

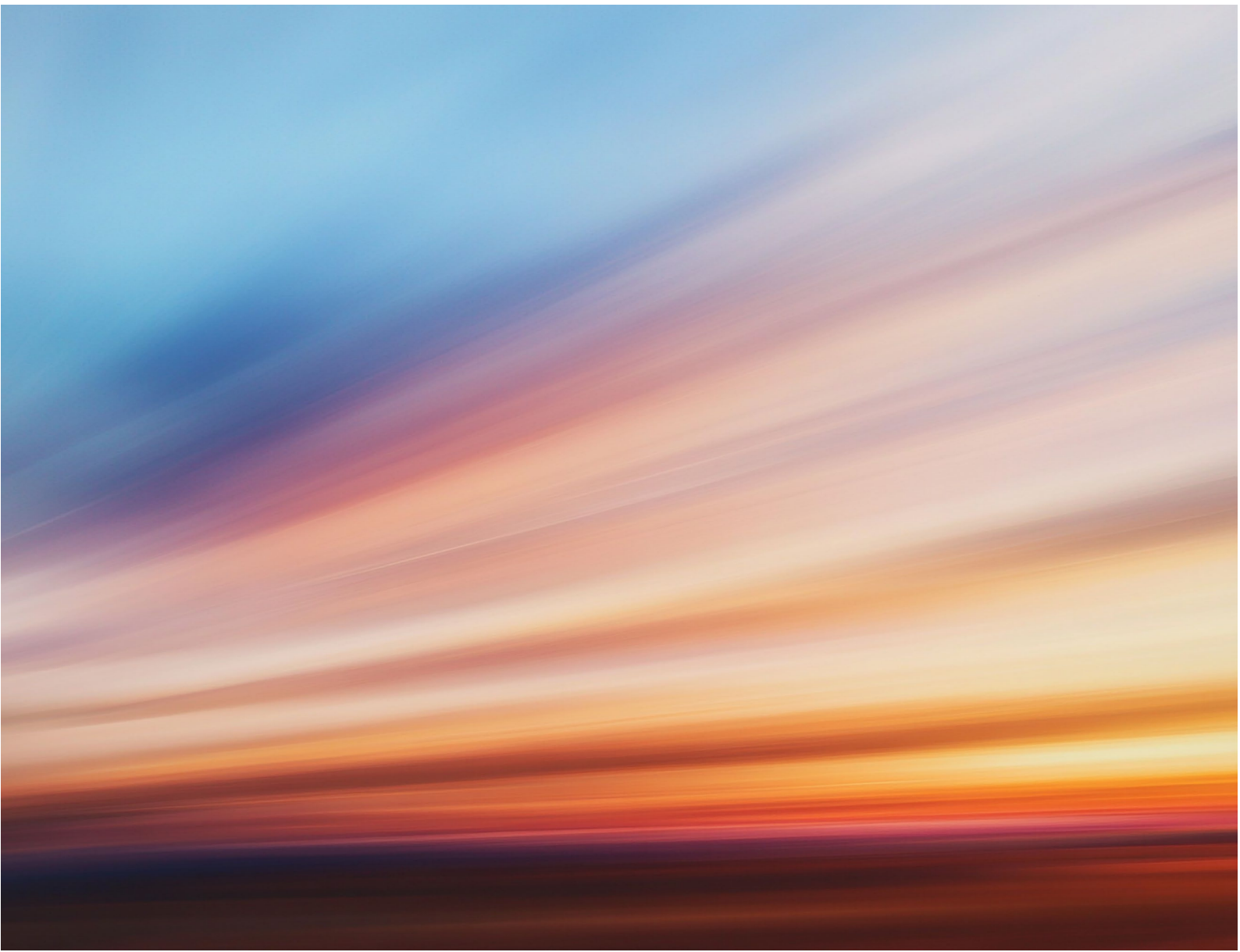
Mysten Leah Solar Farm

Preliminary Environmental Information Report (PEIR)

Volume 1

Chapter 12: Noise and Vibration

April 2026



Contents

12.	Noise and Vibration.....	1
12.1	Introduction	1
12.2	How have we engaged with others about noise and vibration so far?	2
12.3	What legislation, planning policy and guidance is relevant to noise and vibration?	3
12.4	What study area has been used for noise and vibration?	4
12.5	How have existing noise and vibration conditions been understood?	4
12.6	What are the noise and vibration conditions within the study area?	5
12.7	How have the likely effects been assessed for noise and vibration?	7
12.8	How has noise and vibration informed the design so far?.....	14
12.9	What are the likely effects of Mylen Leah Solar Farm on noise and vibration? 15	
12.10	What additional mitigation is proposed to avoid, prevent, reduce or offset likely effects on noise and vibration?	19
12.11	What likely effects would remain for noise and vibration following additional mitigation?	21
12.12	What opportunities are there for environmental enhancement?	21
12.13	What difficulties and uncertainties have been encountered in this preliminary noise and vibration assessment?	22
12.14	What further work is required to inform the full noise and vibration assessment in the DCO application?.....	22

12. Noise and Vibration

12.1 Introduction

12.1.1 This chapter has been prepared by TNEI Services Limited on behalf of the Applicant. It presents a preliminary assessment of the likely significant effects on human receptors arising from noise and vibration during the construction, operation and decommissioning phases of Mylen Leah Solar Farm.

12.1.2 Specifically, this preliminary assessment considers the likely significant effects of the construction and operational noise on residential receptors; however, it should be noted that the Environmental Statement (ES) will also consider the impact of noise and vibration on fauna and on cultural heritage assets, where required.

12.1.3 This preliminary assessment does not consider the construction of the underground grid connection corridor, as the details required to assess this are yet to be defined. This will be included in the ES.

12.1.4 This chapter should be read in conjunction with the following chapters in **Volume 1**, with the following figures in **Volume 2**, and with the following appendices in **Volume 3**:

- **Figure 12.1a-e: Preliminary Noise Assessment Study Area;**
- **Figure 12.2a-c: Operational Noise Contour Plot;**
- **Appendix 12.1: Operational Noise Impact Assessment;** and
- **Appendix 12.2: Noise and Vibration Supporting Information.**

12.1.5 Following the EIA scoping process, the following receptors/matters have not been considered within this preliminary assessment:

- Vibration impacts to residential properties from operational plant, as no vibration effects are anticipated; and
- Noise from off-site traffic during operation, as traffic flows during the operational phase will be very low and no increase in baseline noise levels would occur. As stated in **Chapter 14: Transport and Access** in **Volume 1**, during operation the Site will be subject to daily operational and maintenance visits, with up to 24 staff travelling to Site via cars or Light Goods Vehicle. The average number of trips per day would be less than 16 vehicles per day, which is the equivalent to traffic impact of between 0.7% and 2% between the B1228 and the Seaton Common Lane respectively. Also during operation, it may be necessary to replace panels as part of rolling lifetime enhancement plan. The level of HGV traffic associated with this will be significantly lower than the peak of construction traffic and is expected to be circa 12 HGV movements per day. It is widely recognised that an increase in road traffic flow of 25% is broadly equivalent to an increase in noise level of 1 dB. Therefore, in light of the predicted operational traffic flows for Mylen Leah Solar Farm, any change in road traffic noise level as a result of off-site traffic during operation would be less than 1 dB. This would not be perceptible.

12.1.6 In addition to the above and following further consultation with the Environmental Health Officer at East Riding of Yorkshire Council (ERYC) (refer to **Table 12.1** below), vibration impacts to residential properties during construction have not been considered within this preliminary assessment. However, details of the predicted vibration levels and the subsequent consultation are provided.

12.2 How have we engaged with others about noise and vibration so far?

12.2.1 **Table 12.1** provides a summary of the engagement undertaken to date to inform this preliminary assessment, outside of the EIA Scoping process.

Table 12.1: Summary of engagement undertaken to date in relation to noise and vibration

Consultee	Date of engagement	Summary of engagement
ERYC	14 February 2025	Baseline survey plan: 15 Noise Monitoring Locations were proposed. The Noise Monitoring Locations were indicated on figures in context with the draft Order Limits and grid reference coordinates were supplied. Continuous unattended monitoring was proposed for a minimum period of seven days per Noise Monitoring Location. The Environmental Health Officer responded in March 2025 confirming that they agreed with this proposal.
ERYC	14 February 2025	Construction noise assessment method: It was proposed that the baseline data would be used to set threshold levels, as detailed in Annex E of BS 5228-1 ¹ . The Environmental Health Officer responded in March 2025 confirming that they agreed with this proposal.
ERYC	14 February 2025	Operational noise assessment method: It was proposed that the baseline data would be used to inform a BS 4142 ² assessment of operational noise. The Environmental Health Officer responded in March 2025 confirming that they agreed with this proposal.
ERYC	24 December 2025	Vibration Assessment: Calculations of vibration levels from piling activities were presented based on a minimum separation distance of 100m to dwellings. The results indicated that no adverse vibration impacts would occur at any dwelling and vibration would be imperceptible

Consultee	Date of engagement	Summary of engagement
		<p>for the majority of the time. It was therefore proposed that further assessment of vibration from construction activities on residential receptors could be scoped out of the PEIR and the ES.</p> <p>The Environmental Health Officer responded in January 2026 confirming that they agreed with this proposal. Copies of the consultation is included within Appendix 12.2: Noise and Vibration Supporting Information in Volume 3.</p>

12.3 What legislation, planning policy and guidance is relevant to noise and vibration?

12.3.1 The general legislation and planning policy context for Mylen Leah Solar Farm is provided in **Section 1.4** of **Chapter 1: Introducing Mylen Leah Solar Farm** in **Volume 1**. Legislation, planning policy and guidance relevant to this preliminary noise and vibration assessment is detailed below:

Legislation

- The Control of Pollution Act 1974³; and
- The Environmental Protection Act 1990 (as amended)⁴.

National planning policy

- The Noise Policy Statement for England, 2010⁵;
- Planning Practice Guidance – Noise, 2019⁶;
- Overarching National Policy Statement for Energy (NPS EN-1) (December 2025, published January 2026)⁷;
- National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (December 2025, published January 2026)⁸; and
- National Planning Policy Framework (NPPF) (2024)⁹.

Local planning policy

- East Riding Local Plan Update 2020-2039 (April 2025)¹⁰:
 - Policy EC5: Supporting the Renewable and Low Carbon Energy Sector¹¹; and
 - Policy ENVI: Integrating High Quality Design¹².

Guidance

- BS 4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound;
- BS 4142:2014+A1:2019 Technical Note (Association of Noise Consultants (ANC), 2020)¹³;

- BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Noise;
- BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Vibration¹⁴; and
- ISO 9613-2:2024 Acoustics. Attenuation of Sound During Propagation Outdoors. Part 2: Engineering method for the prediction of sound pressure levels outdoors¹⁵.

12.4 What study area has been used for noise and vibration?

12.4.1 Figure 12.1: Preliminary Noise Assessment Study Area in Volume 2 provides an overview of the noise study area around Mylen Leah Solar Farm. The figure indicates the location of the nearest residential Noise Sensitive Receptors considered in this preliminary assessment. Further detail can be seen on **Figures 12.1a-e in Volume 2**.

12.4.2 Noise Sensitive Receptors are properties, people or fauna that are sensitive to noise and, therefore, may require protection from nearby noise sources. The study area for the assessment of environmental noise is usually defined through the identification of the closest Noise Sensitive Receptors surrounding the development.

12.4.3 The assessment of noise on human receptors attributable to the construction, decommissioning and operation of Mylen Leah Solar Farm considers the nearest and most sensitive Noise Sensitive Receptors only, on the assumption that if sound levels at these receptors are within the defined limits, then sound levels at Noise Sensitive Receptors at greater distances and/or sensitivities should also be within acceptable levels. In this case, the most sensitive receptors are residential properties.

12.4.4 Noise levels are presented at 49 Noise Assessment Locations. Noise Assessment Locations are the points at which noise levels are calculated and assessed, which have been selected to represent the closest Noise Sensitive Receptors to Mylen Leah Solar Farm.

12.4.5 For clusters of residential Noise Sensitive Receptors, a single representative Noise Assessment Location has been defined, which is located on the most exposed side of the closest receptor to the draft Order Limits.

12.4.6 A full list of the Noise Assessment Locations, including Ordnance Survey (OS) easting northings coordinates are included in **Appendix 12.1: Operational Noise Impact Assessment in Volume 3**.

12.5 How have existing noise and vibration conditions been understood?

12.5.1 The baseline survey was undertaken at, or in close proximity to, the residential Noise Sensitive Receptors surrounding the solar PV development. A total of 13 Noise Monitoring Locations were selected to quantify the existing noise environment for all of the Noise Sensitive Receptors.

12.5.2 Figure 12.1: Preliminary Noise Assessment Study Area in Volume 2 details the Noise Monitoring Locations, and the associated Noise Sensitive Receptors that each monitoring location represents. Colour coding is used to indicate which Noise Monitoring Locations represent which clusters of Noise

Sensitive Receptors e.g. the noise level data measured at NML06 (dark blue) is used to represent the existing noise environment at each of the Noise Sensitive Receptors within the dark blue shaded areas.

Data sources to inform the EIA baseline characterisation

12.5.3 The locations of Noise Sensitive Receptors have been identified with reference to OS mapping and Google maps and verified through site visits.

Site visits/surveys

12.5.4 Section 4 of **Appendix 12.1: Operational Noise Impact Assessment in Volume 3** presents the baseline survey in detail, but is summarised in the following points:

- Continuous unattended noise level monitoring, logged in 15-minute periods, was undertaken at 13 Noise Monitoring Locations for a minimum period of seven days per location.
- Synchronised measurements were made on Site using a tipping bucket rain gauge and weather station to record precipitation events, wind speed, wind direction, and temperature.
- The noise data was filtered to remove any rain or wind affected periods.

12.6 What are the noise and vibration conditions within the study area?

Existing baseline

12.6.1 This chapter presents the three primary noise metrics that will be used to inform the construction and operational noise assessments. Additional detail regarding the baseline, including subjective observations of the existing environment, is included in **Appendix 12.1: Operational Noise Impact Assessment in Volume 3**.

12.6.2 A time history plot for each Noise Monitoring Location is included in Appendix B of **Appendix 12.1: Operational Noise Impact Assessment in Volume 3**.

12.6.3 **Table 12.2** details the average LAeq(t) noise level at the survey locations, after filtering for rainfall events and high windspeeds. This level, which is described in BS 5228 as the 'Ambient Noise Level', will be used to inform the construction noise assessment.

12.6.4 The Ambient Noise Levels have been calculated daily for each of the BS 5228 assessment periods (weekday, weekend daytime, evening and night-time) and the arithmetic average of these levels (rounded to the nearest 5 dB, as required for BS 5228) is reported in **Table 12.2**.

12.6.5 Only data from full measurement periods has been used to derive the levels in **Table 12.2** i.e. if a period on a particular day has had data removed due to rainfall or wind speed, the entire period has been removed from the dataset.

Table 12.2: Measured baseline levels for BS 5228 assessment, LAeq(t)

Noise Monitoring Location	Daytime M- F	Daytime Sat	Evenings	Weekend	Night-time
	Weekdays 07:00 – 19:00	Saturday 07:00 – 13:00	Weekdays 19:00 – 23:00	Saturday 13:00 – 23:00 Sunday 07:00 – 23:00	All days 23:00 – 07:00
NML01	45	45	40	40	35
NML02	50	50	40	50	35
NML03	65	65	60	65	55
NML04	70	65	60	65	55
NML05	50	45	40	40	35
NML06	55	50	50	50	45
NML07	55	55	45	50	45
NML08	50	50	40	50	40
NML09	50	45	35	40	35
NML10	50	40	30	45	30
NML11	50	45	35	40	35
NML12	45	35	50	45	40
NML13	50	50	40	45	40

12.6.6 **Table 12.3** presents the Representative Background Sound Level, dB LA90(15mins), and the Residual Sound Level, dB LAeq(15mins), which is required to inform the operational noise assessment, in accordance with BS 4142. Sound levels are presented for both daytime, 07:00 – 23:00 and night-time 23:00 – 07:00.

Table 12.3: Measured baseline levels for BS 4142 assessment

Noise Monitoring Location	Background Sound Level, dB LA90(15mins)		Residual Sound Level, dB LAeq(15mins)	
	Day	Night	Day	Night
NML01	35	26	40	31
NML02	37	25	45	31
NML03	37	25	64	48
NML04	38	23	65	48
NML05	36	26	43	34
NML06	41	28	51	40
NML07	33	23	52	32
NML08	32	23	48	31
NML09	34	25	41	30
NML10	33	23	37	28
NML11	34	23	43	31

Noise Monitoring Location	Background Sound Level, dB LA90 _(15mins)		Residual Sound Level, dB LAeq _(15mins)	
	Day	Night	Day	Night
NML12	39	30	57	43
NML13	40	30	47	36

Future baseline

12.6.7 There are no known future developments, for example, road upgrades or industrial developments, that are expected to impact the existing baseline. No changes to the existing baseline are anticipated in the future.

12.7 How have the likely effects been assessed for noise and vibration?

Approach to design flexibility

Construction noise

12.7.1 The site is designed with a minimum buffer of 100m from all residential properties. Accordingly, no construction activities can occur within 100m of a Noise Sensitive Receptor. Noise modelling for fixed construction activities has been undertaken for a distance of 100m, presenting a worst-case calculated noise level.

Operational noise

12.7.2 The noise model considers a decentralised inverter arrangement (string inverters), rather than a centralised arrangement. A decentralised layout includes a large number of sound sources that are spread across the Site, whereas a centralised layout is based on a small number of larger inverters.

12.7.3 All four potential substation locations have been modelled, however, the overall noise immission levels do not change, regardless of the substation location. Accordingly, the results presented in this assessment are based on one substation location only (substation location option A).

Assessment assumptions

12.7.4 Noise Sensitive Receptors have only been identified for inclusion in the assessment around Land Parcels B, C and D. It is assumed that no significant noise sources would operate within Land Parcels A and E, which are set aside for mitigation land only.

Construction and decommissioning noise

12.7.5 Noise immission levels will vary throughout the construction period as construction activities, plant and locations vary. For much of the working day the noise associated with construction activities will be less than predicted, as the assessment assumes all equipment is continually operating at full power and (for static plant and activities) in locations closest to the Noise Sensitive Receptors, whereas in practice, operating times, equipment load and precise location will vary throughout the day. This approach has been adopted to represent a worst-case assessment.

12.7.6 Source noise level data for the construction noise assessment has been taken from Annex C of BS 5228, which presents measured noise levels for

construction activities collected across multiple construction sites across the UK.

- 12.7.7 Static noise sources have been modelled at the closest possible working locations to Noise Sensitive Receptors, which is 100m, as defined through the use of a 100m design buffer around all residential properties.
- 12.7.8 Mobile noise sources have been modelled following a movement path that traverses land parcels B, C and D, which will provide an indication as to the average noise levels likely to be received at any given receptor.
- 12.7.9 For this type of development, noise levels during the decommissioning period would be expected to be similar or less than those generated during the construction period. Accordingly, the predicted levels of construction noise can also indicate the potential for any noise impacts associated with decommissioning, and specific noise modelling of decommissioning activities is not required.

Operational noise

- 12.7.10 The calculated operational noise levels assume that all plant will be operating continually and concurrently and with cooling plant always running at maximum anticipated operational capacity at all times of the day and night. In reality, this is not possible as the operation of the site will fluctuate depending on environmental factors such as ambient temperature and sunlight exposure, and operational factors, such as loading.
- 12.7.11 All string inverters are assumed to be operating concurrently at 70% power during the daytime¹, which provides a realistic representation of the typical noise output for these units. During night-time all string inverters are assumed to be operating in a 50% power 'night-time mode'. Although Mylen Leah Solar Farm may generate power during the night-time in summer months, when hours of light are extended, the string inverters during these times would only be operating at low power outputs (typically between 0 and 30 %). Accordingly, assuming that they are operating at 50% power throughout the entire night-time presents a worst-case assessment.
- 12.7.12 In the absence of finalised plant specifications, candidate plant has been selected to appropriately represent the proposed size and class of development. This is described in detail in **Appendix 12.1: Operational Noise Impact Assessment** in **Volume 3**. Final plant specifications for will be chosen at a post-consent stage through a formal tendering process. Notwithstanding, it should be noted that regardless of the final plant specifications, Mylen Leah Solar Farm would be required to meet the noise level limits developed through the EIA process and included in any noise related planning conditions.

Assessment methodology and criteria

- 12.7.13 The Noise Policy Statement for England sets out the long-term vision of Government noise policy and should apply to all forms of noise, including environmental noise, neighbour and neighbourhood noise. The Noise Policy

¹ Daytime is defined as 07:00 – 23:00 and night-time is 23:00 – 07:00 in BS 4142, the standard that is used to assess operational noise

Statement for England refers to “environmental noise” with the key aims being to:

“Avoid significant adverse impacts on health and quality of life while taking into account the guiding principles of sustainable development;

Mitigate and minimise adverse impacts on health and quality of life; and

Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.”

12.7.14 The Noise Policy Statement for England also introduces the use of concepts from toxicology, as used by the World Health Organisation for the quantification of noise impacts:

“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.

An extension of these two concepts leads the NPSE to the introduction of a third concept, 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.”

12.7.15 Expanding on the concept of SOAEL, the Noise Policy Statement for England goes on to state:

“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.”

12.7.16 Accordingly, it is necessary for the assessor to refer to additional guidance to help define a level(s) for SOAEL (and the other effects levels). It is also necessary to consider the context of a development to define a level for SOAEL.

12.7.17 Planning Practice Guidance has been issued by the Government specifically for noise, and Planning Practice Guidance: Noise largely reaffirms the messages set out in both the NPPF and the Noise Policy Statement for England with regard to quantifying the impact of noise, stating:

“Plan-making and decision making need to take account of the acoustic environment and in doing so consider:

*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.”*

12.7.18 The Planning Practice Guidance: Noise provides useful additional detail regarding the relationship between the noise effect levels, their associated responses and the required action set out in the NPPF. **Table 12.4** summarises the noise exposure hierarchy, based on the likely average response of those affected.

Table 12.4: Noise exposure hierarchy table

Response	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level (NOEL)			
Not present	No Effect.	No Observed Effect	No specific measures required
No Observed Adverse Effect Level (NOAEL)			
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 (LOAEL)			
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 Impact	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g.	Significant Observed	Avoid

Response	Examples of Outcomes	Increasing Effect Level	Action
	avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the 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.	Adverse Effect	
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 definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

12.7.19 Assigning a value to SOAEL that can then be used to determine the significance of effects is possible with reference to appropriate British Standards. In this case BS 5228:2009+A1:2014 for construction noise, and BS 4142:2014+A1:2019 for operational noise, can be used.

Value/sensitivity/importance of the receptor

12.7.20 All identified receptors considered in this chapter are residential properties and have been defined as high sensitivity. No other receptor types or levels of sensitivity have been considered.

Magnitude of impact (construction noise)

12.7.21 The assessment of construction noise is made against a set of threshold levels defined in BS 5228, which cannot be used to determine a magnitude of impact. Rather, the assessment methodology indicates the potential for a significant effect to occur and then additional factors such as duration of exposure, need to be considered. Although not explicit, BS 5228 suggests that a duration of exposure to noise levels above the thresholds for more than one month is likely to be significant.

12.7.22 **Table 12.5** sets out how the BS 5228 threshold levels can be related to the Noise Policy Statement for England noise exposure effects levels and a subsequent Magnitude of Impact.

Table 12.5: Magnitude of impact (construction noise)

BS 5228 assessment outcome	Equivalent noise exposure hierarchy rating	Equivalent magnitude of impact
Predicted noise levels exceed the BS 5228 threshold levels for a period of more than one month during evening and or night-time periods	Significant Observed Adverse Effects Level Noise levels would be “ <i>Present and Very Disruptive</i> ”, which is an “ <i>unacceptable adverse effect</i> ” level. The respective action is to “ Prevent ” this level of effect.	Major
Predicted noise levels exceed the BS 5228 threshold levels for a period of more than one month during daytime periods	Significant Observed Adverse Effects Level Noise levels would be “ <i>Present and Disruptive</i> ”, which is a “ <i>Significant Observed Adverse Effect</i> ” level. The respective action is to “ Avoid ” this level of effect.	Moderate
Predicted noise levels exceed the BS 5228 threshold levels for a period of less than one month	Lowest Observed Adverse Effects Level Noise Levels would be “ <i>Present and Intrusive</i> ”, which is the “ <i>Lowest Observed Adverse Effect</i> ” level. The respective action is to “ Mitigate and reduce to a minimum ” this level of effect.	Minor
Predicted noise levels are below BS 5228 threshold levels but greater than the BS5228 ambient noise level.	No Observed Adverse Effects Level Noise Levels would be “ <i>Present and Not Intrusive</i> ”, which is a “ <i>No Observed Adverse Effect</i> ” level. There are “ No specific measures required ” as a result of this level of effect.	Negligible
Predicted noise levels are below the BS5228 ambient noise level.	No Observed Effects Level Noise Levels would be “ <i>Not Present</i> ” and there is “ <i>No Observed Effect</i> ”. There are “ No specific measures required ” as a result of this level of effect.	No impact

Magnitude of impact (operational noise)

12.7.23 BS 4142 does not define significance criteria; rather it describes a framework for the measurement of noise and provides a method to determine the likelihood of adverse impact through a qualitative assessment.

12.7.24 **Table 12.6** sets out how the BS 4142 assessment outcome can be related to the Noise Policy Statement for England noise exposure effects levels and the subsequent Magnitude of Impact.

Table 12.6: Magnitude of impact (operational noise)

BS 4142 assessment outcome	Equivalent noise exposure hierarchy rating	Equivalent magnitude of impact
BS 4142 indication of significant adverse impact.	Significant Observed Adverse Effects Level Noise levels would be “ <i>Present and Very Disruptive</i> ”, which is an “ <i>unacceptable adverse effect</i> ” level. The respective action is to “ Prevent ” this level of effect.	Major
BS 4142 indication of adverse impact.	Significant Observed Adverse Effects Level Noise levels would be “ <i>Present and Disruptive</i> ”, which is a “ <i>Significant Observed Adverse Effect</i> ” level. The respective action is to “ Avoid ” this level of effect.	Moderate
No BS 4142 indication of an adverse impact.	Lowest Observed Adverse Effects Level Noise Levels would be “ <i>Present and Intrusive</i> ”, which is the “ <i>Lowest Observed Adverse Effect</i> ” level. The respective action is to “ Mitigate and reduce to a minimum ” this level of effect.	Minor
BS 4142 Rating Level less than measured background sound levels.	No Observed Adverse Effects Level Noise Levels would be “ <i>Present and Not Intrusive</i> ”, which is a “ <i>No Observed Adverse Effect</i> ” level. There are “ No specific measures required ” as a result of this level of effect.	Negligible

BS 4142 assessment outcome	Equivalent noise exposure hierarchy rating	Equivalent magnitude of impact
BS 4142 Rating Level more than 10dB below the measured background sound levels.	No Observed Effects Level Noise Levels would be “ <i>Not Present</i> ” and there is “ <i>No Observed Effect</i> ”. There are “ No specific measures required ” as a result of this level of effect.	No impact

Significance of effect

12.7.25 With due regard to the above, the assessment criteria to determine the EIA significance of effects for construction and operational noise levels are as detailed in **Table 12.7**. Significant effects are defined as **Major** or **Moderate**.

12.7.26 Note: Level of significance is derived for high sensitivity residential receptors only. No other receptor types or lower sensitivities are considered, on the assumption that if noise levels are acceptable for the most sensitive receptors, they will also be acceptable for receptors with lower levels of sensitivity.

Table 12.7: Level of significance of effects

Magnitude of impact	Significance of effect
Major - SOAEL	Major
Moderate – SOAEL	Moderate
Minor – LOAEL	Minor
Negligible - NOAEL	Negligible
Not noticeable - NOEL	No impact

12.8 How has noise and vibration informed the design so far?

12.8.1 This preliminary assessment has been based on the principle that certain mitigation measures have been ‘embedded’ into the design of Mylen Leah Solar Farm to minimise likely significant effects as far as reasonably practicable at this stage of the design process, for example by the considered placement of infrastructure. Embedded (primary) environmental mitigation measures relevant to this preliminary noise and vibration assessment are presented in **Table 12.8**:

Table 12.8: Embedded mitigation measures relevant to noise and vibration

Embedded mitigation measures relevant to noise and vibration	Function
Minimum 100m offset from solar PV development to residential properties	Noise: No construction activities will occur within 100m of any Noise Sensitive Receptor, helping to reduce noise immission levels. Worst-case construction noise levels can be predicted assuming a minimum 100m separation distance. This is detailed in Section 12.9 .

12.9 What are the likely effects of Mylen Leah Solar Farm on noise and vibration?

Construction noise

12.9.1 The Applicant has identified five distinct construction activities/stages that will occur in respect of the construction of Mylen Leah Solar Farm, which are as follows:

- Trenching/excavation;
- Piling/foundation driving/fencing;
- Frame installation and module fixing;
- Earthmoving/site preparation/road construction; and
- Vehicle movements and material handling.

12.9.2 At this stage no construction timetable is available to calculate construction noise levels for individual properties across the construction timeline, however, it is possible to estimate worst case noise levels for static construction activities (assuming a minimum 100m separation distance), and the effects of noise from mobile construction plant can be simulated through the modelling of typical movement paths through each Land Parcel.

12.9.3 The predicted noise levels can then be compared to appropriate construction noise thresholds, which are defined based on the measured ambient noise levels presented in **Table 12.2**.

12.9.4 **Annex E, part E.3.2** of **BS 5228-1**, sets criteria for assessing the significance of construction noise effects and gives examples of acceptable levels for construction noise.

12.9.5 **Table E.1** of **BS 5228-1** (reproduced here as **Table 12.9**), which contains an example of the significance criteria that can be used to assess construction activities, contains three categories of thresholds that can be used for varying assessment periods (night-time, evenings, weekends etc.). The appropriate category for any given receptor can be chosen after quantifying the existing ambient noise levels (rounded to the nearest 5dB) at that location, for the given assessment period. BS 5228 provides the following advice regarding the thresholds:

“Note 1: A potential significant effect is indicated if the $L_{Aeq,T}$ noise level arising from the Site exceeds the threshold level for the category appropriate to the ambient noise level.

Note 2: If the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total $L_{Aeq,T}$ noise level for the period increases by more than 3dB due to Site noise.

Note 3: Applied to residential receptors only.”

12.9.6 Therefore, the assessment of construction noise reflects a specific noise threshold for the locality for a particular period of the day, rather than an absolute noise level limit.

Table 12.9: Example of threshold of potential significant effect at dwellings

Assessment Category and Threshold Value Period	Threshold Value LAeq(t) dB		
	Category A (A)	Category B (B)	Category C (C)
Night-Time (23:00 – 07:00)	45	50	55
Evenings and Weekends ^(D)	55	60	65
Daytime (07:00 – 19:00) & Saturdays (07:00 to 13:00)	65	70	75
(A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than these values; (B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as category A values; (C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than category A values; (D) 19:00-23:00 weekdays, 13:00-23:00 Saturdays and 07:00 – 23:00 Sundays.			

12.9.7 With due regard to **Table 12.9** and the Ambient Noise Levels presented in **Table 12.2**, the threshold categories to be used in the construction noise assessment are detailed in **Table 12.10**.

Table 12.10: BS 5228 threshold categories

Noise Monitoring Location	Daytime M- F	Daytime Sat	Evenings	Weekend	Night-time
	Weekdays 07:00 – 19:00	Saturday 07:00 – 13:00	Weekdays 19:00 – 23:00	Saturday 13:00 – 23:00 Sunday 07:00 – 23:00	All days 23:00 – 07:00
NML01	A	A	A	A	A
NML02	A	A	A	A	A
NML03	B	B	C	C	C
NML04	C	B	C	C	C
NML05	A	A	A	A	A
NML06	A	A	A	A	B
NML07	A	A	A	A	B
NML08	A	A	A	A	A
NML09	A	A	A	A	A
NML10	A	A	A	A	A
NML11	A	A	A	A	A
NML12	A	A	A	A	A
NML13	A	A	A	A	A

12.9.8 Noise modelling for each of the five construction activities/stages has been undertaken in accordance with ISO 9613-2:2024 as detailed in **Table 12.11**.

Table 12.11: Modelled construction activities

Construction activity	Modelling details
Trenching/excavation	Trenching activities have been modelled based on a flat-earth model and the noise level calculated at a distance of 100m
Piling/foundation driving/fencing	Piling activities have been modelled based on a flat-earth model and the noise level calculated at a distance of 100m
Frame installation and module fixing	Use of hand power-tools for module fixing has been modelled based on a flat-earth model and the noise level calculated at a distance of 100m
Earthmoving/site preparation/road construction	Track construction has been modelled assuming mobile plant is working along new tracks through Land Parcels B, C and D. Calculated levels assume activity occurring in all three Land Parcels simultaneously
Vehicle movements and material handling	Noise levels have been predicted assuming a lorry delivering to a construction compound, unloading of the lorry, and subsequent transportation of materials into the nearest Land Parcel. Calculated levels assume activity related to use of three site entrances, construction compounds and Land Parcels simultaneously.

12.9.9 **Table 12.12** presents the calculated noise levels for static activities modelled at a worst-case distance of 100m.

12.9.10 **Table 12.13** presents the calculated noise levels for the simulated movement of mobile plant for all of the Noise Assessment Locations.

Table 12.12: Construction noise levels at 100m, dB LAeq(t)

Construction activity	Immission Level, dB LAeq(t)
Trenching/excavation	55
Piling/foundation driving/fencing	53
Frame installation and module fixing	57

12.9.11 The worst-case noise levels, assuming that construction activities are occurring at 100m from the nearest Noise Sensitive Receptor are below the most stringent (Category A) threshold levels during standard construction hours (weekday, daytime 07:00 – 19:00).

12.9.12 Although it is not currently anticipated that construction would occur during ‘Evenings and Weekends’ (as defined in BS 5228-1 and **Table 12.9** above), it is also noted that the predicted levels in **Table 12.12** do not exceed the Category A thresholds for trenching/excavation and piling activities for these time periods.

Table 12.13: Construction noise levels for mobile plant, dB LAeq(t)

Noise assessment location		Immission ILevel, dB LAeq(t)	
ID	Descriptor	Earthmoving/site preparation/road construction	Vehicle movements and material handling
NAL01	Blackberry Farm	41	38
NAL02	Spring House Farm	42	38
NAL03	Fox Covert Farm	42	38
NAL04	Bethell House	41	38
NAL05	Bridges Lane	42	38
NAL06	South Acre Farm A	40	38
NAL07	South Acre Farm B	41	38
NAL08	Caravan Site	46	44
NAL09	Laytham Park	46	43
NAL10	Whin Wood	36	34
NAL11	Acre Farm A	38	37
NAL12	Acre Farm B	41	39
NAL13	Ross Moor Park Farm	34	33
NAL14	Kidd Lane	37	36
NAL15	Melbourne Hall	40	39
NAL16	Park Farm	43	42
NAL17	Brickyard Farm	44	41
NAL18	Thoroughleys Lane	47	43
NAL19	Hawkwood	46	43
NAL20	Bibbill Farm	50	46
NAL21	Ryedale Farm	48	55
NAL22	Melrose Farm	51	42
NAL23	Dial Hall Farm	42	35
NAL24	Blackwood Gate	42	35
NAL25	Hallstone	42	35
NAL26	Mill Lane	40	34
NAL27	North End	40	34
NAL28	Holly House	41	35
NAL29	Breckstreet Farm	46	41
NAL30	Breckstreet Plantation	50	48
NAL31	Fosses Farm	38	33
NAL32	Laytham Grange	44	39
NAL33	Harthill Farm	43	38
NAL34	Laytham Green Farm	48	42
NAL35	Oakfield Farm	51	52
NAL36	Ruddings Wood Farm	39	36
NAL37	White Farm A	48	43
NAL38	White Farm B	48	43
NAL39	Aughton House	36	34
NAL40	Blue States Farm	42	39
NAL41	Boland House	40	37
NAL42	Boland Lane	40	37
NAL43	Whitewynn	37	35

Noise assessment location		Immission Level, dB LAeq(t)	
ID	Descriptor	Earthmoving/site preparation/road construction	Vehicle movements and material handling
NAL44	Shortacre Lane	39	37
NAL45	Shortacre Farm	39	38
NAL46	Willow Lodge	43	41
NAL47	East Farm	45	43
NAL48	The Weres	41	40
NAL49	Mill House	35	33

12.9.13 The predicted noise levels from mobile construction activities are below the most stringent (Category A) threshold levels during standard construction hours (weekday, daytime 07:00 – 19:00).

12.9.14 Although it is not currently anticipated that construction would occur during weekends or evening, it is also noted that the predicted levels in **Table 12.13** do not exceed the Category A thresholds for these time periods.

12.9.15 The initial assessment of construction noise concludes that noise levels at all receptors will remain below the BS 5228 daytime, weekend and evening threshold levels (as detailed in **Table 12.9**), which indicates that no significant effects are likely.

Operational noise

12.9.16 **Appendix 12.1: Operational Noise Impact Assessment in Volume 3** presents an operational noise impact assessment, which has been undertaken in accordance with BS 4142:2014+A1:2019.

12.9.17 The predicted operational noise levels can be seen on **Figure 12.2: Operational Noise Contour Plot in Volume 2**, which detail the predicted noise contours overlaid on digital mapping data.

12.9.18 The BS 4142 assessment concludes there would be no adverse impact at any residential receptor during the daytime or night-time periods

Decommissioning

12.9.19 It is not possible to determine the likely effects of decommissioning noise at this stage; however, the effects of noise during decommissioning are anticipated to be similar, or less than, those generated during construction. Accordingly, on the assumption that construction noise levels are acceptable then decommissioning noise levels would also be acceptable.

12.10 What additional mitigation is proposed to avoid, prevent, reduce or offset likely effects on noise and vibration?

Construction

12.10.1 No specific additional mitigation measures have been identified that are required to lessen the impacts of construction noise, however, good practice noise control measures will be detailed in and secured by the Outline Construction Environmental Management Plan (Outline CEMP), such as:

- Keeping local residents informed of the proposed working schedule, including the times and duration of any abnormally noisy activity that may cause concern, along with a point of contact to address any complaints;
- Vehicles and mechanical plant should be fitted with effective exhaust silencers and be subject to programmed maintenance;
- Vehicle reversing alarms should be non-tonal (white noise type);
- Inherently quiet plant should be selected, where practicable, and all compressors, pumps, generators etc. could be 'sound reduced' models fitted with properly lined and sealed acoustic covers, which would be kept closed whenever the machines are in use;
- All ancillary pneumatic percussive tools should be fitted with mufflers or silencers of the type recommended by the manufacturers;
- Machines should be shut down between work periods (or when not in use) or throttled down to a minimum;
- All equipment used on site, should be subject to a regular maintenance programme, including maintenance related to noise emissions;
- Vehicles should be loaded carefully to ensure minimal drop heights, so as to minimise noise during unloading and movement of materials; and
- All ancillary plant such as generators and pumps should be positioned so as to cause minimum noise disturbance and temporary acoustic screens or enclosures should be provided where practicable.

Operation

12.10.2 The BS 4142 assessment outcome does not indicate a requirement for any mitigation measures; however, it should be noted that the assessment is based on candidate plant only and the final noise level output may differ from that presented here. Accordingly, and with due regard to the existing baseline, a night-time target Rating Level limit of 35dBA will be implemented as a form of embedded mitigation, whilst progressing the design further into the ES stage.

Decommissioning

12.10.3 No specific additional mitigation measures have been identified that are required to lessen the impacts of decommissioning noise, however, good practice noise control measures will be detailed in and secured by the Outline Decommissioning Environmental Management Plan (Outline DEMP), similar to those used for construction.

12.11 What likely effects would remain for noise and vibration following additional mitigation?

Construction

- 12.11.1 Construction noise from fixed activities modelled at a worst-case distance of 100m does not exceed the most stringent Category A daytime threshold levels when construction activities are expected to occur.
- 12.11.2 Modelled construction noise from mobile activities also does not exceed the most stringent Category A daytime threshold levels.
- 12.11.3 For Saturday mornings, of the 49 Noise Assessment Locations, the calculated noise levels for earth moving and track laying are below the existing ambient noise levels at 35 locations. For transportation of materials, the calculated noise levels are below the existing ambient noise levels at 43 locations.
- 12.11.4 During weekday daytimes, calculated noise levels only exceed the existing ambient noise levels at three locations (NAL21, 22 and 35).
- 12.11.5 Through the use of best practice measures detailed within the Outline CEMP, construction noise levels are likely to be reduced further, though this is not possible to quantify at this stage.
- 12.11.6 With due regard to **Table 12.5**, the magnitude of impact is **negligible** at three locations and **no impact** at the remaining locations. Accordingly, the preliminary assessment of construction noise concludes these effects are **not significant**.

Operation

- 12.11.7 No mitigation measures are required to lessen the operational noise impacts. Nonetheless, adoption of a 35 dBA target limit Rating Level would mean that regardless of the final plant specification, the BS 4142 assessment outcome would be, at worst, '*no indication of an adverse impact*'.
- 12.11.8 With due regard to **Table 12.6**, operational noise results in a magnitude of impact of **minor** at seven² of the 49 Noise Assessment Locations and **negligible** at the remaining Noise Assessment Locations. Accordingly, the preliminary assessment of operational noise concludes these effects are **not significant**.

Decommissioning

- 12.11.9 It is assumed that the impacts of noise from decommissioning, with the use of best practice measures that would be detailed within the Outline DEMP, would be the same or less than the impacts from construction noise. Accordingly, the preliminary assessment of decommissioning noise concludes these effects are **not significant**.

12.12 What opportunities are there for environmental enhancement?

- 12.12.1 Opportunities for environmental enhancement are not considered relevant to noise and vibration.

² Minor impacts identified at NALs 08, 09, 30, 35, 37, 38 and 40.

12.13 What difficulties and uncertainties have been encountered in this preliminary noise and vibration assessment?

12.13.1 The information provided in this PEIR is preliminary and is based on the information available at the time of writing. A full assessment of likely significant effects of Mylen Leah Solar Farm will be reported in the ES.

12.13.2 At this stage it is not possible to produce a complete noise model for construction activities, as no construction timetable is available. Similarly, it has not been possible to undertake an assessment of Horizontal Directional Drilling (HDD) activities within the underground grid connection corridor, as not enough information is available as to where this may occur, however, threshold levels have now been set that can be taken through into the ES, and these levels used to help inform the design of the construction timetable, and the HDD layout to minimise temporary construction noise impacts.

12.13.3 The operational noise assessment is based on candidate plant that has been assessed as operating continuously and concurrently at maximum noise output. Accordingly, the predicted noise levels are likely to be higher than in reality. It is anticipated that this can be refined within the ES, taking into account likely operating periods, which may reduce the operational noise impacts further.

12.14 What further work is required to inform the full noise and vibration assessment in the DCO application?

12.14.1 Construction noise assessment. To include:

- Production of an indicative construction timetable, including activities associated with the underground grid connection corridor;
- Identification of 'noisy' activities within the construction timetable to refine the modelled noise assessment scenarios and inclusion of activities related to construction within the underground grid connection corridor;
- Modelling of any required HDD activities;
- Consideration of duration of exposure, as well as absolute noise levels, once construction timetable is available;
- Specification of any required mitigation measures to reduce construction noise levels to below the BS 5228 threshold levels;
- Prediction of noise and vibration levels for use within the Biodiversity ES chapter, where it is necessary to assess the impact on fauna.
- Consultation with ERYC to define scope of assessment related to activities occurring within the underground grid connection corridor;
- Similarly, in respect of the underground grid connection cable and the associated construction activities, consultation with relevant consultees to determine the scope, if any, for the assessment of vibration on cultural heritage assets; and
- Consideration of predicted construction traffic flow and any associated noise impacts.

12.14.2 Update Operational Noise assessment, as follows:

- Refine operational noise propagation model to account for variations in the parameters plan and/or preferred candidate plant; and
- Consult with ERYC to agree the extent of Noise Assessment Locations to be assessed within the ES, for example, whether any receptors with lower sensitivities are required to be considered.

12.14.3 Consider the potential for vibration effects on non-human receptors, including:

- Identification of any relevant non-human receptors that may be adversely affected by vibration effects. These could include ecological receptors (such as protected species) and/or cultural heritage assets;
- Identification of any vibration inducing activities (if any) that may occur close to cultural heritage assets and/or ecological receptors; and
- Set appropriate vibration limits for any potentially affected receptors.

¹ British Standards Institution (BSI) (2014) BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise. London: BSI

² British Standards Institution (BSI) (2019) BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound. London: BSI

³ Control of Pollution Act 1974. Available online: [Control of Pollution Act 1974](#)

⁴ Environmental Protection Act 1990. Available online: [Environmental Protection Act 1990](#)

⁵ Department for Environment, Food and Rural Affairs (2010) Noise Policy Statement for England. Available online: [Noise Policy Statement for England](#)

⁶ Ministry of Housing, Communities and Local Government (2019) Planning Practice Guidance – Noise. Available online: [Noise - GOV.UK](#)

⁷ Department for Energy Security and Net Zero (December 2025, published January 2026) Overarching National Policy Statement for Energy (EN-1). Available online: [Overarching National Policy Statement for energy \(EN-1\), 2025 - GOV.UK](#)

⁸ Department for Energy Security and Net Zero (December 2025, published January 2026) National Policy Statement for Renewable Energy Infrastructure (EN-3). Available online: [National Policy Statement for renewable energy infrastructure \(EN-3\), 2025 - GOV.UK](#)

⁹ Ministry of Housing, Communities & Local Government (2024) National Planning Policy Framework. Available online: [National Planning Policy Framework - GOV.UK](#)

¹⁰ East Riding of Yorkshire Council (2025) East Riding Local Plan Update 2020-2039. Available online: [East Riding Local Plan Update](#)

¹¹ East Riding of Yorkshire Council (2025) Policy EC5: Supporting the Renewable and Low Carbon Energy Sector. Available online: [Supporting the renewable and low carbon energy sector - Local Plan Strategy](#)

¹² East Riding of Yorkshire Council (2025). Integrating High Quality Design. Available online: [Integrating high quality design - Local Plan Strategy](#)

¹³ Association of Noise Consultants (ANC) (2020) Technical Note on BS 4142:2014+A1:2019. London: ANC

¹⁴ British Standards Institution (BSI) (2014) BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Vibration. London: BSI

¹⁵ International Organization for Standardization (ISO) (2024) ISO 9613-2:2024 Acoustics – Attenuation of sound during propagation outdoors – Part 2: Engineering method for the prediction of sound pressure levels outdoors. Geneva: ISO