



Architectural & Environmental Consultants
Acoustics | Air Quality | Overheating

Noise Impact Assessment

Hornbrook Farm, Horsham

Noise Impact Assessment

Project: HORNBROOK FARM, HORSHAM

Report reference: RP02-24596-R4

Client: JAYNIC PROPERTIES LTD
THE EPICENTRE
ENTERPRISE WAY
WITHERSFIELD

Our details: CASS ALLEN ASSOCIATES LTD
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Document control:

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0	01 April 2025	Nathan Hyde, BSc (Hons), Acoustics Consultant	Tim Ives, PhD BEng CEng FIOA, Director	Initial issue
1	14 April 2025	Nathan Hyde, BSc (Hons), Acoustics Consultant	Tim Ives, PhD BEng CEng FIOA, Director	Minor Revisions
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1. EXECUTIVE SUMMARY

- 1.1 Cass Allen has been instructed by Jaynic Properties Ltd to assess noise affecting a proposed new development at Hornbrook Farm, Horsham.
- 1.2 The assessment was carried out in accordance with relevant local and national planning guidance.
- 1.3 A noise survey was carried out at the site. Noise levels at the site are dictated by road traffic noise emissions from Brighton Road (A281).
- 1.4 Noise affecting the development has been assessed in accordance with ProPG guidance. The design of the development is considered to be acceptable subject to the adoption, where required, of acoustically upgraded glazing and ventilation and acoustic screening, where required, around gardens (such as the adoption of 1.8m high close-boarded timber fencing, especially towards the edges of the development areas). This can be investigated further at the detailed design stage and may be secured by the imposition of a noise related planning condition by the Local Planning Authority.
- 1.5 Compliance with noise criteria in Building Regulations Part O has also been assessed. Some bedrooms will need to be designed so that windows can remain closed at night without the rooms overheating. This can be assessed further in due course.
- 1.6 In summary, it is our view that the site is suitable for the development in terms of noise levels and that planning permission may be granted subject to the imposition of suitable planning conditions, if necessary.

2. INTRODUCTION

- 2.1 Cass Allen has been instructed by Jaynic Properties Ltd to assess noise affecting a proposed new development at Hornbrook Farm, Horsham.
- 2.2 The assessment has been carried out in accordance with relevant local and national planning guidance.
- 2.3 The aims of the assessment were:
- to establish the suitability of existing noise levels at the site for the proposed development
 - where required, identify appropriate measures to optimise the acoustic design of the development and achieve acceptable noise levels in habitable areas
- 2.4 This report contains technical terminology; a glossary of terms can be found at www.cassallen.co.uk/glossary.

3. PROJECT DESCRIPTION

- 3.1 The site currently contains farmers' fields and is located in a mixed-use area, bounded to the south by Brighton Road (A281) by residential to the north and west and to the east by Doomsday Lane. To the east of the site is open fields and residential. To the south of the site is the Hornbrook Inn pub/restaurant, Hillier Garden Centre and several local shops. To the west and north of the site is a residential area.
- 3.2 The site location is shown in Figure 1 below.

Figure 1 Site Location and Surrounding Area



- 3.3 The proposal is to submit an outline planning application for the development of up to 180 dwellings, open space and associated works and infrastructure with all matters reserved apart from access. The developable area parameter plan is shown in Appendix 1.

4. PLANNING POLICY

National Policy

- 4.1 Outline guidance for the assessment of noise affecting new developments is given in the National Planning Policy Framework (NPPF) (December 2024). Relevant sections in this case are highlighted below:

187. Planning policies and decisions should contribute to and enhance the natural and local environment by ... preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of ...noise pollution.

198. 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 noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- 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.*

Local Policy

- 4.2 The Horsham District Council Local Plan 2023-2040 Regulation 19 has outline guidance regarding noise generated by proposed developments and states the following:

Development proposals must ensure they:

...

5.Demonstrate that users of residential and other noise sensitive development will not be exposed to unacceptable noise disturbance from existing or future users. Development proposals which are known or expected to be noise generators, or to be sensitive to noise from nearby sites, must be accompanied by a Noise Assessment.

- 4.3 To address the requirements of the national and local policies, the following key acoustic matters have been assessed:
- noise affecting the habitable areas of the proposed development

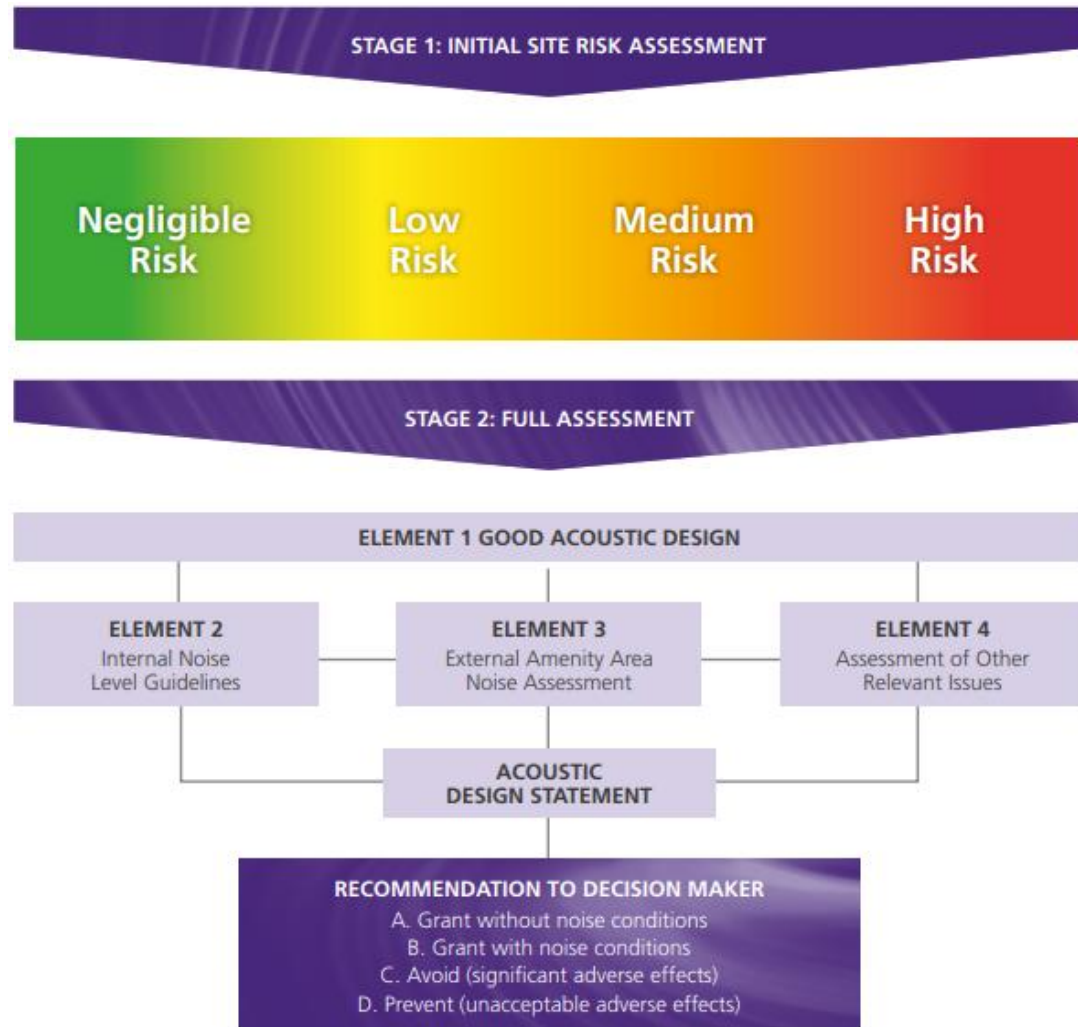
5. NOISE AFFECTING THE DEVELOPMENT

5.1 Specific guidance on the assessment of noise affecting new residential development is given in ProPG: Planning and Noise for New Residential Development, May 2017 (ProPG). The process within the ProPG guidance for the appraisal of noise levels affecting new residential development is considered to be current 'best practice' and has, therefore, been followed for the assessment. The assessment process can be summarised as follows:

- Stage 1 – measure noise levels at the site and carry out an initial noise risk assessment of the proposed development site based on the measured levels.
- Stage 2 – where a higher noise risk is identified, carry out a detailed assessment including the following four considerations:
 - Element 1 – the overall acoustic design and layout of the site
 - Element 2 – internal noise levels in habitable areas
 - Element 3 – noise levels in external amenity areas
 - Element 4 – consideration of other relevant issues
- Based on the results of the Stage 2 assessment, provide a recommendation to the decision maker on whether planning permission can and should be granted.

5.2 The process is shown visually in Figure 2 below.

Figure 2 ProPG Assessment Process



- 5.3 It should be noted that the guidance in ProPG relates primarily to noise from transportation sources, i.e. road traffic, aircraft, rail etc. Any significant noise from other sources (e.g. industrial, commercial or entertainment sources) is outside the scope of the ProPG guidance and, therefore, requires separate consideration.

Stage 1 – Noise survey and initial assessment

- 5.4 A noise survey was carried out at the site from 27 to 31 March 2025 to assess existing noise levels in the area. The full methodology and results of the noise survey are provided in Appendix 2.
- 5.5 Average noise levels (LAeq) across the site were generally dictated by road traffic on Brighton Road (A281).

- 5.6 Maximum noise levels (LA_{max}) at the north of the site were largely dictated by fast car passes along Brighton Road.
- 5.7 Background noise levels (LA₉₀) across the site were dictated by constant road traffic noise from Brighton Road and to the north of the site background noise levels were dictated by road traffic noise along Brighton Road and nature sounds.
- 5.8 Areas of the development at the southern edge of the site will be subject to the highest noise levels. The noise survey results show that noise levels at these positions are as follows:
- southern edge of the site facing Brighton Road:
 - Average noise levels during the daytime - 62 dB LA_{eq},0700-2300hrs
 - Average noise levels during the night-time - 54 dB LA_{eq},2300-0700hrs
 - Typical maximum noise levels during the night-time - 75 dB LA_{max}
- 5.9 The measured noise levels can be compared with Figure 3 below to assess the 'noise risk' of the site. Where the noise risk is high, significant acoustic design measures may be required to achieve acceptable noise levels in the development. Where the noise risk is low, acceptable noise levels may be achievable with no specific acoustic design measures.

Figure 3 Noise Risk Assessment (Adaption of Figure 1 from ProPG)



- 5.10 It can be seen from a comparison of the measured noise levels in paragraph 5.8 above with Figure 3 that the site is 'Low' to 'Medium' risk in relation to daytime noise levels and 'Low' to 'Medium' risk in relation to night-time noise levels. Therefore, ProPG requires that a more detailed 'Stage 2' assessment is carried out.

Stage 2 – Element 1 – Overall acoustic design of the site

- 5.11 The acoustic design of development has been reviewed in relation to the measured noise levels at the site. The layout of the development is considered to represent good acoustic design for the following reasons:
- the layout positions sensitive areas of the residential properties away from the noise sources

Stage 2 – Element 2 - Internal noise levels

- 5.12 Appropriate design criteria for acceptable noise levels in acoustically sensitive areas of new developments are given in BS8233:2014 'Guidance on sound insulation and noise reduction for buildings'.
- 5.13 Relevant BS8233 design criteria are summarised in Table 1 below.

Table 1 BS8233:2014 Internal Noise Criteria

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB LAeq,16hour	-
Dining	Dining room/area	40 dB LAeq,16hour	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq,16hour	30 dB LAeq,8hour

- 5.14 Full construction details for the development have not been finalised as the project is at an early design stage. It has therefore been assumed that the external walls of the development will be constructed using a standard masonry construction (e.g. 102mm brick, 100mm insulated cavity, 100mm concrete block) or a light-weight construction designed to achieve a similar level of sound insulation (this is technically achievable subject to detailed design).
- 5.15 The ventilation strategy for the development has not yet been confirmed and therefore it is assumed that background ventilation will be provided via trickle ventilators in the building facade. This is a 'worst case' assumption from an acoustic perspective as trickle ventilators are often an acoustic weak point in the facade.
- 5.16 Calculations were carried out using facade modelling software in accordance with the methodology given in BS8233:2014 to calculate the sound insulation performance required of the glazing and ventilation to achieve the nominated internal noise criteria in the 'worst-case' habitable rooms of the development (i.e. the habitable rooms that will be subject to the highest external noise levels). The calculations included a 3 dBA design margin.
- 5.17 If acceptable internal noise levels can be achieved in 'worst case' habitable rooms then it follows that acceptable internal noise levels can be achieved in all other habitable rooms of the development using similar glazing and ventilator types.
- 5.18 The calculations were carried out based on the following typical dimensions/details for facade elements:
- glazing – 1.5m² for bedrooms and 2.5m² for living rooms
 - external walls – 8m² for bedrooms and 15m² for living rooms
 - 2 in-frame trickle ventilators in bedrooms and 3 in-frame trickle ventilators in living rooms
- 5.19 The results of the calculations are shown in Appendix 3 and are summarised in Table 2 below.

Table 2 Acoustic Requirements for ‘Worst Case’ Habitable Rooms

‘Worst Case’ Rooms	Glazing Performance Requirements (inc. Frames)	Ventilator Performance Requirements (in Open Position)
Bedrooms facing Brighton Road	30 dB Rw+Ctr	40 dB Dne,w + Ctr
Living rooms facing Brighton Road	27 dB Rw+Ctr	
Bedrooms set back from the road		31 dB Dne,w + Ctr
Living rooms set back from the road		

Note The requirements given are approximate only and should be confirmed at the detailed design stage when full design details are available.

- 5.20 The required sound insulation performance values in Table 2 could typically be achieved by the glazing and ventilator types shown in Table 3.

Table 3 Typical Glazing / Ventilator Acoustic Performances

Glazing (in Good Quality Sealed Frames)	Typical Weighted Sound Reduction (Rw + Ctr)
4/16/4mm standard thermal double glazing	27
6/16/6.4mm thermal double glazing	31
Ventilators	Typical Acoustic Performance (Dnew + Ctr)
Standard ‘hit & miss’ in-frame trickle ventilator	31
Passivent AL-dB 450 in-frame trickle ventilator	40

Note The acoustic performance of the glazing systems (including frames) should always be confirmed with the manufacturer before selection for installation on site.

- 5.21 It can be seen from the above that acceptable internal noise levels will be achievable in the development subject to the specification of suitable glazing and ventilation systems at the detailed design stage. It is our view therefore that the proposed development is, in principle, acceptable with regards to the noise levels that will exist within the habitable rooms.
- 5.22 It should be noted that it will be possible to use lower acoustic performance glazing and ventilators for habitable rooms on facades that are further from or acoustically screened from the surrounding noise sources. This can be investigated further at the detailed design stage.
- 5.23 The above ProPG assessment for planning purposes is based on internal noise levels with windows closed (assumed to be “normal” circumstances). However, it is anticipated that residents will open their windows at times for thermal comfort (e.g. to prevent overheating in warmer months). Noise levels in the rooms will increase under these circumstances.
- 5.24 The development will be subject to Part O of the Building Regulations (Approved Document O), which came into effect on 15 June 2022. Section 3.2 of Approved Document O (ADO) states:

In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).

Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.

a. 40dB LAeq,T, averaged over 8 hours (between 11pm and 7am).

b. 55dB LAFmax, more than 10 times a night (between 11pm and 7am).

- 5.25 The results of the noise survey indicate that areas of the development facing Brighton Road may exceed the noise limits provided in ADO when the windows are opened. The overheating assessment is, therefore, not likely to be able to rely solely on open windows. This will need to be confirmed as part of the overheating assessment during the detailed design stage.

Stage 2 – Element 3 – Noise levels in external amenity areas

- 5.26 BS8233 states that it is desirable that noise levels in external amenity areas of residential developments do not exceed 50 dB LAeq and that 55 dB LAeq,T should be regarded as an upper guideline value. However, BS8233 recognises that these guideline values will not always be achievable in city centres or urban areas adjoining main roads or other transport sources. In these cases, BS8233 states that the development should be designed to achieve the lowest practicable noise levels in the amenity spaces.
- 5.27 While the locations of gardens are yet to be specified, it should be possible for garden noise levels to be below 55 dB LAeq,T through careful design consideration. Some examples are to position houses to naturally screen gardens from the A281 and the adoption of 1.8m high close-boarded timber fencing to reduce noise levels in external amenity areas as far as practicable, especially towards the edges of the development areas.

Stage 2 – Element 4 – Other relevant issues

- 5.28 In our view the design and acoustic approach outlined above is in line with both local and national noise policy. It is common for residential properties to be situated near to main roads and this is an acceptable scenario provided that the properties are acoustically upgraded where necessary to achieve acceptable noise levels in habitable areas.

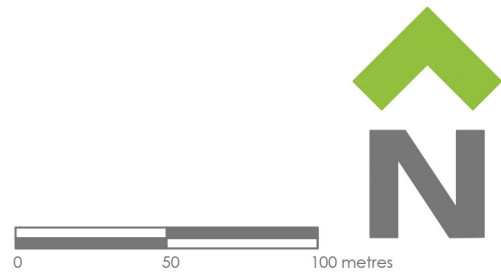
Recommendation to decision maker

- 5.29 It is our view that planning permission may be granted in relation to noise affecting habitable areas of the development subject to the imposition of suitable planning conditions to ensure that acceptable noise levels are achieved in the finished development.

6. CONCLUSIONS

- 6.1 Cass Allen was instructed by Jaynic Properties Ltd to assess noise affecting the development.
- 6.2 The assessment was carried out in accordance with relevant local and national planning guidance.
- 6.3 Noise levels at the site are dictated by road traffic noise emissions from Brighton road (A281).
- 6.4 Noise affecting the development has been assessed in accordance with ProPG guidance. The design of the development is considered to be acceptable subject to the adoption, where required, of acoustically upgraded glazing and ventilation and acoustic screening, where required, around gardens (such as the adoption of 1.8m high close-boarded timber fencing, especially towards the edges of the development areas). This can be investigated further at the detailed design stage and may be secured by the imposition of a noise related planning condition by the Local Planning Authority.
- 6.5 Compliance with noise criteria in Building Regulations Part O has also been assessed. Some bedrooms will need to be designed so that windows can remain closed at night without the rooms overheating. This can be assessed further in due course.
- 6.6 It is our view that the site is suitable for the development in terms of noise levels and that planning permission should be granted subject to the imposition of suitable planning conditions, if necessary.

Appendix 1 Developable Area Parameter Plan



- Site boundary: 9.23ha**
- DEVELOPMENT**
- Developable area: **4.83ha**
- GREEN INFRASTRUCTURE**
- Proposed public open space (including open space, landscaping, play facilities, SuDS features and recreational routes)
 - Existing on-site vegetation
 - Opportunity for natural play-on-the-way and trim trail features along the recreational routes
 - Opportunity for children's play area
 - Proposed SuDS features
- MOVEMENT**
- Proposed vehicular access
 - Proposed signalised crossing and pedestrian access
 - Indicative street connections between parcels
 - Potential emergency access
 - Opportunity to relocate east-bound bus stop along A281 Brighton Road
 - Proposed riverside walk
 - Indicative recreational routes
- CONTEXT**
- Horn Brook

Rev	Date	By	Description

Dixies Barns, High Street,
Ashwell, Hertfordshire SG7 5NT

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Project	Land at Hornbrook Farm, Brighton Road, Horsham		
Title	Parameter Plan		
Client	Jaynic Properties Ltd		
Scale	1:1250 @ A2	Drawn	DF
Date	Jan 2026	Checked	RR
Drawing No.	CSA/7416/102	Rev	L

Appendix 2 Survey Results

Survey Summary:

The survey comprised short-term operator attended noise measurements and longer-term unattended noise monitoring at the site. Noise levels at the site were generally dictated by road traffic on surrounding roads

Survey Period:

27/03/2025 to 31/03/2025

Survey Objectives:

- To identify noise sources that contribute to ambient noise levels at the site;
- To measure noise levels around the site over a typical day and night-time period.

Equipment Used:

Type	Manufacturer	Model	Serial Number
Sound level meter ¹	NTi Audio	XL2	A2A-15506-E0
Calibrator	Larson Davis	Type CAL200	15011
Sound level meter ¹ (noise logger)	Rion	NL-32	00251125
Sound level meter ¹ (noise logger)	Rion	NL-32	00403193
Calibrator	Rion	NC-74	34551703

Note 1: All sound level meters were calibrated before and after measurement periods and no significant drift in calibration was found to have occurred. The results of the measurements are therefore considered to be representative.

Weather Conditions:

The observed weather conditions were acceptable for acoustic measurement throughout the attended survey periods (low-medium wind speeds and no rain). Weather records for the area confirmed that weather conditions were also generally acceptable for acoustic measurement during the unattended monitoring.

Measurement Positions:

Position (refer plan below)	Description
N1	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to nearby roads
N2	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to nearby roads
N3	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to nearby roads
L1	Unattended noise logging position. 3m above ground level. Free-field. Direct line of sight to nearby roads
L2	Unattended noise logging position. 3m above ground level. Free-field. Direct line of sight to nearby roads

Site Plan showing Measurement Positions:



Attended Noise Monitoring Results:

Date	Position	Time	Meas. Length	LAeq, dB	LAm _{ax} , dB	LA90, dB	Observations
27/03/2025	N1	13:28	5 mins	57	65	43	Noise dictated by road traffic on Brighton Road
	N2	14:00		69	80	47	
	N3	14:22	4 mins	49	57	39	Noise dictated by road traffic on Brighton Road and Domesday Lane

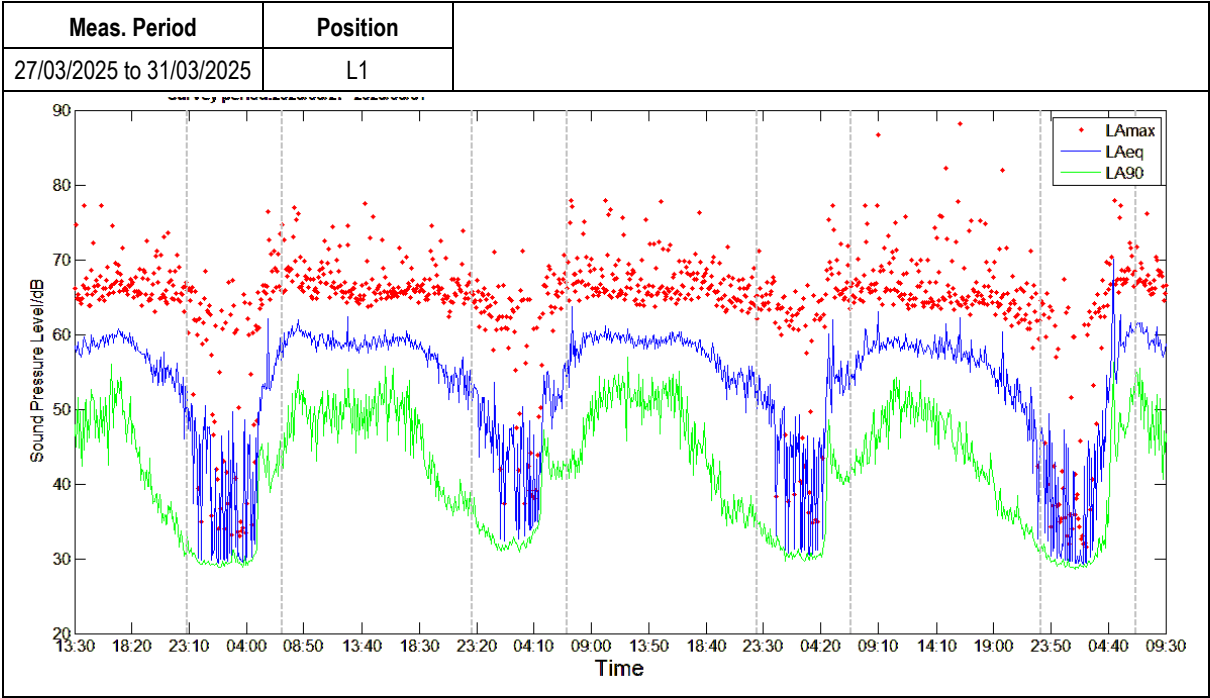
Unattended Noise Monitoring Results:

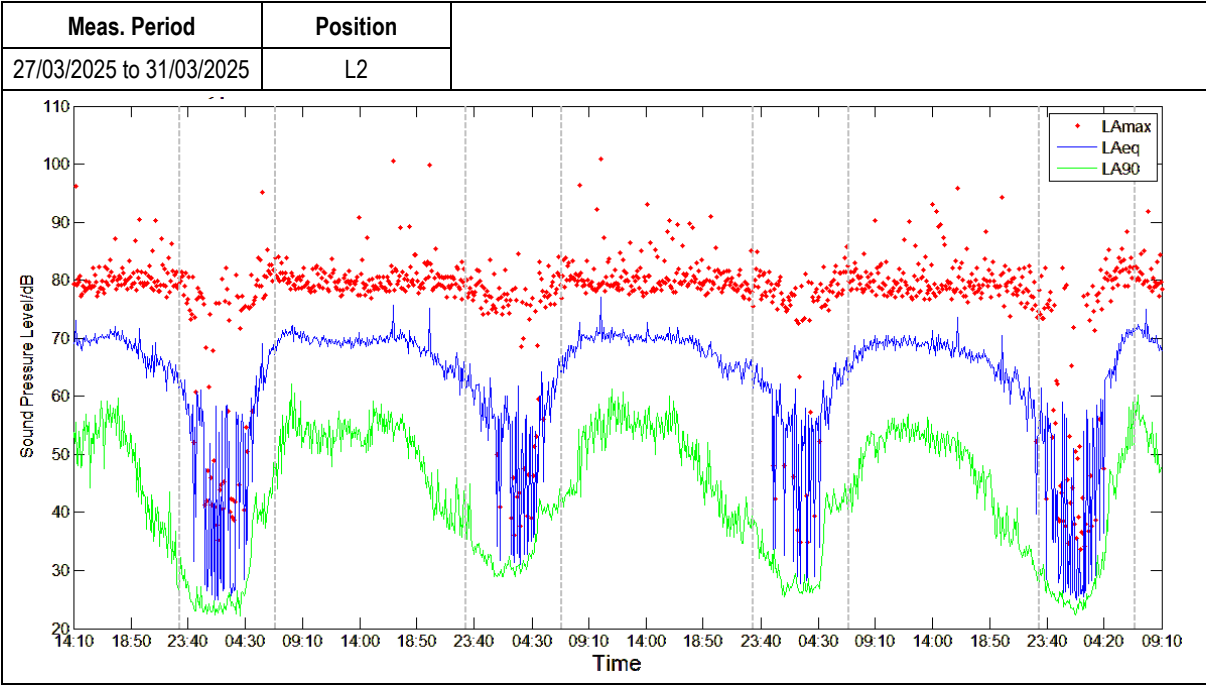
Meas. Period	Position	Daytime (0700-2300hrs)		Night-time (2300-0700hrs)		
		LAeq,16hr, dB	LA90,1hr dB ¹	LAeq,8hr, dB	LA90,5mins, dB ¹	LAm _{ax} , dB ²
27/03/2025 to 31/03/2025	L1	58	50	51	30	69
	L2	69	54	60	26	82

Note 1: Typical lowest measured during the period shown.

Note 2: Highest typical maximum noise level during the night-time (not exceeded more than 10-15 times per night).

Unattended Noise Monitoring Results:





Appendix 3 Facade Calculations

PROJECT: Horsham
ROOM: Bedroom facing Brighton Road
VARIANT: Worst-Case Daytime Average Noise Level (LAeq)
NOTES: Typical assumptions used for ext. wall & glazing dimensions, and no ventilators.

Room Dimensions [m] $\begin{matrix} W \\ 3.0 \end{matrix}$ x $\begin{matrix} L \\ 4.0 \end{matrix}$ x $\begin{matrix} H \\ 2.4 \end{matrix}$

Room Volume = 28.8 m³
 Partition Area = 9.5 m²
 Ventilation ref area = 10.0 m²
 Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>> ☐

NOTES: _____

EXTERNAL SPECTRUM (A weighted)

dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB ---->	-						No data
Road traffic spectrum (according to BS 8233:1999 section 6)	62.0						
	43.8	47.9	51.4	54.8	58.0	55.2	50.0

Reference spectrum

REVERBERATION TIME

DIRECT INPUT ---->							No data
EQUAL RT for all bands ---->	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Default - RT set to 0.5s

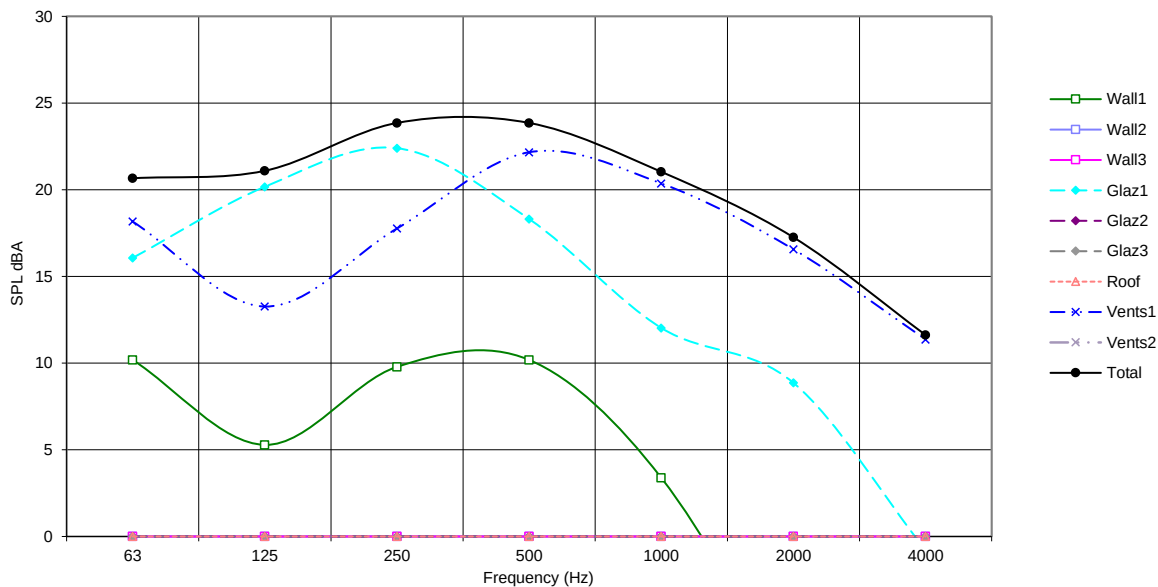
Façade Element	Area [m ²]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	4%	54	0	-4
ATTENUATION												
Wall 2 WALLS	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 31 dB Rw + Ctr - Acoustically Upgraded Double Glazing	1.5	23	23	24	32	41	41	46	44%	31 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		30	31	32	39	49	49	54				
Resultant SPL inside room excluding ventilators dB	26.5	17	20	23	19	13	9	-1	48%			

Ventilator Type	Num	D _{n,e} dB to BS EN 20140-10:1992								D _{nw}	C	Ctr
Ventilation Greenwood 2500EAW.AC1 (Vent + 1 External Acoustic Module)	2	32	41	40	39	44	45	45	51%	42	-1	-2
ATTENUATION												
Ventilation VENTS	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB	26.8	18	13	18	22	20	17	11	52%			

Total SPL inside room

29.7	21	21	24	24	21	17	12
------	----	----	----	----	----	----	----

Element contribution to total internal noise level



PROJECT: Horsham
ROOM: Bedroom facing Brighton Road
VARIANT: Worst-Case Night-time Average Noise Level (LAeq)
NOTES: Typical assumptions used for ext. wall & glazing dimensions, and no. ventilators.

Room Dimensions [m] $\begin{matrix} W \\ 3.0 \end{matrix}$ x $\begin{matrix} L \\ 4.0 \end{matrix}$ x $\begin{matrix} H \\ 2.4 \end{matrix}$

Room Volume = 28.8 m³
 Partition Area = 9.5 m²
 Ventilation ref area = 10.0 m²
 Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>> ☐

NOTES:

EXTERNAL SPECTRUM (A weighted)

dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB ----->	-						No data
Road traffic spectrum (according to BS 8233:1999 section 6)	54.0						
	35.8	39.9	43.4	46.8	50.0	47.2	42.0

Reference spectrum

REVERBERATION TIME

DIRECT INPUT ----->							No data
EQUAL RT for all bands ----->							
	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Default - RT set to 0.5s

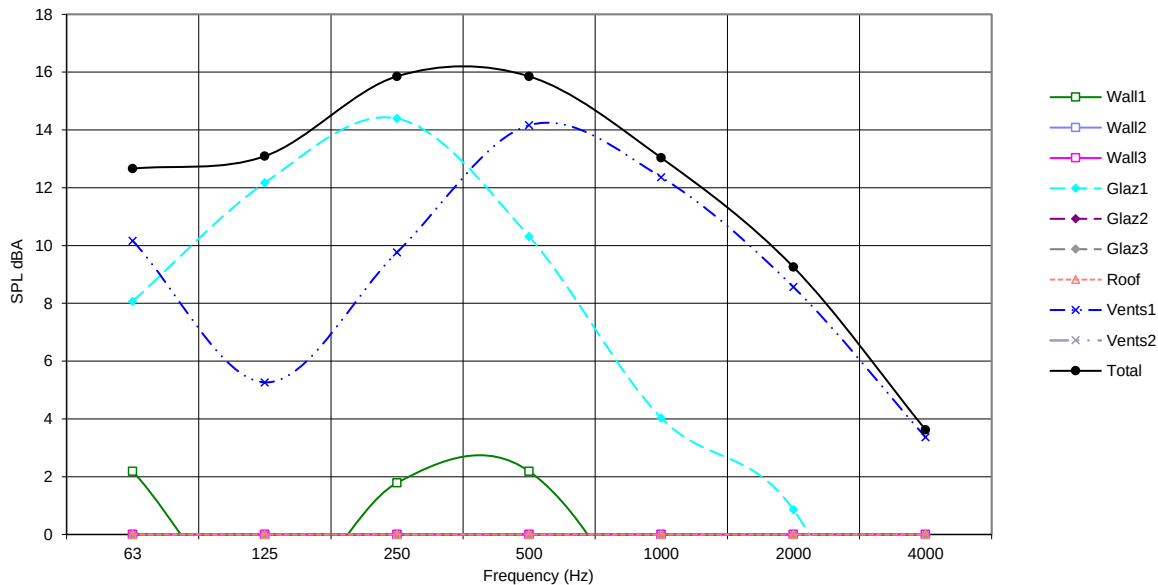
Façade Element	Area [m ²]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	1%	54	0	-4
ATTENUATION												
Wall 2 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 31 dB Rw + Ctr - Acoustically Upgraded Double Glazing	1.5	23	23	24	32	41	41	46	44%	31 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		30	31	32	39	49	49	54				
Resultant SPL inside room excluding ventilators dB	18.5	9	12	15	11	5	1	-9	48%			

Ventilator Type	Num	D _{n,e} dB to BS EN 20140-10:1992								D _{nw}	C	Ctr
Ventilation Greenwood 2500EAW.AC1 (Vent + 1 External Acoustic Module)	2	32	41	40	39	44	45	45	52%	42	-1	-2
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB	18.8	10	5	10	14	12	9	3	52%			

Total SPL inside room

21.7	13	13	16	16	13	9	4
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Element contribution to total internal noise level



PROJECT: Horsham
ROOM: Bedroom facing Brighton Road
VARIANT: Worst-Case Maximum Noise Level (LAmax)
NOTES: Typical assumptions used for ext. wall & glazing dimensions, and no. ventilators.

Room Dimensions [m] $\begin{matrix} W \\ 3.0 \end{matrix}$ x $\begin{matrix} L \\ 4.0 \end{matrix}$ x $\begin{matrix} H \\ 2.4 \end{matrix}$

Room Volume = 28.8 m³
 Partition Area = 9.5 m²
 Ventilation ref area = 10.0 m²
 Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>> ☐

NOTES:

EXTERNAL SPECTRUM (A weighted)

dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB ---->	-						No data
Road traffic spectrum (according to BS 8233:1999 section 6)	75.0						
	56.8	60.9	64.4	67.8	71.0	68.2	63.0

Reference spectrum

REVERBERATION TIME

DIRECT INPUT ---->							No data
EQUAL RT for all bands ---->	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Default - RT set to 0.5s

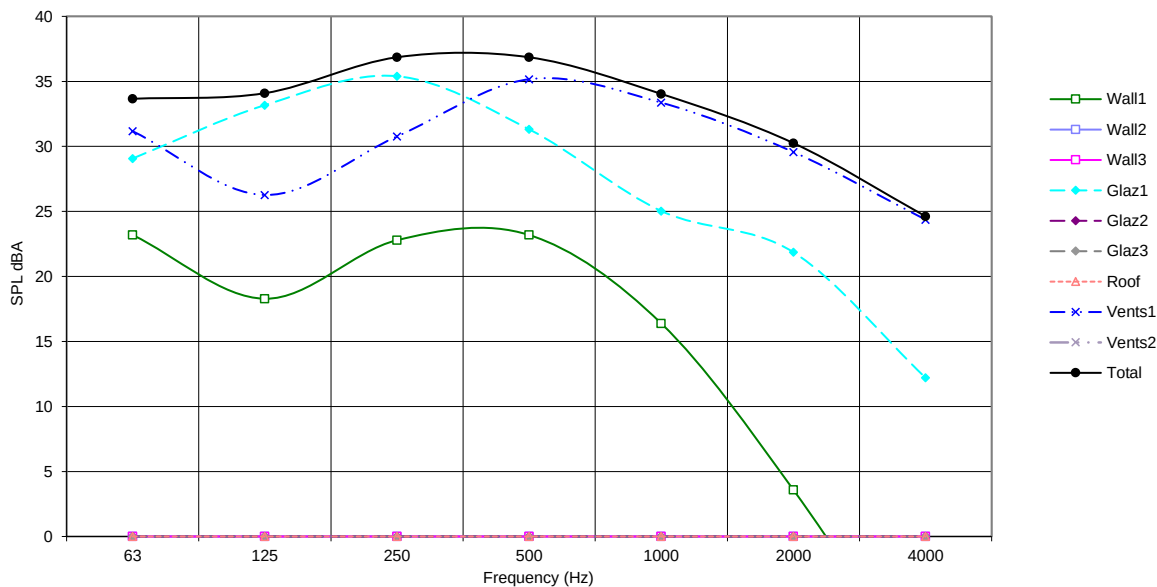
Façade Element	Area [m ²]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	4%	54	0	-4
ATTENUATION												
Wall 2 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 31 dB Rw + Ctr - Acoustically Upgraded Double Glazing	1.5	23	23	24	32	41	41	46	44%	31 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		30	31	32	39	49	49	54				
Resultant SPL inside room excluding ventilators dB		39.5	30	33	36	32	26	22	12	48%		

Ventilator Type	Num	D _{n,e} dB to BS EN 20140-10:1992								D _{nw}	C	Ctr
Ventilation Greenwood 2500EAW.AC1 (Vent + 1 External Acoustic Module)	2	32	41	40	39	44	45	45	52%	42	-1	-2
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB		39.8	31	26	31	35	33	30	24	52%		

Total SPL inside room

42.7	34	34	37	37	34	30	25
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Element contribution to total internal noise level



PROJECT: Horsham
ROOM: Living Room Facing Brighton road
VARIANT: Worst-Case Average Noise Level (LAeq)
NOTES: Typical assumptions used for ext. wall & glazing dimensions, and no ventilators.

Room Dimensions [m] $\begin{matrix} W \\ 4.0 \end{matrix}$ x $\begin{matrix} L \\ 5.0 \end{matrix}$ x $\begin{matrix} H \\ 2.4 \end{matrix}$

Room Volume = 48.0 m³
 Partition Area = 17.5 m²
 Ventilation ref area = 10.0 m²
 Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>> ☐

EXTERNAL SPECTRUM (A weighted)

dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB ---->	-						No data
Road traffic spectrum (according to BS 8233:1999 section 6)	62.0						
	43.8	47.9	51.4	54.8	58.0	55.2	50.0

Reference spectrum

REVERBERATION TIME

DIRECT INPUT ---->							No data
EQUAL RT for all bands ---->	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Default - RT set to 0.5s

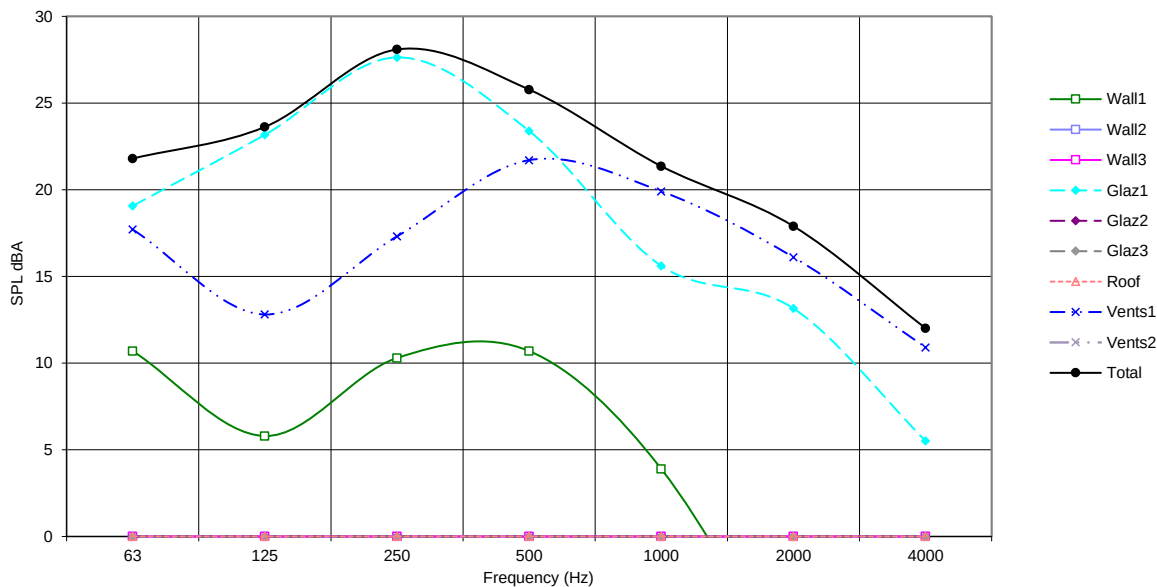
Façade Element	Area [m ²]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	15.0	36	45	44	47	57	67	77	2%	54	0	-4
ATTENUATION												
Wall 2 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 27 dB Rw + Ctr - Standard Thermal Double Glazing	2.5	20	20	19	27	38	37	40	71%	27 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		28	28	27	35	46	46	48				
Resultant SPL inside room excluding ventilators dB		30.7	20	23	28	24	16	13	6	73%		

Ventilator Type	Num	D _{n,e} dB to BS EN 20140-10:1992								D _{nw}	C	Ctr
Ventilation Greenwood 2500EAW.AC1 (Vent + 1 External Acoustic Module)	3	32	41	40	39	44	45	45	27%	42	-1	-2
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB		26.3	18	13	17	22	20	16	11	27%		

Total SPL inside room

32.1	22	24	28	26	21	18	12
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Element contribution to total internal noise level



PROJECT: Horsham
ROOM: Bedroom set back from road
VARIANT: Worst-Case Daytime Average Noise Level (LAeq)
NOTES: Typical assumptions used for ext. wall & glazing dimensions, and no. ventilators.

Room Dimensions [m] $\begin{matrix} W \\ 3.0 \end{matrix}$ x $\begin{matrix} L \\ 4.0 \end{matrix}$ x $\begin{matrix} H \\ 2.4 \end{matrix}$

Room Volume = 28.8 m³
 Partition Area = 9.5 m²
 Ventilation ref area = 10.0 m²
 Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>> ☐

NOTES: _____

EXTERNAL SPECTRUM (A weighted)

dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB ---->	-						No data
Road traffic spectrum (according to BS 8233:1999 section 6)	58.0						
	39.8	43.9	47.4	50.8	54.0	51.2	46.0

Reference spectrum

REVERBERATION TIME

DIRECT INPUT ---->							No data
EQUAL RT for all bands ---->							
	0.5	0.5	0.5	0.5	0.5	0.5	0.5

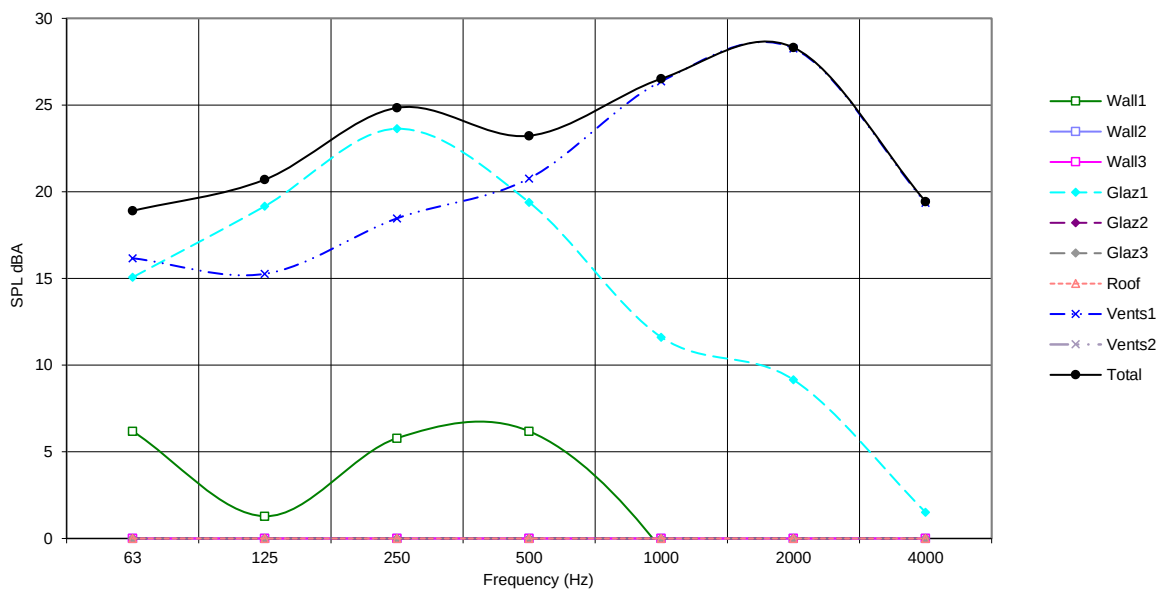
Default - RT set to 0.5s

Façade Element	Area [m ²]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	1%	54	0	-4
ATTENUATION												
Wall 2 WALLS	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 27 dB Rw + Ctr - Standard Thermal Double Glazing	1.5	20	20	19	27	38	37	40	24%	27 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		27	28	27	34	45	45	48				
Resultant SPL inside room excluding ventilators dB	26.7	16	19	24	20	12	9	2	24%			

Ventilator Type	Num	D _{n,e} dB to BS EN 20140-10:1992								D _{nw}	C	Ctr
Ventilation Hit and miss trickle (4000mm ²) e.g. Titon Trimvent XS13	2	30	35	35	36	34	29	33	75%	32	0	-1
ATTENUATION												
Ventilation VENTS	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB	31.6	16	15	18	21	26	28	19	76%			

Total SPL inside room

32.8	19	21	25	23	27	28	19
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Element contribution to total internal noise level

PROJECT: Horsham
ROOM: Bedroom facing Brighton Road
VARIANT: Worst-Case Night-time Average Noise Level (LAeq)
NOTES: Typical assumptions used for ext. wall & glazing dimensions, and no ventilators.

Room Dimensions [m] $\begin{matrix} W \\ 3.0 \end{matrix}$ x $\begin{matrix} L \\ 4.0 \end{matrix}$ x $\begin{matrix} H \\ 2.4 \end{matrix}$

Room Volume = 28.8 m³
 Partition Area = 9.5 m²
 Ventilation ref area = 10.0 m²
 Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>> ☐

NOTES: _____

EXTERNAL SPECTRUM (A weighted)

dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB ----->	-						No data
Road traffic spectrum (according to BS 8233:1999 section 6)	51.0						
	32.8	36.9	40.4	43.8	47.0	44.2	39.0

Reference spectrum

REVERBERATION TIME

DIRECT INPUT ----->							No data
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5

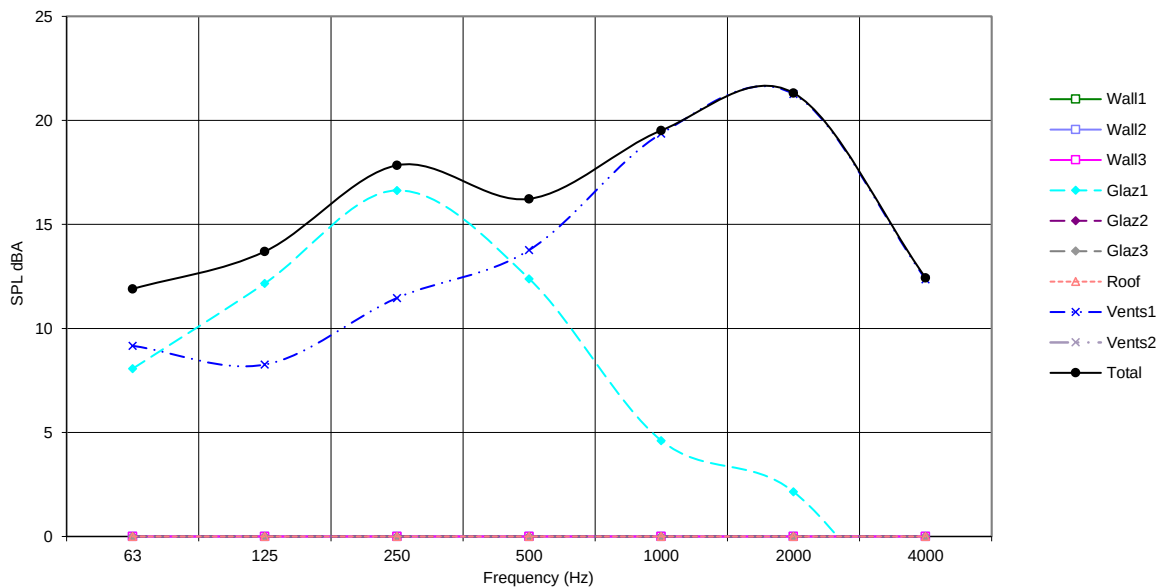
Default - RT set to 0.5s

Façade Element	Area [m ²]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	0%	54	0	-4
ATTENUATION												
Wall 2 WALLS	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 27 dB Rw + Ctr - Standard Thermal Double Glazing	1.5	20	20	19	27	38	37	40	24%	27 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		27	28	27	34	45	45	48				
Resultant SPL inside room excluding ventilators dB	19.7	9	12	17	13	5	2	-5	24%			

Ventilator Type	Num	D _{n,e} dB to BS EN 20140-10:1992								D _{nw}	C	Ctr
Ventilation Hit and miss trickle (4000mm ²) e.g. Titon Trimvent XS13	2	30	35	35	36	34	29	33	75%	32	0	-1
ATTENUATION												
Ventilation VENTS	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB	24.6	9	8	11	14	19	21	12	76%			

Total SPL inside room

25.8	12	14	18	16	20	21	12
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Element contribution to total internal noise level

PROJECT: Horsham
ROOM: Bedroom facing Brighton Road
VARIANT: Worst-Case Maximum Noise Level (LAmax)
NOTES: Typical assumptions used for ext. wall & glazing dimensions, and no. ventilators.

Room Dimensions [m] $\begin{matrix} W \\ 3.0 \end{matrix}$ x $\begin{matrix} L \\ 4.0 \end{matrix}$ x $\begin{matrix} H \\ 2.4 \end{matrix}$

Room Volume = 28.8 m³
 Partition Area = 9.5 m²
 Ventilation ref area = 10.0 m²
 Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>> ☐

NOTES: _____

EXTERNAL SPECTRUM (A weighted)

dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB ----->	-						No data
Road traffic spectrum (according to BS 8233:1999 section 6)	69.0						
	50.8	54.9	58.4	61.8	65.0	62.2	57.0

Reference spectrum

REVERBERATION TIME

DIRECT INPUT ----->							No data
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Default - RT set to 0.5s

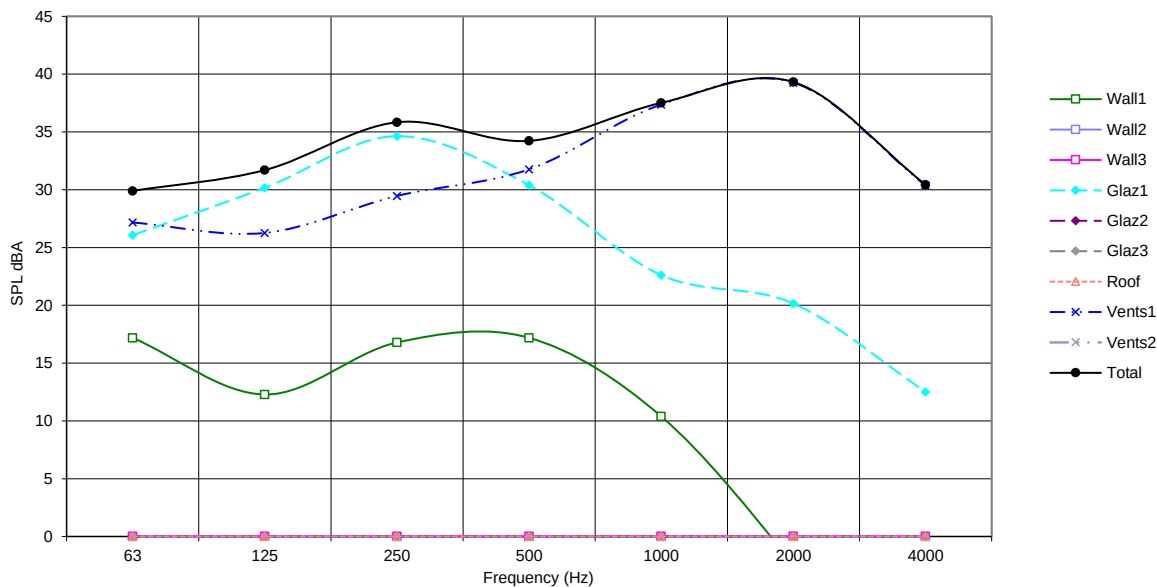
Façade Element	Area [m ²]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	1%	54	0	-4
ATTENUATION												
Wall 2 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 27 dB Rw + Ctr - Standard Thermal Double Glazing	1.5	20	20	19	27	38	37	40	24%	27 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		27	28	27	34	45	45	48				
Resultant SPL inside room excluding ventilators dB		37.7	27	30	35	31	23	20	13	24%		

Ventilator Type	Num	D _{n,e} dB to BS EN 20140-10:1992								D _{nw}	C	Ctr
Ventilation Hit and miss trickle (4000mm ²) e.g. Titon Trimvent XS13	2	30	35	35	36	34	29	33	76%	32	0	-1
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB		42.6	27	26	29	32	37	39	30	76%		

Total SPL inside room

43.8	30	32	36	34	38	39	30
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Element contribution to total internal noise level



PROJECT: Horsham
ROOM: Living Room Facing Brighton road
VARIANT: Worst-Case Average Noise Level (LAeq)
NOTES: Typical assumptions used for ext. wall & glazing dimensions, and no. ventilators.

Room Dimensions [m] $\begin{matrix} W \\ 4.0 \end{matrix}$ x $\begin{matrix} L \\ 5.0 \end{matrix}$ x $\begin{matrix} H \\ 2.4 \end{matrix}$

Room Volume = 48.0 m³
 Partition Area = 17.5 m²
 Ventilation ref area = 10.0 m²
 Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>> ☐

EXTERNAL SPECTRUM (A weighted)

dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB ---->	-						No data
Road traffic spectrum (according to BS 8233:1999 section 6)	58.0						
	39.8	43.9	47.4	50.8	54.0	51.2	46.0

Reference spectrum

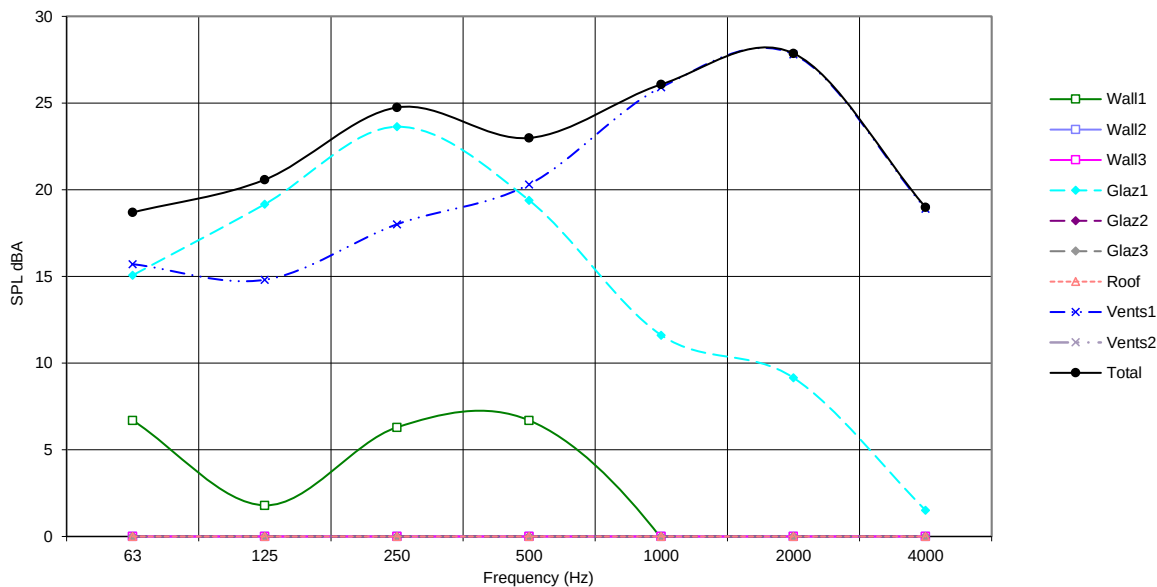
REVERBERATION TIME

DIRECT INPUT ---->							No data
EQUAL RT for all bands ---->	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Default - RT set to 0.5s

Façade Element	Area [m ²]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	15.0	36	45	44	47	57	67	77	1%	54	0	-4
ATTENUATION												
Wall 2 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 27 dB Rw + Ctr - Standard Thermal Double Glazing	2.5	20	20	19	27	38	37	40	26%	27 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		28	28	27	35	46	46	48				
Resultant SPL inside room excluding ventilators dB	26.7	16	19	24	20	12	9	2	27%			

Ventilator Type	Num	D _{n,e} dB to BS EN 20140-10:1992								D _{nw}	C	Ctr
Ventilation Hit and miss trickle (4000mm ²) e.g. Titon Trimvent XS13	3	30	35	35	36	34	29	33	73%	32	0	-1
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB	31.2	16	15	18	20	26	28	19	73%			
Total SPL inside room	32.5	19	21	25	23	26	28	19				

Element contribution to total internal noise level



Architectural & Environmental Consultants

Acoustics | Air Quality | Overheating

This report has been prepared by Cass Allen Associates Ltd in accordance with the CDM regulations with all reasonable skill, care and diligence, and taking account of the resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid at the time of collection. This report is for the exclusive use of the client named above; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from Cass Allen Associates Ltd. Cass Allen Associates Ltd disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of work.



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