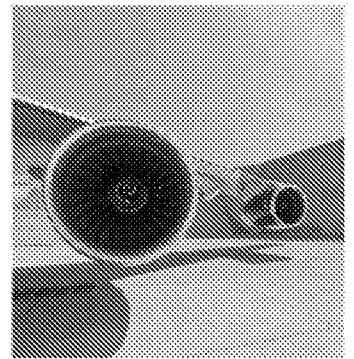
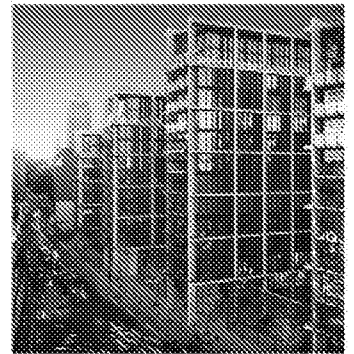




REPORT AS10504.180522.ADS (Stage 2) rev B



LAND NORTH OF WOODCROFT
WEST WALBERTON LANE
ARUNDEL

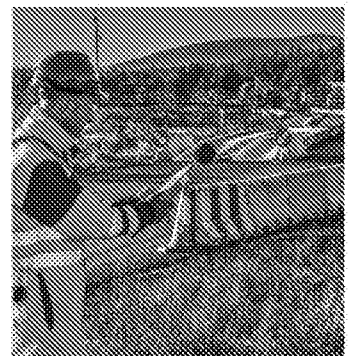


ProPG STAGE 2 ACOUSTIC DESIGN STATEMENT

Prepared: 21 March 2019



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CONTENTS

1.0	INTRODUCTION	2
2.0	ProPG ELEMENT 1 – ACOUSTIC DESIGN CONSIDERATIONS	2
3.0	ProPG ELEMENT 2 – INTERNAL NOISE LEVEL ASSESSMENT	2
3.1	<i>ProPG Internal Noise Level Guidelines</i>	3
3.2	<i>External Building Fabric Specification & Internal Noise Level Assessment</i>	4
3.2.1	Principle Noise Sources and Propagation Across Site	4
3.2.2	Non-Glazed Façade Element	4
3.2.3	Glazing and Ventilation Specification	4
3.2.4	Overheating	5
4.0	ProPG ELEMENT 3 – EXTERNAL AMENITY AREA NOISE ASSESSMENT	6
4.1	<i>ProPG External Noise Level Guidelines</i>	6
4.2	<i>External Amenity Space Noise Assessment</i>	8
4.2.1	Proposals	8
4.2.2	Anticipated Noise Levels	8
4.2.3	Discussion	8
5.0	ProPG ELEMENT 4 – ASSESSMENT OF OTHER RELEVANT ISSUES	8
5.1	<i>Compliance with Relevant National and Local Policy</i>	8
5.2	<i>Magnitude of Extent of Compliance with the ProPG</i>	9
5.3	<i>Likely Future Occupants</i>	9
5.4	<i>Acoustic Design vs Unintended Adverse Consequences</i>	9
5.5	<i>Acoustic Design vs. Wider Planning Objectives</i>	9
6.0	CONCLUSIONS	9

List of Attachments

Appendix A	Acoustic Terminology
Appendix B	Stage 1 Risk Assessment

1.0 INTRODUCTION

Crayfern Homes Ltd is proposing to develop land north of Woodcroft, West Walberton Lane, Arundel for eight residential properties. The development will be situated immediately south of the A27.

Clarke Saunders Associates has been commissioned by Crayfern Homes Ltd to undertake an assessment of the current environmental noise impact on the site. Noise will be assessed in accordance with the National Planning Policy Framework, the recently published *ProPG: Planning and Noise*¹ for new residential developments and with reference made to the relevant guidance set out in BS8233: 2014 *Guidance on sound insulation and noise reduction for buildings* and the World Health Organisation *Guidelines for Community Noise* (1999).

Following the initial Stage 1 Risk Assessment (see Appendix B) which identified the development area as medium risk in terms of noise impact, this Stage 2 Acoustic Design Statement considers the noise impact of the site in detail and addresses the requirement for any outline mitigation measures as appropriate for the proposed residential development.

2.0 ProPG ELEMENT 1 – ACOUSTIC DESIGN CONSIDERATIONS

The houses are proposed to be located between approximately 17 and 130 metres from the A27. Consequently, road traffic noise from the A27 is the dominant source of noise requiring acoustic consideration. As a result, the Stage 1 risk assessment identified the area as a medium risk site in terms of noise impact.

Whilst good acoustic design will be necessary to control the impact of the A27 on the future residents, there is existing precedent for houses in the neighbouring lots of land, which are located a similar distance from the A27.

3.0 ProPG ELEMENT 2 – INTERNAL NOISE LEVEL ASSESSMENT

The second element of the assessment is to seek to achieve recommended noise levels inside noise sensitive rooms in the proposed residential development.

¹ <http://ioa.org.uk/publications/propg>

3.1 ProPG Internal Noise Level Guidelines

ProPG brings together relevant guidance from several sources including a British Standard (BS 8233: 2014 *Guidance on sound insulation and noise reduction for buildings*) and internationally published guidance in the form of World Health Organisation *Guidelines for Community Noise* (1999). This is summarised in Table 3.1.

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living Room	35 dB L_{Aeq} , 16 hour	-
Dining	Dining Room	40 dB L_{Aeq} , 16 hour	-
Sleeping (daytime resting)	Bedroom	35 dB L_{Aeq} , 16 hour	30 dB L_{Aeq} , 8 hour 45 dB $L_{Amax,T}$ (Note 4)

Table 3.1 – Excerpt from ProPG: summary of internal noise criteria

[dB ref. 20μPa]

NOTE 1 The Table provides recommended **internal L_{Aeq} target levels** for overall noise in the design of a building. These are the sum total of structure-borne and airborne noise sources. Ground-borne noise is assessed separately and is not included as part of these targets, as human response to ground-borne noise varies with many factors such as level, character, timing, occupant expectation and sensitivity.

NOTE 2 The internal L_{Aeq} target levels shown in the Table are based on the existing guidelines issued by the WHO and assume normal diurnal fluctuations in external noise. In cases where local conditions do not follow a typical diurnal pattern, for example on a road serving a port with high levels of traffic at certain times of the night, an appropriate alternative period, e.g. 1 hour, may be used, but the level should be selected to ensure consistency with the internal L_{Aeq} target levels recommended in the Table.

NOTE 3 These internal L_{Aeq} target levels are based on annual average data and do not have to be achieved in all circumstances. For example, it is normal to exclude occasional events, such as fireworks night or New Year's Eve.

NOTE 4 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. Sporadic noise events could require separate values. In most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,T}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events (see Appendix A).

NOTE 5 Designing the site layout and the dwellings so that the internal target levels can be achieved with open windows in as many properties as possible demonstrates good acoustic design. Where it is not possible to meet internal target levels with windows open, internal noise levels can be assessed with windows closed, however any façade openings used to provide whole dwelling ventilation (e.g. trickle ventilators) should be assessed in the "open" position and, in this scenario, the internal L_{Aeq} target levels should not normally be exceeded, subject to the further advice in Note 7.

NOTE 6 Attention is drawn to the requirements of the Building Regulations.

NOTE 7 Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal L_{Aeq} target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved. The more often internal L_{Aeq} levels start to exceed the internal L_{Aeq} target levels by more than 5 dB, the more that most people are likely to regard them as "unreasonable". Where such exceedances are predicted, applicants should be required to show how the relevant number of rooms affected has been kept to a minimum. Once internal L_{Aeq} levels exceed the target levels by more than 10 dB, they are highly likely to be regarded as "unacceptable" by most people, particularly if such levels occur more than occasionally. Every effort should be made to avoid relevant rooms experiencing "unacceptable" noise levels at all and where such levels are likely to occur frequently, the development should be prevented in its proposed form (see Section 3.D).

3.2 External Building Fabric Specification & Internal Noise Level Assessment

The following design review is based on the site layout and floor plans available at the time of writing, targeting the internal noise levels set out in Table 3.1.

3.2.1 Principle Noise Sources and Propagation Across Site

The principal source of noise impact on the site is from road traffic noise on the A27, which determines the required performance specification of the external building fabric envelope. The closest building façade to the A27 is approximately 17 m away, although many façades will benefit from significant screening either from the building itself or from surrounding buildings, as well as being further from the principal noise source.

3.2.2 Non-Glazed Façade Element

It has been assumed that all non-glazed elements, i.e. masonry walls/facings and the roof systems, will provide the following minimum sound insulation performances, when tested in accordance with ISO 10140-2:2010. This is expected to be achievable with a standard cavity masonry brick/block construction.

Frequency (Hz)	Single Figure Weighted Sound Reduction Figure (dB)
Masonry	51

Table 3.2 - Assumed minimum sound reduction index of solid constructions

3.2.3 Glazing and Ventilation Specification

The minimum sound insulation specifications for the glazed elements of the building façades are provided in Table 3.3, calculated from the site survey data and typical dwelling configurations.

	Single Figure Weighted Sound Reduction Figure (dB)	Ventilator Performance (dB)
Front Building Line Façade	R_w 31	$D_{n,e,w}$ 30
'Other' Façades	No acoustic specification required	No acoustic specification required

Table 3.3 - Minimum required sound reduction indices for glazing and ventilators.

The majority of standard thermal double-glazed units and non-attenuated trickle ventilators, which are required in any event by Approved Document F of the Building Regulations, are expected to provide the acoustic performance specified in Table 3.3.

The internal layouts of the houses have been designed such that a majority of the windows are on the southern façade, screened from the A27. On the ground floor of the two plots closest to the A27, the only room that does not benefit from building screening is the study. As this is at ground floor level, this will benefit from screening by the existing fence on the trunk road boundary, however.

The master bedroom and bedrooms 5 and 2, situated on the first floor, have windows that face north, east and west. It is understood that there will also be a window on the southern façade of the master bedroom that will be used both for the purposes of increasing light and air flow into the room. Consequently, north facing bedroom windows will not need to be opened for ventilation except at the occupant's discretion.

The eastern and western facing windows of bedroom 2 and 5, which have line of sight to the A27 will have to be openable for the purposes of ventilation.

There is no reason why windows could not be opened as a matter of personal preference or for purge ventilation.

3.2.4 Overheating

The following analysis is based on the acoustic performance of the building envelope with windows open achieving an insertion loss of 10 – 15dB, as described in Section 2.33 of ProPG (2017). A reduction of 15dB relates to a partially open window, and 10dB relates to a fully open window.

Internal noise levels in the 2nd bedrooms of the houses on the front building line at night-time with windows open are likely to be between $L_{Aeq,8hour}$ 43 – 48dB(A). These windows are north facing which may suggest that overheating is less likely. It would be logical to assume that where windows are opened to control overheating at night, this would only be during some summer nights, or at the residents' preference. Rarely would there be a need to open windows fully. As the risk of an adverse effect occurring will be partially dependent on how frequently and for what duration the mitigation of overheating is likely to result in increased internal noise levels, these considerations should be balanced against the excess over guidance value noise levels. With windows closed, internal night-time noise levels are likely to be controlled to less than $L_{Aeq,8hour}$ 30dB(A).

Bedrooms situated on the southern façade of houses are likely to be subject to internal noise levels with windows open of between $L_{Aeq,8hour}$ 31 – 36dB(A), owing to the significant screening afforded by the houses. This range is within the 'low' risk category indicated in the Draft Acoustics and Noise Consultants Residential Design Guide *Acoustics Ventilation and Overheating*.

Maximum noise event levels at night should also be considered as per the ProPG guidance. Again, assessing Bedroom 2 as a worst case scenario, it is expected that when the window is partially open,

a level of $L_{Amax,F}$ 45dB will not be exceeded more than 10 times per night (below which the effect can be dismissed). When the window is fully open however, there is likely to be more than 10 exceedances per night.

This scenario does not include the 5dB relaxation indicated in Table 3.1 Note 7 above which noise levels may be considered 'unreasonable'.

The ability of the occupiers to control their own living conditions, both thermally and acoustically, is an important factor, but they should not be put in a position in which the inherent compromise between these factors is beyond a reasonable level of adaptation. Residents would, at worst, be in a position where windows can be opened wide for rapid heat rejection, or set in a partially open position and the compromise in internal noise levels be within a reasonable range of accommodation.

Modest increases in internal ambient noise at times when higher rates of ventilation are required provide for thermal comfort without a dramatic compromise in the residents' internal amenity.

This overheating assessment applies to the northern facing façades of the most affected houses closest to the A27, and therefore relates to a worst-case scenario.

4.0 ProPG ELEMENT 3 – EXTERNAL AMENITY AREA NOISE ASSESSMENT

The ProPG makes it clear that consideration of noise in proposed external amenity areas is an important element in managing noise impact in new residential developments. The ProPG encourages a more holistic consideration of amenity that simply rates the level of noise outside.

4.1 ProPG External Noise Level Guidelines

ProPG states the following regarding the consideration and assessment of noise in external amenity spaces.

- 3(i) *"If external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended".*

- 3(ii) *"The acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB LAeq,16hr."*
- 3(iii) *"These guideline values may not be achievable in all circumstances where development might be desirable. In such a situation, development should be designed to achieve the lowest practicable noise levels in these external amenity spaces."*
- 3(iv) *Whether or not external amenity spaces are an intrinsic part of the overall design, consideration of the need to provide access to a quiet or relatively quiet external amenity space forms part of a good acoustic design process.*
- 3(v) *Where, despite following a good acoustic design process, significant adverse noise impacts remain on any private external amenity space (e.g. garden or balcony) then that impact may be partially off-set if the residents are provided, through the design of the development or the planning process, with access to:*
- *a relatively quiet facade (containing openable windows to habitable rooms) or a relatively quiet externally ventilated space (i.e. an enclosed balcony) as part of their dwelling; and/or*
 - *a relatively quiet alternative or additional external amenity space for sole use by a household, (e.g. a garden, roof garden or ProPG Planning & Noise: New Residential Development*
 - *a relatively quiet, protected, nearby, external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings; and/or*
 - *a relatively quiet, protected, publicly accessible, external amenity space (e.g. a public park or a local green space designated because of its tranquillity) that is nearby (e.g. within a 5 minutes walking distance). The local planning authority could link such provision to the definition and management of Quiet Areas under the Environmental Noise Regulations*

4.2 External Amenity Space Noise Assessment

4.2.1 *Proposals*

It is understood from the agreed site layout that each house will have a large private garden, enclosed by a close-boarded timber fence. Each of these gardens will have an area to the rear of each property that will benefit from building screening from the road.

There is also plentiful green space in the surrounding area, due to the semi-rural location of the site.

4.2.2 *Anticipated Noise Levels*

The proposed site layout has been used to create a noise map of the area, which predicts likely noise levels within each of the gardens, in areas that benefit from building screening. For all of the proposed plot locations, these areas of external amenity would have noise levels which lie within or lower than the identified aspirational design range.

4.2.3 *Discussion*

On the basis of the proposed site layout, it is anticipated that noise levels in parts of all amenity areas would be commensurate with the aspirational design range of 50 – 55 dB $L_{Aeq,16hour}$.

Although this is unlikely to be the case in all parts of amenity areas, the facts that these aspirational levels can be achieved, and that there is plenty of green space in the surrounding area further from the A27, leads to the likelihood that the noise exposure would be considered acceptable by the future residents.

5.0 ProPG ELEMENT 4 – ASSESSMENT OF OTHER RELEVANT ISSUES

5.1 Compliance with Relevant National and Local Policy

National planning policy for England, set out in the Noise Policy Statement for England (NPSE), the National Planning Policy Framework (NPPF) and the ProPG, aims to promote the building of high quality sustainable homes in desirable areas while ensuring future and existing nearby residents and businesses are not adversely affected by the scheme (including by noise, amongst others).

The ProPG outlines a staged process by which to initially assess the risk posed by the existing noise climate followed by a more in-depth assessment of those risks and consideration of strategies by which they can be mitigated.

This assessment has been carried out following the ProPG process, and demonstrates that by the use of suitable mitigation measures and careful design of building orientation, layout of the site and internal layout of the dwellings, acceptable noise levels can be achieved both internally and externally.

5.2 Magnitude of Extent of Compliance with the ProPG

This assessment has demonstrated that using the proposed acoustic design for the site, both internal and external noise levels can be maintained in properties across the proposed scheme. The development, therefore, achieves the targeted guidance in ProPG.

5.3 Likely Future Occupants

The scheme consists of a total of eight detached houses. Each house will have a large private fenced garden, part of each are screened from the road traffic noise on the A27. Ensuring that good acoustic design is utilised in the ongoing design of this site, the noise exposure of the site would not be expected to significantly conflict with the likely future occupants' aspirations and expectations for these dwellings.

5.4 Acoustic Design vs Unintended Adverse Consequences

No significant adverse consequences resulting from the use of the proposed acoustic design have been identified.

5.5 Acoustic Design vs. Wider Planning Objectives

The acoustic design outlined in the report generally supports the wider planning objectives of providing new homes in desirable areas, close to local and national transport links and local amenities.

6.0 CONCLUSIONS

Measurements have been made of the prevailing noise climate at the proposed site for residential development on the Land North of Woodcroft, West Walberton Lane, Arundel.

The measured noise levels have been assessed against the National Planning Policy Framework and currently available standards and guidance documents including the Professional Practice Guidance on Planning and Noise, World Health Organisation *Guidelines for Community Noise* (1999) and BS8233:2014 *Guidance on sound insulation and noise reduction for buildings*.

The survey has enabled the minimum sound reduction requirements of the external building fabric to be established as a performance specification, which is likely to be achieved using standard proprietary thermal double-glazed units and trickle vent systems.

Proposed garden fences and self-screening from the built form of the dwellings themselves has been shown to be sufficient to maintain noise levels in external amenity areas within the aspirational design range of 50 – 55 dBA L_{night}.


Daniel Saunders MIOA

CLARKE SAUNDERS ASSOCIATES

ACOUSTIC TERMINOLOGY & HUMAN RESPONSE TO BROADBAND SOUND

1.1 Acoustic Terminology

The human impact of sounds is dependent upon many complex interrelated factors such as 'loudness', its frequency (or pitch) and variation in level. In order to have some objective measure of the annoyance, scales have been derived to allow for these subjective factors.

Sound	Vibrations propagating through a medium (air, water, etc.) that are detectable by the auditory system.
Noise	Sound that is unwanted by or disturbing to the perceiver.
Frequency	The rate per second of vibration constituting a wave, measured in Hertz (Hz), where 1Hz = 1 vibration cycle per second. The human hearing can generally detect sound having frequencies in the range 20Hz to 20kHz. Frequency corresponds to the perception of 'pitch', with low frequencies producing low 'notes' and higher frequencies producing high 'notes'.
dB(A):	Human hearing is more susceptible to mid-frequency sounds than those at high and low frequencies. To take account of this in measurements and predictions, the 'A' weighting scale is used so that the level of sound corresponds roughly to the level as it is typically discerned by humans. The measured or calculated 'A' weighted sound level is designated as dB(A) or L_A .
L_{eq}:	A notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 8 hour, 1 hour, etc). The concept of L_{eq} (equivalent continuous sound level) has primarily been used in assessing noise from industry, although its use is becoming more widespread in defining many other types of sounds, such as from amplified music and environmental sources such as aircraft and construction. Because L_{eq} is effectively a summation of a number of events, it does not in itself limit the magnitude of any individual event, and this is frequently used in conjunction with an absolute sound limit.
L_{10} & L_{90}:	Statistical L_n indices are used to describe the level and the degree of fluctuation of non-steady sound. The term refers to the level exceeded for n% of the time. Hence, L_{10} is the level exceeded for 10% of the time and as such can be regarded as a typical maximum level. Similarly, L_{90} is the typical minimum level and is often used to describe background noise. It is common practice to use the L_{10} index to describe noise from traffic as, being a high average, it takes into account the increased annoyance that results from the non-steady nature of traffic flow.
L_{max}:	The maximum sound pressure level recorded over a given period. L_{max} is sometimes used in assessing environmental noise, where occasional loud events occur which might not be adequately represented by a time-averaged L_{eq} value.
R_w D_w $D_{nT,w}$ $D_{n,e,w}$ $D_{n,l,w}$	Value of parameter, determined as above, but weighted in accordance with the procedures laid down in BS EN ISO 717-1 to provide a single-figure value.

1.2 Octave Band Frequencies

In order to determine the way in which the energy of sound is distributed across the frequency range, the International Standards Organisation has agreed on "preferred" bands of frequency for sound measurement and analysis. The widest and most commonly used band for frequency measurement and analysis is the Octave Band. In these bands, the upper frequency limit is twice the lower frequency limit, with the band being described by its "centre frequency" which is the average (geometric mean) of the upper and lower limits, e.g. 250 Hz octave band extends from 176 Hz to 353 Hz. The most commonly used octave bands are:

Octave Band Centre Frequency Hz	63	125	250	500	1000	2000	4000	8000
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ACOUSTIC TERMINOLOGY & HUMAN RESPONSE TO BROADBAND SOUND

1.3 Human Perception of Broadband Noise

Because of the logarithmic nature of the decibel scale, it should be borne in mind that sound levels in dB(A) do not have a simple linear relationship. For example, 100dB(A) sound level is not twice as loud as 50dB(A). It has been found experimentally that changes in the average level of fluctuating sound, such as from traffic, need to be of the order of 3dB before becoming definitely perceptible to the human ear. Data from other experiments have indicated that a change in sound level of 10dB is perceived by the average listener as a doubling or halving of loudness. Using this information, a guide to the subjective interpretation of changes in environmental sound level can be given.

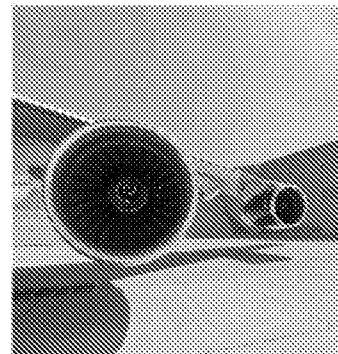
INTERPRETATION

Change in Sound Level dB	Subjective Impression	Human Response
0 to 2	Imperceptible change in loudness	Marginal
3 to 5	Perceptible change in loudness	Noticeable
6 to 10	Up to a doubling or halving of loudness	Significant
11 to 15	More than a doubling or halving of loudness	Substantial
16 to 20	Up to a quadrupling or quartering of loudness	Substantial
21 or more	More than a quadrupling or quartering of loudness	Very Substantial

1.4 Earth Bunds and Barriers - Effective Screen Height

When considering the reduction in sound level of a source provided by a barrier, it is necessary to establish the "effective screen height". For example if a tall barrier exists between a sound source and a listener, with the barrier close to the listener, the listener will perceive the sound as being louder if he climbs up a ladder (and is closer to the top of the barrier) than if he were standing at ground level. Equally if he sat on the ground the sound would seem quieter than if he were standing. This is explained by the fact that the "effective screen height" is changing with the three cases above. In general, the greater the effective screen height, the greater the perceived reduction in sound level.

Similarly, the attenuation provided by a barrier will be greater where it is aligned close to either the source or the listener than where the barrier is midway between the two.



REPORT AS10504.180518.RA (Stage 1) rev B

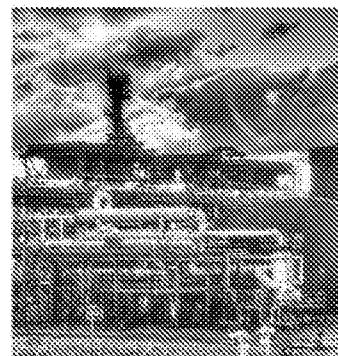


LAND NORTH OF WOODCROFT
WEST WALBERTON LANE
ARUNDEL



STAGE 1 RISK ASSESSMENT

Prepared: 21 March 2019



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CONTENTS

1.0	INTRODUCTION	1
2.0	SITE DESCRIPTION	1
3.0	ENVIRONMENTAL NOISE SURVEY	1
3.1	<i>Procedure and Equipment</i>	<i>1</i>
3.2	<i>Results</i>	<i>2</i>
4.0	CONCLUSION	3

List of Attachments

AS10504/PPG01	ProPG: Initial Noise Risk Assessment of Proposed Residential Development Site
AS10504/TH1-TH4	Environmental Noise Time Histories
Appendix A	Acoustic Terminology

1.0 INTRODUCTION

Crayfern Homes Ltd are proposing a residential development consisting of eight properties on the land north of Woodcroft, West Walberton Lane, Arundel, to the immediate south of the A27.

Clarke Saunders Associates has been commissioned by Crayfern Homes Ltd to undertake an assessment of the current environmental noise impact on the site. Noise will be assessed in accordance with the National Planning Policy Framework, the recently published *ProPG: Planning and Noise*¹ for new residential developments and with reference made to the relevant guidance set out in BS8233: 2014 *Guidance on sound insulation and noise reduction for buildings* and the World Health Organisation *Guidelines for Community Noise*.

This report presents the results of the Stage 1 Risk Assessment which will be used to inform the requirement for a subsequent Stage 2 Acoustic Design Statement.

2.0 SITE DESCRIPTION

The site, located in a semi-rural area, is situated immediately south of the A27. It is currently an unoccupied field. Between the proposed houses and the A27 there is an existing circa 2 metre high timber close-boarded fence, which provides some screening from the road to the proposed development area. The limited height of this fence, and the fact that it stops approximately in line with the eastern edge of the development area, limits the acoustic efficacy of the barrier, however.

The houses are currently proposed to be located between approximately 20 and 130 metres from the A27. Existing residential dwellings are located to the east, west and south of the site.

3.0 ENVIRONMENTAL NOISE SURVEY

3.1 Procedure and Equipment

A survey of the existing ambient noise levels was undertaken at 1.5m above local ground level at the location shown in site plan AS10504/PPG01. Measurements of consecutive 5-minute L_{Aeq} , L_{Amax} , L_{A10} and L_{A90} sound pressure levels were taken between 16:30 hours on Thursday 18th May and 14:10 hours on Monday 21st May 2018.

¹ <http://ioa.org.uk/publications/propg>

Short term manual measurements were also undertaken on Thursday 18th and Monday 21st May 2018 to assess the variation in noise level across the site and at varying heights due to the variation in proximity and angle of view to the A27.

The following equipment was used during the course of the survey:

- Svantek data logging sound level meter type 958;
- 2x Norsonic data logging sound level meter type 118;
- Norsonic sound level calibrator type 1251;
- Rion sound level calibrator type NC-74.

The calibration of the sound level meters was verified before and after use. No significant calibration drift was detected.

The weather during the survey was dry with light winds, leading to suitable conditions for the measurement of environmental noise.

Measurements were made following procedures laid out in BS 7445:1991 (ISO1996-2:1987) *Description and measurement of environmental noise Part 2- Acquisition of data pertinent to land use*.

Please refer to Appendix A for details of the acoustic terminology used throughout this report.

3.2 Results

Figures AS10504/TH1-TH4 show the L_{Aeq} , L_{Amax} , L_{A10} and L_{A90} sound pressure levels as time histories at the measurement position. These levels are predominantly caused by road traffic noise coming from the A27.

The average noise levels for the 'Daytime' and 'Night-time' periods are shown in Table 3.1.

Daytime L_{Aeq} , 16 hour	Night-time, L_{Aeq} , 8 hour	Typical Night-time*, L_{A10max}
64 dB	58 dB	73 dB

Table 3.1 - Daytime and night-time average noise level at the measurement position

* This is calculated by taking the 10th percentile of all maxima which occurred during the night-time period

The dominant source of noise that affects the site is traffic noise on the A27, which is to the immediate north of the site.

Daytime and night-time noise levels are considered to cause a 'medium' risk of adverse effect.

A detailed Acoustic Design Statement outlining appropriate measures, if necessary, to mitigate the noise impact will be required in order to demonstrate that the site would be suitable for residential development.

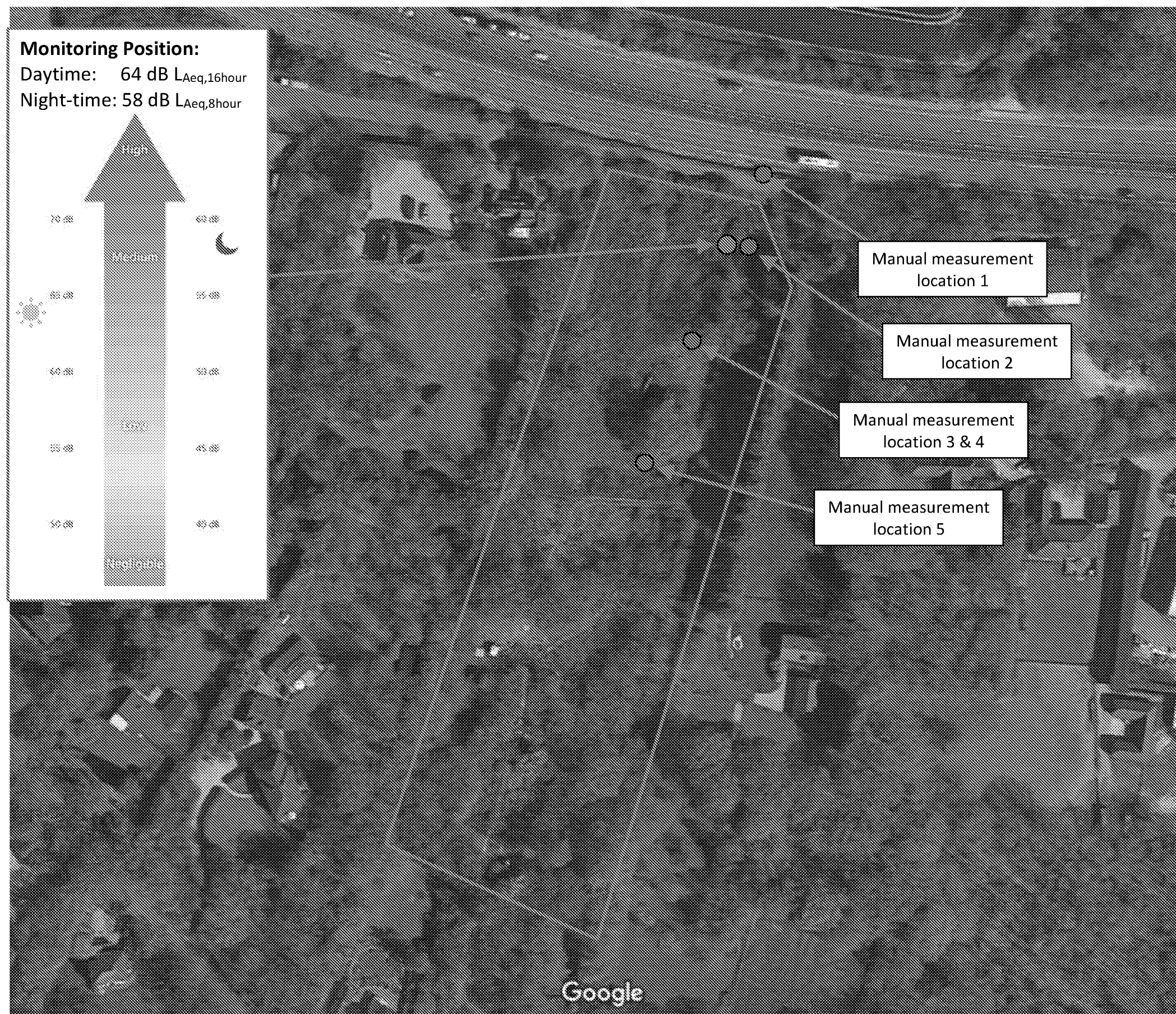
4.0 CONCLUSION

This Stage 1 Risk Assessment has identified the development area as a medium risk area in terms of noise impact.

The ProPG guidance recommends that a Stage 2 Acoustic Design Statement be prepared to consider the noise impact of the site in detail and to address the requirement for any outline mitigation measures as appropriate for the proposed residential development.

Daniel Saunders MIOA

CLARKE SAUNDERS ASSOCIATES



Executive Summary:

A survey of the existing background noise levels was undertaken at the location shown between 16:30 hours on Thursday 18th May and 14:10 hours on Monday 21st May 2018.

The dominant source of noise that affects the site is traffic noise on the A27, which is to the immediate north of the site.

Daytime and night-time noise levels are considered to cause a medium risk of adverse effect, as indicated in this figure.

A detailed Acoustic Design Statement outlining appropriate measures, if necessary, to mitigate the noise impact will be required in order to demonstrate that the site would be suitable for residential development.

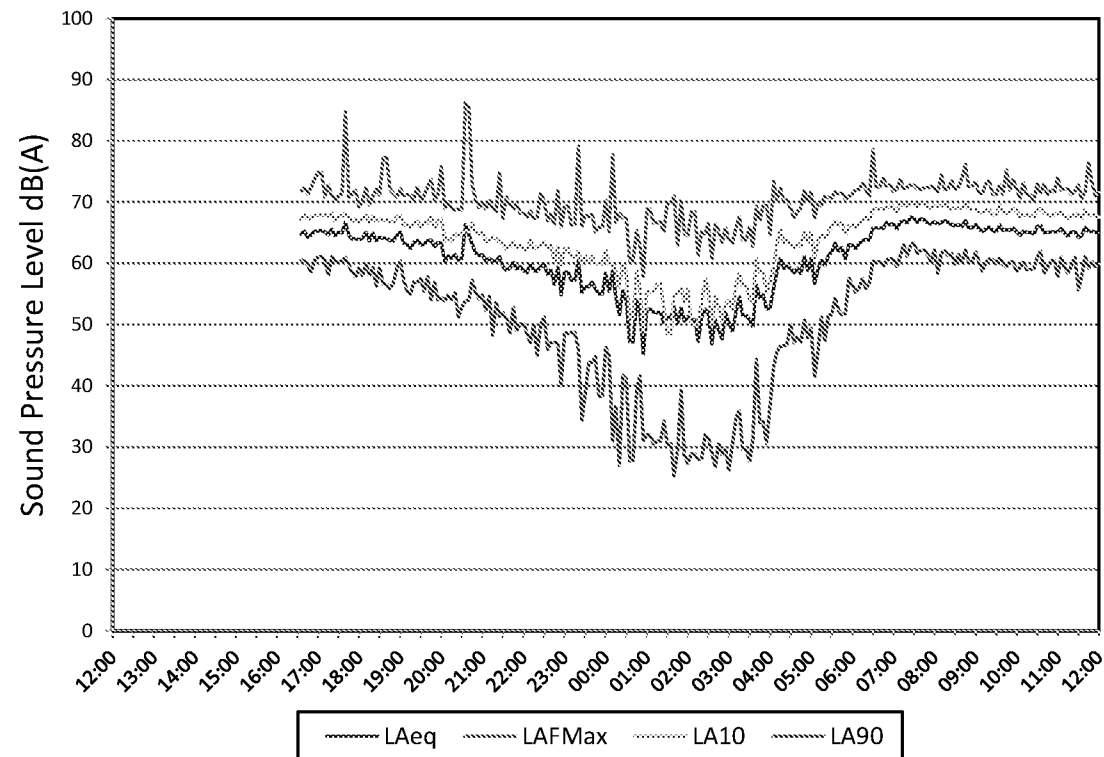
Project: Land North of Woodcroft, West Walberton Lane, Arundel

Figure: AS10504/PPG01

Date: 21-Mar-19

Land North of Woodcroft, West Walberton Lane, Arundel

Environmental Noise Time History

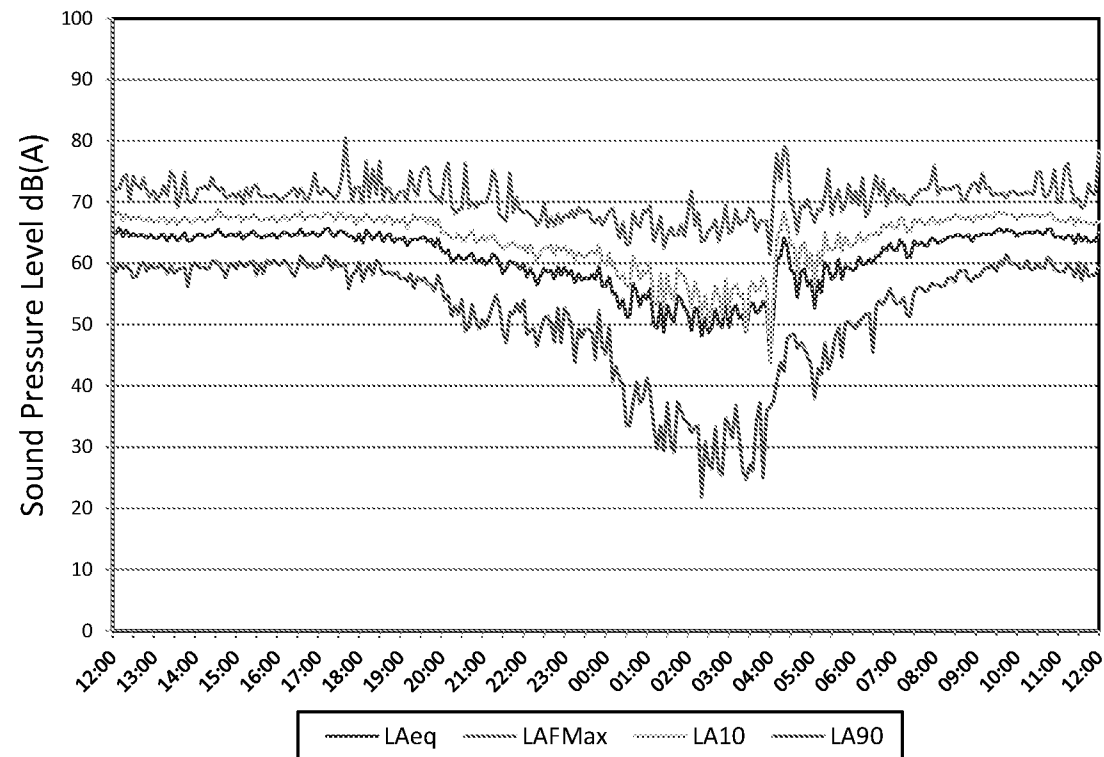


Thursday 17 May to Friday 18 May 2018

Figure AS10504/TH1

Land North of Woodcroft, West Walberton Lane, Arundel

Environmental Noise Time History

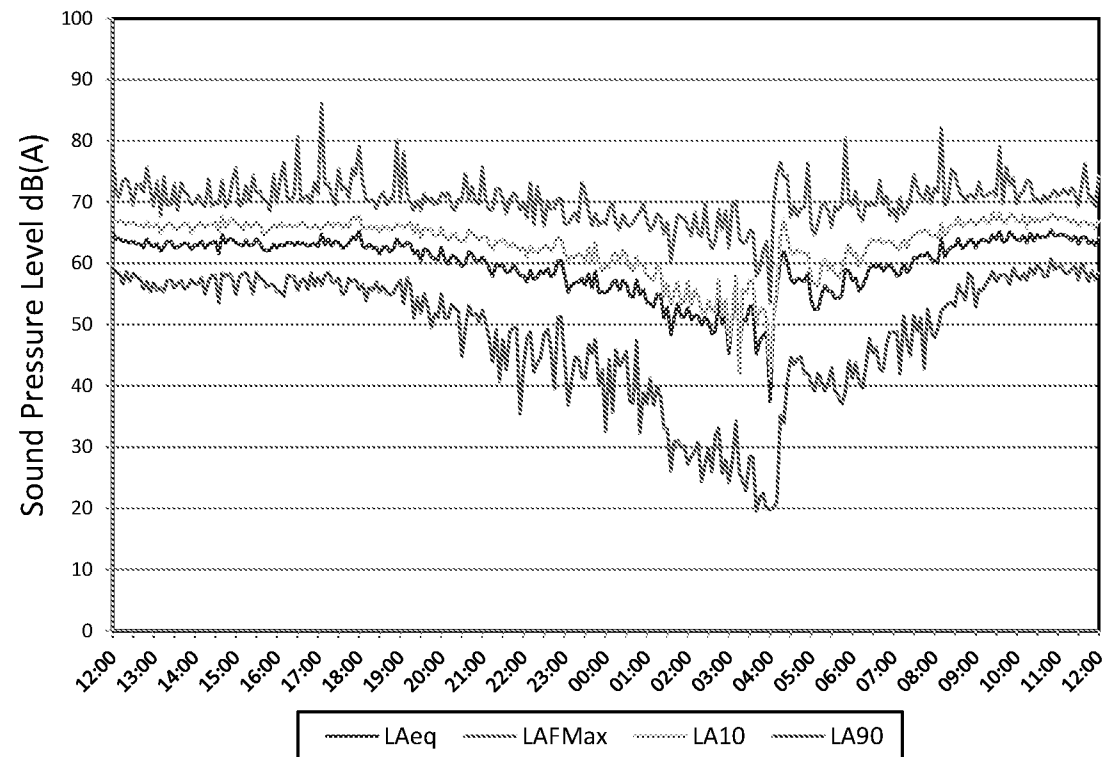


Friday 18 May to Saturday 19 May 2018

Figure AS10504/TH2

Land North of Woodcroft, West Walberton Lane, Arundel

Environmental Noise Time History

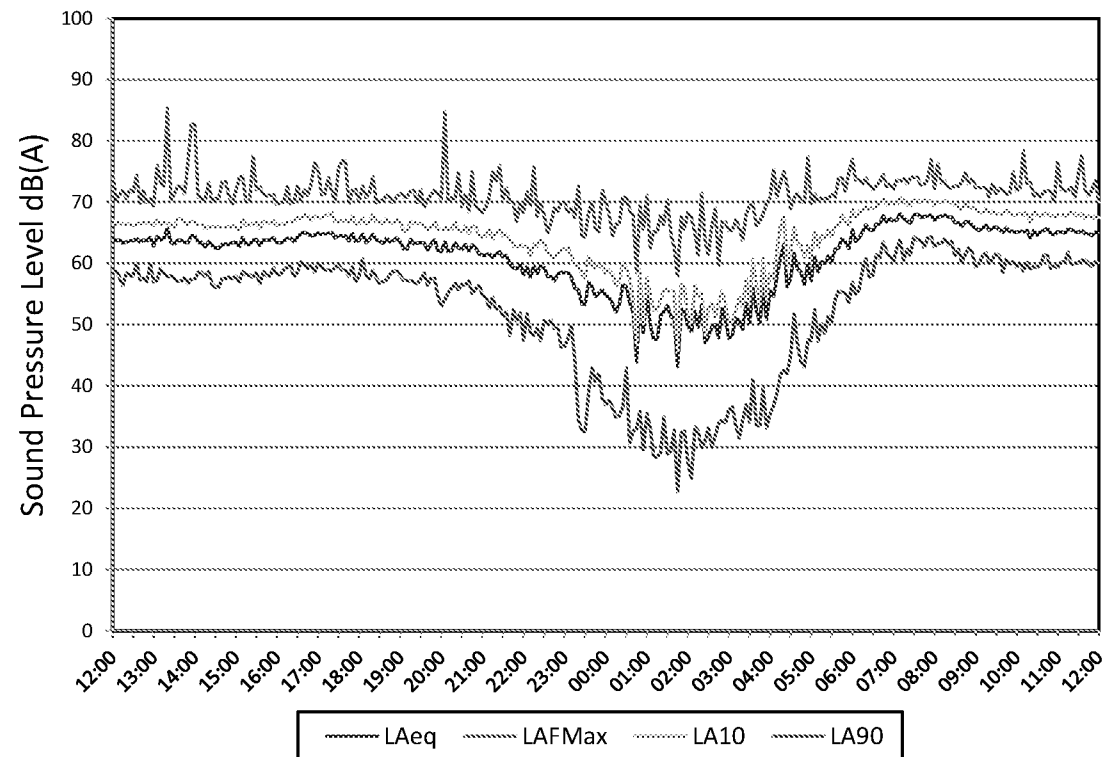


Saturday 19 May to Sunday 20 May 2018

Figure AS10504/TH3

Land North of Woodcroft, West Walberton Lane, Arundel

Environmental Noise Time History



Sunday 20 May to Monday 21 May 2018

Figure AS10504/TH4