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APPENDIX 23.1

Legislation and Policy Guidance

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APPENDIX 23.1 - LEGISLATION, POLICY AND GUIDANCE

1.1 PLANNING POLICY

1.1.1 OVERARCHING NATIONAL POLICY STATEMENT FOR ENERGY (NPS EN-1)

1.1.1.1 The policy aims to promote good health and good quality of life through the effective management of noise. The policy states that:

1.1.1.2 "*Excessive noise can have wide-ranging impacts on the quality of human life, health (for example owing to annoyance or sleep disturbance) and use and enjoyment of areas of value such as quiet places and areas with high landscape quality*."

1.1.1.3 With respect to the assessment of operational noise and construction noise, the policy notes that the principles outlined in the appropriate British Standards should be adopted (e.g. BS 4142, BS 6472, BS 8233 and BS 5228, respectively) and states that

1.1.1.4 "*The project should demonstrate good design through selection of the quietest cost-effective plant available; containment of noise within buildings wherever possible; optimisation of plant layout to minimise noise emissions; and, where possible, the use of landscaping, bunds or noise barriers to reduce noise transmission*."

1.1.1.5 The policy also states that development consent should only be granted if the following three aims have been satisfied:

- avoid significant adverse impacts on health and quality of life from noise;
- mitigate and minimise other adverse impacts on health and quality of life from noise; and
- where possible, contribute to improvements to health and quality of life through the effective management and control of noise.

1.1.1.6 Where mitigation measures are required, the policy states that:

1.1.1.7 "*Mitigation measures may include one or more of the following:*

- *engineering: reduction of noise at point of generation and containment of noise generated;*
- *lay-out: adequate distance between source and noise-sensitive receptors; incorporating good design to minimise noise transmission through screening by natural barriers, or other buildings; and*
- *administrative: restricting activities allowed on the site; specifying acceptable noise limits; and taking into account seasonality of wildlife in nearby designated sites.*"

1.1.2 NOISE POLICY STATEMENT FOR ENGLAND

1.1.2.1 The policy outlines a long term vision and is supported by the following aims:

1.1.2.2 "*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; and*
- *where possible, contribute to the improvement of health and quality of life*."

1.1.2.3 To assist in the understanding of the terms "significant adverse" and "adverse", the NPSE acknowledges that there are two concepts that are currently being applied to noise impacts, for example, by the World Health Organisation (WHO). They are:

- NOEL – No Observed Effect Level - This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.
- LOAEL – Lowest Observed Adverse Effect Level - This is the level above which adverse effects on health and quality of life can be detected.

1.1.2.4 The NPSE introduces a third concept that it describes as a significant observed adverse effect level:

- SOAEL – Significant Observed Adverse Effect Level - This is the level above which significant adverse effects on health and quality of life occur.

1.1.2.5 However, the NPSE goes on to state that:

1.1.2.6 "*It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available*."

1.1.3 NATIONAL PLANNING POLICY FRAMEWORK

1.1.3.1 The NPPF replaced the majority of previous Planning Policy Guidance notes and Planning Policy Statements, including PPG24: Planning and Noise. At present, no alternative detailed guidance has been published.

1.1.3.2 The NPPF does not include any noise assessment methodologies, although it does make the following references to noise in the section entitled '*Conserving and Enhancing the Natural Environment*'.

1.1.3.3 Paragraph 109 states:

1.1.3.4 "*the planning system should contribute to and enhance the natural and local environment by..[a number of points including]..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*".

1.1.3.5 The main reference to noise within the NPPF is at paragraph 123 which is reproduced below:

1.1.3.6 "*123. Planning policies and decisions should aim to:*

- *avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;*
- *recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established, and*
- *identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason*."

1.1.4 PLANNING PRACTICE GUIDANCE

1.1.4.1 On 6 March 2014, the Department for Communities and Local Government (DCLG) launched a Planning Practice Guidance web-based resource. It is states that the guidance is to complement the NPPF and provides advice on how to deliver its policies.

1.1.4.2 The Planning Practice Guidance section on noise includes a table that summarises "*the noise exposure hierarchy, based on the likely average response*" which offers "*examples of outcomes*" relevant to the NOEL, LOAEL and SOAEL effect levels described in the NPSE (see above). These outcomes are in descriptive form.

Local Policy

Havant Borough Council

1.1.4.3 Policy *DM10 Pollution* of the Havant Borough Core Strategy (adopted 2011) states that:

1.1.4.4 "*Development that may cause pollution of water, air or soil or pollution through noise, smell, smoke, fumes, gases, steam, dust, vibration, light, heat, electromagnetic radiation and other pollutants will only be permitted where all of the following relevant criteria can be met:*

1.1.4.5 *The health and safety of existing and future users of the site, or nearby occupiers and residents is not put at risk…"*

1.1.4.6 The policy further states that:

1.1.4.7 "*Some forms of development which can result in pollutants are necessary to the economic and social needs of the borough. This would include some industrial uses which, although necessary, may be detrimental to amenity. Only in instances where the risk is appropriately managed will development be permitted. Consideration will be given to any mitigating measures that could be implemented into development schemes to ensure its effects are sufficiently alleviated. It must be clearly demonstrated that any proposed mitigation measures will be effective and suitably reduce any harm*."

East Hampshire District Council

1.1.4.8 Policy CP27 Pollution of the Joint Core Strategy (adopted 2014), states that:

1.1.4.9 "*Pollution has an impact upon human health and amenity. Specific areas for concern are unpleasant emissions such as smoke, gases, odour, heat, radon and vibration; noise; land contamination; air quality on European sites; light pollution; and privacy and daylight. Research has shown that levels of land contamination, air quality and excessive noise for example, can impact upon human health but may also impact upon the natural environment. In addition, evidence shows that significant community dissatisfaction can result where developments fail to consider localised impacts that can seriously affect the amenity of an area and the general wellbeing of residents*."

1.1.4.10 Paragraph 7.59 also states that:

1.1.4.11 "*Within East Hampshire, developments resulting in the generation of significant outdoor noise or evening and late-night entertainment noise pose the most significant challenge to protecting neighbour amenity, wildlife and the character of the countryside. The Council's environmental health strategies are focused on the control of noise at source. An assessment of the impact of noisy developments and locating sensitive developments close to existing sources of noise will be required*."

Portsmouth City Council

1.1.4.12 The Portsmouth Plan is the principal planning policy document in the city's Local Plan, and paragraph 4.82 states that:

1.1.4.13 *"Major new developments within the city can impact on health in a variety of ways such as noise and pollution during the construction phase and access to or from the development by walking, cycling and public transport. Health impact assessments provide a way to assess the effects on health of a development proposal and mitigate any impacts so that health inequalities are reduced and health and well-being are improved."*

1.1.4.14 The Air Quality and Air Pollution supplementary planning document (SPD) reproduces Policy DC5 Amenity and Pollution of the superseded Portsmouth City Local Plan, which states that:

1.1.4.15 *"New development will only be permitted where:*

i. it would not cause unacceptable levels of air, noise, vibration, light, water or other pollution or otherwise cause unacceptable detrimental effects to the amenity of adjoining or nearby occupiers;

ii. the amenity of future occupiers or users of the proposed development is not adversely affected by existing or projected levels of air, noise, vibration, light, water or other pollution.

New development should be laid out and designed to minimise, as far as possible, the impact of the above matters. Particular consideration will be given to the location of sensitive land uses, especially housing, in the context of the above."

Winchester City Council

1.1.4.16 Policy MTRA 4 Development in the Countryside of the Winchester District Local Plan Part 1 states that:

1.1.4.17 *"Development proposed in accordance with this policy should not cause harm to the character and landscape of the area or neighbouring uses, or create inappropriate noise/light and traffic generation."*

British Standards and Guidance Documents

1.1.4.18 The noise and vibration assessment will be undertaken with reference to the following British Standards and guidance:

BS 4142:2014 Method for rating and assessing industrial and commercial sound

1.1.4.19 BS 4142:2014 describes a method for rating and assessing the following:

- *"sound from industrial and manufacturing processes;*
- *sound from fixed installations which comprise mechanical and electrical plant and equipment;*
- *sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and*
- *sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train movements on or around an industrial and/or commercial site."*

1.1.4.20 The Standard uses outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

1.1.4.21 The Standard effectively compares and rates the difference between the specific sound level of the source ($L_{Aeq,T}$) and the typical background sound level ($L_{A90,T}$) in the absence of the specific sound. If appropriate, the specific sound level is adjusted, by the application of one or more corrections for acoustic features, such as tonal qualities and/or distinct impulses, to give a 'rating' level ($L_{Ar,Tr}$).

1.1.4.22 The Standard advises that the time interval ('T') of the background sound measurement should be sufficient to obtain a representative or typical value of the background sound level.

1.1.4.23 Comparing the rating level with the background sound level, BS 4142:2014 states:

- "*Typically, the greater this difference, the greater the magnitude of impact.*
- *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
- *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*
- *The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context*."

BS 8233:2014 Guidance on sound insulation and noise reduction for buildings

1.1.4.24 BS 8233:2014 provides guidance for the control of noise in and around buildings. It suggests appropriate criteria for different situations, which primarily are intended to guide the design of new buildings, or refurbished buildings undergoing a change of use. The noise level criteria recommended in BS 8233:2014 for residential spaces are summarised in Table 1.

Table 1 - BS 8233:2014 noise criteria

Activity	Location	07:00 – 23:00	23:00 – 07:00
Resting	Living room	35 dB $L_{Aeq,16h}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16h}$	30 dB $L_{Aeq,8h}$

1.1.4.25 It should also be noted that BS 8233:2014 states that, "*Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night*."

1.1.4.26 BS 8233:2014 also states that, "*Where development is considered necessary or desirable, despite external noise levels above WHO guidelines [see below], the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved*."

1.1.4.27 In terms of external amenity spaces, BS 8233:2014 recommends that, "*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, the standard also states that these guideline values are not always achievable in all circumstances and therefore a compromise between elevated noise levels and 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.

British Standard 5228:2009+A1:2014

1.1.4.28 BS 5228 Code of practice for noise and vibration control on construction and open sites parts 1 and 2 (noise and vibration, respectively) provide guidance on the measurement and prediction of noise and vibration generated by construction activity.

Noise (BS 5228-1)

1.1.4.29 Annex F to BS 5228-1 describes procedures which may be used to quantify the likely noise levels from specific construction activities.

1.1.4.30 The noise level generated by construction activities depends on a number of factors. The prediction procedures described in BS 5228-1 take into account the more significant factors, these being:

- *"The sound power output of the plant or machine;*
- *the periods of operation;*
- *the distance between source and receiver;*
- *the presence of screening by barriers;*
- *absorbent ground cover attenuation; and*
- *the reflection of noise."*

1.1.4.31 BS 5228-1 also notes (in Annex F, section F.1) that:

1.1.4.32 "…*other factors such as meteorological conditions (particularly wind speed and direction) and atmospheric absorption may also influence the level of noise received. The estimation of the effects of these factors is complicated… In general, at short distances (say less than 50 m), the size of any effects arising from these factors will be small, whereas at longer distances there will be a tendency towards an increase in sound attenuation*."

1.1.4.33 Annex D of BS 5228-1 contains historic source sound level data on site equipment and activities. In 2005 the findings of a relevant study, commissioned by Defra, were reported. The purpose of the study was to obtain, in a rigorous manner, field measurements of noise from plant and equipment currently in use on construction and open sites in the UK and provide a database of noise emissions to update the existing construction plant noise database contained in BS 5228-1. These data appear in Annex C of BS 5228-1.

The ABC Method

1.1.4.34 An example method for establishing whether significant effects occur from construction noise is presented in para E.3.2, the 'ABC method'. This method is applicable to assessing the potential effects on dwellings.

1.1.4.35 Using the ABC method, thresholds above which potentially significant effects could occur are established based on the pre-construction ambient noise level measured at positions representing the nearest dwellings. The threshold is determined using the approach laid out in **Error! Reference source not found.**.

Table 2 - Example thresholds of potential significant effects due to construction noise at dwellings

Period	Threshold of Potential Significant Effect [dB $L_{Aeq,T}$]		
	Category A	Category B	Category C
Day-time (07:00 – 19:00); Saturdays (07:00 – 13:00)	65	70	75
Evenings and weekends[1]	55	60	65
Night-time (23:00 – 07:00)	45	50	55
Guidance:	Thresholds to be used when ambient noise levels are les than these values (to nearest 5 dB)	Thresholds to be used when ambient noise levels are the same as the Category A values (to nearest 5 dB)	Thresholds to be used when ambient noise levels are greater than the Category A values (to nearest 5 dB)

[1]Defined as 19:00-23:00 weekdays, 13:00-23:00 Saturdays and 07:00-23:00 Sundays

1.1.4.36 Where the thresholds in Table 2 - Example thresholds of potential significant effects due to construction noise at dwellings are exceeded, it is an indication that potentially significant effects could occur from the site due to construction noise. The standard also notes that where the ambient noise levels exceed the Category C threshold values, a potential significant effect is indicated if the total $L_{Aeq,T}$ noise level for the period increases by more than 3 dB due to site noise.

1.1.4.37 It should be noted that, in the determination of overall significance, other factors need to be considered, including the number of residential properties affected, the duration and character of the impact and the exceedance of the threshold value (in dB $L_{Aeq,T}$).

Vibration (BS 5228-2)

1.1.4.38 Unlike its predecessors, the current version of BS 5228-2 now includes (in Annex E) formulae that enable predictions to be made of resultant PPV for a variety of processes, including percussive and vibratory piling, which by their very nature generate vibration.

1.1.4.39 With respect to human exposure to vibration, Table B1 of Annex B to BS 5228-2 provides guidance on the effects of vibration levels on human beings which is reproduced in Table 3 - Guidance on effects of vibration levels.

Table 3 - Guidance on effects of vibration levels

Vibration Level	Effect
0.14 mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3 mm/s	Vibration might be just perceptible in residential environments.
1.0 mm/s	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.
10 mm/s	Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments.

[1] The magnitudes of the values presented apply to a measurement position that is representative of the point of entry into the recipient.

[2] A transfer function (which relates an external level to a[n] internal level) needs to be applied if only external measurements are available.

[3] Single or infrequent occurrences of these levels do n[o]t necessarily correspond to the stated effect in every case. The values are provided to give an initial indication of potential effects, and where these values are routinely measured or expected then an assessment in accordance with BS 6472-1 or -2, and/or other available guidance, might be appropriate to determine whether the time varying exposure is likely to give rise to any degree of adverse comment.

1.1.4.40 Accordingly, a limit of 1 mm/s is typically adopted outside the nearest dwellings in order to limit the amount of nuisance caused to a reasonable degree. It is assumed that prior warning and explanation would be given to the occupants. A higher limit of 3 mm/s can usually be applied to commercial premises, including offices, but where residential accommodation is similarly located, this will be the determining factor. For this outline assessment, therefore, the single limit of 1 mm/s has been adopted.