Oaklands Blossom

OAKLANDS COLLEGE

Oaklands College & Land south of Sandpit Lane, St Albans

Noise Impact Assessment

October 2025

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Noise Risk Assessment & Acoustic Design Statement

Prepared: 15th September 2025

Report No	23073-1-R1
Client	Taylor Wimpey North Thames
Site	Land off Sandpit Lane St Albans

1. Quality Management

Report Number	23073 – 1-R1
Issue	Revision 1
Prepared	15th September 2025
Prepared By	[redacted] Jonathan Seiffert BSc, MIOA
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3. Contents

4. Executive Summary

4.1.1. An environmental noise survey has been carried out for a proposed development of residential dwellings and new education facilities for Oaklands College at Land off Sandpit Lane, St Albans ("Proposed Development").

4.2. Measurement, Assessment and Evaluation

4.2.1. The survey was carried out to BS7445-1:2003[1] and BS7445-2:1991[2].

4.3. Scope

4.3.1. This report covers all aspects of the noise survey, including:

- the identification of acoustic design criteria;
- an objective sound pressure level survey of the existing site;
- analysis of the data; and,
- the design of any mitigation to meet the required internal noise criteria.

4.4. Noise Risk Assessment

4.4.1. A noise risk assessment of the proposed development has been carried out based on the results of the objective sound pressure level survey.

Risk assessment	Comment
Low	*"At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development."*
Medium	*"As noise levels increase, the site is likely to be less suitable from a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised, and which clearly demonstrate that a significant adverse impact will be avoided in the finished development."*

Table 1 – Noise risk assessment for the Proposed Development site

4.4.1. The noise risk assessment indicates that a good acoustic design process, documented in an acoustic design statement, is required to ensure that the impacts of noise will be mitigated and minimised.

4.4.2. The noise risk assessment should not be seen as the basis for the recommendation to the decision maker. The aim is that higher risk sites will be recognised at the earliest possible stage and the increasing importance of good acoustic design can be emphasised.

[1] BS7445-1:2003 "Description and measurement of environmental noise – Part 1: Description of quantities and procedures"
[2] BS7445-2:1991 "Description and measurement of environmental noise – Part 2: Guide to the acquisition of data pertinent to land use"

4.5. Glazing Specifications

	Living rooms	Bedrooms
Specification 1		
Glazing Performance	29dB $R_w + C_{tr}$	29dB $R_w + C_{tr}$
Ventilator Performance	35dB $D_{ne,w} + C_{tr}$	35dB $D_{ne,w} + C_{tr}$
Specification 2		
Glazing Performance	27dB $R_w + C_{tr}$	27dB $R_w + C_{tr}$
Ventilator Performance	33dB $D_{ne,w} + C_{tr}$	33dB $D_{ne,w} + C_{tr}$
Specification 3 - School		
Worst case room type (classroom)		
Glazing Performance	10dB $R_w + C_{tr}$	
Ventilator Performance	16dB $D_{ne,w} + C_{tr}$	

5. Background

5.1. Noise Policy Statement for England

5.1.1. The Noise Policy Statement for England (NPSE), published in March 2010, states the long-term vision of Government noise policy is to *"promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development".*

5.1.2. This long-term vision is supported by the following aims; through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

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

5.1.3. The intention is that the NPSE should apply to all types of noise apart from noise in the workplace (occupational noise).

5.2. National Planning Policy Framework

5.2.1. The National Planning Policy Framework (NPPF) was published on the 27th of March 2012 and is updated regularly. It sets out the Government's planning policies for England and how these are expected to be applied. The framework states that the planning system should contribute to and enhance the natural and local environment by:

> *"preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability".*

5.2.2. The NPPF requires that new developments be appropriate to their locations such that the effects of pollution on health have been taken into account. Planning policies and decisions should aim to:

1. avoid noise giving rise to significant adverse impacts on health and the quality of life;
2. mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development; and,
3. identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value.

5.2.3. Existing businesses near to proposed development should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

5.3. National Planning Practice Guidance

5.3.1. The National Planning Practice Guidance (PPG) is a web-based resource, launched by the Department for Communities and Local Government (DCLG) which was published on the 29th November 2016 and is regularly updated to reflect the changes made to the NPPF and make it more accessible.[3]

[3] http://planningguidance.communities.gov.uk/

5.3.2. There are a number of factors that determine whether a noise could be a concern to a receptor. These include: the absolute level of the noise and when it occurs, whether it is existing or new to the area, temporal characteristics, spectral content and the acoustic absorption in the area.

Perception	Examples of outcomes	Effect level	Action
Not noticeable	No effect	No observed effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect (NOAEL)	No specific measures required
Lowest Observed Adverse Effect Level (LOAEL)			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g., turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g., avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very intrusive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

Table 2 – Noise exposure hierarchy

5.3.3. It is emphasised in the PPG that the planning process should be used to mitigate and minimise the impact of noise. This could include: engineering the noise sources to be quiet, minimising the impact of noise through layout, using conditions/obligations to restrict activities, mitigating the impact in places where noise is likely to be experienced (e.g. using facade sound insulation).

6. Introduction

6.1.1. An environmental noise survey has been carried out for a proposed residential development at Land off Sandpit Lane, St Albans.

6.2. Proposed Development

6.2.1. An image showing the proposed location of the Proposed Development is given in Figure 1.

Figure 1 - Plan showing the location of the Proposed Development

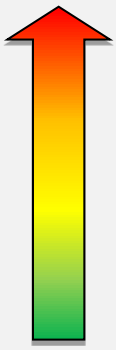
7. Assessment Criteria

7.1. Noise From Existing Transportation Sources

7.1.1. The Professional Practice Guidance (ProPG) was published in May 2017 refers specifically for the consideration of new residential developments that will be exposed predominantly to airborne noise from transport sources. The ProPG advocates a two stage risk based approach to noise when planning new residential developments:

- Stage 1 – an initial noise risk assessment of the site; and
- Stage 2 – a systematic consideration of the acoustic design.

7.1.2. An initial noise risk assessment is required to determine the prevailing sound pressure levels at the location of the Proposed Development to indicate whether the proposed site is at a negligible, low, medium or high risk from noise caused by transportation sources. The assessment is based on free-field levels on the existing site and, therefore, does not take into account any new treatment (such as bunds or fences) that will be introduced as part of the development. The guidance on negligible, low, medium and high risk levels has been summarised in Figure 2.

Risk	Day		Night	
High	≈ 70dB(A)		≈ 60 dB(A)	High noise levels indicate that there is a risk of refusal. High risk may be mitigated and minimised by following a good acoustic design process that is demonstrated in an ADS.
Medium	≈ 65dB(A)		≈ 55dB(A)	As noise levels increase the site is less suitable, from a noise perspective. Any application may be refused unless a good acoustic design process is illustrated in an ADS.
Low	≈ 55dB(A)		≈ 45dB(A)	At low noise levels the site is likely to be acceptable, from a noise perspective.
Negligible	<50dB(A)		<40dB(A)	These noise levels indicate that the development site is likely to be acceptable from a noise perspective and the application need not normally be delayed on noise grounds.

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

Figure 2 – Stage 1 – Initial site noise risk assessment

7.1.3. The ProPG stresses that the assessment of noise risk at a proposed residential development site is not the basis for the eventual recommendation to the decision maker.

Element 1 – Good Acoustic Design Process

7.1.4. Good acoustic design should avoid 'unreasonable' acoustic conditions and prevent 'unacceptable' acoustic conditions. ProPG notes that good acoustic design does not mean over-engineering or 'gold plating' all new developments but instead should aim to provide an optimum acoustic outcome for a particular site.

Element 2 - Internal Noise Level Guidelines

7.1.5. The guideline values proposed are the same as those provided in BS 8233:2014 and WHO, including the recommendation that maximum noise levels should not exceed 45dB L_{Amax} more than 10 times per night.

Element 3 - External Amenity Area Noise Assessment

7.1.6. Sound pressure levels of 50 – 55 dB $L_{Aeq,16hr}$ in gardens and external amenity areas, where such areas are an intrinsic part of the overall design. If these values cannot be achieved in all areas, the development should be designed to achieve the lowest practicable noise levels. The provision of relatively quiet alternative publically accessible external amenity space may help to offset the noise impact in high noise areas.

Element 4 - Assessment of Other Relevant Issues

7.1.7. It is acknowledged that there may be other local issues affecting the ability to achieve the required acoustic design criteria

7.2. Guideline Values

7.2.1. BS8233:2014 draws on the results of research and experience to provide information on the design of buildings that have internal acoustic environments appropriate to their function. The standard provides guideline internal values for dwellings for steady external noise sources. These have been summarised in Table 3.

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

Table 3 – BS8233:2014 guideline values for internal ambient noise levels from steady external noise sources

7.2.2. The guideline values are issued by the World Health Organisation (WHO) and assume normal diurnal fluctuations in external noise. They are expected to be achieved based on normal annual data and not in all circumstances. For example, it is normal to exclude occasional events such as fireworks night or New Year's Eve.

7.2.3. For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50dB $L_{Aeq,T}$ with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In such cases, the lowest practicable levels should be achieved in external amenity areas but the development should not be prohibited.

7.3. BB93:2015

7.3.1. BB93 provides indoor ambient noise level (IANL) criteria for all teaching and student spaces, based upon the use of each space. Noise from mechanical services and noise ingress through the façade must not exceed this noise level, specified in terms of dB $L_{Aeq,30mins.}$ Table 4 below shows the BB93 upper limit for IANLs for the areas present in the school.

Type of space used by students	Upper limit for indoor ambient noise level, dB $L_{Aeq,30mins}$
	New-build
Lecture Room Secondary school: - Classroom - Small group room - Multi-purpose hall	35
General offices Head teacher's office	40
Dining Room (new-build) Corridors and stairwells. Coats and locker areas	45
Dining Room (refurbished)	50
Toilets, kitchens	50

Table 4 – BB93 upper limit for ambient noise levels

8. Survey

8.1. Measurement Locations

8.1.1. Fixed position monitoring took place at 3 positions to account for the likely dominant noise sources. The monitoring equipment was located at least 1.5m from the ground and at least 3m from the next nearest reflecting surface. The monitoring positions are shown in Figure 3.

Figure 3 - Noise monitoring locations on site

8.1.2. The measurement instrumentation used during the survey is detailed in the appendix. The acoustic equipment was calibrated to comply with Section 4.2 of BS7445-1:2003[4] before and after the surveys. The calibration details are also detailed in the appendix.

[4] BS7445-1:2003 "Description and measurement of environmental noise – Part 1: Guide to quantities and procedures"

8.2. Noise Climate

8.2.1. The attending survey technician reported that, at the time of the survey visits, the noise climate was largely dominated by continuous road traffic noise from Sandpit Lane. At locations closer to Oaklands College and the equestrian centre, birdsong and occasional noise from farm animals/the equestrian centre were dominant.

8.3. Meteorology

8.3.1. During the survey the weather information was noted. This is summarised in Table 5.

	8th May 2025	10th May 2025
Roads(Wet/Dry)	Dry	Dry
Wind Speed (ms^{-1})/Direction	4 /NE	4 / S

Table 5 - Meteorological data noted during the survey

8.4. Measurement and Timescale

8.4.1. Unattended monitoring was carried out between 8th May 2025 and 10th May 2025. The measurements that have been made are summarised in Table 6.

Monitoring position	Date	Type	Quantity
1	8th May 2025 – 10th May 2025	Fixed/unattended	$L_{Aeq,5min}$
2		Fixed/unattended	$L_{Aeq,5min}$
3		Fixed/unattended	$L_{Aeq,5min}$

Table 6 – Measurements made at the site of the Proposed Development

8.4.2. Sound pressure measurements were subsequently averaged into hourly, daytime and night-time periods. The acoustic measurements and their interpretation have been in accordance with BS 7445: Parts 1, and 2[5]. All sound pressure levels are in dB (re 20μPa).

8.5. Results Summary

8.5.1. Data from the 8th to 9th of May has been used for the purposes of this assessment due to scheduled road closure and roadworks on Sandpit lane from approximately 19:30 on the 9th May. The fixed position external measurement results are summarised in Table 7.

Measurement location	Daytime dB, $L_{Aeq,16hr}$	Night-time dB, $L_{Aeq,8hr}$
1	49.2	41.2
2	51.9	43.4
3	63.9	57.0

Table 7 - Summary of the external sound pressure levels measured

[5] BS7445-2:1991 "Description and measurement of environmental noise – Part 2: Guide to the acquisition of data pertinent to land use"

9. 3D Noise Model

9.1.1. A 3D noise model has been constructed using SoundPLAN™ in order to predict the propagation of sound across the site of the Proposed Development. The calculation procedure has been used from ISO9613-2:1996[6]to predict the propagation of sound from source to receiver, taking into account distance, screening, and atmospheric and ground conditions.

9.1.2. Ordinance Survey Open Data has been used to create the existing roads and buildings. Terrain data has been taken from the Department for Environment, Food & Rural Affairs (DEFRA).

9.1.3. Sandpit Lane has been modelled as a line source and calibrated to the survey data.

9.1.4. The results of the model have been illustrated in noise contour maps in Figure 4 and Figure 5.

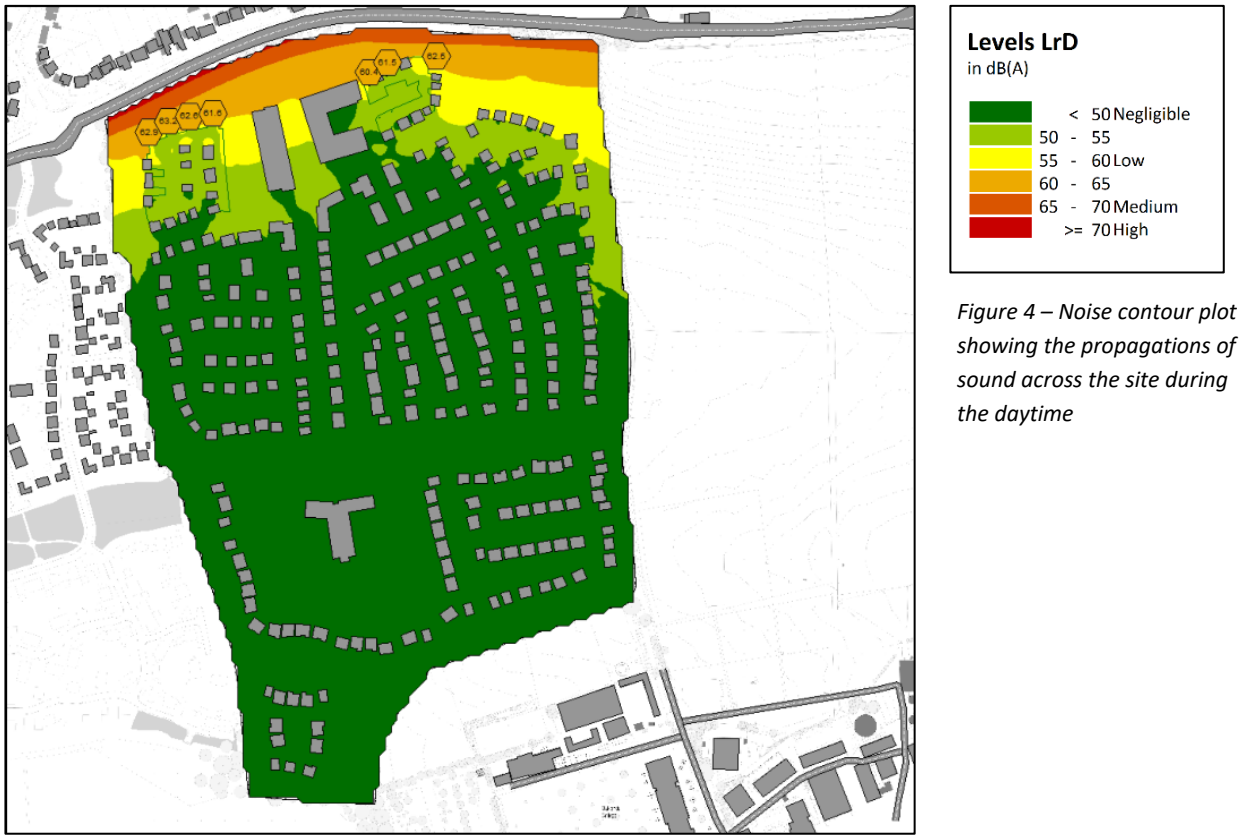


Figure 4 – Noise contour plot showing the propagations of sound across the site during the daytime

[6] ISO9613-2:1996 "Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation"

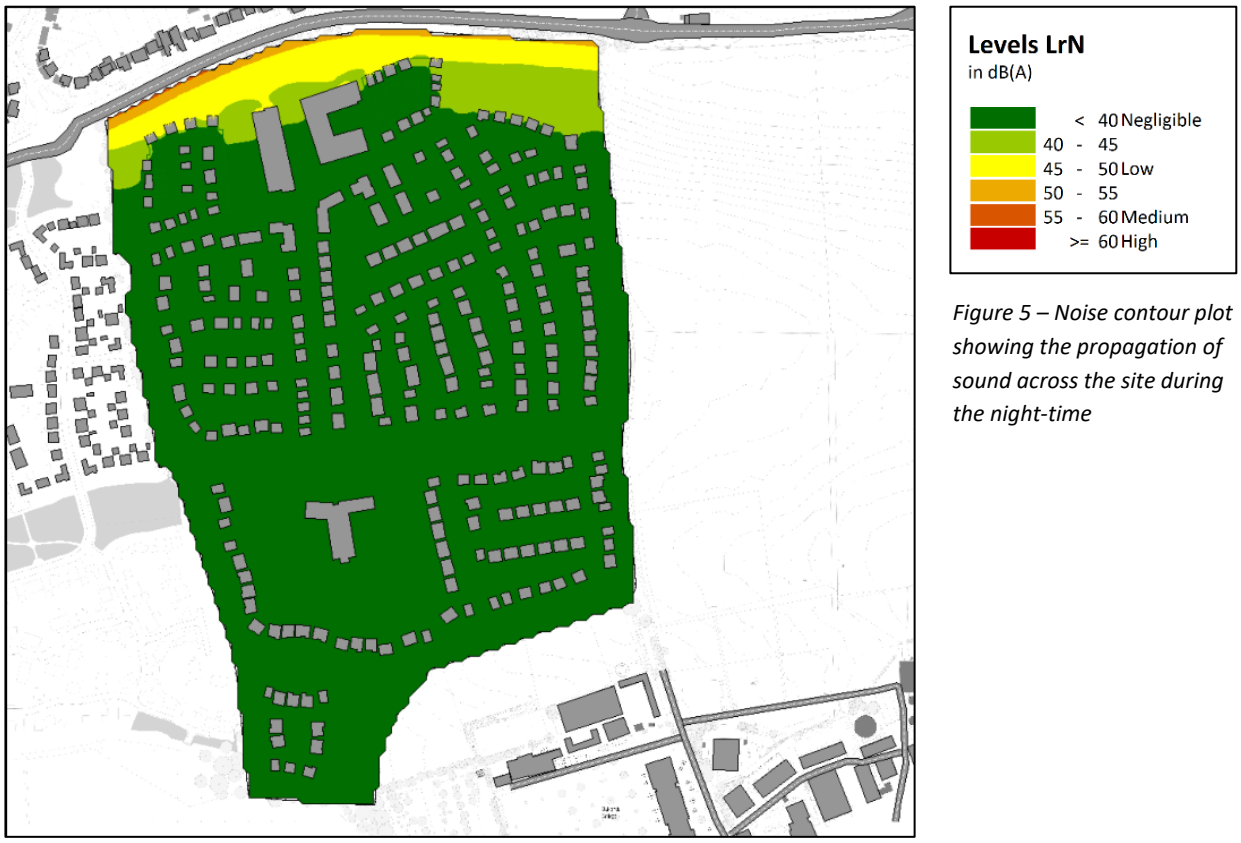


Figure 5 – Noise contour plot showing the propagation of sound across the site during the night-time

10. Noise Risk Assessment

10.1. Site Risk Assessment

10.1.1. The noise risk assessment should not be seen as the basis for the recommendation to the decision maker. The aim is that higher risk sites will be recognised at the earliest possible stage and the increasing importance of good acoustic design can be emphasised. The risk assessment for the site is summarised in Table 8.

Risk assessment	Comment
Low	*"At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development."*
Medium	*"As noise levels increase, the site is likely to be less suitable from a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised, and which clearly demonstrate that a significant adverse impact will be avoided in the finished development."*

Table 8 – Noise risk assessment for the Proposed Development site

10.1.2. The noise risk assessment indicates that a good acoustic design process, documented in an acoustic design statement, is required to ensure that the impacts of noise will be mitigated and minimised.

11. Mitigation

11.1. Element 1: Good Acoustic Design Process

11.1.1. The client has appointed an acoustics consultant at an early stage.

11.1.2. It is recommended that dwellings are set back from the dominant noise source and gardens are located behind their associated dwellings to provide screening.

11.1.3. In the orange contour bands it is recommended that the orientation of dwellings is such that living rooms and bedrooms are located on quieter façades, furthest from the road.

11.2. Element 2: Internal Noise Level Guidelines

11.2.1. Based on the measured and predicted free-field sound pressure levels at the site boundary, the simple calculation method from BS8233:2014 has been used to determine the necessary sound reduction to meet the guideline values. Standard forms of construction are assumed such that the glazing is likely to be the lowest performing facade element.

11.2.2. The single figure glazing and ventilator performance requirements in order to achieve the internal design criteria are summarised in Table 9.

11.2.3. The glazing performance has been specified in terms of the road traffic corrected weighted sound reduction index, $R_w + C_{tr}$, and the ventilator performance has been specified in terms of the road traffic corrected element normalised level difference $D_{ne,w} + C_{tr}$.

11.2.4. Should penetrations be required for ventilation purposes, our recommended configurations have been calculated to work in conjunction with the glazing specifications. We recommend that a suitably qualified person should check the chosen ventilator specification meets the requirements in Approved Document F[7]. It is critical to note that any vent or total combination of vents should be specified to achieve the ventilator performance given in Table 9.

	Living rooms	Bedrooms
Specification 1		
Glazing Performance	29dB $R_w + C_{tr}$	29dB $R_w + C_{tr}$
Ventilator Performance	35dB $D_{ne,w} + C_{tr}$	35dB $D_{ne,w} + C_{tr}$
Specification 2		
Glazing Performance	27dB $R_w + C_{tr}$	27dB $R_w + C_{tr}$
Ventilator Performance	33dB $D_{ne,w} + C_{tr}$	33dB $D_{ne,w} + C_{tr}$
Specification 3 - School		
Worst case room type (classroom)		
Glazing Performance	10dB $R_w + C_{tr}$	
Ventilator Performance	16dB $D_{ne,w} + C_{tr}$	

Table 9 – Required facade sound insulation (Glazing & Ventilator)

11.2.5. It is generally expected that most standard thermal double glazing units can achieve 27dB $R_w + C_{tr}$ and is therefore expected to provide sufficient mitigation in the green and yellow contour bands.

[7] Approved Document F: Means of Ventilation (2021 Edition)

11.3. Recommended Glazing Specifications

11.3.1. The glazing performance has been specified based on the performance data provided by Saint-Gobain. These are suggested configurations and any other glazing and vent combination can be used provided it achieves the minimum performance levels given in Table 9. The recommended glazing specification is given in Table 10.

Living rooms	Bedrooms
Specification 1	
Saint Gobain 4(12)6	Saint Gobain 4(12)6
Specification 2	
Saint Gobain 4(12)4	Saint Gobain 4(12)4
Specification 3	
Saint Gobain 4(12)4	Saint Gobain 4(12)4

Table 10 - Our recommended glazing configurations

11.3.2. Given the assumptions in this method the information in this section should be treated as general guidance only. The acoustic performance of third party products cannot be guaranteed by noise.co.uk.

11.3.3. It should be noted that, in order to meet the internal ambient noise criteria in these areas, the windows may need to remain closed. This does not mean that windows should be fixed shut, and they should be openable at the discretion of the occupant.

11.4. Element 3: External Amenity Area Noise Assessment

11.4.1. BS8223 states that it is desirable that the external noise level for amenity spaces, such as gardens and patios, does not exceed 50dB $L_{Aeq,T}$ with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in noisier environments.

11.4.2. However, the standard acknowledges that there may be areas where development is desirable where these guideline values are not achievable. This will be true for higher noise areas such as city centres or urban areas adjoining the strategic transport network. In these situations, a compromise between elevated noise levels and other factors might be warranted, such as:

- the convenience of living in these locations; and/or,
- making efficient use of land resources to ensure development needs can be met.

11.4.3. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.

11.4.4. Figure 4 illustrates that, in this situation, with 1.8m tall, close boarded, garden fences, the majority of garden areas achieve the guideline values.

11.4.5. Any that fences which border residential private gardens can be basic, wooden, standard close-boarded fences with no gaps between the panels and the ground, or panels and the posts. They should have a minimum wooden panel mass of 10kg/m^2 to optimise their *barrier performance*; for example the 10kg/m^2 mass can simply be achieved by a fence constructed of 19mm thick treated pine[8].

11.5. Element 4: Assessment of Other Relevant Issues

11.5.1. To the best of our knowledge, at this current time, the design advice in this acoustic design statement does not conflict with any other local guidance and is not expected to affect amenity for future residents.

[8] Based on the density of treated pine at 550Kg/m^3

12. Conclusions

12.1.1. An environmental noise survey has been carried out at the site of a proposed development of residential dwellings and new education facilities for Oaklands College at Land off Sandpit Lane, St Albans to determine typical ambient sound levels.

12.1.2. A noise risk assessment has been carried out, indicating that the site falls into the medium to low risk category. The noise risk assessment should not be seen as the basis for the recommendation to the decision maker. Recommendations following the principles of good acoustic design have been made which can be adopted into the early design stage of the site to mitigate risk where appropriate including: setting dwellings back from the road; placing habitable rooms on quiet facades where possible; and using buildings to provide screening for associated external amenity areas.

12.1.3. The measured and predicted sound levels have been used to calculate the required facade sound insulation to meet the guideline internal levels from BS8233:2014. Table 9 in section 11 gives the required facade sound reduction by any glazing and ventilator combination to be compliant with the guideline values.

12.1.4. We strongly recommend that this report be passed to the local planning authority for approval prior to any works being carried out.

Appendix

APPENDIX A: Summary Information

Required ISO Test Report Information (cross referenced where required)			
		Measurements carried out to:	Analysed to:
A	Standards	BS 7445-1: 2003 BS 7445-2: 1991	BS 8233:2014
B	Organisation performed the measurements	noise.co.uk Ltd, The Haybarn, Newnham Grounds, Kings Newnham Lane, Bretford, Coventry, CV23 0JU.	
C	Name of Client	Taylor Wimpey North Thames	
D	Full site address	Land of Sandpit Lane St Albans	
E	Date of surveys	Survey Date: 8th May 2025 – 10th May 2025	
F	Description & identification of Proposed Development	It is proposed to develop the site for residential use, with new educational facilities	
G	Brief Description of details of Procedure & equipment	See Section 5 of this report.	

APPENDIX B: Technical Appendix

12.1.5. Measurements were made using the following equipment:

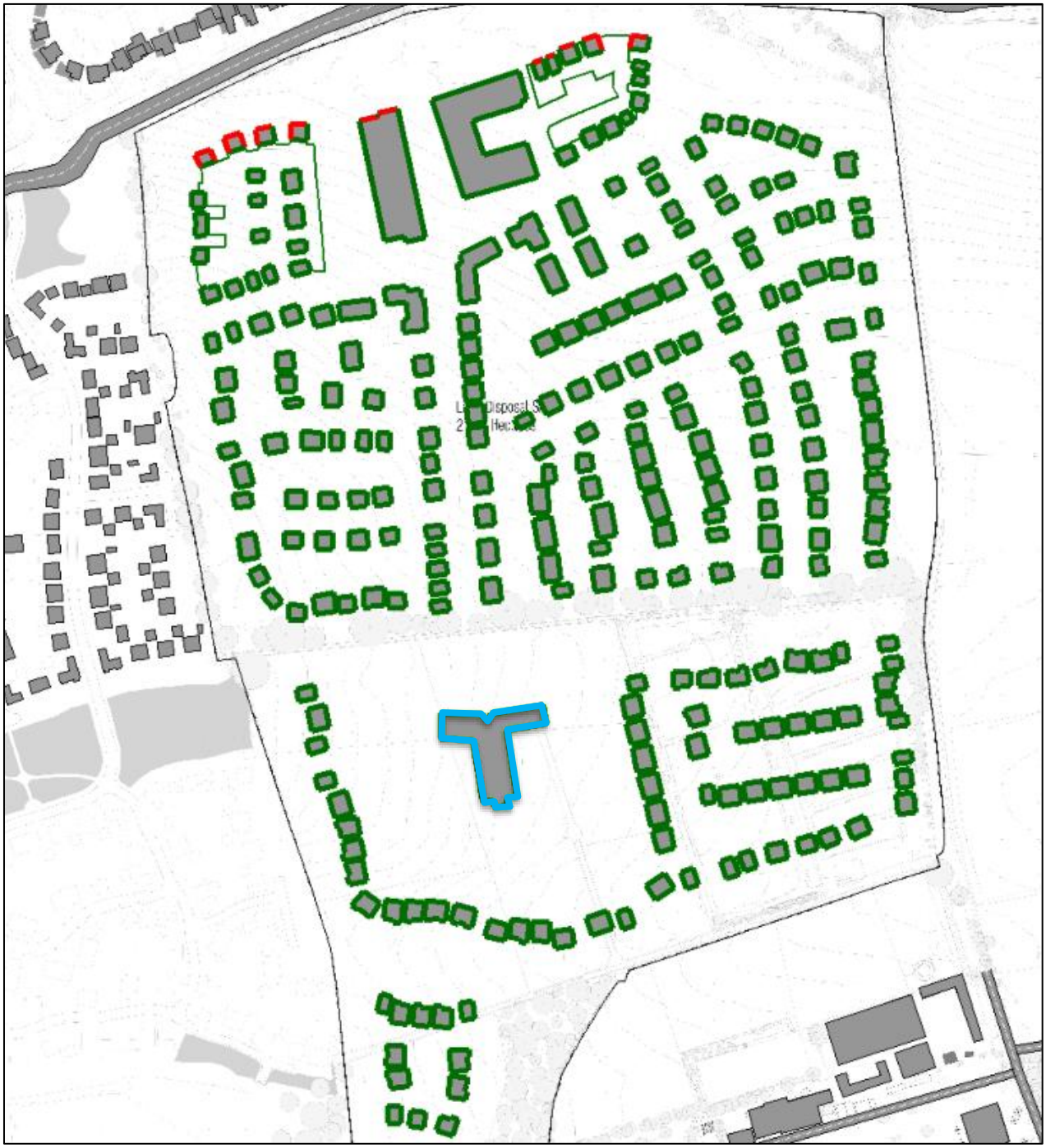
Monitoring Position	Sound Level Meter (Serial Number)	Calibrator (Serial Number)
1	SoftdB Piccolo 2 (PO221070105)	BSWA CA114 (590010)
2	SoftdB Piccolo 2 (PO221070104)	BSWA CA114 (590010)
3	SoftdB Piccolo 2 (PO221070106)	BSWA CA114 (590010)

12.1.6. The equipment has traceable calibration. The sound level meter was calibrated immediately prior to and immediately after the measurements were carried out.

Sound Level Meter	Before	After
SoftdB Piccolo 2 (PO221070105)	94.0 dB	94.2 dB
SoftdB Piccolo 2 (PO221070104)	94.0 dB	94.2 dB
SoftdB Piccolo 2 (PO221070106)	94.0 dB	94.0 dB

12.1.7. There was no adverse deviation.

Glazing Markup



	Living rooms	Bedrooms
Specification 1		
Glazing Performance	29dB $R_w + C_{tr}$	29dB $R_w + C_{tr}$
Ventilator Performance	35dB $D_{ne,w} + C_{tr}$	35dB $D_{ne,w} + C_{tr}$
Specification 2		
Glazing Performance	27dB $R_w + C_{tr}$	27dB $R_w + C_{tr}$
Ventilator Performance	33dB $D_{ne,w} + C_{tr}$	33dB $D_{ne,w} + C_{tr}$
Specification 3 - School		
Worst case room type (classroom)		
Glazing Performance	10dB $R_w + C_{tr}$	
Ventilator Performance	16dB $D_{ne,w} + C_{tr}$	