



JAMESON ACOUSTICS

Consultants in acoustics,
noise and vibration

Technical Note

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Southampton Road, Alderbury

Noise Addendum in Response to ECP Comments

App Ref: PL/2024/09976

1.0 Introduction

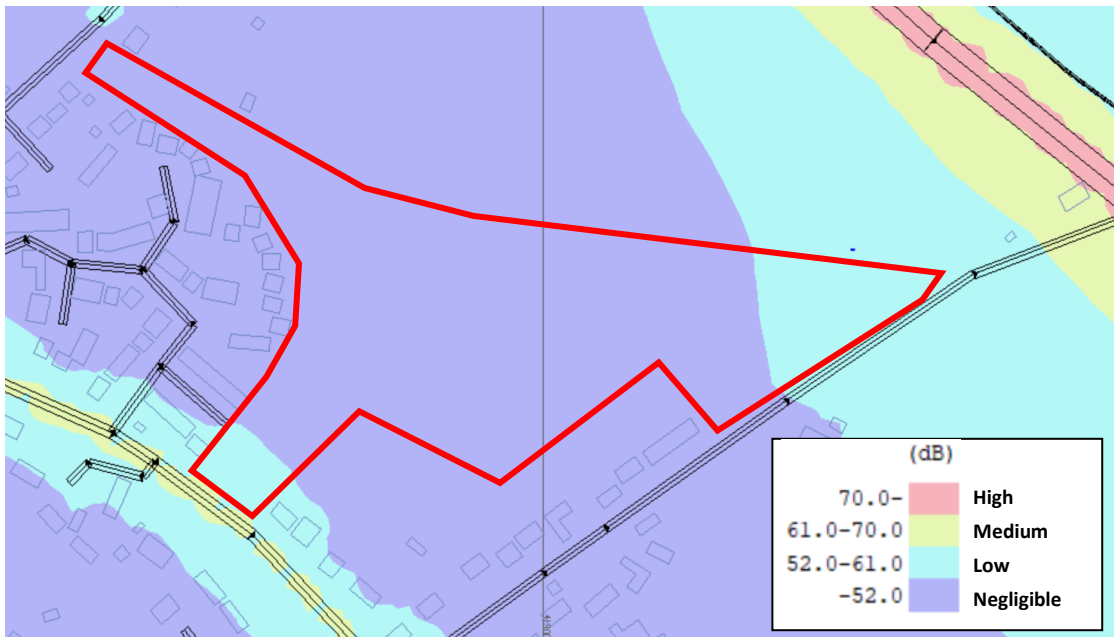
- 1.1 This technical note aims to provide an addendum to the *Noise Impact Assessment Report* 22049-RP-1-R3 [the Report] submitted in the outline planning application for up to 47nr new dwellings on land off Southampton Row in Alderbury. It aims to address comments received from the Environmental Control & Protection team [ECP] at Wiltshire Council [WC] in their correspondence dated 20 December 2024.
- 1.2 Primarily, the addendum intends to provide some a narrative to the acoustic design approach taken in preparing the Report; an approach which followed the 'hierarchy' approach for good acoustic design as discussed in ProPG *Planning & Noise*, dated May 2017. The ProPG guidelines largely align with WC's recommended approach detailed in their *Planning Consultation Guidance Note; Noise and Vibration* [PGN], dated 31 October 2023.

2.0 Hierarchy Noise Assessment Approach

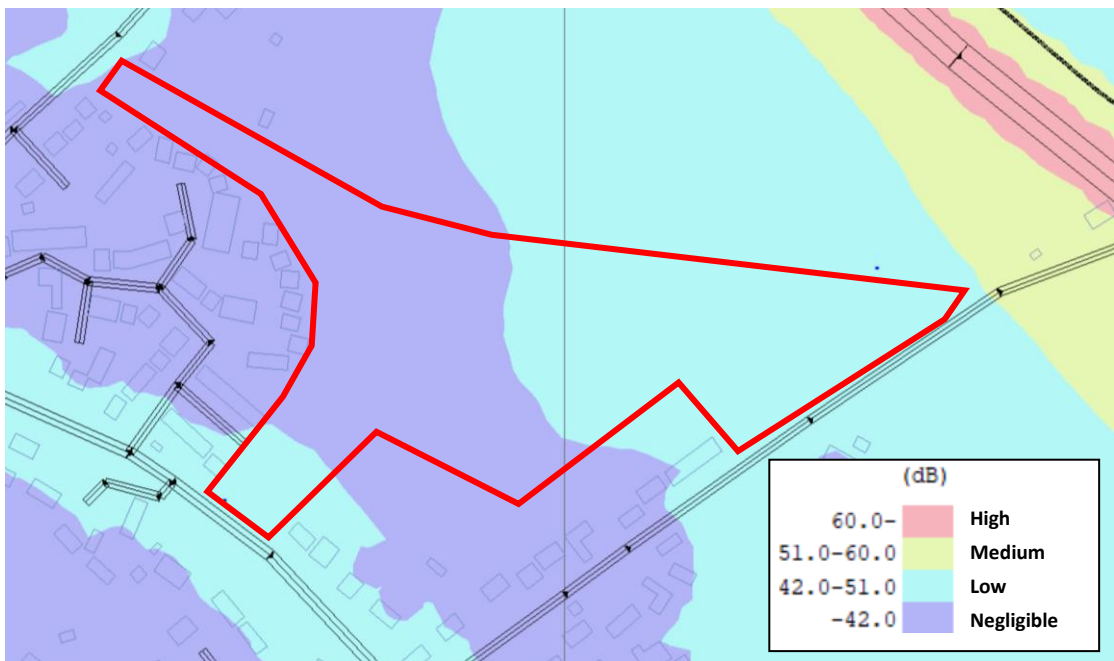
- 2.1 In accordance with ProPG (and WC's PGN), we shall elaborate on the acoustic design approach step-by-step as per the following hierarchy:
- a) ProPG Stage 1: Initial site noise risk assessment.
 - b) ProPG Stage 2, Element 1: Good Acoustic Design, adopting WC hierarchy:
 - Level 1: Control of noise at source.
 - Level 2: Site layout and design.
 - Level 3: Dwelling layout and orientation.
 - Level 4: Planning restrictions.
 - c) ProPG Stage 2, Element 2: Achieving internal noise levels (Level 5 of WC's hierarchy).
 - d) ProPG Stage 2, Element 3: External amenity area noise assessment.
 - e) ProPG Stage 2, Element 4: Assessment of other relevant issues.

3.0 ProPG Stage 1 – Initial Site Noise Risk Assessment

- 3.1 The ProPG Stage 1 initial site noise risk assessment is often omitted from Reports for brevity in cases where there are no significant risks to evaluate, i.e. when noise levels across the site are clearly, from the survey readings, in the ‘low’ or ‘negligible’.
- 3.2 However, for completeness, please see below the daytime and night-time L_{Aeq} noise levels plots across the existing site.



Daytime L_{Aeq} noise levels across existing site, 4m height



Night-time L_{Aeq} noise levels across existing site, 4m height

- 3.3 The 10th highest night-time L_{Amax} noise event levels do not exceed 60 dB for the majority of the site, which ProPG considers to be the threshold below which the site can be regarded as negligible risk. The levels only exceed 60 dB for the limited area to the south of the site near Southampton Road and to the north-east corner of the site.
- 3.4 The above plots provides a clear indication that the site falls within the 'low' to 'negligible' noise risk categories, with the vast majority of the site falling within the 'negligible' category.
- 3.5 In accordance with ProPG, *"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**".* For the small areas of 'low' risk, ProPG states *"the site is likely to be acceptable from a noise perspective provided that 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 in the finished development"*.
- 3.6 For the latter, the Report took the approach to mitigate noise 'at façade' following a standard process of good acoustic design, which admittedly was not discussed therein and is therefore discussed below.

4.0 ProPG Stage 2, Element 1 – Good Acoustic Design

- 4.1 WC desire all new dwellings to be designed on basis that windows open for majority of the time and internal noise levels achieved. We would agree that this is the desirable approach but, in reality, this is unrealistic for many sites. For many people, desirable dwellings are those that are close to workplaces, schools or convenience centres (towns). Such locations are naturally surrounded by an infrastructure of roads which produce noise. Clearly, efforts should be made to minimise the effects of any such noise, but as ProPG states, any actions taken should be **proportionate** and **reasonable** to the particular circumstances of each development site. This point is important. 'Good acoustic design' does not mean "gold plating" or significantly increasing costs.
- 4.2 As demonstrated above, this particular site falls within the 'low' to 'negligible' risk category. For this reason, the Report determined that the 'good acoustic design' process need only be followed for the limited number of dwellings falling into the 'low' category. Site-wide noise mitigation (e.g. controlling noise at source) would arguably be deemed a disproportionate and unreasonable response that would add significant cost, which does not align with ProPG's intentions.
- 4.3 **Level 1 Control of Noise at Source**

The dominant noise source for this site is road traffic. For the majority of the site, the noise is from A36 dual carriageway. The application site does not share a boundary with this road and we are therefore unable to attenuate it 'at source' as part of this development. Any acoustic barrier would be more than 2 metres in height and so would require planning permission within its own right. In addition, the acoustic barrier would be in excess of 300m in length and so would raise significant viability issues, to address noise levels which are primarily within the low or negligible range, as identified above.

The option to introduce a noise barrier along the northern site boundary was considered. However, in order to create the required sound 'path difference' (screening) to achieve the required benefit for upper floor bedrooms, the barrier would need to be over 5 metres in height. This barrier could be formed by a mixture of earth bunding and fencing, but the site has ecological factors to consider along this boundary. There is an existing watercourse which is lined by trees which are covered by a Tree Protection Order and so need to be retained along this boundary.

The option to set a barrier a sufficient distance back from the vegetation would not be feasible either. The submitted ecology report has shown that the central wetland area of the site is a priority habitat and so must remain free from development. Therefore, any acoustic barrier would be precluded from running the width of the site by this undevelopable area, making any acoustic barrier ineffective due to it being a largely incomplete barrier.

This is not to mention the significant negative visual impact a large screen would have on the development generally and in wider views from outside of the site.

For dwellings on Southampton Road to the south of the site, there simply is not room to introduce a noise barrier of any great height so as to benefit upper floor windows. These roadside dwellings effectively form the entrance to the new development, and so the introduction of a barrier would be undesirable and unlikely to achieve planning approval. The buildings are set back from the highway at a distance that matches other existing dwellings along this road. It is worth noting that, comparatively, these two new dwellings will be designed to far superior acoustic standards than the neighbouring dwellings, providing a higher standard of residential amenity.

4.4 **Level 2 & 3 Site Layout and Design (Dwelling Layout and Orientation)**

For dwellings in 'negligible' category, no need to consider noise and the developer's preferred layout can take precedent. For 'low' category zones, consideration was given to the positioning and orientation of dwellings. However, any desirable dwelling would have windows to habitable rooms on the front and rear elevations, meaning there any reorientation of dwellings would bear no meaningful acoustic benefit to resultant internal noise levels.

The site layout has been set out with biodiversity factors taking precedence. The site includes large sections of wetlands which are priority habitats that limited options for road routing and the positioning of houses. Consideration was given to setting back (i.e. further south) the houses to the north-east corner and running the access road to the north side of the dwellings. This would increase the distance from the road and ensure gardens (outdoor living spaces) were to the rear of the dwelling, screened from road traffic by the buildings. However, this would have created a very unfavourable urban design with the open spaces having fences / hedgerows backing onto them, creating a poor urban environment which lacked natural surveillance for the public open space.

The additional distance obtained by moving the dwellings further south would have offered a less than 1 dB (negligible) benefit in terms of incident noise levels onto the north facing facades.

Given the 'low' risk noise category and the limited levels of noise reduction onto the north facing facades, it was considered reasonable to proceed with the far superior proposed layout for the

development, rather than create a much worse urban environment to address a noise issue which could be satisfactorily addressed by other mitigation means.

For the two dwellings to the south on Southampton Road, the orientation is favourable with gardens to the rear of the building, utilising screening from the buildings.

4.5 **Level 4 Planning Restrictions**

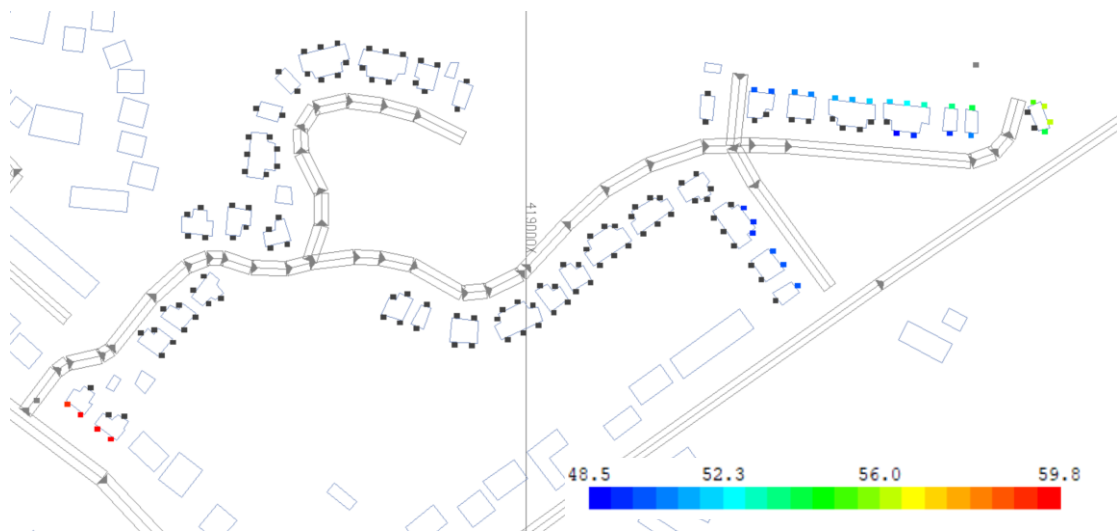
Not applicable.

4.6 **Summary**

Whilst it is accepted that some site-wide noise mitigation (noise barrier) or re-orientation options are available, any such measures would prove problematic to landscaping, biodiversity and amenity, and/or would have a significant cost implication, and of which would be disproportionate and unreasonable given the site falls into 'low' to 'negligible' noise risk categories. The negative consequence on other factors and the increased cost would all contradict the intention of ProPG. They would represent a disproportionate response in the context of the site and would not, therefore, constitute good acoustic design in this case.

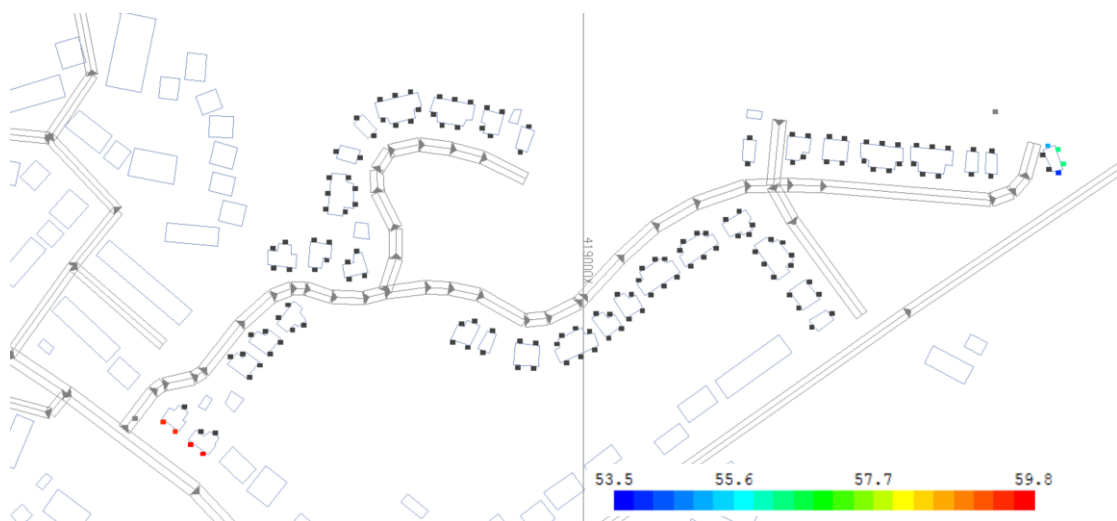
5.0 **ProPG Stage 2, Element 2 – Achieving Internal Noise Levels**

- 5.1 For those 2nr dwellings, rear rooms (facing the garden) can utilise open windows without restrictions day or night, whilst satisfying AVO and Part O overheating noise requirements. For front facing rooms onto Southampton Road, 'occasional' use of open windows would be permitted during the day, with mechanical ventilation systems provided to mitigate night-time overheating so that occupants do not need to rely on opening windows. For any dwelling on a main thoroughfare, this approach is common and unavoidable due to limited scope for 'good acoustic design'.
- 5.2 Site-wide, the Report advises that opened windows for background ventilation should only be rely on for 14nr of the 47nr dwellings to achieve 'ideal' (as defined in BS 8233) internal noise levels. This was advised on a rather caution approach. However, if we consider the typical external to internal sound level difference afforded by a façade with a partial opened window of 10-15 dB (as advised in the WC guidance note, with 13 dB being the commonly used figure in calculations), then any façade subject to incident noise levels not exceeding 48 dB $L_{Aeq,16hr}$ daytime or 43 dB $L_{Aeq,8hr}$ night-time in theory achieve internal noise levels of 35 dB $L_{Aeq,16hr}$ daytime and 30 dB $L_{Aeq,8hr}$ night-time with windows open. We have reevaluated the noise model to determine which dwellings would achieve this and the results are illustrated below.



Noise model highlighting facades achieving 'ideal' internal noise levels, in 'black' (Level 1, worst-case)

- 5.3 In the above Figure, any façade marked 'black' fall within the noise threshold advised in 5.2 whereby acceptable internal noise levels are achieved with windows partially open. If we discount the side elevations of each dwelling (no windows), this shows that of the 94nr facades with windows to habitable rooms across the scheme (47nr dwellings x 2, front and rear elevations), only 18nr façades would fail to achieve internal noise levels with windows open. This represents only 19% of the development.
- 5.4 If we consider BS 8233's 'reasonable' internal noise levels, which are +5 dB above the ideal noise level targets, this number reduces to just 4nr façades (namely, the two front elevations of dwellings on Southampton Road and the north facing elevation of the dwelling in the far north-east corner of the site). This represents only 4% of the development. Note, these facades will still have openable windows for purge, as well as the option to close windows whilst still maintaining fresh air background ventilation by means of trickle ventilators.



Noise model highlighting facades achieving 'reasonable' internal noise levels, in 'black' (Level 1, worst-case)

- 5.5 The inability to achieve 'ideal' or 'reasonable' internal noise levels with partially opened windows for background ventilation is limited to a small number of dwellings across the scheme. As discussed in Section 4.0, the obvious solution for the dwellings in the north-east corner of the site would be a noise barrier to the north. However, other prevalent design factors preclude this as an option. The option to reorientate the site layout to move these dwellings further back (i.e. to the area of land to the south of the access road) would not yield sufficient additional distance loss to permit openable windows.

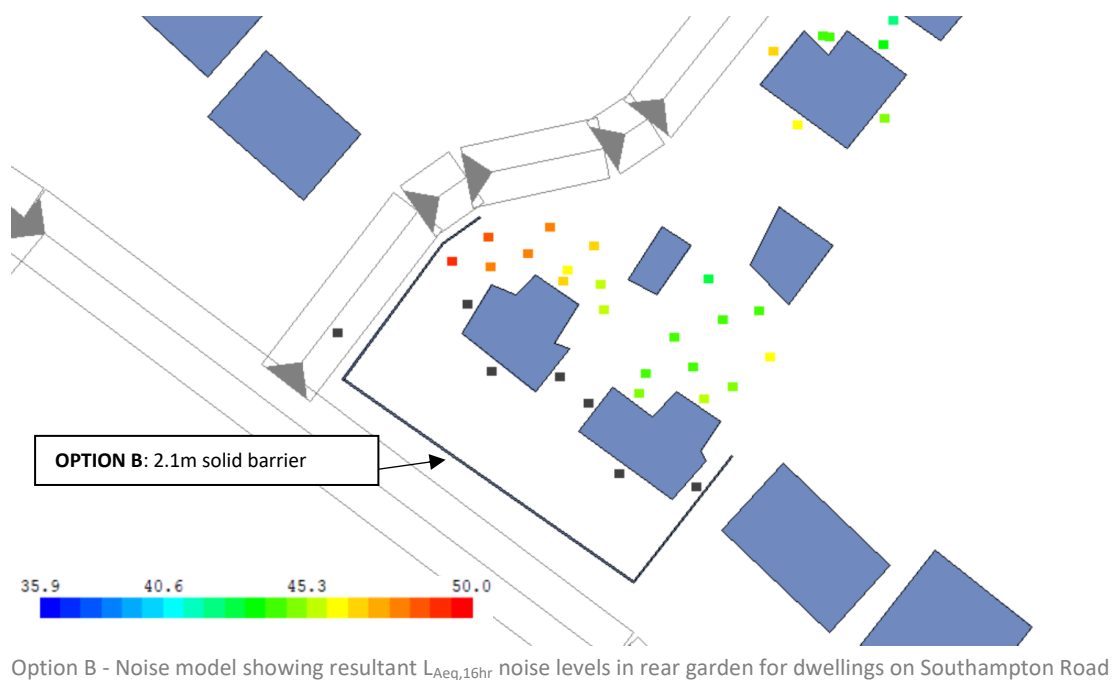
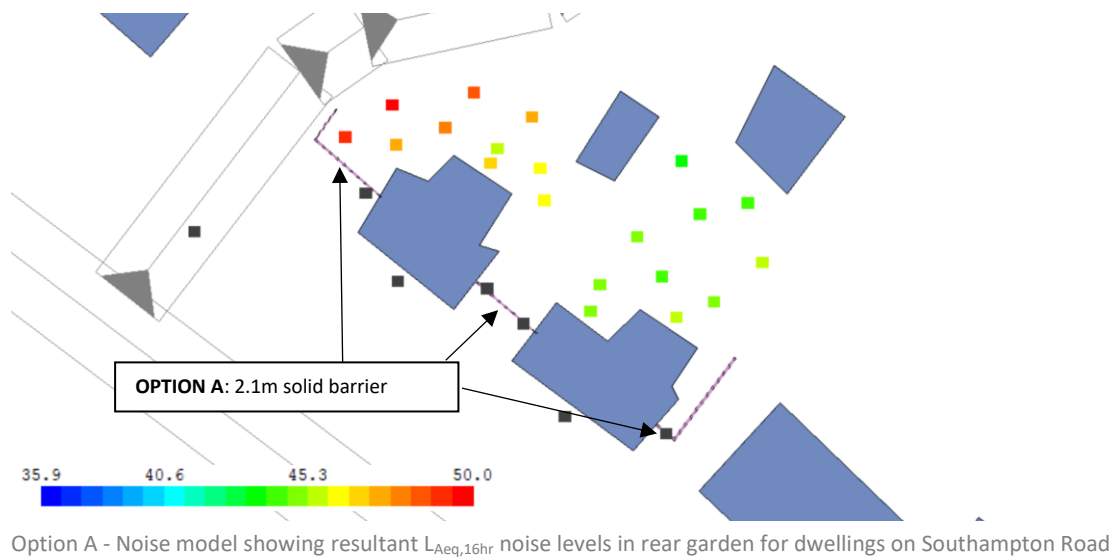
6.0 ProPG Stage 2, Element 3 – External Amenity Noise Assessment

- 6.1 The Report identified the garden of only a single dwelling to the north-east corner of the site would require solid barriers (e.g. fencing) to achieve the BS 8233 limit of 55 dB $L_{Aeq,16hr}$. All other gardens would achieve this standard without additional treatment.
- 6.2 WC has, however, advised that efforts should be made to achieve 50 dB $L_{Aeq,16hr}$ in all gardens. We have therefore reassessed the need for localised treatment, solid barriers, as follows.
- 6.3 The following Figure presents the baseline (no solid barriers) noise model at a height of 1.7 metres above ground level (typical ear height when standing) to show which dwellings achieve or exceed this 50 dB $L_{Aeq,16hr}$ target.

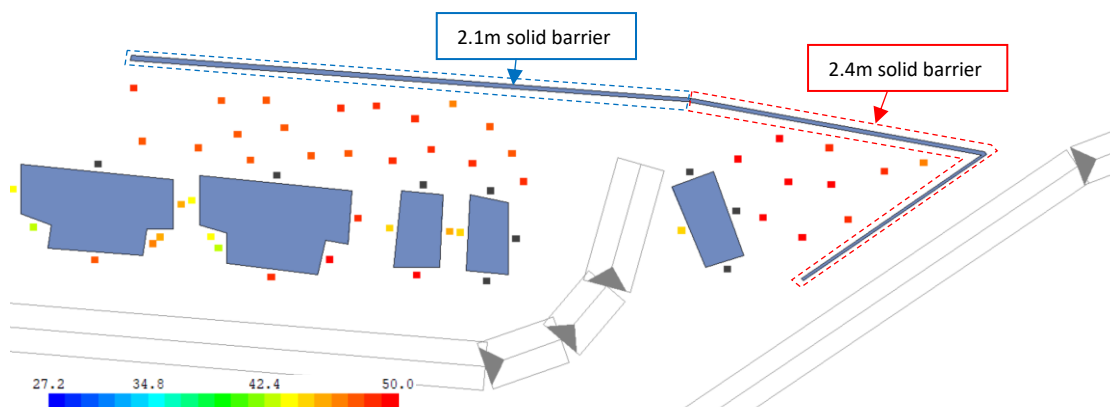


Baseline noise model of daytime $L_{Aeq,16hr}$ noise levels across site (no solid barriers)

- 6.4 The results demonstrate that potentially 8nr of the 47nr dwellings could experience noise levels greater than 50 dB $L_{Aeq,16hr}$ in rear gardens (the two dwellings on Southampton Road to the south and the 6nr dwellings in the farthest north-east corner of the site).
- 6.5 For the two dwellings on Southampton Road to the south, we have modelled two location options for a 2.1-metre tall solid acoustic barrier to the extends as indicated below. The results of the noise model indicate that at typical ear height (when standing) noise levels in both rear gardens would satisfy WC's desired target of 50 dB $L_{Aeq,16hr}$.

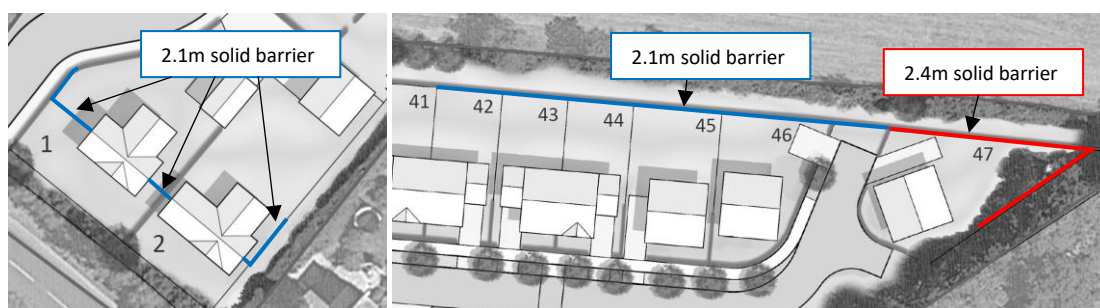


6.6 For the six dwellings to the north-east corner of the site, we have modelled a 2.1-metre tall and a 2.4-metre solid barrier to the extends as indicated below. The results of the noise model indicate that at typical ear height (when standing) noise levels in all rear gardens would satisfy WC’s desired target of 50 dB $L_{Aeq,16hr}$.



Noise model showing resultant $L_{Aeq,16hr}$ noise levels in rear garden for dwellings to north-east of site

- 6.7 The barrier could be formed from brickwork or a closed panel (imperforate), providing a minimum mass per unit area of 12 kg/m^2 (e.g. timber). A more precise mark up of the barrier locations/sizing is provided below.



7.0 ProPG Stage 2, Element 4 – Other Relevant Issues

- 7.1 Noise should not be considered in isolation or separately from the economic, social and other environmental dimensions of proposed development. In this case, site wide means to mitigate noise to promote ventilation of all dwellings with openable windows is not viable for other reasons, including biodiversity. In the context of the NPPF, mitigating noise at façade where all other options are not viable is a perfectly acceptable solution. For the few affected dwellings, resultant façade mitigation solutions still promote natural air ingress through passive trickle ventilators. The façade solutions are conventional, and occupants will still be provided the option to open windows should they wish. As demonstrated in Section 5.0, all but three dwellings would experience internal noise levels that satisfy BS 8233 'ideal' or 'reasonable' targets with windows open. For the remaining three, all would have access to at least one façade elevation on which rooms would maintain at least BS 8233 'reasonable' internal noise levels with windows open.
- 7.2 It is worth highlighting that the noise source in question for this site is road traffic, an anonymous noise source to which people are accustomed to. In terms of magnitude, the levels of this road traffic noise across the entire site represents a low to negligible risk in accordance with ProPG. We are not dealing with an adjacent industrial estate or entertainment venue, or even a major road in close

proximity to the site, where more onus would be placed on the need for good acoustic design and control noise at source to protect residential amenity.

- 7.3 These dwellings are likely to be occupied by families, with children going to school and adults going to work most days. These will be desirable homes for families who want their children to be able to walk to school (there is a primary school in walking distance) and a short drive to work (Salisbury is a short drive away), and so likely occupants will perhaps be more willing to accept convenience of location over a quieter environment.

8.0 Summary of Acoustic Design Approach

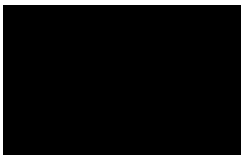
- 8.1 The following table presents a summary and evaluation of the acoustic design approach taken for this scheme with the aim of achieving acceptable noise levels in habitable rooms and outdoor gardens.

Topic	Dwellings	Noise risk category	Good acoustic design	Noise mitigation	Noise level targets achieved?
Internal noise levels	81% of dwelling facades	Mostly Negligible	Not required, open windows for background ventilation permissible.	No specific treatment required.	✓
	19% of dwelling facades	Low	Not viable due to landscape, biodiversity and visual impacts.	Localised: conventional façade solutions with natural ventilation by trickle ventilators.	✓
Outdoor noise levels (gardens)	83% of gardens (39nr of 47nr)	Mostly Negligible	Not required.	No specific treatment required.	✓
	17% of gardens (8nr of 47nr)	Low	Localised issue requiring localised treatment.	Solid barriers.	✓

9.0 About the Author

- 9.1 The author has a first-class honours degree in acoustics, over 20 years of experience working as an acoustic consultant – including 7 years as a Board Director of one of the largest independent acoustic consultancies in the UK – and is a full member of both the Institute of Acoustics (MIOA) and the Institute of Engineering & Technology (MIET). He has delivered literally hundreds of residential planning noise reports and dozens of EIA Noise & Vibration Chapters for large scale residential schemes across the country.

For and on behalf of
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