ENVIRONMENTAL STATEMENT: 6.3 APPENDIX 6-3: SUPPLEMENTARY ACOUSTICS LEGISLATION, POLICY AND GUIDANCE

DECARBONISATION

Cory Decarbonisation Project

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The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations (2009) - Regulation 5(2)(a)

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1. SUPPLEMENTARY ACOUSTICS LEGISLATION, POLICY AND GUIDANCE

1.1.1. This appendix provides a full description of international and national legislation, national policy and guidance, and technical guidance relevant to the noise and vibration assessment.

1.1. INTERNATIONAL LEGISLATION

DIRECTIVE 2002/49/EC OF THE EUROPEAN PARLIMAENT, 2002

1.1.2. This Directive relates to the assessment and management of environmental noise, and it is commonly referred to as the Environmental Noise Directive (END). It promotes the implementation of a three-step process:

- undertake strategic noise mapping to determine exposure to environmental noise;
- ensure information on environmental noise is made available to the public; and
- establish Action Plans based on the strategic noise mapping results, to reduce environmental noise where necessary, and to preserve environmental noise quality where it is good.

1.2. NATIONAL LEGISLATION

CONTROL OF POLLUTION ACT 1974

1.1.3. The principal legislation covering demolition and construction noise is the Control of Pollution Act 1974, Part III. Sections 60 and 61 of the Act give local authorities special powers for controlling noise arising from construction and demolition works, regardless of whether a statutory nuisance has been caused or is likely to be caused. Works within the scope of these provisions include repair and maintenance work and road works. These powers may be exercised either before works start or after they have started.

1.1.4. Section 60 of the 1974 Act enables a local authority in whose area work is going to be carried out, or is being carried out, to serve a notice of its requirements for the control of site noise on the person who appears to the local authority to be carrying out the works. Such a notice may also be served on others appearing to the local authority to be responsible for, or to have control over, the carrying out of the works.

1.1.5. This notice can:

- specify the plant or machinery that is or is not to be used;
- specify the hours during which the construction work can be carried out;
- specify the level of noise that can be emitted; and
- provide for any changes of circumstances.

1.1.6. Section 61 of the Act provides a mechanism for the contractor or developer to take the initiative and approach the local authority to ascertain its noise requirements before construction work starts. If a formal application for 'prior consent' is received by the local authority it is obliged to give a decision within 28 days; failure to do so or the attachment of unnecessary or unreasonable conditions are grounds for appeal by the applicant.

1.1.7. In cases where the local authority determines that the proposals for minimising the noise of the construction activities are adequate it will issue a consent although this may be subject to conditions limiting certain aspects of the consent such as hours of use, noise levels for particular activities, etc. Provided that the applicant takes all reasonable steps to operate within the terms of the consent, even if the local authority subsequently decides to take proceedings under section 60(8), the applicant should be able to rely on the defence provided in the Act and prove that the alleged contravention amounted to the carrying out of works in accordance with a consent given under section 61.

1.1.8. The application of these provisions to the Proposed Scheme has been considered as part of the production of the **Draft DCO (Document Reference 3.1)** for the Proposed Scheme and the associated **Outline CoCP (Document Reference 7.4)**.

1.3. NATIONAL POLICY AND GUIDANCE

NOISE POLICY STATEMENT FOR ENGLAND (NPSE), 2010

1.1.9. The NPSE seeks to ensure that noise issues are considered at the right time during the development of policy and decision making, and not in isolation. It highlights the underlying principles on noise management already found in existing legislation and guidance.

1.1.10. The NPSE sets out the long-term vision of Government noise policy as follows:

"Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development."

1.1.11. This long-term vision is supported by the following aims:

"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*."

1.1.12. To assist in the understanding of the terms 'significant adverse' and 'adverse', the NPSE acknowledges that there are 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 and below which there is no detectable effect on health and quality of life due to noise;
- LOAEL - Lowest Observable Adverse Effect Level - This is the level above which adverse effects on health and quality of life can be detected; and
- SOAEL - Significant Observed Adverse Effect Level - This is the level above which significant adverse effects on health and quality of life occur.

1.1.13. However, the NPSE goes on to state that:

"it is acknowledged within the NPSE that 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."

NATIONAL PLANNING POLICY FRAMEWORK (NPPF), 2023

1.1.14. The NPPF was introduced in March 2012 and last updated in December 2023 and is a key part of the reforms to make the planning system less complex and more accessible, to protect the environment and to promote sustainable growth. The NPPF includes an overarching presumption in favour of sustainable development that should be the basis of every plan and every decision.

1.1.15. The NPPF states that planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of a site or the wider area to impacts that could arise from the development (Paragraph 191) and specifically to:

- "*mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise from giving rise to significant adverse impacts on health and quality of life*[69]*; 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".*

1.1.16. The footnote to the policy ([65]), directs the reader to the Explanatory Note to the Noise Policy Statement for England (NPSE) Explanatory Note, which sets out more information on how the 'adverse effects' and 'significant adverse effects' referred to in the NPPF should be considered.

1.1.17. The NPPF emphasises that planning policies and decisions should take account of existing businesses and other organisations when locating new noise sensitive

development nearby, so that development does not create noise complaint conditions to the detriment of those existing operations. Paragraph 193 states:

"Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed."

PLANNING PRACTICE GUIDANCE, 2019

1.1.18. This web-based resource was issued for use by the Department for Communities and Local Government (DCLG). The purpose of the guidance is to complement the NPPF and provide advice on how to deliver its policies.

1.1.19. The section on noise (https://www.gov.uk/guidance/noise--2) was last updated on the 22 July 2019. This includes a table that summarises "*the noise exposure hierarchy, based on the likely average response*" and which offers examples of outcomes relevant to the NOEL, LOAEL and SOAEL effect levels described in the NPSE (see above). The term Unacceptable Adverse Effect (UAE) level is introduced which equates to noise perceived as "*Present and very disruptive*". It is stated that UAEs should be prevented. These outcomes are in descriptive form and there is still no numerical definition of the NOEL, LOAEL and SOAEL, or detailed advice regarding methodologies for their determination. There is also no reference to the further research that was identified as necessary in the NPSE planning policy.

1.1.20. These outcomes are in descriptive form and there is no numerical definition of the NOEL, LOAEL and SOAEL (or UAE), or detailed advice regarding methodologies for their determination. There is also no reference to the further research that is identified as necessary in the NPSE. The noise exposure hierarchy table is duplicated in **Table 1-1**.

Table 1-1: Noise Exposure Hierarchy Based on the Likely Average Response

Perception	Examples of Outcomes	Increasing Effect Levels	Action
No Observed Effect Level			
Not present	No effect.	No Observed Effect	No specific measures required

Perception	Examples of Outcomes	Increasing Effect Levels	Action
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			
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, and having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. It 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 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 the change in the acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate the effect of noise leading to psychological stress, e.g. regular sleep	Unacceptable Adverse Effect	Prevent

Perception	Examples of Outcomes	Increasing Effect Levels	Action
	deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.		

1.4. TECHNICAL GUIDANCE

HIGHWAYS ENGLAND DESIGN MANUAL FOR ROADS AND BRIDGES, LA 111 REVISION 2. NOISE AND VIBRATION 2020 (LA 111)

1.1.21. LA 111 sets out the methodology for assessing road traffic noise and vibration in terms of significance of effect and magnitude of impact.

1.1.22. For the assessment of noise impacts, consideration is given to the noise level changes that will arise in the short term as a starting point for determining significance.

1.1.23. The short term scheme impacts are derived by comparing the 'Do Minimum' scenario (i.e. without the Proposed Scheme) in the 'opening year', with the 'Do Something' scenario (i.e. with the Proposed Scheme) in the same year.

1.1.24. Further details of the technical content of LA 111 and how it has been applied to the assessment of traffic noise from the Proposed Scheme are set out in the Methodology section of **Chapter 6: Noise and Vibration (Volume 1).**

CALCULATION OF ROAD TRAFFIC NOISE (CRTN), 1988

1.1.25. The former Department of Transport/Welsh Office technical memorandum Calculation of Road Traffic Noise (CRTN) methodologies have been adopted.

1.1.26. The factors which may influence road traffic noise levels at source can be divided into two groups:

- road related factors - gradient and surface type; and
- traffic related factors - flow, speed and the proportion of heavy-duty vehicles.

1.1.27. The propagation of noise is also covered in CRTN and can influence the noise levels at receptor locations.

BS 5228-1:2009+A1:2014

Code Of Practice for Noise And Vibration Control on Construction and Open Sites: Part 1 Noise

1.1.28. This Standard provides the latest recommendations for basic methods of noise control where there is a need for the protection of persons living and working in the vicinity of, and those working on, construction and open sites.

1.1.29. The Standard includes guidance on assessing the significance of noise effects. In particular, Annex E provides a discussion on the different approaches to the assessment of construction noise, giving consideration to absolute noise levels (in section E2) and to two different approaches to setting criteria based on the ambient noise level ($L_{Aeq,T}$) in the absence of construction noise (in section E3).

1.1.30. **Table 1-2** (Table E.2 in sub-clause E.4 of the Standard) defines the noise levels used as limits above which noise insulation would be provided, subject to the temporal conditions described in **Table 1-2**.

Table 1-2: Examples of Time Periods, Averaging Times and Noise Levels Associated with the Determination of Eligibility for Noise Insulation

Time	Relevant Time Period	Averaging Time, 'T'	Noise Insulation Trigger Level dB $L_{Aeq,T}$ (A)
Monday to Friday	07.00 – 08.00	1 h	70
	08.00 – 18.00	10 h	75
	18.00 – 19.00	1 h	70
	19.00 – 22.00	3 h	65
	22.00 – 07.00	1 h	55
Saturday	07.00 – 08.00	1 h	70
	08.00 – 13.00	5 h	75
	13.00 – 14.00	1 h	70
	14.00 – 22.00	3 h	65
	22.00 – 07.00	1 h	55
Sunday and Public Holidays	07.00 – 21.00	1 h	65
	21.00 – 07.00	1 h	55

Notes:
(A) All noise levels are predicted or measured at a point 1 m in front of the most exposed of any windows and doors in any façade of any eligible dwelling.

1.1.31. The Standard suggests that where, in spite of the mitigation measures applied, the combined construction and baseline noise levels exceed 75 dB(A) (for a period of ten or more days of working in any fifteen consecutive days or for a total of days exceeding 40 in any six month period), a scheme for the installation of noise insulation or the reasonable costs thereof should be implemented by the developer or promoter.

1.1.32. In sub-clause E.3, an alternative approach is described based on considering the change in the ambient noise level that the construction noise causes. This approach is used commonly in EIA. Two methods are described.

1.1.33. The first is the ABC method an example of which is set out in **Table 1-3** (Table E.1 in the Standard). Three categories, A, B and C are described in terms of threshold noise levels for a daytime (07:00 to 19:00 weekdays, 07:00 to 13:00 Saturday), evening and weekend, and finally a night-time period (23:00 to 07:00). If the combined ambient noise and construction noise exceed the relevant threshold level, this is deemed a 'significant effect'.

Table 1-3: Example Threshold Value of Potential Significant Effect at Dwellings

Assessment Category and Threshold Value Period	Threshold Value, in Decibels (dB $L_{Aeq,T}$)		
	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) and Saturdays (07:00 − 13:00)	65	70	75

Notes:

[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.

[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 3 dB due to Site noise.

[3] Applied to residential receptors only.

(A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.

(B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.

(C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.

(D) 19:00 – 23:00 weekdays, 13:00 – 23:00 Saturdays and 07:00 – 23:00 Sundays.

1.1.34. The second method states that:

"*Noise levels generated by site activities are deemed to be potentially significant if the total noise (pre-construction ambient plus site noise) exceeds the pre-construction ambient noise by 5 dB or more, subject to lower cut off values of 65 dB, 55 dB and 45 dB $L_{Aeq,T}$ from site noise alone, for the daytime, evening and night-time periods, respectively; and a duration of one month or more, unless works of a shorter duration are likely to result in significant impact*."

1.1.35. These criteria may be applied not just to residential buildings, but also to hotels and hostels and buildings for religious, educational and health/community use.

1.1.36. The +5 dB criterion for a period of one month or more, might also be deemed to cause significant effects in public open space. However, the extent of the area impacted relative to the total available area also needs to be considered.

1.1.37. Annex F of the Standard provides guidance on estimating noise from construction sites. The estimation procedures described in this Annex take into account the more significant factors:

- the sound power outputs of processes and plant;
- the periods of operation of processes and plant;
- the distances from source to receiver;
- the presence of screening by barriers;
- the reflections of sound; and
- attenuation from absorbent ground.

1.1.38. Four discrete prediction methods are described: two for stationary plant, the activity $L_{Aeq,T}$ method and the plant sound power method; and two for mobile plant,– the method for mobile plant in a defined area and the method for haul roads.

BS 4142 2014+A1:2019 'Methods for Rating and Assessing Industrial and Commercial Sound'

1.1.39. BS 4142 describes methods 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.

1.1.40. The methods use 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 and upon which sound is incident.

1.1.41. 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 corrected, by the application of one or more corrections for acoustic features such as tonal qualities and/or distinct impulses, to give a 'rating' level ($L_{Ar,Tr}$).

1.1.42. The Standard allows the following additive corrections for character: 0 dB to +6 dB for tonality and 0 dB to +9 dB for impulsivity. Where the specific sound features characteristics that are neither tonal nor impulsive, but otherwise are readily distinctive, a penalty of +3 dB can be applied. Finally, should the specific sound contain identifiable on/off conditions and so be readily distinctive, a penalty of +3 dB can be applied.

1.1.43. The Standard advises that the time interval of the background sound measurement should be sufficient to obtain a representative or typical value of the background sound level at the time(s) the source in question operates or is proposed to operate in the future. The specific sound level should be evaluated over a one hour period during the day and over a 15 minute period during the night.

1.1.44. Comparing the rating level with the background sound level, the Standard 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*."

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