



Document reference: AC20227

30 West Street, Horsham, RH12 1PB

Noise Impact Assessment



i. Contents

i.	Contents	2
ii.	Document History	3
iii.	Competency	3
1.	Introduction	4
2.	Relevant Standards and Guidance	4
3.	Site Description	5
4.	Environmental Noise Survey	7
4.1.	Instrumentation.....	7
4.2.	Survey Data Review	8
4.3.	Survey Results.....	8
4.4.	Façade Noise Levels.....	9
5.	Project Criteria	9
6.	Noise Risk and Ventilation Assessment	10
6.1.	External Noise Levels – Level 1 Assessment.....	10
6.2.	Ventilation Strategy.....	11
7.	External Façade Assessments.....	12
7.1.	External Noise Levels	12
7.2.	Façade and Glazing specification.....	12
7.3.	Roof and Rooflights	14
8.	Predicted Internal Noise Levels.....	14
9.	Discussion.....	15
10.	Conclusion.....	16
	Appendix A: Survey Results.....	17
	Appendix B: Calculations.....	18



ii. Document History

Document Ref	Revision	Title	Date	Created By	Authorised By	Comments
AC20227.01.00	0	Noise Impact Assessment	20/07/2026	DG	BG	First draft

This report presents the acoustic consultancy services undertaken for the client by Trace Surveys Ltd (Trace). This has been based on the defined program of works and relevant terms and conditions agreed upon with the Client. The report has been prepared with all reasonable skill, care, and diligence within the terms of the Contract and the agreed scope of work. Trace accepts no responsibility whatsoever, following the issue of the report, for any matters arising outside the agreed scope of the works.

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iii. Competency

Acoustic assessments were undertaken by David Gnanaseharam BSc (Hons) MSc MIOA. David has been involved with acoustic consultancy (including sound insulation testing) for over fifteen years and has a Masters degree in Acoustics from the University of Surrey and is a corporate member of the Institute of Acoustics (MIOA).

The report was authorised by Ben Groves BSc (Hons) MSc MIOA. Ben has been involved with acoustic consultancy for over ten years and has a Masters degree in environmental acoustics and is a corporate member of the Institute of Acoustics (MIOA).

In addition, both David and Ben are registered under the Sound Insulation Testing and Measurement Association scheme for sound insulation testing. SITMA operates a registered tester scheme and holds UKAS accreditation to ISO/IEC 17024:2012.



1. Introduction

Trace Surveys Ltd has been commissioned to undertake a noise impact and ventilation assessment for the proposed development at 30 West Street, Horsham, West Sussex RH12 1PB.

The assessment has been prepared in support of a new planning application relating to the construction of an additional third-floor residential extension above the previously approved mixed-use development at the site.

The lower floors of the building were previously considered under Horsham District Council planning application reference DC/26/0146. The current proposals retain the previously approved ground, first and second-floor arrangements and introduce two additional residential dwellings at third-floor level.

The proposed third-floor accommodation comprises:

- Flat 9: a two-bedroom, three-person dwelling; and
- Flat 10: a one-bedroom, two-person dwelling.

An environmental noise survey was previously undertaken by Trace Surveys Ltd at the site between 16 and 17 April 2026. The survey data has been reviewed and reprocessed for the purposes of the current assessment and is considered representative of the noise climate affecting the proposed third-floor accommodation.

The purpose of this report is to assess the external noise climate affecting the development and to provide appropriate façade sound insulation, glazing and ventilation recommendations to achieve suitable internal noise levels in accordance with BS 8233:2014.

2. Relevant Standards and Guidance

The assessment has been undertaken with reference to the following standards and guidance:

- BS 8233:2014, *Guidance on sound insulation and noise reduction for buildings*;
- BS 7445-2, *Description and measurement of environmental noise - Part 2: Guide to the acquisition of data pertinent to land use*;
- ProPG: *Planning & Noise - Professional Practice Guidance on Planning and Noise: New Residential Development*;
- Noise Policy Statement for England; and
- World Health Organization guidance relating to community noise and sleep disturbance.



The assessment considers:

- internal ambient noise levels within habitable rooms;
- representative maximum noise events within bedrooms at night;
- external façade and glazing sound insulation requirements;
- background ventilation requirements; and
- the relationship between the proposed ventilation strategy and the acoustic performance of the building envelope.

3. Site Description

The Property comprises a large high-street building located within Horsham town centre. The principal northern elevation fronts West Street, a pedestrianised retail thoroughfare. The southern elevation faces Black Horse Way and Horsham Bus Station, with Worthing Road situated immediately to the west.

The surrounding area is mixed in character and includes retail premises, residential accommodation, commercial uses, pedestrian routes, local roads and Horsham Bus Station. The principal environmental noise sources affecting the Property are road traffic and bus station activity to the south and west, together with intermittent activity associated with the surrounding town-centre environment.

Planning application DC/26/0146 relates to the redevelopment of the Property to provide retail accommodation at ground-floor level and residential accommodation on the upper floors.

The current proposal retains the previously approved ground, first and second-floor development and introduces an additional residential storey over the southern portion of the building. The proposed third floor would contain:

- Flat 9: a two-bedroom, three-person dwelling with a stated floor area of approximately 65.9m²; and
- Flat 10: a one-bedroom, two-person dwelling with a stated floor area of approximately 54.2m².

The additional storey incorporates habitable-room windows within the front, rear and side elevations. The scheme also incorporates rooflights and automatic opening vents within the proposed roof.

The front elevation faces the pedestrianised section of West Street, while the rear and western portions of the building are more directly exposed to activity associated with Black Horse Way, Worthing Road and Horsham Bus Station. The rear façade is therefore expected to represent the more significantly noise-exposed elevation. The proposed front, rear and side elevations illustrate the additional storey and associated new windows above the previously approved building.



Figure 3.1 presents the Property and environmental noise monitoring location.

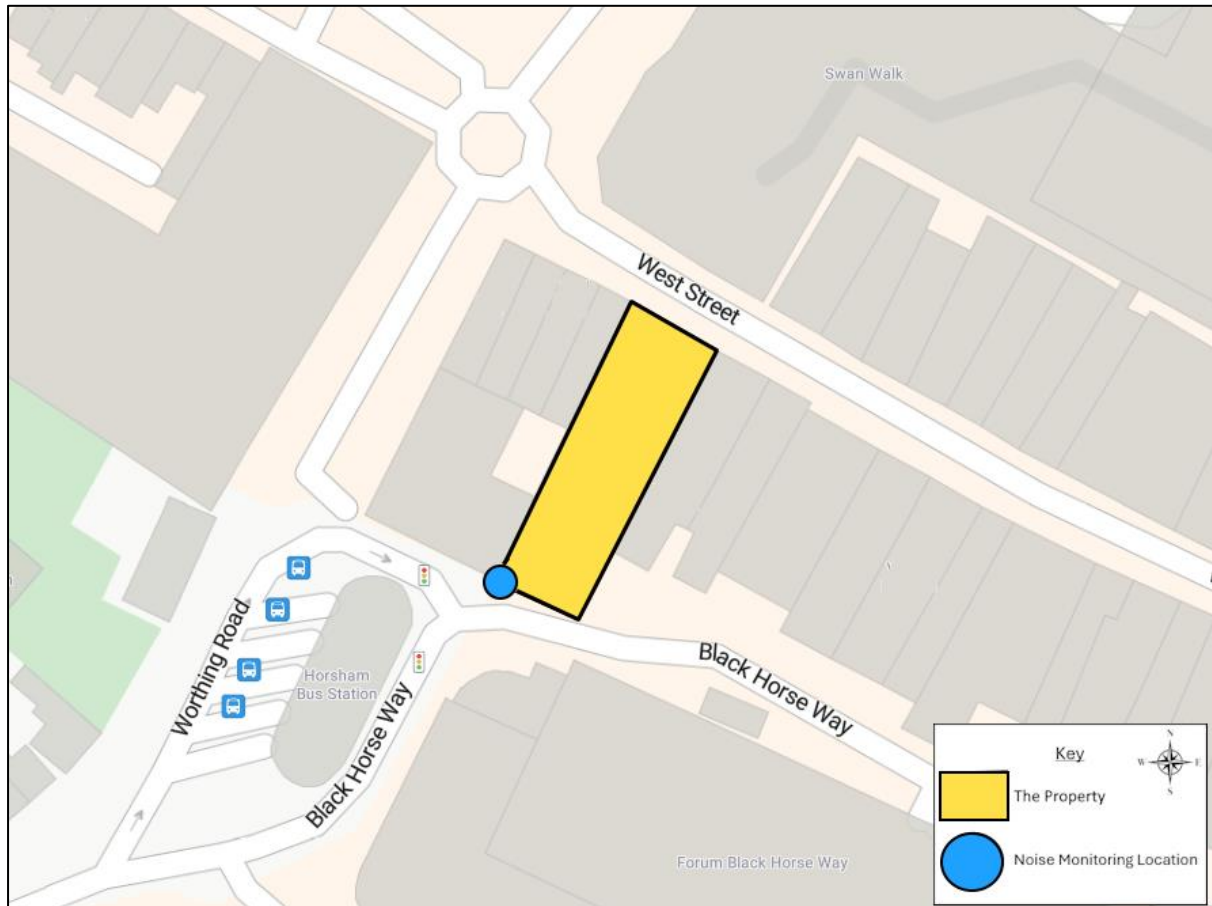


Figure 3.1: Site location showing the noise monitoring location.



4. Environmental Noise Survey

Trace conducted an unattended acoustic survey on 16–17 April 2026 to determine the prevailing sound climate, including maximum noise levels and background sound conditions.

The observed ambient sound environment comprised continuous traffic and bus station activity. Peak levels could be attributed to sirens from emergency vehicles.

Observations of both the front and rear façades indicated that the pedestrianised shopping precinct to the front was relatively quiet, whereas higher activity noise levels were observed at the rear façade overlooking the bus station, expected to impact the multi-storey residential units of the property.

The property was vacant at the time of the survey, with internal building works ongoing. Scaffolding was erected along the rear façade from ground level up to roof level. A microphone position on the first-storey scaffold was considered suitable and representative of the worst-affected façade. The microphone location is shown in Figure 4.1 above.

The microphone was fixed in a free-field position and set to log and store consecutive 15-minute L_{Aeq} , L_{Amax} , and L_{A90} sound levels. During the noise survey, the microphone was protected by a weather-protected windshield. Measurements were undertaken in general accordance with BS 7445-2:2003 'Description and measurement of environmental noise – Part 2: Guide to the acquisition of data pertinent to land use'.

The survey weather conditions were bright and dry, with a daytime maximum temperature of 17°C and an overnight minimum of 9 °C. These weather conditions are not expected to have adversely affected the acquisition of acoustical data.

4.1. Instrumentation

The instrumentation used during the testing is shown in Table 4.1. Calibration checks were undertaken before and after the survey using a reference level of 94 dB at 1 kHz.. The equipment calibration was verified before and after the survey and no significant calibration drift was observed (< 0.5 dB). The sound level meter used during the survey was compliant with the Class 1 standard as defined by BS EN 61672-1:2013 *Electroacoustics. Sound level meters. Specifications*.

Description	Name	Serial Number	Calibration Due
Sound Level Meter	Svantek 971A	154266	03/12/2026
Microphone	Aco Pacific 7152	92800	03/12/2026
Preamplifier	Svantek SV18A	155314	03/12/2026
Calibrator	Rion Nc-75	34935217	11/09/2026

Table 4.1 Equipment Details



All noise equipment has been calibrated to traceable standards within the preceding two years and the acoustic calibrator within the preceding 12 months. Calibration certificates for all equipment used in the survey are available upon request.

4.2. Survey Data Review

The measured data was reviewed before deriving the representative daytime, night-time and maximum sound levels used in the assessment.

One isolated maximum sound event of 107 dB $L_{A_{Fmax}}$ was identified at 05:15. The event was not accompanied by a corresponding sustained increase in the ambient sound level and was considered anomalous and unrepresentative of the normal external noise climate affecting the development.

The isolated event was therefore excluded from the statistical determination of the representative night-time maximum sound level.

Following removal of the anomalous event, the 90th percentile night-time maximum sound level was calculated to be 79 dB $L_{A_{Fmax}}$. This value has been adopted for the assessment of typical maximum sound events within bedrooms.

4.3. Survey Results

The ranges of measured sound levels are presented in Table 4.2 below. The full survey data is shown graphically in Appendix A: Survey Results.

Measurement period (T)	Range of sound levels (dB)			
	$L_{Aeq,T}$	$L_{A_{Fmax}, T}$	$L_{A10, T}$	$L_{A90, T}$
07:00–23:00	48 - 69	66 - 99	49 - 68	36 - 55
23:00–07:00	35 - 73	47 – 91*	38 - 67	31 - 51

Table 4.2: Summary of measurement results

* The isolated 107 dB $L_{A_{Fmax}}$ event identified at 05:15 has been excluded from the reported representative range and statistical analysis for the reasons set out in Section 4.2.

The assessment has adopted representative measured daytime and night-time noise levels and is considered suitably robust for the purposes of assessing the façade sound insulation requirements.

Based on the survey, the representative daytime sound level affecting the site was measured to be 63 dB $L_{Aeq,16hr}$, while the representative night-time sound level was measured to be 61 dB $L_{Aeq,8hr}$. A representative night-time maximum sound level of 79 dB $L_{A_{Fmax}}$ has been adopted based on the distribution of typical measured night-time maximum noise events. This provides a suitably robust basis for the façade sound insulation assessment while avoiding undue influence from isolated atypical events



4.4. Façade Noise Levels

Based on the measurements above, the following octave band sound levels will be used to specify façade building elements. The measurement location is considered representative of the worst affected façade, given its direct exposure to road traffic noise and general town centre activity.

Measurement period	Octave Band Centre Frequency (Hz)								dB	
	63	125	250	500	1k	2k	4k	8k	L _{Aeq}	L _{Afmax}
Daytime L _{Aeq} , 16hrs (07:00-23:00)	68	62	63	59	59	55	49	43	63	N/A
Night-time L _{Aeq} , 8hrs (23:00-07:00)	64	59	60	57	57	54	49	46	61	79

Table 4.3 Noise data to be used in façade sound insulation assessments

5. Project Criteria

British Standard (BS) 8233:2014 *Guidance on sound insulation and noise reduction for buildings*, provides guidance on the acceptable levels of noise within buildings of different types.

In the case of residential developments, BS 8233:2014 recommends ambient noise levels in living accommodation. These recommendations are reproduced in Table 5.1 below.

Activity	Location	Daytime 07:00-23:00	Night-time 23:00-07:00
Resting	Living room	35 dB L _{Aeq,16hour}	-
Dining	Dining room/area	40 dB L _{Aeq,16hour}	-
Sleeping (daytime resting)	Bedroom	35 dB L _{Aeq,16hour}	30 dB L _{Aeq,8hour}

Table 5.1 Indoor ambient noise levels for dwellings

A specific maximum L_{AFmax} value is not given by BS 8233:2014. Based on For the purposes of this assessment, an internal design target of 45 dB L_{AFmax} has been adopted for representative night-time maximum sound events within bedrooms.

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6. Noise Risk and Ventilation Assessment

6.1. External Noise Levels – Level 1 Assessment

The suitability of the proposed development has been considered with reference to the Acoustics, Ventilation and Overheating: Residential Design Guide, prepared jointly by the Association of Noise Consultants and Institute of Acoustics.

To perform an initial risk assessment, externally measured free-field sound levels were evaluated using the criteria outlined in Figure 6.1. This framework categorises risk levels based on daytime ($L_{Aeq,16hr}$) and nighttime ($L_{Aeq,8hr}$) noise levels, along with the associated potential effects without mitigation and recommendations for further assessments.

Risk Category for level 1 assessment		Potential effect without mitigation		Recommendations for further assessments
Day-Time $L_{Aeq,16hr}$ (07:00-23:00)		Night-time $L_{Aeq,8hr}$ (23:00-07:00)	 Increasing risk of adverse effect	Recommended
65dB		55dB		Optional
60dB		50dB		
55dB		The use of openable windows as primary means for mitigating overheating is not likely to cause adverse effect and annoyance		Not required
50dB				
		45dB		

Figure 6.1 Level 1 site risk assessment guidance, reproduced from the ANC/IOA Acoustics, Ventilation and Overheating Residential Design Guide.



Based on the measured sound levels presented in Section 5, a Level 1 noise risk assessment has been undertaken.

The measured daytime level of 63 dB $L_{Aeq,16hr}$ falls within the upper part of the medium-risk range, approaching the high-risk range. The measured night-time external sound level of 61 dB $L_{Aeq,8hr}$ falls within the high-risk category.

The assessment therefore indicates that adverse noise effects may occur without appropriate acoustic mitigation. The measured external noise levels do not preclude residential development. However, suitable acoustic design measures are required to control noise intrusion through the external building envelope.

In accordance with good acoustic design principles, open windows should not be relied upon as the primary means of providing background ventilation where the internal noise criteria contained within BS8233:2014 are to be achieved.

The development should therefore incorporate acoustically attenuated background ventilation which allows the relevant ventilation requirements to be achieved while windows remain closed.

The assessment has been undertaken on the basis of a passive ventilation strategy using acoustic trickle ventilators.

6.2. Ventilation Strategy

The proposed ventilation strategy comprises:

- acoustic trickle ventilators for normal background ventilation; and
- openable windows for purge ventilation and occupant preference.

The following minimum acoustic ventilator performances are recommended.

Period/room type	Minimum ventilator performance
Living rooms and daytime-sensitive rooms	$D_{n,e,w}$ 29 dB
Bedrooms and night-time-sensitive rooms	$D_{n,e,w}$ 34 dB

Table 6.1 Acoustic ventilator requirements

The stated values apply to the complete ventilator arrangement serving each room.

The final number, size and equivalent area or open free area of the ventilators must be confirmed by the project ventilation designer, window supplier or ventilator manufacturer to demonstrate compliance with the ventilation requirements of Approved Document F.



The acoustic performance must be achieved while also providing the necessary background ventilation rate. A ventilator should not be selected solely on the basis of its acoustic rating without confirming that its declared equivalent area or free area is sufficient for the room it serves.

Where more than one ventilator is required within a room, the combined acoustic effect of all ventilators should be considered by the supplier or acoustic consultant.

The final product selection should therefore be supported by manufacturer's test data confirming:

- the acoustic performance, expressed as $D_{n,e,w}$;
- the equivalent area or free area;
- the operating position at which both values are achieved; and
- the number of units required within each habitable room.

The internal noise criteria are assessed with windows closed and the acoustic trickle ventilators in their normal open position.

The internal noise criteria are not expected to be achieved while windows are open. Where a separate overheating assessment identifies a requirement for prolonged window opening, particularly during the night-time period, the acoustic implications should be reviewed as part of the coordinated design. Any assessment under Approved Document O falls outside the scope of this report.

7. External Façade Assessments

7.1. External Noise Levels

This section provides an assessment of the suitability of the site for residential use with respect to noise.

Based on the measured sound levels presented in Section 5, an assessment has been undertaken with reference to BS 8233:2014 to determine suitable façade sound insulation requirements for the proposed residential accommodation.

The assessment demonstrates that, with appropriate glazing and acoustically attenuated ventilation, internal ambient noise levels within the proposed dwellings can achieve the recommended criteria contained within BS 8233:2014.

7.2. Façade and Glazing specification

Using the façade noise levels, presented in Table 4.3, calculations have been completed to allow the determination of appropriate glazing specifications for the whole development. The calculations take into consideration the free-field equivalent sound level, the sound reduction index of the glazing elements, the sound reduction of the façade, and the internal acoustics of a typical domestic room.



Based on these calculations, presented in Appendix B: Calculations of this report, façade elements can be specified.

It is assumed that the non-glazed areas of any façade systems may incorporate sufficient acoustic treatment such that the glazing represents the weakest transmission path for external noise intrusion. As such, the acoustic performance of the glazing will be the most critical element in determining the overall sound insulation performance of the external façade. Details of the internal noise level calculations can be found in Appendix B: Calculations of this report.

Table 7.1 presents the sound insulation performance specifications recommended for elements of the external building fabric system for all room types. Typical constructions that achieve the internal ambient noise criteria in BS8233:2014 are also provided.

Façade element	Room type	Minimum acoustic performance	Example construction
Non-glazed external façade	All habitable rooms	R_w 53 dB	215 mm plastered masonry or equivalent
Glazing	Living rooms	R_w 34 dB	6 mm glass/12 mm cavity/12 mm glass, or acoustically equivalent
Glazing	Bedrooms	R_w 37 dB	10 mm glass/12 mm cavity/6 mm glass, or acoustically equivalent
Acoustic background ventilators	Living rooms	$D_{n,e,w}$ 29 dB	Proprietary acoustic trickle ventilator
Acoustic background ventilators	Bedrooms	$D_{n,e,w}$ 34 dB	Proprietary acoustic trickle ventilator

Table 7.1 Building envelope proposed construction

The example glazing constructions are indicative only. The required performance relates to the complete window system, including the glazing, frame, seals and opening configuration.

The selected glazing supplier should provide laboratory test evidence demonstrating that the complete proposed window achieves the stated minimum R_w performance.

Good quality continuous perimeter seals should be incorporated around all opening lights. Any gaps between the window frames and the surrounding building envelope should be fully sealed with a suitable flexible acoustic sealant.



All façade penetrations should be appropriately sealed to maintain the acoustic integrity of the external envelope.

The rear-façade survey levels have been conservatively applied to the proposed third-floor accommodation. As the West Street frontage is pedestrianised and was observed to be quieter, the resulting specifications are expected to be conservative for rooms facing the northern elevation.

7.3. Roof and Rooflights

The proposed additional storey incorporates a new roof arrangement, including rooflights and automatic opening vents.

Where a rooflight forms part of the external envelope of a habitable room, it should achieve an acoustic performance commensurate with the glazing requirement for that room.

Where rooflights or AOVs serve circulation spaces rather than habitable rooms, their acoustic performance is less critical to the internal residential noise criteria. Nevertheless, they should be detailed and sealed so that noise transfer into adjoining dwellings is appropriately controlled.

The opaque roof construction should achieve a laboratory sound reduction performance broadly commensurate with the non-glazed façade, taken as approximately R_w 53 dB for design purposes.

8. Predicted Internal Noise Levels

Based upon the proposed façade, glazing and ventilation performances, the calculations demonstrate that suitable internal noise levels can be achieved within the proposed accommodation.

Period	Predicted internal noise level	Project Criteria	Result
Day-time Average L_{Aeq} (07:00-23:00)	35 dB $L_{Aeq, 16hr}$	35 dB $L_{Aeq, 16hr}$	PASS
Night-time Average L_{Aeq} (23:00-07:00)	30 dB $L_{Aeq, 8hr}$	30 dB $L_{Aeq, 8hr}$	PASS
Night-time Max event L_{Amax} (23:00-07:00)	42 dB L_{Amax}	45 dB L_{Amax}	PASS

Table 8.1 Indoor ambient noise predictions

The assessment predicts internal ambient noise levels of 35 dB $L_{Aeq, 16hr}$ during the daytime and 30 dB $L_{Aeq, 8hr}$ during the night-time, including the combined contributions through the façade glazing and acoustic background ventilators. A representative internal maximum noise level of 42 dB L_{Amax} is predicted during the night-time period. These levels meet the adopted project criteria.



9. Discussion

The dominant environmental noise sources affecting the proposed development are road traffic, bus movements and activity associated with Horsham Bus Station.

The measured noise levels indicate that acoustic mitigation is required to achieve suitable internal conditions within the proposed third-floor residential accommodation.

The calculations demonstrate that the required internal noise criteria can be achieved through the incorporation of:

- living-room glazing achieving at least R_w 34 dB;
- bedroom glazing achieving at least R_w 37 dB;
- living-room acoustic trickle ventilators achieving at least $D_{n,e,w}$ 29 dB;
- bedroom acoustic trickle ventilators achieving at least $D_{n,e,w}$ 34 dB;
- non-glazed façade and roof elements achieving approximately R_w 53 dB;
- suitable acoustic performance from rooflights serving habitable rooms;
- good quality window perimeter seals; and
- appropriately sealed façade and roof penetrations.

The use of different ventilator ratings for living rooms and bedrooms reflects the more onerous night-time acoustic requirements applicable to sleeping accommodation.

The final equivalent area or free area required from the background ventilators has not yet been confirmed. This should be determined by the ventilation designer in accordance with Approved Document F.

The final ventilator selection must satisfy both the ventilation and acoustic requirements. Where the required equivalent area cannot be achieved using a single unit, the combined performance of multiple ventilators should be reviewed before selection.

The internal noise criteria are assessed with windows closed and the recommended acoustic trickle ventilators open in their normal operating position.

The proposed acoustic mitigation measures comprise conventional glazing and ventilator systems which can be incorporated within the new façade design. Subject to appropriate detailed design and manufacturer confirmation, no unusual or disproportionate acoustic mitigation is considered necessary.



10. Conclusion

Trace Surveys Ltd has undertaken a noise impact and ventilation assessment for the proposed additional third-floor residential accommodation at 30 West Street, Horsham, West Sussex RH12 1PB.

The proposed development comprises two additional residential units above the previously approved mixed-use development.

An unattended environmental noise survey was undertaken at the site between 16 and 17 April 2026. The survey data has been reviewed and reprocessed for the current assessment.

An isolated and unrepresentative 107 dB LAFmax event was excluded from the statistical analysis of representative night-time maximum levels. Following exclusion of that event, the 90th percentile night-time maximum sound level was determined to be 79 dB LAFmax.

The site is affected principally by road traffic, bus movements and activity associated with Horsham Bus Station.

The assessment demonstrates that suitable internal noise conditions can be achieved within the proposed residential accommodation through the incorporation of the following acoustic design measures:

- living-room glazing achieving a minimum performance of R_w 34 dB;
- bedroom glazing achieving a minimum performance of R_w 37 dB;
- acoustic trickle ventilators serving living rooms achieving at least $D_{n,e,w}$ 29 dB;
- acoustic trickle ventilators serving bedrooms achieving at least $D_{n,e,w}$ 34 dB;
- non-glazed external wall and roof elements achieving approximately R_w 53 dB;
- rooflights serving habitable rooms achieving a performance commensurate with the applicable glazing requirement;
- good quality perimeter seals; and
- suitably sealed façade and roof penetrations.

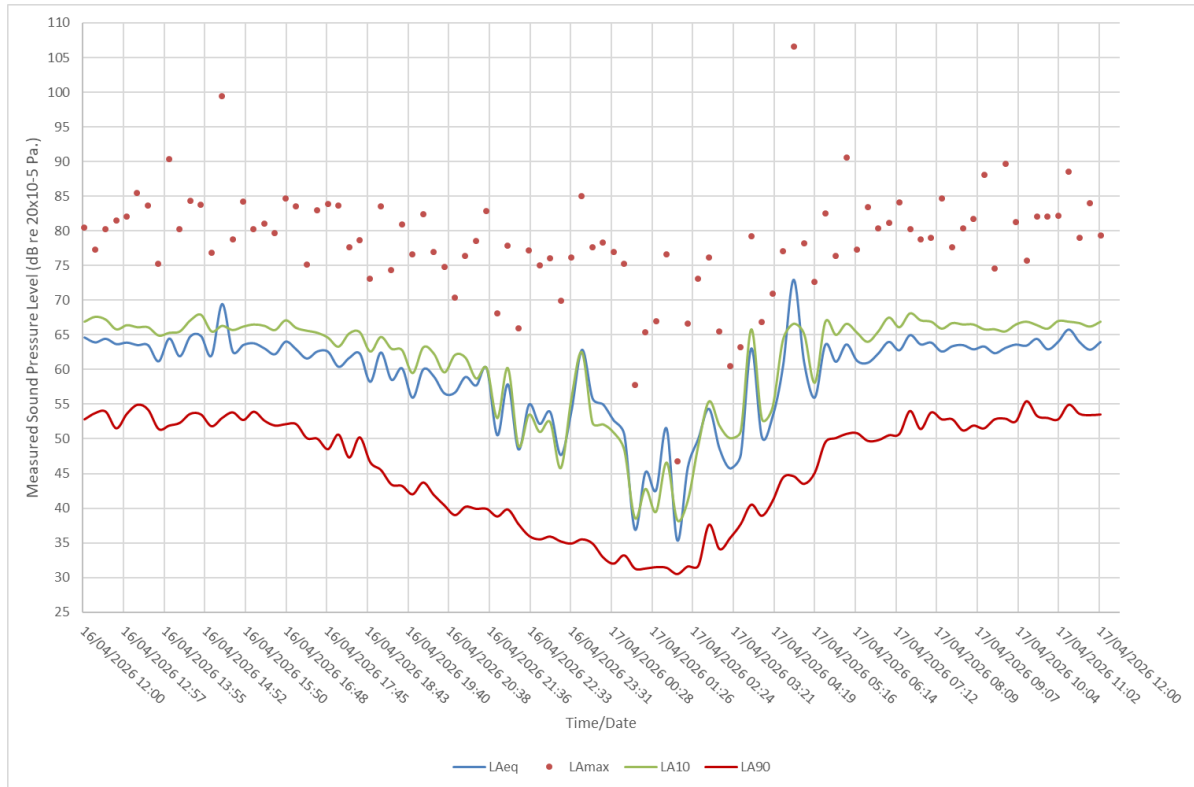
The ventilation strategy is based upon passive acoustic trickle ventilators providing normal background ventilation, with openable windows retained for purge ventilation and occupant preference. The final equivalent area or open free area required from the ventilators should be confirmed by the project ventilation designer or supplier to satisfy Approved Document F. The selected products must achieve both the required ventilation provision and the acoustic performance stated within this report. The internal noise criteria are assessed with windows closed and the acoustic trickle ventilators open in their normal operating position.

Subject to implementation of the recommendations contained within this report, the proposed development is expected to achieve suitable internal noise levels in accordance with BS 8233:2014 and is considered acceptable in acoustic terms.



Appendix A: Survey Results

Figure A.1: Survey Results for the weekday 24-hour monitoring period



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Appendix B: Calculations

Table B.1 Daytime internal ambient sound levels

Project:	30 West Street, Horsham										
Ref:	Living Room (Day L _{Aeq})										
Location:	West Street, Horsham										
Criterion:	NR25										
Façade Calculations Inputs			63	125	250	500	1K	2K	4K	8K	Rw
Ref No.	Area m ²										
1 30 6/12/12 sealed (Pilkington)	6.0	24	29	25	32	34	36	38	40	34	Glazing
2 2 Brick (215mm) plast	12.0	34	41	44	48	55	55	55	55	53	Façade
3 No Element	0	0	0	0	0	0	0	0	0	0	
4 No Element	0	0	0	0	0	0	0	0	0	0	
Composite SRI		18	28	33	30	37	39	41	43	45	
Room Width (m)	5	15									
Room Depth (m)	4.0										
Room Height (m)	3										
Total Volume	60.0										
Total Area	94.0										
Room Type (1, 2, 3 or 4)	3	0.08	0.08	0.08	0.1	0.15	0.2	0.2	0.2		
1=Sus Ac, 2=Sus non Ac, 3=No sus, 4=Hard											
Room Criteria NR/TNR	nr25	55	44	35	29	25	22	19	18	35	
										L _{Aeq} (dB)	L _{Afmax} (dB)
Measured Incident Noise Level		68	62	63	59	59	55	49	43	63	
Direct Noise Level		40	29	33	23	20	14	6	-2		
Reverberant Noise Level		45	34	38	27	22	15	7	-1		
										L _{Aeq} (dB)	L _{Afmax} (dB)
Total Internal Noise Level		46	35	39	28	24	18	10	2	33	-
Criterion Excess		-	-	4	-	-	-	-	-		
Minimum SRI Required:		19	24	34	36	38	36	33	28		
Project:	30 West Street, Horsham										
Ref:	Living Room (Day L _{Aeq})										
Location:	West Street, Horsham										
Criterion:											
Dnew Calc			63	125	250	500	1K	2K	4K	8K	L _{Aeq} (dB)
L ₂ = L ₁ - D _{ne} + 10 Log (A ₀ T/0.16V)		Notes									L _{Afmax} (dB)
L ₁	L _{Aeq}	68	62	63	59	59	55	49	43	63	
D _{ne}	Min	29	29	29	29	29	29	29	29	29	
Reverberation Time, T (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Surface Area (receiver room) m ²	20										
Height (receiver room) m	3										
Volume m ³	60										
10 Log (A ₀ T/0.16V), A ₀ =	10	-2.83	-2.83	-2.83	-2.83	-2.83	-2.83	-2.83	-2.83	-2.83	L _{Aeq} (dB)
L ₁ , Living Room (Day L _{Aeq})		36	30	31	28	27	23	17	11	31	L _{Afmax} (dB)
Living Room (Day L _{Aeq}) through glazing		46	35	39	28	24	18	10	2	33	
Total		46	36	40	31	29	24	18	11	35	



Table B.2 Night-time internal ambient sound levels and max levels

Project:		30 West Street, Horsham											
Ref:		Bedroom (Night L _{Aeq})											
Location:		West Street, Horsham											
Criterion:		NR20											
Façade Calculations Inputs			63	125	250	500	1K	2K	4K	8K	Rw		
Ref No.		Area m ²											
1	31	10/12/6 sealed (Pilkington)	6.0	21	26	27	34	40	38	46	42	37	Glazing
2	2	Brick (215mm) plast	12.0	34	41	44	48	55	55	55	55	53	Façade
3		No Element	0	0	0	0	0	0	0	0	0	0	
4		No Element	0	0	0	0	0	0	0	0	0	0	
Composite SRI		18	25	31	32	38	45	43	50	46			
Room Width (m)		5	15										
Room Depth (m)		4.0											
Room Height (m)		3											
Total Volume		60.0											
Total Area		94.0											
Room Type (1, 2, 3 or 4)		3	0.08	0.08	0.08	0.1	0.15	0.2	0.2	0.2			
1=Sus Ac, 2=Sus non Ac, 3=No sus, 4=Hard													
Room Criteria NR/TNR		nr20	51	39	31	24	20	17	14	13	30		
											L _{Aeq} (dB)	L _{Afmax} (dB)	
Measured Incident Noise Level			64	59	60	57	57	54	49	46	61	79	
Direct Noise Level			39	29	29	19	12	11	-1	0			
Reverberant Noise Level			44	34	34	23	14	12	0	0			
											L _{Aeq} (dB)	L _{Afmax} (dB)	
Total Internal Noise Level			45	35	35	24	16	15	2	3	29	47	
Criterion Excess			-	-	4	0	-	-	-	-			
Minimum SRI Required:			19	26	35	39	41	40	38	36			
Project:		30 West Street, Horsham											
Ref:		Bedroom (Night L _{Aeq})											
Location:		West Street, Horsham											
Criterion:													
Dnew Calc			63	125	250	500	1K	2K	4K	8K	L _{Aeq} (dB)	L _{Afmax} (dB)	
L2 = L1 - Dne + 10 Log (A ₀ T/0.16V)		Notes											
L1		L _{Aeq}	64	59	60	57	57	54	49	46	61	79	
Dne		Min	34	34	34	34	34	34	34	34			
Reverberation Time, T (s)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5			
Surface Area (reciever room) m ²		20											
Height (reciever room) m		3											
Volume m ³		60											
10 Log (A ₀ T/0.16V), A ₀ =		10	-2.83	-2.83	-2.83	-2.83	-2.83	-2.83	-2.83	-2.83	L _{Aeq} (dB)	L _{Afmax} (dB)	
L1, Bedroom (Night L _{Aeq})			28	23	23	21	20	17	12	9	24	42	
Bedroom (Night L _{Aeq}) through glazing			45	35	35	24	16	15	2	3	29		
Total			45	35	35	26	21	19	12	10	30	42	



REPORT ENDS