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Environmental Noise Survey

Prepared: 13th May 2026

Report No	23230-1-R2
Client	Crest Nicholson Operations Ltd
Site	Land West of Gatesmead Haywards Heath

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1. Quality Management

Report Number	23230 – 1-R2
Issue	Revision 2
Prepared	13 th May 2026
Prepared By	
Authorised By	

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3. Executive Summary

3.1.1. An environmental noise assessment has been carried out for a proposed residential development at Land West of Gatesmead, Haywards Heath, (“Proposed Development”).

3.2. Measurement, Assessment and Evaluation

3.2.1. The survey was carried out to BS7445-1:2003¹ and BS7445-2:1991².

3.3. Scope

- 3.3.1. 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.

3.4. Conclusions Summary

3.4.1. The facade sound insulation required to meet the guideline values from BS8233:2014 are summarised in Table 1. 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 $D_{ne,w} + C_{tr}$.

Living rooms (Daytime)	Bedrooms (Night-time)
25dB $R_w + C_{tr}$ / 31dB $D_{ne,w} + C_{tr}$	25dB $R_w + C_{tr}$ / 31dB $D_{ne,w} + C_{tr}$

Table 1 – Required facade sound insulation (Glazing/Ventilator)

3.4.2. It should be noted that most standard thermal double glazing will achieve approximately 26dB $R_w + C_{tr}$.

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”

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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 West of Gatesmead, Haywards Heath.

6.2. Proposed Development

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



Figure 1 - Plan showing the location of the Proposed Development

7. Assessment Criteria

7.1. Guideline Values

BS8233:2014 Internal Ambient Noise Criteria

7.1.1. 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 LAeq,16hour	-
Dining	Dining Room	40dB LAeq,16hour	-
Sleeping (daytime resting)	Bedroom	35dB LAeq,16hour	30dB LAeq,8hour

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

7.1.2. 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.

BS8233:2014 Garden Criteria

7.1.3. 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 LAeq,T with an upper guideline value of 55dB LAeq,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.

7.2. Sleep Disturbance and LAFmax

7.2.1. The WHO give specific guidance on acceptable internal and external LAFMAX levels in residential areas. Table 1 of the WHO Guidelines for Community Noise⁴ requires that individual noise events inside dwellings should not regularly exceed 45dB LAFmax.

7.2.2. BS8233:2014 states that LAFmax criteria are suitable for regular individual noise events such as scheduled aircraft and passing trains.

⁴ Guidelines for Community Noise – Berglund et al – WHO: 1999

8. Survey

8.1. Measurement Locations

8.1.1. Fixed position monitoring took place at one position to account for the likely dominant noise sources. The monitoring equipment was located 1.5m from the ground and at least 3m from the next nearest reflecting surface. The monitoring position is shown in Figure 2.



Figure 2 - Noise monitoring location 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 BS7445-1:2003⁵ before and after the surveys. The calibration details are also detailed in the appendix.

8.2. Noise Climate

8.2.1. During the survey visits, it was noted by the survey engineer that the noise climate was dominated by the rail line to the West of the site with a contribution from minimal road traffic movements.

8.3. Meteorology

8.3.1. During the survey the weather information was noted. This is summarised in Table 4.

	4 th June 2025	5 th June 2025
Roads(Wet/Dry)	Dry	Wet
Wind Speed (ms ⁻¹)/Direction	4 / S	4 / S

Table 4 - Meteorological data noted during the survey

⁵ BS7445-1:2003 "Description and measurement of environmental noise – Part 1: Guide to quantities and procedures"

8.4. Measurement and Timescale

8.4.1. Unattended monitoring was carried out between 4th June 2025 and 5th June 2025. The measurements that have been made are summarised in Table 5.

Monitoring position	Date	Type	Quantity
1	4 th June 2025 – 5 th June 2025	Fixed/unattended	L _{Aeq,1min} / L _{AFmax}

Table 5 – 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 2⁶. All sound pressure levels are in dB (re 20µPa).

8.5. Results Summary

8.5.1. The fixed position external measurement results are summarised in Table 6.

8.5.2. The 10th highest L_{AFmax} sound pressure level has been reported at monitoring position 1 in line with WHO guidance stating that internal levels of 45dB L_{AFmax} should not be exceeded more than 10-15 times in a night to avoid sleep disturbance.⁷

Measurement location	Daytime dB, L _{Aeq,16hr}	Night-time dB, L _{Aeq,8hr}	Night-time dB, L _{AFmax}
1	56.3	50.8	64.4

Table 6 - Summary of the external sound pressure levels measured

⁶ BS7445-2:1991 “Description and measurement of environmental noise – Part 2: Guide to the acquisition of data pertinent to land use”

⁷ WHO Guidelines for Community Noise, WHO 1999

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 ISO9613-2:1996⁸ to predict the propagation of sound from source to receiver, taking into account distance, screening, and atmospheric and ground conditions.
- 9.1.2. Google Maps 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). 1.8m tall garden fences have been included for the garden areas.
- 9.1.3. The results of the model have been illustrated in noise contour maps in Figure 3, Figure 4 and Figure 5.

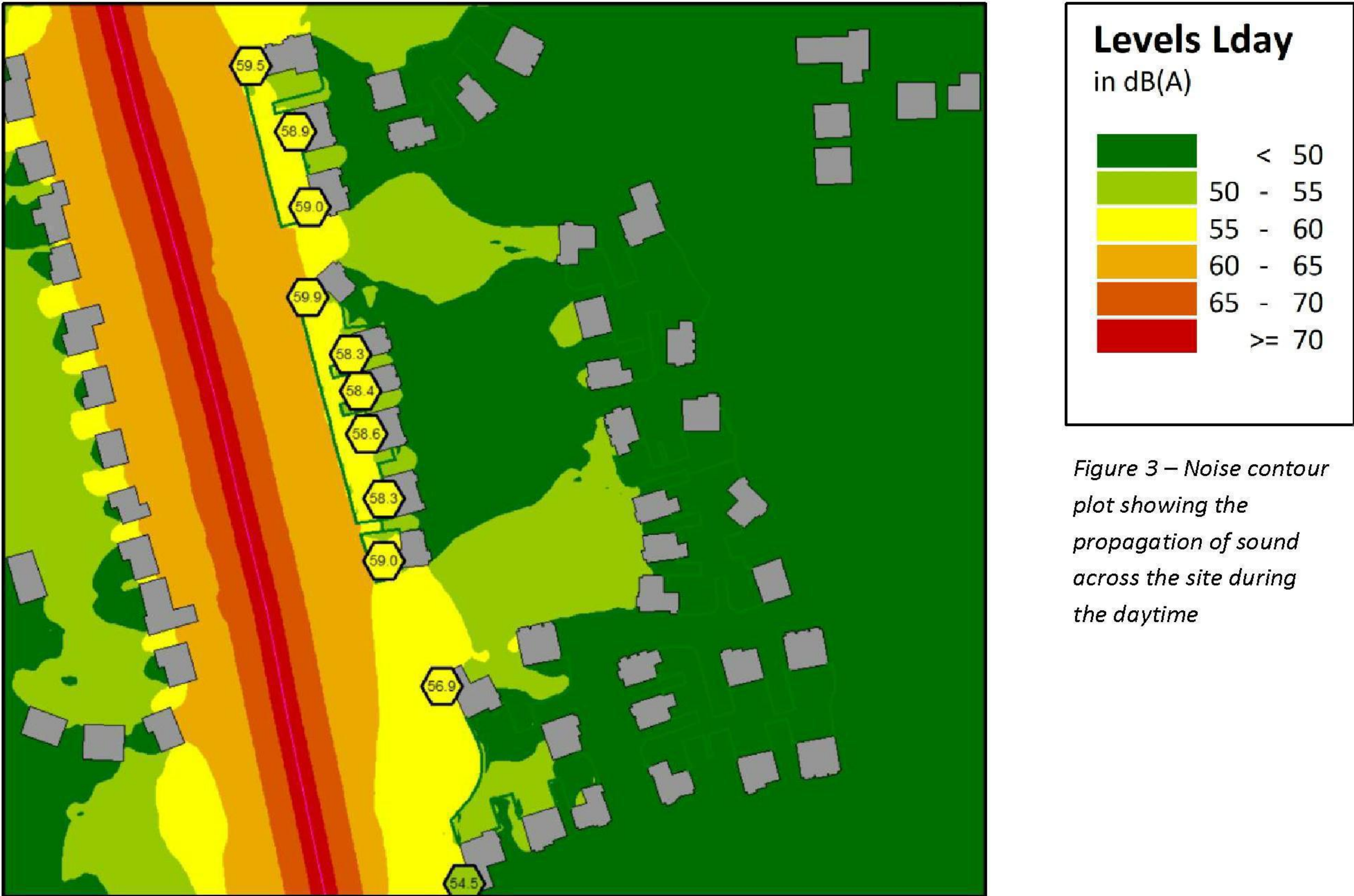


Figure 3 – Noise contour plot showing the propagation of sound across the site during the daytime

⁸ ISO9613-2:1996 “Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation”

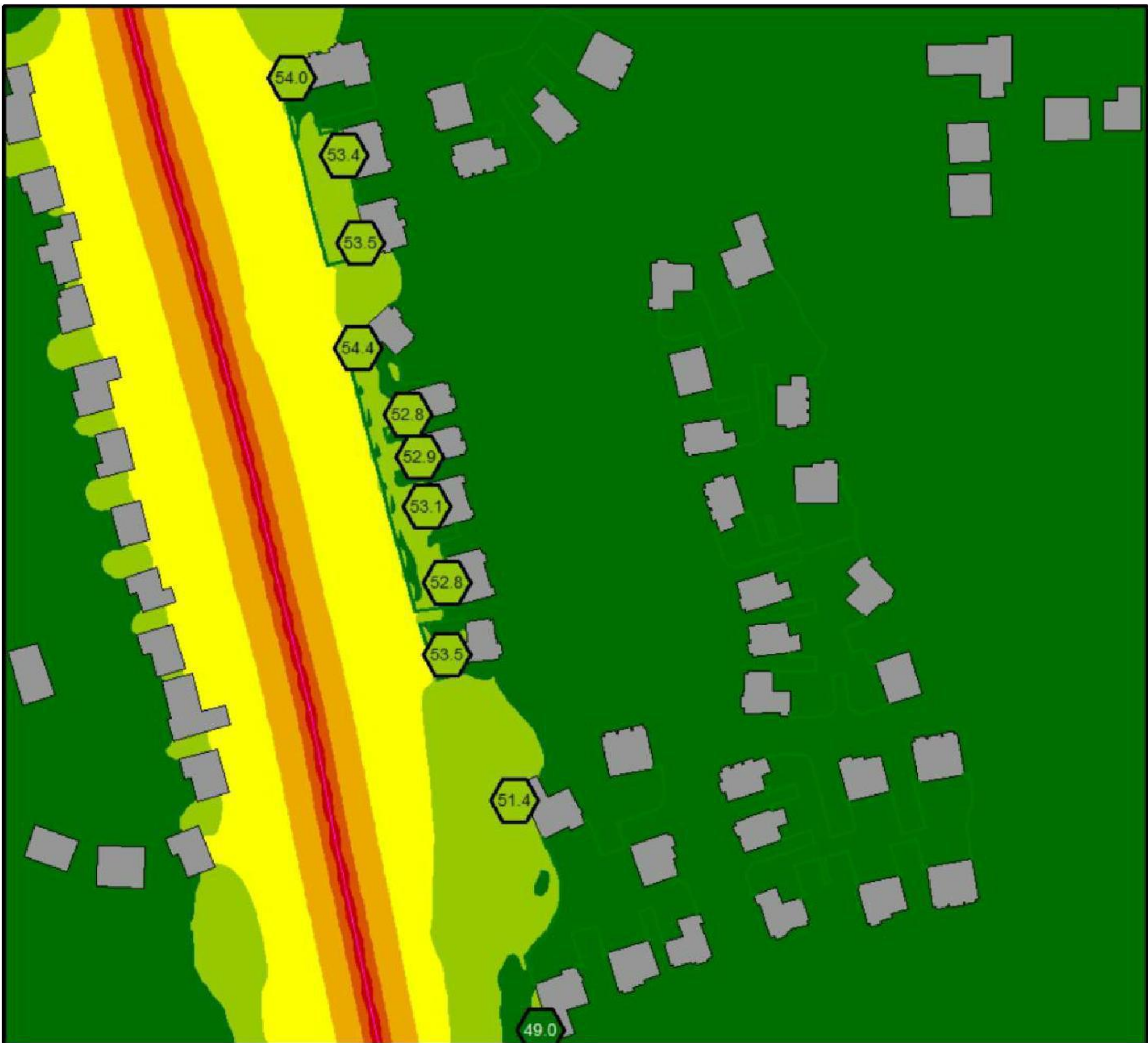


Figure 4 – Noise contour plot showing the propagation of sound across the site during the night-time

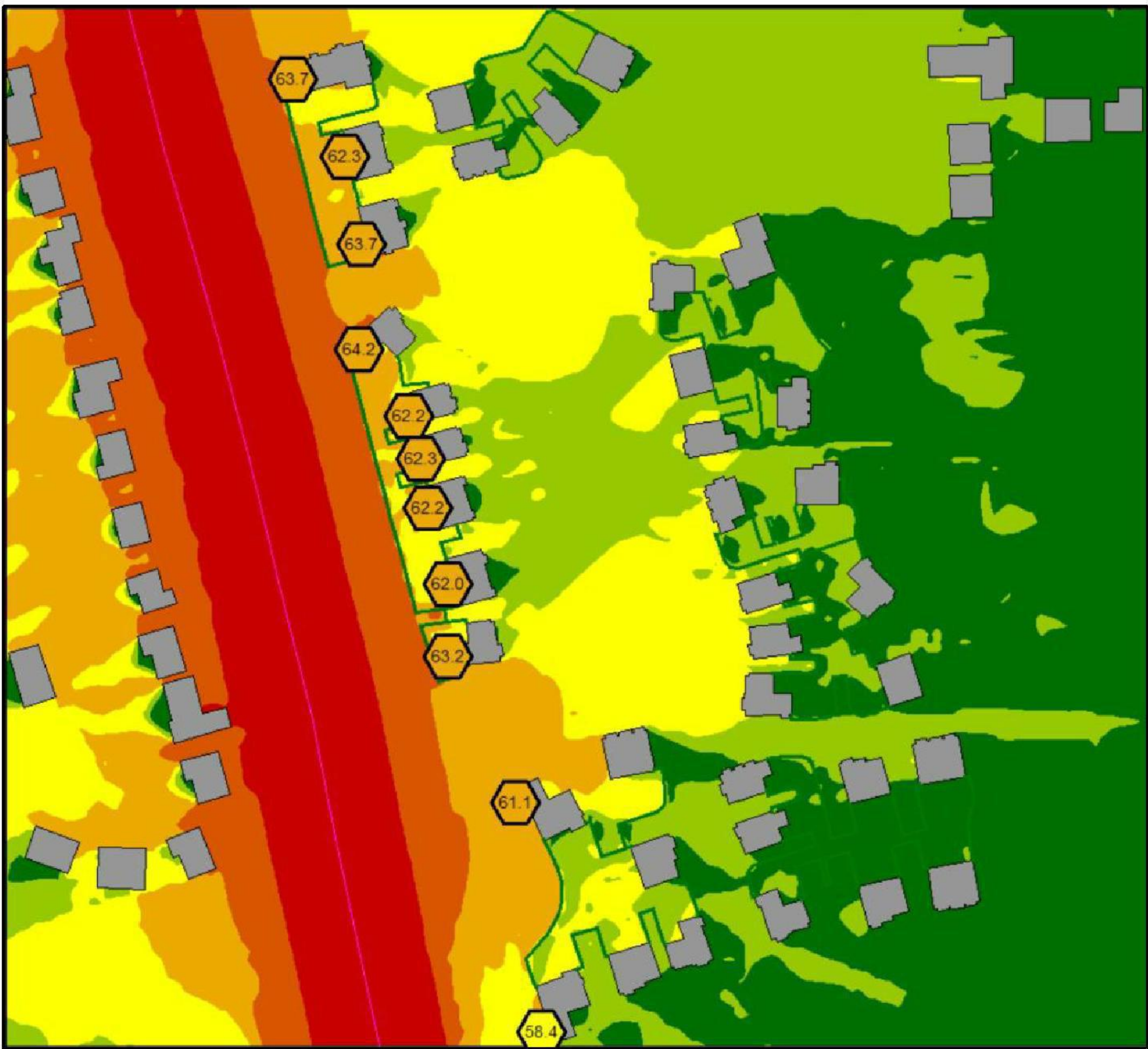


Figure 5 – Noise contour plot showing the propagation of LAFMAX events across the site

Measurement location	Daytime dB, LAeq,16hr	Night-time dB, LAeq,8hr	Night-time dB, LAFMAX
Highest affected receiver	58.0	52.5	61.2

Table 7 - Summary of the predicted external sound pressure levels

10. Mitigation

10.1. Methodology

10.1.1. Based on the measured and predicted free-field sound pressure levels at the worst affected facades, 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.

10.2. Required Mitigation

10.2.1. The single figure glazing and ventilator performance requirements in order to achieve the internal design criteria are summarised in Table 8. 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 $D_{ne,w} + C_{tr}$.

Living rooms (Daytime)	Bedrooms (Night-time)
25dB $R_w + C_{tr}$ / 31dB $D_{ne,w} + C_{tr}$	25dB $R_w + C_{tr}$ / 31dB $D_{ne,w} + C_{tr}$

Table 8 – Required facade sound insulation (Glazing/Ventilator)

10.2.2. It should be noted that most standard thermal double glazing will achieve approximately 26dB $R_w + C_{tr}$.

10.3. Glazing and Ventilator Specifications

10.3.1. The glazing and ventilator performance has been specified based on the performance data provided by Saint-Gobain and Greenwood Airvac. These are suggested configurations and any other glazing and vent combination can be used provided it achieves the minimum performance levels given in Table 8. The recommended glazing specification is given in Table 9.

Living rooms (Daytime)	Bedrooms (Night-time)
Saint Gobain 4(12)4	Saint Gobain 4(12)4

Table 9 - Our recommended glazing configurations

10.3.2. Should penetrations be required for ventilation purposes our the $D_{ne,w} + C_{tr}$ provided by the total combination of ventilators should equal or exceed the values given in Table 8. It should be noted that the $D_{ne,w} + C_{tr}$ of a ventilator is based on a single ventilator and if more than one ventilator is included in each habitable room a higher individual $D_{ne,w} + C_{tr}$ will be required. It should be checked by a suitably qualified person that this ventilator specification meets the requirements of Approved Document F⁹

10.3.3. 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.

⁹ Approved Document F: Means of Ventilation (2010 Edition)

10.5. Approved Document O

10.5.1. Approved Document O¹⁰ (ADO) was published in 15th December 2021 and updated in June 2022. The intention of this Approved Document is to assess the overheating risk of new residential dwellings.

Noise Related Requirements

10.5.2. ADO does not provide specific internal noise criteria, but does provide sound pressure levels that, if exceeded the windows are likely to be kept closed by the occupant. These values are given below.

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

a. 40dB $L_{Aeq,T}$ averaged over 8 hours (between 11pm and 7am).

b. 55dB L_{AFmax} , more than 10 times a night (between 11pm and 7am).’

Institute of Acoustics Guidance

10.5.3. Guidance¹¹ for acousticians to demonstrate compliance with the noise requirements of ADO was released in November 2024.

10.5.4. This guidance document identifies the scope of the assessment and proposed that it be limited to bedrooms at night with reference to paragraphs 3.2 and 3.3 of ADO. The guidance document also proposes that the scope of the assessment be limited to ‘non-natural’ sources, i.e. not including sound from water (rainfall/flowing water) or non-domestic animals (birdsong) etc.

10.5.5. The guidance document provides external levels, above which the simplified method for determining overheating risk should not be used and dynamic thermal modelling should be used to demonstrate compliance, or a ventilation system installed in the identified properties to deal with overheating. These values are given below:

Parameter	High Risk Location	Moderate Risk Location
$L_{Aeq,8h}$, averaged over 8 hours (between 11pm and 7am)	45 dB	50 dB
L_{AFmax} , more than 10 times a night (between 11pm and 7am)	60 dB	65 dB

Table 10 - Table 1 from IOA Guidance Document - External Noise Levels Above Which the Simplified Method Cannot Be Used

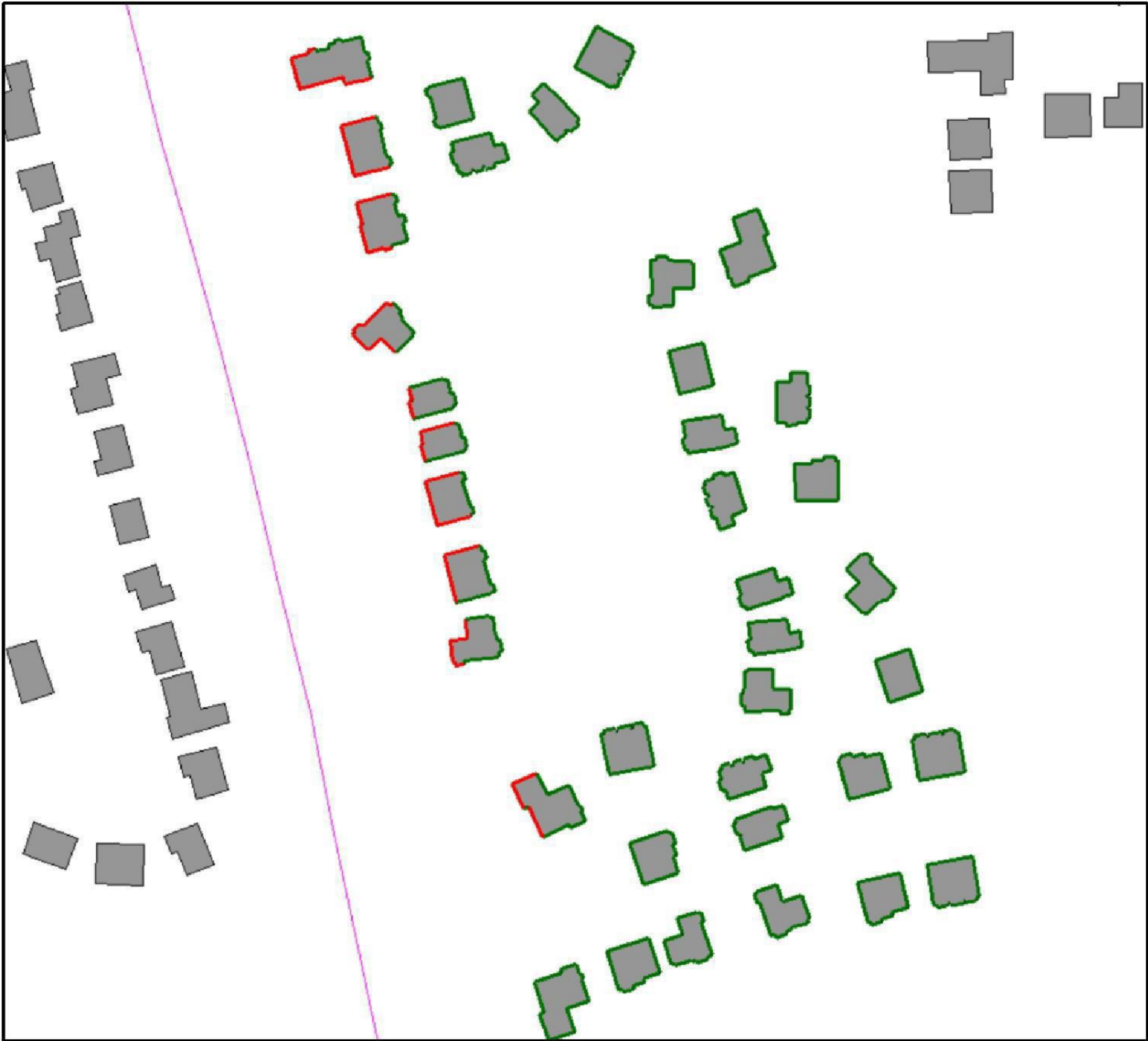
10.5.6. High Risk locations are identified in ADO as parts of London and Manchester. A list of postcodes for these High Risk locations are given in Appendix C of ADO. All areas that are not considered High Risk are considered Moderate Risk Locations.

10.5.7. The noise model has been used to highlight the facades that are predicted to exceed the sound pressure level values given in Table 11 for ‘Moderate Risk Locations’.

10.5.8. The facades marked in Red are predicted to exceed these values and facades marked in Green are predicted to meet, or fall below, these values. It should be noted that this assessment is intended only for bedrooms, so where there are no bedrooms located on a façade marked in Red, this can be considered the same as a façade marked in Green. The results of the 3D noise model are given in Figure 6 and Figure 7.

¹⁰ The Building Regulations 2010 – Overheating - Approved Document O – HM Government – 15th June 2022

¹¹ Approved Document O Noise Guide – Institute of Acoustics & ANC – November 2024



Levels Knight
in dB(A)

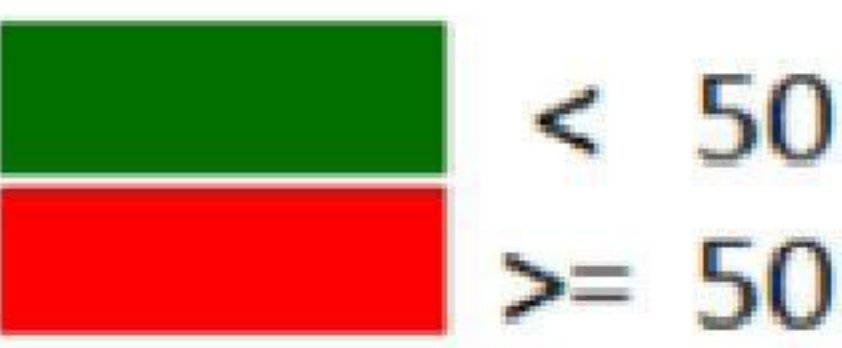
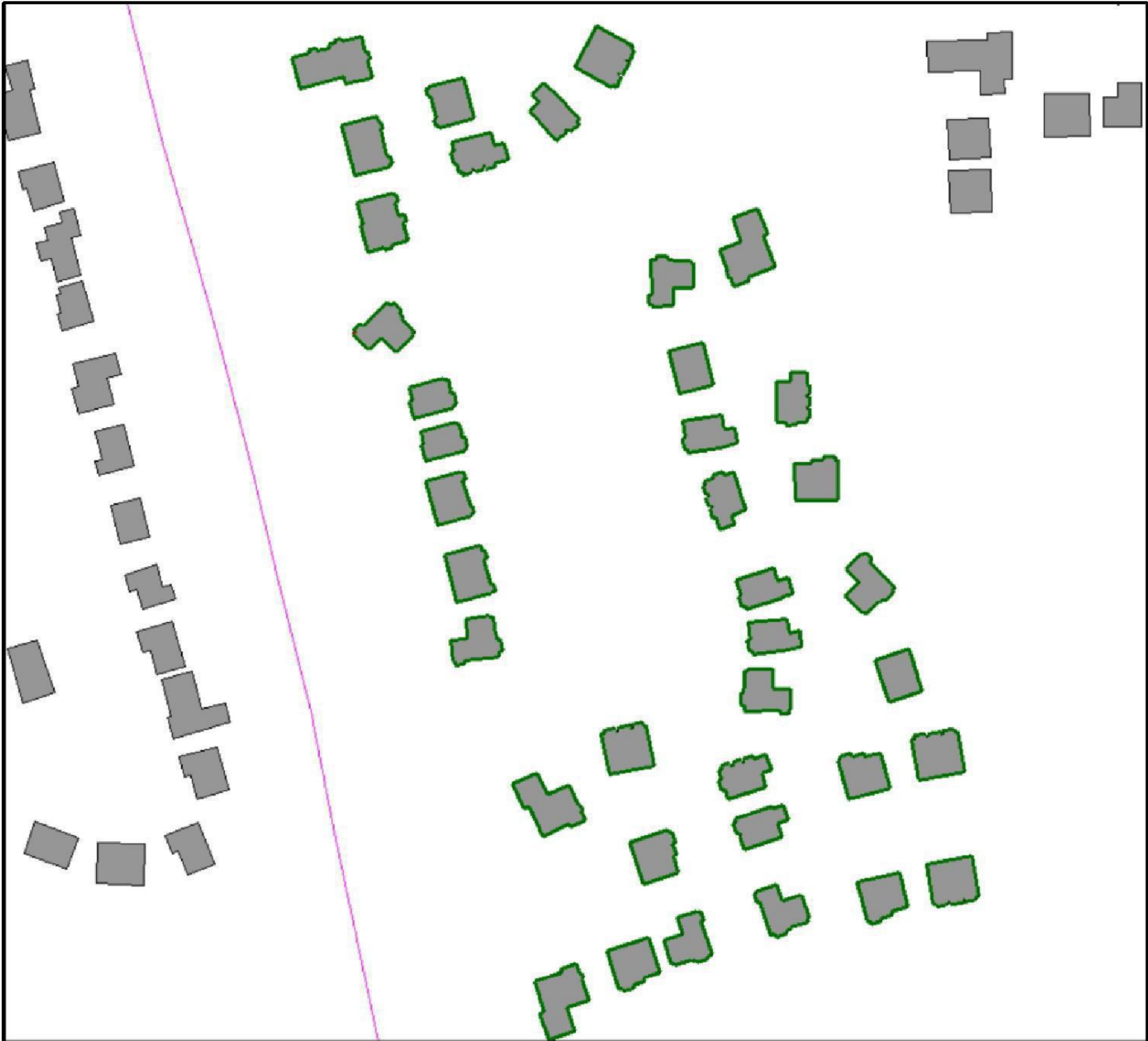


Figure 6 – 3D noise model predicting facades that will achieve the internal sound pressure level values given in Approved Document O with windows open during the night-time



Levels Lmax
in dB(A)



Figure 7 – 3D noise model predicting facades that will achieve the internal $L_{A\text{Fmax}}$ values given in Approved Document O with windows open

11. Conclusions

- 11.1.1. An environmental noise survey has been carried out at the site of a proposed residential development at Land West of Gatesmead, Haywards Heath, to determine typical ambient sound levels. The sound levels have been used to calculate the required facade sound insulation to meet the guideline internal levels from BS8233:2014.
- 11.1.2. Table 8 in Section 10 gives the required facade sound reduction by any glazing and ventilator combination to be compliant with the guideline values.
- 11.1.3. We strongly recommend that this report be passed to the local planning authority for approval prior to any works being carried out.

12. 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	Crest Nicholson Operations Ltd	
D	Full site address	Land West of Gatesmead Haywards Heath	
E	Date of surveys	Survey Date: 4 th June 2025 – 5 th June 2025	
F	Description & identification of Proposed Development	It is proposed to develop the site for residential use.	
G	Brief Description of details of Procedure & equipment	See Section 5 of this report.	

APPENDIX B: Technical Appendix

12.1.1. 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)

12.1.2. 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	94.0 dB

12.1.3. There was no adverse deviation.