

HyNet North West Hydrogen Pipeline

Delivering clean growth



Chapter 3

Approach to Preparing the Draft ES

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3. Approach to Preparing the Draft ES

3.1 Introduction

- 3.1.1 Environmental Impact Assessment (EIA) is a process for identifying the likely significant environmental effects (positive and negative) of a project to inform the decision-making process for whether an order granting development consent should be made.
- 3.1.2 As part of the EIA, this Draft Environmental Statement (ES) builds upon the Preliminary Environmental Information Report (PEIR) published in September 2022 and provides the latest information obtained and assessed in relation to the Project. In so doing it provides a contemporary assessment of likely significant effects arising from the construction, operation and decommissioning phases of the Project.
- 3.1.3 The EIA process will culminate in the provision of an ES written in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations (as amended) 2017¹ (hereafter referred to as the 'EIA Regulations'). The ES will accompany the Development Consent Order (DCO) application and will help inform the determination of the DCO application for the Project. The ES will provide an assessment of the likely significant effects associated with the Project during its construction, operation and decommissioning phases.
- 3.1.4 This chapter sets out the approach to the EIA for the Project. This represents the approach upon which subsequent environmental topic chapters are based to support further consultation being undertaken under Sections 42 to 48 of the Planning Act 2008². This consultation will inform the evolution of the Project before a formal DCO application is made.
- 3.1.5 For each environmental topic, the assessment of effects has been undertaken by competent persons (see **Appendix 1A**) with relevant specialist skills, drawing on their experience of working on other similar projects, good practice in EIA and on relevant published information.

¹ UK Government (2017). Infrastructure Planning (Environmental Impact Assessment) Regulations (as amended) 2017 (online). Available at: <https://www.legislation.gov.uk/ukxi/2017/572/contents> (Accessed June 2024).

² UK Government (2008). Planning Act 2008. (online) Available at: <https://www.legislation.gov.uk/ukpga/2008/29/contents> (Accessed June 2024).

3.2 EIA Terminology

Impacts and effects

- 3.2.1 For the purposes of this Draft ES, the term ‘impacts’ is used to describe the changes that arise as a result of the Project and the term ‘effects’ is used to describe the consequences of those changes, for example:
- Impacts could occur from physical activities that would take place if the Project were to proceed (e.g. vehicle movements during construction).
 - Effects could occur as a result of environmental changes that are predicted as a result of these activities (e.g. an increase in noise levels could have an effect on a receptor, as a result of increased vehicle movements). In some cases, one change causes another change, which in turn results in an environmental effect.
- 3.2.2 This Draft ES is concerned with assessing the significance of the environmental effects of the Project, rather than the activities or changes that cause them. However, this requires these activities to be understood and the resultant changes identified and quantified, often based on predictive assessment work.
- 3.2.3 Paragraph 5 of Schedule 4 of the EIA Regulations¹ states that:
- “The description of the likely significant effects on the factors specified in regulation 5(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.”*
- 3.2.4 Where appropriate, this Draft ES considers all these types of effects where they are relevant to different environmental topic chapters.

Direct effects

- 3.2.5 Direct effects are those that result directly as a result of the Project. For example, where a machine disturbs an area of habitat; the associated physical activity could result in a change to the receptor.

Indirect and secondary effects

- 3.2.6 Indirect and secondary effects are those that result from a consequential change caused by the Project. As such they would normally occur later in time or at locations farther away than direct effects. An example would be where water or gas pipes are damaged as a result of the Project, and the consequence of that damage is fire or flood risk to other receptors.
- 3.2.7 The Applicant is aware of the ruling in R (on the application of Finch on behalf of Weald Action Group) (Appellant) v Surrey County Council and others (Respondent) (“Finch”) regarding the consideration of indirect effects in EIA where there is a causal link between the development being proposed and such effects. The implications of this ruling will be considered as appropriate in the Final ES at DCO submission. Furthermore, the Applicant is aware that the government is

planning to release guidance for consultation due to the impact of the Finch case³ and will take due cognisance of this.

Transboundary effects

3.2.8 Transboundary effects are those that would affect the environment in a State within the European Economic Area (EEA). As stated in the Scoping Opinion for the Project provided by the Planning Inspectorate, ID 2.2.4, *“the [Planning] Inspectorate considers that the potential for significant transboundary effects on the environment is unlikely given the nature, scale and location of the Proposed Development”*. Transboundary effects are therefore not considered further in the EIA for the Project.

Cumulative effects

3.2.9 There are two types of cumulative effect, intra-project effects and inter-project effects (see **Section 3.12**). The former occurs as a result of two or more Project impacts acting together (i.e. combined), to result in a new or changed effect on a single receptor. The latter arise as a result of the Project in combination with other developments or projects.

3.3 The EIA Process

3.3.1 The EIA Regulations set out the procedures to be followed in relation to EIAs undertaken for Nationally Significant Infrastructure Projects (NSIPs) in England and Wales. The EIA for a DCO includes:

- A request for a Scoping Opinion to the Secretary of State (administered by the Planning Inspectorate);
- The Preliminary Environmental Information Report (PEIR) (to inform statutory consultation with the public and other stakeholders of preliminary findings); and
- The ES (to accompany the DCO application).

3.3.2 In addition to the above, this Draft ES has been prepared to allow consultees to consider and comment on changes to the Project since the publication of the PEIR in 2022, and prior to submission of the ES to accompany the DCO application.

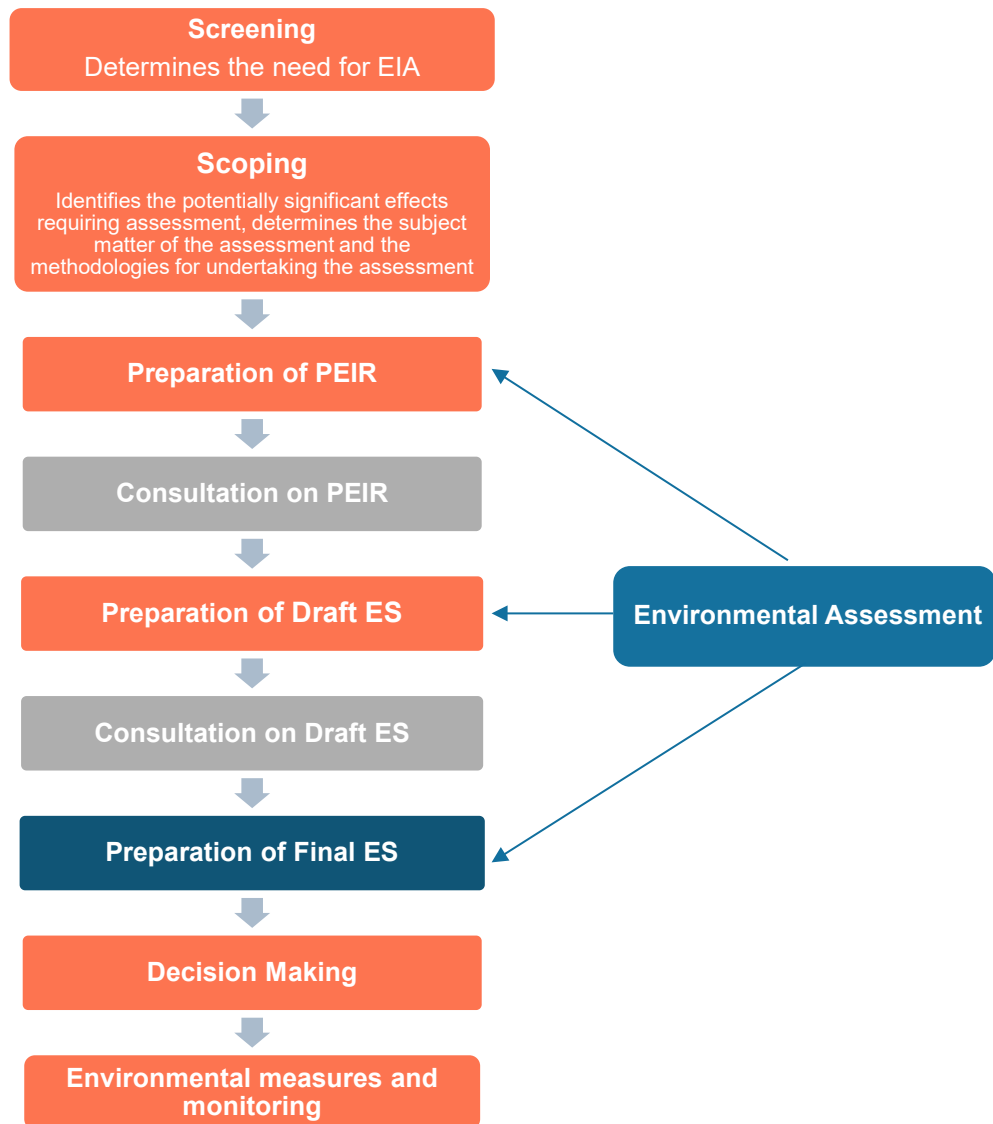
3.3.3 The EIA undertaken for the Project has focused on aspects and matters where a likely significant effect may occur. This approach ensures that the EIA process is proportionate, in line with best practice, as required by Regulation 14(2)(b) of the EIA Regulations¹.

3.3.4 The standard EIA process, and where the Draft ES fits into this process for NSIPs is summarised in **Graphic 3.1**.

³ [Certainty for oil and gas industry in light of landmark ruling - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/certainty-for-oil-and-gas-industry-in-light-of-landmark-ruling) (Accessed September 2024)

- 3.3.5 The remainder of this chapter provides further detail around the key stages in this process with a focus on those stages most relevant to this stage of the assessment.

Graphic 3.1 The EIA Process



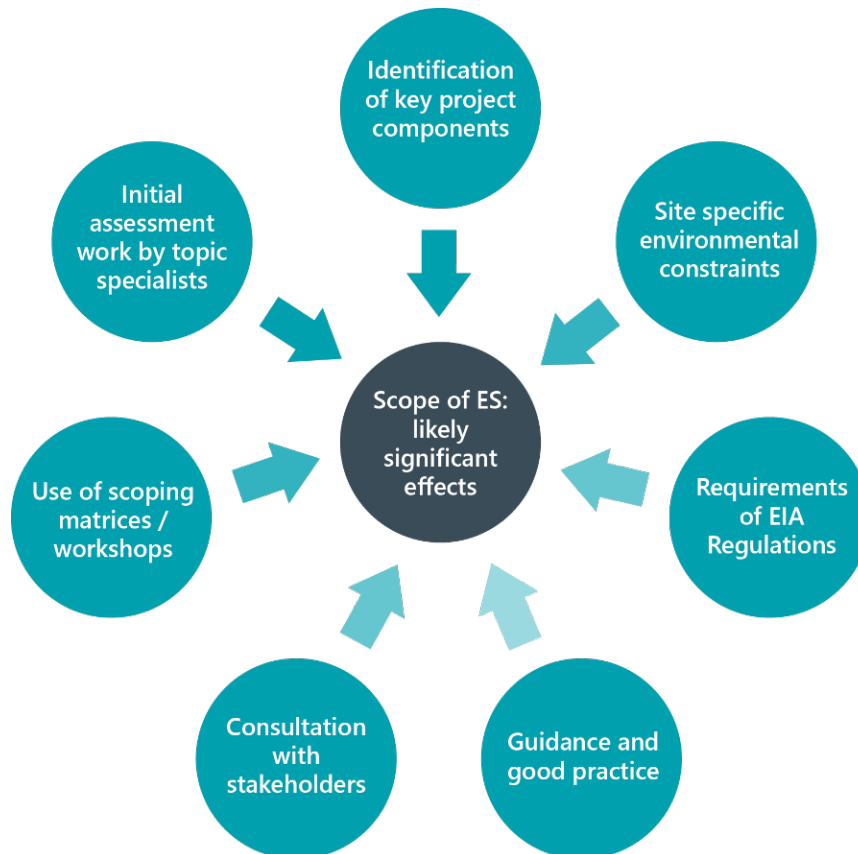
3.4 EIA Screening

- 3.4.1 The Project falls within the provisions of Schedule 1 (para. (16)(a)) of the EIA Regulations, as the pipeline for transporting hydrogen gas has a diameter of more than 800 millimetres and a length of more than 40km. As set out in paragraph 1.3.4 of the Scoping Report, considering the diameter and length of the pipeline, the Applicant gave notice in line with Regulation 8(1)(b) of the EIA Regulations that an EIA will be undertaken and that the application for a DCO will be accompanied by an ES.

3.5 EIA Scoping

- 3.5.1 Scoping is an important procedure, which sets the context for the EIA process. It is intended to inform a proportional and robust approach to assessment through initial evaluation and reporting of identified likely significant effects in a Scoping Report. **Graphic 3.2** highlights some of the key inputs into the scoping process.

Graphic 3.2 Inputs to the Scoping Process



- 3.5.2 At the Scoping Report stage, an assessment of whether an effect should be considered significant was made, based on professional judgement, with reference to the Project description, and available information about:
- The magnitude and other characteristics of the potential changes that are expected to be caused by the Project;
 - The sensitivity of receptors to these changes;
 - The value of receptors (where relevant); and
 - The effects of these changes on relevant receptors.
- 3.5.3 If the information that was available at the Scoping Report stage did not enable a robust conclusion to be reached that an effect was not likely to be significant, the effect was proposed to be taken forward for further assessment.

- 3.5.4 The Scoping Report for the Project was submitted to the Secretary of State, administered by the Planning Inspectorate, requesting a Scoping Opinion, on 26 January 2022.
- 3.5.5 A Scoping Opinion was subsequently adopted on 08 March 2022. The Scoping Opinion and the statutory consultee responses have informed the assessment work and further design evolution undertaken to date. The Scoping Opinion and the statutory consultee responses are discussed in each of the technical topic chapters.

3.6 Preliminary Environmental Information Report

- 3.6.1 The PEIR was prepared as part of the statutory pre-application consultation, as required under Sections 42 and 47 of the Planning Act 2008.⁴ The PEIR was published in September 2022 and provided a preliminary assessment of likely significant effects arising from the construction, operation and decommissioning phases of the Project. As such, the PEIR enabled members of the public, consultation bodies and other stakeholders to develop an informed view of the likely significant effects, as identified at that stage, and comment on particular aspects of interest.

3.7 Consultation and Engagement

Non-statutory consultation

- 3.7.1 Non-statutory consultation (Stage One Consultation) was undertaken between 26 January 2022 and 11 March 2022. The consultation was undertaken at a formative stage in the project development process, to provide consultees with an early opportunity to influence the proposals while options were still undergoing consideration. A digital first approach to consultation was undertaken, with access supported from mobile devices. In-person events were also held across North West England. A consultation postcard was distributed at the start of the consultation, which provided a brief description of the Project and information on how to provide feedback via the project website. Emails were also sent to stakeholders on the day of consultation, and posters sent to information points. Print and digital advertising was also utilised. The Stage One Consultation informed the approach to the Stage Two Consultation.

Statutory consultation

- 3.7.2 Statutory Consultation (Stage Two Consultation) was ‘unofficially’ launched on 12 September 2022. The death of Her Majesty the Queen led to the subsequent decision taken by the Applicant to delay the start of the statutory consultation until 29 September 2022. Therefore, the statutory consultation was undertaken between 29 September 2022 and 10 November 2022. A project postcode, the

⁴ UK Government (2008). Planning Act 2008. (online) Available at: <https://www.legislation.gov.uk/ukpga/2008/29/contents> (Accessed June 2024).

project website and consultation documents such as maps and plans, to detail the nature and location of the Project, were provided for statutory consultation. Documents designed to assist those who wished to comment on the Project included a consultation brochure, feedback form, Design Evolution Report and the PEIR. In-person consultation events were held across the Project area, and an online virtual exhibition space and online events were available. Statutory notices were published, press releases issued, email notifications issued, and posters advertisements were placed. An advertisement campaign was also undertaken.

Technical engagement

- 3.7.3 The Applicant has held informal engagement with the key prescribed consultees, as appropriate, to refine the Project and the EIA, and to assist in the development of any required mitigation. This technical engagement is reported in individual environmental topic chapters (**Chapters 5 to 18**) in the 'Consultation and Engagement' section.
- 3.7.4 This section provides a record of all relevant comments received in relation to that topic from:
- The Scoping Opinion;
 - The Consultation Report covering both non-statutory consultation and statutory consultation; and
 - Ongoing technical engagement with relevant prescribed consultees, including the host Local Planning Authorities.
- 3.7.5 The Applicant will continue to hold informal engagement throughout the Development Consent Order (DCO) process.

3.8 Preparation of the Draft ES

Compliance with the EIA Regulations

- 3.8.1 Although not the Final ES, the content of this Draft ES has sought to comply with Regulation 14 and Schedule 4 of the EIA Regulations. Planning Inspectorate Advice Note Seven⁵ states that the ES should clearly explain the processes followed, the forecasting methods used, and the measures envisaged to prevent, reduce and where possible offset any significant negative effects. **Table 3.1** signposts to where the information is provided in this Draft ES pursuant to Regulation 14 and Schedule 4 of the EIA Regulations.

⁵ Planning Inspectorate (June 2020), Advice Note Seven: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping. Version 7. Available at: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an> (Accessed 04 June 2024).

Table 3.1 Compliance with Regulation 14 and Schedule 4 of the EIA Regulations

Requirement from Schedule 4 and Regulation 14	Location in this Draft ES
Regulation 14	
2. An environmental statement is a statement that includes at least:	Chapter 2: The Project
(a) a description of the proposed development comprising information on the site, design, size and other relevant features of the development;	
(b) a description of the likely significant effects of the proposed development on the environment;	Technical topic Chapters 5 to 18
(c) a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;	Chapter 2: The Project , technical topic Chapters 5 to 18 (subsections on Embedded measures)
(d) a description of the reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment;	Chapter 2: The Project, Appendix 2A: Design Evolution
(e) a non-technical summary of the information referred to in subparagraphs (a) to (d); and	Non-Technical Summary
(f) any additional information specified in Schedule 4 relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected.	Chapter 2: The Project , technical topic Chapters 5 to 18 Figures, Appendices
3. The environmental statement referred to in paragraph (1) must (a) where a Scoping Opinion has been adopted, be based on the most recent Scoping Opinion adopted (so far as the	Chapter 3: Approach to preparing the Draft ES, Chapters 5 to 18

Requirement from Schedule 4 and Regulation 14	Location in this Draft ES
proposed development remains materially the same as the proposed development which was subject to that opinion);	
b) include the information reasonably required for reaching a reasoned conclusion on the significant effects of the development on the environment, taking into account current knowledge and methods of assessment; and	Chapter 3: Approach to preparing the Draft ES, technical topic Chapters 5 to 18
(c) be prepared, taking into account the results of any relevant UK environmental assessment, which is reasonably available to the applicant with a view to avoiding duplication of assessment.	Technical topic Chapters 5 to 18
4. In order to ensure the completeness and quality of the environmental statement – (a) the applicant must ensure that the environmental statement is prepared by competent experts; and	Chapter 1: Introduction
(b) the environmental statement must be accompanied by a statement from the applicant outlining the relevant expertise or qualifications of such experts.	Appendix 1A
Schedule 4	
1. A description of the development, including in particular: (a) a description of the location of the development;	Chapter 2: The Project
(b) a description of the physical characteristics of the whole development, including, where relevant, requisite demolition works and the land-use requirements during the construction and operational phases;	Chapter 2: The Project, Figures
(c) a description of the main characteristics of the operational phase of the development (in particular any	Chapter 2: The Project

Requirement from Schedule 4 and Regulation 14	Location in this Draft ES
production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used; and	
d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and sub soil pollution, noise, vibration, light, heat, radiation, and quantities and types of waste produced during the construction and operation phases.	Topic chapters relating to: Hydrology: Chapter 7 (Water Environment) Agriculture and soils: Chapter 13 Traffic and transport: Chapter 11 Air quality: Chapter 9 Noise and vibration: Chapter 10 Climate change: Chapter 17 (Greenhouse Gas assessment) and Chapter 18 (Climate Change Resilience) Draft Outline Construction Environmental Management Plan: Appendix 3B
2. A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	Chapter 2: The Project and alternatives (Appendix 2A; Design evolution and stand alone Design Evolution Report 2024)
3. A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.	Technical topic Chapters 5 to 18
4. A description of the factors specified in regulation 5 (2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora) land (for example land take), soil (for example organic matter,	Population: Chapter 15 (People and Communities) Water Environment: Chapter 7 Traffic and Transport: Chapter 11 Air Quality: Chapter 9 Noise and Vibration: Chapter 10 People and Communities: Chapter 15

Requirement from Schedule 4 and Regulation 14	Location in this Draft ES
erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.	Biodiversity: Chapter 5 Historic environment: Chapter 6 Landscape and Visual: Chapter 8 Ground Conditions: Chapter 12 Agriculture and Soil Resources: Chapter 13 Land Use: Chapter 14 Greenhouse Gas assessment: Chapter 17 Climate Change Resilience: Chapter 18
5. A description of the likely significant effects of the development on the environment resulting from, inter alia: (a) The construction and existence of the development including, where relevant, demolition works;	Chapters 5 to 18 (Assessment of effects subsections)
(b) The use of natural resources, in particular, land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;	Chapters 5 to 18 (Assessment of effects subsections)
(c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances and the disposal and recovery of waste;	Chapters 5 to 18 (Assessment of effects subsections)
(d) The risks to human health, cultural heritage or the environment (for example due to accidents or disasters);	Chapters 5 to 18 (Assessment of effects subsections)
(e) The cumulation of effects with other existing and/or approved projects taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;	Chapters 5 to 18 (Assessment of cumulative effects subsections)
(f) The impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change; and	Chapter 17: Greenhouse Gas assessment and Chapter 18: Climate Change Resilience

Requirement from Schedule 4 and Regulation 14	Location in this Draft ES
(g) The technology and the substances used. The description of the likely significant effects on the factors specified in regulation 5 (2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project, including in particular those established under Council Directive 92/43/EEC (a) and Directive 2009/147/EC (b).	Chapters 5 to 18 (Assessment of effects subsections) Technical topic Chapters 5 to 18 (subsections ‘Assessment of effects’ and ‘Significant conclusions’), Chapter 19: Intra-Project Effects
6. A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	Technical topic Chapters 5 to 18 (subsections ‘Assessment methodology’)
7. A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.	Technical topic Chapters 5 to 18 (subsections ‘Embedded measures’ and ‘Assessment of effects’)
8. A description of the expected significant adverse effects of the development on the environment	Chapter 16: Major Accidents and Disasters

Requirement from Schedule 4 and Regulation 14	Location in this Draft ES
deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council (c) or Council Directive 2009/71/Euratom (d) or UK environmental assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.	
9. A non-technical summary of the information provided under paragraphs 1 to 8.	Non-Technical Summary
10. A reference list detailing the sources used for the descriptions and assessments included in the environmental statement.	Technical topic Chapters 5 to 18

- 3.8.2 This Draft ES has also been prepared in accordance with the requirements of Regulation 5(2)(a) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009.
- 3.8.3 On 17 January 2024 the Secretary of State designated revised Energy National Policy Statements (NPSs) under the provisions of Section 5(1) of the Planning Act 2008. These NPSs set out guidance to inform the decision-making process for NSIPs. A summary of the main elements of the Overarching National Policy Statement for Energy (EN-1) and the NPS for Natural Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4), which are relevant to the Project is set out in **Chapter 4: Legislation and Planning Policy**. Each technical topic chapter also includes policy context relevant to the assessment.

3.9 Scope of the Assessment

Technical scope

- 3.9.1 The technical scope of assessment for each environmental topic is detailed in **Chapters 5 to 18** and covers the scoping in and out of impacts/ effects to be assessed as part of the EIA. Justification is provided for the individual approach and scoping of matters to be considered in the assessment for each environmental topic. The technical scope also details the approach to baseline data collection and assessment methodologies.

Spatial scope

- 3.9.2 The spatial scope for each environmental topic (i.e. the area over which changes to the environment are predicted to occur as a consequence of the Project), will depend on the nature of the potential effects and the location of receptors that could be affected. It takes account of:
- The physical area of the Project;
 - The nature of the baseline environment; and
 - The manner and extent to which environmental effects may occur.
- 3.9.3 Each of the environmental topic chapters (**Chapters 5 to 18**) describe the Study Area to be considered, providing a clear explanation as to why the Study Area has been adopted. The spatial scope of each assessment has taken account of comments received from stakeholders, the Scoping Opinion and statutory consultation responses. The Order Limits have been refined since the PEIR, as discussed in **Chapter 2: The Project**.

Temporal scope

- 3.9.4 The temporal scope covers the time period over which changes to the environment and the resultant effects are predicted to occur. Effects are typically defined as either being temporary or permanent:
- Temporary – these are effects that are related to environmental changes associated with a particular activity and that will cease when that activity finishes; and
 - Permanent – these are effects that will remain even when the Project is complete, although these effects may be caused by environmental changes that are permanent or temporary.
- 3.9.5 The assessment has regard to the Project programme and has evaluated the environmental effects of the Project during construction, operation and decommissioning. These effects have been compared to the situation prevailing before the Project is commenced (the current baseline), and to the situation that would prevail in the future without the Project (the projected future baseline).

- 3.9.6 The future baseline is the theoretical situation that would exist in the absence of the Project. This is based upon extrapolating the current baseline using technical knowledge of likely changes to predict this (e.g. predictable changes such as climate change, changes that can be predicted based on reasonable assumptions and modelling calculations, information about other relevant developments etc.).
- 3.9.7 Each environmental topic chapter defines the baseline (current or future or both) against which changes potentially caused by the Project have been compared. The baseline taken forward for assessment varies from topic to topic; for example, for transport, there will be traffic growth based on regional or national trends, and this would normally be applied consistently across all road transport-related receptors. The baseline conditions to be assessed for each environmental topic are outlined in **Chapters 5 to 18** of this Draft ES. Where relevant, environmental topic chapters provide further information on the time elements within the Project programme that will be considered for their assessment.

Design envelope

- 3.9.8 The Draft ES adopts a parameter-based design envelope approach, known as the Rochdale Envelope approach. The Planning Inspectorate Advice Note Nine⁶ outlines the approach that can be taken, in accordance with the requirements of the EIA Regulations, where some details of the Project have not yet been confirmed when the Application is submitted and where flexibility is sought to address this uncertainty.
- 3.9.9 Assessing using a parameter-based design envelope approach means that the assessment will consider a design scenario which represents the reasonable worst-case for each environmental topic whilst allowing the flexibility to make improvements in the future in ways that cannot be predicted at the time of submission of the DCO application. Development permitted by the DCO will not extend beyond the clearly defined parameters assessed in this Draft ES. The maximum assessment assumptions for the Project are defined in **Chapter 2: The Project**.

⁶ Planning Inspectorate (2018). Advice Note Nine: Rochdale Envelope (version 3). (Online) Available at: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope> (Accessed 04 June 2024).

3.10 Assessment of Effects and Determining Significance

Overview

- 3.10.1 For consistency, and to allow comparison between aspects, the methodology described in this section has been applied when preparing this Draft ES. This methodology is designed to consider whether impacts of the Project have an effect on any environmental receptors. Assessments broadly consider the magnitude of impacts and the sensitivity of resources or receptors that could be affected to classify the significance of effects.
- 3.10.2 For each environmental topic, the categories of resource or receptor sensitivity and magnitude of impact are described or defined. The following sections therefore provide the generic criteria for the definition of resource or receptor sensitivity, magnitude of change and classification of effect.
- 3.10.3 The environmental topic chapters (**Chapters 5 to 18**) provide greater detail on the approach to the assessment and specific guidelines for the definition of impact magnitude and resource or receptor sensitivity. The approach to the assessment undertaken by each environmental topic broadly follows the approach set out in the following sections. Variations from this approach may be applicable to specific environmental topics whereby professional judgment in the application of standards mandated by professional bodies (for example the Institute of Ecology and Environmental Management (IEEM) or the Landscape Institute) is applied. Where this is the case, further detail and justification has been provided.

Resource and receptor sensitivity

- 3.10.4 The sensitivity or value of a receptor is largely a product of the importance of an asset, as informed by legislation and policy, and as qualified by professional judgement. For example, higher value receptors for landscape, biodiversity or the historic environment may be defined as being of international or national importance; lower value resources may be designated as being sensitive or important at a county or district level.
- 3.10.5 The use of a receptor also plays a part in its classification. For example, when considering visual amenity, a receptor which is residential in nature may be valued more than a place of work, as the environmental quality of the residential receptor is more likely to be an important part of that receptor's use.
- 3.10.6 **Table 3.2** sets out the generic guidelines for the assessment of sensitivity of a resource or receptor.

Table 3.2 Generic guidelines for the assessment of sensitivity

Value or Sensitivity	Guidelines
High	Value: Feature or receptor possesses key characteristics which contribute significantly to the distinctiveness, rarity and character of the site or receptor (for example designated features of international or national importance). Sensitivity: Feature or receptor has little to no capacity to accommodate the proposed form of change
Medium	Value: Feature or receptor possesses key characteristics which contribute significantly to the distinctiveness and character of the site or feature (for example designated features of regional or county importance). Sensitivity: Feature or receptor has a low capacity to accommodate the proposed form of change.
Low	Value: Feature or receptor only possesses characteristics which are locally significant. Feature or receptor not designated or designated only at a local or district level. Sensitivity: Feature or receptor has some tolerance to accommodate the proposed change.
Very low	Value: Feature or receptor characteristics do not make a significant contribution to local distinctiveness and not designated. Sensitivity: Feature or receptor is generally tolerant and can accommodate the proposed change.

Magnitude of change

- 3.10.7 The magnitude of change affecting a receptor resulting from the Project is identified on a scale from minor alterations or change, up to major changes or the total or substantial loss of the receptor. For certain environmental topics, the magnitude of change is related to guidance on levels of acceptability (for example, for air quality or noise), and is therefore based on numerical parameters. For others it is related to professional judgement to determine the magnitude of change, using descriptive terminology.
- 3.10.8 **Table 3.3** sets out the generic guidelines of the assessment of the magnitude of change.

Table 3.3 Generic guidelines for the assessment of magnitude

Magnitude	Guidelines
High	Large scale changes over the whole Project area and potentially beyond to key characteristics or features of the particular environmental topic's character or distinctiveness.
Medium	Medium scale changes over the majority of the Project area and potentially beyond to key characteristics or features of the particular environmental topic's character or distinctiveness.
Low	Noticeable but small-scale changes over part of the Project area and potentially beyond to key characteristics or features of the particular environmental topic's character or distinctiveness.
Very low	Noticeable but very small-scale change or barely discernible changes over a small part of the Project area and potentially beyond, to key characteristics or features of the particular environmental topic's character or distinctiveness.

Determination of significance

3.10.9 For many environmental topics, significance can be determined by using a matrix. The overarching significance matrix used for the EIA is shown in **Table 3.4**.

3.10.10 The generic definitions used to determine the level of significance are shown in **Table 3.5** Reference is made to:

- 'Major' effects, which will always be determined as being significant.
- 'Moderate' effects can be significant, although there may be circumstances where such effects are considered not significant on the basis of specific scenarios or professional judgement.
- 'Minor' or 'negligible' effects, which will always be deemed as 'not significant'.
- Effects can be either beneficial or adverse.

3.10.11 Variations to this matrix approach are detailed within the respective chapters (**Chapters 5 to 18**), along with descriptions of receptor sensitivity, magnitude of change and levels of effect that are considered significant. Definitions of how the categories used in the matrix are derived for each environmental topic are also set out.

3.10.12 In addition, professional judgement is applied in the assessment, as the boundaries between the sensitivities or magnitudes of change may not be clearly defined and the resulting assessment conclusions may need clarifying.

Table 3.4 Significance evaluation matrix

		Magnitude of change			
		High	Medium	Low	Very low
Sensitivity or value	High	Major (significant)	Major (significant)	Moderate (potentially significant)	Minor (not significant)
	Medium	Major (significant)	Moderate (potentially significant)	Minor (not significant)	Minor (not significant)
	Low	Moderate (potentially significant)	Minor (not significant)	Minor (not significant)	Negligible (not significant)
	Very low	Minor (not significant)	Minor (not significant)	Negligible (not significant)	Negligible (not significant)

Table 3.5 Generic classification of effect definitions

Magnitude	Guidelines
Major	Very large or large change in environmental or socio-economic conditions. Effects, both negative and positive, which are likely to be important considerations at a national to regional level because they contribute to achieving national or regional objectives, or which are likely to result in exceedance of statutory objectives or breaches of legislation.
Moderate	Intermediate change in environmental or socio-economic conditions. Effects that are likely to be important considerations at a regional or local level.
Minor	Small change in environmental or socio-economic conditions.
Negligible	No discernible change in environmental or socio-economic conditions. An effect that is likely to have a neutral or negligible influence.

3.11 Environmental Measures

- 3.11.1 In accordance with Regulation 14(2)(c) of the EIA Regulations, the environmental topic chapters (**Chapters 5 to 18**) within the Draft ES include a description of the “*measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment*”.
- 3.11.2 For each environmental topic, the EIA process has systematically identified impacts and effects, taking into consideration environmental measures that the Project will adopt. These environmental measures include avoidance, best practice and design commitments, which are classified into primary or tertiary

measures in accordance with the Institute of Environmental Management and Assessment's (IEMA) Guide to Delivering Quality Development⁷ definitions as follows.

- Primary (inherent): Referred to as 'embedded measures', are modifications to the location, design or operation of the Project made during the pre-application phase that are an inherent part of the Project, and do not require additional action to be taken.
- Secondary (foreseeable): Actions that will require further activity in order to achieve the anticipated outcome and are referred to as 'additional measures'.
- Tertiary (inexorable): Actions that would occur with or without input from the EIA feeding into the development process. These include actions that will be undertaken to meet other existing legislative requirements or actions that are considered to be standard practice used to manage commonly occurring environmental effects. These are referred to as 'good practice measures' and are also embedded within the design of the Project. Examples include construction management measures implemented to minimise the risk of nuisance or pollution effects, set out in an Outline Construction Environmental Management Plan and associated plans such as an Outline Soil Management Plan or Outline Drainage Strategy, and secured via a DCO requirement.

3.11.3 Opportunities for embedded design measures have been identified throughout the evolution of the design of the Project and the EIA process, whereby potential significant adverse environmental effects have been fed back into the design process to verify whether they can be avoided or otherwise mitigated in accordance with the hierarchy. Alongside this, good practice measures have been identified with reference to legislative requirements and measures of standard practice to manage commonly occurring effects. These design measures and good practice measures have been included within the Project plans and drawings and thus are integrated into the overall design strategy as embedded measures.

3.11.4 Following the application of embedded measures, where the potential for a significant environmental effect remains, 'additional measures' are considered to avoid, reduce or compensate this effect. Typically, additional measures cannot be implemented as part of the Project and/or within the Draft Order Limits. An example would include off-site planting schemes within privately owned land where agreement would need to be reached with the landowner in order to implement the planting. In such instances these additional measures are identified, and consideration given to residual effects should such measures be implemented. However, such mitigation does not form part of the Project. The assessment of residual effects is only provided as an indication of whether the additional measures could potentially mitigate significant effects.

⁷ IEMA (2016). Environmental Impact Assessment Guide to: Delivering Quality Development (online). Available at: <https://www.iema.net/policy-and-practice/practice-reports> (Accessed 04 June 2024).

Monitoring measures

- 3.11.5 Monitoring measures may be required in relation to any significant negative effects on the environment caused by the Project and imposed as a DCO requirement. Any monitoring proposed with respect to significant adverse effects is identified in the environmental topic chapters (**Chapters 5 to 18**).

Securing mitigation and monitoring measures

- 3.11.6 Embedded environmental mitigation measures are identified with each environmental topic chapters (**Chapters 5 to 18**) as appropriate. The Draft ES is based on the assumption that all of these measures will be implemented as part of the Project. Implementation of the embedded environmental measures relied upon in the assessment are secured in the DCO. For example, through the setting of Limits of Deviation or specifying mitigation measures via a DCO requirement. A draft Register of Environmental Actions and Commitments (REAC) has been provided as **Appendix 3C** of this Draft ES which summarises the committed mitigation measures provided within the chapters of the Draft ES and associated appendices. A final version of the REAC will be included with the Final ES to be submitted with the DCO application documents and will act as a primary tool to capture and agree all embedded environmental mitigation measures, and the mechanisms for securing them.

3.12 Assessment of Cumulative Effects

- 3.12.1 This section sets out the approach to the Cumulative Effects Assessment (CEA) to support consultation being undertaken under Sections 42 and 47 of the Planning Act 2008⁴.
- 3.12.2 Two types of effects are considered:
- Inter-project (combined with other development) effects: effects resulting from the Project combining with the same topic-related effects generated by other developments to affect a common receptor. For example, where the effects from traffic flows during the construction of the Project combine with traffic flows from other development undergoing construction nearby to result in significant effects on a local resident.
 - Intra-project (within the Project) effects: individual environmental topic effects resulting from the Project, which are not significant in their own right, but could combine with other environmental topic effects from the same development to create effects that are significant. For example, where changes in visual amenity and noise, dust and traffic related effects from the Project construction works combine to result in significant effects on a local resident.
- 3.12.3 This section presents the inter-project assessment methodology, with the results of a screening exercise to identify projects and plans for inclusion in the inter-project CEA provided in **Appendix 3A**. A detailed assessment is included within each of the environmental topic chapters of this Draft ES, and where appropriate takes account of other development identified by relevant stakeholders following

statutory consultation in addition to those considered in the preliminary assessment.

Inter-project effects methodology

- 3.12.4 Inter-project effects concern the identification and assessment of effects of the Project combined with effects of other reasonably foreseeable proposed development, for example development for which consent has been applied for or granted or for which a local authority has allocated land for. These are referred to as 'other development'. Such effects can be additive, synergistic or more rarely, antagonistic and the EIA will have regard for the potential for all three types of effect. These terms are explained below:
- Additive effects are where the cumulative effect is equal to the sum of the interaction of a number of individual effects. For example, the loss of two separate areas of woodland of 1ha each from two separate developments results in a cumulative loss of 2ha of woodland.
 - Synergistic effects are where the cumulative effect is greater than, or different from, the sum of the individual effects. For example, noise emissions from two separate developments combine to have a significant effect on a receptor when individually each development would not result in a significant effect.
 - Antagonistic effects are when the interaction of a number of impacts counteract or neutralize each other so are less than the sum of the individual. For example, warming can offset ocean acidification by decreasing the solubility of carbon dioxide.
- 3.12.5 Whilst there is no standard approach to the CEA, the Planning Inspectorate has published advice⁸ which provides useful guidance in setting out a process for the identification and assessment of 'other development'. Hence, the EIA will follow the methodology as defined in the guidance⁸. This is a four-stage approach, as follows:
- Stage 1 – establish the Zone of Influence (Zoi) for the Project and identify a 'long list' of 'other development and/or approved development';
 - Stage 2 – identify a 'shortlist' of 'other development and/or approved development' for the CEA;
 - Stage 3 – gather information; and
 - Stage 4 – undertake assessment.
- 3.12.6 The above stages have been followed, and a detailed CEA is included as part of this Draft ES.

⁸ The Planning Inspectorate (2024). Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (Online) Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment> (Accessed September 2024).

Stage 1: Project Zol and long list of 'other development'

- 3.12.7 The Zol of the Project, within which any potential effects of the Project may combine with the effects arising from other development, has been defined by the environmental topic specialists and combined into a single area within which other development have been identified, based on professional judgment. A summary of each Zol is shown in **Table 3.6**. Comments on the Zols received from relevant consultees during statutory consultation have been taken into account, as appropriate.
- 3.12.8 Planning Inspectorate guidance⁸ acknowledges that certain assessments, such as transport and associated operational assessments of vehicular emissions (including air and noise) may inherently be cumulative assessments. This is because they may incorporate modelled traffic data growth for future traffic flows. Where these assessments are comprehensive and include a worst-case within the defined assessment parameters, no additional cumulative assessment of these topics is required. This is reflected in **Table 3.6**. This position will be kept under review in the event that any new 'other development' is identified that has potential to exceed the previous worst-case assumptions based on growth data (for example, not previously included in modelled forecasts).

Table 3.6 Environmental topic Zols for CEA

Topic	Zol	Justification
Historic Environment	1km	Reflects the likely maximum geographical extent for significant effects arising from other development that may overlap with the Project.
Landscape and Visual	2km	Reflects the likely maximum geographical extent for significant effects arising from other development that may overlap with the Project.
Air Quality	500m	Spatial scope identified in line with IAQM guidance with respect to dust emissions and road traffic emissions.
Noise and Vibration	1km	Based on the way noise and vibration will propagate from its source and attenuation of distance to receiver.
Ground Conditions	1km	Reasonable maximum extent over which the Project could potentially contribute to cumulative effects in relation to contamination migration (e.g. groundwater, ground gas), considering the nature of the development activities associated with the Project. This Zol is consistent with the Study Area of 500 m i.e. matches the maximum extent at which the Study Area could overlap with a 500 m buffer from other development.
Agricultural and Soils	Draft Order Limits	For agricultural land, consideration is given to the loss of Best and Most Versatile land within the boundary of the Project.

Topic	Zol	Justification
		For soils, the effect is only deemed cumulative if the same soil is disturbed twice and therefore is limited to land within the boundary of the Project.
Land Use	1km	Based on other chapter Zols and potential effects that may affect land use receptors.
People and Communities	2km	Based on other chapter Zols and potential effects that may affect socio-economic receptors.
Major Accidents and Disasters	1km	Based upon a worst-case estimate of potential effects of hydrogen gas releases.
Water Environment	2.5km	Maximum zone in which any direct effects of the Project on the water environment likely to occur. Zol extends further downstream (2.5km) than upstream (500m) as potential effects will be transferred downstream in the direction of flow more readily than upstream.
Biodiversity	2km	Internationally and nationally designated sites (non-ornithological)
	10km	Bats and nationally designated sites (ornithological)
	2km	Protected habitats and species (with the exception of bats) and non-designated sites
	20km	Internationally designated sites (ornithological)

3.12.9 The largest Zol relates to potential effects on internationally designated sites for ornithology (up to 20km from the Order Limits). The total linear extent of the Order Limits is approximately 100km in length and applying a 20km buffer around the Order Limits, results in a potential search area of approximately 2,000km². In order to undertake a proportionate approach to identifying potential other development and allocated sites which could interact with the Project the maximum Zol has been refined as follows.

3.12.10 The Habitats Regulations Assessment (HRA) Screening Report has identified one SPA, five SACs and four Ramsar Sites within 10km of the Project. There are a further four SPAs and three Ramsar Sites (designated for ornithological features) within 20km of the Project. The HRA Screening Report has identified that no likely significant effects are predicted on designated sites between 10km – 20km and that no pathways of effect exist. As there are no pathways for any effects from the Project, a cumulative effect cannot occur. Therefore, the biodiversity Zol has been refined to 10km; other development and allocations which would fall within the 10-20km buffer are screened out of further assessment.

Criteria for identifying other development

3.12.11 Planning Inspectorate guidance⁸ acknowledges that the approach to defining which ‘other development’ to include in the CEA depends on the availability of information necessary to conduct a CEA. This will partly depend on the status of the relevant ‘other development’ and therefore the guidance consequently groups ‘other development’ into tiers, which reflect the likely degree of certainty attached to each development occurring, with Tier 1 being the most certain and Tier 3 the least certain. The criteria associated with the three Tiers is set out in **Table 3.7**, with the Tiers listed in descending order of level of detail likely to be available (and certainty of effects arising). Appropriate weight may therefore be given to each scenario (Tier) in the decision-making process when considering potential cumulative effects associated with the Project.

Table 3.7 Criteria for identifying other development

Tier	Proposed criteria of other development
Tier 1	• Under construction • Permitted applications under the Planning Act or other regimes but not yet implemented • Submitted applications under the Planning Act or other regimes but not yet determined • All refusals subject to appeal procedures not yet determined
Tier 2	Projects on the Planning Inspectorate’s Programme of Projects
Tier 3	• Projects on the Planning Inspectorate’s Programme of Projects, where a scoping report has not been submitted. • Identified in the relevant Development Plan and emerging Development Plans, with appropriate weight given as they near adoption, recognising that much information on any relevant proposals will be limited. • Identified in other plans and programmes, as appropriate, which set the framework for future development consents or approvals, where such development is reasonably likely to come forward.

3.12.12 Information on ‘other development’ has been gathered from the following sources:

- Local Authority planning register portals;
- relevant Local Plans;
- Planning Inspectorate’s programme of projects; and
- developer/project websites, where available.

Temporal scope

- 3.12.13 The criteria in **Table 3.7** have been applied to all planning and development consent applications submitted (and which are either consented or pending determination) in the last five years over the maximum extent of all topic Zols (i.e. the widest topic Zol area). Five years is selected as planning permissions typically expire after a period of three to five years (unless an application for extension is permitted).
- 3.12.14 For the purpose of producing the long list of ‘other development’, the 5-year period runs from June 2019 to the end of June 2024 in this Draft ES assessment. The long list has been reviewed prior to the DCO submission, with Tier 1 – 3 developments have been included in the Draft ES as appropriate.
- 3.12.15 Where the construction of ‘other development’ is expected to be completed before construction of the Project commences, and the effects of those projects are fully determined, effects arising from them are considered as part of the future baseline and therefore as part of the assessment of both the construction and operational phases. This Draft ES clearly distinguishes between projects forming part of the future baseline and those in the CEA.

Stage 2: Short-list of ‘other development’

- 3.12.16 At PEIR stage, following the compilation of the long list, this was subsequently refined to a proposed short list to identify those other development which are proposed to be taken forward for assessment, and added to as the ES stage progressed. In compiling this short list, a minimum level of information is necessary. For the purposes of this assessment, only those other development with at least a Scoping Report, PEIR or ES have been considered for short list.
- 3.12.17 Stage 2 involved a high-level information gathering exercise in order to determine:
- **The scale and nature of ‘other development’:** whether the scale and nature of the other development identified in the Zol was likely to interact with the Project;
 - **The temporal scope of ‘other development’:** whether the other development had overlapping construction, operational and/or decommissioning phases with the Project;
 - **Any other relevant factors:** whether any other factors, such as the sensitivity of the receiving environment or uncertainty in the potential effects merit further assessment of the potential cumulative effects; and
 - **Consultation:** requests from relevant stakeholders for the inclusion of specific projects and/or plans within the CEA.
- 3.12.18 Information was therefore captured about the other developments including the proposed programme of consenting, construction, operation and decommissioning to determine whether there is overlap and any potential for interaction with the Project. Consideration was given to the scale and nature of the other developments identified in the Zol, to determine whether they were likely to interact with the Project and to result in a cumulative effect.

- 3.12.19 Professional judgement was used to avoid excluding ‘other development’ that was close to the threshold limits but had characteristics likely to give rise to a significant effect; or which could give rise to a cumulative effect by virtue of its proximity to the Project. Similarly, professional judgement was applied where ‘other development’ was considered to not give rise to discernible effects.
- 3.12.20 Other developments were also scoped-out on the basis that the development:
- was understood to have already undergone construction or that it will be complete and operational before construction of the Project. Such projects therefore form part of the current or future baseline conditions and have been considered on that basis;
 - was of sufficient distance from the Project that significant cumulative effects are not likely to occur;
 - did not have enough information available on the operation and construction programme to be able an appropriate level of assessment; or
 - was not classed as an EIA development.
- 3.12.21 Each environmental topic identifies and assesses where there could be significant effects from other developments identified on the short list (see **Chapters 5 to 18**). **Appendix 3A** sets out the short list of other developments taken forward into the assessment for the Draft ES and provides an additional table detailing the developments not being considered and reasons for discounting these from the assessment. The location of these developments is provided on **Figure 3A.1**.
- 3.12.22 Ahead of drafting the Final ES the short-list will be revisited and agreed with the local planning authorities prior to assessment.

Stage 3: Information gathering

- 3.12.23 Further information on the short-listed developments has been gathered to inform the detailed CEA based on publicly available information such as that submitted in support of applications for consent. This includes:
- proposed design and location information;
 - construction and operational timescales; and
 - results of any environmental assessments completed for the other developments.

Stage 4: Assessment of other development

- 3.12.24 Stage 4 of the assessment has been conducted in accordance with the methodology presented in Planning Inspectorate’s guidance. The assessment of cumulative effects within each technical chapter has been undertaken with information available at the time of assessment. Consequently, there may be information gaps for some of the other development proposals. Where this occurs, such gaps have been discussed and acknowledged within the assessment.

- 3.12.25 All short-listed Tier 1 and Tier 2 developments have been assessed. The assessments for Tier 3 developments are less detailed in comparison to Tier 1 and 2, owing to the information available. The significance criteria used to identify likely significant effects is consistent with the criteria presented in **Section 3.10**.
- 3.12.26 Any measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant cumulative effects and, where appropriate, any proposed monitoring arrangements are identified.

3.13 Assumptions and Limitations

- 3.13.1 Assumptions and limitations are addressed under each environmental topic as identified in the appropriate chapters (**Chapter 5 to 18**).

3.14 Technical Topic Chapter Structure

- 3.14.1 With a few exceptions, each environmental topic chapter follows a common format, as outlined below:
- 1. Introduction;
 - 2. Relevant legislation, planning policy and technical guidance;
 - 3. Consultation and engagement;
 - 4. Data gathering methodology;
 - 5. Overall baseline;
 - 6. Embedded environmental measures;
 - 7. Scope of the assessment;
 - 8. Assessment methodology;
 - 9. Assessment of effects;
 - 10. Assessment of cumulative (inter-project) effects;
 - 11. Significance conclusions;
 - 12. Additional measures (if deemed necessary); and
 - 13. Residual effects assessment (only included if additional mitigation has been identified).

3.15 COVID-19 Implications

- 3.15.1 The restrictions imposed during the COVID-19 pandemic have had potential implications for the Project, in particular with regard to normal consultation activities and conducting site surveys. The following measures were undertaken by the project team to achieve as much as possible during the EIA programme whilst working fully within the restrictions, and being mindful of and managing any potential implications:

- EIA surveys that required land access proceeded within appropriate seasons, from October 2021 through to 2024. All surveys were conducted with respect to agreed HSE protocols relating to COVID-19 that were relevant at that time.
- EIA surveys that may not require land access but rely on the baseline environment to reflect the normal situation such as noise and traffic surveys or that were hindered in 2022 because of the restrictions imposed by the pandemic, were planned for a time when survey results reflected a more normal pattern. Flexibility where needed was sought from stakeholders regarding the timely completion of surveys and the provision of this information.
- In accordance with the Planning Inspectorate's Advice Note Seven, the Applicant conducted early targeted consultation with some stakeholders. The purpose of this engagement was to share and seek agreement on assessment approaches and to obtain as much relevant environmental information as possible in advance of key project milestones.

3.15.2 The project team kept abreast of the advice issued with regard to site surveys and consultation activities such as that issued by the National Infrastructure Planning Association, Natural England, Chartered Institute of Ecology and Environmental Management (CIEEM) and the Planning Inspectorate. In addition, all activity followed Government guidance on COVID-19.

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