Mallard Pass
Solar Farm

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Environmental Statement Volume 2 Appendix 10.1: Noise and Vibration - Policy Context

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Appendix 10.1 - Legislation and Planning Policy Relevant to Noise and Vibration

1.1.1. This Appendix presents the relevant legislation, planning policy and guidance relevant to the noise and vibration assessment.

Legislation

1.1.2. The Environmental Protection Act 1990 (Her Majesty's Stationery Office (HMSO), 1990) defines the powers for local authorities to investigate and control statutory nuisance from noise.

1.1.3. Local authorities also normally have powers under the Control of Pollution Act (CoPA) 1974 (HMSO, 1974) to control noise and vibration from construction activities. Specifically, Section 60 of the CoPA provides the Local Authority with the power to impose at any time operating conditions on the development site. Section 61 allows the developer to negotiate a set of operating procedures with the Local Authority prior to the commencement of site works.

1.1.4. Notwithstanding these powers, the aim of the planning system is to minimise and control, where required, construction and operational noise levels arising from development. Therefore, this legislation did not inform the assessment presented in the Noise and Vibration chapter.

National Planning Policy

1.1.5. **Table 1** presents the National Planning Policy which have been considered in carrying out this assessment, which are listed as follows:

- Overarching National Policy Statement for Energy (NPS EN-1) [Ref 1]; and
- National Planning Policy Framework (NPPF) [Ref 2].

1.1.6. In addition to the adopted policy, the following emerging National Planning Policy has been considered:

- Draft Overarching National Policy Statement for Energy (Draft NPS EN-1) [Ref 3]; and
- Draft National Policy Statement for Renewable Energy Infrastructure (Draft NPS EN-3) [Ref 4].

1.1.7. The emerging policy set out in the Draft NPS EN-1 relevant to noise and vibration (section 5.12) is essentially similar to section 5.11 of NPS EN-1 (detailed in **Table 1**) for the purpose of the assessment and is therefore not considered in further detail. The relevant sections of the Draft NPS EN-3 are considered in **Table 1** below.

Local Planning Policy

1.1.8. **Table 2** presents the relevant local planning policies which have been considered in carrying out this assessment:

- Rutland County Council (RCC) Core Strategy Development Plan Document [Ref 5].
- South Kesteven District Council (SKDC) Local Plan 2011 to 2036 [Ref 6].

Table 1: National Planning Policy Relevant to Noise and Vibration Assessment

National Planning Policy	Requirement in relation to noise and vibration	How/Where has this been addressed in the EIA
Overarching National Policy Statement for Energy (NPS EN-1, 2011)		
Paragraph 5.11.1	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. The Government's policy on noise is set out in the Noise Policy Statement for England. It promotes good health and good quality of life through effective noise management. Similar considerations apply to vibration, which can also cause damage to buildings. In this section, in line with current legislation, references to "noise" below apply equally to assessment of impacts of vibration.	The primary environmental impacts associated with the Proposed Development for Noise and Vibration include operational noise which could negatively impact on residential amenity (creating annoyance). The construction activities can also generate noise impacting residential amenity directly or indirectly through traffic generated on public roads. Some construction activities generate vibration which can damage buildings at the highest levels but also create perceptible disturbance. No specific quiet areas (in a national context) was identified as being potentially affected, but the use and enjoyment of Public Rights of Way (PRoW) neighbouring the Order limits was also considered following consultation. The principles of the Noise Policy Statement for England (NPSE) are set out in the review of guidance detailed below. The assessments undertaken within section 10.4 of **Chapter 10: Noise and Vibration** of the ES **[EN010127/APP/6.1]** has identified the relevant impacts. Appropriate mitigation has been developed that is relevant to the scale and type of the proposal. Management of the construction effects is set out in the Outline Construction Environmental Management Plan (oCEMP). A

National Planning Policy	Requirement in relation to noise and vibration	How/Where has this been addressed in the EIA
		requirement of the DCO will provide effective control of operational noise.
Paragraph 5.11.2	Noise resulting from a proposed development can also have adverse impacts on wildlife and biodiversity. Noise effects of the proposed development on ecological receptors should be assessed by the IPC in accordance with the Biodiversity and Geological Conservation section of this NPS.	The potential impacts on wildlife are considered in **Chapter 7 (Ecology and Biodiversity) [EN010127/APP/6.1].**
Paragraph 5.11.3	Factors that will determine the likely noise impact include: ● the inherent operational noise from the proposed development, and its characteristics; ● the proximity of the proposed development to noise sensitive premises (including residential properties, schools and hospitals) and noise sensitive areas (including certain parks and open spaces); ● the proximity of the proposed development to quiet places and other areas that are particularly valued for their acoustic environment or landscape quality; and ● the proximity of the proposed development to designated sites where noise may have an adverse impact on protected species or other wildlife.	The assessment has taken into account the potential tonal characteristics of the noise which could be produced by operational noise sources associated with the Proposed Development. The proximity of noise-sensitive residential receptors was taken into account by identifying relevant receptors neighbouring the Order limits in **section 10.2** of **Chapter 10: Noise and Vibration**. No specific designated quiet spaces were identified in proximity but the potential impacts on users of public rights of way are assessed in **section 10.4** of **Chapter 10**. **Chapter 7 (Ecology and Biodiversity)** considers potential impacts of noise on wildlife.

National Planning Policy	Requirement in relation to noise and vibration	How/Where has this been addressed in the EIA
Paragraph 5.11.4	Where noise impacts are likely to arise from the proposed development, the applicant should include the following in the noise assessment: ● a description of the noise generating aspects of the development proposal leading to noise impacts, including the identification of any distinctive tonal, impulsive or low frequency characteristics of the noise; ● identification of noise sensitive premises and noise sensitive areas that may be affected; ● the characteristics of the existing noise environment; ●a prediction of how the noise environment will change with the proposed development; ● in the shorter term such as during the construction period; ● in the longer term during the operating life of the infrastructure; at particular times of the day, evening and night as appropriate. ● an assessment of the effect of predicted changes in the noise environment on any noise sensitive premises and noise sensitive areas; and ● measures to be employed in mitigating noise. The nature and extent of the noise assessment should be proportionate to the likely noise impact.	**Section 10.4** of **Chapter 10** sets out a proportionate assessment of potential effects of the Proposed Development, which accounts for the characteristics (including tonality) of the noise emissions from the plant as well as the potentially large proportion of the time in which the plant could be operational. The baseline noise environment is characterised at different times of day through surveys described in **Appendix 10.4** and summarised in **Section 10.2** of **Chapter 10**. **Appendix 10.5** includes modelling of the short-term noise and vibration created during construction as well as the longer-term operational noise created when onsite plant is operating at full duty. The mitigation of construction noise mainly focuses on management measures (to be implemented in the CEMP) to avoid significant effects and minimise the residual short-term effects. Operational noise mitigation focuses on the design which maximises the distance of the main noise sources from the sensitive receptors identified, with noise levels from the final detailed design secured through DCO requirement. These measures are detailed in **Sections 10.3 and 10.5 of Chapter 10.**

National Planning Policy	Requirement in relation to noise and vibration	How/Where has this been addressed in the EIA
Paragraph 5.11.5	The noise impact of ancillary activities associated with the development, such as increased road and rail traffic movements, or other forms of transportation, should also be considered.	The assessment in **Section 10.4** of **Chapter 10** has considered the potential increases in traffic noise created by the additional construction traffic on existing roads.
Paragraph 5.11.6	Operational noise, with respect to human receptors, should be assessed using the principles of the relevant British Standards and other guidance. Further information on assessment of particular noise sources may be contained in the technology-specific NPSs. In particular, for renewables (EN-3) and electricity networks (EN-5) there is assessment guidance for specific features of those technologies. For the prediction, assessment and management of construction noise, reference should be made to any relevant British Standards and other guidance which also give examples of mitigation strategies.	The following relevant British Standards referenced in this paragraph of the NPS (BS 4142 **[Ref 10-3]**, BS 8233 **[Ref 10-4]** and BS 5228 **[Ref 10-1]**) were taken into account in defining project-specific numerical values for magnitude of impact thresholds set out in **Appendix 10.2**. The NPS for Electricity Networks Infrastructure (EN-5) (2011) notes the potential for substation equipment such as transformers and other voltage regulation equipment to produce noise. The Proposed Development includes such sources and these assessed, accounting for their potential level and character of noise emissions. The current NPS for Renewable Energy Infrastructure (EN-3) does not consider solar development but the 2021 Draft NPS EN-3 does and is considered further below in this table.
Paragraph 5.11.7	The applicant should consult EA and Natural England (NE), or the Countryside Council for Wales (CCW), as necessary and in particular with regard to assessment of noise on protected species or other wildlife. The results of any noise surveys and predictions may inform the ecological assessment. The seasonality of	The consultation undertaken to identify relevant sensitive receptors is described in **Chapter 7 (Ecology and Biodiversity).** **Appendix 10.3** details the consultation undertaken with statutory consultees to identify receptors sensitive to noise and vibration.

National Planning Policy	Requirement in relation to noise and vibration	How/Where has this been addressed in the EIA
	potentially affected species in nearby sites may also need to be taken into account.	
Paragraph 5.11.8	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.	The relevant principle embedded in the design of the scheme (see **Section 10.3** of **Chapter 10**) is based on maximising the separation distance from receptors to the main sources of operational noise. This means that there is reduced need for costly engineering measures to achieve suitable noise levels at neighbouring sensitive receptors. The selection of the final plant will be determined on a cost-effective basis, considering its noise emission characteristics, to achieve relevant noise limits at the nearest noise-sensitive receptors, as secured by a DCO requirement (see **section 10.5 of Chapter 10**).
Paragraph 5.11.9	The IPC should not grant development consent unless it is satisfied that the proposals will meet the following aims: ● 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.	The Proposed Development introduces new sources of noise but mitigation measures have been put in place to avoid significant adverse impacts and to minimise where possible the other adverse impacts identified (as set out above).
5.11.10	When preparing the development consent order, the IPC should consider including measurable requirements	A requirement is proposed which will control the final design of the plant proposed as part of the Proposed Development such

National Planning Policy	Requirement in relation to noise and vibration	How/Where has this been addressed in the EIA
	or specifying the mitigation measures to be put in place to ensure that noise levels do not exceed any limits specified in the development consent.	that stringent operational noise limits are not exceeded (see **Section 10.5** of **Chapter 10**).
5.11.11	The IPC should consider whether mitigation measures are needed both for operational and construction noise over and above any which may form part of the project application. In doing so the IPC may wish to impose requirements. Any such requirements should take account of the guidance set out in Circular 11/95 (see Section 4.1) or any successor to it.	The mitigation measures proposed in **Section 10.5** of **Chapter 10** can be controlled through requirements which are in accordance with the principles of Circular 11/95.
5.11.12	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.	The design principles for the scheme and proposed mitigation measures have followed these principles as demonstrated in **Section 10.3 and 10.5** of **Chapter 10.**
5.11.13	In certain situations, and only when all other forms of noise mitigation have been exhausted, it may be	Such measures were not considered to be required for the Proposed Development.

National Planning Policy	Requirement in relation to noise and vibration	How/Where has this been addressed in the EIA
	appropriate for the IPC to consider requiring noise mitigation through improved sound insulation to dwellings.	
National Planning Policy Framework (NPPF)		
Paragraph 174	Planning policies and decisions should contribute to and enhance the natural and local environment by: […] e. preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability…'.	Thresholds for potential unacceptable or significant effects were defined on the basis of relevant guidance in **Appendix 10.2**. Mitigation measures are put in place through the CEMP and DCO requirements to prevent these from occurring.
Paragraph 185	Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life; b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized	As described above, mitigation measures are proposed which avoid significant effects, and additional enhanced measures are provided to minimise other adverse impacts: **Section 10.3 and 10.5** of **Chapter 10**. No specific designated quiet spaces were identified but the potential impacts on users of public rights of way are considered in **section 10.4 of Chapter 10**.

National Planning Policy	Requirement in relation to noise and vibration	How/Where has this been addressed in the EIA
	for their recreational and amenity value for this reason […].	
2021 Draft NPS for Renewable Energy Infrastructure (EN-3)		
2.54.1	Generic traffic and transport impacts are covered in EN-1, Section 5.14. In addition, there are specific considerations which apply to solar farms as set out below. Public perception of the construction phase of solar farm will derive mainly from the effects of traffic movements.	This section of the draft NPS mainly relates to the management of traffic and access consideration which are addressed in **Chapter 9 of the ES**.
2.54.9	Consistent with the generic policy set out in EN-1, the Secretary of State should be satisfied, taking into account the views of the relevant local highway authorities, that if there are abnormal loads proposed, they can be safely transported in a way that minimises inconvenience to other road users and that the environmental effects of this and other construction traffic, after mitigation, are acceptable.	The potential noise effects of the construction traffic are assessed in **section 10.4 of Chapter 10** of the ES based on modelling detailed in **Appendix 10.5.**
2.54.10	Once solar farms are in operation, traffic movements to and from the site are generally very light, in some instances as little as a few visits each month by a light commercial vehicle or car. Should there be a need to replace machine components, this may generate heavier commercial vehicle movements, but these are likely to be infrequent. Therefore, it is very unlikely that	Effects of operational traffic were scoped out of the noise assessment, as set out in **Appendix 10.3,** which is consistent with this advice.

National Planning Policy	Requirement in relation to noise and vibration	How/Where has this been addressed in the EIA
	traffic or transport impacts from the operational phase of a project would prevent it from being approved by the Secretary of State.	

Table 2: Local Planning Policy Relevant to Noise and Vibration Assessment

Local Planning Policy	Requirement in relation to Noise and Vibration	How/Where has this been addressed in the EIA
Rutland Core Strategy 2011 – 2026 (adopted 2011)		
Policy CS19 (Promoting Good design)	All new development will be expected to contribute positively to local distinctiveness and sense of place, being appropriate and sympathetic to its setting in terms of scale, height, density, layout, appearance, materials, and its relationship to adjoining buildings and landscape features, and shall not cause unacceptable effects by reason of visual intrusion, overlooking, shading, noise, light pollution or other adverse impact on local character and amenities. […]	The requirement to avoid unacceptable noise effects of noise was satisfied by identifying, in **section 10.4** of **Chapter 10**, the potential for significant impacts on noise-sensitive receptors using thresholds determined in line with relevant guidance (see guidance section below and **Appendix 10.2**). **Section 10.5 of Chapter 10** details the mitigation developed to address the significant effects identified.
Policy CS20 (Energy efficiency and low carbon energy generation)	[…] Wind turbines and other low carbon energy generating developments will be supported where environmental, economic and social impacts can be addressed satisfactorily and where they address the following issues: […] c) effects on the built environment, public and residential amenity, including noise intrusion; […]	Residential receptors are identified in **section 10.2** of **Chapter 10** as highly sensitive receptors whose amenity needs to be protected in line with the guidance identified (see guidance section below and **Appendix 10.2**). The potential significant impacts identified (**Chapter 10 section 10.4**) are addressed through mitigation (**section 10.5**).
South Kesteven Local Plan 2011 – 2036 (adopted 2020)		
Policy SD1 (The Principles of Sustainable Development), DE1	[…] Development proposals shall consider how they can proactively avoid: […] f. the pollution of air, land, water, noise and light.	In the context of the NPSE/NPPF guidance, this policy advises that significant impacts of noise should be avoided: those identified in **Chapter 10**

Local Planning Policy	Requirement in relation to Noise and Vibration	How/Where has this been addressed in the EIA
(Promoting Good Quality Design)		**section 10.4** are addressed through mitigation (**section 10.5**).
ENV4 (Pollution Control)	[…] Development that, on its own or cumulatively, would result in significant air, light, noise, land, water or other environmental pollution or harm to amenity, health well-being or safety will not be permitted. New development proposals should not have an adverse impact on existing operations. Development will only be permitted if the potential adverse effects can be mitigated to an acceptable level by other environmental controls, or by measures included in the proposals. […]	For the potential for significant adverse impacts of noise on amenity see SD1 above. The proposed mitigation reduces the adverse effects to an acceptable level. The Proposed Development does not introduce new noise-sensitive receptors which could adversely impact the operation of existing adjoining uses.
Renewable Energy Appendix 3, Solar Energy Criterion 5	The Council will require solar farm proposals to: a) Be strategically sited so as to minimise the noise experienced by nearby residents and occupiers of business premises and important buildings (including, but not limited to hospitals and schools) b) In any instance, operate with minimal noise output to avoid undue disturbance to nearby residents, wildlife and livestock. Where necessary, mitigation measures, such as the establishment of vegetation buffers for example, should be used to prevent adverse noise impact.	The design of the site has taken into account the surrounding noise-sensitive dwelling (**Section 10.2 in Chapter 10**). No school or healthcare receptors are in closer proximity to sources than the residential receptors identified. The design for the Proposed Development has taken into account nearby receptors; for example, the main potential source of operational noise, the Onsite Substation, is located more than 500 m from the nearest dwellings. The design principles for the Proposed Development also include minimum buffer distances between other noise-generating

Local Planning Policy	Requirement in relation to Noise and Vibration	How/Where has this been addressed in the EIA
		inverter sources and residents as well as public rights of way.

Guidance

1.1.9. The following guidance has been considered in carrying out this assessment:

- Noise Policy Statement for England (NPSE) [Ref 7];
- Planning Practice Guidance (PPG) – Noise [Ref 8];
- Planning Practice Guidance – Noise [Ref 9].
- British Standard 5228 (2014) 'Code of practice for noise and vibration control on construction and open sites' [Ref 10].
- British Standard 4142:2014 'Methods for rating and assessing industrial and commercial sound [Ref 11].
- Design Manual for Roads and Bridges (DMRB) [Ref 12].
- Calculation of Road Traffic Noise [Ref 13].
- ISO 9613-2 Attenuation of sound during propagation outdoors, Part 2: General method of calculation [Ref 14].

1.1.10. The Noise Policy Statement for England (NPSE) advises that noise impacts should be assessed on the basis of adverse and significant adverse effect but does not provide any specific guidance on assessment methods or numerical noise limits.

1.1.11. Paragraphs 2.20 and 2.22 of NPSE introduce the concepts summarised in **Table 3** which can be applied when considering the significance of noise impacts. But Paragraph 2.15 of the document advises that it is not possible to have *"**a single objective noise-based measure that is… applicable to all sources of noise in all situations***". NPSE further advises in paragraph 2.22 that the sound level at which an adverse effect occurs is likely to be "***different for different noise sources, for different receptors at different times***".

Appendix 10.2 sets out how the thresholds specific to the assessment for the Proposed Development were defined, with reference to the nature of the sources, applicable detailed guidance and the specific nature of the baseline noise environment (which is described in **Section 10.2 of Chapter 10**). Assessment criteria were derived by following the distinction made in Table 3 between adverse but non-significant effects (between LOAEL and SOAEL), with significant effects which are above the SOAEL thresholds. These criteria were used in the assessment in **Section 10.4 of Chapter 10**.

Table 3: NPSE observed effect levels

Effect Level	Description
No Observed Effect Level (NOEL)	This is the noise 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.
Lowest Observed Adverse Effect Level (LOAEL)	This is the level above which adverse effects on health and quality of life can be detected.
Significant Observed Adverse Effect Level (SOAEL)	This is the level above which significant adverse effects on health and quality of life occur.

1.1.12. The online Planning Practice Guidance (PPG) – Noise guidance provides more detailed information on the relevance of noise to the planning process, in a manner which is consistent with the NPSE principles.

1.1.13. This guidance states, under the heading *'How can noise impacts be determined'*, that the following should be considered by local authorities:

- 'whether or not a significant adverse effect is occurring or likely to occur;

- whether or not an adverse effect is occurring or likely to occur; and
- whether or not a good standard of amenity can be achieved.'

1.1.14. Further guidance on each of the various observed effect levels set out in NPSE is provided in the table contained within the section headed *'How can it be established whether noise is likely to be a concern?'* which is reproduced below in **Table 4**. Under the heading *'What factors influence whether noise could be a concern?'*, the subjective nature of noise is discussed. It is stated that the relationship between noise levels and the impact on those affected is not simple, as this depends on how various factors combine in particular situations. This guidance was taken into account when determining the impact magnitude thresholds determined in **Appendix 10.2** by taking into account relevant guidance and professional judgement.

Table 4: NPSE observed effect levels

Perception	Example of outcomes	Increasing effect level	Action
Not present	No effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			

Perception	Example of outcomes	Increasing effect level	Action
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude, or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect Level	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically	Unacceptable Adverse Effect	Prevent

Perception	Example of outcomes	Increasing effect level	Action
	definable harm, e.g. auditory and non-auditory.		

British Standard 5228:2009 'Noise control on construction and open sites'

1.1.15. BS 5228-1 provides guidance on a range of considerations relating to construction noise including the legislative framework, general control measures, example methods for estimating construction noise levels and example criteria which may be considered when assessing the associated impacts.

1.1.16. BS 5228-1 describes methods for predicting construction noise levels on the basis of reference data for the emissions of typical construction plant and activities. These methods include for the calculation of construction traffic along access tracks and haul routes and also for construction activities at fixed locations. The prediction method accounts for factors including screening and soft ground attenuation.

1.1.17. Similarly, BS 5228-2 provides general guidance on legislation, prediction, control and assessment criteria for construction vibration.

1.1.18. Both parts of the standard are referenced extensively in determining criteria for the assessment of construction effects in **Appendix 10.2**, in the prediction of worst-case impacts in **section 10.4 of Chapter 10** and the modelling supporting this assessment in **Appendix 10.5,** as well as the mitigation measures presented in **section 10.3 and 10.5**.

British Standard 4142:2014 'Methods for rating and assessing industrial and commercial sound'

1.1.19. The BS 4142:2014 (BS 4142) standard provides an objective method for rating the significance of impact from industrial and commercial

operations impacting residential properties. It describes a means of determining sound levels from fixed plant installations and determining the background sound levels that prevail on a site.

1.1.20. The assessment of the impacts is based on the subtraction of the pre-existing background sound level (L_{A90}) from the rating level ($L_{Ar,Tr}$). This method is only applicable for external noise levels.

1.1.21. The rating level is defined objectively as the specific source noise level in question (either measured or predicted) with graduated corrections for tonality (up to +6 decibels (dB) A-weighted sound level (A)), impulsivity (up to +9 dB(A)), intermittency (+3 dB(A)) and other sound characteristics (+3 dB(A)) which may be determined either subjectively or objectively, if necessary.

1.1.22. The background sound level is subtracted from the rating level. The following is considered to evaluate the likelihood of complaint:

- A difference of around +10 dB is likely to be an indication of a significant adverse impact, depending on context;
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on context; and
- A difference of +0 dB or less is an indication of the specific sound source having a low impact, depending on the context.

1.1.23. The guidance of BS 4142 was therefore applied in determining the assessment criteria for noise from operational plant (**Appendix 10.2**) and determining representative background noise levels (**Appendix 10.4**).

Additional guidance

1.1.24. The Design Manual for Roads and Bridges (DMRB) provides recognised criteria for assessing the effect of short-term changes in traffic (such as those associated with the construction of the Proposed Development) and these were referenced in **Appendix 10.2**.

1.1.25. The DMRB also advises that the methodology of Calculation of Road Traffic Noise (CRTN) should be used for such assessments, as was done in **Appendix 10.5**, to calculate relative changes in noise levels, associated with the increase both in traffic levels and the proportion of heavy vehicles, for receptors along the construction route, as assessed in **Section 10.4 of Chapter 10**.

1.1.26. Finally, to assess the likely noise levels from operational plant can be estimated based on representative noise emission levels using the propagation method of ISO 9613-2, which was applied in **Appendix 10.5**.

Recreational uses

1.1.27. There is no current UK guidance that defines clear external noise criteria for commercial noise specifically affecting recreational, occasional uses of land such as PRoW users. BS 4142 specifically applies to residential receptors as noted above.

1.1.28. The only guidance document which previously considered recreational uses was the Minerals Planning Guidance 11 (MPG11) document, which considered the control of noise from surface mineral workings and stated (paragraph 43):

"***Open spaces which the public uses for relaxation may be considered to be noise-sensitive in some circumstances, for example, if extensively used during likely periods of operation,***

and if there would be an adverse impact from noise. In such cases, the nominal noise limit should normally be calculated from the perimeter of the area. The limits would not be expected to be as low as at dwellings, and it is suggested that 65 dB $L_{Aeq,1h}$ during the normal working day and 55 dB $L_{Aeq,1h}$ at other times would be reasonable. However, MPAs will need to consider carefully the restrictions which treating open spaces as noise-sensitive would have on the feasibility of the planned operation, and should exercise flexibility."

1.1.29. The qualification that these are "extensively used" may arguably not apply to PRoW with their transient use. MPG11 has since in any case been superseded in England by Planning Practice Guidance on Minerals, which does not include guidance for recreational spaces and only considers noise-sensitive "properties". It would not apply to the Proposed Development in any case.

1.1.30. However, the lowest criteria of 55 dB L_{Aeq} cited in the historical guidance above is similar to the upper guideline value set out in section 7.7.3.2 of BS 8233 **[Ref 10-4]**. This standard advises that it is desirable that external noise levels in "traditional external areas that are used for amenity space, such as gardens and patios" does not exceed this threshold. Although the guidance of BS 8233 clearly applies to private external residential amenity, it is considered reasonable to consider 55 dB L_{Aeq} as a threshold below which significant effects on PRoW users are unlikely, on a precautionary basis and in the present context: this is therefore referenced in **Appendix 10.2**.

References

Ref 1 Overarching National Policy Statement for Energy (NPS EN-1).

Ref 2 National Planning Policy Framework (NPPF).

Ref 3 Draft Overarching National Policy Statement for Energy (Draft NPS EN-1).

Ref 4 Draft National Policy Statement for Renewable Energy Infrastructure (Draft NPS EN-3).

Ref 5 Rutland County Council (RCC) Core Strategy Development Plan Document.

Ref 6 South Kesteven District Council (SKDC) Local Plan 2011 to 2036.

Ref 7 Noise Policy Statement for England (NPSE).

Ref 8 Planning Practice Guidance (PPG) – Noise.

Ref 9 Planning Practice Guidance – Noise.

Ref 10 British Standard 5228 (2014) 'Code of practice for noise and vibration control on construction and open sites'.

Ref 11 British Standard 4142:2014 'Methods for rating and assessing industrial and commercial sound.

Ref 12 Design Manual for Roads and Bridges (DMRB).

Ref 13 Calculation of Road Traffic Noise.

Ref 14 ISO 9613-2 Attenuation of sound during propagation outdoors, Part 2: General method of calculation.