accon UK
ENVIRONMENTAL CONSULTANTS

Report for:

Casa Coevo Group Ltd

Sturt Avenue, Haslemere

Noise Assessment

Status: Final **Date: 29.11.2023**

Reviewed and Approved By	[redacted] Graham Parry FIOA Managing Director
Report For	Casa Coevo Group Ltd 7b Station Road West, Moorgate House, Oxted, Surrey RH8 9EE
Date	29.11.2023
Version Number	A5092/N/001
Status	Final

This report has been prepared by ACCON UK Limited with all reasonable care and diligence within the terms of the contract with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. We accept no responsibility to third parties to whom this report, or any part, thereof is made available. Any such party relies upon the report at their own risk.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

CONTENTS

LIST OF TABLES

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

LIST OF FIGURES

LIST OF APPENDICES

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

1. INTRODUCTION

ACCON UK Limited (ACCON) has been commissioned by Kevin Soobadoo of Casa Coevo Group Ltd to provide a noise assessment for the proposed development at Sturt Avenue, Haslemere. The site is located within the administrative boundary of Chichester District Council (CDC).

The proposed development was refused by the Planning Inspectorate in a decision dated 30th October 2023 (Appeal Reference: APP/L3815/W/22/3298478), although noise was not cited as a reason for refusal.

The Environmental Protection Officer for Chichester District Council had previously responded:

Noise

A noise assessment report has been submitted produced by Accon Uk Ltd dated 2/7/21. The report has assessed both traffic noise and noise from the water treatment plant and concludes in section 7 that internal noise criteria will be met with windows open and closed. Providing the construction of the future dwellings is in accordance with the specification given in section 5.3.1 the noise levels within dwellings will be acceptable. A condition should be applied to require the conclusions of the report to be put in place.

The proposed development comprises the construction of 9 dwellings. The site is situated to the west of Sturt Road (A287) and to the west of the Haslemere Water Treatment Works as identified in **Figure 1.1**. **Figure 1.2** identifies the indicative site layout. This assessment is an update of the assessment previously carried out for the site which was reported in ACCON Report 'Sturt Avenue, Haslemere – Noise Assessment, dated 02/07/2021'.

The assessment is required to determine the impact of road traffic noise and the nearby water treatment plant on the proposed development in order to demonstrate the acceptability of residential properties at the proposed development site.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

Figure 1.1: Site Location

Figure 1.2: Indicative Site Layout

A Glossary of Acoustic Terminology is provided in **Appendix 1**.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

2. THE NATURE, MEASUREMENT AND EFFECT OF NOISE

Noise is often defined as sound that is undesired by the recipient. Whilst it is impossible to measure nuisance caused by noise directly, it is possible to characterise the loudness of that noise. 'Loudness' is related to both sound pressure and frequency, both of which can be measured. The human ear is sensitive to a wide range of sound levels. The sound pressure level of the threshold of pain is over a million times that of the quietest audible sound. In order to reduce the relative magnitudes of the numbers involved, a logarithmic scale of decibels (dB) is normally used, based on a reference level of the lowest audible sound.

The response of the human ear is not constant over all frequencies. It is therefore usual to weight the measured frequencies to approximate the human response. The resulting 'A' weighted decibel, dB (A), has been shown to correlate closely to the subjective human response.

When related to changes in noise, a change of ten decibels, for example, from 60 dB (A) to 70 dB (A), would represent a doubling in 'loudness'. Similarly, a decrease in noise, for example, from 70 dB (A) to 60 dB (A), would represent a halving in 'loudness'. A change of 3 dB (A) is generally considered to be just perceptible[1]. **Table 2.1** details typical noise levels.

Table 2.1: Typical Noise Levels

Approximate Noise Level (dB(A))	Example
0	Limit of hearing
30	Rural area at night
40	Library
50	Quiet office
60	Normal conversation at 1 m
70	In car noise without radio
80	Household vacuum cleaner at 1 m
100	Pneumatic drill at 1 m
120	Threshold of pain

[1] Institute of Environmental Management and Assessment (2014). Guidelines for environmental noise impact assessment.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

3. LEGISLATIVE/POLICY BACKGROUND

In order to determine the potential constraints on the site with respect to noise it is necessary to consider the proposed land use in line with planning policy where it is related to noise.

3.1. National Planning Policy Framework

The revised National Planning Policy Framework (NPPF as amended in September 2023) supersedes the 2012, 2018, 2019 and 2021 versions of the NPPF. The purpose of the planning system is to contribute to the achievement of sustainable development. There are three dimensions to sustainable development: economic, social, and environmental. The environmental role is to contribute to protecting and enhancing our natural, built, and historic environment; and as part of this, make effective use of land, help to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate to adapt to climate change including moving to a low carbon economy.

One of the core planning principles is to contribute to conserving and enhancing the natural environment and reducing pollution. Allocations of land for development should prefer land of lesser value, where consistent with other policies in the Framework. 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 soil, air, water or noise pollution or land instability.

Paragraph 185 of the NPPF states:

"*Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

a) Mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life (see Explanatory Note to the Noise Policy Statement for England (Department for Environment, Food and Rural Affairs, 2010));

b) Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason."

Additionally, Paragraph 187 states:

"*Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.*"

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

3.2. Noise Policy Statement for England

The Noise Policy Statement for England (NPSE) was developed by DEFRA and published in March 2010. The vision of the NPSE is to '*Promote good health and good quality of life through the effective management of noise within the context of Government policy on sustainable development*'.

The Noise Policy Statement for England (NPSE) aims to '*through the effective management and control of environmental neighbour and neighbourhood noise within the context of Government policy on sustainable development:*

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

Based on concepts from toxicology, it introduces three 'Effect Levels' relevant to the assessment of noise. These 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; and
>
> SOAEL: Significant Observed Adverse Effect Level: This is the level above which significant adverse effects on health and quality of life occur.

3.3. Planning Practice Guidance

The Planning Practice Guidance for Noise (PPG-N) was published in March 2014 and was most recently updated in July 2019. The PPG-N suggests that the most appropriate and cost-effective solutions to potential noise issues are best identified when good acoustic design is considered early in the planning process.

The PPG-N provides the following advice on how to determine the noise impact on development:

"*Plan-making and decision making need to take account of the acoustic environment and in doing so consider:*

> *Whether or not a significant adverse effect is occurring or likely to occur;*
>
> *Whether or not an adverse effect is occurring or likely to occur; and*
>
> *Whether or not a good standard of amenity can be achieved.*

In line with the Explanatory Note of the Noise Policy Statement for England, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

given situation. As noise is a complex technical issue, it may be appropriate to seek experienced specialist assistance when applying this policy." (Paragraph 003 Reference ID 30-003-20190722)

The document goes on to acknowledge the levels of noise exposure at which an effect may occur as provided in the NPSE and introduces a fourth effect level:

> UAE: Unacceptable Adverse Effect: Extensive and regular changes in behaviour and/or an inability to mitigate the effect of noise lead to psychological stress or physical effects.

Where residential development is proposed in the vicinity of existing businesses, community facilities or other activities that produce noise, the PPG-N advises that the applicant (or 'agent of change') will need to clearly identify the effects of the existing businesses that may cause a nuisance (including noise) and clearly define the mitigation measures being proposed to address any potential significant adverse effects that are identified. The agent of change needs to not only consider the current activities of the business, but the permitted activities too, even if they are not occurring at the time of the application being made. The PPG-N acknowledges that "*It can be helpful for developers to provide information to prospective purchasers or occupants about mitigation measures that have been put in place, to raise awareness and reduce the risk of post-purchase/occupancy complaints.*" (Paragraph 009 Reference ID 30-009-20190722).

It is important to understand that as the PPG-N does not specifically provide any advice with respect to noise levels/limits for different sources of noise, it is appropriate to consider other sources of advice and guidance documents when considering whether new developments would be sensitive to the prevailing acoustic environment and the PPG-N signposts a number of appropriate guidance documents.

3.4. Chichester District Council

Chichester District Council has adopted the Planning Noise Advice Document for Sussex dated November 2023, which sets out to offer guidance to developers on the level of information required to be submitted with planning applications. A number of sections that relate to the assessment methodologies that should be utilised for the proposed development have been reproduced below:

2.5.1 For a new noise sensitive development near an existing source of transport noise (road, rail, ports or aircraft) the LAeq (16hr day and 8hr night), should be measured. In addition, suitable shorter term LAeq, LA90, LA10 and LAfmax would be expected in order to give a clearer picture of the existing noise environment. LAeq 1hr may be deemed the most suitable metric if there is concern about rush hour traffic, for example. Consideration shall be given to ProPG (May 2017): Planning and Noise. New Residential Development and the Good Acoustic Design process.

2.5.2 Where the external LAfmax sound levels are likely to exceed 60 dB during the night period, overnight monitoring will be necessary. A specific LAfmax,1 minute risk assessment shall be provided for the whole night period. This could also apply to extensions/ alterations to existing development.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

2.5.3 For a new noise sensitive development next to a commercial noise source, where practical, each existing potential noise source would need to be measured separately and details provided of the hours of operation, the LAeq, the tonality, character, impulsivity and/or intermittency of the noise (see BS 4142) and the hours of occurrence. The existing background noise level (LA90) will also have to be measured with and without the commercial noise sources in operation in accordance with BS 4142. This could also apply to extensions/ alterations to existing development. Once appropriately assessed, mitigation may be required in accordance with Good Acoustic Design.

3.5. Professional Practice Guidance on Planning and Noise: New Residential Development

The Professional Practice Guidance (ProPG) on Planning and Noise for New Residential Development was published in May 2017 and was produced to provide practitioners with guidance on a recommended approach to the management of noise within the planning system in England.

The recommended approach detailed in the ProPG includes a framework to enable situations where noise is not an issue to be clearly determined, and to help identify the extent of risk at noisier sites. The recommended approach provides opportunities to incorporate effective design interventions that will enable residential development to proceed in areas that might otherwise have been considered unsuitable.

The ProPG provides advice for Local Planning Authorities and developers, and their respective professional advisers. It aims to complement Government planning and noise policy and guidance. In particular, it strives to:

Advocate full consideration of the acoustic environment from the earliest possible stage of the development control process;

Encourage the process of good acoustic design in and around new residential developments;

Outline what should be taken into account in deciding planning applications for new noise-sensitive developments;

Improve understanding of how to determine the extent of potential noise impact and effect; and

Assist the delivery of sustainable development.

The two sequential stages of the recommended approach are:

Stage 1: an initial noise risk assessment of the proposed development site; and

Stage 2: a systematic consideration of four key elements.

The four key elements to be undertaken in parallel during Stage 2 of the recommended approach are:

Element 1: demonstrating a “Good Acoustic Design Process”;

Element 2: observing internal “Noise Level Guidelines”;

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

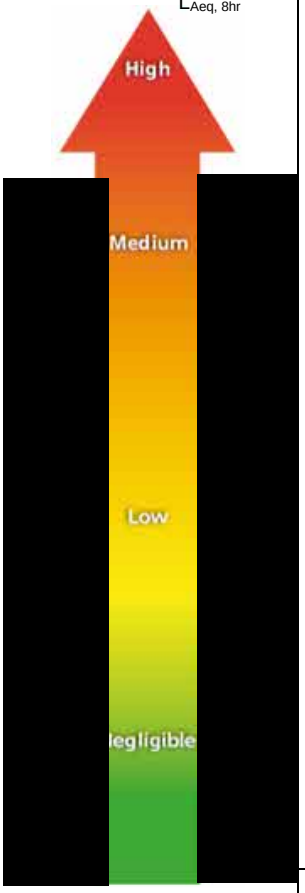
Element 3: undertaking an “External Amenity Noise Assessment”; and

Element 4: consideration of “Other Relevant Issues”.

Figure 3.1 below identifies the guidance provided in the ProPG when undertaking the risk assessment stage for a site.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

Figure 3.1: Phase 1 – Noise Risk Assessment

Noise Risk Assessment	Potential Effect Without Noise Mitigation	Pre-Planning Application Advice
Indicative Daytime Noise Levels $L_{Aeq, 16hr}$ Indicative Night-time Noise Levels $L_{Aeq, 8hr}$  	[redacted]	High noise levels indicate that there is an increased risk that development may be refused on noise grounds. This risk may be reduced by following a good acoustic design process that is demonstrated in a detailed ADS. Applicants are strongly advised to seek expert advice. As noise levels increase, the site is likely to be less suitable from a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised, and which clearly demonstrates that a significant adverse noise impact will be avoided in the finished development. At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.
	No adverse effect	These noise levels indicate that the development site is likely to be acceptable from a noise perspective, and the application need not normally be delayed on noise grounds.

Notes:
1. Indicative noise levels should be assessed without inclusion of the acoustic effect of any scheme specific noise mitigation measures.
2. Indicative noise levels are the combined free-field noise levels from all sources of transport noise and may also include industrial/commercial noise where this is present but is “not dominant”.
3. $L_{Aeq, 16hr}$ is for daytime 0700 - 2300, $L_{Aeq, 8hr}$ is for night-time 2300 - 0700.
4. An indication that there may be more than 10 noise events at night (2300 - 0700) with L_{AFmax} > 60 dB means the site should not be regarded as negligible risk.

Table 3.1 below identifies the internal noise level criteria provided in the ProPG.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

Table 3.1: ProPG Noise Levels

Activity	Location	0700-2300 Hours	2300-0700 Hours
Resting	Living room	35 dB $L_{Aeq,16hr}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hr}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$ 45 dB L_{AFmax} Note 4

Notes:

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.
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.
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.
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_{AFmax}, 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_{AFmax} 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).
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.
6. Attention is drawn to the requirements of the Building Regulations.
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**).

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

3.7. British Standard BS 8233:2014

BS 8233 *Guidance on sound insulation and noise reduction for buildings* has a number of design criteria for intrusive external noise without a specific character. The guidelines are designed to achieve reasonable resting/sleeping conditions in bedrooms and good listening conditions in other rooms. The most appropriate noise levels for the residential environment are reproduced in **Table 3.2**.

Table 3.2: Indoor Ambient Noise Levels for Dwellings

Activity	Location	Daytime 0700 hrs to 2300 hrs	Night-time 2300 hrs to 0700 hrs
Resting	Living room	35 dB $L_{Aeq,16hr}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hr}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$

Although there are no limits set for external noise levels in BS 8233 the following guidance is provided at paragraph 7.7.3.2:

"*For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.*"

3.8. British Standard BS 4142:2014 +A1:2019

BS 4142:2014 *Methods for rating and assessing industrial and commercial sound* provides a method for the measurement and rating of industrial or commercial type noise sources and background noise levels outside dwellings. The 'rating level' (defined in the BS) is used to rate the noise level of the source (this is defined as the 'specific sound level') outside residential dwellings.

The rating level is determined by assessing the character of the noise and applying an acoustic feature correction, if appropriate, to the specific sound level. Corrections are applied for the tonality, impulsivity, intermittency or other distinctive characteristics of the noise source which can all increase the impact of noise.

The initial assessment described in BS 4142 to determine whether an adverse impact is likely is based on establishing the difference between the rating level and the background noise

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

level outside the residential property of interest. The British Standard states that the following points should be considered:

> "*Typically, the greater this difference, the greater the magnitude of the impact.*
>
> *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
>
> *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*
>
> *The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.*"

Where it is considered that the initial assessment of the impact needs to be modified due to the context in which the noise is occurring, BS 4142 suggests that all pertinent factors are taken into consideration, including:

i. "*The absolute level of sound. For a given difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low.*

Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.

Where residual sound[2] *levels are very high, the residual sound might itself result in adverse impacts or significant adverse impacts, and the margin by which the rating level exceeds the background might simply be an indication of the extent to which the specific sound source is likely to make those impacts worse.*

ii. The character and level of the residual sound compared to the character and level of the specific sound. Consider whether it would be beneficial to compare the frequency spectrum and temporal variation of the specific sound with that of the ambient or residual sound, to assess the degree to which the specific sound source is likely to be distinguishable and will represent an incongruous sound by comparison to the acoustic environment that would occur in the absence of the specific sound. Any sound parameters, sampling periods and averaging time periods used to undertake character comparisons should reflect the way in which sound of an industrial and/or commercial nature is likely to be perceived and how people react to it.

[2] The residual sound is defined as the ambient sound level at the assessment location in the absence of the specific sound source.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

iii. *The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions, such as:*

   i. *facade insulation treatment;*

   ii. *ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and*

   iii. *acoustic screening."*

There is also a requirement within BS 4142:2014 to consider the uncertainty in the measurement and assessment procedure and it is stated that: "*The level of uncertainty associated with a measurement of sound level depends upon a number of factors, including:*

a. *the complexity of the sound source and the level of variability in sound emission from the source;*

b. *the complexity and level of variability of the residual acoustic environment;*

c. *the level of residual sound in the presence of the specific sound at the measurement location;*

d. *the location(s) selected for taking the measurements;*

e. *the distance between sources of sound and the measurement location and intervening ground conditions;*

f. *the number of measurements taken;*

g. *the measurement time intervals;*

h. *the range of times when the measurements have been taken;*

i. *the range of suitable weather conditions during which measurements have been taken;*

j. *the measurement method and variability between different practitioners in the way the method is applied;*

k. *the level of rounding of each measurement recorded; and*

l. *the instrumentation used.*"

3.9. Target Noise Levels

The following target noise levels have been derived from the above Noise Guidance.

3.9.1. External Noise Levels

External noise levels within private amenity spaces (i.e. garden areas) should achieve a noise level within the range of 50 dB to 55 dB $L_{Aeq,16hr}$ or lower.

3.9.2. Internal Noise Levels

Noise levels within habitable rooms (i.e. living rooms and bedrooms) should normally achieve a daytime noise level not exceeding 35 dB $L_{Aeq,16hr}$ and a night-time noise level not exceeding

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

30 dB $L_{Aeq,8hr}$. Maximum noise levels (L_{AFmax}) should not normally exceed 45 dB internally more than ten times during the night-time.

3.9.3. Commercial Noise Levels

Specific noise levels from commercial noise sources should not exceed the background sound level when assessed in line with BS 4142.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

4. NOISE MEASUREMENT SURVEY

ACCON originally carried out a detailed noise measurement study in 2021 which is described below. Subsequently, ACCON personnel have subsequently visited the site on 27th November 2023 to confirm whether there were any significant or perceptible changes in noise levels. Spot noise measurements were carried out in respect of the water treatment plant to confirm whether there were any changes in operational noise from the water treatment plant. There was no change in noise levels from the water treatment plant and no changes in the characteristics of noise emanating from the water treatment plant.

With respect to traffic noise, it was not possible to carry out any meaningful noise measurements as traffic was affected by nearby roadworks on Sturt Road which at the time of the most recent visit to the site was resulting in very slow-moving traffic.

Previous noise measurement study (June 2021)

In order to determine the extent to which the site was affected by noise from road traffic on Sturt Road (A287), noise measurements were previously carried out between 1600 hrs on Monday 14th June 2021 and 1600 hrs on Tuesday 15th June 2021.

At the start of the measurement period the weather was dry with no cloud cover with a daytime temperature of 26˚C. At the end of the measurement period the weather was dry with no cloud cover with a temperature of 24 ˚C. The measurement positions were shielded from the wind due to the site being partially forested.

4.1. Semi-Permanent Noise Monitoring

The noise measurements utilised two Type 1 Precision Sound Level Meters, a Norsonic 118 and a Svantek 971 which both held current certificates of calibration at the time of the noise measurement survey. Before and after the measurement period the equipment was calibrated in order to ensure that the equipment had remained within reasonable calibration limits (+/- 0.5 dB).

Semi-permanent noise measurements were carried out at two monitoring positions.

Monitoring Position 1 (**MP1**) was located at a height of 1.5 m on the northeast boundary of the site and the water treatment plant. The ambient noise climate was dominated by the sound of running water from the stream running through the site and from the water treatment plant. Cars on Sturt Road were also a dominant noise source.

Monitoring Position 2 (**MP2**) was located at a height of 1.5 m to the north of the site, approximately 55m to the west of the boundary with the water treatment plant. The ambient noise climate was dominated by birdsong and the sound of trees moving in the wind. Vehicle movements on Sturt Road and children at Camelsdale Primary School to the west of the site were also audible.

The dawn chorus significantly affected noise levels at both locations from approximately 0400 hrs onwards. This increased the measured night-time noise levels but should not be conflated with noise from road traffic movements.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

The measured noise levels are summarised in **Table 4.1**. The semi-permanent noise monitoring positions are identified on a site layout plan in **Appendix 2**. Hourly measurement data is provided in **Appendix 3**.

Table 4.1: Summary of Measured Free Field Noise Levels – MP1

Period (hours)	$L_{Aeq, T}$ (dB)	L_{AFmax} (dB)	Mean $L_{A10, 5min}$ (dB)	Mean $L_{A90, 5min}$ (dB)	Modal $L_{A90, 5min}$ (dB)
0700 – 2300	51	90	53	45	45
2300 – 0700	47	75 (64)	48	43	42

Note: The levels stated are logarithmic averages for $L_{Aeq, T}$ and arithmetic averages for $L_{A10, T}$ and average $L_{A90, T}$. The L_{AFmax} is the average of the highest hourly maximum sound levels measured during the measurement period. The L_{AFmax} level in brackets is the tenth highest L_{AFmax} noise levels measured during the measurement period.

Table 4.2: Summary of Measured Free Field Noise Levels – MP2

Period (hours)	$L_{Aeq, T}$ (dB)	L_{AFmax} (dB)	Mean $L_{A10, 5min}$ (dB)	Mean $L_{A90, 5min}$ (dB)	Modal $L_{A90, 5min}$ (dB)
0700 – 2300	57	91	58	49	49
2300 – 0700	56	82 (74)	52	47	46

Note: The levels stated are logarithmic averages for $L_{Aeq, T}$ and arithmetic averages for $L_{A10, T}$ and average $L_{A90, T}$. The L_{AFmax} is the average of the highest hourly maximum sound levels measured during the measurement period. The L_{AFmax} level in brackets is the tenth highest L_{AFmax} noise levels measured during the measurement period.

At the time of the detailed noise measurement study there was some disruption to traffic levels as lockdown measures in respect of COVID had been implemented across the country. The Government monitored the changes to the use of the transport system during that time, information for which can be found at https://www.gov.uk/government/statistics/transport-use-during-the-coronavirus-covid-19-pandemic.

In the document provided by the Department for Transport titled “Transport use by mode: Great Britain, since 1 March 2020” it could be identified that traffic on the roads at the time of the noise survey had returned to approximately 97% of the total traffic when compared to pre-lockdown levels. This reduction in traffic would only result in a less than 0.5 dB reduction in noise levels which is not considered to be significant enough to be taken into account within the overall assessment.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

5. PROPG ACOUSTIC DESIGN STATEMENT

5.1. Noise modelling

The CadnaA noise modelling software has been utilised to calculate the external noise levels from road traffic movements and the water treatment plant at the proposed development site. CadnaA is a three-dimensional noise model developed by DataKustik and has been extensively used by ACCON and others to develop noise models for a wide variety of situations and noise sources. CadnaA utilises the methodology in the Department of Transport's Technical Memorandum Calculation of Road Traffic Noise (CRTN) to predict noise from road traffic and ISO 9613 *Attenuation of sound during propagation outdoors* for modelling of industrial type noise sources.

The results of the noise measurement survey detailed in **Section 4** as well as traffic data available from the Department for Transport for the A287 has been utilised to calibrate the noise model predictions for the existing site.

5.2. Stage 1: ProPG Initial site noise risk assessment

For the purpose of the initial site noise risk assessment, it has been assumed that the site topography will not be significantly altered from the current topography. Contours of the daytime and night-time noise levels from road traffic have been identified in **Appendix 4**.

The daytime noise level across the majority of the development site is between 45 and 50 dB $L_{Aeq, 16hr}$ and the night-time noise level is between 40 and 45 dB $L_{Aeq, 8hr}$. These noise levels indicate that the site is generally of a negligible to low risk of adverse noise effect from road traffic noise during the daytime and night-time periods.

5.3. Stage 2: Internal Noise Levels

5.3.1. Predicted Noise Levels

Table 5.1 presents the predicted noise levels external to the habitable rooms of the worst affected proposed dwellings. The tenth highest maximum noise night-time level from **MP1** is presented in **Table 5.1**. The noise level from **MP1** has been chosen as it was affected by activities of the water treatment plant whereas noisy events at **MP2** appear to have been caused by wildlife based on a review of the audio files for that noise measurement (birds in very close proximity to the microphone etc.) The fifth column of **Table 5.1** identifies the minimum sound reduction that the building façade (glazing, ventilation openings and external wall build up) will need to provide in order to ensure that the target internal noise levels (refer to **Section 3.9**) are not exceeded.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

Table 5.1: Predicted External Noise Levels and Minimum Combined Façade Sound Reduction Requirements

Receptor Location	Predicted Daytime External Noise Level $L_{Aeq,16hr}$ (dB)	Predicted Night-time External Noise Level $L_{Aeq,8hr}$ (dB)	10th Highest Night-time External Maximum Noise Level L_{AFmax} (dB)	Minimum Combined Façade Sound Reduction Required dB(A)
R1	49	44	64	19
R2	50	45	64	19

Assuming that the external wall construction provides a minimum sound reduction of 50 dB R_w (typically achievable by a standard brick and block cavity wall construction, or similar), any standard glazing system would provide sufficient sound insulation performance for the habitable rooms of the proposed development.

5.3.2. Acoustics and Ventilation

Whole dwelling ventilation, as required by the Building Regulations Approved Document F (ADF)(2021 Edition, taking effect on 15th June 2022), should be achievable through the provision of trickle vents. Where noise levels are likely to exceed the target internal noise levels with open windows, acoustic trickle vents should be provided which have been selected such that they do not compromise the effectiveness of the sound insulation provided by the double glazing.

Purge ventilation, as required by the ADF, is typically only required for very short periods of time to let out smoke or an odour. When purge ventilation is required by opening windows, exposure to noise will only increase for a very short period of time and is not considered to be an issue.

The requirement to achieve the target internal noise levels with windows closed and acoustic trickle ventilation may result in the unintended adverse consequences associated with thermal comfort.

In respect of thermal comfort, noise can be considered an issue as windows may otherwise need to be left open for an extended period of time, e.g. on warm summer days and nights. In Britain, the requirement for keeping windows open for thermal comfort is typically limited to a relatively small number of days during May to September.

Where noise levels are likely to exceed the target internal noise levels with open windows for ventilation, the provision of a positive extract ventilation (PEV) system or similar should be considered in order to provide a suitable flow of fresh air during warmer summer months. This would ensure that residents in those residential units which would exceed the target internal noise levels with open windows do not need to rely on opening the windows for comfort cooling, which would otherwise increase the internal noise levels above the target internal noise levels.

Any ventilation system fitted to habitable rooms will require a sound insulation performance such that the required façade attenuation is achieved and that the internal noise criteria of BS8233:2014 is not exceeded.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

The advice in **Section 5.3.3** below in respect of overheating should also be considered. Windows should be openable for purge ventilation and overheating mitigation.

5.3.3. Acoustics and Overheating

The requirement to achieve the target internal noise levels with windows closed may result in unintended adverse consequences associated with thermal comfort.

In respect of thermal comfort, noise can be considered an issue as windows may otherwise need to be left open for an extended period of time, for example, on warm summer days and nights. In Britain, the requirement for keeping windows open for thermal comfort is typically limited to a relatively small number of days during May to September.

BS 8233 states that *"if partially open windows were relied upon for background ventilation, the insulation would be reduced to approximately 15 dB"*. The WHO guidelines also state that *"a slightly open window would result in a [sound] reduction from outside to inside of 15 dB"*.

Utilising the measured external noise levels identified in **Table 5.1**, the corresponding internal noise levels with open windows for ventilation are presented in **Table 5.**.

Table 5.2: External Noise Levels and Calculated Internal Noise Levels

Receptor Location	External Noise Level (dB)			Calculated Internal Noise Level with open windows (dB)		
	Daytime $L_{Aeq,16hr}$	Night-time $L_{Aeq,8hr}$	Night-time L_{AFmax}	Daytime $L_{Aeq,16hr}$	Night-time $L_{Aeq,8hr}$	Night-time L_{AFmax}
Worst Affected Façade	50	45	64	35 ( )	30	49 (!)

Notes:
( ) identifies that the target internal noise level is not exceeded.
(!) identifies that the target internal noise level is exceeded by no more than 5 dB (refer to ProPG Guidance Note 7 of Figure 3.2)
(X) identifies that the target internal noise level is exceeded by more than 5 dB.

With reference to Error! Reference source not found.**,** open windows are considered to be an acceptable means of mitigating overheating effects for the proposed development.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

6. WATER TREATMENT PLANT NOISE ASSESSMENT

6.1.1. Specific Sound Levels

The Haslemere Water Treatment Works is located on the eastern boundary of the development site. Activities at the site typically fall into two categories; water treatment activities and delivery activities.

Water treatment activities consist of plant running constantly throughout the daytime and night-time periods with occasional increases to the overall noise levels with increased load on the water treatment plant. These increases in load typically last for 2 minutes in any one 15-minute period.

Delivery type activities consisted of water treatment staff arriving and departing the water treatment site in commercial vehicles, typically vans and any associated bangs and clattering of delivering goods/equipment to the site. From analysis of audio recordings on site it has been determined that these activities only occur during daytime hours. A typical activity lasted approximately 15 minutes in any given hour however, such activities are unlikely to occur on a regular basis as has been evidenced by the recent site visit on 27th November 2023.

Table 6.1 identifies the specific noise levels generated by both types of activity from the water treatment site. These noise levels have then been distance corrected to the nearest proposed dwelling and corrected in order to be evaluated over the appropriate reference time interval for daytime and night-time.

Table 6.1: Specific Noise Levels

Activity	Period	Measured Specific Noise Level at MP1 (dB)	Reference Interval Corrected Specific Noise Level at MP1 (dB)	Specific Noise Level at Closest Proposed Receptor (dB)
Delivery	Daytime	59	53	40
Increased Water Treatment Activity	Night-time	47	38	27

For the purposes of this assessment, the background sound levels from **MP2** would have been utilised as a worst case for the proposed development during the night-time. However, as noise levels from wildlife and the stream running through the proposed development area will vary throughout the year, ACCON have taken a very cautionary approach and reduced the night-time background noise level to 30 dB in order to identify a very worst-case scenario for the proposed development during the night-time period.

Table 6.2 identifies the BS 4142 assessment that has been carried out for the daytime period and **Table 6.3** identifies the BS 4142 assessment that has been carried out for the night-time period.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

Table 6.2: Daytime BS4142 Assessment

Results	Noise Level at the Nearest Noise Sensitive Receptor (dB)	Relevant Clauses of BS 4142:2014	Commentary
Background Sound Level $L_{A90,T}$ (dB)	45	8.1, 8.2	A background sound level during the daytime period.
Specific Sound Level $L_{Aeq,1hr}$ (dB)	40	7.3	The specific sound level as identified in **Table 6.1** for the daytime activities.
Acoustic Feature Correction (dB)	+3	9.1, 9.2, 9.3	An acoustic feature correction of +3 has been added due to the nature of noise which may occur during deliveries.
Rating Sound Level $L_{Aeq,1hr}$ (dB)	43	9.1	
Excess of Rating Sound Level over Background Sound Level	-2		
	An indication of a low impact		

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

Table 6.3: Night-time BS 4142 Assessment

Results	Noise Level at the Nearest Noise Sensitive Receptor (dB)	Relevant Clauses of BS 4142:2014	Commentary
Background Sound Level $L_{A90,T}$ (dB)	30	8.1, 8.2	A background sound level during the daytime period.
Specific Sound Level $L_{Aeq,1hr}$ (dB)	27	7.3	The specific sound level as identified in **Table 6.1** for the night-time activities.
Acoustic Feature Correction (dB)	0	9.1, 9.2, 9.3	The noise from the water treatment plant is the sound of running water which does not incur any acoustic feature correction
Rating Sound Level $L_{Aeq,1hr}$ (dB)	27	9.1	
Excess of Rating Sound Level over Background Sound Level	-3		
	An indication of a low impact		

The BS 4142 assessment in **Tables 6.2** and **6.3** identifies that there would be an indication of a low impact on the proposed development from any of the activities associated with the water treatment plant.

6.1.2. Discussion of Context

When considering the impact of noise from the water treatment plant in a BS 4142 assessment it is necessary to consider the context of the noise. The noise from the water treatment plant typically consists of the sound of running water which blends into the noise from the stream running through the site. As the sound of running water is not an unnatural source of noise, it is very unlikely to cause any significant impact on future residents of the proposed dwellings. Noise from deliveries to the site are very infrequent and it is therefore unlikely to have any significant impact on the future residents of the proposed development.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

7. CONCLUSION

An assessment of the noise from the local road network and the Haslemere Water Treatment Works has been carried out for the proposed development site at Sturt Avenue, Haslemere. The assessment of noise from the local road network identifies that internal noise level criteria would be met with windows open for ventilation and any potential overheating events.

An assessment of the noise from activities at Haslemere Water Treatment Works has identified that all of the Water Treatment Works' activities, including water treatment activities and delivery activities, would have a low impact on the future residents of the proposed development.

A recent visit to the site area on the 27th November 2023 indicated that there had been no change to the overall noise climate when compared to that which was measured and observed in 2021. Accordingly, the noise measurement study carried out in 2021 can be relied upon as providing an accurate basis for the assessments which have been carried out.

Based on the above, it is recommended that there should be no objection on noise grounds to granting planning consent for the proposed development.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

APPENDICES

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

Appendix 1
Glossary of Acoustic Terminology

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

Term	Description
'A'-Weighting	This is the main way of adjusting measured sound pressure levels to take into account human hearing, and our uneven frequency response.
Decibel (dB)	This is a tenth (deci) of a bel. A decibel can be a measure of the magnitude of sound, changes in sound level and a measure of sound insulation. Decibels are not an absolute unit of measurement but are an expression of ratio between two quantities expressed in logarithmic form.
Frequency	Frequency is related to sound pitch; frequency equals the ratio between velocity of sound and wavelength.
$L_{Aeq,T}$ (Ambient /Period Sound Level)	The equivalent steady sound level in dB containing the same acoustic energy as the actual fluctuating sound level over the given period, T. T may be as short as 1 second when used to describe a single event, or as long as 24 hours when used to describe the noise climate at a specified location. $L_{Aeq,T}$ can be measured directly with an integrating sound level meter.
$L_{A10,T}$ (Road Traffic Noise Level)	The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 10 per cent of a given time. The $L_{A10,T}$ is used to describe road traffic noise levels at a particular location.
$L_{A90,T}$ (Background Sound Level)	The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 90 per cent of a given time. The $L_{A90,T}$ is used to describe the background noise levels at a particular location.
L_{Amax}	The 'A'-weighted maximum sound pressure level measured over a measurement period.
Sound Power Level	The total sound energy radiated by a sound source in all directions. In decibels with a reference level of 1 x10^{-12} Watts
Rating Level, $L_{Ar,Tr}$	The specific sound level plus any adjustment for the characteristic features of the sound.
Residual Sound Level, $L_r = L_{Aeq,T}$	Ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound.
Specific Sound Level, $L_s = L_{Aeq,Tr}$	The equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, Tr.

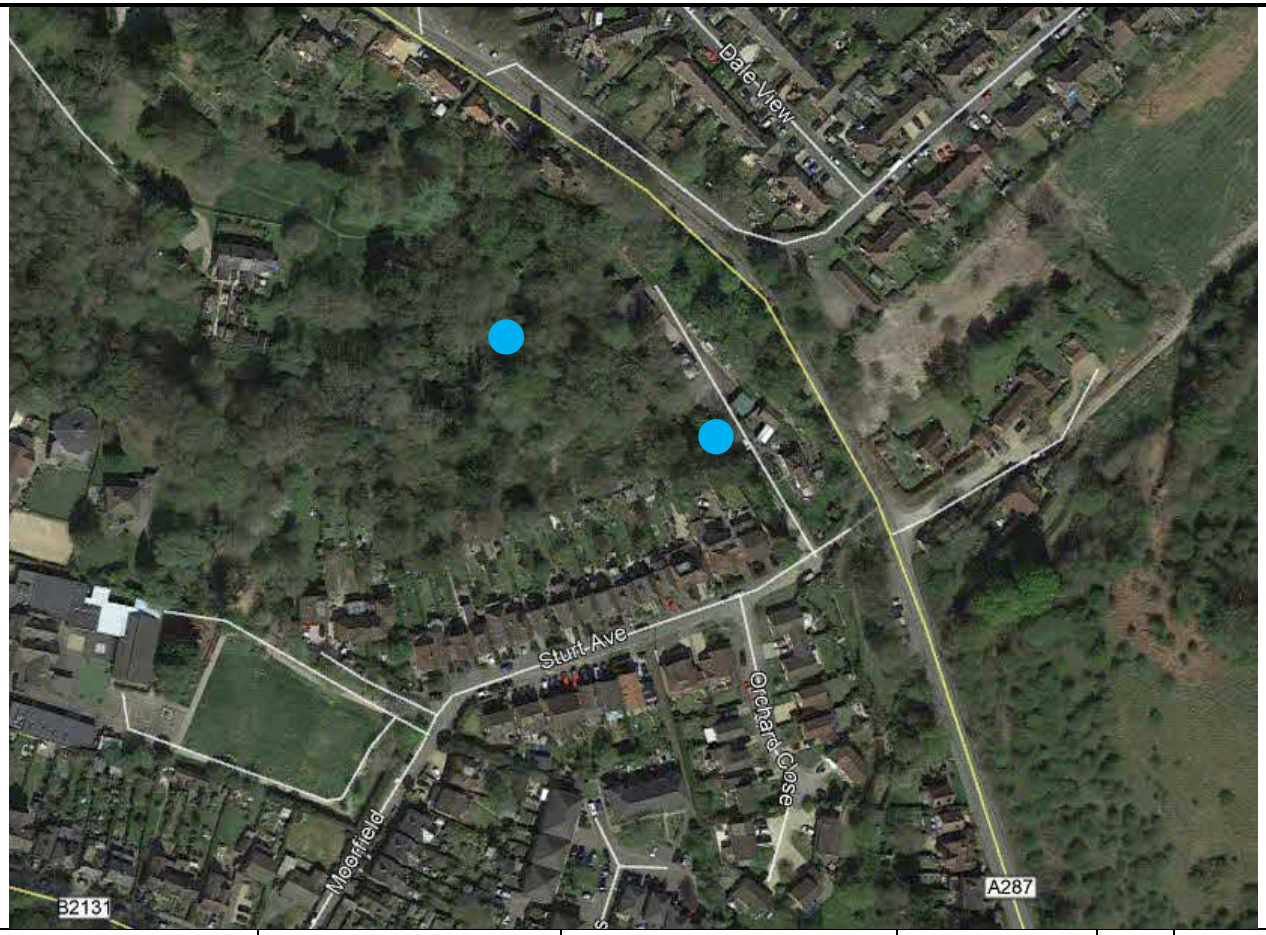
Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

Term	Description
R	The sound reduction index (SRI) or Transmission Loss (TL) of a building element, is 10x the common logarithm of the ratio of sound power incident upon a test specimen to the sound power transmitted through the specimen, when measured in the presence of flanking transmission, denoted R'.
R_w	Weighted sound reduction index, a single number quantity for the airborne sound insulation in buildings and of building elements such as wall, doors and windows. The quantity is intended for rating the airborne sound insulation and for simplifying the formulation of acoustical requirements in building codes, when measured in the presence of flanking sound transmission, denoted R'_w.

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

Appendix 2
Measurement Locations

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814



LEGEND

Measurement Location

Approximate Site Location

N
W E
S

Client: Casa Coevo Group Ltd		Description: Measurement Locations		Design	ML	28.06.2021	accon UK ENVIRONMENTAL CONSULTANTS
				Drawn	ML	28.06.2021	
Rev: A	Description: FINAL	Project: Sturt Avenue, Haslemere		Checked	GP	28.06.2021	*Appendix Two*
				Approved	GP	28.06.2021	Scale: Not to Scale

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

Appendix 2
Hourly Measurement Data

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

MP1 Hourly Measurements

Time	$L_{Aeq, 1hr}$ (dB)	L_{AFmax} (dB)	$L_{A10, 1hr}$ (dB)	$L_{A90, 1hr}$ (dB)
07:00-08:00	52	75	55	45
08:00-09:00	52	67	55	46
09:00-10:00	53	74	55	46
10:00-11:00	52	66	54	45
11:00-12:00	51	68	54	44
12:00-13:00	52	78	55	45
13:00-14:00	51	68	53	44
14:00-15:00	50	63	53	44
15:00-16:00	51	72	54	45
16:00-17:00	52	68	54	45
17:00-18:00	52	72	55	46
18:00-19:00	55	90	55	45
19:00-20:00	50	67	53	44
20:00-21:00	50	75	52	44
21:00-22:00	47	62	50	43
22:00-23:00	45	58	47	43
23:00-00:00	45	58	46	42
00:00-01:00	44	63	44	42
01:00-02:00	43	51	44	42
02:00-03:00	45	75	44	42
03:00-04:00	44	64	44	43
04:00-05:00	52	72	54	44
05:00-06:00	49	66	51	43
06:00-07:00	49	67	52	44
Day	**51**	**90**	**53**	**45**
Night	**47**	**75**	**48**	**43**

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

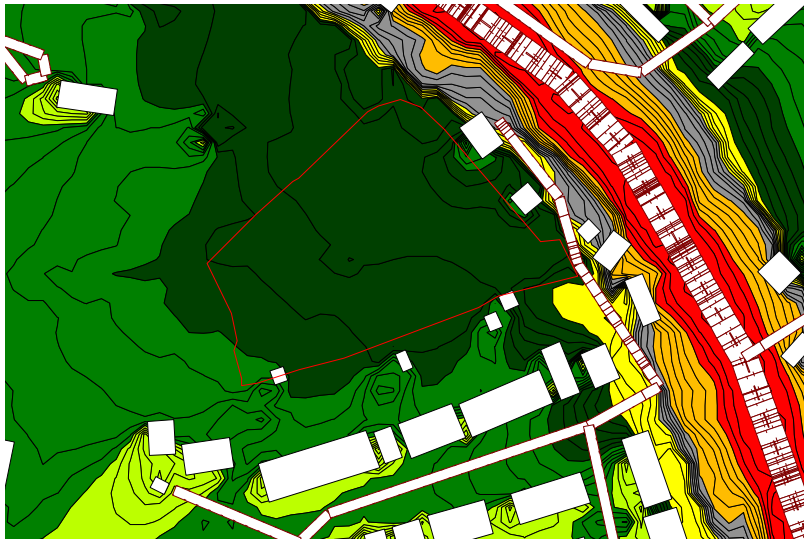
MP2 Hourly measurements

Time	$L_{Aeq, 1hr}$ (dB)	L_{AFmax} (dB)	$L_{A10, 1hr}$ (dB)	$L_{A90, 1hr}$ (dB)
07:00-08:00	55	76	57	49
08:00-09:00	57	78	59	50
09:00-10:00	58	78	60	51
10:00-11:00	57	87	59	50
11:00-12:00	56	77	58	49
12:00-13:00	59	80	61	50
13:00-14:00	56	76	58	49
14:00-15:00	56	72	58	49
15:00-16:00	55	77	57	49
16:00-17:00	57	78	58	49
17:00-18:00	63	91	64	50
18:00-19:00	56	76	58	49
19:00-20:00	60	85	62	49
20:00-21:00	55	73	57	48
21:00-22:00	51	70	53	47
22:00-23:00	48	57	49	46
23:00-00:00	47	60	48	46
00:00-01:00	47	66	47	46
01:00-02:00	47	56	47	46
02:00-03:00	47	60	48	46
03:00-04:00	47	65	48	46
04:00-05:00	63	82	65	51
05:00-06:00	56	76	58	48
06:00-07:00	55	75	57	48
Day	**57**	**91**	**58**	**49**
Night	**56**	**82**	**52**	**47**

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

Appendix 2
ProPG ISNRA

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814



Daytime Noise Levels
LAeq,16hr

ProPG Initial Site Noise Risk Assessment
Ground Floor Level

- 35.0 <= ... < 40.0
- 40.0 <= ... < 45.0
- 45.0 <= ... < 50.0
- 50.0 <= ... < 55.0
- 55.0 <= ... < 60.0
- 60.0 <= ... < 65.0
- 65.0 <= ... < 70.0
- 70.0 <= ... < 75.0
- 75.0 <= ... < 80.0
- 80.0 <= ... < 85.0
- 85.0 <= ...

Night-time Noise Levels
LAeq,8hr

N

Email: enquiry@accon-uk.com • www.accon-uk.com
Unit B, Fronds Park, Frouds Lane, Aldermaston, Reading, RG7 4LH
Reading Office: 0118 971 0000
Brighton Office: 01273 573 814

Email: enquiry@accon-uk.com

Reading Office:
Unit B, Fronds Park,
Frouds Lane, Aldermaston,
Reading, RG7 4LH
Tel: 0118 971 0000 Fax: 0118 971 2272

Brighton Office:
Citibase, 95 Ditchling Road,
Brighton, East Sussex, BN1 4ST
Tel: 01273 573 814

www.accon-uk.com