



Noise Impact Assessment Weston Homes Plc site at 5-9 Berkeley Avenue, Reading, Berkshire, RG1 6EL

Project Reference:

ENV1-READ-046 – Berkeley Avenue, Reading

Site Address:

5-9 Berkeley Avenue
Reading
Berkshire
RG1 6EL

Report Date:

26th October 2017

Version Number:

Version 1

Prepared For:

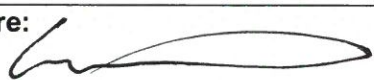
Weston Homes Plc
The Weston Group Business Centre
Parsonage Road
Takeley
Essex
CM22 6PU

Document Control

24 hour monitoring L_{Aeq}

Sound Level Meter	Sonitus Systems EM2010
Serial Number	10.1.116.16
Date of Calibration	9 th August 2016
Calibrator Type	Norsonic 1251
Serial Number	34436
Date of Calibration	10 th July 2017
Date of Measurements	8 th – 25 th September 2017

Remarks	Version 1
Date	26 th October 2017
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Signature	
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Signature	
Project Number	ENV1-READ-046
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Measurements Taken by:	Date	Time/Period
George Booth Assistant Environmental Consultant		17 X 8 hour periods
Signature: 		

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Contents

1. Introduction.....	9
2. Site Description.....	12
3. Assessment Criteria	15
4. Noise Survey	21
5. Design Criteria	49
6. Conclusions.....	54
7. Appendices	57

Appendix 1 – Letter re Discharge of Condition 14

Appendix 2 – Hepworth Acoustics Letter Report

Appendix 3 – Noise Monitoring Location Plan

Appendix 4 – Glossary of Terms

Appendix 5 – Limitations to this Report

Appendix 6– Reading Borough Council Policies

Appendix 7 – Ventilation Specification Sheet

Appendix 8 - Pilkington Glazing Datasheet

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Professional Credentials

Stansted Environmental Services Limited (SES) is a standalone company within the Weston Group. SES provides a range of Health, Safety and Environmental Consultancy Services, specifically for the construction industry, working with developers, architects, planners and designers.

The consultants at Stansted Environmental Services specialise specifically in:-

- Site Investigation and Contaminated Land
- Acoustics and Noise Control
- Construction Safety
- Energy and Sustainability

John Carpenter is the Managing Director for Stansted Environmental Services Limited and has experience in both the public and the private sector at Senior Management and Director level, overseeing a number of large projects, to ensure that the end product is suitable for its intended use.

John is a Chartered Environmental Health Practitioner, with the Chartered Institute of Environmental Health (CIEH), a Chartered Health and Safety Practitioner, with the Institute of Occupational Safety and Health (IOSH), and a Corporate Member of the Institute of Acoustics (IOA). John is also an incorporated member of the Association for Project Safety (APS).

Silvio Petrasso is the Associate Director (Environment) and has over 14 years experience working in the construction industry.

Silvio is a Chartered Health and Safety Practitioner with the Institute of Occupational Safety and Health (IOSH), a Corporate Member of the Institute of Acoustics (IOA), an Associate Member of the Chartered Institute of Environmental Health (CIEH) as well as an Incorporated Member of the Association for Project Safety (APS).

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1. Introduction

Stansted Environmental Services Limited (SES) has been appointed by Weston Homes Plc to undertake a Noise Assessment for their development at 5-9 Berkeley Avenue, Reading, Berkshire, RG1 6EL.

The site benefits from planning permission to redevelop the site to provide 112 residential apartments with associated car parking and landscaped areas granted by appeal (Ref: APP/E0345/A/11/2151515).

The permission contains a number of conditions which includes Condition 14 relating to noise which states;

“The development hereby permitted shall be implemented in accordance with the scheme set out in the Hepworth Acoustics report (13 September 2010), which was submitted to and approved in writing by the local planning authority under reference 10/01752/APPCON on 08.10.10. The dwellings shall not be occupied before the approved scheme is implemented.”

Condition 14 has been discharged by Reading Borough Council as confirmed in their letter dated 10th May 2012 (copy attached as Appendix 1). The Condition has been discharged on the basis that the development is carried out with the scheme of works as set out in the Hepworth Acoustics report (13 September 2010).

The Hepworth Acoustics report (copy attached as Appendix 2), grouped the proposed scheme into 6 Acoustic Zones, each of which provided an acoustic treatment to achieve the desired internal noise levels as stated within BS8233:1999 Sound insulation and noise reduction for buildings – code of practice. The noise levels for which the mitigation measures were based upon were measured by Bird Acoustics in May 2006.

The Bird Acoustics report determined that road traffic noise from the A33 was dominant and as such provided a daytime noise level of 77dB L_{Aeq,16hour} (07:00-23:00) and a night-time noise level of 70dB L_{Aeq,8hour} (23:00-07:00).

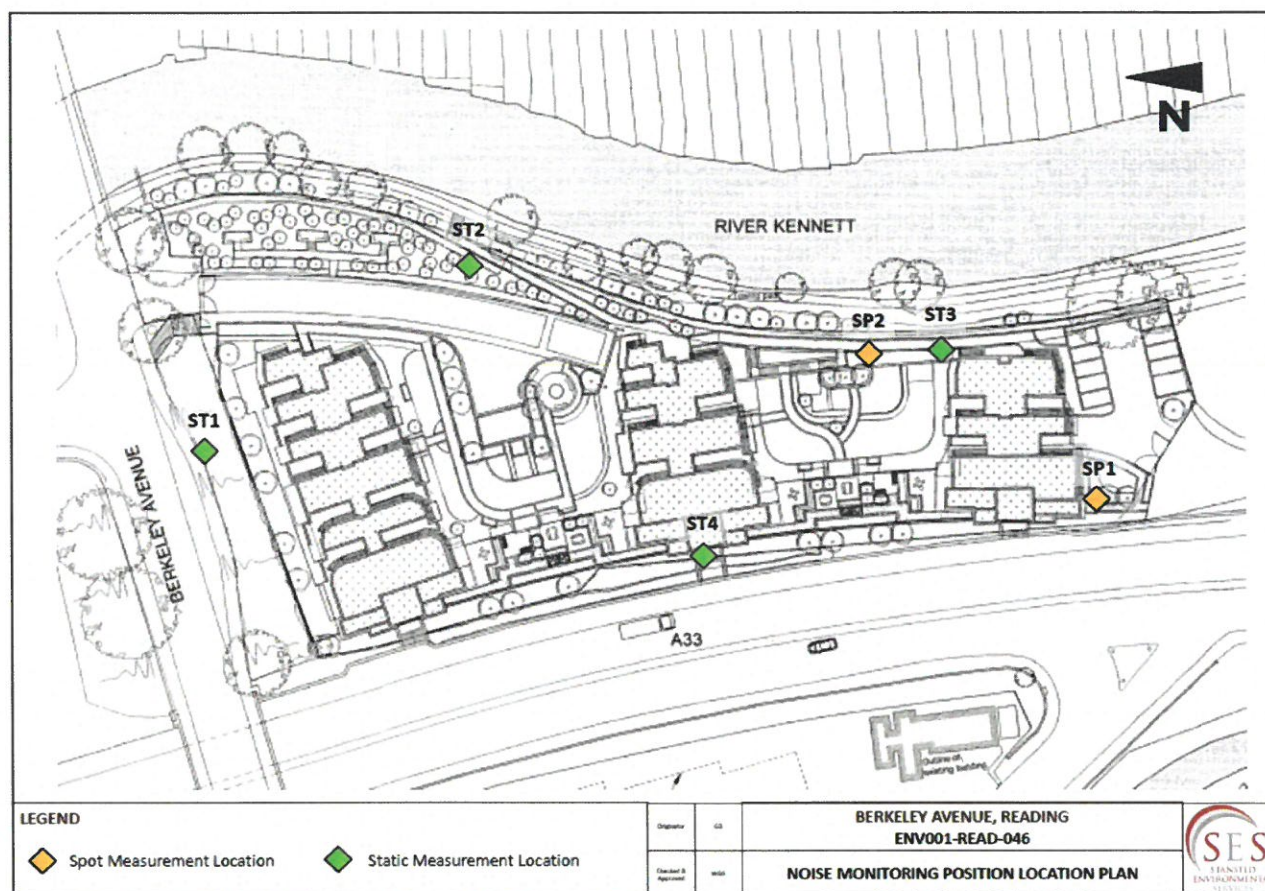
Since the preparation of the Hepworth Acoustics review in 2010, there have been significant improvements with glazing attenuation, as well as a revision of BS8233.

As such, SES was asked to carry out a further assessment to assess the potential to rationalise the glazing specification for the development.

This was undertaken by setting up a noise monitoring station on the development site in four separate locations.

Noise was monitored continuously over a 17 day period together with 2 x 30min spot measurements as shown in figure 1- noise monitoring location plan.

Figure 1 Noise monitoring location plan.



This report is necessarily technical in nature. Therefore to assist the reader, a glossary of terminology relating to noise is contained in Appendix 4.

Limitations to this report are detailed in Appendix 5.

Figure 2: Aerial view of the site showing the proposed site at Berkeley Avenue and the monitoring positions



Positions 1-4 are where the 24 hour fixed monitoring stations were located.

SP1 and SP2 are where the 30min spot measurements were retrieved from.

2. Site Description

The site is located at 5-9 Berkeley Avenue, Reading, Berkshire, RG1 6EL and the centre of the site can be approximated by National Grid Reference; SU 713 725.

The site is almost rectangular in shape and covers an approximate area of 0.58 hectares. The former building on the site has been demolished and a stockpile of crushed material is located on the northern boundary of the site. The remainder of the site is generally overgrown with scrub.

The site is bounded by the River Kennet to the east, the A33 to the west, Berkeley Avenue to the north and a builder's merchant to the south.

Photograph 1 – View to the northern boundary.



Photograph 2 - , View of the A33 on the western boundary and the new Lok'n Store self storage facility.



Photograph 3 - , View of the southern boundary with the builders yard.



Photograph 4 - , View of the River Kennet on the eastern boundary.



3. Assessment Criteria

The National Planning Policy Framework (NPPF), 2012

The National Planning Policy Framework was published in March 2012. In respect of noise, the document states, in section 11, paragraph 109 that:

"The planning system should contribute to and enhance the natural and local environment by... preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of ... noise pollution".

It goes on to advise in section 11, paragraph 123 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*
- *Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established;*
- *Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason".*

The NPPF revokes Planning Policy Guidance 24 (PPG 24) which was previously used to assess noise impacts of planning applications. PPG 24:

- Outlined the considerations to be taken into account in determining planning applications both for noise-sensitive developments and for those activities that will generate noise
- Introduced the concept of "Noise Exposure Categories" for residential development, encouraged their use and recommended appropriate levels for exposure to different sources of noise and
- Advised on the use of planning conditions to minimise the impact of noise

The NPPF indicates that the Noise Policy Statement for England (NPSE) should be used to define "significant adverse impacts". A summary of the NPSE is provided below, and it

is understood that the UK government is currently undertaking research to quantify the significant observed adverse effect levels for noise.

Noise Policy Statement for England (NPSE)

The NPSE was published in March 2010. The document seeks to clarify the underlying principles and aims in existing policy documents, legislation and guidance that relate to noise. It also sets out, in paragraph 1.6, the long term vision of Government noise policy:

"Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development".

The NPSE clarifies that noise should not be considered in isolation of the wider benefits of a scheme or development, and that the intention is to minimise noise and noise effects as far as is reasonably practicable having regard to the underlying principles of sustainable development.

The explanatory note of NPSE defines the terms used in the NPPF:

"There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation.

They are:

NOEL – No Observed Effect Level: This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level: This is the level above which adverse effects on health and quality of life can be detected.

Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.

SOAEL – Significant Observed Adverse Effect Level: This is the level above which significant adverse effects on health and quality of life occur."

The NPSE does not provide a numerical value for the SOAEL, stating at paragraph 2.22:

"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."

The NPPF does not quote figures for action, however BS8233:2014 is the most appropriate guidance document in relation to identifying target noise level criteria. Achieving the LOAEL requires “all reasonable steps” to be taken in terms of mitigation.

British Standard BS8233:2014: Sound Insulation and Noise Reduction for Buildings – Code of Practice

The scope of this Standard is to provide recommendations for the control of noise in and around buildings. It suggests appropriate criteria and limits for different situations, which are primarily intended to guide the design of new or refurbished buildings undergoing a change of use, rather than to assess the effect of changes in the external noise climate.

The Standard suggests suitable internal noise levels within different types of buildings, including dwellings, and these are repeated in Table 1.

Table 1: Recommended internal noise levels $L_{Aeq,T}$ dB

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35dB $L_{Aeq,T}$ 16 hour	---
Dining	Dining room area	40dB $L_{Aeq,T}$ 16 hour	---
Sleeping	Bedroom	35dB $L_{Aeq,T}$ 16 hour	30dB $L_{Aeq,T}$ 8 hour

World Health Organisation (WHO)1999; Guidelines for Community Noise

WHO 2009: *Guidelines for Community Noise* has established guideline values for community noise in specific environments, which are summarised below:

- Outdoor Living Area – Serious Annoyance 55 dB(A), 16 hours between 07:00 and 23:00
- Outdoor Living Area – Moderate Annoyance 50 dB(A), 16 hours between 07:00 and 23:00
- Indoor Speech Intelligibility – Moderate Annoyance 35 dB(A), 16 hours between 07:00 and 23:00
- Inside bedrooms night time sleep disturbance 30dB(A), 8 hours between 23:00 and 07:00
- Outside bedrooms, window open (outdoor values), sleep disturbance 45dB(A)

The WHO has issued a further document. “Night Noise Guidelines for Europe (2009)” and the following table details the effects of different levels of night noise on health.

Table 2: Exposure –Effects Relationship

Average night noise levels over a year $L_{\text{night, outside}}$	Health Effects Observed in the Population
Up to 30dB	Although individual sensitivities exist, circumstances may differ, it appears that up to this level no substantial biological effects are observed. $L_{\text{night, outside}}$ of 30dB is equivalent to the no observed effect level (NOEL) for night noise.
30 to 40dB	A number of effects on sleep are observed from this range: body movements, awakening, self-reported sleep disturbances, arousals. The intensity of the effect depends on the nature of the source and the number of events. Vulnerable groups (for example, children, the chronically ill and the elderly) are more susceptible. However, even in the worst cases the effects seem modest. $L_{\text{night, outside}}$ of 40dB is equivalent to the lowest observed adverse effect level (LOAEL) for night noise.
40 to 55dB	Adverse health effects are observed among the exposed population. Many people have to adapt their lives to cope with noise at night. Vulnerable groups are more severely affected.
Above 55dB	The situation is considered increasingly dangerous for public health. Adverse health effects occur frequently, a sizeable proportion of the population is highly annoyed and sleep-disturbed. There is evidence that the risk of cardiovascular disease increases.

Based on the exposure-effects relationship summarised in Table 2, the night noise guideline values are recommended for the protection of public health from night noise as follows:

Night Noise guideline – $L_{\text{night, outside}} = 40\text{dB}$

Interim Target – $L_{\text{night, outside}} = 55\text{dB}$

For the primary prevention of health effects related to night noise, the WHO (2009) recommends people should not be exposed to night time noise levels greater than 40dB of $L_{\text{night, outside}}$ during the part of the night when most people are in bed. The LOAEL of night noise, 40dB $L_{\text{night, outside}}$, should be considered a health based limit value to protect the public.