Acoustic South East

Ben Kirk
Managing Director
Manorwood

2nd February 2024

Dear Mr Kirk

Re: Grainingfold DISC/23/0270

I write further to your email dated 31st January 2024 regarding the above site and technical comments which have been received from the Environmental Health department at Horsham District Council. For clarity, the original comments have been retained with the response from Acoustic South East made in blue text below.

We have reviewed the Acoustic Associates Sussex Ltd Road Traffic Noise Assessment for Discharge of Condition, dated 08.06.22, and we have the following comments to make.

1. As with previous applications on this site the development is impacted by high levels of road traffic noise levels. With this in mind we note that in order to achieve acceptable internal noise levels windows in certain rooms will not be able to be able to opened. We note that passive ventilation is proposed in these rooms, our concern however is that passive ventilation will not provide sufficient ventilation and prevent overheating. In the event of overheating due to insufficient ventilation windows will be opened which will compromise internal noise levels.

It is relevant to note that windows are capable of being opened, albeit they are unable to be relied upon for background ventilation and an alternative ventilation strategy is required. It is important that future occupants have a connection with the outside environment and there is no suggestion of closed windows within the reporting.

The rigorous calculations are provided in Appendix 9.1 for Plot 1, bed 1, Plot 1 Lounge and Plot 1 bed 2. These contain the room sizes, the glazed areas (m^2) as well as the proposed glazing and ventilation. Commercially available products have been used and attention is drawn to the Greenwood 8000HD - the details of which can be seen here - https://www.greenwood.co.uk/window-vents/hd-vent . This is a through frame vent located on the window frame. Note is made of the section 6.5 in the report where the possibility is discussed of applying more than 1 vent to achieve greater airflow. If this were deemed not to be sufficient, much larger airflows are capable of being achieved with passive through wall ventilators and attention is drawn to Rytons who provide acoustically attenuated vents.

With regards to the comment about overheating, this is outside the remit of Acoustic South East. A simplified overheating assessment may be carried out, consistent with Approved Document O (ADO) of the Building Regulations. This simplified assessment will identify if bedroom windows are capable of being opened during the night time period to mitigate thermal overheating.

At the time of the report being written and released to the client, (ie 8th June 2022), the requirement to consider overheating under ADO had not yet come into effect. ADO came into effect the week after on 15th June 2022.

Notwithstanding this, a simplified assessment is relatively easy to calculate and uses a 9dB attenuation for an open window from outside (freefield conditions) to internal revenant conditions. Approved Document O states that windows will be likely to be closed if the internal ambient $L_{Aeq, 8hour}$ exceeds 40dB or the L_{Amax} events exceed 55dB more than 10 times during the night time period, again inside a bedroom.

In reviewing section 6.2 of the report, Plot 1 Bedroom 1, Plot 1 ground floor bedrooms and Plot 2 ground floor bedrooms would all exceed the required steady state L_{Aeq} criterion.

The exception to this being Plot 2 bedroom 1, which would likely be openable at night. ADO does however require both conditions to be met to ensure that windows are openable. Ie L_{Aeq} and $L_{Amax.}$ In reviewing the survey data, Plot 2 bedroom 1 would be capable of opening windows during the night time period to mitigate thermal overheating.

2. We also note the comments in section 6.6:

'A noise model was created to assess sound pressure levels predicted within the outdoor amenity space. A privacy fence at 2 meters high was included at the northern boundary of the application site. BS8233:2014 and WHO (Guidelines for Community Noise) provide external amenity space criteria an upper limit of 55dB(A) within a section of the external amenity area. The noise model shown below in figure 8 shows that that the predicted LAeq.16hour sound level in the rear garden of the new dwelling would be below the limit of 55dB(A)'.

The points chosen on the model would appear to have been selectively chosen as they are within the narrow areas of the garden where the noise levels are predicted to be below 55dB. Based on the currently proposed mitigation the majority of the garden areas are however predicted to experience noise levels of above 55dB and so above the level stipulated in BS8233:2014.

BS8233:2014 states as follows:

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 50 dB $L_{Aeq,T,}$ with an upper guideline value of 55 dB *L*Aeq,*T* which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.

Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses. However, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens and terraces, which might be intended to be used for relaxation. In high-noise areas, consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels. Achieving levels of 55 dB *L*Aeq,*T*

or less might not be possible at the outer edge of these areas, but should be achievable in some areas of the space

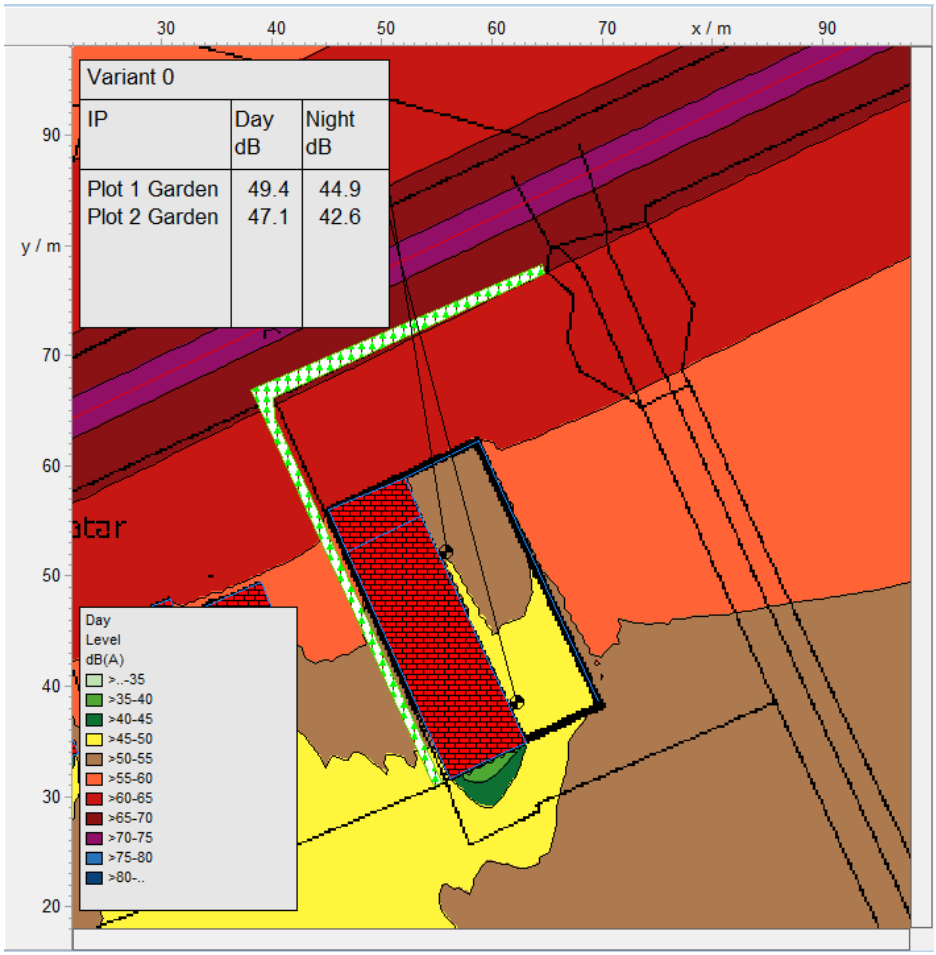
In reviewing the noise model, a 2m noise barrier/fence line was plotted at the North of the site and produced the following predicted daytime sound pressure levels:

- Plot 1 Garden – 54.6 dB $L_{Aeq,\ 16\ hour}$ and
- Plot 2 Garden – 53.7dB $L_{Aeq,\ 16\ hour}$

By continuing the fence line to the South along the Eastern boundary, the reception points are noted to be reduced further still to the following:

- Plot 1 Garden – 49.4 dB $L_{Aeq,\ 16\ hour}$ and
- Plot 2 Garden – 47.1 $L_{Aeq,\ 16\ hour}$

The 2D noise contour has been reset from 2m to 0.5m resolution to present more clearly the likely road traffic noise and impact of the additional Eastern noise barrier/fence line. This comfortably satisfies both BS8233:2014 and the World Health Organisation Guidelines for Community Noise dated 1999, revised 2018 with regards to external amenity and noise exposure.



I trust that the above information is sufficient for a decision to be revisited with a view to condition 2 now being discharged by Horsham District Council.

Please do not hesitate to call to discuss the matter further.

Yours sincerely



Scott Castle
Director
Acoustic South East

Acoustic South East, Unit 8 Highdown House, Shoreham Airport, Shoreham-by-Sea, West Sussex, BN43 5PB
tel: 01273 455074 email: info@acousticse.com web: www.acousticse.com

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