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400 Thames Vally Park Class AA

Noise Impact Assessment



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ii. Document History

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iii. Credentials

Acoustic survey and assessments were undertaken by Ben Groves BSc (Hons) MSc MIOA. Ben has been involved with acoustic consultancy for over ten years, has a Masters degree in environmental acoustics, and is a corporate member of the Institute of Acoustics (MIOA).

The report was authorised by David Gnanaseharam BSc (Hons) MSc MIOA. David has been involved with acoustic consultancy for over fifteen years, has a Masters degree in Acoustics from the University of Surrey, and is a corporate member of the Institute of Acoustics (MIOA).

In addition, they are both fully accredited under the Sound Insulation Testing and Measurement Association (SITMA) scheme. SITMA is a professional association for the Acoustic Consultancy industry and operates a registered testers scheme providing 3rd party accreditation to testing companies, ensuring that all companies operate to a high standard.

SITMA also holds UKAS Accreditation to ISO 17024:2012.



1. Introduction

This noise impact assessment has been prepared by Trace Surveys on behalf of TVP Investments Limited ('the Applicant'), in support of a Prior Approval Application under Schedule 2, Part 20, Class AA (new dwellinghouses on detached buildings in commercial or mixed-use) of the General Permitted Development Order 2015 for a two-storey upwards extension providing 32 residential units on the 4th and 5th floor with associated plant and car and cycle parking ('the Proposed Development') at 400 Thames Valley Park Dr, Earley, Reading RG6 1PT ('the Site')."

In this report, external noise levels impinging upon The Property will be measured and used to assess the impact on prospective residents. These noise levels will be used to establish the need for acoustically rated façade elements and will dictate the requirement for mechanical ventilation in the event that passive systems may lead to excessive internal ambient noise levels, in accordance with national standards and local authority guidance.

2. Relevant Standards and Guidance

The primary standards used in the preparation of this document are as follows:

- British Standard (BS) 7445: 2003 *Part 1 Description and measurement of environmental noise. Guide to quantities and procedures*
- British Standard (BS) 8233:2014 *Guidance on sound insulation and noise reduction for buildings*
- Noise Policy Statement for England (NPSE)
- Professional Practice Guidance on Planning & Noise (ProPG)
- Wokingham Borough Local Development Framework: Adopted core strategy development plan document (January 2010).

3. Site Description

The Proposed Development is in the administrative region of Wokingham Borough Council. The Site lies within a commercial estate, and the area immediately around the Site comprises large office blocks. The local noise climate is low level but dominated by a light steady flow of motor vehicles driving through or into the estate, occasional train passbys, and pedestrian traffic.



4. Environmental Noise Survey

Trace conducted an unattended acoustic survey from 14:00 on Tuesday, 04 November to 14:00 on Wednesday, 05 November 2025. The microphone was positioned within the bin store area of the adjacent carpark, around 5 meters from the south facing façade of the property.

The sound level meter was 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 dry, with a daytime maximum temperature of 13 °C and an overnight minimum of 10 °C. These 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. The sound level meter had calibration checks before and after the measurement surveys to generate a calibration 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 Results

The results of the unattended survey are presented in Table 4.2 and Table 4.3. The L_{A90} background sound level has been established using the most commonly occurring $L_{A90,15min}$ sound level during night-time, and the most commonly occurring $L_{A90,1hr}$ period during the daytime. The L_{Amax} level is the 90th percentile of the measured $L_{Amax,15min}$ sound levels over the full monitoring period. $L_{Aeq,15min}$ sound levels have been logarithmically averaged to provide full daytime (16 hour) and night-time (8 hour) sound levels.

Measurement period (T)	Measured sound levels (dB)			
	$L_{Aeq,T}$	$L_{Amax,T}$	$L_{A10,T}$	$L_{A90,T}$
07:00 - 23:00	59	78	60	52
23:00 - 07:00	56	74	54	46

Table 4.2: Time-averaged free field sound levels

Table 4.2 shows that the daytime and night-time average sound levels during the monitoring period were 59 dB and 56 dB $L_{Aeq,T}$, respectively. Night-time typical maximum sound levels were 74 dB $L_{Amax,15min}$.

Measurement period (T)	Range of sound levels (dB)			
	$L_{Aeq,T}$	$L_{Amax,T}$	$L_{A10,T}$	$L_{A90,T}$
07:00 - 23:00	49 - 70	54 - 98	51 - 70	46 - 56
23:00 - 07:00	44 - 66	52 - 80	45 - 71	41 - 55

Table 4.3: Time-averaged range of sound level ranges

Table 4.3 shows a summary of the range of sound levels during the monitoring period. Daytime and night-time $L_{Aeq,15min}$ sound level ranges were 49 – 70 dB and 44 - 66 dB, respectively.

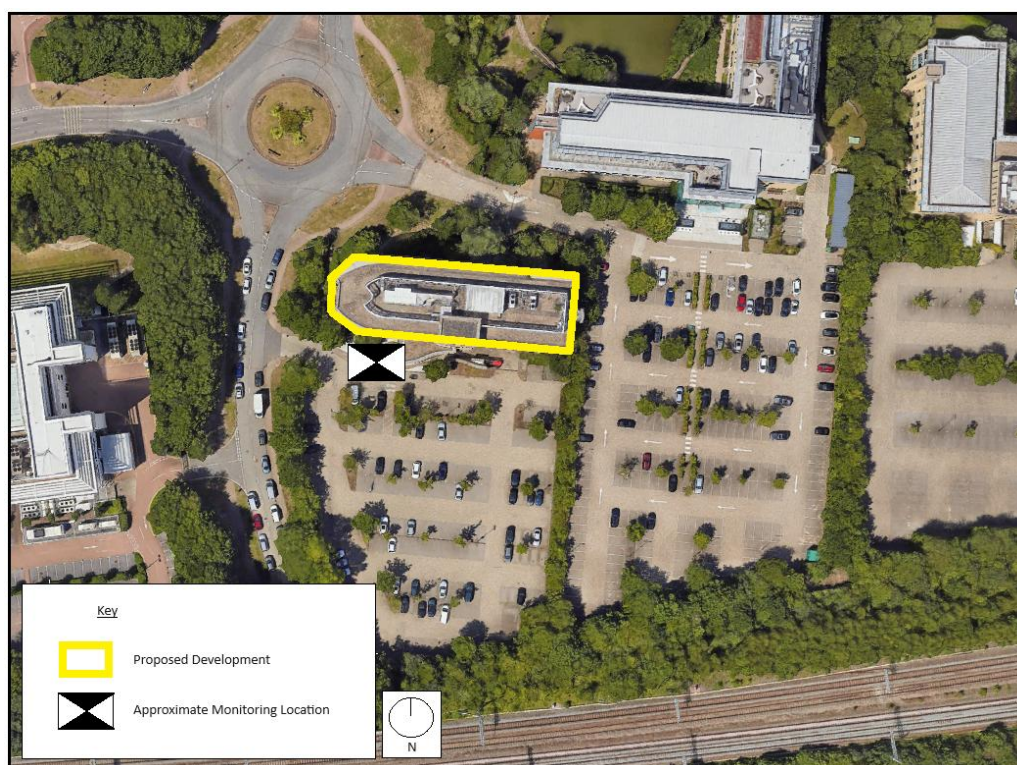


Figure 4.1: Site Location and Monitoring Location



5. Project criteria

5.1. External Façade Requirements

British Standard 8233:2014 *Guidance on sound insulation and noise reduction for buildings* (BS8233:2014) provides guidance on the acceptable levels of noise within buildings of different types, these levels are based on World Health Organisation (WHO) guidelines.

In the case of residential developments, BS 8233:2014 recommends ambient noise levels in living accommodations. The document states that *“in general, for steady external noise sources, the internal ambient noise level shouldn't exceed the guideline values...”* recommendations from BS8233 are reproduced in Table 5.1 below.

Activity	Location	Day-time 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 commonly applied criteria, we propose that for bedrooms at night, individual noise events should not normally exceed 45 dB L_{AFmax}.

6. External Façade Assessments

6.1. External Noise Levels – Level 1 Assessment

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

The Association of Noise Consultants and the Institute of Acoustics have produced a residential design guide relating to acoustics ventilation and overheating. To complete an initial site risk assessment, externally measured free field sound levels can be assessed using Figure 6.1.

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		Not required
50dB				

Figure 6.1 Guidance for level 1 site risk assessment



Based on the measured sound levels presented in Section 3 a level 1 risk assessment can be completed. It can be seen that noise levels impinging on the façade of the proposed development present a **low to medium risk of noise having an adverse effect**.

6.2. Façade (and Glazing) specification

Using the façade noise levels, presented in section 4, calculations have been completed to allow the selection of both glazing and ventilation for the whole development. The calculations consider the free-field equivalent sound level, the sound reduction index of the glazing and ventilation elements, the sound reduction of the façade, and the internal acoustics of a typical domestic room. Based on these calculations in Appendix B of this report, façade elements and ventilation can be specified.

It is assumed that the non-glazed areas of any façade systems may incorporate sufficient acoustic treatment such that the glazing remains the weakest 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.

Table 6.1 presents the sound insulation performance specifications recommended for elements of the external building fabric system for all rooms. Typical constructions that achieve the internal ambient noise criteria in BS8233:2014 are also provided. Full calculations can be seen in Appendix B.

Façade Element	Living rooms and Bedrooms	
	Sound Insulation Performance, dB R _w	Example Constructions
External wall Fabric	50	Brick and block external wall (BS8233 - 2014)
Glazing (Living Rooms)	32	6/6/4 Glazing Pilkington
Glazing (Bedrooms)	35	10/6/4 Glazing Pilkington
These values have been based on: Ventilation – Vent: "hit and miss" trickle (4000mm ²) Room - 100m ³ room volume with 15m ² external façade and a maximum 3m ² window. Calculations were carried out using a reverberation time (RT60) of 0.5 seconds across all frequency bands.		

Table 6.1 Building envelope proposed construction – Broadwater Façade Façade

As seen from Table 6.1, to meet the requirements of BS8233:2014, glazing system with an acoustic rating of 32 dB R_w, an example system would be a 6/6/4 Pilkington Glazing system will be required for Living rooms in the proposed development.

Bedrooms will required to be fitted with a glazing system with an acoustic rating of 35 dB R_w.

The ventilation requirements of Approved Document F may be satisfied by the use of standard 4000mm² "hit and miss" trickle vents.

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7. Conclusions

Trace have been appointed to provide acoustic consultancy services in support of a Prior Approval Application under Schedule 2, Part 20, Class AA issued to the Wokingham Borough Council for the proposed development occurring at 400 Thames Vally Park.

Planning permission is being sought from Wokingham Borough Council to redevelop the existing 4-storey office building. The proposed scheme will seek to provide a two-storey upward extension to the existing commercial building to provide 32 residential units on the 4th and 5th floor with associated plant and car and cycle parking. Further, an application will be made for a change of use of the ground, 1st, 2nd, and 3rd floors (use Class E) to 62 residential dwellings (use Class C3).

Trace conducted an unattended acoustic survey from 14:00 on Tuesday, 04 November to 14:00 on Wednesday, 05 November 2025. The microphone was positioned within the bin store area of the adjacent carpark, around 5 meters from the south facing façade of the property.

Based on the measured sound levels presented in Section 3 a level 1 risk assessment can be completed. It can be seen that noise levels impinging on the façade of the proposed development present a **low to medium risk of noise having an adverse effect**.

As seen from Table 6.1, to meet the requirements of BS8233:2014, glazing system with an acoustic rating of 32 dB R_w, an example system would be a 6/6/4 Pilkington Glazing system will be required for Living rooms in the proposed development while bedrooms will required to be fitted with a glazing system with an acoustic rating of 35 dB R_w.

The ventilation requirements of Approved Document F may be satisfied by the use of standard 4000mm² "hit and miss" trickle vents.

Following the advice provided in this report, it is anticipated that the proposed development will meet Wokingham Borough Council's requirements for internal noise levels from external sources, in accordance with BS8233:2014 and relevant British Standards.

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Appendix A Figures

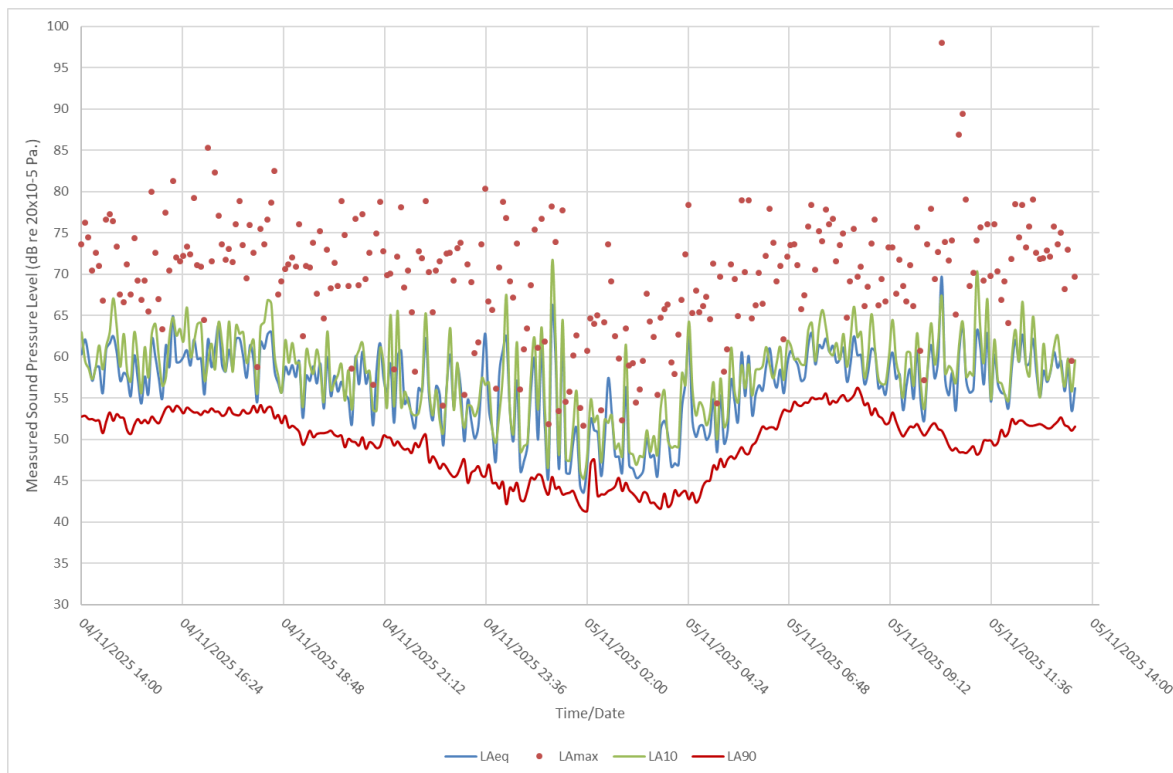


Figure A.1 Daytime Survey Results



Figure A.2 Measurement Location

Appendix B Tables

Project	400 Thames Valley Park				Date	5-Nov-2025				
Façade	All				By	BG				
Room	All				Checked	DG				

Table B.1 Daytime internal ambient sound levels

Project	400 Thames Valley Park					Date	5-Nov-2025
Façade	All					By	BG
Room	All					Checked	DG
Symbol	Description	Ref	Units	Single Figure Rating			
S _t	Total façade area of room		m ²	15.0			
S _{wi}	Area of windows in façade		m ²	3.0			
S _{ew}	Area of external wall in façade		m ²	12.0			
S _r	Area of ceiling exposed to external noise		m ²	0.0			
S	Total area of elements through which sound enters room		m ²	15.0			
A ₀	Reference absorption area given in BS EN 20140-10		m ²	10.0			
	A-weighted free-field equivalent sound pressure level at measurement position		dB				
	Total propagation and angle of view correction from measurement to façade		dB	0.0			
L _{Aq,ff}	A-weighted free-field equivalent sound pressure level outside façade		dB	56.0	125	250	500
L _{TRAFFIC}	Normalised road traffic noise spectrum derived from BS1793-3		dB		1000	2000	
L _{eq,ff}	Linear free-field equivalent sound pressure level outside façade		dB	59.0	54	51	51
D _{n,e}	Vent: "hit and miss" trickle (4000mm2)	80	dB		34	27	37
R _{w1}	Sound reduction index of windows - 10/6/4 Glazing Pilkington	115	dB		24	21	32
R _{w2}	Sound reduction index of the external wall - Brick and block external wall (BS8219)	9	dB		40	44	45
R _r	Sound reduction index of the roof/ceiling	94	dB		28	34	40
α	Room average alpha co-efficients (acoustically hard room)	-					
S _{room}	Room surface area		m2				
A	Equivalent absorption area of room		m ²		9	9	9
L _{eq,2}	Linear Internal reverberant sound pressure level in room		dB	34.2	30	31	21
	A-weighting Network				-16	-9	-3
L _{eq,3}	A-weighted internal reverberant sound pressure level in room		dB(A)	26.7	14.1	22.1	18.2
	Internal Criteria		dB(A)	30.0	22.3	22.3	16.7
	Excess over criteria		dB(A)				

Table B.2 Nighttime internal ambient sound levels

Project	400 Thames Valley Park					Date	5-Nov-2025
Façade	All					By	BG
Room	All					Checked	DG
Symbol	Description	Ref	Units	Single Figure Rating			
S _f	Total façade area of room		m ²	15.0			
S _{wi}	Area of windows in façade		m ²	3.0			
S _{ew}	Area of external wall in façade		m ²	12.0			
S _{re}	Area of ceiling exposed to external noise		m ²	0.0			
S	Total area of elements through which sound enters room		m ²	15.0			
A ₀	Reference absorption area given in BS EN 2140-10		m ²	10.0			
	A-weighted free-field equivalent sound pressure level at measurement position		dB				
	Total propagation and angle of view correction from measurement to façade		dB	0.0	Octave Band Centre Frequency, Hz		
L _{Aeq,ff}	A-weighted free-field equivalent sound pressure level outside façade		dB	74.0	125	250	500
L _{TTRAFFIC}	Normalised road traffic noise spectrum derived from BS1793-3		dB		1000	1600	2000
L _{Aeq,ff}	Linear free-field equivalent sound pressure level outside façade		dB	77.6	74	69	71
D _{ne}	Vent: "hit and miss" trickle (4000mm2)	80	dB		71	71	65
R _{wi}	Sound reduction index of windows - 10/6/4 Glazing Pilkington	115	dB		34	27	37
R _{ew}	Sound reduction index of the external wall - Brick and block external wall (BS829		dB		35	35	34
R _{re}	Sound reduction index of the roof/ceiling	94	dB		24	21	32
α	Room average alpha co-efficients (acoustically hard room)		-		40	44	51
S _{room}	Room surface area		m2		56		
A	Equivalent absorption area of room		m ²		28	34	40
L _{eq,2}	Linear Internal reverberant sound pressure level in room		dB	52.4	45	49	49
	A-weighting Network						
L _{eq,3}	A-weighted internal reverberant sound pressure level in room		dB(A)	44.8	-16	-9	-3
	Internal Criteria		dB(A)	45.0	0	0	1
	Excess over criteria		dB(A)				