

TECHNICAL NOTE REGARDING BARRIER MITIGATION AT 28 AND 29 HEWETT AVENUE – ASSESSMENT FOR THE HEIGHTS PRIMARY SCHOOL

ACCON UK Limited (ACCON) has been commissioned by The Heights Primary School to assess the performance of additional boundary treatments at the rear of the properties at 28 and 29 Hewett Avenue, Reading. Previously, an assessment of additional noise mitigation was carried out as reported in the ACCON Technical Note dated 07.12.2023.

Comments from Reading Borough Council (RBC) Environmental Health Officer

Comments from RBC in respect of the proposed barrier mitigation, are provided below:

“In terms of noise matters, notwithstanding the noise assessment submitted, there are ongoing concerns/complaints about noise from the school impacting on the two closest residents to Hewett Avenue. So, if the enlargement to the capacity of the school were to be agreed, and potentially exacerbate this issue, then we need to demonstrate that we are dealing with this and providing mitigation that is going to make a noticeable difference to the adjacent dwellings. The view is that the current proposals for the acoustic fence would have quite a minor impact. The EP officer is asking for greater mitigation to be provided that would make a more noticeable impact on noise levels. They have suggested making the acoustic fence wider to span both properties and / or taller and exploring different materials that could provide a greater level of noise mitigation and modelling these options to demonstrate what these changes would provide to projected noise levels at the two properties.”

Noise Modelling

The CadnaA noise modelling software has been utilised to calculate the mitigation effects of the existing boundary treatment at the NSRs and any additional beneficial noise impacts of the potential mitigation. CadnaA is a three-dimensional noise model developed by DataKustik and has been extensively used by ACCON and others to develop noise models for a wide variety of situations and noise sources. CadnaA utilises ISO 9613 Part 2 – ‘Attenuation of sound during propagation outdoors’ to predict noise from point, line, and area sources.

Appropriate Noise Guidelines

World Health Organization (WHO) Guidelines

The World Health Organization “Guidelines for Community Noise” contains noise criteria and sets out guideline noise limits that would normally be considered acceptable for a range of noise sources. Whilst not strictly applicable to noise from playgrounds, which could be described as having a “specific character”, the criteria can assist in providing an indication as to the acceptability of noise from this specific source of noise. The proposed acceptability criteria are detailed in **Table 2**.

Table 2: Summary of Noise Criteria: WHO Guidelines

	Criterion	Location	Maximum WHO Guideline Limit $L_{Aeq,16hr}$
WHO	To prevent serious annoyance in external amenity areas	Outside Dwellings	55

Importantly, it should be noted that the guideline limit is for a sixteen-hour period, whereas noise arising from the use of the school outdoor activity will only ever occur for a limited number of hours per day.

Noise Mitigation

Figures 1 and 2 display noise contours within the amenity areas of the properties at 28 and 29 Hewett Avenue. **Figure 1** includes the introduction of a 2.0 metre high barrier situated on the boundary at The Heights Primary School, which extends the length of the eastern existing boundary treatment at the rear of the properties at 28 and 29 Hewett Avenue. **Figure 2** considers the introduction of a 2.5 metre barrier situated on the boundary of The Heights Primary School, which also extends along the length of the rear of the properties at 28 and 29 Hewett Avenue.

Noise levels in the amenity areas for both 28 and 29 Hewett Avenue would not exceed the 55 dB $L_{Aeq,T}$ guidance noise level identified in the World Health Organization “*Guidelines for Community Noise*” for both mitigation options.

Figure 1: Amenity Area Noise Levels with Mitigation (2.0 Metre Barrier)

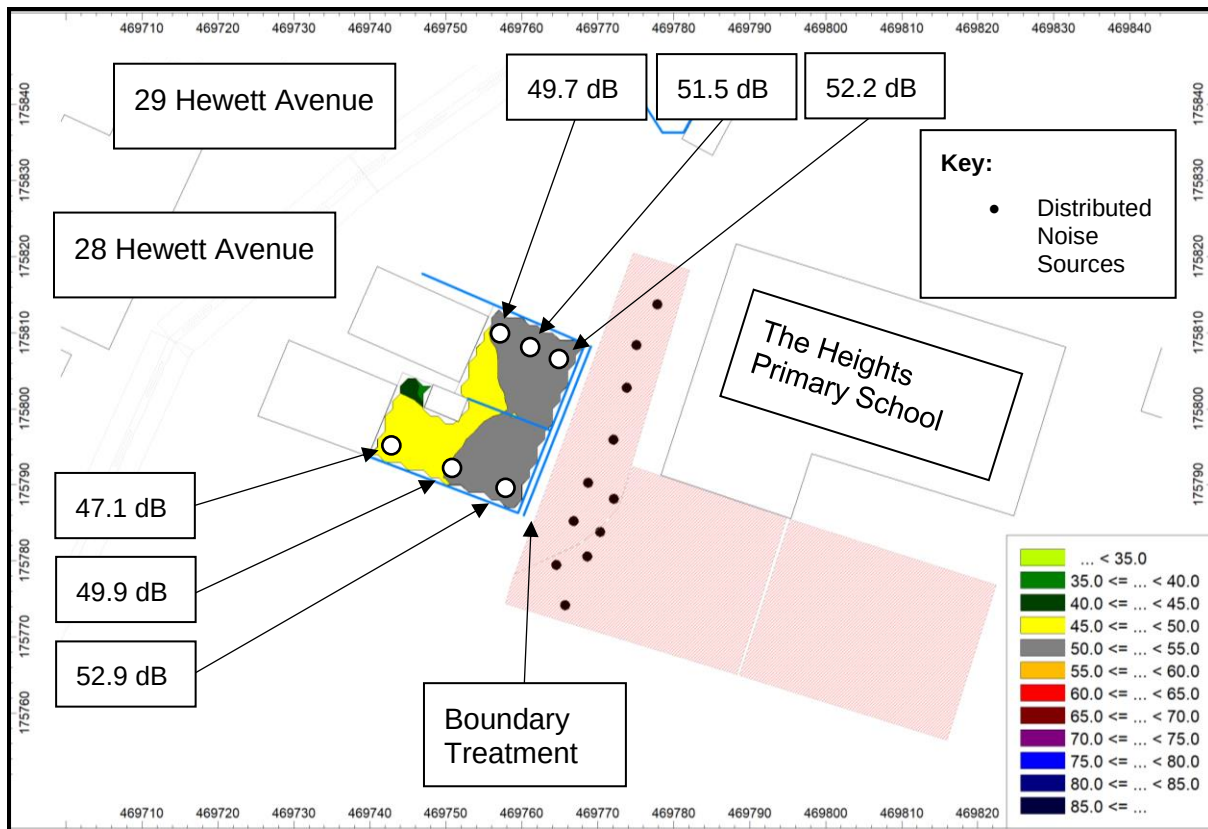


Figure 2: Amenity Area Noise Levels with Mitigation (2.5 Metre Barrier)

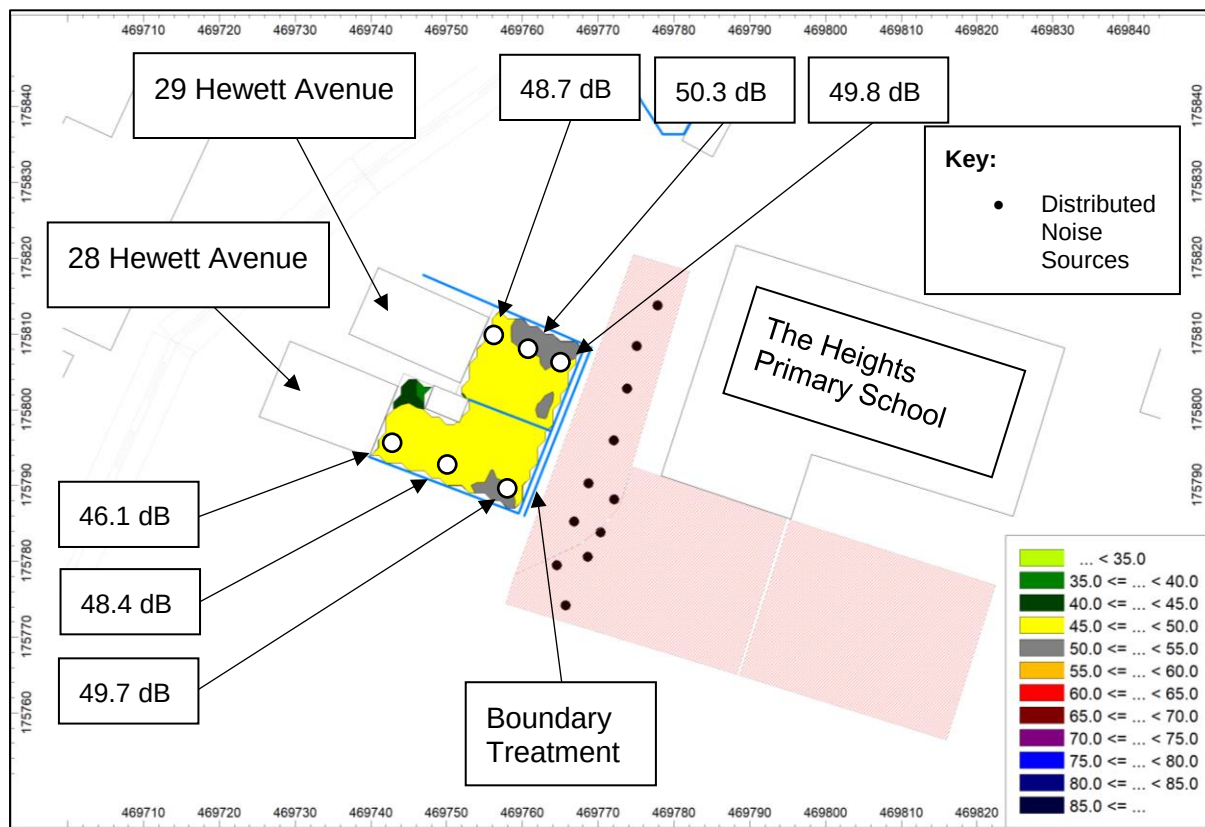


Table 1 provides the information from **Figures 1** and **2** in tabular format and it will be noted that a 2-metre high noise barrier would ensure that acceptable noise levels could be achieved in all areas of the gardens of 28 and 29 Hewett Avenue.

Table 1: Amenity Area Noise Levels

Location	Close to Barrier	Mid Garden	Close to Property	Change in Noise Level – Close to Barrier	Change in Noise Levels – Mid Garden	Change in Noise Levels – Close to Property
28 Hewett Avenue – Proposed short section of noise mitigation (as per previous Technical dated 07.12.2023)	53.9	50.6	47.7	-	-	-
28 Hewett Avenue – Proposed 2 metre high barrier along whole length of the eastern boundary	52.9	49.9	47.1	-1.0	-0.7	-0.6
28 Hewett Avenue – Proposed 2.5 metre high barrier along whole length of the eastern boundary	49.7	48.4	46.1	-4.2	-2.2	-1.6
29 Hewett Avenue – Proposed short section of noise mitigation (as per previous Technical dated 07.12.2023)	53.8	52.1	50.1	-	-	-
29 Hewett Avenue – Proposed 2 metre high barrier along whole length of the eastern boundary	52.2	51.5	49.7	-1.6	-0.6	-0.4
29 Hewett Avenue – Proposed 2.5 metre high barrier along whole length of the eastern boundary	49.8	50.3	48.7	-4.0	-1.8	-1.4

Conclusion

ACCON have assessed further potential barrier mitigation at the rear of the properties at 28 and 29 Hewett Avenue.

The mitigation options identified in **Figures 1 and 2**, which includes the introduction of a 2.0 metre or a 2.5 metre high noise barrier would extend across the two existing apertures in the boundary wall and would provide sufficient mitigation in order to not exceed the maximum 55 dB $L_{Aeq,T}$ noise level guidance that is stated in the World Health Organization “*Guidelines for Community Noise*”, noting that the guidance normally references a 16-hour period, and therefore this is a worst-case assessment.

It should be noted that the recommendation provided in a previous Technical Note, dated 07.12.2023, would mitigate noise levels, even with the increase in the pupil admission number.

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Managing Director

ACCON UK Limited