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Author	Eddy Goldsmith BEng Acoustics (Hons), MIOA		
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Response to Pollution Control Comments

1. NOISE

This technical note has been prepared in response to comments and queries from Eastleigh Borough Council (EBC) relating to the Noise and Vibration ES chapter, prepared by Hydrock and submitted in support of the following planning application(s):

- OPA Phase 1, F/20/89500, and:
- Horton Heath Wider OPA, O/20/89498.

1.1 Comments and Responses

1.1.1 *"In the introductory sections of the chapter it makes(sic) reference to current guidance / best practice which is considered relevant. In this context we would have expected that the WHO Environmental Noise Guidelines for the European Region, 2018 , (especially as these include recommendations for Road Traffic Noise), and WHO night noise guidelines for Europe 2009, would have been referenced and which largely supersede the 1999 WHO guidelines referenced in the report."*

Hydrock Response: The *WHO Environmental Noise Guidelines for the European Region, 2018* document does not supersede the *WHO Guidelines for Community Noise, 1999* document (which is still available on the WHO website and widely adopted within the acoustics industry). The guidance document is intended to provide recommendations for Member States on protecting human health of the general population from exposure to environmental noise originating from various sources, to be used at a strategic level in combination with the European Noise Directive.

The *WHO Environmental Noise Guidelines for the European Region* document states that: *'the guidelines focus on the WHO European Region and provide policy guidance to Member States that is compatible with the noise indicators used in the European Union's END.'*

Furthermore, the END states: *'The END requires Member States to create strategic noise maps and to generate noise action plans.'*

This highlights that the WHO 2018 document is designed to inform strategic noise mapping of entire cities and countries, such as the Extrinsic Strategic Noise Maps produced by DEFRA every 5 years, and therefore not relevant to this planning application.

WHO Guidelines for Community Noise however, provides health-based guidance to be applied on a community level, and has therefore been considered. However, we will include a cursory reference to the 2018 guidance within the addendum ES Chapter.

- 1.1.2 *“Further there is also no mention of the ProPG: Planning & Noise, Professional Practice Guidance on Planning & Noise for New Residential Development, published May 2017, by the Institute of Acoustics (IoA), Association of Noise consultants (ANC) and Chartered Institute of Environmental Health, (CIEH), jointly, and which are considered good practice in the management of noise impacts, especially for residential schemes where road traffic noise is an important consideration, as is the case here. The purpose of these guidelines are to ensure that a Good Acoustic Design process is followed during development projects to ensure consideration of noise is integral to the process, and the best outcome is arrived at.”*

Hydrock Response: It is agreed that *ProPG: Planning & Noise* (ProPG) is a key document to be considered during the design process of residential developments, particularly in promoting holistic and good acoustic design. ProPG and the principles within have been considered during the acoustic assessment process despite not being referenced specifically.

ProPG reflects upon overarching noise policy including the National Planning Policy Framework (NPPF), the Noise Policy Statement for England (NPSE), and Planning practice Guidance - Noise (PPG), together with health-based noise guidance documents including BS8233 and WHO Guidelines for Community Noise. All of these current policy and guidance documents have been considered accordingly.

Outline planning permission is being sought for the wider One Horton Heath development. The purpose of an outline planning application is to establish whether the scale and nature of a proposed development would be feasible, prior to developing the design i.e. formulating specific layouts and mitigations schemes. Essentially, outline planning comprises the first steps in the good acoustic design process referred to in ProPG. The assessment therefore provides commentary on the varying levels of noise exposure across the Site and options for potential mitigation measures as appropriate. This information is intended to be used and developed in to an acoustic design strategy going forwards.

OPA Phase 1 is also subject to the detailed application. Prior to submission, Hydrock provided acoustic comments on the draft layout for Phase 1 to the design team for consideration, together with the requirements of other relevant engineering disciplines and Eastleigh Borough Council. These comments were implemented into the site layout, where possible, with respect to the requirements of each party. From an acoustic standpoint, that included the provision of acoustic barriers in order to protect dwellings located closest to Burnetts Lane and the proposed link road.

An ES Addendum is in preparation in respect of scheme amendments. This Addendum will include appropriate reference to ProPG.

- 1.1.3 *“We would also have expected consideration of the ANC / IoA AVO Residential Design Guide January 2020 v1.1 to also have been included and considered especially for the full application where detailed proposals for noise insulation and ventilation have been put forward, as this considers(sic) the overheating in new homes and how this affects ventilation requirements especially where these are required to be acoustically treated as it the case her with OPA Phase 1, ad likely subsequently with the Wider OPA site.”*

Hydrock Response: Table 3-2 of the AVO guidelines recommends that a full overheating assessment is carried out in areas where average daytime noise levels are above 65dB, and that a full overheating

assessment is optional for areas where levels are below. Therefore, the site is considered to be within this 'optional' range described therein.

Overheating assessments as per the AVO guidelines are intended to consider overheating issues within buildings that require closed windows to provide good internal acoustic conditions, where opening a window is the normal way to keep a building cool. In the case of semi-detached housing with single occupiers, it is considered that residents have control over windows, and therefore ventilation, on two or more aspects (facades) of their home. This provides significant controls to residents, where windows to be opened within less sensitive rooms, such as kitchens, bathrooms, hallways and landings in order to allow for ventilation cooling while not opening windows within occupied habitable rooms, as opposed to single aspect apartments.

Appropriate reference to AVO guidelines will be included within the addendum ES Chapter.

- 1.1.4 *"Reviewing the Noise Chapter of the EIS we see no mention of Good Acoustic Design nor the inclusion of an Acoustic Design Statement as recommended by the ProPG, showing how the adverse impacts of noise have been considered and minimised in the design decision making process. The report gives no explanation as to how layout has been arrived at, for OPA Phase 1, or the decision-making process that led to the site design(sic). On this basis it is not clear how decisions have been reached on the approach to noise mitigation on this part or the Wider OPA site."*

Hydrock Response: As discussed above. The layout was devised by the masterplanner. As the acoustician we undertook an assessment based on the layout and found that, with the inclusion of suitable mitigation, the masterplan (as designed) is acceptable.

- 1.1.5 *"The internal noise standards seeking to be achieved appear to be those of BS8233 which are consistent with the EBC Local Plan, however for outside amenity space / gardens the 'upper guideline' value of 55 dBA LAeq (from BS 8233) has been selected as the preferred design criteria to be met, rather the 'desirable' level of 50 dBA LAeq, despite the standard from which it is taken describing the upper limit as being 'acceptable in noisier environments'. Given the generally low levels of noise in the area we are unclear why it was deemed appropriate to adopt this higher level, given that the developer has had a free hand to design the site such that 'noisier environments'; are avoided and which we would expect if a Good Acoustic Design process had been followed. It is also apparent that achievement of this upper guideline in the affected gardens (and presumably the internal noise standards referred to above) can only be made by the use of close boarded fences of surface density 10kg/m2 around these gardens. We would expect a good design process to look at minimising noise at source and to utilise separation before relying on non permanent features such as wooden fences to achieve noise targets at the receptor, particularly as these are likely to deteriorate in performance over relatively short timescales, no indication is given as to how these will be maintained so as to ensure that the protection that they are required to give is maintained through the lifetime of the development. Screening of the noise at source, e.g. along the roadside away for the curtilage of the dwellings would be preferred and potentially more effective, also increasing the separation between the noise source and the receptors. This is also something within the developers gift and the new site road is part of the development and could be subject to realignment or design features to reduce noise emissions before impacting the proposed dwellings. Where control of noise at source and separation options have been exhausted, use of external and internal layout to reduce the number of noise sensitive rooms impacted can be considered. The Acoustic Design Statement as outlined above would have provided a clear guide to the decision making process to show how the planning of the development has considered noise and reduced adverse impacts to a minimum."*

Hydrock Response: Outdoor amenity spaces in noisier areas within the site i.e. closest to the adjacent road network may be subjected to noise levels of up to 55dB, it is considered that the vast majority of dwellings include garden areas with external noise levels within the desirable 50dB range of BS8233 and WHO Guidelines. Furthermore, some gardens with external levels that exceed 50dB, in close proximity to the road network, do include some portion of gardens with levels within the desirable range (below 50dB).

In accordance with PPG-Noise and NPSE, 55dB is considered to represent the LOAEL, where road traffic noise below this level may be present, but is not considered intrusive for the majority of the population. Road traffic noise in these areas can be heard, but is not considered to cause any change in behaviour, attitude or other physiological response.

Furthermore, noise levels within garden areas closest to the road network have been mitigated and reduced to a minimum within practical means, with respect to other parameters such as visual impact and architectural aspirations.

With regards to the OPA Phase 1 site, acoustic barriers are to be constructed of masonry walls, rather than close boarded fencing. The concerns raised regarding deterioration of barriers over time is therefore not considered to be relevant in this case. The inclusion of a stand-off i.e. free open space, by definition, is not a method of mitigation at source.

The remaining wider OPA is specified in outline detail only and is yet to go through developed design, however close boarded fencing around proposed gardens are commonplace within gardens across the UK, as a form of providing privacy and clear boundaries between properties for residents, and in turn effective noise mitigation.

The inclusion of acoustic screening adjacent to the proposed link road, while offering an efficient mitigation solution in pure noise terms, has a number of associated practical issues, for example road safety, connectivity and visual impacts. However, the possibility should be explored during the detailed design of the 'The Avenue' link road and further detailed elements of the Wider OPA Site.

1.1.6 *"There is no discussion about how the layout of the development, including orientation of buildings or of internal layouts, was arrived at in the context of existing and future noise sources. The only mention of acoustic mitigation is the selectin of glazing elements for windows and in the use of close boarded garden fences to meet external and internal standards.*

BS 8233 which is extensively referenced in the noise report also addresses design matters for developments seeking to deal with external noise, and highlight the following steps to mitigate noise impact: location of the site in relation to the noise source; reduction of noise at source; positioning of buildings on site; orientation of buildings on site, barriers; increasing sound insulation of the building envelope; internal layout of the buildings."

Hydrock Response: As above, alternative methods have been considered although not explicitly stated within the assessment.

1.1.7 *"The noise assessment considers the impacts of road traffic noise on the development itself (arising from the new road) and on existing noise sensitive development adjacent to and in the vicinity of the development as we would expect. Whilst reference is made to the DMRB approach for assessing road traffic noise change, it is not stated if the latest version LA111 has been used. This is relevant to the consideration of negative noise impacts arising, and to the consideration of their significance especially where the negative impacts are discounted as little explanation is given, we would wish to see that the*

justification for discounting of impacts follows the approach put forward in LA111. For example on location ESR44 is predicted a 4dB reduction, equivalent to more than halving current traffic flows at that location but no explanation for this very noticeable change is given, similarly a location of Fir Tree Lane is predicted a 4dB increase, again equivalent to more than doubling current traffic volumes, again there is no detailed explanation for why this is not considered as a change of concern."

Hydrock Response: I can confirm that the current version of DMRB was considered at the time of carrying out the assessment, this was incorrectly referenced within. Information on predicted road traffic, upon which the noise assessment was based, is provided in the Transport Assessment and Transport ES Chapter.

- 1.1.8 *"Consideration is also given to the potential impact of commercial activities from the existing Chalcroft Distribution Park on this development but no concerns are raised as it is considered not to impact the development. However only the current situation is considered and no account of the potential for future intensification of use or increased use at night (which are currently allowed on site but not fully utilised) and the consequential increases in noise and potential impact on the development is considered. Further the creation of the Link Road to Bubb Lane is likely to make the Chalcroft site more desirable and may give rise to an uplift in activity and hence noise."*

Hydrock Response: It is considered that the monitoring and consultation carried out with operators at Chalcroft Business Park is sufficient in determining noise from typical existing operations, including variations in noise levels over average daytime and night-time periods.

BS4142 States, with respect to determining the appropriate specific sound level for assessment purposes: 'The specific sound should as far as is practicable be representative of typical operating conditions'.

Should any future changes to businesses at Chalcroft Business Park, or businesses of a different nature occupy the site in the future, which could result in intensification of the site, these businesses would essentially be the 'agent of change' in accordance with the NPPF. Therefore, appropriate noise impact assessment should be carried out in these circumstances. According to NPPF the onus of protecting local receptors would fall to new occupiers and EBC, in that case.

- 1.1.9 *"Recommendations are made for control of noise from 'ancillary equipment' serving the proposed development, presumably serving proposed commercial or other non residential uses. However, we have seen no assessment of the likely or potential impact on the proposed or existing residential development from the wide range of uses to be included within the Wider OPA development, such as: retail, leisure, sport, education, food etc, either singly or in combination with each other or the proposed new road."*
- 1.1.10 *"In our view these are significant shortcomings in the sufficiency of the assessment, and make it difficult to see how the development will ensure significant adverse effects are avoided and adverse impacts minimised."*

Hydrock Response: Ancillary equipment could be included as part of any proposed commercial/industrial type noise associated with the aforementioned uses, and the guideline values provided are intended to provide conservative guidelines in the absence of detailed information – as stated in the assessment.

Hydrock recommend that further assessment works are carried out during reserved matters, once further information becomes available.

Generally, in the case of outline planning applications where detailed information on future commercial/industrial noise sources are not available, detailed assessments of noise would be carried out during reserved matters. In some cases, where B2, B8 or other 'heavy' industrial uses are proposed, a detailed assessment should be carried out based on reasonable assumptions based on proposed use to be agreed with the LPA and developer prior to submission.

The proposed non-residential uses at the Site can typically be carried out in a residential area without detriment to its amenity. Therefore, it is considered there should be no presumption that these uses are unfeasible at the Site, in noise terms, particularly as specific layouts and details are unavailable at this stage. The control of noise from future ancillary equipment at the site is typically secured via an appropriately worded planning condition.

1.1.11 *"The assessment of construction noise impacts follows a familiar approach in that it adopts the approach of BS5228 with respect to the control of noise and vibration from construction. This is very generic given the level of detail for the Wider OPA site, but this is not reflected in more detail for the OPA Phase 1 site which would expect given that it is a full application. For example reference is made to the fact that piling will be necessary but other than stating likely noise and vibration levels no detailed assessment of impact is included and no information or consideration of the duration of the impacts in establishing the significance of impacts as we would expect, nor more site specific management controls to avoid impacts is included."*

Hydrock Response: BS5228 noise and vibration limits are intended to provide a guideline at this stage, in the absence of detailed construction information. For example, the use of percussive piling, rotary bored piling or augur driven piles would result in markedly different noise levels, and therefore mitigation schemes, where appropriate.

A detailed assessment can only be carried out when an appropriate level of detail on construction methods becomes available. However, the noise and vibration limits specified within the assessment are considered to be controllable via a suitably worded Construction Environmental Managements plan, together with active noise and vibration monitoring, if appropriate. The responsibility to achieve these limits would fall to those undertaking the building works, however Hydrock recommend that further assessment works are carried out once further information becomes available.

1.1.12 *"Baseline noise data has been obtained from a number of short site surveys carried out over a 2 year period. Notwithstanding the period of time over which data has been gathered there are a number of gaps, no baseline monitoring on Fir Tree Lane (where significant noise change is likely), and other than the first round of monitoring in 2018 subsequent monitoring has been for short periods of time meaning the recorded data has had to be extrapolated to come up with daily averages. Further, some night data has been excluded on the basis that it was too quiet, despite the data being collected on a Sunday night when it would be only reasonable to expect noise levels to be lower than other nights. We are concerned that there are potentially large uncertainties in the baseline data and given the large size of the development it is a concern that such discrepancies could ultimately affect large numbers of dwellings where inappropriate assumptions about background and ambient noise levels are made and feature in noise impact assessment."*

Hydrock Response: Road traffic noise across the site, for baseline and future scenarios, is based upon traffic data provided by the transport consultant. Baseline survey results adjacent to major roads are validated against the baseline traffic scenario data provided to us, in order to ensure that the overall network is representative of the site. This method ensures that the traffic data provided by the transport consultants is representative of the noise levels as measured in the vicinity of the site and that

the prediction of road traffic noise is reliable. This also provides consideration of variation between 2018 measured road traffic noise and Baseline 2020 traffic data.

While ambient noise measurements were not specifically undertaken adjacent to Fir Tree Lane, the validation exercise seeks to validate the overall traffic data set provided by the transport consultant, which covers the surrounding road network, including Fir Tree Lane. No extrapolation of measured noise data has been conducted during the assessment. The predicted road traffic noise levels are derived from the traffic data in accordance with CRTN guidance, and predicted across the site and surrounding area using the methodology outlined in ISO 9613-2 in SoundPLAN.

While Sunday road traffic noise levels are expected to be lower than weekdays, as verified during the noise survey, the reasons for discounting this data from the average daytime and night-time values, to be used within the assessment, are purely to allow for a robust assessment of average noise levels. In this case, weekday transportation noise levels are considered to be typical and used for the basis of the assessment.

1.1.13 *“We also note that the Sustainability and Energy Statement, 4.2.2 refers to the likely use of air source heat pumps for space heating along with ground source heat pumps. There is no explicit reference to these options in the noise assessment, reference to ‘ancillary plant’ refers to a suggested noise level 5dB below background, L90. However multiple units will add acoustically with the potential to significantly increase ambient noise levels on site, this requires careful consideration and planning to ensure that the noise climate in residential areas does not inadvertently become dominated by fan noise from the use of such equipment. We would have expected this to be addressed directly in any acoustic assessment and be included in the noise chapter.”*

Hydrock Response: As per paragraphs 1.1.9 and 1.1.10 above, the conservative guideline limits provided in the assessment are intended to apply to all proposed ancillary equipment and building services, including proposed air source or ground source heat pumps. A full assessment may be required once detailed information becomes available, in accordance with BS4142. This could be secured via an appropriately worded planning condition during reserved matters.

The responsibility to achieve these limits fall to those undertaking the building works, unless alternative limits are agreed during reserved matters. It is recommended that proposals should be reviewed by a suitably qualified acoustician during technical design.