contain data sheets from each site within Phase 1 of the survey. Each sheet contains the following data:

- $L_{Aeq,1hr}$, $L_{A10,1hr}$ and $L_{A90,1hr}$ data tabulated over the 24-hour measurement period for both front and rear measurement positions.
- Graphical representation of 24-hour time histories for $L_{Aeq,1hr}$, $L_{A10,1hr}$ and $L_{A90,1hr}$ noise indicators from both measurement positions.
- Day, evening and night average $L_{Aeq,T}$ noise levels, and 24-hour weighted average L_{den} noise level, again at front and rear of property.
- Summary of significant noise sources noted at each site during site visits.
- Any other relevant notes and comments from site visits.

Site 1 - Carlton Hill (Abbey Road ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	48.6	51.4	44.1	44.5	47.1	40.8
01:00-02:00	46.8	49.9	42.9	43.3	46.2	39.1
02:00-03:00	46.9	48.5	41.5	48.2	45.6	36.7
03:00-04:00	44.8	47.4	41.3	40.3	43.4	36.5
04:00-05:00	46.2	49.0	42.2	43.1	45.9	37.8
05:00-06:00	51.4	54.1	44.0	49.5	53.3	39.5
06:00-07:00	52.0	54.6	46.3	51.8	55.5	44.3
07:00-08:00	56.0	58.4	47.0	48.7	51.3	43.6
08:00-09:00	57.4	60.1	50.2	52.4	53.8	45.1
09:00-10:00	57.3	59.6	49.7	53.0	55.2	44.8
10:00-11:00	57.0	60.2	49.0	51.7	55.0	44.3
11:00-12:00	57.5	60.6	50.1	56.8	61.1	47.3
12:00-13:00	55.1	57.9	49.6	51.9	54.2	48.6
13:00-14:00	56.6	59.7	49.6	52.5	54.0	46.9
14:00-15:00	57.2	59.7	49.7	54.1	54.1	47.6
15:00-16:00	58.1	60.6	50.3	52.5	53.0	46.7
16:00-17:00	56.5	59.2	48.9	52.0	52.0	45.0
17:00-18:00	56.5	59.3	49.5	50.3	52.0	45.7
18:00-19:00	55.1	58.1	48.8	50.8	51.7	45.1
19:00-20:00	53.9	56.2	47.4	48.6	49.3	43.9
20:00-21:00	51.9	54.9	46.4	47.7	48.9	43.1
21:00-22:00	50.2	53.2	45.0	44.7	46.7	41.5
22:00-23:00	50.2	53.0	45.4	45.1	47.3	42.1
23:00-00:00	49.7	52.4	44.8	44.8	46.9	41.1

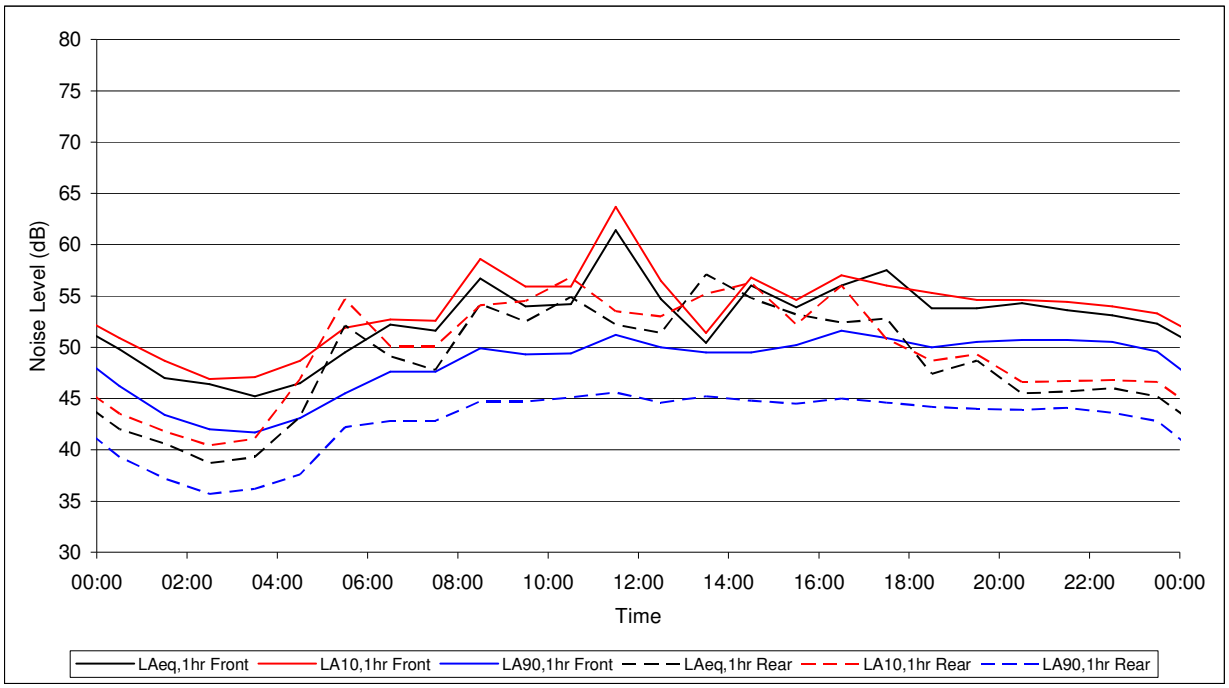
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	56.8
	Evening (19:00-23:00)	51.8
	Night (23:00-07:00)	49.0
L_{den}		57.6

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	52.7
	Evening (19:00-23:00)	46.8
	Night (23:00-07:00)	47.2
L_{den}		54.7

Date of Measurement 01/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Construction and demolition
- People in the street

Site 2 - Sunderland Terrace (Bayswater ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	49.8	50.9	46.2	42.0	43.5	39.3
01:00-02:00	47.0	48.7	43.4	40.6	41.8	37.2
02:00-03:00	46.4	46.9	42.0	38.7	40.4	35.7
03:00-04:00	45.2	47.1	41.7	39.3	41.1	36.2
04:00-05:00	46.5	48.7	43.1	43.2	46.9	37.6
05:00-06:00	49.5	51.9	45.5	52.1	54.7	42.2
06:00-07:00	52.2	52.7	47.6	49.1	50.1	42.8
07:00-08:00	51.6	52.6	47.6	47.8	50.1	42.8
08:00-09:00	56.7	58.6	49.9	54.2	54.1	44.7
09:00-10:00	54.0	55.9	49.3	52.5	54.5	44.7
10:00-11:00	54.2	55.9	49.4	54.9	56.8	45.1
11:00-12:00	61.4	63.7	51.2	52.2	53.5	45.6
12:00-13:00	54.7	56.5	50.0	51.4	53.0	44.6
13:00-14:00	50.4	51.4	49.5	57.1	55.2	45.2
14:00-15:00	56.0	56.8	49.5	54.8	56.3	44.8
15:00-16:00	53.9	54.6	50.2	53.2	52.2	44.5
16:00-17:00	56.0	57.0	51.6	52.4	56.0	45.0
17:00-18:00	57.5	56.0	50.9	52.8	50.8	44.6
18:00-19:00	53.8	55.3	50.0	47.4	48.7	44.2
19:00-20:00	53.8	54.6	50.5	48.7	49.3	44.0
20:00-21:00	54.3	54.6	50.7	45.5	46.6	43.9
21:00-22:00	53.6	54.4	50.7	45.7	46.7	44.1
22:00-23:00	53.1	54.0	50.5	46.0	46.8	43.6
23:00-00:00	52.3	53.3	49.6	45.2	46.6	42.8

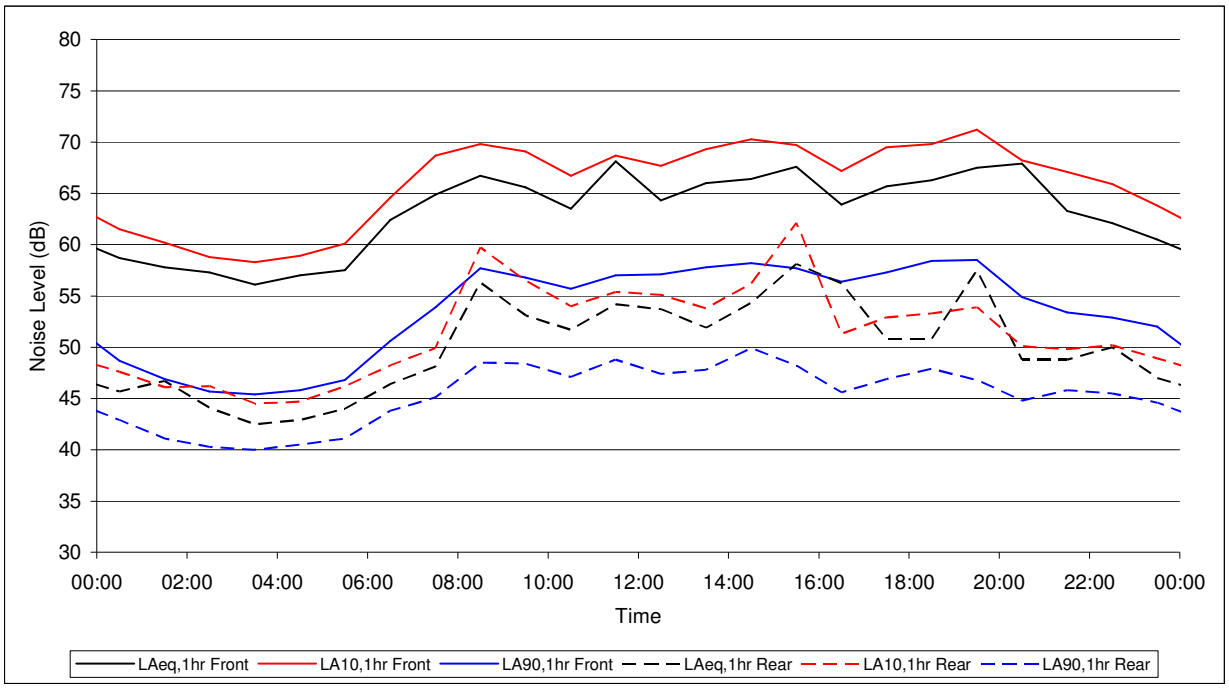
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	56.0
	Evening (19:00-23:00)	53.7
	Night (23:00-07:00)	49.4
L_{den}		57.9

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	53.3
	Evening (19:00-23:00)	46.7
	Night (23:00-07:00)	46.3
L_{den}		54.4

Date of Measurement 02/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Construction and demolition
- People in the street

Site 3 - Berkeley Street (Bryanston and Dorset Square ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	58.7	61.5	48.7	45.7	47.6	42.9
01:00-02:00	57.8	60.2	46.9	46.7	46.1	41.1
02:00-03:00	57.3	58.8	45.7	44.1	46.2	40.3
03:00-04:00	56.1	58.3	45.4	42.5	44.5	40.0
04:00-05:00	57.0	58.9	45.8	42.9	44.7	40.5
05:00-06:00	57.5	60.1	46.8	44.0	46.2	41.1
06:00-07:00	62.4	64.6	50.6	46.4	48.2	43.8
07:00-08:00	64.9	68.7	53.9	48.1	49.9	45.1
08:00-09:00	66.7	69.8	57.7	56.3	59.7	48.5
09:00-10:00	65.6	69.1	56.8	53.1	56.5	48.4
10:00-11:00	63.5	66.7	55.7	51.7	54.0	47.1
11:00-12:00	68.1	68.7	57.0	54.2	55.4	48.8
12:00-13:00	64.3	67.7	57.1	53.7	55.1	47.4
13:00-14:00	66.0	69.3	57.8	51.9	53.8	47.8
14:00-15:00	66.4	70.3	58.2	54.3	56.2	49.9
15:00-16:00	67.6	69.7	57.7	58.1	62.1	48.2
16:00-17:00	63.9	67.2	56.4	56.2	51.3	45.6
17:00-18:00	65.7	69.5	57.3	50.8	52.9	46.9
18:00-19:00	66.3	69.8	58.4	50.8	53.3	47.9
19:00-20:00	67.5	71.2	58.5	57.5	53.9	46.8
20:00-21:00	67.9	68.2	54.9	48.8	50.1	44.8
21:00-22:00	63.3	67.1	53.4	48.8	49.8	45.8
22:00-23:00	62.1	65.9	52.9	50.0	50.2	45.5
23:00-00:00	60.5	63.8	52.0	47.0	48.9	44.6

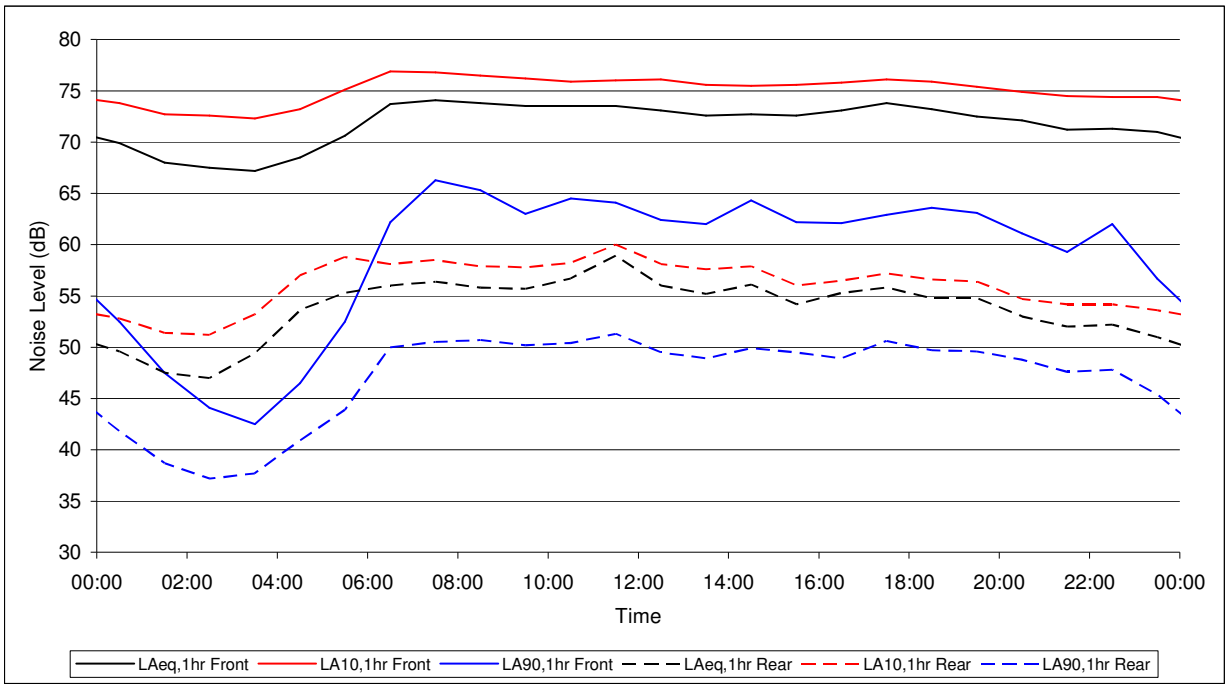
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	66.0
	Evening (19:00-23:00)	65.9
	Night (23:00-07:00)	58.9
L_{den}		68.2

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	54.1
	Evening (19:00-23:00)	53.1
	Night (23:00-07:00)	45.2
L_{den}		55.4

Date of Measurement 30/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Construction and demolition

Site 4 - Grosvenor Road (Chuchill ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	69.9	73.8	52.5	49.6	52.8	41.8
01:00-02:00	68.0	72.7	47.5	47.5	51.4	38.7
02:00-03:00	67.5	72.6	44.1	47.0	51.2	37.2
03:00-04:00	67.2	72.3	42.5	49.4	53.2	37.7
04:00-05:00	68.5	73.2	46.5	53.6	57.0	40.9
05:00-06:00	70.6	75.1	52.5	55.3	58.8	43.9
06:00-07:00	73.7	76.9	62.2	56.0	58.1	50.0
07:00-08:00	74.1	76.8	66.3	56.4	58.5	50.5
08:00-09:00	73.8	76.5	65.3	55.8	57.9	50.7
09:00-10:00	73.5	76.2	63.0	55.7	57.8	50.2
10:00-11:00	73.5	75.9	64.5	56.7	58.2	50.4
11:00-12:00	73.5	76.0	64.1	58.9	60.0	51.3
12:00-13:00	73.1	76.1	62.4	56.0	58.1	49.5
13:00-14:00	72.6	75.6	62.0	55.2	57.6	48.9
14:00-15:00	72.7	75.5	64.3	56.1	57.9	49.9
15:00-16:00	72.6	75.6	62.2	54.2	56.0	49.5
16:00-17:00	73.1	75.8	62.1	55.3	56.5	48.9
17:00-18:00	73.8	76.1	62.9	55.8	57.2	50.6
18:00-19:00	73.2	75.9	63.6	54.8	56.6	49.7
19:00-20:00	72.5	75.4	63.1	54.8	56.4	49.6
20:00-21:00	72.1	74.9	61.1	53.0	54.7	48.8
21:00-22:00	71.2	74.5	59.3	52.0	54.2	47.6
22:00-23:00	71.3	74.4	62.0	52.2	54.2	47.8
23:00-00:00	71.0	74.4	56.7	51.0	53.6	45.4

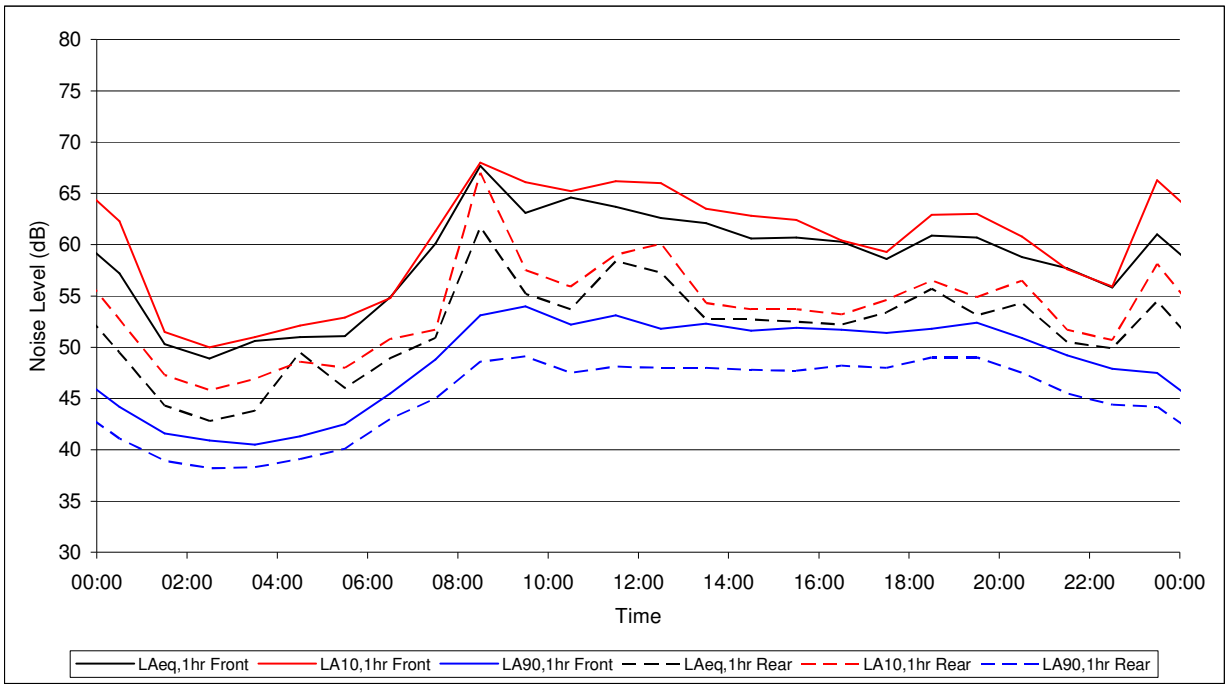
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	73.3
	Evening (19:00-23:00)	71.8
	Night (23:00-07:00)	70.1
L_{den}		77.2

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	56.1
	Evening (19:00-23:00)	53.1
	Night (23:00-07:00)	52.4
L_{den}		59.5

Date of Measurement 02/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- People in the street
- Industry

Site 5 - Bernhardt Crescent (Church Street ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	57.2	62.3	44.2	49.5	52.7	41.1
01:00-02:00	50.3	51.5	41.6	44.3	47.3	38.9
02:00-03:00	48.9	50.0	40.9	42.8	45.8	38.2
03:00-04:00	50.6	51.0	40.5	43.8	46.9	38.3
04:00-05:00	51.0	52.1	41.3	49.5	48.6	39.1
05:00-06:00	51.1	52.9	42.5	46.0	48.0	40.1
06:00-07:00	54.9	54.8	45.5	48.9	50.8	43.0
07:00-08:00	60.1	61.3	48.8	50.9	51.7	45.0
08:00-09:00	67.7	68.0	53.1	61.7	67.0	48.6
09:00-10:00	63.1	66.1	54.0	55.2	57.5	49.1
10:00-11:00	64.6	65.2	52.2	53.7	55.9	47.5
11:00-12:00	63.7	66.2	53.1	58.4	59.0	48.1
12:00-13:00	62.6	66.0	51.8	57.3	60.1	48.0
13:00-14:00	62.1	63.5	52.3	52.7	54.3	48.0
14:00-15:00	60.6	62.8	51.6	52.7	53.7	47.8
15:00-16:00	60.7	62.4	51.9	52.5	53.7	47.7
16:00-17:00	60.3	60.4	51.7	52.2	53.2	48.2
17:00-18:00	58.6	59.3	51.4	53.4	54.6	48.0
18:00-19:00	60.9	62.9	51.8	55.7	56.5	49.0
19:00-20:00	60.7	63.0	52.4	53.1	54.9	49.0
20:00-21:00	58.8	60.8	50.9	54.3	56.5	47.5
21:00-22:00	57.7	57.6	49.2	50.5	51.7	45.5
22:00-23:00	55.8	55.9	47.9	49.9	50.7	44.4
23:00-00:00	61.0	66.3	47.5	54.5	58.1	44.2

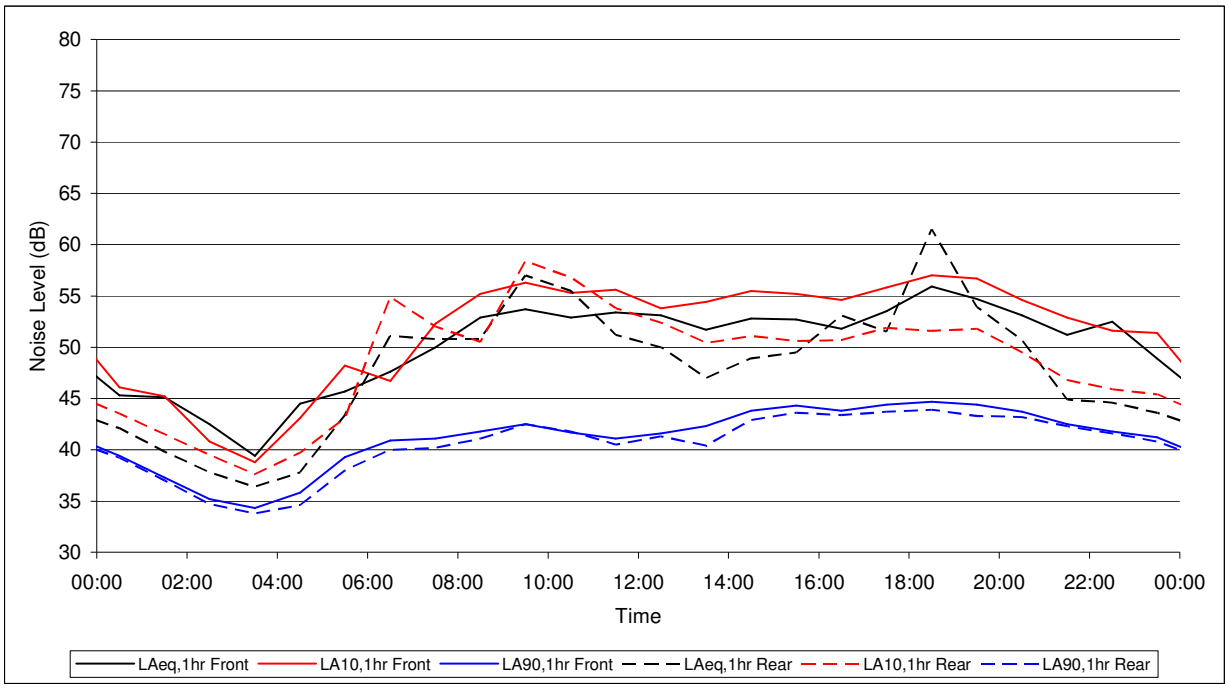
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	62.8
	Evening (19:00-23:00)	58.6
	Night (23:00-07:00)	55.2
L_{den}		63.9

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	55.9
	Evening (19:00-23:00)	52.3
	Night (23:00-07:00)	49.1
L_{den}		57.4

Date of Measurement 29/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Construction

Site 6 - Portnall Road (Harrow Road ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	45.3	46.1	39.4	42.1	43.5	39.2
01:00-02:00	45.1	45.2	37.3	39.8	41.5	37.0
02:00-03:00	42.5	40.8	35.2	37.8	39.5	34.7
03:00-04:00	39.4	38.8	34.3	36.4	37.6	33.8
04:00-05:00	44.5	43.1	35.8	37.8	39.7	34.6
05:00-06:00	45.7	48.2	39.3	43.4	43.1	38.0
06:00-07:00	47.6	46.7	40.9	51.1	54.9	40.0
07:00-08:00	50.0	52.3	41.1	50.8	52.0	40.2
08:00-09:00	52.9	55.2	41.8	50.8	50.5	41.1
09:00-10:00	53.7	56.3	42.5	57.0	58.4	42.5
10:00-11:00	52.9	55.3	41.7	55.5	56.8	41.8
11:00-12:00	53.4	55.6	41.1	51.2	53.8	40.5
12:00-13:00	53.1	53.8	41.6	50.0	52.4	41.3
13:00-14:00	51.7	54.4	42.3	47.0	50.4	40.4
14:00-15:00	52.8	55.5	43.8	48.9	51.1	42.9
15:00-16:00	52.7	55.2	44.3	49.5	50.6	43.6
16:00-17:00	51.8	54.6	43.8	53.1	50.7	43.4
17:00-18:00	53.5	55.8	44.4	51.5	51.9	43.7
18:00-19:00	55.9	57.0	44.7	61.5	51.6	43.9
19:00-20:00	54.7	56.7	44.4	53.9	51.8	43.3
20:00-21:00	53.1	54.6	43.7	50.7	49.5	43.2
21:00-22:00	51.2	52.9	42.5	44.9	46.8	42.3
22:00-23:00	52.5	51.6	41.8	44.6	45.9	41.6
23:00-00:00	48.9	51.4	41.2	43.6	45.4	40.8

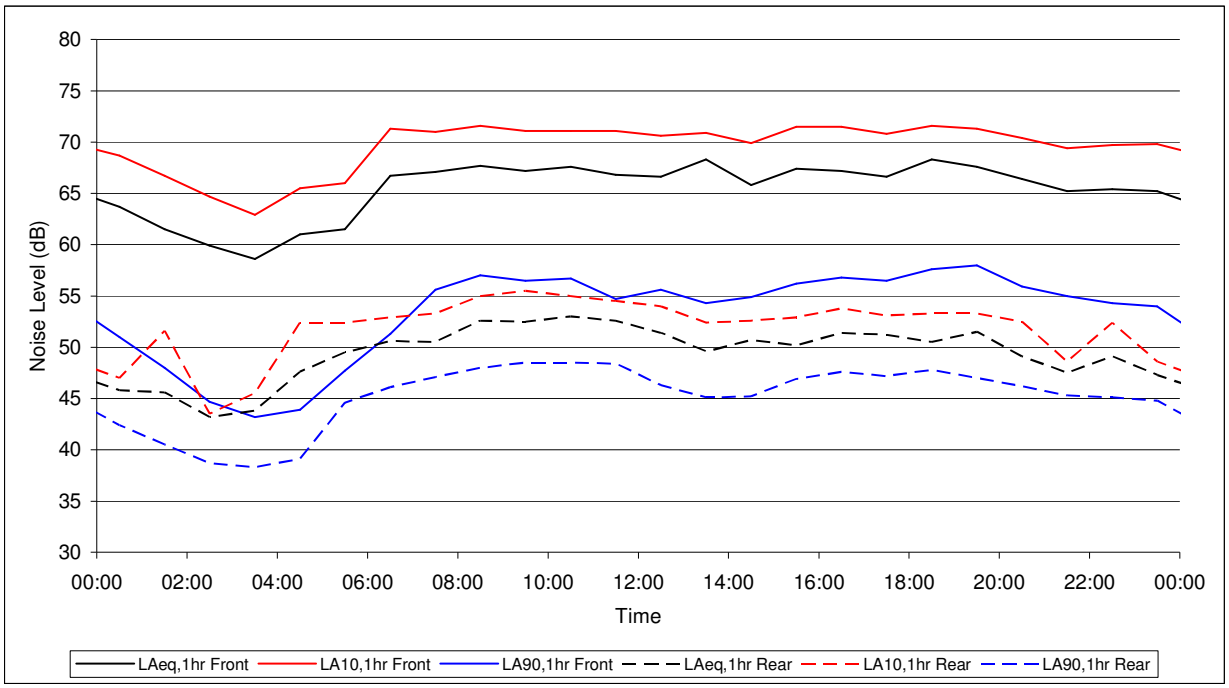
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	53.1
	Evening (19:00-23:00)	53.1
	Night (23:00-07:00)	45.6
L_{den}		55.2

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	54.4
	Evening (19:00-23:00)	50.2
	Night (23:00-07:00)	44.3
L_{den}		54.5

Date of Measurement 24/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft

Site 7 - Wesbourne Terrace (Hyde Park ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	63.7	68.7	51.0	45.8	47.0	42.4
01:00-02:00	61.5	66.7	48.0	45.6	51.6	40.5
02:00-03:00	59.9	64.7	44.7	43.2	43.5	38.7
03:00-04:00	58.6	62.9	43.2	43.8	45.5	38.3
04:00-05:00	61.0	65.5	43.9	47.6	52.4	39.1
05:00-06:00	61.5	66.0	47.7	49.5	52.4	44.6
06:00-07:00	66.7	71.3	51.3	50.6	52.9	46.1
07:00-08:00	67.1	71.0	55.6	50.5	53.3	47.1
08:00-09:00	67.7	71.6	57.0	52.6	55.0	48.0
09:00-10:00	67.2	71.1	56.5	52.5	55.5	48.5
10:00-11:00	67.6	71.1	56.7	53.0	55.0	48.5
11:00-12:00	66.8	71.1	54.7	52.6	54.5	48.4
12:00-13:00	66.6	70.6	55.6	51.4	54.0	46.3
13:00-14:00	68.3	70.9	54.3	49.6	52.4	45.1
14:00-15:00	65.8	69.9	54.9	50.7	52.6	45.2
15:00-16:00	67.4	71.5	56.2	50.2	52.9	46.9
16:00-17:00	67.2	71.5	56.8	51.4	53.8	47.6
17:00-18:00	66.6	70.8	56.5	51.2	53.1	47.2
18:00-19:00	68.3	71.6	57.6	50.5	53.3	47.8
19:00-20:00	67.6	71.3	58.0	51.5	53.3	47.0
20:00-21:00	66.4	70.4	55.9	49.1	52.5	46.2
21:00-22:00	65.2	69.4	55.0	47.5	48.6	45.3
22:00-23:00	65.4	69.7	54.3	49.1	52.4	45.1
23:00-00:00	65.2	69.8	54.0	47.3	48.6	44.8

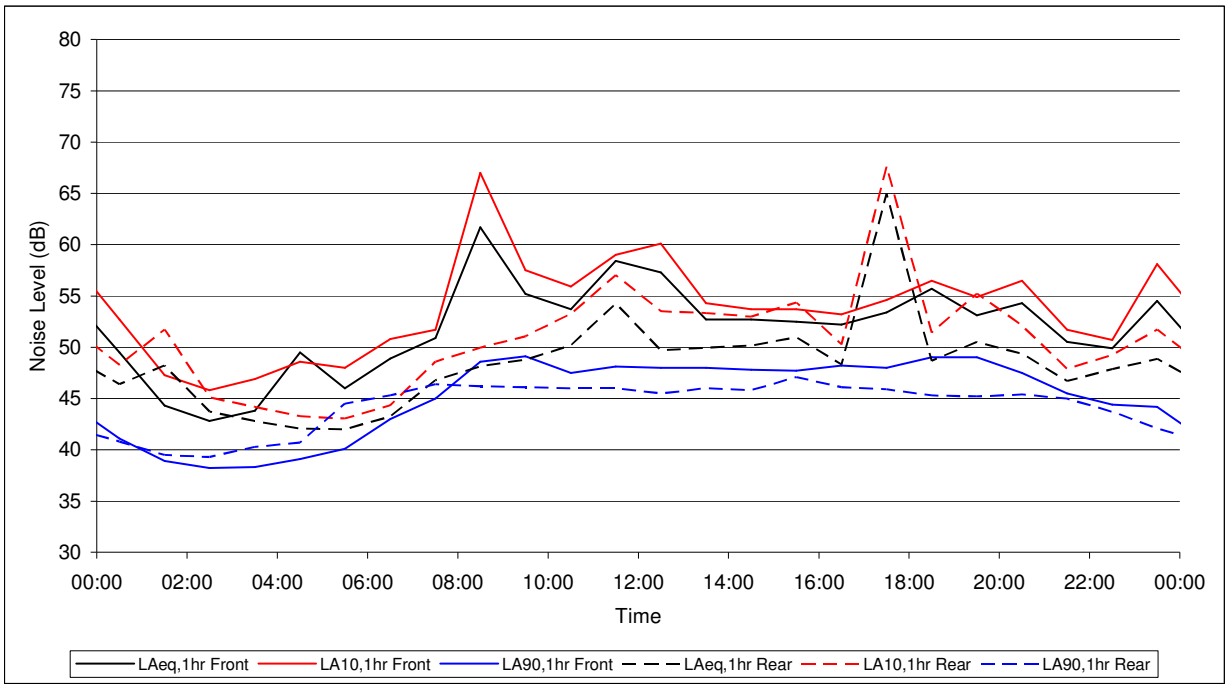
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	67.3
	Evening (19:00-23:00)	66.3
	Night (23:00-07:00)	63.0
L_{den}		70.6

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	51.5
	Evening (19:00-23:00)	49.5
	Night (23:00-07:00)	47.3
L_{den}		54.8

Date of Measurement 28/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft

Site 8 - Wilton Street (Knightsbridge and Belgravia ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	49.5	52.7	41.1	46.4	48.3	40.8
01:00-02:00	44.3	47.3	38.9	48.2	51.7	39.5
02:00-03:00	42.8	45.8	38.2	43.7	45.1	39.3
03:00-04:00	43.8	46.9	38.3	42.8	44.2	40.3
04:00-05:00	49.5	48.6	39.1	42.1	43.3	40.7
05:00-06:00	46.0	48.0	40.1	42.0	43.1	44.5
06:00-07:00	48.9	50.8	43.0	43.3	44.3	45.3
07:00-08:00	50.9	51.7	45.0	46.8	48.6	46.4
08:00-09:00	61.7	67.0	48.6	48.1	50.0	46.2
09:00-10:00	55.2	57.5	49.1	48.8	51.1	46.1
10:00-11:00	53.7	55.9	47.5	50.2	53.2	46.0
11:00-12:00	58.4	59.0	48.1	54.3	57.0	46.0
12:00-13:00	57.3	60.1	48.0	49.7	53.5	45.5
13:00-14:00	52.7	54.3	48.0	50.0	53.3	46.0
14:00-15:00	52.7	53.7	47.8	50.2	53.0	45.8
15:00-16:00	52.5	53.7	47.7	51.0	54.4	47.1
16:00-17:00	52.2	53.2	48.2	48.3	50.3	46.1
17:00-18:00	53.4	54.6	48.0	65.0	67.7	45.9
18:00-19:00	55.7	56.5	49.0	48.7	51.4	45.3
19:00-20:00	53.1	54.9	49.0	50.5	55.2	45.2
20:00-21:00	54.3	56.5	47.5	49.4	52.1	45.4
21:00-22:00	50.5	51.7	45.5	46.7	47.9	45.0
22:00-23:00	49.9	50.7	44.4	47.9	49.3	43.7
23:00-00:00	54.5	58.1	44.2	48.9	51.7	42.1

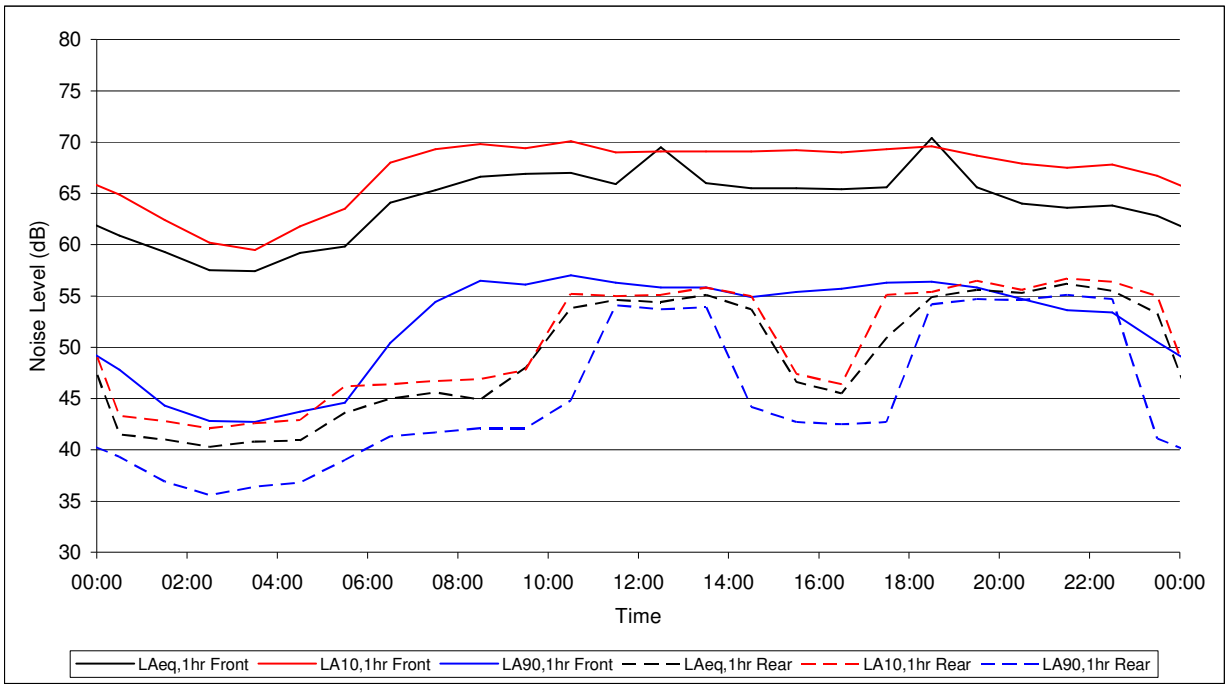
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	55.9
	Evening (19:00-23:00)	52.3
	Night (23:00-07:00)	49.1
L_{den}		57.4

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	55.5
	Evening (19:00-23:00)	48.8
	Night (23:00-07:00)	45.5
L_{den}		55.3

Date of Measurement 02/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- People in the street

Site 9 - Gloucester Terrace (Lancaster Gate ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	60.9	64.9	47.8	41.5	43.3	39.3
01:00-02:00	59.3	62.4	44.3	41.0	42.8	36.9
02:00-03:00	57.5	60.2	42.8	40.3	42.1	35.6
03:00-04:00	57.4	59.5	42.7	40.8	42.6	36.4
04:00-05:00	59.2	61.8	43.7	40.9	42.9	36.8
05:00-06:00	59.8	63.5	44.6	43.6	46.2	39.0
06:00-07:00	64.1	68.0	50.4	45.0	46.4	41.3
07:00-08:00	65.3	69.3	54.4	45.6	46.7	41.7
08:00-09:00	66.6	69.8	56.5	44.9	46.9	42.1
09:00-10:00	66.9	69.4	56.1	48.0	47.8	42.1
10:00-11:00	67.0	70.1	57.0	53.8	55.2	44.8
11:00-12:00	65.9	69.0	56.3	54.6	55.0	54.1
12:00-13:00	69.5	69.1	55.8	54.4	55.1	53.7
13:00-14:00	66.0	69.1	55.8	55.1	55.8	53.9
14:00-15:00	65.5	69.1	54.9	53.7	55.0	44.2
15:00-16:00	65.5	69.2	55.4	46.6	47.4	42.7
16:00-17:00	65.4	69.0	55.7	45.5	46.4	42.5
17:00-18:00	65.6	69.3	56.3	50.9	55.1	42.7
18:00-19:00	70.4	69.6	56.4	54.9	55.4	54.2
19:00-20:00	65.6	68.7	55.8	55.6	56.5	54.7
20:00-21:00	64.0	67.9	54.7	55.3	55.6	54.6
21:00-22:00	63.6	67.5	53.6	56.2	56.7	55.1
22:00-23:00	63.8	67.8	53.4	55.5	56.4	54.7
23:00-00:00	62.8	66.7	50.5	53.3	55.0	41.1

Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	67.0
	Evening (19:00-23:00)	64.3
	Night (23:00-07:00)	60.7
L_{den}		69.0

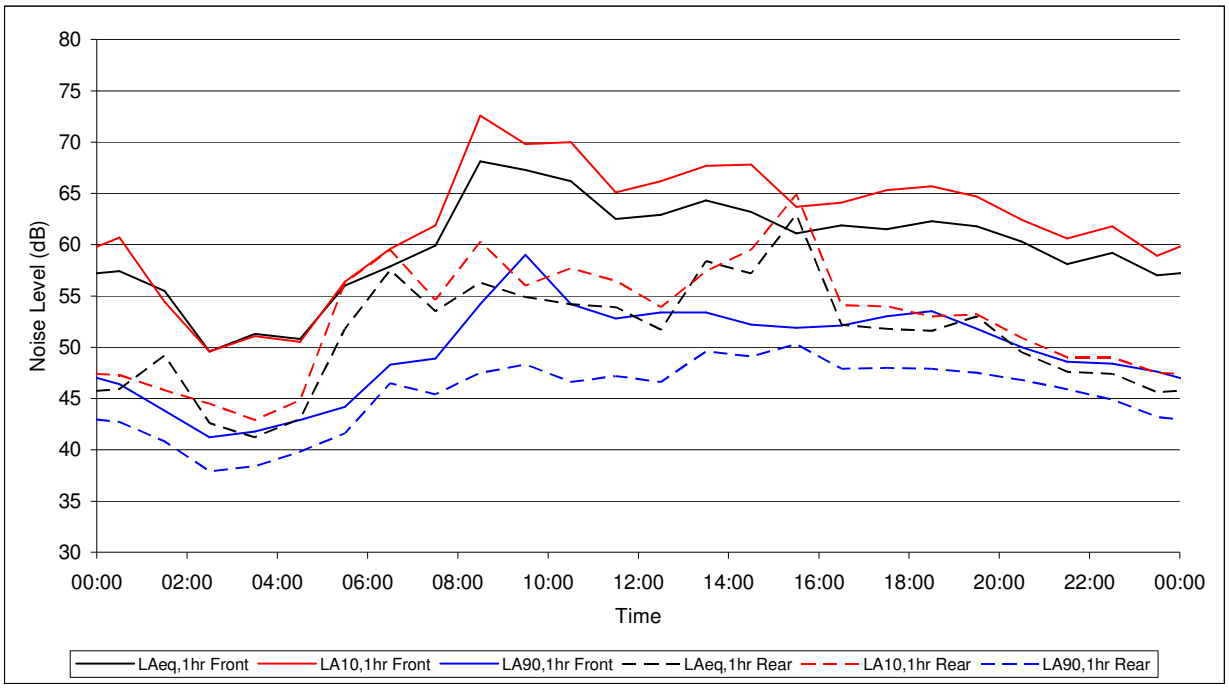
Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	52.2
	Evening (19:00-23:00)	55.7
	Night (23:00-07:00)	46.2
L_{den}		56.2

Date of Measurement 21/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- People in the street
- Mechanical plant (rear)

NOTE: Increases in noise level at rear of property likely to be due to operation of some form of plant/equipment within rear yard.

Site 10 - Randolph Avenue (Little Venice ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	57.4	60.7	46.4	45.9	47.3	42.7
01:00-02:00	55.5	54.4	43.8	49.2	45.8	40.8
02:00-03:00	49.6	49.6	41.2	42.6	44.5	37.9
03:00-04:00	51.3	51.1	41.8	41.2	42.9	38.4
04:00-05:00	50.8	50.5	42.9	43.0	44.8	39.8
05:00-06:00	56.0	56.4	44.2	51.8	56.3	41.6
06:00-07:00	57.9	59.6	48.3	57.5	59.5	46.5
07:00-08:00	59.9	61.9	48.9	53.5	54.6	45.4
08:00-09:00	68.1	72.6	54.2	56.3	60.3	47.5
09:00-10:00	67.3	69.8	59.0	54.9	56.0	48.3
10:00-11:00	66.2	70.0	54.2	54.2	57.7	46.6
11:00-12:00	62.5	65.1	52.8	53.9	56.5	47.2
12:00-13:00	62.9	66.2	53.4	51.7	53.9	46.6
13:00-14:00	64.3	67.7	53.4	58.4	57.4	49.6
14:00-15:00	63.2	67.8	52.2	57.2	59.5	49.1
15:00-16:00	61.1	63.7	51.9	62.9	64.9	50.3
16:00-17:00	61.9	64.1	52.1	52.2	54.1	47.9
17:00-18:00	61.5	65.3	53.0	51.8	54.0	48.0
18:00-19:00	62.3	65.7	53.5	51.6	53.0	47.9
19:00-20:00	61.8	64.7	51.8	53.0	53.2	47.5
20:00-21:00	60.3	62.4	50.0	49.5	50.9	46.8
21:00-22:00	58.1	60.6	48.6	47.6	49.0	45.9
22:00-23:00	59.2	61.8	48.4	47.4	49.0	44.9
23:00-00:00	57.0	58.9	47.6	45.6	47.5	43.2

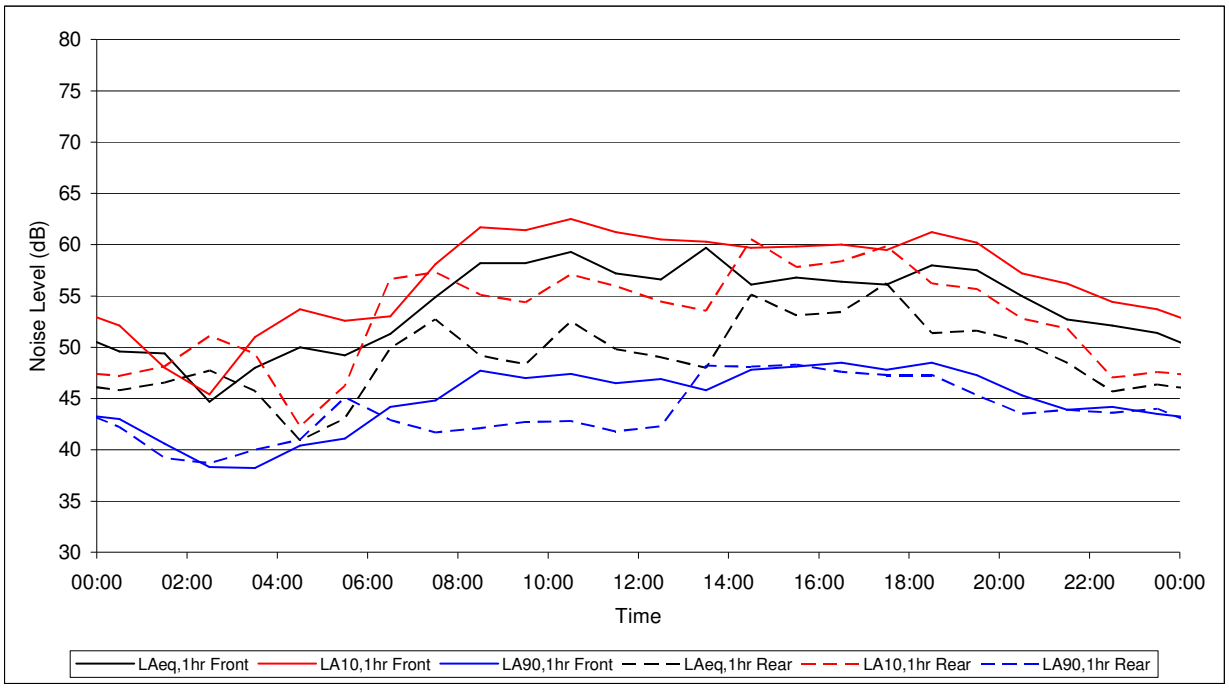
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	64.2
	Evening (19:00-23:00)	60.1
	Night (23:00-07:00)	55.4
L_{den}		64.8

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	56.4
	Evening (19:00-23:00)	50.0
	Night (23:00-07:00)	50.6
L_{den}		58.2

Date of Measurement 01/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Road works
- People in the street

Site 11 - Randolph Avenue (Maida Vale ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	49.6	52.1	43.0	45.8	47.2	42.2
01:00-02:00	49.4	48.0	40.6	46.6	48.1	39.2
02:00-03:00	44.7	45.4	38.3	47.7	51.1	38.7
03:00-04:00	48.0	51.0	38.2	45.7	49.4	40.0
04:00-05:00	50.0	53.7	40.4	40.9	42.3	41.0
05:00-06:00	49.2	52.6	41.1	43.1	46.2	45.1
06:00-07:00	51.3	53.0	44.2	49.9	56.7	42.9
07:00-08:00	54.9	58.1	44.8	52.7	57.3	41.7
08:00-09:00	58.2	61.7	47.7	49.2	55.1	42.1
09:00-10:00	58.2	61.4	47.0	48.3	54.4	42.7
10:00-11:00	59.3	62.5	47.4	52.5	57.1	42.8
11:00-12:00	57.2	61.2	46.5	49.8	56.0	41.8
12:00-13:00	56.6	60.5	46.9	49.0	54.5	42.3
13:00-14:00	59.7	60.3	45.8	48.0	53.6	48.2
14:00-15:00	56.1	59.7	47.8	55.1	60.5	48.1
15:00-16:00	56.8	59.8	48.1	53.1	57.8	48.3
16:00-17:00	56.4	60.0	48.5	53.5	58.4	47.6
17:00-18:00	56.1	59.5	47.8	56.2	59.9	47.3
18:00-19:00	58.0	61.2	48.5	51.4	56.2	47.3
19:00-20:00	57.5	60.2	47.3	51.6	55.7	45.3
20:00-21:00	55.0	57.2	45.3	50.5	52.8	43.5
21:00-22:00	52.7	56.2	43.9	48.5	51.8	43.9
22:00-23:00	52.1	54.4	44.2	45.7	47.1	43.6
23:00-00:00	51.4	53.7	43.5	46.4	47.6	44.0

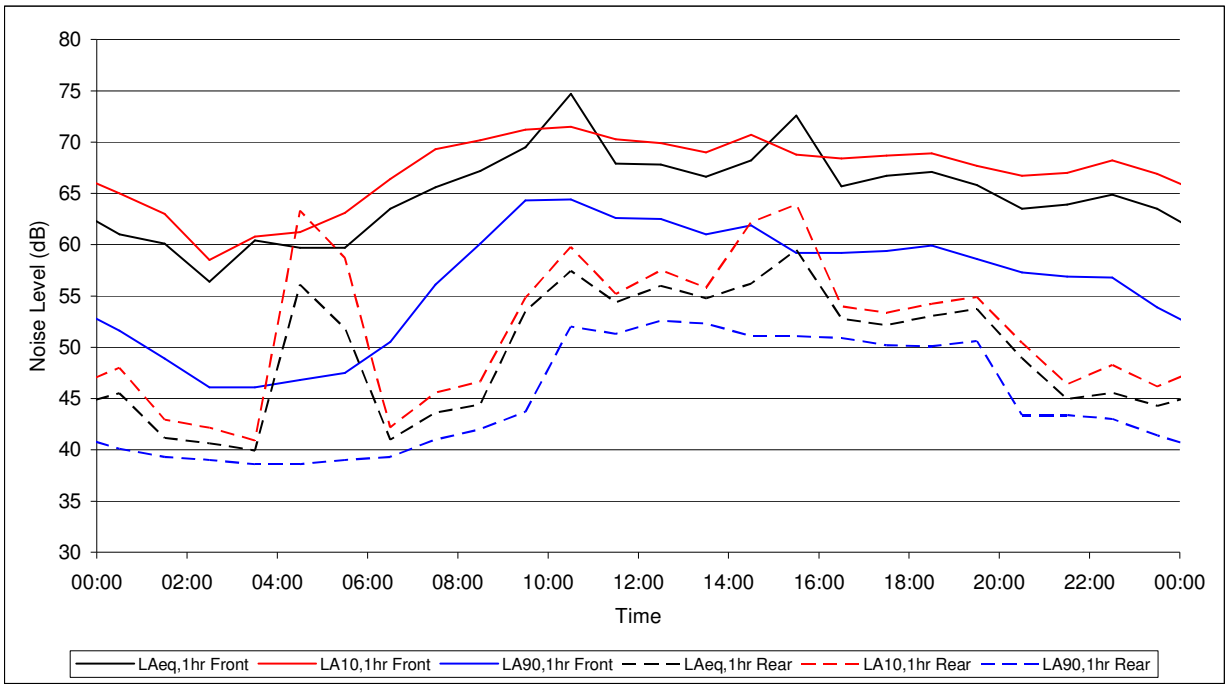
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	57.5
	Evening (19:00-23:00)	54.9
	Night (23:00-07:00)	49.6
L_{den}		58.7

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	52.4
	Evening (19:00-23:00)	49.6
	Night (23:00-07:00)	46.4
L_{den}		54.5

Date of Measurement 01/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Railway
- People in the street

Site 12 - Mandeville Place (Marylebone High Street ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	61.0	65.0	51.6	45.5	48.0	40.1
01:00-02:00	60.1	63.0	48.9	41.2	42.9	39.3
02:00-03:00	56.4	58.5	46.1	40.6	42.2	39.0
03:00-04:00	60.4	60.8	46.1	39.9	40.9	38.6
04:00-05:00	59.7	61.2	46.8	56.1	63.3	38.6
05:00-06:00	59.7	63.1	47.5	51.9	58.7	39.0
06:00-07:00	63.5	66.4	50.5	41.0	42.2	39.3
07:00-08:00	65.6	69.3	56.1	43.6	45.6	41.0
08:00-09:00	67.2	70.2	60.1	44.4	46.7	42.0
09:00-10:00	69.5	71.2	64.3	53.5	54.8	43.7
10:00-11:00	74.7	71.5	64.4	57.4	59.8	52.0
11:00-12:00	67.9	70.3	62.6	54.4	55.2	51.3
12:00-13:00	67.8	69.9	62.5	56.0	57.5	52.6
13:00-14:00	66.6	69.0	61.0	54.8	55.8	52.3
14:00-15:00	68.2	70.7	61.9	56.2	62.2	51.1
15:00-16:00	72.6	68.8	59.2	59.5	63.9	51.1
16:00-17:00	65.7	68.4	59.2	52.8	54.0	50.9
17:00-18:00	66.7	68.7	59.4	52.2	53.4	50.2
18:00-19:00	67.1	68.9	59.9	53.1	54.2	50.1
19:00-20:00	65.8	67.7	58.6	53.7	54.9	50.6
20:00-21:00	63.5	66.7	57.3	48.9	50.4	43.4
21:00-22:00	63.9	67.0	56.9	44.9	46.4	43.4
22:00-23:00	64.9	68.2	56.8	45.6	48.3	43.0
23:00-00:00	63.5	66.9	53.9	44.3	46.1	41.4

Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	69.3
	Evening (19:00-23:00)	64.6
	Night (23:00-07:00)	61.0
L_{den}		70.0

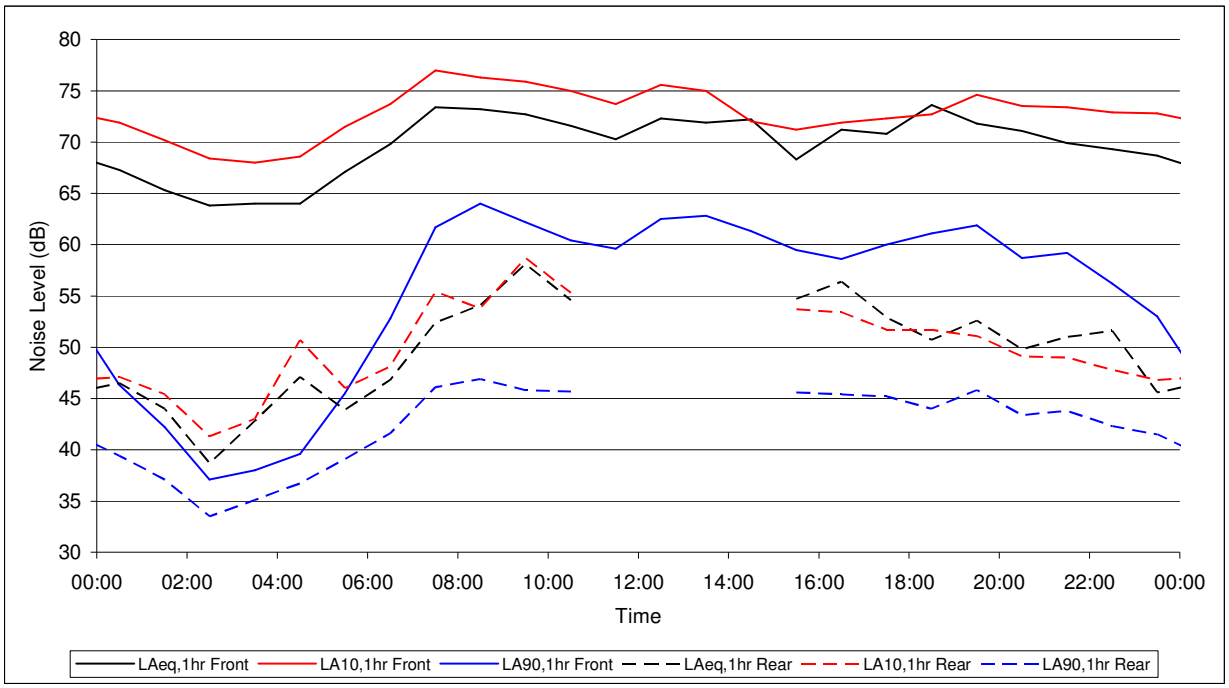
Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	54.8
	Evening (19:00-23:00)	49.8
	Night (23:00-07:00)	49.2
L_{den}		56.8

Date of Measurement 14/05/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Air conditioning units (rear)

NOTE: Increases in noise level at rear of property likely to be due to operation of cooling units located at the rear of this property. Their operation during daytime is less noticeable due to the higher ambient noise levels.

Site 13 - Briar Walk (Queen's Park ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	67.3	71.9	46.3	46.5	47.1	39.4
01:00-02:00	65.3	70.2	42.2	44.0	45.4	37.1
02:00-03:00	63.8	68.4	37.1	38.7	41.3	33.5
03:00-04:00	64.0	68.0	38.0	42.8	43.0	35.1
04:00-05:00	64.0	68.6	39.6	47.1	50.7	36.7
05:00-06:00	67.1	71.5	45.5	43.9	46.0	39.1
06:00-07:00	69.8	73.7	52.8	46.8	48.1	41.6
07:00-08:00	73.4	77.0	61.7	52.4	55.4	46.1
08:00-09:00	73.2	76.3	64.0	54.1	53.8	46.9
09:00-10:00	72.7	75.9	62.2	58.1	58.7	45.8
10:00-11:00	71.6	75.0	60.4	54.6	55.3	45.7
11:00-12:00	70.3	73.7	59.6			
12:00-13:00	72.3	75.6	62.5			
13:00-14:00	71.9	75.0	62.8			
14:00-15:00	72.2	72.0	61.3			
15:00-16:00	68.3	71.2	59.5	54.7	53.7	45.6
16:00-17:00	71.2	71.9	58.6	56.4	53.4	45.4
17:00-18:00	70.8	72.3	60.0	52.9	51.7	45.2
18:00-19:00	73.6	72.7	61.1	50.7	51.7	44.0
19:00-20:00	71.8	74.6	61.9	52.6	51.1	45.8
20:00-21:00	71.1	73.5	58.7	49.8	49.1	43.4
21:00-22:00	69.9	73.4	59.2	51.0	49.0	43.8
22:00-23:00	69.3	72.9	56.2	51.6	47.8	42.3
23:00-00:00	68.7	72.8	53.0	45.6	46.8	41.5

Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	72.0
	Evening (19:00-23:00)	70.6
	Night (23:00-07:00)	66.8
L_{den}		74.8

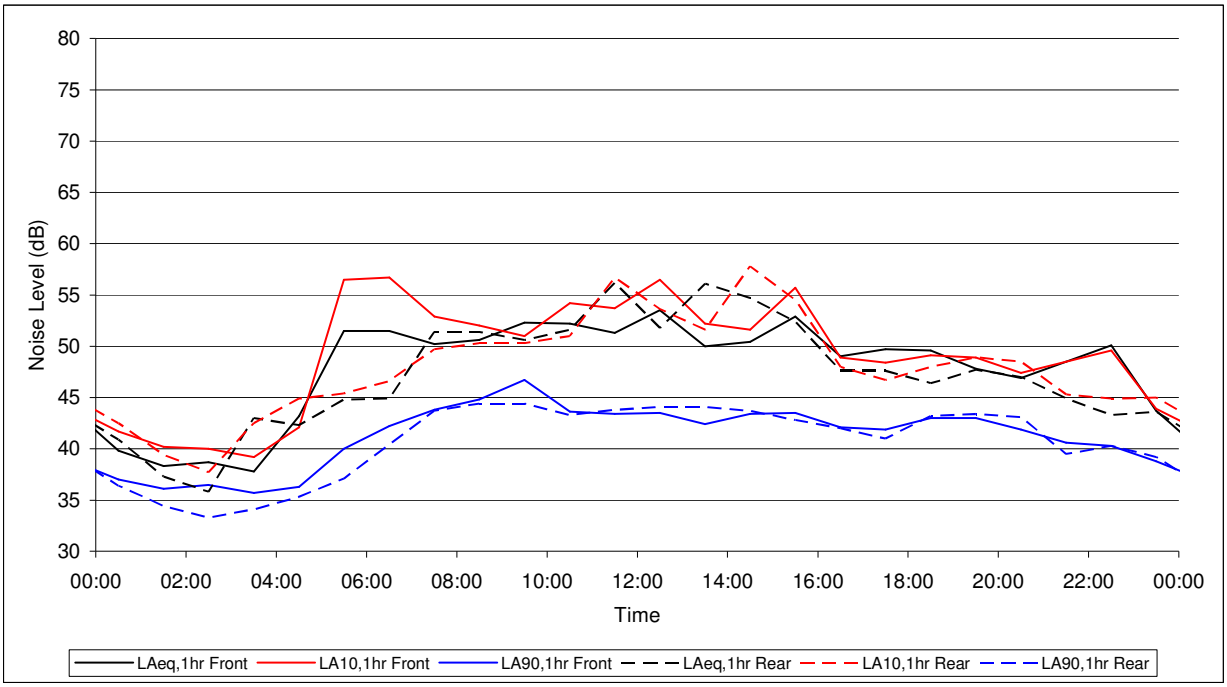
Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	54.8
	Evening (19:00-23:00)	51.4
	Night (23:00-07:00)	45.1
L_{den}		55.2

Date of Measurement 28/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- School children

NOTE: Rear sound level meter switched off by Housing Association / Local Authority staff at approx. 11am.

Site 14 - Northwick Close (Regent's Park ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	39.8	41.7	37.0	40.9	42.5	36.4
01:00-02:00	38.3	40.2	36.1	37.3	39.4	34.4
02:00-03:00	38.7	40.0	36.5	35.8	37.7	33.3
03:00-04:00	37.8	39.2	35.7	43.0	42.5	34.1
04:00-05:00	43.2	42.1	36.3	42.3	44.9	35.3
05:00-06:00	51.5	56.5	40.0	44.8	45.4	37.1
06:00-07:00	51.5	56.7	42.2	44.9	46.6	40.4
07:00-08:00	50.2	52.9	43.8	51.4	49.7	43.7
08:00-09:00	50.6	52.0	44.8	51.4	50.3	44.4
09:00-10:00	52.3	51.0	46.7	50.6	50.3	44.4
10:00-11:00	52.2	54.2	43.6	51.6	51.0	43.3
11:00-12:00	51.3	53.7	43.4	56.2	56.7	43.8
12:00-13:00	53.5	56.5	43.5	51.8	53.6	44.1
13:00-14:00	50.0	52.2	42.4	56.1	51.6	44.1
14:00-15:00	50.4	51.6	43.4	54.7	57.8	43.7
15:00-16:00	52.9	55.7	43.5	52.4	54.5	42.8
16:00-17:00	49.0	48.9	42.1	47.6	48.0	42.0
17:00-18:00	49.7	48.4	41.9	47.6	46.7	41.0
18:00-19:00	49.6	49.1	43.0	46.4	48.0	43.2
19:00-20:00	47.8	48.9	43.0	47.7	48.9	43.4
20:00-21:00	46.9	47.4	41.9	47.0	48.5	43.1
21:00-22:00	48.5	48.5	40.6	44.9	45.3	39.5
22:00-23:00	50.1	49.6	40.3	43.3	44.9	40.3
23:00-00:00	43.7	43.9	38.8	43.6	45.0	39.2

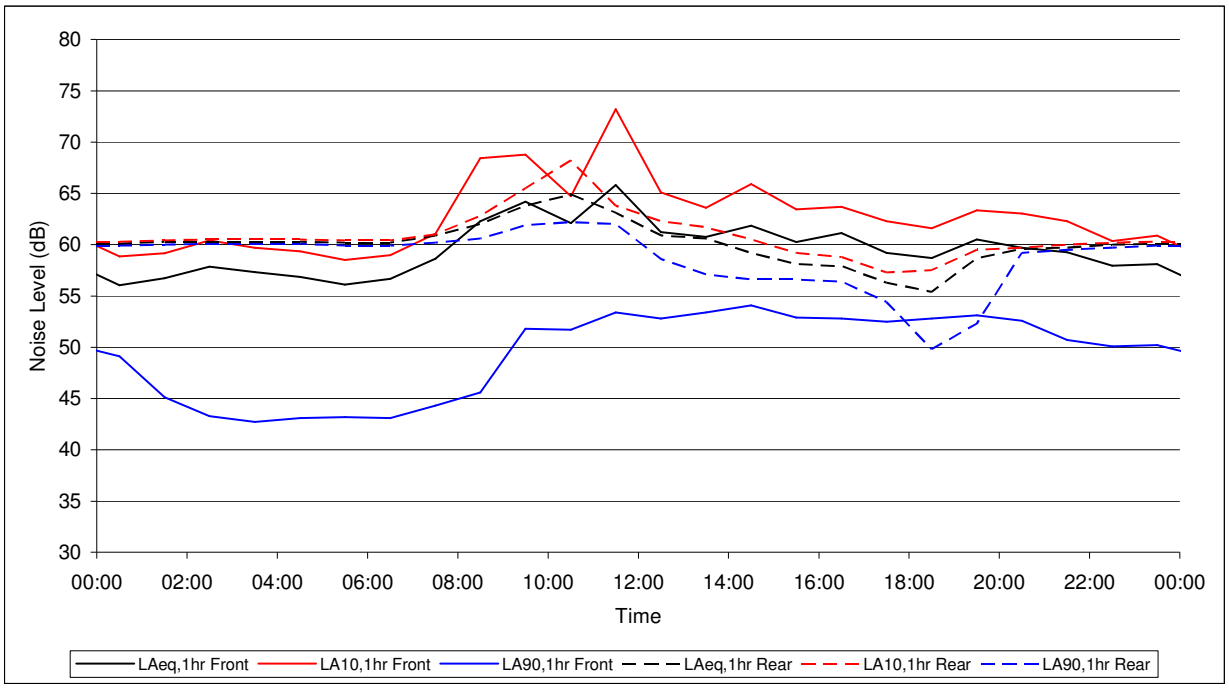
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	51.2
	Evening (19:00-23:00)	48.5
	Night (23:00-07:00)	46.5
L_{den}		54.0

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	52.5
	Evening (19:00-23:00)	46.1
	Night (23:00-07:00)	42.5
L_{den}		52.3

Date of Measurement 22/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Birds

Site 15 - Floral Street (St James's ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	56.1	58.9	49.1	60.1	60.3	59.9
01:00-02:00	56.7	59.2	45.1	60.3	60.4	60.0
02:00-03:00	57.8	60.4	43.3	60.3	60.5	60.1
03:00-04:00	57.3	59.7	42.7	60.3	60.5	60.1
04:00-05:00	56.9	59.4	43.1	60.3	60.5	60.1
05:00-06:00	56.1	58.5	43.2	60.2	60.4	59.9
06:00-07:00	56.7	59.0	43.1	60.2	60.4	59.9
07:00-08:00	58.6	61.1	44.3	60.9	61.0	60.2
08:00-09:00	62.3	68.4	45.6	62.0	62.8	60.6
09:00-10:00	64.2	68.8	51.8	63.8	65.5	61.9
10:00-11:00	62.1	64.7	51.7	64.9	68.2	62.2
11:00-12:00	65.8	73.2	53.4	63.1	63.8	62.0
12:00-13:00	61.2	65.1	52.8	60.9	62.3	58.6
13:00-14:00	60.8	63.6	53.4	60.6	61.7	57.1
14:00-15:00	61.9	65.9	54.1	59.2	60.5	56.6
15:00-16:00	60.3	63.4	52.9	58.1	59.2	56.6
16:00-17:00	61.1	63.7	52.8	57.9	58.8	56.4
17:00-18:00	59.2	62.3	52.5	56.3	57.3	54.4
18:00-19:00	58.7	61.6	52.8	55.4	57.5	49.8
19:00-20:00	60.5	63.4	53.1	58.7	59.5	52.3
20:00-21:00	59.7	63.1	52.6	59.6	59.7	59.2
21:00-22:00	59.3	62.3	50.7	59.7	60.0	59.5
22:00-23:00	58.0	60.3	50.1	60.0	60.2	59.7
23:00-00:00	58.1	60.9	50.2	60.1	60.3	59.9

Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	61.9
	Evening (19:00-23:00)	59.4
	Night (23:00-07:00)	57.0
L_{den}		64.6

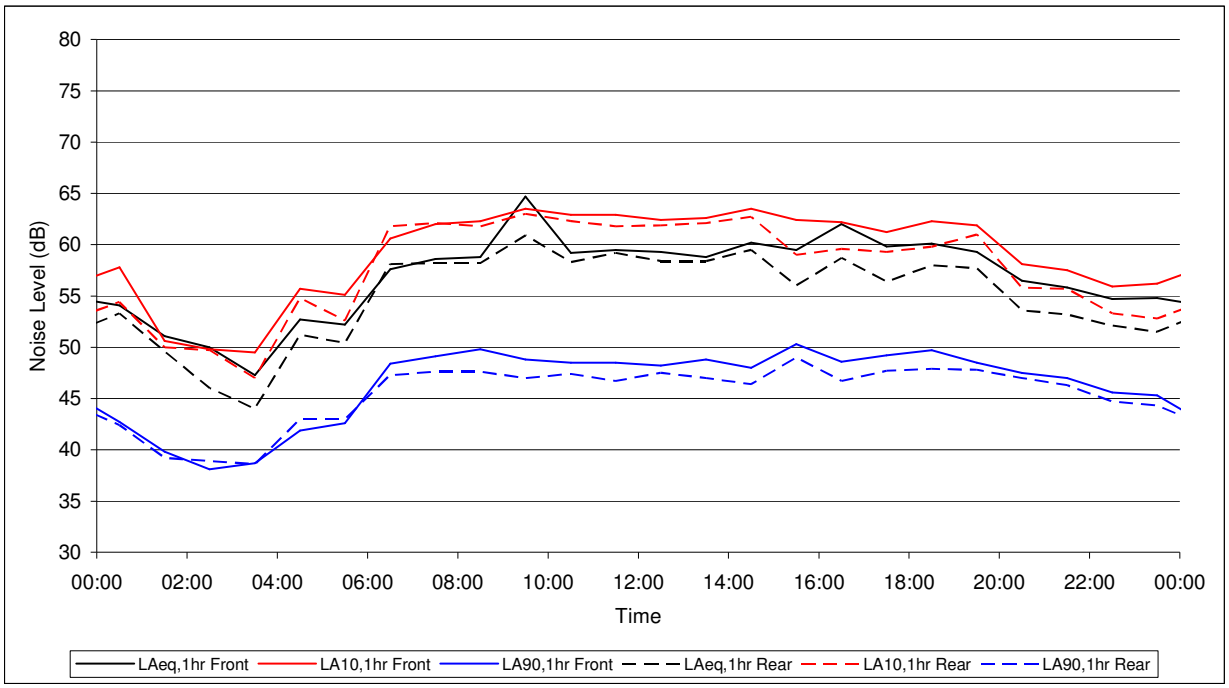
Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	61.1
	Evening (19:00-23:00)	59.5
	Night (23:00-07:00)	60.2
L_{den}		66.7

Date of Measurement 07/05/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- People in the street

NOTE: Rear measurement location was in a courtyard with some commercial premises and mechanical plant. This was considered the closest representative location to the rear of the residential properties in the area, as measurements at the rear of nearby residential properties were not possible.

Site 16 - St George's Square Mews (Tachbrook ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	54.1	57.8	42.7	53.3	54.4	42.4
01:00-02:00	51.1	50.6	39.8	49.6	50.0	39.2
02:00-03:00	50.0	49.8	38.1	46.0	49.7	38.9
03:00-04:00	47.3	49.5	38.7	44.0	47.0	38.6
04:00-05:00	52.7	55.7	41.9	51.2	54.8	43.0
05:00-06:00	52.2	55.1	42.6	50.4	52.6	43.0
06:00-07:00	57.6	60.6	48.4	58.1	61.8	47.3
07:00-08:00	58.6	62.0	49.1	58.2	62.1	47.6
08:00-09:00	58.8	62.3	49.8	58.2	61.8	47.6
09:00-10:00	64.7	63.5	48.8	60.9	63.0	47.0
10:00-11:00	59.2	62.9	48.5	58.3	62.3	47.4
11:00-12:00	59.5	62.9	48.5	59.2	61.8	46.7
12:00-13:00	59.3	62.4	48.2	58.4	61.9	47.5
13:00-14:00	58.8	62.6	48.8	58.4	62.1	47.0
14:00-15:00	60.2	63.5	48.0	59.5	62.7	46.4
15:00-16:00	59.5	62.4	50.3	56.0	59.0	49.0
16:00-17:00	62.0	62.2	48.6	58.7	59.6	46.7
17:00-18:00	59.8	61.2	49.2	56.4	59.3	47.7
18:00-19:00	60.1	62.3	49.7	58.0	59.8	47.9
19:00-20:00	59.3	61.9	48.5	57.7	61.0	47.8
20:00-21:00	56.5	58.1	47.5	53.6	55.8	47.0
21:00-22:00	55.8	57.5	47.0	53.2	55.7	46.3
22:00-23:00	54.7	55.9	45.6	52.1	53.3	44.7
23:00-00:00	54.8	56.2	45.3	51.5	52.8	44.3

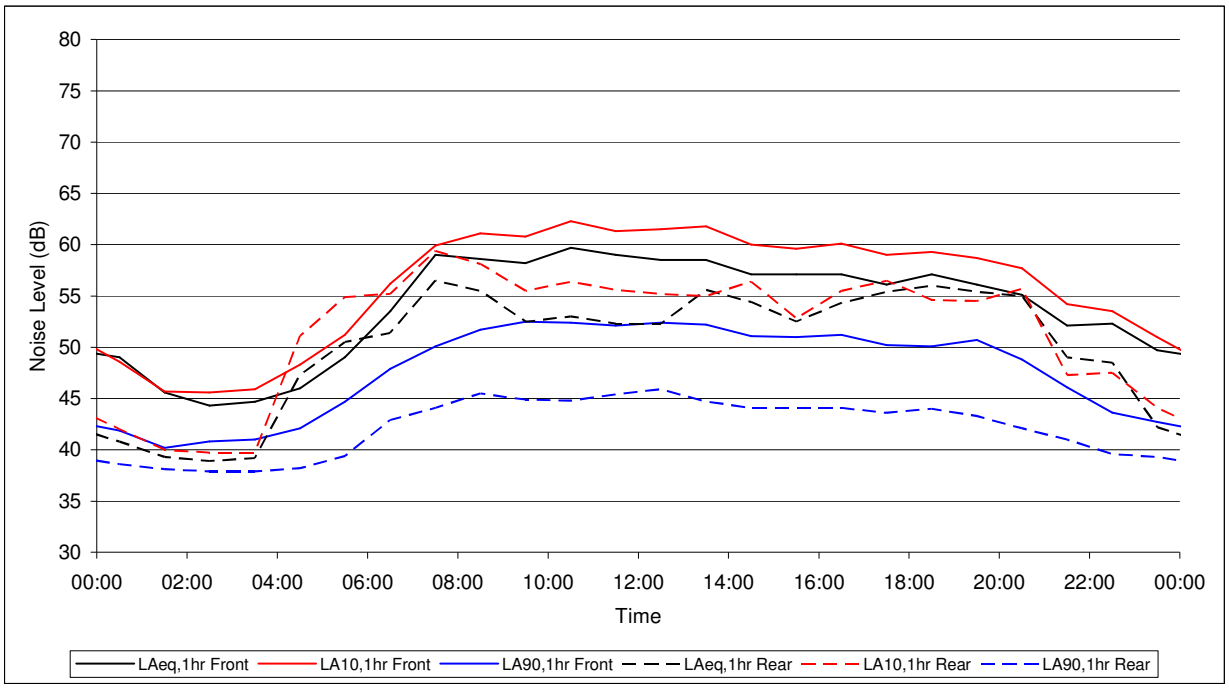
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	60.4
	Evening (19:00-23:00)	56.9
	Night (23:00-07:00)	53.4
L_{den}		61.9

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	58.5
	Evening (19:00-23:00)	54.7
	Night (23:00-07:00)	52.4
L_{den}		60.4

Date of Measurement 30/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Birds

Site 17 - Vincent Square (Vincent Square ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	49.0	48.6	41.9	40.8	42.0	38.6
01:00-02:00	45.6	45.7	40.2	39.3	40.0	38.1
02:00-03:00	44.3	45.6	40.8	38.9	39.7	37.9
03:00-04:00	44.7	45.9	41.0	39.2	39.7	37.9
04:00-05:00	46.0	48.3	42.1	47.3	51.1	38.2
05:00-06:00	49.0	51.2	44.7	50.5	54.9	39.4
06:00-07:00	53.5	56.2	47.9	51.4	55.2	42.9
07:00-08:00	59.0	59.9	50.1	56.5	59.4	44.1
08:00-09:00	58.6	61.1	51.7	55.5	58.1	45.5
09:00-10:00	58.2	60.8	52.5	52.5	55.5	44.9
10:00-11:00	59.7	62.3	52.4	53.0	56.4	44.8
11:00-12:00	59.0	61.3	52.1	52.3	55.6	45.4
12:00-13:00	58.5	61.5	52.4	52.3	55.2	45.9
13:00-14:00	58.5	61.8	52.2	55.6	55.0	44.7
14:00-15:00	57.1	60.0	51.1	54.4	56.4	44.1
15:00-16:00	57.1	59.6	51.0	52.5	52.8	44.1
16:00-17:00	57.1	60.1	51.2	54.3	55.5	44.1
17:00-18:00	56.1	59.0	50.2	55.4	56.5	43.6
18:00-19:00	57.1	59.3	50.1	56.0	54.6	44.0
19:00-20:00	56.1	58.7	50.7	55.4	54.5	43.3
20:00-21:00	55.1	57.7	48.8	55.0	55.7	42.1
21:00-22:00	52.1	54.2	46.1	49.0	47.3	41.0
22:00-23:00	52.3	53.5	43.6	48.5	47.5	39.6
23:00-00:00	49.7	51.0	42.7	42.2	44.1	39.3

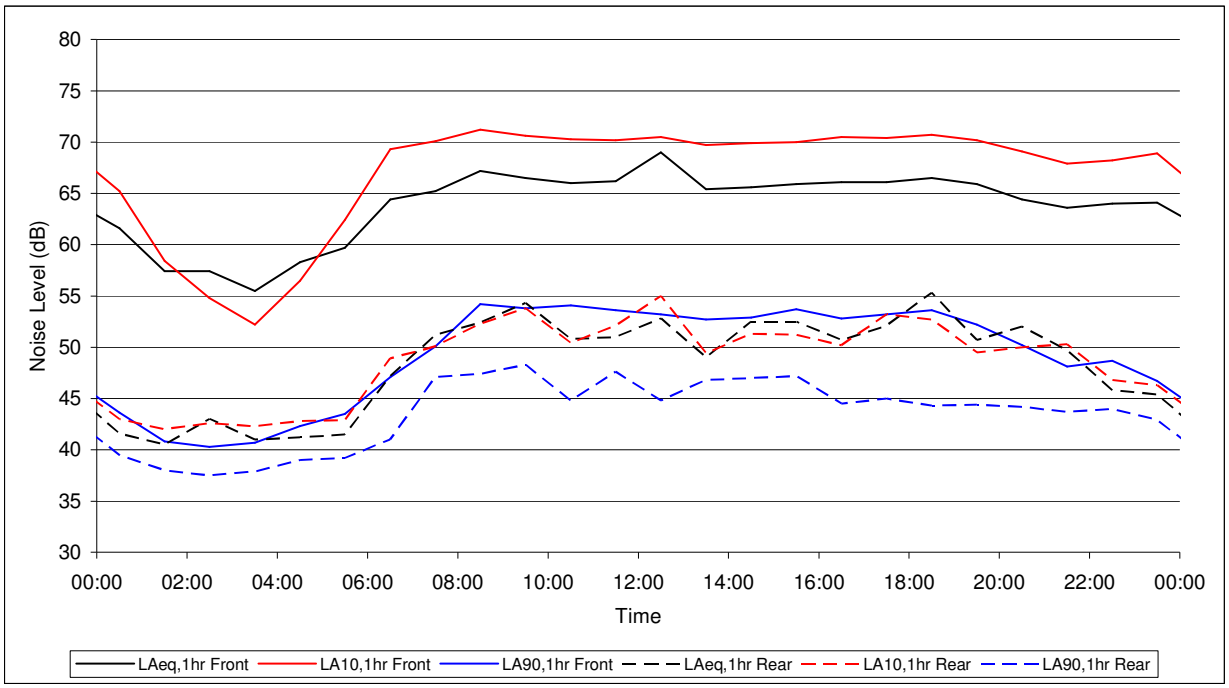
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	58.1
	Evening (19:00-23:00)	54.2
	Night (23:00-07:00)	48.8
L_{den}		58.6

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	54.5
	Evening (19:00-23:00)	53.1
	Night (23:00-07:00)	46.5
L_{den}		56.0

Date of Measurement 03/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- People in the street

Site 18 - St George's Drive (Warwick ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	61.6	65.2	43.6	41.6	43.0	39.5
01:00-02:00	57.4	58.4	40.8	40.5	42.0	38.0
02:00-03:00	57.4	54.8	40.3	43.0	42.6	37.5
03:00-04:00	55.5	52.2	40.7	41.0	42.3	37.9
04:00-05:00	58.3	56.5	42.3	41.2	42.8	39.0
05:00-06:00	59.7	62.4	43.5	41.5	42.9	39.2
06:00-07:00	64.4	69.3	47.1	47.2	48.9	41.0
07:00-08:00	65.2	70.1	50.1	51.2	50.1	47.1
08:00-09:00	67.2	71.2	54.2	52.4	52.3	47.4
09:00-10:00	66.5	70.6	53.8	54.3	53.8	48.3
10:00-11:00	66.0	70.3	54.1	50.8	50.4	44.8
11:00-12:00	66.2	70.2	53.6	51.0	52.1	47.6
12:00-13:00	69.0	70.5	53.2	52.8	55.0	44.8
13:00-14:00	65.4	69.7	52.7	49.0	49.4	46.8
14:00-15:00	65.6	69.9	52.9	52.5	51.3	47.0
15:00-16:00	65.9	70.0	53.7	52.5	51.2	47.2
16:00-17:00	66.1	70.5	52.8	50.7	50.2	44.5
17:00-18:00	66.1	70.4	53.2	52.1	53.2	45.0
18:00-19:00	66.5	70.7	53.6	55.3	52.7	44.3
19:00-20:00	65.9	70.2	52.2	50.7	49.5	44.4
20:00-21:00	64.4	69.1	50.2	52.0	50.0	44.2
21:00-22:00	63.6	67.9	48.1	49.7	50.3	43.7
22:00-23:00	64.0	68.2	48.7	45.8	46.8	44.0
23:00-00:00	64.1	68.9	46.7	45.4	46.3	42.9

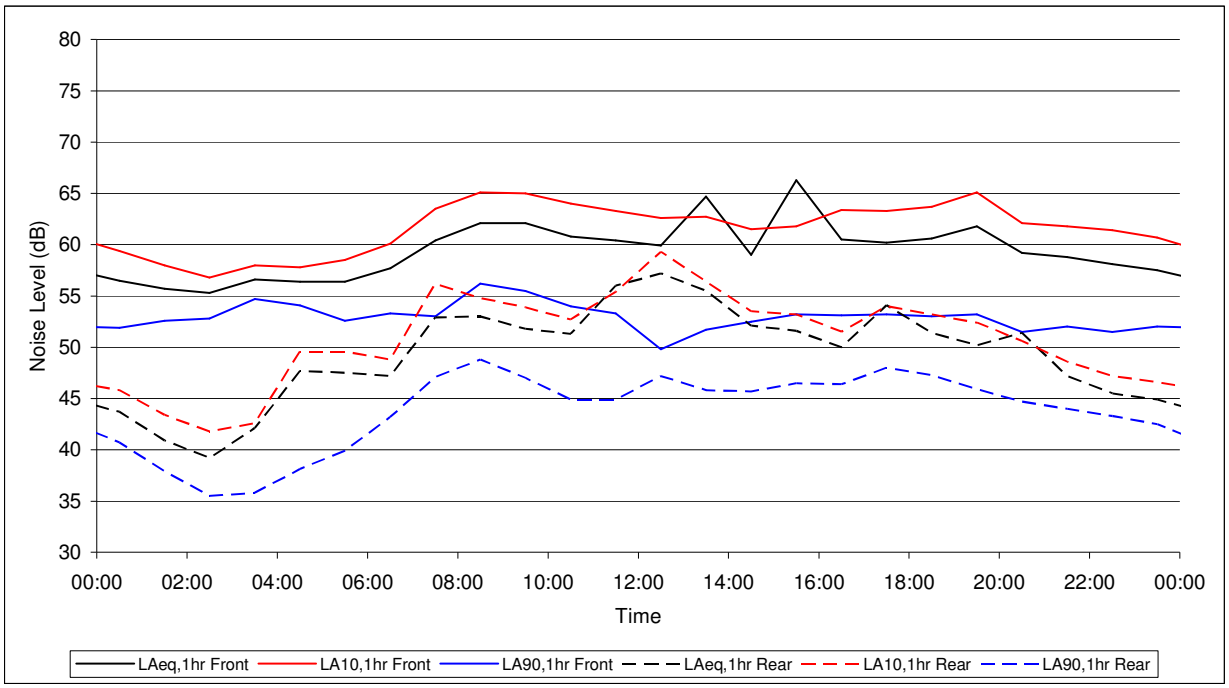
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	66.4
	Evening (19:00-23:00)	64.6
	Night (23:00-07:00)	60.9
L_{den}		68.9

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	52.4
	Evening (19:00-23:00)	50.1
	Night (23:00-07:00)	43.3
L_{den}		53.3

Date of Measurement 07/05/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft

Site 19 - Westbourne Place Road (Westbourne ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	56.5	59.4	51.9	43.7	45.8	40.7
01:00-02:00	55.7	58.0	52.6	40.9	43.4	37.9
02:00-03:00	55.3	56.8	52.8	39.2	41.8	35.5
03:00-04:00	56.6	58.0	54.7	42.1	42.6	35.8
04:00-05:00	56.4	57.8	54.1	47.7	49.6	38.1
05:00-06:00	56.4	58.5	52.6	47.5	49.6	39.9
06:00-07:00	57.7	60.1	53.3	47.2	48.8	43.2
07:00-08:00	60.4	63.5	53.0	52.9	56.2	47.1
08:00-09:00	62.1	65.1	56.2	53.0	54.8	48.8
09:00-10:00	62.1	65.0	55.5	51.8	53.9	47.0
10:00-11:00	60.8	64.0	54.0	51.3	52.7	44.9
11:00-12:00	60.4	63.3	53.3	56.0	55.4	44.9
12:00-13:00	59.9	62.6	49.8	57.2	59.3	47.2
13:00-14:00	64.7	62.7	51.7	55.5	56.4	45.8
14:00-15:00	59.0	61.5	52.5	52.1	53.5	45.7
15:00-16:00	66.3	61.8	53.2	51.6	53.2	46.5
16:00-17:00	60.5	63.4	53.1	50.0	51.5	46.4
17:00-18:00	60.2	63.3	53.2	54.1	54.0	48.0
18:00-19:00	60.6	63.7	53.0	51.4	53.2	47.3
19:00-20:00	61.8	65.1	53.2	50.2	52.4	45.9
20:00-21:00	59.2	62.1	51.5	51.4	50.6	44.7
21:00-22:00	58.8	61.8	52.0	47.2	48.6	44.0
22:00-23:00	58.1	61.4	51.5	45.5	47.2	43.3
23:00-00:00	57.5	60.7	52.0	44.9	46.6	42.5

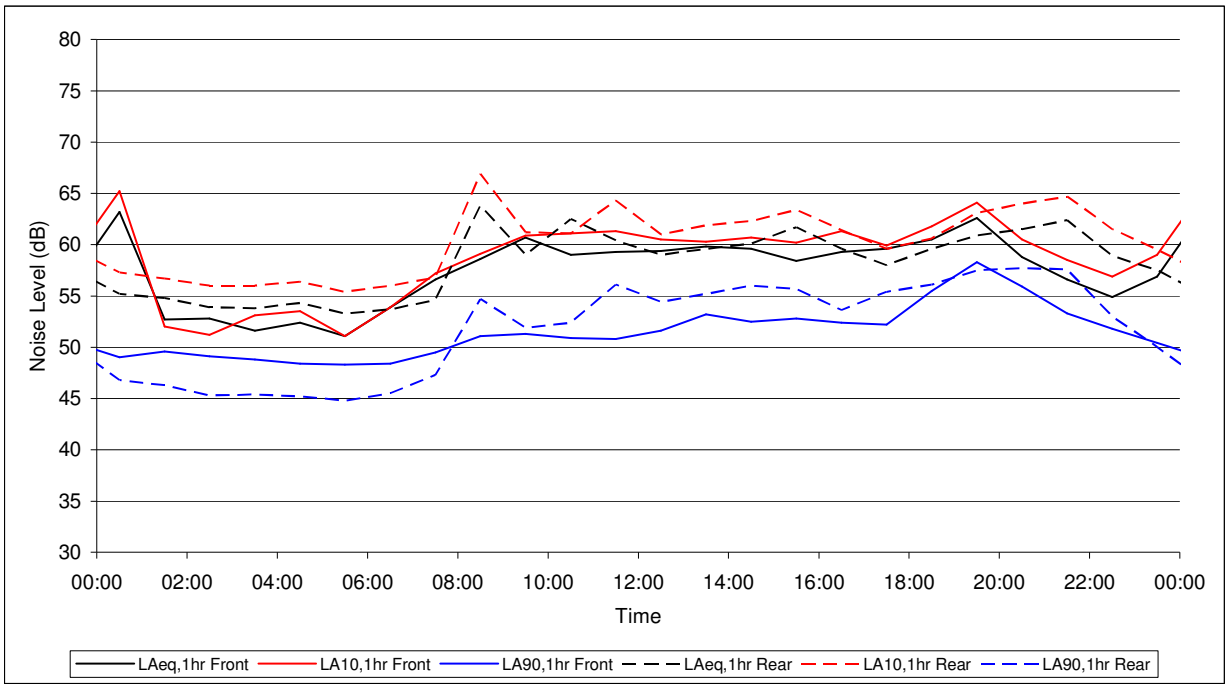
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	62.0
	Evening (19:00-23:00)	59.7
	Night (23:00-07:00)	56.6
L_{den}		64.5

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	53.6
	Evening (19:00-23:00)	49.2
	Night (23:00-07:00)	45.1
L_{den}		54.3

Date of Measurement 28/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Construction (to rear)

Site 20 - Rathborne Road (West End ward)



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	63.2	65.2	49.0	55.2	57.3	46.8
01:00-02:00	52.7	52.0	49.6	54.8	56.7	46.3
02:00-03:00	52.8	51.2	49.1	53.9	56.0	45.3
03:00-04:00	51.6	53.1	48.8	53.8	56.0	45.4
04:00-05:00	52.4	53.5	48.4	54.3	56.4	45.2
05:00-06:00	51.1	51.1	48.3	53.3	55.4	44.8
06:00-07:00	53.9	53.9	48.4	53.7	56.0	45.5
07:00-08:00	56.6	57.2	49.5	54.6	56.8	47.3
08:00-09:00	58.6	59.1	51.1	63.8	66.9	54.7
09:00-10:00	60.7	60.9	51.3	59.0	61.2	51.9
10:00-11:00	59.0	61.1	50.9	62.5	61.1	52.4
11:00-12:00	59.3	61.3	50.8	60.4	64.3	56.1
12:00-13:00	59.4	60.5	51.6	59.0	61.0	54.4
13:00-14:00	59.8	60.3	53.2	59.6	61.9	55.2
14:00-15:00	59.6	60.7	52.5	60.1	62.3	56.0
15:00-16:00	58.4	60.2	52.8	61.7	63.4	55.7
16:00-17:00	59.3	61.3	52.4	59.6	61.4	53.6
17:00-18:00	59.6	59.9	52.2	58.0	59.6	55.4
18:00-19:00	60.5	61.8	55.5	59.6	60.6	56.1
19:00-20:00	62.6	64.1	58.3	60.9	63.1	57.5
20:00-21:00	58.8	60.5	55.9	61.5	64.0	57.7
21:00-22:00	56.6	58.5	53.3	62.4	64.7	57.6
22:00-23:00	54.9	56.9	51.8	58.9	61.5	53.0
23:00-00:00	56.9	59.0	50.4	57.5	59.5	50.0

Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	59.3
	Evening (19:00-23:00)	59.2
	Night (23:00-07:00)	56.6
L_{den}		63.8

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	60.4
	Evening (19:00-23:00)	61.1
	Night (23:00-07:00)	54.8
L_{den}		63.5

Date of Measurement 15/05/2008

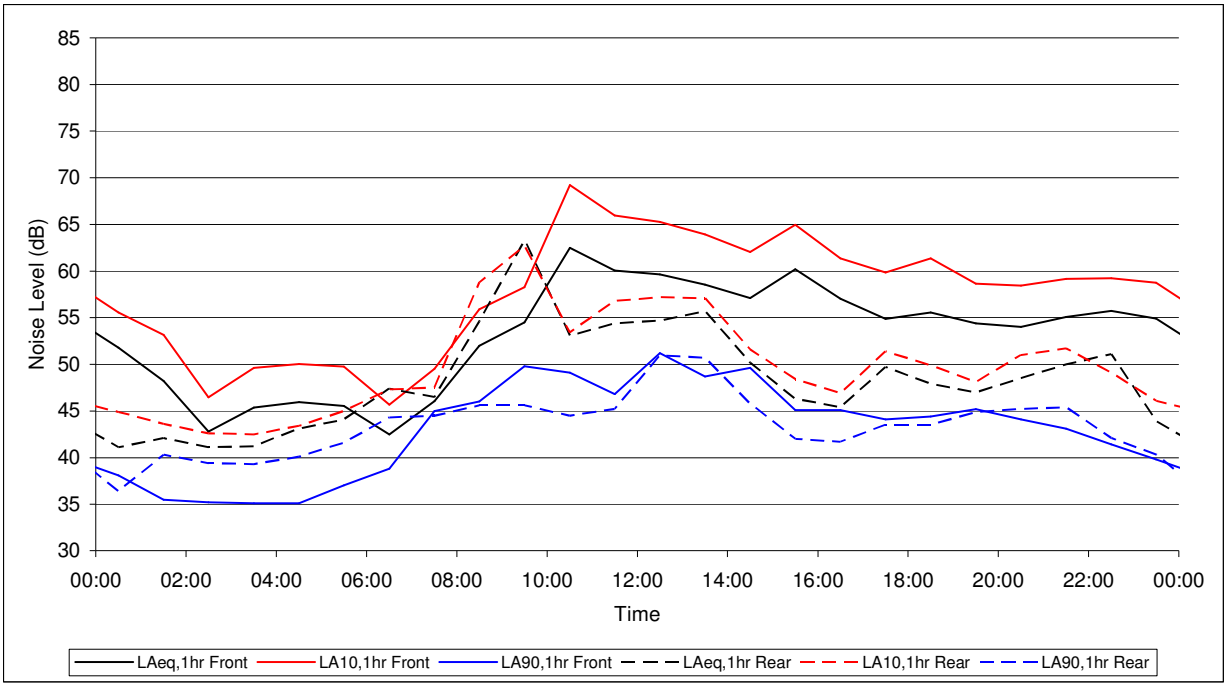
Significant sources of noise heard on site included:
- Road Traffic
- Aircraft

Appendix C SITE-BY-SITE DATA – PHASE 2 SITES

C.1 The following pages contain data sheets from each site within Phase 2 of the survey. Each sheet contains the following data:

- $L_{Aeq,1hr}$, $L_{A10,1hr}$ and $L_{A90,1hr}$ data tabulated over the 24-hour measurement period for both front and rear measurement positions.
- Graphical representation of 24-hour time histories for $L_{Aeq,1hr}$, $L_{A10,1hr}$ and $L_{A90,1hr}$ noise indicators from both measurement positions.
- Day, evening and night average $L_{Aeq,T}$ noise levels, and 24-hour weighted average L_{den} noise level, again at front and rear of property.
- Summary of significant noise sources noted at each site during site visits.
- Any other relevant notes and comments from site visits.

Site C1 - Newton Road



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	51.8	55.6	38.1	41.1	44.9	36.4
01:00-02:00	48.2	53.2	35.5	42.1	43.6	40.3
02:00-03:00	42.8	46.5	35.2	41.1	42.6	39.4
03:00-04:00	45.4	49.6	35.1	41.2	42.5	39.3
04:00-05:00	46.0	50.0	35.1	43.1	43.4	40.1
05:00-06:00	45.5	49.8	37.0	44.1	45.0	41.6
06:00-07:00	42.5	45.7	38.8	47.4	47.3	44.3
07:00-08:00	46.1	49.5	45.0	46.5	47.5	44.5
08:00-09:00	52.0	55.9	46.0	54.6	58.8	45.6
09:00-10:00	54.5	58.3	49.8	63.3	62.7	45.6
10:00-11:00	62.5	69.2	49.1	53.1	53.4	44.5
11:00-12:00	60.1	66.0	46.8	54.4	56.8	45.2
12:00-13:00	59.7	65.3	51.2	54.7	57.2	51.0
13:00-14:00	58.6	63.9	48.7	55.7	57.1	50.7
14:00-15:00	57.1	62.1	49.6	50.2	51.6	45.8
15:00-16:00	60.2	65.0	45.1	46.3	48.4	42.0
16:00-17:00	57.0	61.3	45.1	45.4	46.9	41.7
17:00-18:00	54.9	59.9	44.1	49.7	51.4	43.5
18:00-19:00	55.6	61.4	44.4	47.9	49.9	43.5
19:00-20:00	54.4	58.7	45.2	47.0	48.1	44.9
20:00-21:00	54.0	58.4	44.1	48.5	51.0	45.2
21:00-22:00	55.1	59.2	43.1	50.0	51.7	45.4
22:00-23:00	55.7	59.2	41.4	51.1	49.1	42.1
23:00-00:00	54.9	58.7	39.8	43.9	46.1	40.3

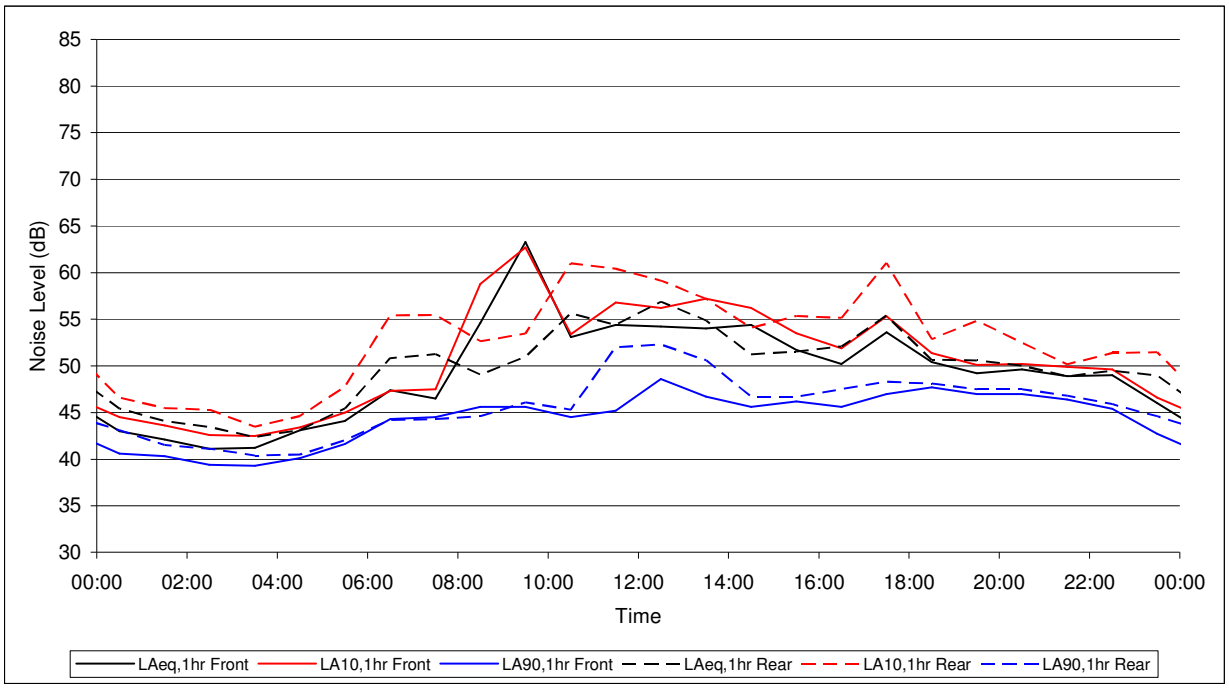
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	58.0
	Evening (19:00-23:00)	54.9
	Night (23:00-07:00)	49.3
L_{den}		58.8

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	55.2
	Evening (19:00-23:00)	49.4
	Night (23:00-07:00)	43.5
L_{den}		54.6

Date of Measurement 22/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft

Site C2 - Leinster Mews



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	43.0	44.5	40.6	45.4	46.6	43.1
01:00-02:00	42.1	43.6	40.3	44.1	45.5	41.5
02:00-03:00	41.1	42.6	39.4	43.4	45.3	41.1
03:00-04:00	41.2	42.5	39.3	42.4	43.5	40.4
04:00-05:00	43.1	43.4	40.1	43.1	44.6	40.5
05:00-06:00	44.1	45.0	41.6	45.4	47.8	42.0
06:00-07:00	47.4	47.3	44.3	50.8	55.4	44.2
07:00-08:00	46.5	47.5	44.5	51.3	55.5	44.3
08:00-09:00	54.6	58.8	45.6	49.0	52.7	44.6
09:00-10:00	63.3	62.7	45.6	51.0	53.5	46.1
10:00-11:00	53.1	53.4	44.5	55.7	61.0	45.3
11:00-12:00	54.4	56.8	45.2	54.4	60.4	52.0
12:00-13:00	54.2	56.2	48.6	56.9	59.1	52.3
13:00-14:00	54.0	57.2	46.7	54.9	57.2	50.6
14:00-15:00	54.4	56.2	45.6	51.2	54.1	46.7
15:00-16:00	51.7	53.5	46.2	51.5	55.4	46.7
16:00-17:00	50.2	51.9	45.6	52.1	55.2	47.5
17:00-18:00	53.6	55.3	47.0	55.4	61.0	48.3
18:00-19:00	50.4	51.4	47.7	50.6	52.8	48.1
19:00-20:00	49.2	50.1	47.0	50.6	54.8	47.5
20:00-21:00	49.6	50.2	47.0	50.0	52.5	47.5
21:00-22:00	48.9	49.9	46.4	48.9	50.2	46.8
22:00-23:00	49.0	49.6	45.4	49.5	51.4	45.9
23:00-00:00	46.0	46.6	42.7	49.0	51.5	44.6

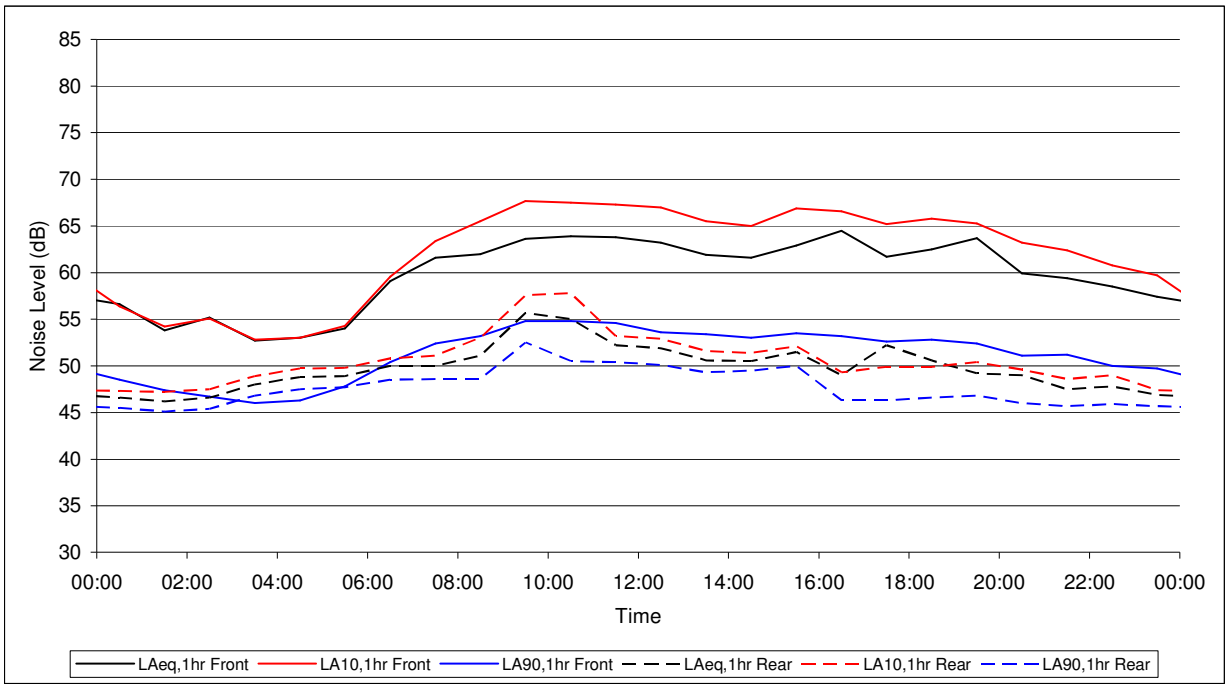
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	55.6
	Evening (19:00-23:00)	49.2
	Night (23:00-07:00)	44.0
L_{den}		54.9

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	53.5
	Evening (19:00-23:00)	49.8
	Night (23:00-07:00)	46.5
L_{den}		54.9

Date of Measurement 21/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- People in the street
- Radio
- Renovation work

Site C3 - Norfolk Crescent



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	56.6	56.4	48.5	46.6	47.3	45.5
01:00-02:00	53.8	54.2	47.4	46.2	47.2	45.1
02:00-03:00	55.2	55.1	46.7	46.6	47.5	45.4
03:00-04:00	52.7	52.8	46.0	48.0	48.9	46.8
04:00-05:00	53.0	53.0	46.3	48.8	49.7	47.5
05:00-06:00	54.0	54.3	47.8	48.9	49.8	47.7
06:00-07:00	59.1	59.6	50.4	50.0	50.8	48.5
07:00-08:00	61.6	63.4	52.4	50.0	51.1	48.6
08:00-09:00	62.0	65.5	53.2	51.1	53.0	48.6
09:00-10:00	63.6	67.7	54.8	55.7	57.6	52.5
10:00-11:00	63.9	67.5	54.8	55.0	57.8	50.5
11:00-12:00	63.8	67.3	54.6	52.2	53.2	50.4
12:00-13:00	63.2	67.0	53.6	51.9	52.9	50.1
13:00-14:00	61.9	65.5	53.4	50.6	51.6	49.3
14:00-15:00	61.6	65.0	53.0	50.5	51.4	49.5
15:00-16:00	62.9	66.9	53.5	51.5	52.1	50.0
16:00-17:00	64.5	66.6	53.2	49.0	49.3	46.3
17:00-18:00	61.7	65.2	52.6	52.2	49.9	46.3
18:00-19:00	62.5	65.8	52.8	50.6	49.9	46.6
19:00-20:00	63.7	65.3	52.4	49.2	50.4	46.8
20:00-21:00	59.9	63.2	51.1	49.0	49.6	46.0
21:00-22:00	59.4	62.4	51.2	47.5	48.6	45.7
22:00-23:00	58.5	60.8	50.0	47.8	49.0	45.9
23:00-00:00	57.4	59.7	49.7	46.9	47.4	45.7

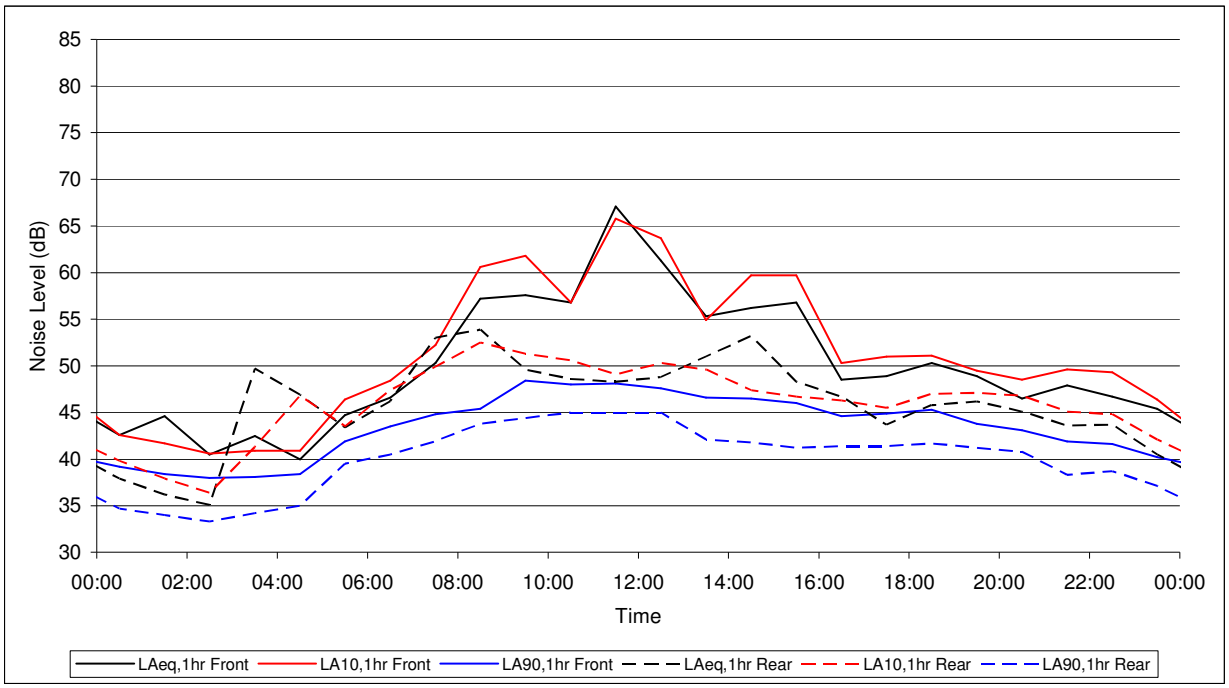
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	62.9
	Evening (19:00-23:00)	60.9
	Night (23:00-07:00)	55.8
L_{den}		64.6

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	52.1
	Evening (19:00-23:00)	48.4
	Night (23:00-07:00)	47.9
L_{den}		55.1

Date of Measurement 22/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- People in the street

Site C4 - Bryanston Mews



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	42.6	42.6	39.2	37.9	39.8	34.7
01:00-02:00	44.6	41.7	38.4	36.2	37.9	34.0
02:00-03:00	40.5	40.6	38.0	35.1	36.4	33.3
03:00-04:00	42.5	40.9	38.1	49.7	41.3	34.2
04:00-05:00	40.0	40.9	38.4	46.9	46.8	35.0
05:00-06:00	44.7	46.4	41.9	43.4	43.5	39.5
06:00-07:00	46.6	48.4	43.5	46.2	47.4	40.5
07:00-08:00	50.3	52.2	44.8	53.0	49.9	41.9
08:00-09:00	57.2	60.6	45.4	53.9	52.5	43.8
09:00-10:00	57.6	61.8	48.4	49.6	51.3	44.4
10:00-11:00	56.8	56.8	48.0	48.6	50.6	45.0
11:00-12:00	67.1	65.8	48.1	48.3	49.1	45.0
12:00-13:00	61.3	63.7	47.6	48.8	50.3	45.0
13:00-14:00	55.3	54.9	46.6	51.0	49.6	42.1
14:00-15:00	56.2	59.7	46.5	53.2	47.4	41.8
15:00-16:00	56.8	59.7	46.0	48.3	46.7	41.2
16:00-17:00	48.5	50.3	44.6	46.7	46.3	41.4
17:00-18:00	48.9	51.0	44.9	43.7	45.5	41.4
18:00-19:00	50.3	51.1	45.3	45.8	47.0	41.7
19:00-20:00	48.9	49.5	43.8	46.2	47.1	41.2
20:00-21:00	46.5	48.5	43.1	45.1	46.8	40.8
21:00-22:00	47.9	49.6	41.9	43.6	45.1	38.3
22:00-23:00	46.7	49.3	41.6	43.7	44.8	38.7
23:00-00:00	45.4	46.4	40.2	40.5	42.1	37.1

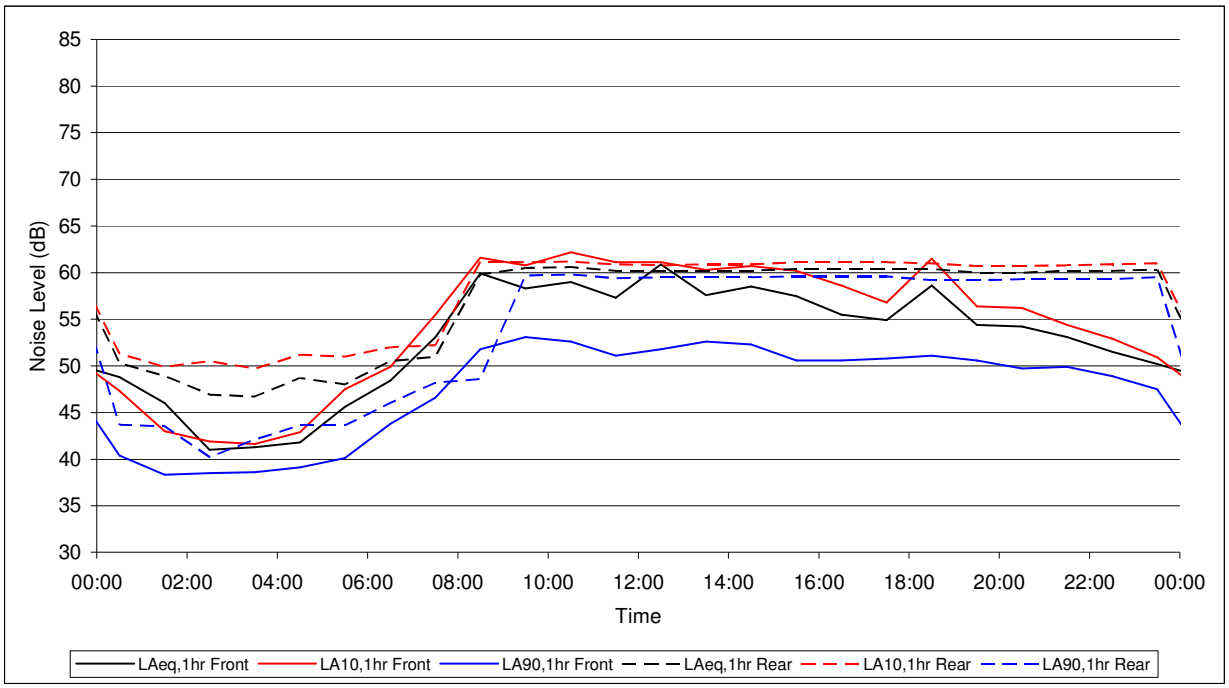
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	59.1
	Evening (19:00-23:00)	47.6
	Night (23:00-07:00)	43.9
L_{den}		57.1

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	50.2
	Evening (19:00-23:00)	44.8
	Night (23:00-07:00)	44.6
L_{den}		52.2

Date of Measurement 22/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Renovation

Site C5 - Garbutt Place



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	48.8	47.3	40.4	50.3	51.3	43.7
01:00-02:00	46.0	43.0	38.3	48.9	49.9	43.5
02:00-03:00	41.0	41.9	38.5	46.9	50.5	40.2
03:00-04:00	41.3	41.6	38.6	46.7	49.7	42.1
04:00-05:00	41.8	42.9	39.1	48.7	51.2	43.6
05:00-06:00	45.6	47.5	40.1	48.0	51.0	43.6
06:00-07:00	48.4	49.9	43.8	50.5	52.0	46.0
07:00-08:00	53.1	55.5	46.6	51.0	52.2	48.2
08:00-09:00	59.9	61.6	51.8	59.8	61.2	48.6
09:00-10:00	58.3	60.8	53.1	60.5	61.1	59.7
10:00-11:00	59.0	62.2	52.6	60.6	61.2	59.8
11:00-12:00	57.3	61.1	51.1	60.2	60.9	59.4
12:00-13:00	60.9	61.1	51.8	60.2	60.8	59.5
13:00-14:00	57.6	60.3	52.6	60.2	60.9	59.5
14:00-15:00	58.5	60.7	52.3	60.2	60.9	59.5
15:00-16:00	57.5	60.2	50.6	60.4	61.1	59.6
16:00-17:00	55.5	58.6	50.6	60.4	61.1	59.6
17:00-18:00	54.9	56.8	50.8	60.4	61.1	59.6
18:00-19:00	58.6	61.5	51.1	60.4	61.0	59.2
19:00-20:00	54.4	56.4	50.6	60.0	60.7	59.2
20:00-21:00	54.2	56.2	49.7	60.0	60.7	59.3
21:00-22:00	53.1	54.4	49.9	60.2	60.8	59.3
22:00-23:00	51.5	52.9	48.9	60.2	60.9	59.3
23:00-00:00	50.2	50.9	47.5	60.3	61.0	59.5

Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	58.0
	Evening (19:00-23:00)	53.4
	Night (23:00-07:00)	46.6
L_{den}		57.7

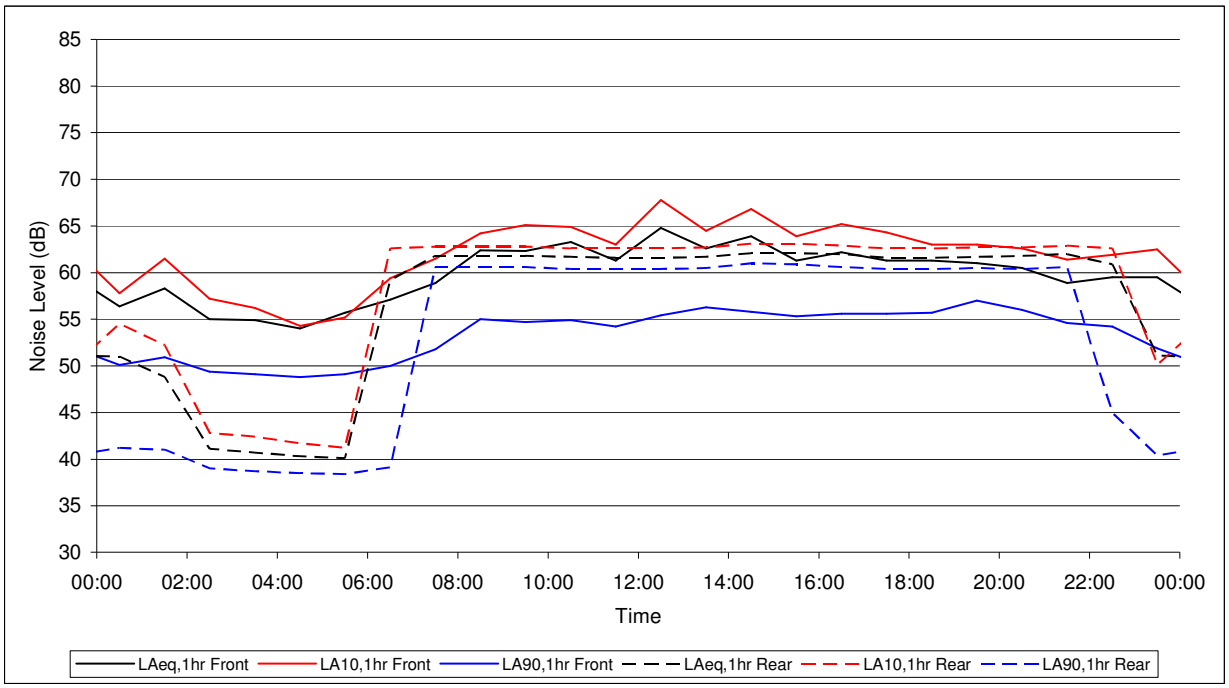
Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	60.0
	Evening (19:00-23:00)	60.1
	Night (23:00-07:00)	53.0
L_{den}		62.3

Date of Measurement 23/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Mechanical plant (rear)
- People in the street

NOTE: Mechanical plant clearly audible at rear of building, resulting in elevated noise levels at the rear during the daytime.

Site C6 - Langham Street



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	56.4	57.8	50.1	51.0	54.5	41.2
01:00-02:00	58.3	61.5	50.9	48.8	52.2	41.0
02:00-03:00	55.0	57.2	49.4	41.1	42.8	39.0
03:00-04:00	54.9	56.2	49.1	40.7	42.4	38.7
04:00-05:00	54.0	54.3	48.8	40.3	41.7	38.5
05:00-06:00	55.7	55.2	49.1	40.1	41.2	38.4
06:00-07:00	57.1	59.4	50.0	59.2	62.6	39.1
07:00-08:00	58.9	61.5	51.8	61.8	62.8	60.6
08:00-09:00	62.4	64.2	55.0	61.8	62.8	60.6
09:00-10:00	62.3	65.1	54.7	61.8	62.8	60.6
10:00-11:00	63.3	64.9	54.9	61.7	62.6	60.4
11:00-12:00	61.3	63.0	54.2	61.6	62.6	60.4
12:00-13:00	64.8	67.8	55.4	61.6	62.6	60.4
13:00-14:00	62.6	64.5	56.3	61.7	62.7	60.5
14:00-15:00	63.9	66.8	55.8	62.1	63.1	61.0
15:00-16:00	61.3	63.9	55.3	62.1	63.1	60.9
16:00-17:00	62.2	65.2	55.6	62.0	62.9	60.6
17:00-18:00	61.3	64.3	55.6	61.6	62.6	60.4
18:00-19:00	61.3	63.0	55.7	61.6	62.6	60.4
19:00-20:00	61.0	63.0	57.0	61.7	62.7	60.5
20:00-21:00	60.5	62.6	56.0	61.8	62.7	60.4
21:00-22:00	58.9	61.4	54.6	62.0	62.9	60.6
22:00-23:00	59.5	61.9	54.2	60.9	62.6	45.0
23:00-00:00	59.5	62.5	51.9	51.1	50.1	40.4

Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	62.4
	Evening (19:00-23:00)	60.1
	Night (23:00-07:00)	56.7
L_{den}		64.7

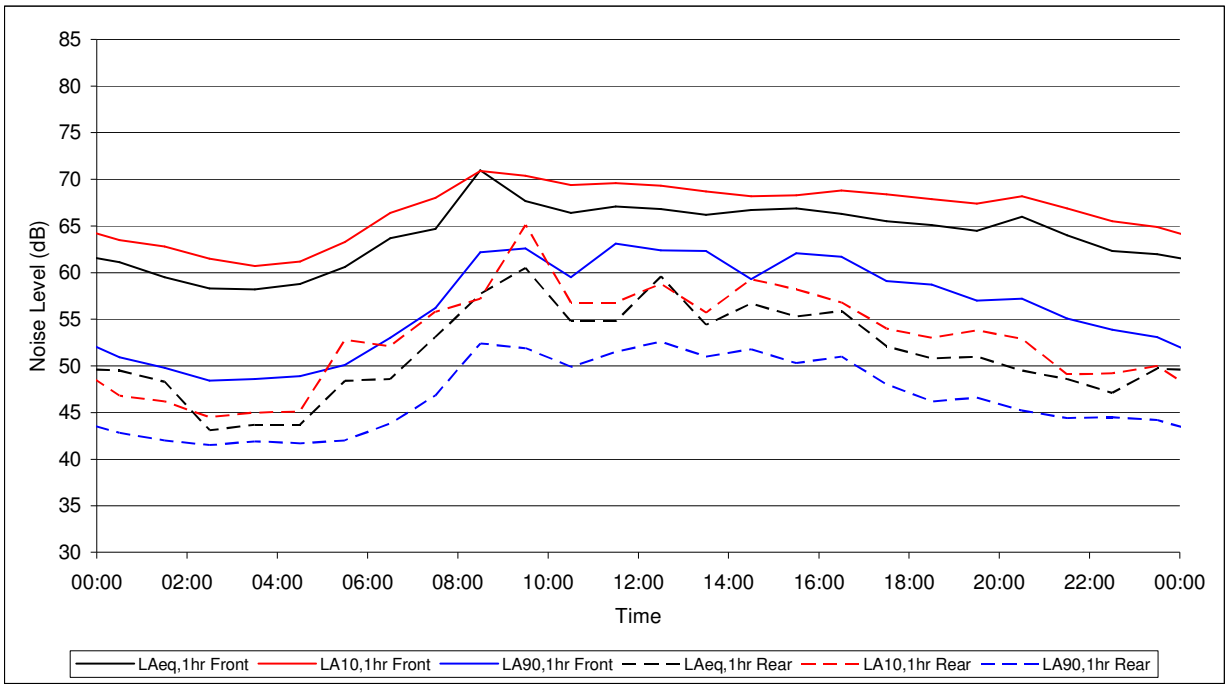
Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	61.8
	Evening (19:00-23:00)	61.6
	Night (23:00-07:00)	51.8
L_{den}		63.1

Date of Measurement 15/05/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Mechanical plant (rear)
- People in the street/ rear yard

NOTE: Mechanical plant clearly audible at rear of building, resulting in elevated noise levels at the rear during the daytime.

Site C7 - Green Street



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	61.1	63.5	50.9	49.5	46.8	42.8
01:00-02:00	59.5	62.8	49.8	48.3	46.2	42.0
02:00-03:00	58.3	61.5	48.4	43.1	44.5	41.5
03:00-04:00	58.2	60.7	48.6	43.7	45.0	41.9
04:00-05:00	58.8	61.2	48.9	43.7	45.1	41.7
05:00-06:00	60.6	63.3	50.1	48.4	52.8	42.0
06:00-07:00	63.7	66.4	53.0	48.6	52.1	43.8
07:00-08:00	64.7	68.0	56.2	53.1	55.8	46.8
08:00-09:00	71.0	70.9	62.2	57.7	57.2	52.4
09:00-10:00	67.7	70.4	62.6	60.5	65.1	51.9
10:00-11:00	66.4	69.4	59.5	54.8	56.8	49.9
11:00-12:00	67.1	69.6	63.1	54.8	56.8	51.5
12:00-13:00	66.8	69.3	62.4	59.6	58.8	52.6
13:00-14:00	66.2	68.7	62.3	54.4	55.7	51.0
14:00-15:00	66.7	68.2	59.3	56.7	59.3	51.8
15:00-16:00	66.9	68.3	62.1	55.3	58.2	50.3
16:00-17:00	66.3	68.8	61.7	55.9	56.8	51.0
17:00-18:00	65.5	68.4	59.1	52.1	54.0	48.0
18:00-19:00	65.1	67.9	58.7	50.8	53.0	46.2
19:00-20:00	64.5	67.4	57.0	51.0	53.8	46.6
20:00-21:00	66.0	68.2	57.2	49.5	52.9	45.2
21:00-22:00	64.0	66.9	55.1	48.6	49.1	44.4
22:00-23:00	62.3	65.5	53.9	47.1	49.2	44.5
23:00-00:00	62.0	64.9	53.1	49.7	50.0	44.2

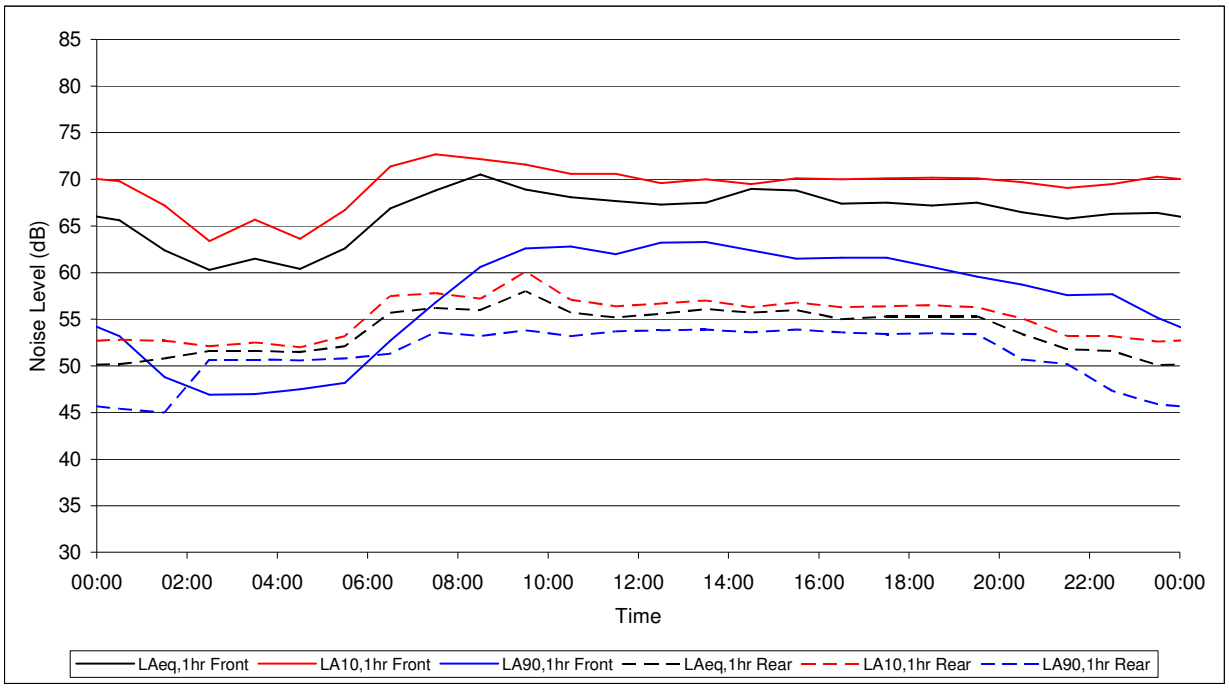
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	67.0
	Evening (19:00-23:00)	64.4
	Night (23:00-07:00)	60.7
L_{den}		69.0

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	56.4
	Evening (19:00-23:00)	49.3
	Night (23:00-07:00)	47.6
L_{den}		56.6

Date of Measurement 12/05/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Construction

Site C8 - Brook Street



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	65.6	69.8	53.2	50.2	52.8	45.4
01:00-02:00	62.4	67.2	48.8	50.8	52.7	45.0
02:00-03:00	60.3	63.4	46.9	51.6	52.1	50.7
03:00-04:00	61.5	65.7	47.0	51.6	52.5	50.7
04:00-05:00	60.4	63.6	47.5	51.5	52.0	50.6
05:00-06:00	62.6	66.7	48.2	52.1	53.2	50.8
06:00-07:00	66.9	71.4	52.7	55.7	57.5	51.3
07:00-08:00	68.8	72.7	56.8	56.2	57.8	53.6
08:00-09:00	70.5	72.2	60.6	56.0	57.2	53.2
09:00-10:00	68.9	71.6	62.6	58.0	60.1	53.8
10:00-11:00	68.1	70.6	62.8	55.7	57.1	53.2
11:00-12:00	67.7	70.6	62.0	55.2	56.4	53.7
12:00-13:00	67.3	69.6	63.2	55.6	56.7	53.8
13:00-14:00	67.5	70.0	63.3	56.1	57.0	53.9
14:00-15:00	69.0	69.5	62.4	55.7	56.3	53.6
15:00-16:00	68.8	70.1	61.5	56.0	56.8	53.9
16:00-17:00	67.4	70.0	61.6	55.0	56.3	53.6
17:00-18:00	67.5	70.1	61.6	55.3	56.4	53.4
18:00-19:00	67.2	70.2	60.6	55.3	56.5	53.5
19:00-20:00	67.5	70.1	59.6	55.3	56.3	53.4
20:00-21:00	66.5	69.7	58.7	53.4	55.1	50.7
21:00-22:00	65.8	69.1	57.6	51.8	53.2	50.2
22:00-23:00	66.3	69.5	57.7	51.6	53.2	47.3
23:00-00:00	66.4	70.3	55.2	50.1	52.6	45.9

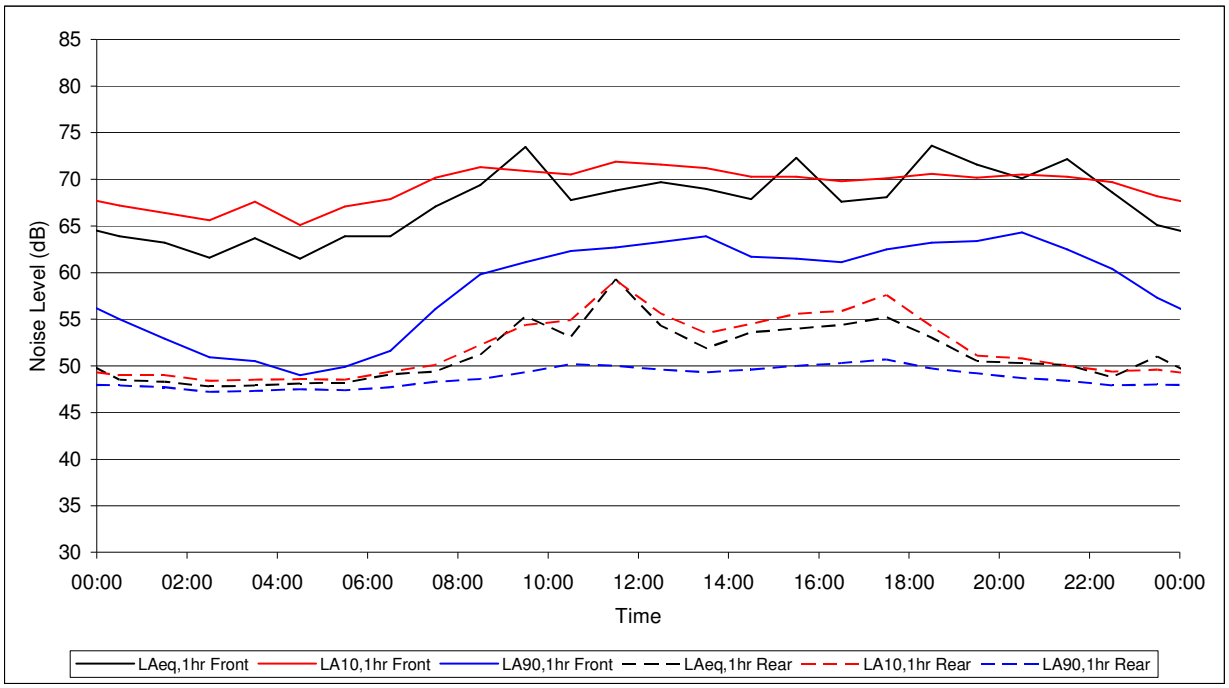
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	68.3
	Evening (19:00-23:00)	66.6
	Night (23:00-07:00)	64.0
L_{den}		71.5

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	55.9
	Evening (19:00-23:00)	53.3
	Night (23:00-07:00)	52.1
L_{den}		59.3

Date of Measurement 13/05/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- People in the street

Site C9 - Wardour Street



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	63.9	67.2	55.0	48.5	49.0	47.9
01:00-02:00	63.2	66.4	52.9	48.3	49.0	47.7
02:00-03:00	61.6	65.6	50.9	47.8	48.4	47.2
03:00-04:00	63.7	67.6	50.5	47.9	48.5	47.3
04:00-05:00	61.5	65.1	49.0	48.1	48.6	47.5
05:00-06:00	63.9	67.1	49.9	48.2	48.5	47.4
06:00-07:00	63.9	67.9	51.6	49.1	49.4	47.7
07:00-08:00	67.1	70.2	56.1	49.4	50.1	48.3
08:00-09:00	69.4	71.3	59.8	51.2	52.2	48.6
09:00-10:00	73.5	70.9	61.1	55.3	54.4	49.3
10:00-11:00	67.8	70.5	62.3	53.1	54.9	50.2
11:00-12:00	68.8	71.9	62.7	59.3	59.2	50.0
12:00-13:00	69.7	71.6	63.3	54.3	55.6	49.6
13:00-14:00	69.0	71.2	63.9	51.9	53.5	49.3
14:00-15:00	67.9	70.3	61.7	53.6	54.5	49.6
15:00-16:00	72.3	70.3	61.5	54.0	55.6	50.0
16:00-17:00	67.6	69.8	61.1	54.4	55.9	50.3
17:00-18:00	68.1	70.1	62.5	55.2	57.6	50.7
18:00-19:00	73.6	70.6	63.2	53.0	54.2	49.7
19:00-20:00	71.6	70.2	63.4	50.5	51.1	49.2
20:00-21:00	70.1	70.5	64.3	50.3	50.8	48.7
21:00-22:00	72.2	70.3	62.5	50.1	50.0	48.4
22:00-23:00	68.6	69.7	60.4	48.8	49.4	47.9
23:00-00:00	65.1	68.2	57.3	51.0	49.6	48.0

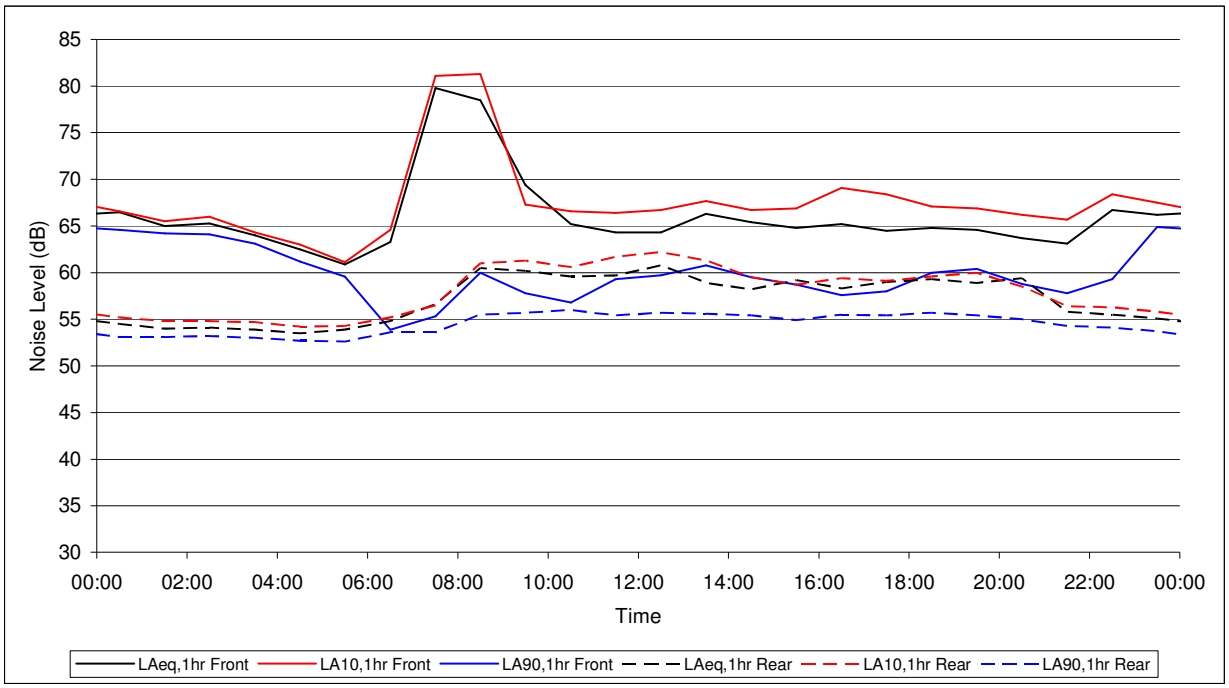
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	70.2
	Evening (19:00-23:00)	70.8
	Night (23:00-07:00)	63.5
L_{den}		72.8

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	54.4
	Evening (19:00-23:00)	50.0
	Night (23:00-07:00)	48.7
L_{den}		56.4

Date of Measurement 13/05/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- People in the street

Site C10 - New Row



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	66.5	66.6	64.6	54.5	55.2	53.1
01:00-02:00	65.0	65.5	64.2	54.0	54.8	53.1
02:00-03:00	65.3	66.0	64.1	54.1	54.8	53.2
03:00-04:00	64.0	64.3	63.1	53.9	54.7	53.0
04:00-05:00	62.5	63.0	61.2	53.5	54.2	52.7
05:00-06:00	60.9	61.1	59.6	53.9	54.3	52.6
06:00-07:00	63.3	64.6	53.9	54.8	55.2	53.6
07:00-08:00	79.8	81.1	55.3	56.6	56.5	53.6
08:00-09:00	78.5	81.3	60.0	60.5	61.0	55.5
09:00-10:00	69.4	67.3	57.8	60.2	61.3	55.7
10:00-11:00	65.2	66.6	56.8	59.6	60.6	56.0
11:00-12:00	64.3	66.4	59.3	59.7	61.7	55.4
12:00-13:00	64.3	66.7	59.7	60.8	62.2	55.7
13:00-14:00	66.3	67.7	60.8	58.9	61.3	55.6
14:00-15:00	65.4	66.7	59.5	58.2	59.5	55.4
15:00-16:00	64.8	66.9	58.7	59.2	58.7	54.9
16:00-17:00	65.2	69.1	57.6	58.3	59.4	55.5
17:00-18:00	64.5	68.4	58.0	59.0	59.1	55.4
18:00-19:00	64.8	67.1	60.0	59.3	59.6	55.7
19:00-20:00	64.6	66.9	60.4	58.9	60.0	55.4
20:00-21:00	63.7	66.2	58.8	59.4	58.5	55.0
21:00-22:00	63.1	65.7	57.8	55.8	56.4	54.3
22:00-23:00	66.7	68.4	59.3	55.5	56.3	54.1
23:00-00:00	66.2	67.5	64.9	55.1	55.8	53.7

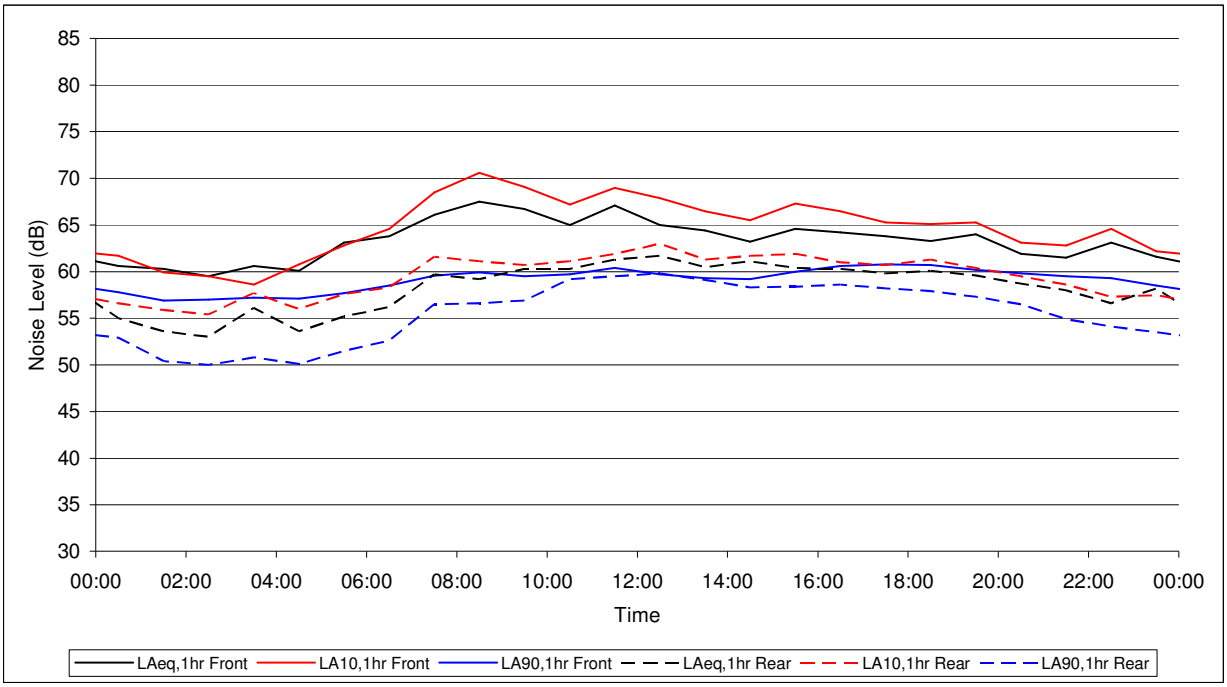
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	72.3
	Evening (19:00-23:00)	64.8
	Night (23:00-07:00)	64.6
L_{den}		72.9

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	59.3
	Evening (19:00-23:00)	57.7
	Night (23:00-07:00)	54.3
L_{den}		62.1

Date of Measurement 03/05/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- People in the street

Site C11 - John Adam Street



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	60.6	61.7	57.8	55.0	56.6	52.9
01:00-02:00	60.3	59.9	56.9	53.6	55.9	50.4
02:00-03:00	59.5	59.5	57.0	53.0	55.4	50.0
03:00-04:00	60.6	58.6	57.2	56.1	57.7	50.8
04:00-05:00	60.1	60.8	57.1	53.6	56.0	50.1
05:00-06:00	63.1	62.8	57.7	55.2	57.6	51.5
06:00-07:00	63.8	64.6	58.5	56.2	58.3	52.6
07:00-08:00	66.1	68.5	59.6	59.7	61.6	56.5
08:00-09:00	67.5	70.6	59.9	59.2	61.1	56.6
09:00-10:00	66.7	69.1	59.5	60.3	60.7	56.9
10:00-11:00	65.0	67.2	59.7	60.3	61.1	59.2
11:00-12:00	67.1	69.0	60.4	61.3	61.9	59.5
12:00-13:00	65.0	67.9	59.7	61.7	63.0	59.8
13:00-14:00	64.4	66.5	59.3	60.5	61.3	59.1
14:00-15:00	63.2	65.5	59.2	61.1	61.7	58.3
15:00-16:00	64.6	67.3	60.0	60.4	61.9	58.4
16:00-17:00	64.2	66.5	60.6	60.3	61.0	58.6
17:00-18:00	63.8	65.3	60.8	59.8	60.7	58.2
18:00-19:00	63.3	65.1	60.7	60.1	61.3	57.9
19:00-20:00	64.0	65.3	60.2	59.6	60.4	57.3
20:00-21:00	61.9	63.1	59.8	58.7	59.5	56.5
21:00-22:00	61.5	62.8	59.5	58.0	58.6	54.9
22:00-23:00	63.1	64.6	59.3	56.6	57.3	54.1
23:00-00:00	61.6	62.2	58.5	58.2	57.5	53.5

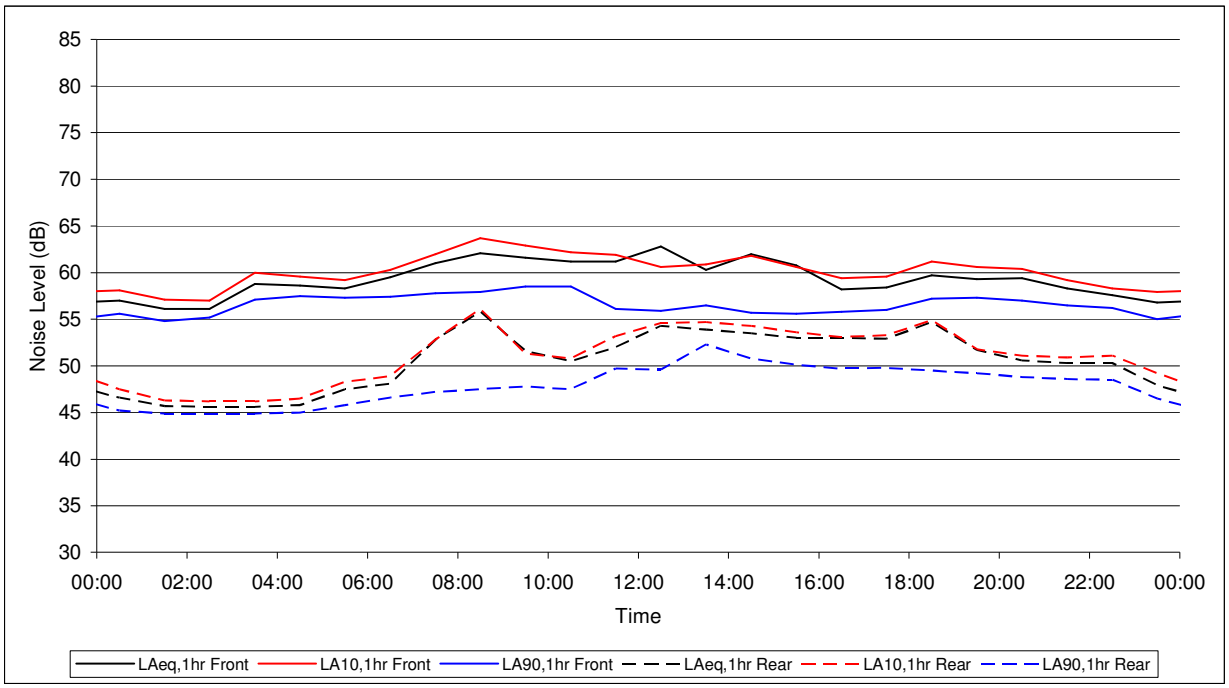
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	65.3
	Evening (19:00-23:00)	62.7
	Night (23:00-07:00)	61.4
L_{den}		68.7

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	60.4
	Evening (19:00-23:00)	58.4
	Night (23:00-07:00)	55.4
L_{den}		63.2

Date of Measurement 06/05/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- People in the street

Site C12 - Ormond Yard



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	57.0	58.1	55.6	46.6	47.5	45.2
01:00-02:00	56.1	57.1	54.8	45.7	46.3	44.9
02:00-03:00	56.1	57.0	55.2	45.6	46.2	44.9
03:00-04:00	58.8	60.0	57.1	45.6	46.2	44.9
04:00-05:00	58.6	59.6	57.5	45.8	46.5	45.0
05:00-06:00	58.3	59.2	57.3	47.5	48.3	45.8
06:00-07:00	59.5	60.3	57.4	48.1	48.9	46.6
07:00-08:00	61.0	62.0	57.8	52.8	52.8	47.2
08:00-09:00	62.1	63.7	57.9	55.8	56.1	47.5
09:00-10:00	61.6	62.9	58.5	51.6	51.3	47.8
10:00-11:00	61.2	62.2	58.5	50.5	50.8	47.5
11:00-12:00	61.2	61.9	56.1	52.0	53.2	49.7
12:00-13:00	62.8	60.6	55.9	54.3	54.6	49.6
13:00-14:00	60.3	60.9	56.5	53.9	54.7	52.3
14:00-15:00	62.0	61.8	55.7	53.5	54.3	50.8
15:00-16:00	60.8	60.6	55.6	53.0	53.6	50.1
16:00-17:00	58.2	59.4	55.8	53.0	53.1	49.7
17:00-18:00	58.4	59.6	56.0	52.9	53.3	49.8
18:00-19:00	59.7	61.2	57.2	54.7	54.9	49.5
19:00-20:00	59.3	60.6	57.3	51.7	51.8	49.2
20:00-21:00	59.4	60.4	57.0	50.6	51.1	48.8
21:00-22:00	58.3	59.2	56.5	50.3	50.9	48.6
22:00-23:00	57.6	58.3	56.2	50.3	51.1	48.5
23:00-00:00	56.8	57.9	55.0	47.9	49.2	46.5

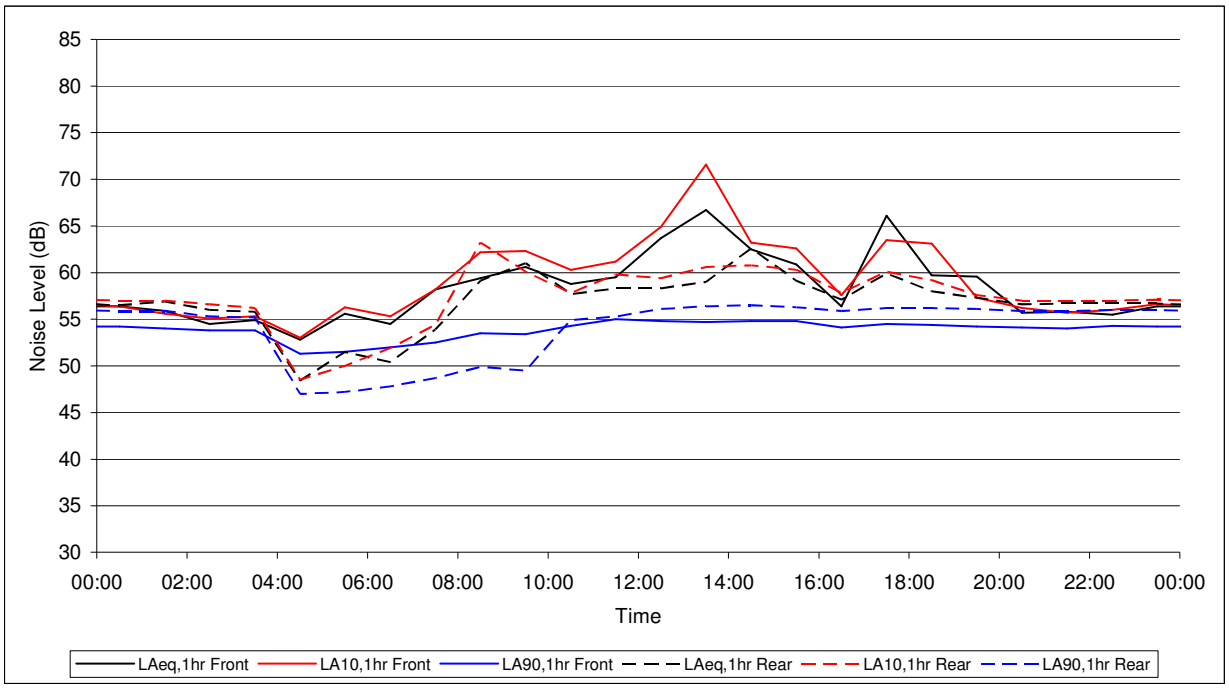
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	61.0
	Evening (19:00-23:00)	58.7
	Night (23:00-07:00)	57.8
L_{den}		64.8

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	53.4
	Evening (19:00-23:00)	50.8
	Night (23:00-07:00)	46.7
L_{den}		55.2

Date of Measurement 13/05/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Renovation work

Site C13 - Market Mews



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	56.4	56.4	54.2	56.5	57.0	55.9
01:00-02:00	55.9	55.6	54.0	56.9	57.0	55.9
02:00-03:00	54.5	55.1	53.8	56.0	56.6	55.3
03:00-04:00	54.9	55.3	53.8	55.8	56.2	55.2
04:00-05:00	52.8	53.0	51.3	48.4	48.5	47.0
05:00-06:00	55.6	56.3	51.5	51.5	50.0	47.2
06:00-07:00	54.5	55.3	52.0	50.4	51.9	47.8
07:00-08:00	58.2	58.2	52.5	53.9	54.4	48.7
08:00-09:00	59.4	62.2	53.5	59.1	63.2	49.9
09:00-10:00	60.6	62.3	53.4	61.0	60.1	49.5
10:00-11:00	58.8	60.3	54.3	57.7	57.8	54.9
11:00-12:00	59.5	61.2	55.0	58.3	59.8	55.3
12:00-13:00	63.7	64.9	54.8	58.3	59.4	56.1
13:00-14:00	66.7	71.6	54.7	59.0	60.6	56.4
14:00-15:00	62.5	63.2	54.8	62.6	60.8	56.5
15:00-16:00	60.9	62.6	54.8	59.1	60.3	56.3
16:00-17:00	56.4	57.6	54.1	57.1	57.8	55.9
17:00-18:00	66.1	63.5	54.5	59.9	60.1	56.2
18:00-19:00	59.7	63.1	54.4	58.0	59.2	56.2
19:00-20:00	59.6	57.3	54.2	57.3	57.6	56.1
20:00-21:00	55.7	56.2	54.1	56.6	57.0	55.9
21:00-22:00	55.8	55.7	54.0	56.7	57.0	55.9
22:00-23:00	55.5	56.0	54.3	56.7	57.0	56.0
23:00-00:00	56.4	56.6	54.2	56.7	57.1	56.0

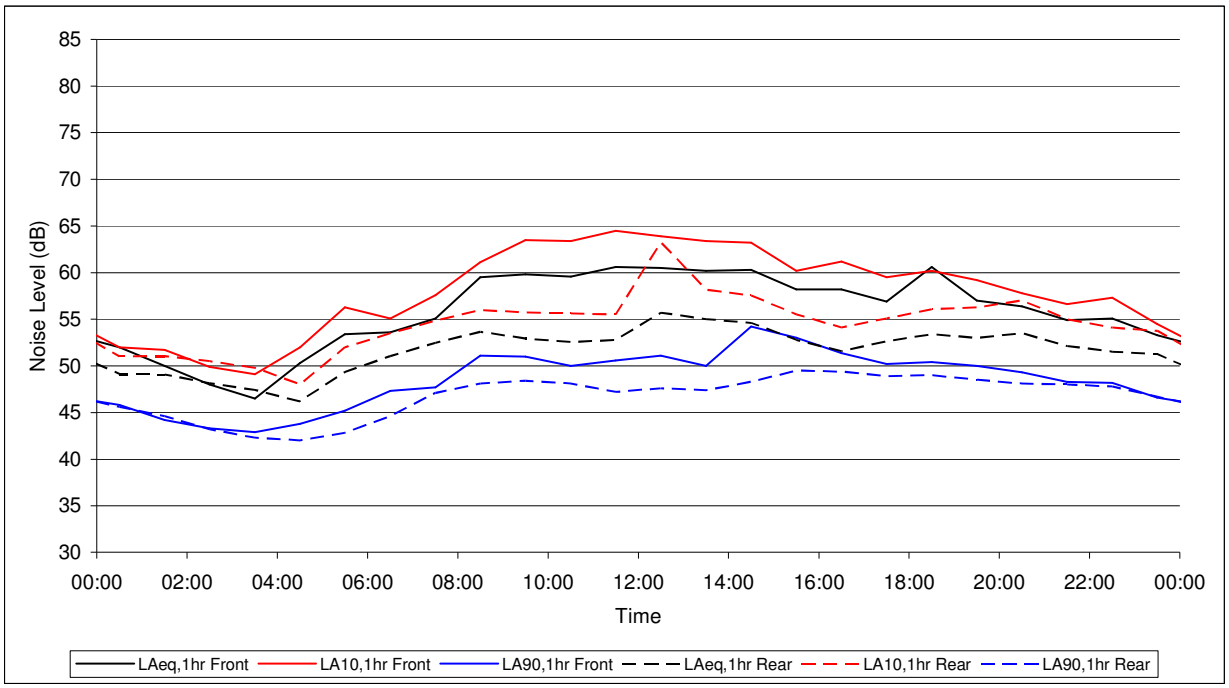
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	62.2
	Evening (19:00-23:00)	57.0
	Night (23:00-07:00)	55.3
L_{den}		63.4

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	59.1
	Evening (19:00-23:00)	56.8
	Night (23:00-07:00)	55.0
L_{den}		62.3

Date of Measurement 12/05/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Renovation work
- Mechanical plant (rear)

Site C14 - Trevor Square



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	52.0	52.0	45.8	49.1	51.0	45.6
01:00-02:00	50.0	51.7	44.2	49.1	51.1	44.6
02:00-03:00	48.0	49.9	43.3	48.1	50.5	43.2
03:00-04:00	46.5	49.1	42.9	47.4	49.8	42.3
04:00-05:00	50.3	52.0	43.8	46.2	48.0	42.0
05:00-06:00	53.4	56.3	45.2	49.3	52.0	42.8
06:00-07:00	53.6	55.1	47.3	51.0	53.5	44.6
07:00-08:00	55.1	57.6	47.7	52.5	54.8	47.1
08:00-09:00	59.5	61.1	51.1	53.6	56.0	48.1
09:00-10:00	59.8	63.5	51.0	52.9	55.7	48.4
10:00-11:00	59.6	63.4	50.0	52.6	55.6	48.1
11:00-12:00	60.6	64.5	50.6	52.8	55.5	47.2
12:00-13:00	60.5	63.9	51.1	55.7	63.2	47.6
13:00-14:00	60.2	63.4	50.0	55.0	58.2	47.4
14:00-15:00	60.3	63.2	54.2	54.6	57.5	48.3
15:00-16:00	58.2	60.2	53.0	52.8	55.5	49.5
16:00-17:00	58.2	61.2	51.4	51.6	54.1	49.4
17:00-18:00	56.9	59.5	50.2	52.7	55.1	48.9
18:00-19:00	60.6	60.2	50.4	53.4	56.1	49.0
19:00-20:00	57.0	59.2	50.0	53.0	56.3	48.5
20:00-21:00	56.4	57.8	49.3	53.5	57.0	48.1
21:00-22:00	54.9	56.6	48.3	52.1	55.0	48.0
22:00-23:00	55.1	57.3	48.2	51.5	54.1	47.8
23:00-00:00	53.3	54.5	46.6	51.3	53.8	46.7

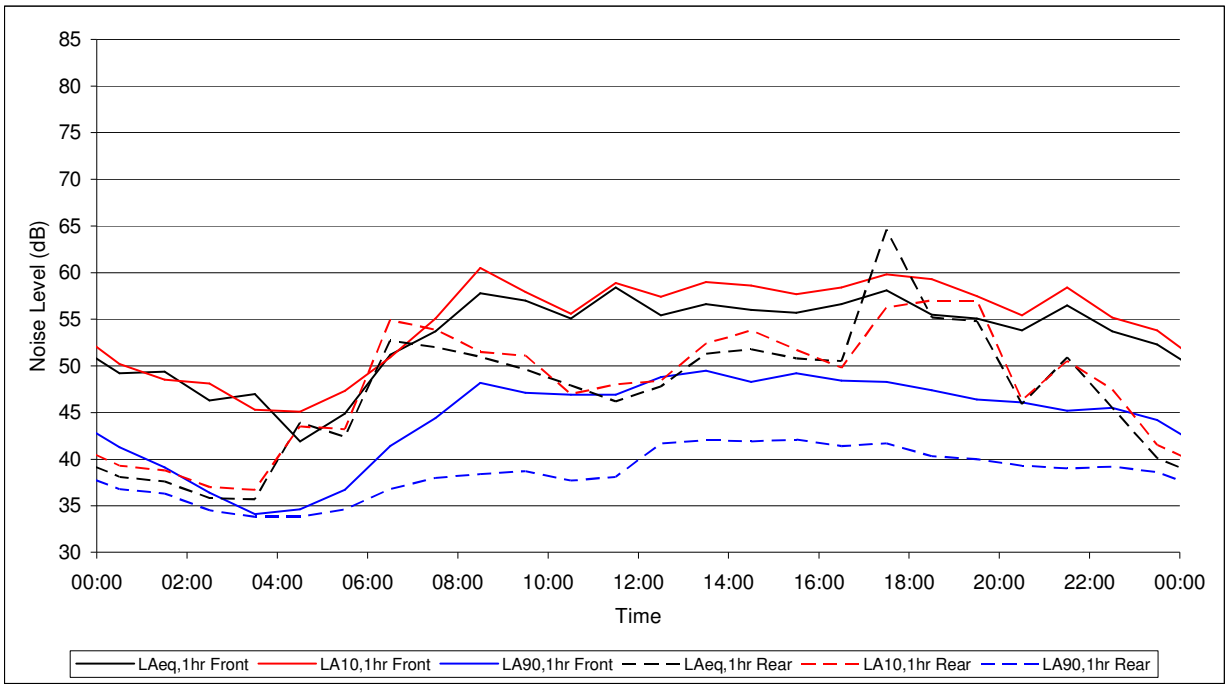
Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	59.4
	Evening (19:00-23:00)	55.9
	Night (23:00-07:00)	51.5
L_{den}		60.5

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	53.5
	Evening (19:00-23:00)	52.6
	Night (23:00-07:00)	49.2
L_{den}		56.9

Date of Measurement 24/04/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft

Site C15 - Denbigh Street



Time	Front			Rear		
	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A10,1hr}$ (dB)	$L_{A90,1hr}$ (dB)
00:00-01:00	49.2	50.2	41.3	38.1	39.3	36.8
01:00-02:00	49.4	48.5	39.1	37.6	38.8	36.3
02:00-03:00	46.3	48.1	36.4	35.8	37.0	34.5
03:00-04:00	47.0	45.3	34.1	35.7	36.7	33.8
04:00-05:00	41.9	45.1	34.6	43.9	43.5	33.8
05:00-06:00	44.9	47.3	36.7	42.4	43.2	34.6
06:00-07:00	51.2	50.9	41.4	52.7	54.9	36.8
07:00-08:00	53.7	55.1	44.4	52.0	53.9	38.0
08:00-09:00	57.8	60.5	48.2	51.0	51.5	38.4
09:00-10:00	57.0	57.9	47.1	49.6	51.1	38.7
10:00-11:00	55.1	55.6	46.9	47.9	47.0	37.7
11:00-12:00	58.4	58.9	46.9	46.2	48.0	38.1
12:00-13:00	55.4	57.4	48.8	47.8	48.4	41.7
13:00-14:00	56.6	59.0	49.5	51.3	52.4	42.0
14:00-15:00	56.0	58.6	48.3	51.8	53.8	41.9
15:00-16:00	55.7	57.7	49.2	50.8	51.7	42.1
16:00-17:00	56.6	58.4	48.4	50.5	49.8	41.4
17:00-18:00	58.1	59.8	48.3	64.6	56.3	41.7
18:00-19:00	55.5	59.3	47.4	55.2	57.0	40.3
19:00-20:00	55.1	57.5	46.4	54.8	57.0	40.0
20:00-21:00	53.8	55.4	46.1	45.9	46.3	39.3
21:00-22:00	56.5	58.4	45.2	50.9	50.5	39.0
22:00-23:00	53.7	55.2	45.5	45.5	47.5	39.2
23:00-00:00	52.3	53.8	44.2	40.1	41.5	38.6

Day/Evening/Night Indicators		Front Level (dB)
L_{Aeq}	Day (07:00-19:00)	56.5
	Evening (19:00-23:00)	54.9
	Night (23:00-07:00)	48.8
L_{den}		58.1

Day/Evening/Night Indicators		Rear Level (dB)
L_{Aeq}	Day (07:00-19:00)	55.5
	Evening (19:00-23:00)	51.0
	Night (23:00-07:00)	45.1
L_{den}		55.5

Date of Measurement 08/05/2008

Significant sources of noise heard on site included:
- Road Traffic
- Aircraft
- Renovation work

Appendix D ADDITIONAL RESULTS – WEEKEND MONITORING

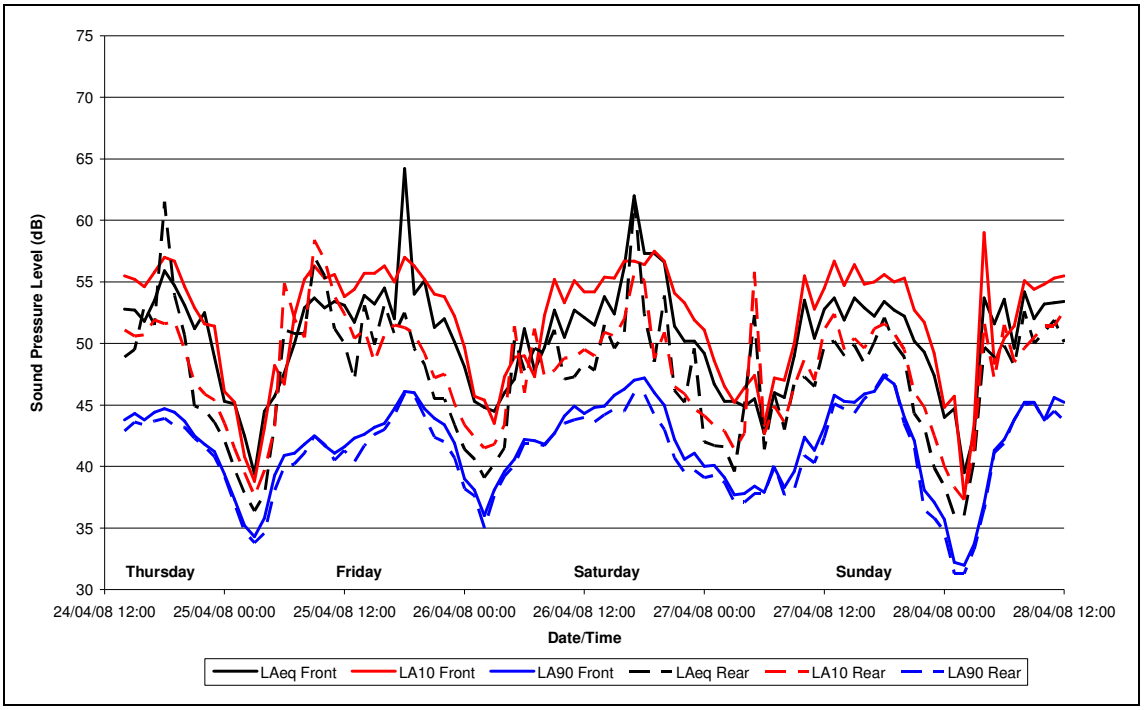
D.1 At five measurement sites (three within Phase 1 and two within Phase 2), the sound level meters were left in place over a weekend to collect further data.

D.2 In each case the instruments were installed on a Thursday to allow the collection of a data over a 24-hour period complying with the protocols for the survey from Thursday to Friday. The instruments were then left in place over the weekend and collected on the following Monday. At the front of one property, data is only available until part way through the weekend as the batteries ran flat at this point.

Phase 1 Site 6

D.3 Figure 18 shows time histories for the front and rear of site 6 (Phase 1).

Figure 18 Weekend time history at site 6

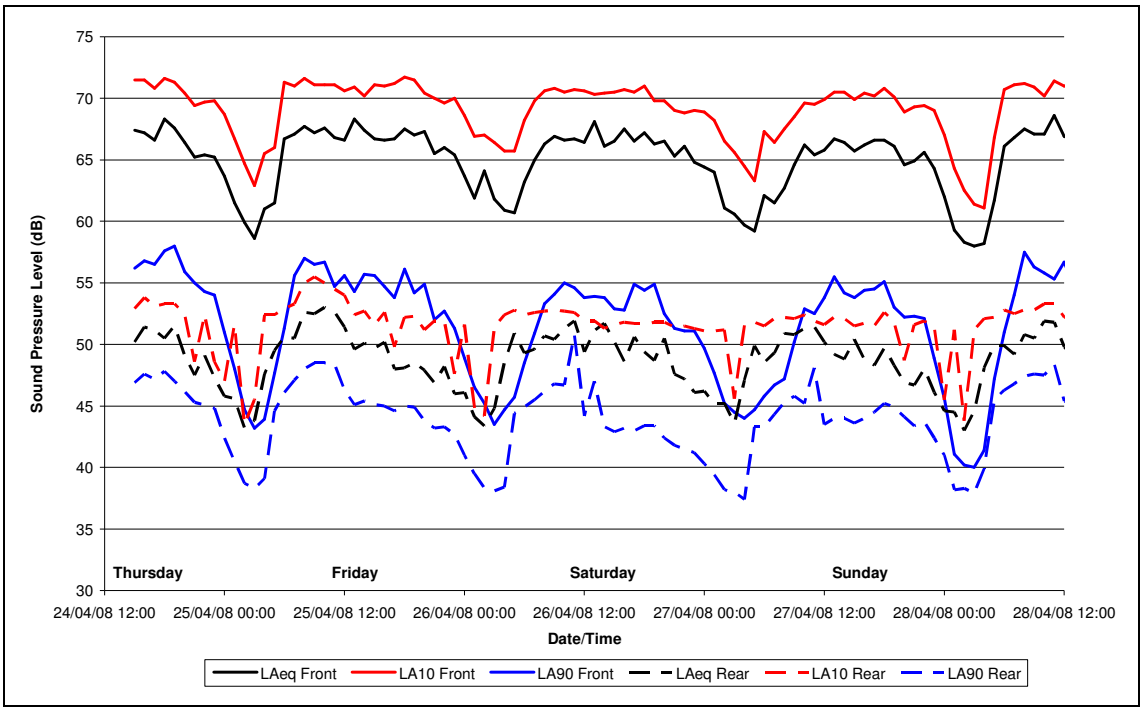


D.4 From this graph, the slightly higher noise levels on Friday and Saturday nights can be seen, particularly when compared to the quieter Sunday night. It also appears that the day-time noise levels during Saturday and Sunday are not as high as those during the week, and do not rise so quickly in the mornings.

Phase 1 Site 7

D.5 Figure 19 shows time histories for the front and rear of site 7 (Phase 1)

Figure 19 Weekend time history at site 7

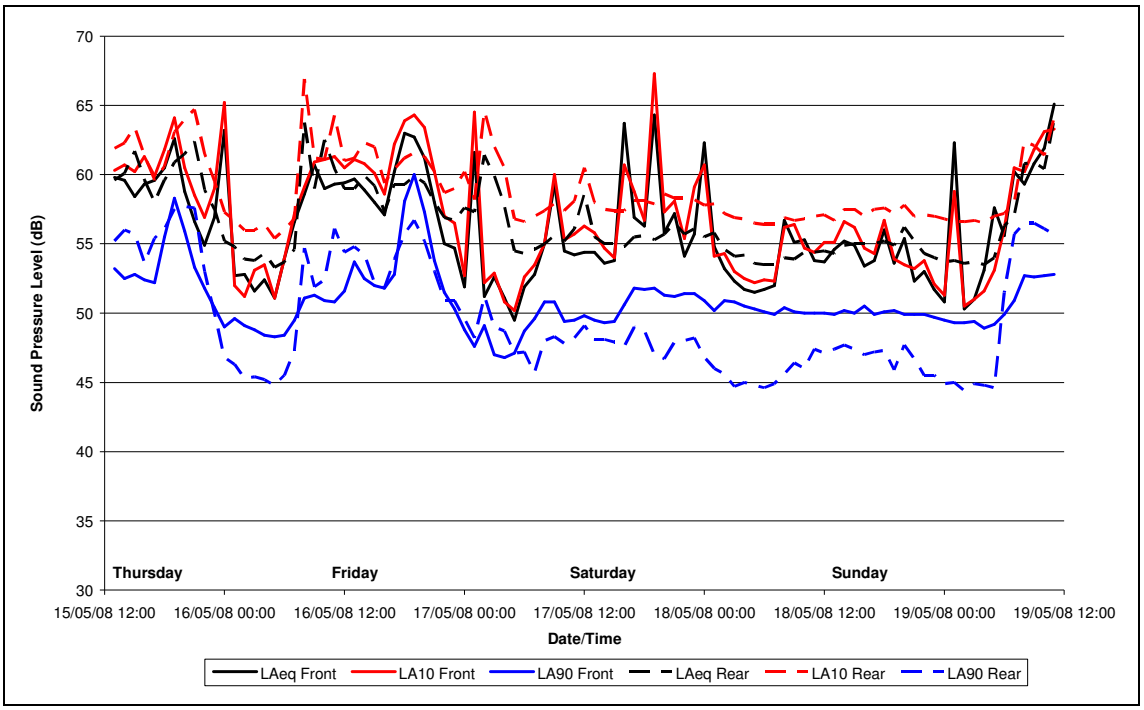


D.6 At this site, again the slightly higher noise levels on Friday and Saturday nights are evident. Day-time noise levels during Saturday and Sunday are also not as high as those during the week, and do not rise so quickly in the mornings

Phase 1 Site 20

D.7 Figure 20 shows time histories for the front and rear of site 20 (Phase 1).

Figure 20 Weekend time history at site 20

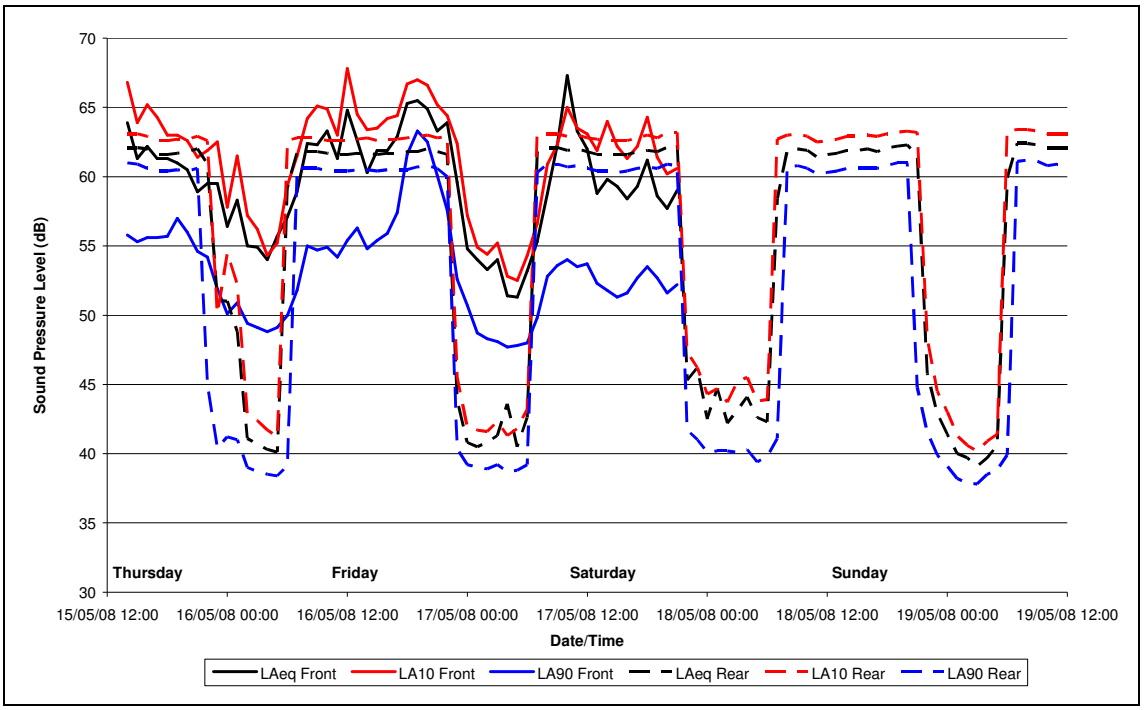


D.8 At the rear of this site, the noise levels appear to increase during the weekday day-times much more significantly than at the weekend. The rear of the property was a small balcony overlooking roofs of various buildings, with several air-conditioning units. It is likely that many of these units only operated during the week, and hence the weekend noise levels were significantly lower.

Phase 2 Site C6

D.9 Figure 21 shows time histories for the front and rear of site C6 (Phase 2).

Figure 21 Weekend time history at site C6



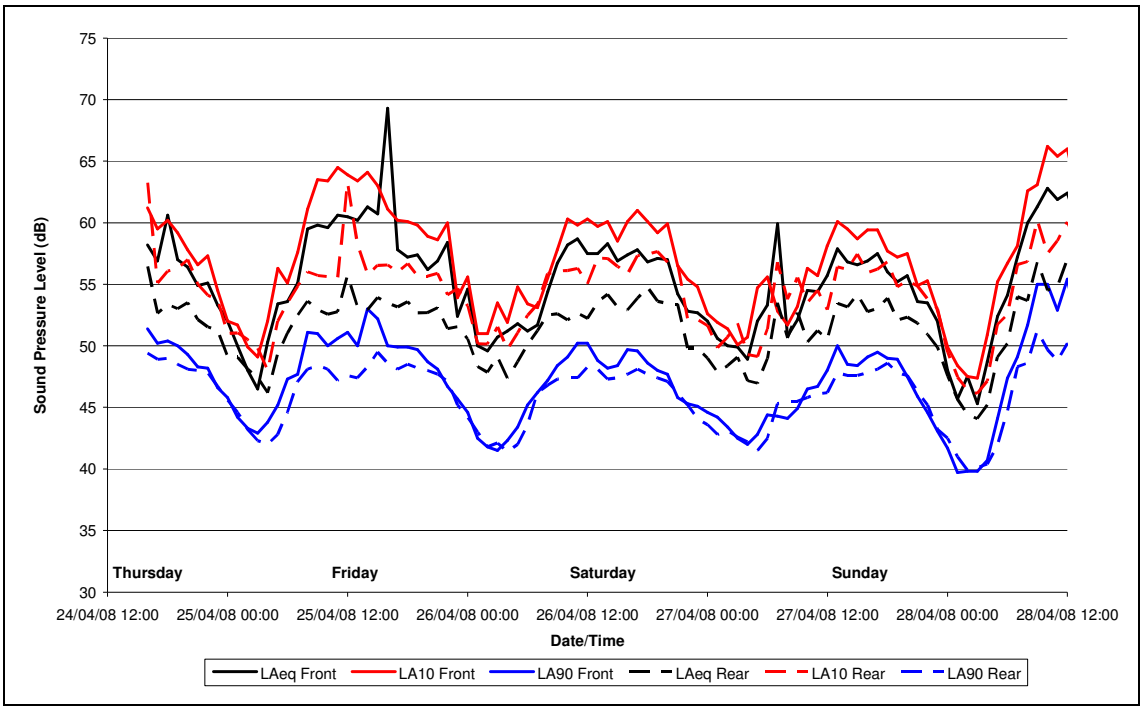
D.10 This site was on a hotel in a residential area. At the rear of the hotel an air conditioning unit was a significant noise source during the day-time. Due to it's proximity to the rear of neighbouring residential properties, it is considered that this is not un-representative of the noise climate at the rear of neighbouring residential properties on this road.

D.11 The measurement at the front of this property only continued until the Saturday evening, as at this point the batteries powering the sound level meter were flat.

Phase 2 Site C14

D.12 Figure 26 shows time histories for the front and rear of site C14 (Phase 2).

Figure 22 Weekend time history at site C14



D.13 This site shows a similar pattern to those seen at sites 6 and 7 from Phase 1 of the survey, with slightly higher noise levels during the Friday and Saturday nights, with lower levels during the weekend day-times and the increase in noise level on Saturday and Sunday mornings occurring slightly later.

Appendix E ADDITIONAL RESULTS – VIBRATION MONITORING

E.1 At two sites, additional vibration monitoring was undertaken over the 24-hour measurement period. These sites were selected as one with no noticeable sources of vibration (site reference number 8) and one close to the underground (site reference number 11).

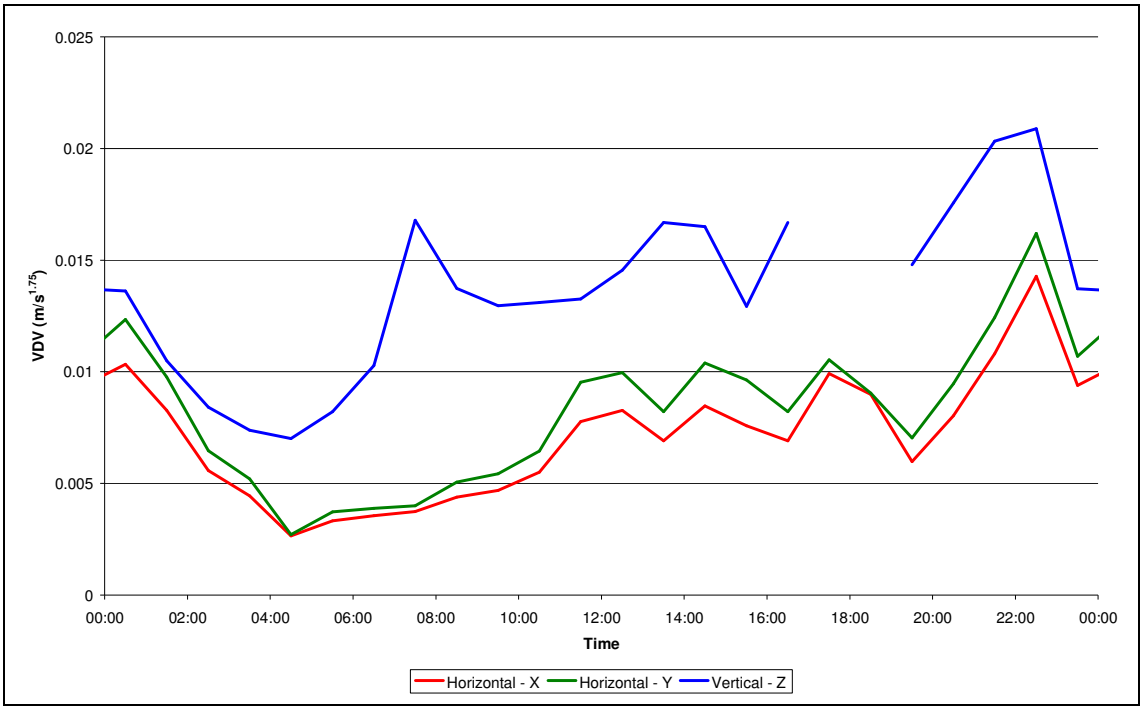
E.2 At the first of these sites, the equipment was installed on wooden decking to the rear of the property at first floor level. Two data points from this site have been removed as they appear to have been affected by people walking on the decking.

E.3 At the second of these sites, the measurement was undertaken on concrete paving to the rear of the property. Vibration from the underground was noticeable on the pavement to the front of the property, although no vibration was noted at the vibration measurement position to the rear of the property.

Results – Site #8

E.4 Figure 23 shows the vibration dose values (VDV) for each of the x, y, and z axes for this site. It should be noted that two hours of data have been omitted for the z-axis (vertical) during the early evening as these gave extremely high values, and it is assumed that these were due to people walking on the decking on which the accelerometers were installed.

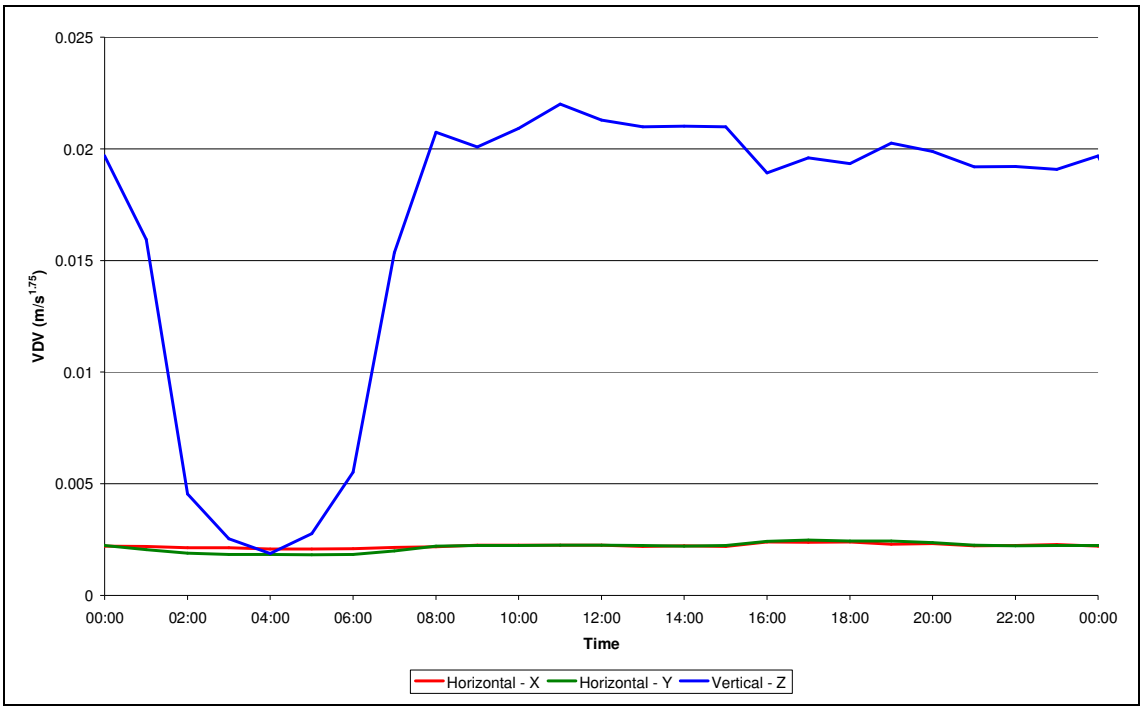
Figure 23. Vibration measurements at site #8



Results – Site #11

E.5 Figure 24 shows the vibration dose values (VDV) for each of the x, y, and z axes for the second vibration site.

Figure 24. Vibration measurements at site #11



E.6 The x- and y-axis VDV values are significantly smaller than those for the previous site, as is the z-axis during the small hours of the morning. This is due to the fact that the accelerometer was installed on concrete paving, rather than the more resilient decking at site #8.

E.7 The main interesting feature in the data from this site is the vertical (z-axis) vibration data. In this graph, the effect of the underground can clearly be seen. The vertical vibration levels are higher during the day-time, dropping down to similar levels to the horizontal axis during the small hours of the morning when there is no underground train activity.

Overall results

E.8 Table 18 below shows VDV dose values from each of the two sites for daytime and night time, whilst Table 19 reproduces guidance from BS6472:1992. From these tables, it can be seen that at both these sites the probability of adverse comment due to the vibration levels measured is low.

Table 18. VDV levels from vibration sites

Site		VDV ($m/s^{1.75}$)		
		Horizontal - X	Horizontal - Y	Vertical - Z
Site 8	Daytime	0.02	0.02	0.03
	Night-time	0.02	0.02	0.02
Site 11	Daytime	0.00	0.00	0.04
	Night-time	0.00	0.00	0.02

Table 19. VDV guidance from BS6472:1992

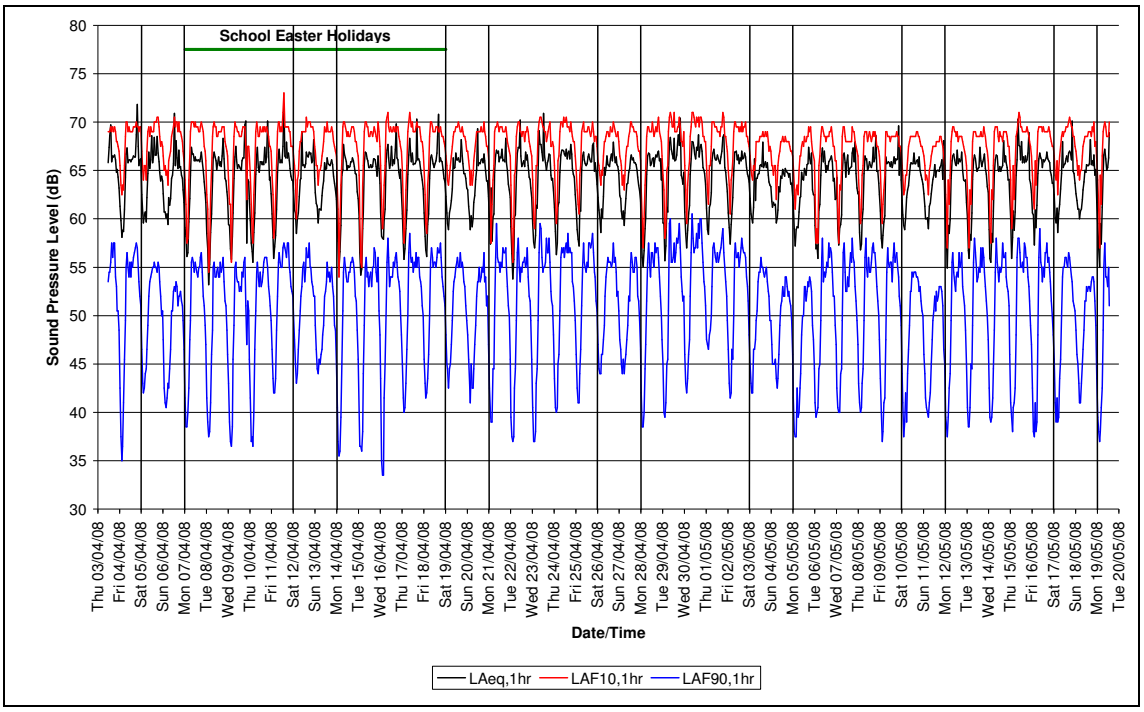
Place	Low probability of adverse comment	Adverse comment possible	Adverse comment probable
Residential buildings 16 hr day	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Residential buildings 8 hr night	0.13	0.26	0.51

Appendix F ADDITIONAL RESULTS – LONG TERM MONITORING

F.1 Throughout the duration of most of the measurements, an additional sound level meter was installed at the City Guardians' office on Shirland Road. This was installed on Thursday 3rd April 2008, and collected on Monday 19th May 2008.

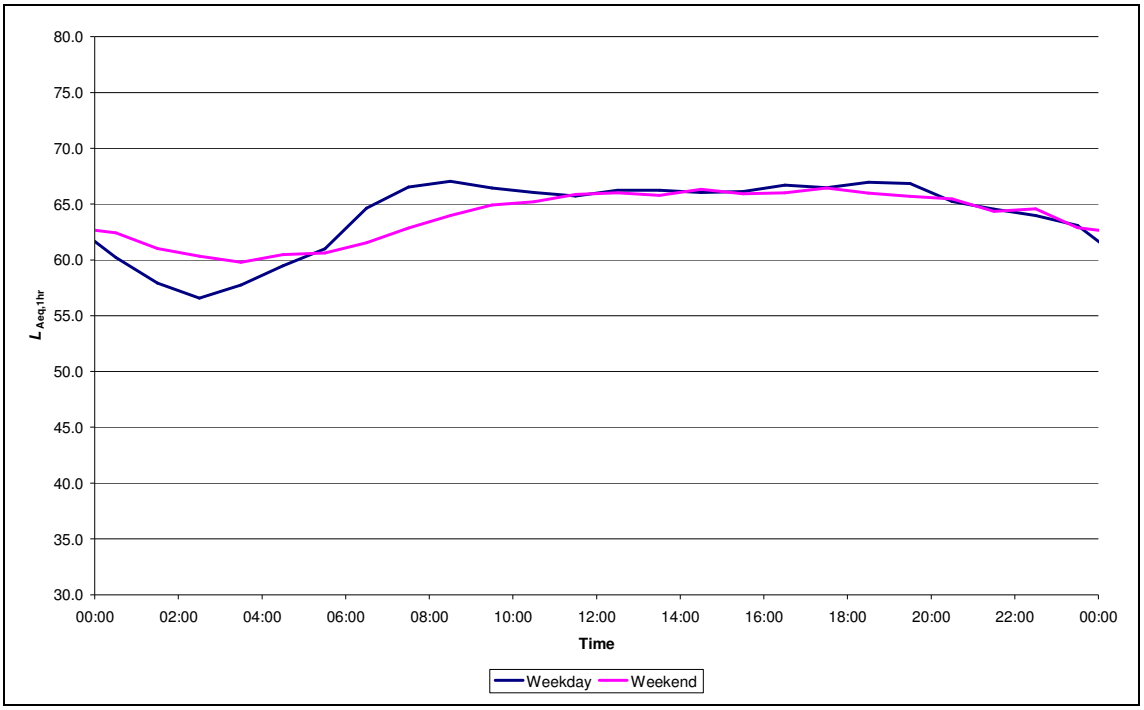
F.2 Figure 25 shows the L_{Aeq}, L_{A10} and L_{A90} time histories at this site. Weekend and school holiday periods have been identified on this chart.

Figure 25. Time history of long term measurement at Shirland Road



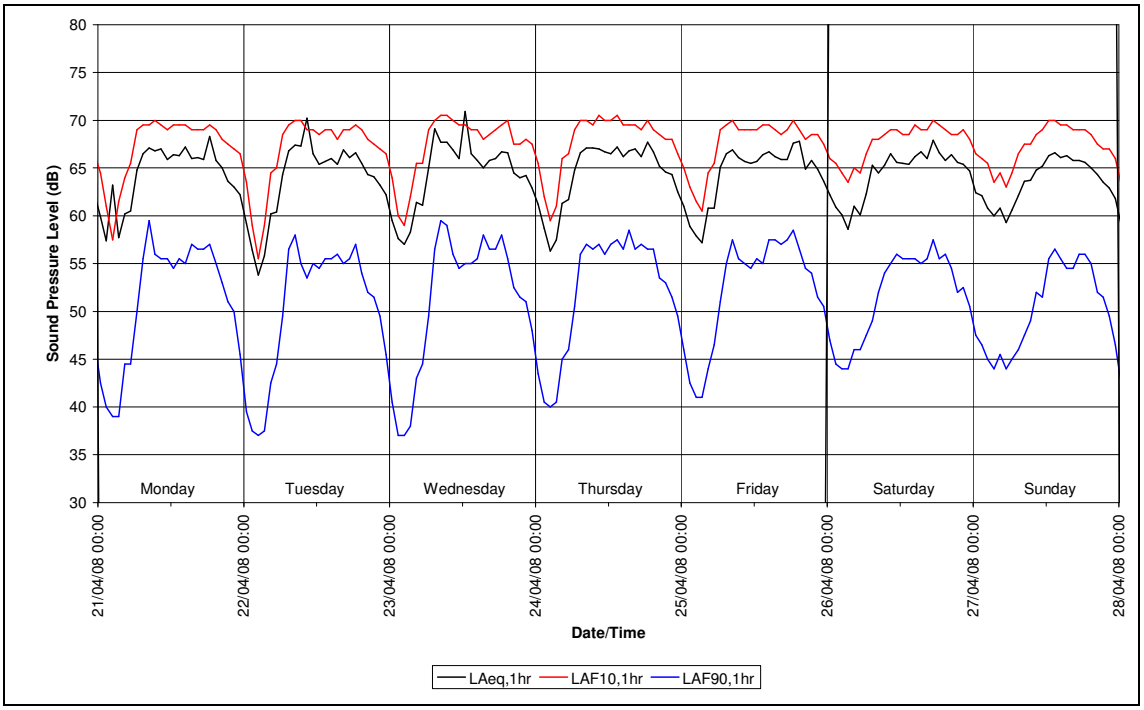
F.3 This graph clearly shows the daily and weekly variations in noise level. In particular, it can be seen that the weekend day-times generally experience lower noise levels than the weekdays, whilst the levels on Friday and Saturday nights are generally higher than those during the week. This can be seen more clearly in Figure 26 which shows average time histories for weekdays and weekends taken from this data. This figures also shows a more gradual increase in noise levels in the morning at weekends than weekdays

Figure 26. Average weekday and weekend time histories from long term measurement at Shirland Road



F.4 This difference is also visible in Figure 27, which shows an extract of a 1-week period from Figure 25. This clearly shows the increased noise levels on Friday and Saturday nights, together with the lower levels during Saturday and Sunday day times. This is particularly notable for the $L_{A90,1hr}$ indicator, although it can also be seen for the other indicators.

Figure 27. Typical 7-day time history from long term measurement at Shirland Road



Appendix G INSTRUMENTATION

G.1 The following noise monitoring equipment was used throughout the Westminster Noise Measurement Survey 2008:

- Norsonic 118 sound level meter, serial number 31441;
- Norsonic 118 sound level meter, serial number 31442;
- Norsonic 140 sound level meter, serial number 1403025;
- Norsonic 140 sound level meter, serial number 1403077;
- Norsonic 140 sound level meter, serial number 1403078;
- Norsonic 140 sound level meter, serial number 1403079;
- Norsonic 140 sound level meter, serial number 1403080;
- Svantek 958 noise and vibration meter, serial number 14212;
- GRAS 40AE microphone, serial number 93759;
- Norsonic 1225 microphone, serial number 52264;
- Norsonic 1225 microphone, serial number 52279;
- Norsonic 1225 microphone, serial number 91818;
- Norsonic 1225 microphone, serial number 91838;
- Norsonic 1225 microphone, serial number 91977;
- Norsonic 1225 microphone, serial number 91990;
- Norsonic 1225 microphone, serial number 91803;
- GRAS 40AL microphone, serial number 7571;
- GRAS 40AL microphone, serial number 5726;
- GRAS 40AL microphone, serial number 8727;
- GRAS 40AL microphone, serial number 8245;
- GRAS 40AL microphone, serial number 9467;
- GRAS 40AL microphone, serial number 9446;
- Bruël & Kjær type 2238 sound level meter, serial number 2541001 (long term site);
- Bruël & Kjær 4188 microphone; serial number 2547570 (long term site);
- Bruël & Kjær 4231 acoustic calibrator; serial number 2217876.