



Pepper Mill Barn
Old Salisbury Lane
Romsey
SO51 0GD

T: 01794 515999

**PROPOSED RESIDENTIAL DEVELOPMENT
HAVANT ROAD, EMSWORTH**

NOISE IMPACT ASSESSMENT

Technical Report: R3173-3 Rev 2

Date: 17th February 2017

For: Barratt Southampton
Tollbar House
Tollbar Way
Hedge End
Southampton
SO30 2UH

24 Acoustics Document Control Sheet

Project Title: Proposed Residential Development at Havant Road, Emsworth
Noise Impact Assessment

Report Ref: R3173-3 Rev 2

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	Name	Position	Signature	Date
Prepared by	Reuben Peckham BEng MPhil CEng MIOA	Principal Consultant		
Approved by	Stephen Gosling BEng MIOA	Principal Consultant		
For and on behalf of 24 Acoustics Ltd				

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EXECUTIVE SUMMARY

Barratt Southampton intends to apply for planning permission to develop the land off Havant Road, Emsworth for residential use.

The site is subject to noise from road traffic using Havant Road and the A27 and from the adjacent Warblington to Emsworth railway.

The scheme has been designed to mitigate noise from road traffic noise as far as reasonably practicable and the assessment has shown that noise levels in the majority of private external amenity areas should be lower than 55 dB $L_{Aeq, 16 \text{ hour}}$ during the day.

Standard double glazing (capable of achieving a minimum performance of 31 dB R_w) and trickle vents capable of achieving a minimum performance of 36 dB $D_{n,e,w}$ can be used to ensure an adequate acoustic environment in habitable rooms with line of sight to the A27 and Havant Road.

On the above basis, it is considered that an appropriate acoustic environment can be provided to the proposed residential properties, both externally and internally. There should therefore be no harm on the grounds of noise to the future residents of this proposed development.

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1.0 INTRODUCTION & SCOPE OF ASSESSMENT

- 1.1 24 Acoustics Ltd has been retained by Barratt Southampton to undertake a noise impact assessment at the land off Havant Road in Emsworth, Hampshire. It is intended to apply for planning permission to redevelop the site for residential use.
- 1.2 This report has assessed the impact of noise from road traffic adjacent to the site. The report is based upon noise surveys undertaken on the site in April 2012 and January 2013. It is considered that any changes to traffic flows since these surveys will have a very minor impact on noise levels.
- 1.3 All noise levels in this report are quoted in dB relative to 20 μ Pa.

2.0 SITE DESCRIPTION AND PROPOSED DEVELOPMENT

- 2.1 The site is located on the western side of Emsworth and is situated between the A27, Havant Road (the A259) and Selangor Avenue. In addition, the Warblington to Emsworth railway line is located on the north-eastern boundary of the site. The site is approximately 15 acres in size and is currently used as grazing fields for livestock.
- 2.2 The A27 runs along the north-west boundary of the site and is the dominant noise source across the northern portion of the site. The A27 is a dual carriageway, elevated by approximately 6 metres above the level of the site. A fence has been installed along the top of the embankment for the A27 and this is effective in attenuating traffic noise across the site.
- 2.3 Havant Road runs along the southern boundary of the site. This is a main road connecting Warblington and Emsworth. Havant Road is level with the site and controls noise levels across the southern portion of the site.
- 2.4 Barratt Southampton proposes to redevelop the site for residential use. A total of 161 private and affordable houses and flats are proposed. A plan showing the proposed development scheme is shown in Figure 1.

3.0 STANDARDS AND GUIDANCE

NPPF

3.1 The National Planning Policy Framework (NPPF) [Reference 1] was published by the Department for Communities and Local Government in March 2012, and is now effective. For noise, the NPPF policy states that planning policies and decisions should aim to:

- Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions, while recognising that many developments will create some noise.

3.2 The NPPF refers to the Noise Policy Statement for England (NPSE) [Reference 2] which is intended to apply to all forms of noise, including environmental noise, neighbour noise and neighbourhood noise. The NPSE sets out the Government's long-term vision to 'promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development' which is supported by the following aims.

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life;
- Where possible, contribute to the improvement of health and quality of life.

3.3 The NPSE defines the concept of a 'significant observed adverse effect level' (SOAEL) as 'the level above which significant adverse effects on health and quality of life occur'. The following guidance is provided within the NPSE:

"It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available."

- 3.4 In 2014 the Planning Practice Guidance (PPG) was finalised [Reference 3]. This is written to support the NPPF with more specific planning guidance. The PPG reflects the NPSE and states that noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. It also states that opportunities should be taken, where practicable, to achieve improvements to the acoustic environment. The PPG states that noise can override other planning concerns but should not be considered in isolation from the other economic, social and environmental dimensions of the proposed development.
- 3.5 The PPG expands upon the concept of SOAEL (together with Lowest Observable Adverse Effect Level, LOAEL and No Observed Effect Level, NOEL) as introduced in the NPSE and provides a table of noise exposure hierarchy for use in noise impact assessments in the planning system. Table 1 is reproduced from the NPPG and summarises the noise exposure hierarchy, based on the likely average response.

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life	No Observed Adverse Effect	No specific measures required
Lowest Observable Adverse Effect Level (LOAEL)			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extension and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non auditory	Unacceptable Adverse Effect	Prevent

Table 1: PPG Noise Exposure Hierarchy

- 3.6 In general terms it is considered that a noise impact with an effects level which is lower than SOAEL is acceptable (providing the effect is mitigated to a minimum). There is currently, however, a major discontinuity between the above guidance and objective technical criteria for use in planning noise impact assessments. For this site it is considered that the appropriate (technical and objective) standard for use in assessing the noise impact for traffic noise impact is British Standard 8233: 2014 [Reference 4] and the World Health Organisation Community Noise [Reference 5]. These standards and guidance are described below.

BS 8233 and World Health Organisation

- 3.7 BS 8233:2014 provides design guidance for dwelling houses, flats and rooms in residential use and recommends that internal noise levels in dwellings do not exceed 35 dB $L_{Aeq,16\text{ hour}}$ in living rooms and bedrooms during the day, 40 dB $L_{Aeq,16\text{ hour}}$ in dining rooms during the day and 30 dB $L_{Aeq,8\text{ hour}}$ in bedrooms at night.
- 3.8 BS 8233 also notes that *“Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night.”*
- 3.9 The World Health Organisation (WHO) provides guidance on desirable internal noise levels to minimise the risk of sleep disturbance. The WHO 2000 guidelines suggest internal noise levels not exceeding 30 dB $L_{Aeq,8hr}$ or regularly exceeding 45 dB $L_{Amax,f}$ for ‘a good night’s sleep’.

Summary

- 3.10 Based upon the review of standards described above, noise has been assessed in accordance with the following approach:
- BS 8233 for interior noise levels (of 35 dB L_{Aeq} in living rooms and 30 and 35 dB L_{Aeq} in bedrooms, and not to exceed and 45 dB $L_{Amax,f}$ in bedrooms at night for regular events only);
 - World Health Organisation Criteria for the external amenity areas outside of the buildings of 55 dB $L_{Aeq,16\text{ hour}}$ where feasible.

4.0 NOISE MEASUREMENTS

Methodology

4.1 Environmental noise surveys have been undertaken on the undeveloped site between 16th and 20th April 2012 in order to establish existing ambient noise levels across the site. In response to comments from local residents at a Development Consultation Forum, further measurements were undertaken between 7th and 15th January 2013. The noise measurement locations are shown in Figure 2.

4.2 Ambient noise levels were measured using the following equipment:

Rion (Type 1) precision grade sound level meter	Type NA28
Rion (Type 1) precision grade sound level meter	Type NL31
Rion (Type 1) precision grade sound level meter	Type NL32
Brüel and Kjær acoustic calibrator	Type 4231

4.3 The instrumentation was configured to measure and store overall A-weighted statistical parameters such as L_{Aeq} , L_{Amax} and L_{A90} (all measured on fast response).

4.4 The instrumentation at each location was equipped with an environmental microphone. Measurements were made at approximately 1.5 metres above ground level. The calibration of the instrumentation was checked before and after the tests and no signal variation occurred. Calibration of 24 Acoustics' equipment is traceable to National Standards.

Results - April 2012

4.5 The noise survey results for the short-term measurements taken on 16th April 2012 are summarised in Table 4 below, and displayed fully in Appendix B.

Measurement Position	Sound Pressure Level, dB		
	$L_{Aeq, 10 \text{ min}}$	$L_{A90, 10 \text{ min}}$	$L_{Amax,f, 10 \text{ min}}$
1	57.0	54.5	60.7
2	55.5	53.3	59.5
3	57.3	55.6	61.1
4	57.0	54.9	61.4
5	55.4	53.3	63.7
6	60.9	58.1	64.8
7	63.4	59.0	68.3

Table 4: Measured Daytime Noise Levels from the Short-Term Noise Surveys (April 2012)

- 4.6 The noise survey results for the long-term measurements taken between 16th and 20th April 2012 are shown graphically in Figures 3 and 4 and are summarised in Table 5 below. Owing to periods of rainfall affecting the measurements, data taken on 17th-20th April 2012 were excluded from the analysis.

Measurement Position	Daytime	Night-time	
	Sound Pressure Level, dB	Sound Pressure Level, dB	
	$L_{Aeq, 16 \text{ hr}}$	$L_{Aeq, 8 \text{ hr}}$	Typical $L_{Amax,f}$ ¹
8	58.8	55.4	65.4
9	67.1	60.5	75.5

Table 5: Summary of Noise Survey Results for April 2012

- 4.7 The short-term measurements were time-synchronised with measurements taken at Locations 8 and 9. This enables overall 16-hour daytime and 8-hour night-time values to be estimated at all measurement locations by applying a calibration factor to each measurement. These results are presented below in Table 6.

¹ 24 Acoustics define the typical $L_{Amax,f}$ as the 10th highest value.

Measurement Position	Sound Pressure Level, dB	
	Daytime $L_{Aeq, 16 \text{ hr}}$	Night-time $L_{Aeq, 8 \text{ hr}}$
1	59.2	53.2
2	57.6	51.6
3	59.6	53.6
4	59.3	53.3
5	57.1	51.1
6	61.4	53.8
7	64.2	56.6
8	60.2	54.2
9	68.3	60.7

Table 6: Overall Estimated Noise Levels at all Measurement Positions

- 4.8 It should be noted that owing to available locations for the long-term surveys, Position 9 is much closer to Havant Road than any of the proposed façades and therefore the level there is higher than elsewhere on the site.
- 4.9 Train noise was recorded during measurements at Positions 1 and 2. At Position 1, the train was audible but not dominant. At Position 2 the train was barely audible. These observations are reflected in the results of the measurements where the ambient noise level is unaffected by the passing of a train. The impact of train noise has therefore not been taken further.

Results - January 2013

- 4.10 Additional noise surveys were undertaken at Positions 8 and 9 in January 2013. The results of these surveys are shown graphically in Figures 5 and 6 and summarised below in Table 7.

Measurement Position	Daytime	Night-time	
	Sound Pressure Level, dB	Sound Pressure Level, dB	
	$L_{Aeq, 16 \text{ hr}}$	$L_{Aeq, 8 \text{ hr}}$	Typical $L_{Amax,f}^2$
8	60.0	54.3	65.9
9	68.6	60.7	77.9

Table 7: Summary of Noise Survey Results for January 2013

- 4.11 A comparison of results presented in Tables 5 and 7 shows that the measured daytime noise levels at Positions 8 and 9 were 1.2 and 1.5 dBA greater respectively in January 2013 than in April 2012. The measured night-time noise level at Position 8 was 1.1 dBA lower in January 2013 than in April 2012.
- 4.12 The overall noise levels for Positions 1 to 7 (as shown in Table 6) have been adjusted in accordance with the noise levels measured in January (as shown in Table 7) and used in the calibration of the acoustic model, described in Section 5.

5.0 ACOUSTIC MODELLING

- 5.1 Detailed noise maps showing noise levels across the site have been calculated using IMMI v2011-1 software. The model has been developed following the method of Calculation in Road Traffic Noise [Reference 6] and the propagation methodology of ISO 9613 [Reference 7] which takes into account the effects of geometric divergence, acoustic screening and atmospheric and ground absorption.
- 5.2 The model was calibrated using the ambient noise measurements taken on site in January 2013. Once calibrated, the predicted levels across the site were found to correlate very well with those measured.

² 24 Acoustics define the typical $L_{Amax,f}$ as the 10th highest value.

- 5.3 The acoustic model has been used to provide a finer resolution of noise levels across the site as well as to predict noise levels across the site with the develop present.
- 5.4 The results of the acoustic modelling are shown in Figures 7 to 10.

6.0 ASSESSMENT

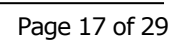
- 6.1 Both existing ambient noise levels and noise levels once the development has been constructed have been considered across the site as part of this assessment.
- 6.2 The scheme has been designed to mitigate the noise impact of road traffic noise as far as practicable by fronting the housing on to the A27 and using the new properties as an acoustic barrier. The assessment indicates that with the screening provided by the properties, noise levels in the majority of private external amenity areas throughout the site will be lower than 55 dB $L_{Aeq, 16 \text{ hour}}$ during the day and hence commensurate with the guidance from BS 8233 and the World Health Organisation.
- 6.3 Incident levels along the row of properties closest to the A27 are predicted to be 58-60 dB $L_{Aeq, 16 \text{ hour}}$ during the daytime and 53-55 dB $L_{Aeq, 8 \text{ hour}}$ during the night-time. Incident levels along the row of properties closest to Havant Road are predicted to be 57-61 dB $L_{Aeq, 16 \text{ hour}}$ during the daytime and 49-53 dB $L_{Aeq, 8 \text{ hour}}$ during the night-time. Typical night-time $L_{Amax, f}$ values are 65-67 dB and 66-70 dB at properties closest to the A27 and to Havant Road respectively.
- 6.4 When windows are open the internal ambient noise levels which can be expected inside most of the properties will be greater than those recommended by BS 8233. Calculations have been undertaken to determine glazing and ventilation requirements for the proposed properties throughout. These indicate that standard thermal double glazing (4 mm glass, 16 mm air gap, 4 mm glass) capable of achieving a minimum performance of 31 dB R_w and trickle vents capable of achieving a minimum performance of 36 dB $D_{n,e,w}$ should be acceptable in all properties and will ensure an adequate acoustic environment as defined in BS 8233 in all habitable rooms.

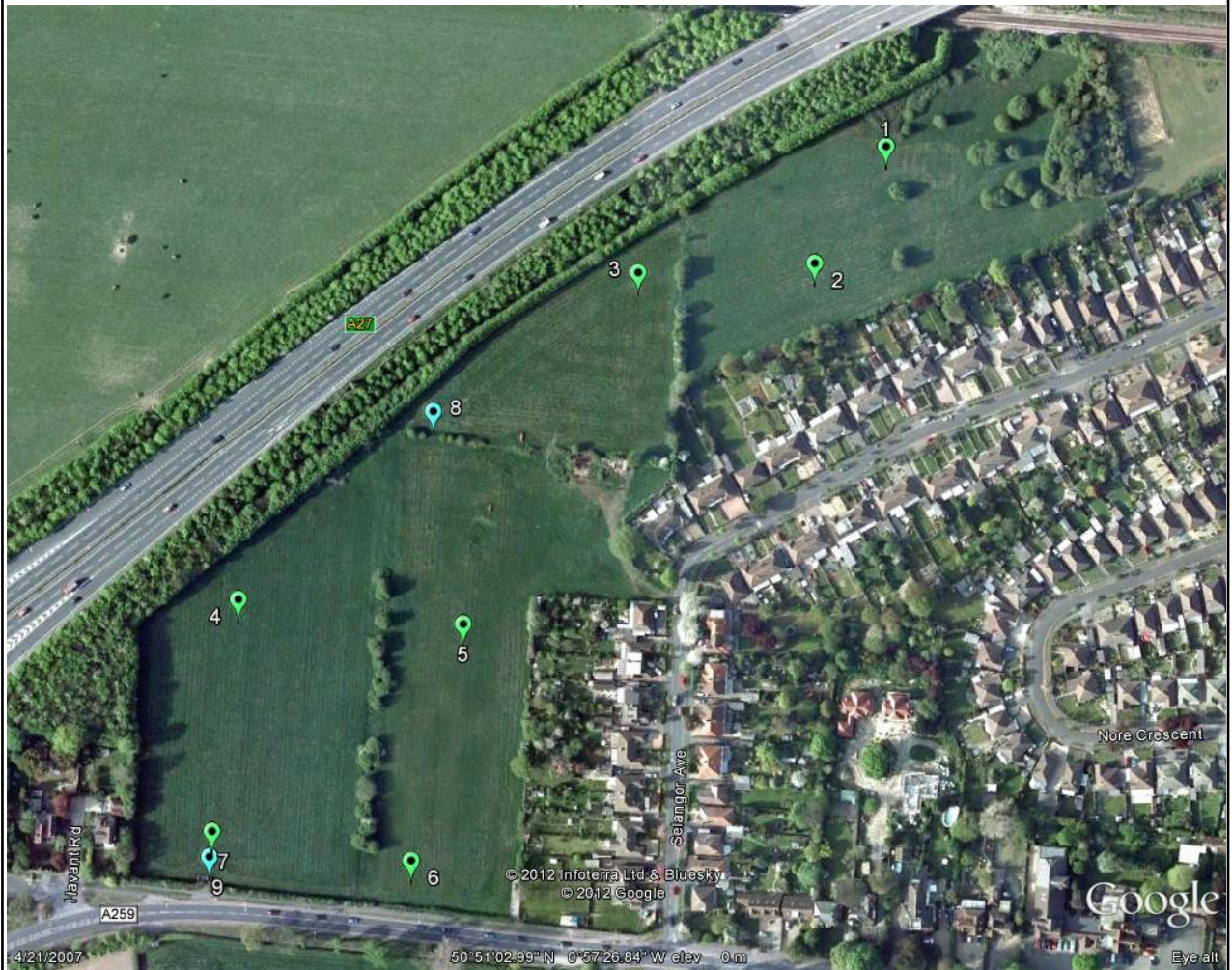
7.0 CONCLUSIONS

- 7.1 Barratt Southampton intends to apply for planning permission to develop the land off Havant Road, Emsworth for residential use.
- 7.2 The site is subject to noise from road traffic using Havant Road and the A27 and from the adjacent Warblington to Emsworth railway.
- 7.3 The scheme has been designed to mitigate noise from road traffic noise as far as reasonably practicable and the assessment has shown that noise levels in the majority of private external amenity areas should be lower than 55 dB $L_{Aeq, 16 \text{ hour}}$ during the day.
- 7.4 Standard double glazing (capable of achieving a minimum performance of 31 dB R_w) and trickle vents capable of achieving a minimum performance of 36 dB $D_{n,e,w}$ can be used to ensure an adequate acoustic environment in habitable rooms with line of sight to the A27 and Havant Road.
- 7.5 On the above basis, it is considered that an appropriate acoustic environment can be provided to the proposed residential properties, both externally and internally. There should therefore be no harm on the grounds of noise to the future residents of this proposed development.

REFERENCES

1. Department for Communities and Local Government. National Planning Policy Framework, 2012.
2. Department of the Environment. Planning Policy Guidance (PPG) 24, Planning and Noise, 1994.
3. DEFRA, Noise Policy Statement for England, 2010.
4. British Standards Institution. British Standard 8233: Sound Insulation and Noise Reduction for Buildings, 1999.
5. World Health Organisation. Guidelines for Community Noise, 2000.
6. Department of Transport. Calculation of Road Traffic Noise.
7. International Standards Organisation. Acoustics - Attenuation of Sound During Propagation Outdoors, 1993.





Project:
Land at Havant Road,
Emsworth

Description:
Site Survey Locations

DWG No: Figure 2

Scale: N.T.S.

Rev: A

Date: July 2016

Drawn By: RP

Job No: 3173-3

Figure 3: Noise Survey Results - Position 8, April 2012

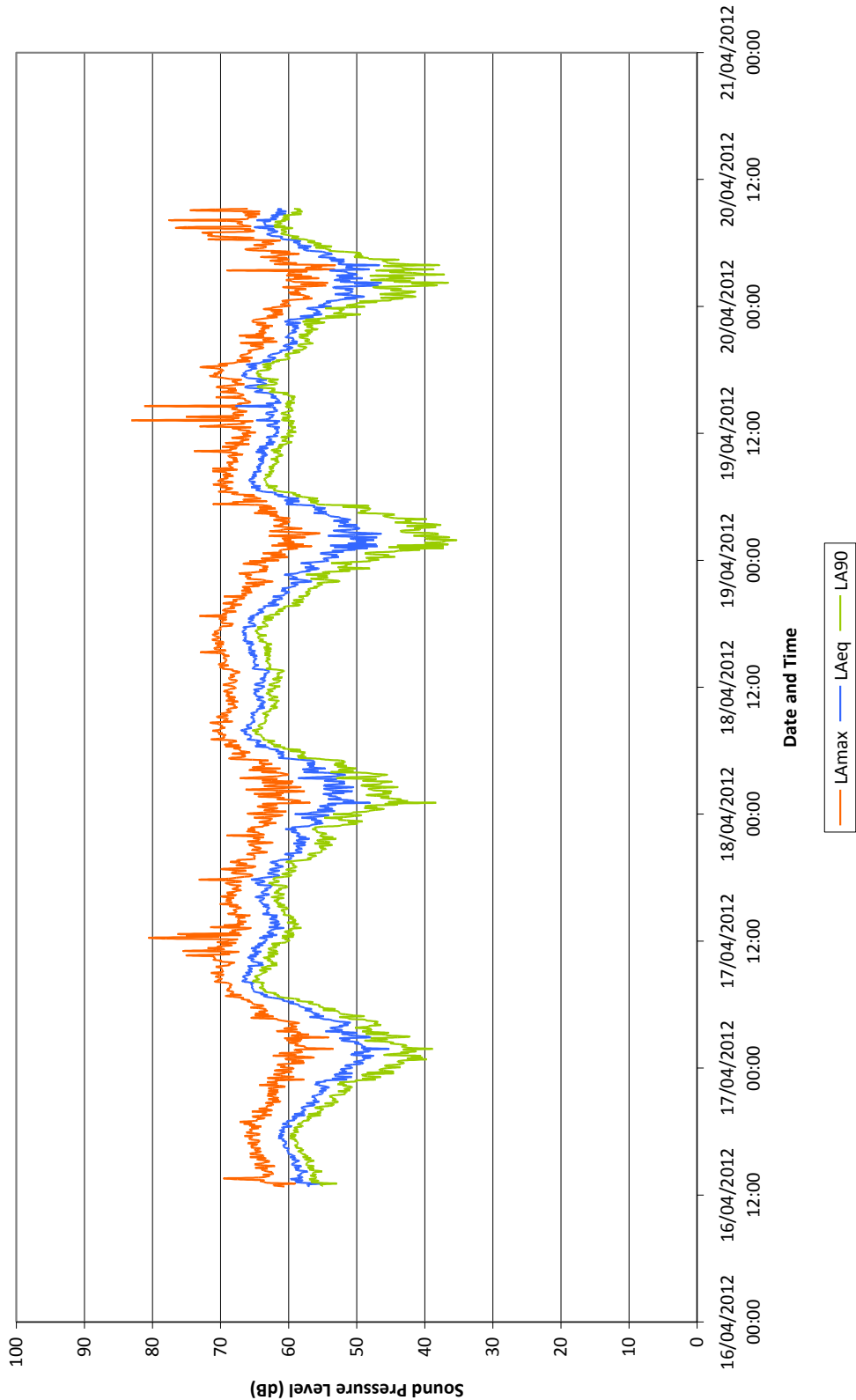


Figure 4: Noise Survey Results - Position 9, April 2012

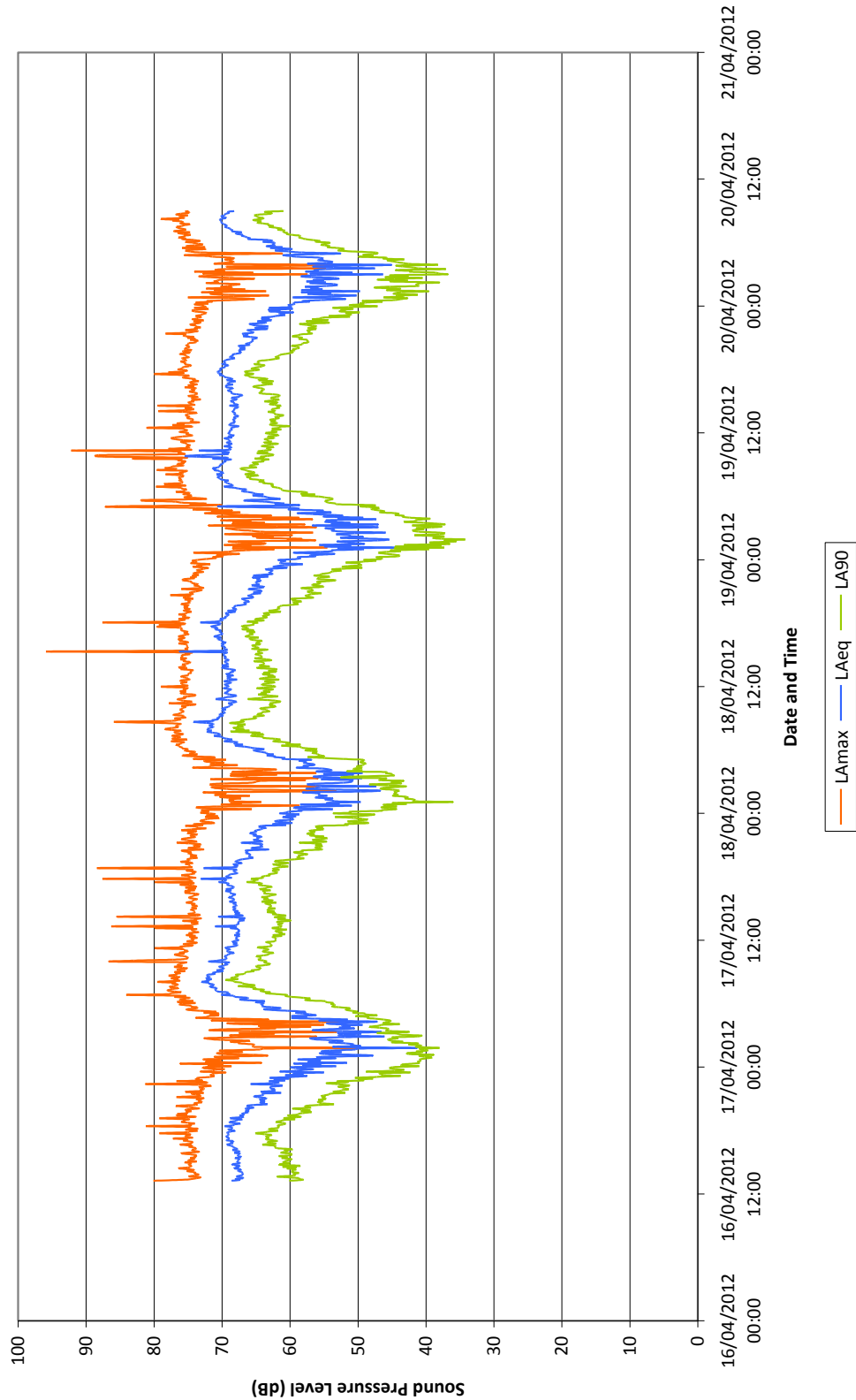


Figure 5: Noise Survey Results - Position 8, January 2013

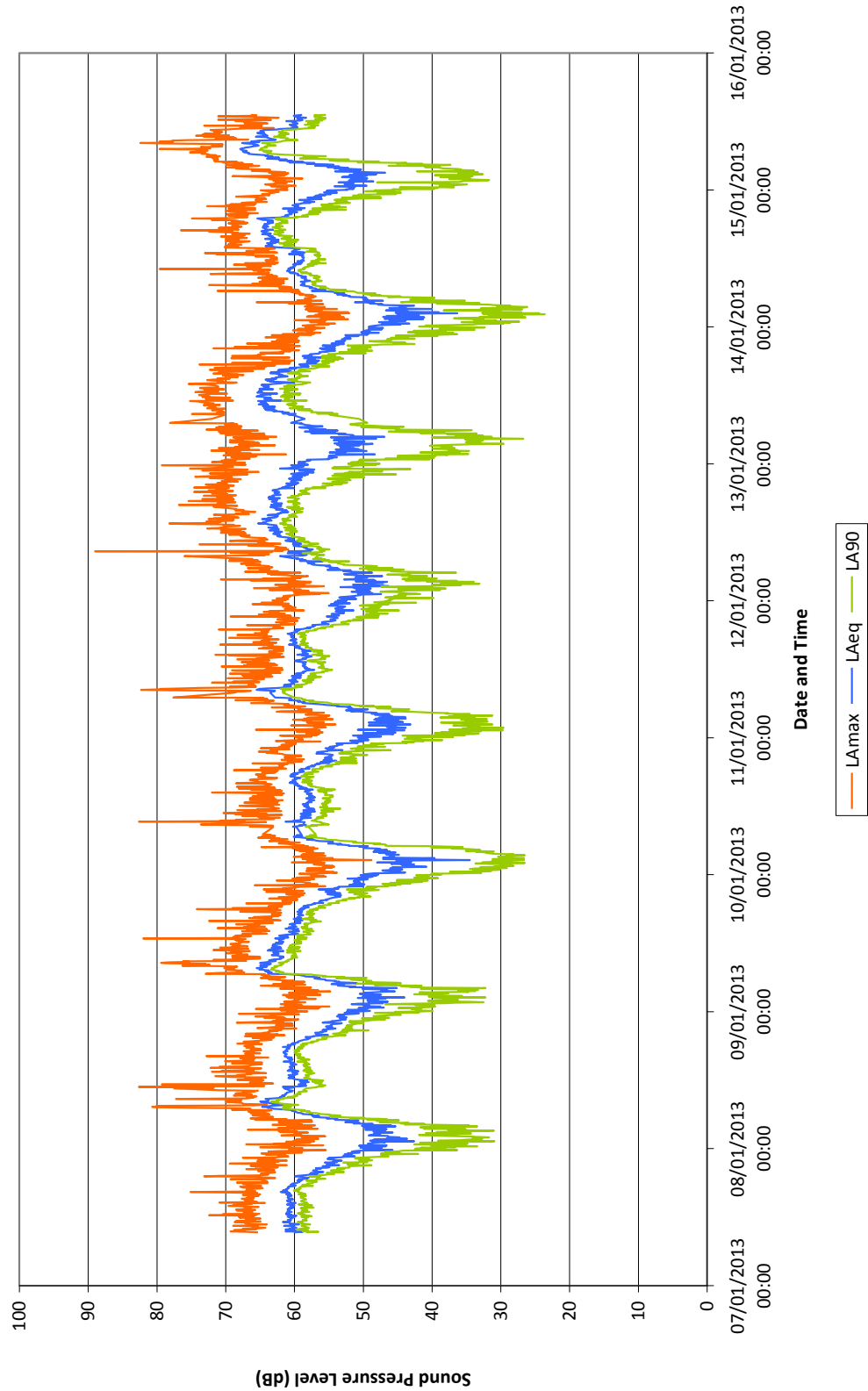
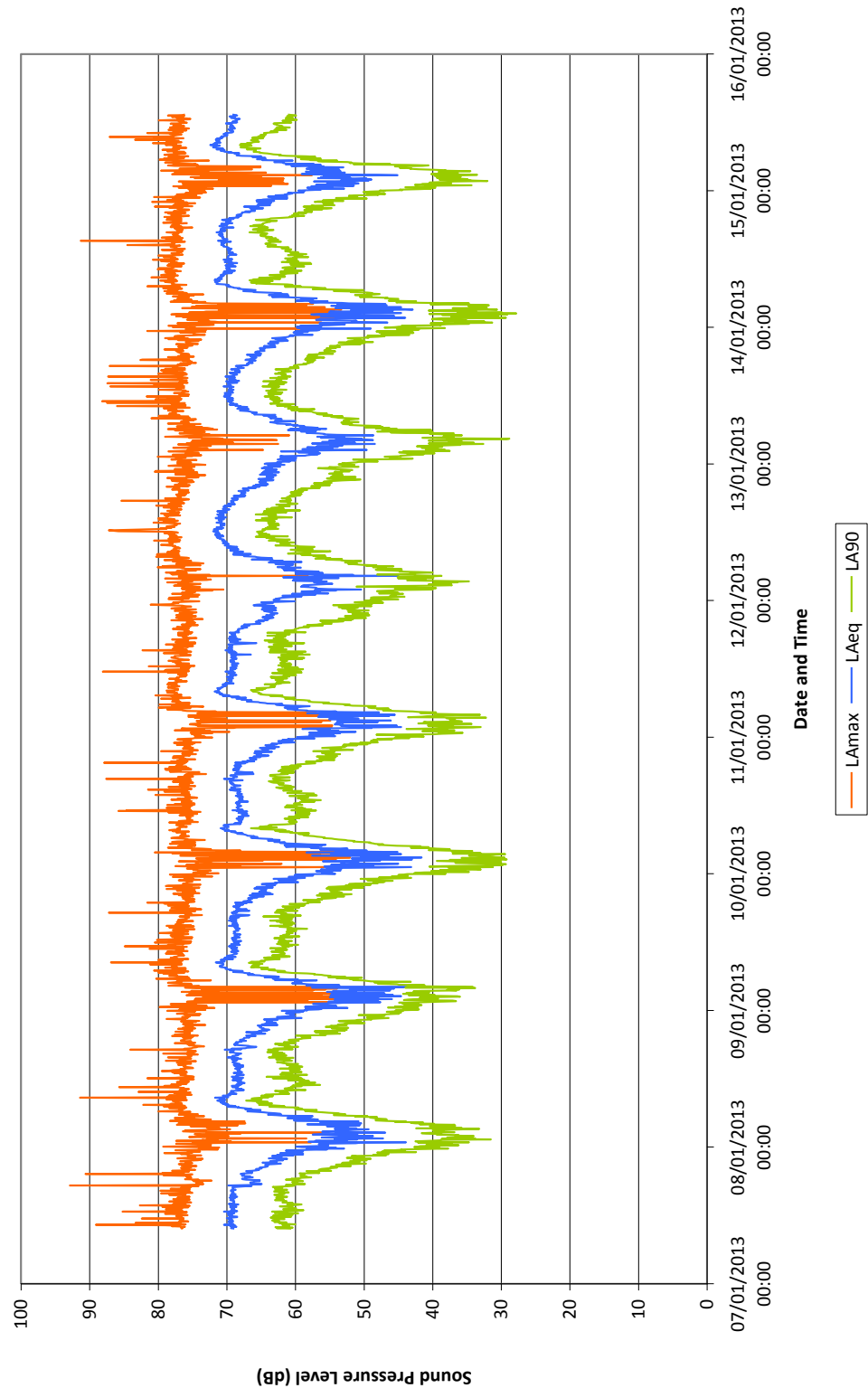
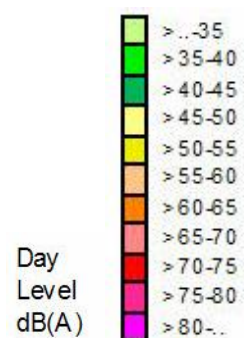


Figure 6: Noise Survey Results - Position 9, January 2013





Project:
Land at Havant Road,
Warblington

Title:
Daytime Predicted Noise Levels Across the
Undeveloped Site (Based on January 2013
Measurements)

DWG No: Figure 7

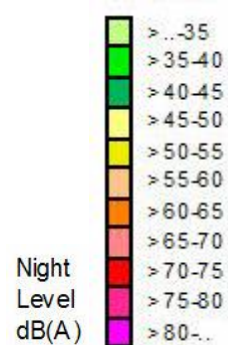
Scale: N.T.S.

Rev: A

Date: February 2017

Drawn By: JE

Job No: 3173-3



Project:
Land at Havant Road,
Emsworth

Title:
Night-time Predicted Noise Levels Across the
Undeveloped Site (Based on January 2013
Measurements)

DWG No: Figure 8

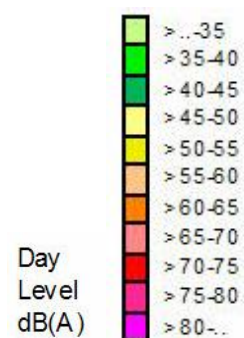
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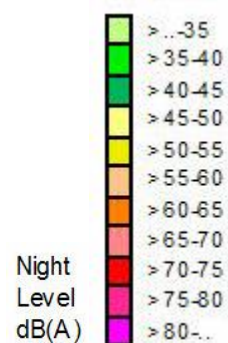
Rev: A

Date: February 2017

Drawn By: JE

Job No: 3173-3

**Project:**Land at Havant Road,
Emsworth**Title:**Daytime Predicted Noise Levels Across the
Developed Site (Based on January 2013
Measurements)**DWG No:** Figure 9**Scale:** N.T.S.**Rev:** A**Date:** February 2017**Drawn By:** JE**Job No:** 3173-3



Project: Land at Havant Road, Emsworth	Title: Night-time Predicted Noise Levels Across the Developed Site (Based on January 2013 Measurements)		 24Acoustics
DWG No: Figure 10	Scale: N.T.S.	Rev: A	
Date: February 2017	Drawn By: JE	Job No: 3173-3	

APPENDIX A: NOISE UNITS

Noise is defined as unwanted sound. The range of audible sound is from 0 to 140 dB. The frequency response of the ear is usually taken to be around 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dB(A) weighting. This is an internationally accepted standard for noise measurements.

For variable sources, such as traffic, a difference of 3 dB(A) is just distinguishable. In addition, a doubling of traffic flow will increase the overall noise by 3 dB(A). The 'loudness' of a noise is a purely subjective parameter, but it is generally accepted that an increase/ decrease of 10 dB(A) corresponds to a doubling/ halving in perceived loudness.

External noise levels are rarely steady, but rise and fall according to activities within an area. In attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:

i) The L_{Amax} noise level

This is the maximum noise level recorded over the measurement period.

ii) The L_{Aeq} noise level

This is "equivalent continuous A-weighted sound pressure level, in decibels" and is defined in British Standard BS 7445 as the "value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval, T, has the same mean square sound pressure as a sound under consideration whose level varies with time".

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

APPENDIX B: ATTENDED NOISE SURVEY RESULTS

Position 1				
Address	Start Time	LAeq	LA90	LAmix
1	16/04/2012 13:31	57	52.6	60.4
2	16/04/2012 13:32	56.2	53.8	59.7
3	16/04/2012 13:33	56.6	54.9	59.7
4	16/04/2012 13:34	57.8	55.6	61.7
5	16/04/2012 13:35	56.9	55.3	60.2
6	16/04/2012 13:36	58.1	53.8	62.8
7	16/04/2012 13:37	58	55.4	61.7
8	16/04/2012 13:38	55.8	54.3	59
9	16/04/2012 13:39	57	55.4	60.2
10	16/04/2012 13:40	56.1	53.4	60.4
Average		57	54.5	60.7

Position 2				
Address	Start Time	LAeq	LA90	LAmix
1	16/04/2012 13:43	54.1	52.1	57.7
2	16/04/2012 13:44	54.5	52.7	57.8
3	16/04/2012 13:45	55.2	53.6	58.5
4	16/04/2012 13:46	54.1	51.1	59.4
5	16/04/2012 13:47	55.5	53.9	58.6
6	16/04/2012 13:48	54.6	52.4	57.4
7	16/04/2012 13:49	55.3	53.1	61.9
8	16/04/2012 13:50	56.7	54.9	59.8
9	16/04/2012 13:51	57.3	55.4	61.7
10	16/04/2012 13:52	56.1	54.2	59.2
Average		55.5	53.3	59.5

Position 3				
Address	Start Time	LAeq	LA90	LAmix
1	16/04/2012 13:55	57.7	56.2	61.5
2	16/04/2012 13:56	57.8	56.7	60.6
3	16/04/2012 13:57	57.5	55.8	61.8
4	16/04/2012 13:58	56.4	54.3	61
5	16/04/2012 13:59	57.7	55.8	62.2
6	16/04/2012 14:00	57.5	55.5	61
7	16/04/2012 14:01	56.4	54.8	59.6
8	16/04/2012 14:02	56.9	54.9	60.7
9	16/04/2012 14:03	58.1	56.9	61.6
10	16/04/2012 14:04	57.4	55.4	60.6
11	16/04/2012 14:05	57	55.6	60.9
Average		57.3	55.6	61.1

Position 4				
Address	Start Time	LAeq	LA90	LAmix
1	16/04/2012 14:13	56.9	52.6	66
2	16/04/2012 14:14	55.8	54.2	58.5
3	16/04/2012 14:15	55.4	53.9	57.7
4	16/04/2012 14:16	55.6	53.8	60
5	16/04/2012 14:17	57	54.6	60.5
6	16/04/2012 14:18	57	55.9	60.1
7	16/04/2012 14:19	57.5	55.3	60.2
8	16/04/2012 14:20	58.1	56.3	60.6
9	16/04/2012 14:21	58.9	57	63.6
10	16/04/2012 14:22	56.9	55.6	59.4
Average		57	54.9	61.4

Position 5				
Address	Start Time	LAeq	LA90	LAmix
1	16/04/2012 14:26	54.1	50.6	57.8
2	16/04/2012 14:27	56.2	54.5	71.9
3	16/04/2012 14:28	55.9	53.8	60.3
4	16/04/2012 14:29	54.1	51.8	58.5
5	16/04/2012 14:30	55.3	53.4	59.9
6	16/04/2012 14:31	55.6	54	59.4
7	16/04/2012 14:32	56	54.6	59.5
8	16/04/2012 14:33	55.2	53.3	59.7
9	16/04/2012 14:34	56.3	54.3	61.1
10	16/04/2012 14:35	54.6	52.9	58.9
Average		55.4	53.3	63.7

Position 6				
Address	Start Time	LAeq	LA90	LAmix
1	16/04/2012 14:40	60	56.7	64.7
2	16/04/2012 14:41	61.7	59.4	66.6
3	16/04/2012 14:42	60.2	57.4	63.4
4	16/04/2012 14:43	59	56	61.9
5	16/04/2012 14:44	61.9	60	65.1
6	16/04/2012 14:45	61.8	59	65.7
Average		60.9	58.1	64.8

Position 7				
Address	Start Time	LAeq	LA90	LAmix
1	16/04/2012 14:48	64.6	57.9	68.5
2	16/04/2012 14:49	63.6	58.8	68.4
3	16/04/2012 14:50	62.8	59.7	67.6
4	16/04/2012 14:51	62.9	59.9	66.3
5	16/04/2012 14:52	64.3	58.5	70.1
6	16/04/2012 14:53	61.1	55.8	66.3
7	16/04/2012 14:54	63.8	59.8	68
8	16/04/2012 14:55	63.3	59.8	68.9
9	16/04/2012 14:56	62.9	58.2	68.5
10	16/04/2012 14:57	63.9	61.2	69.3
Average		63.4	59.0	68.3