

EAST COAST HYDROGEN TEESSIDE PIPELINE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) SCOPING REPORT (VOLUME I MAIN TEXT)

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Version	Date	Summary of changes	Prepared by	Approved by
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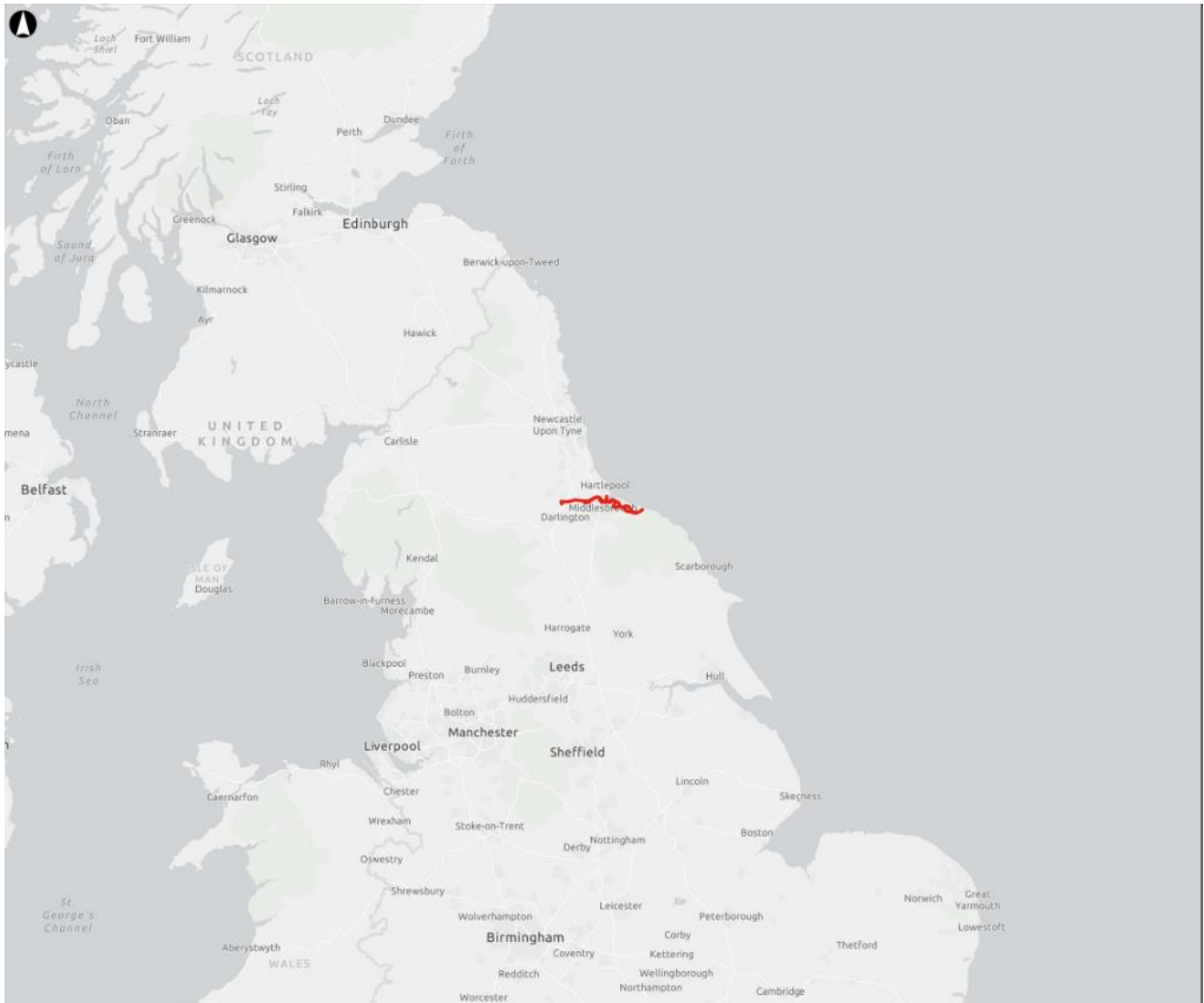
1 East Coast Hydrogen Teesside Pipeline - Introduction

1.1 Background

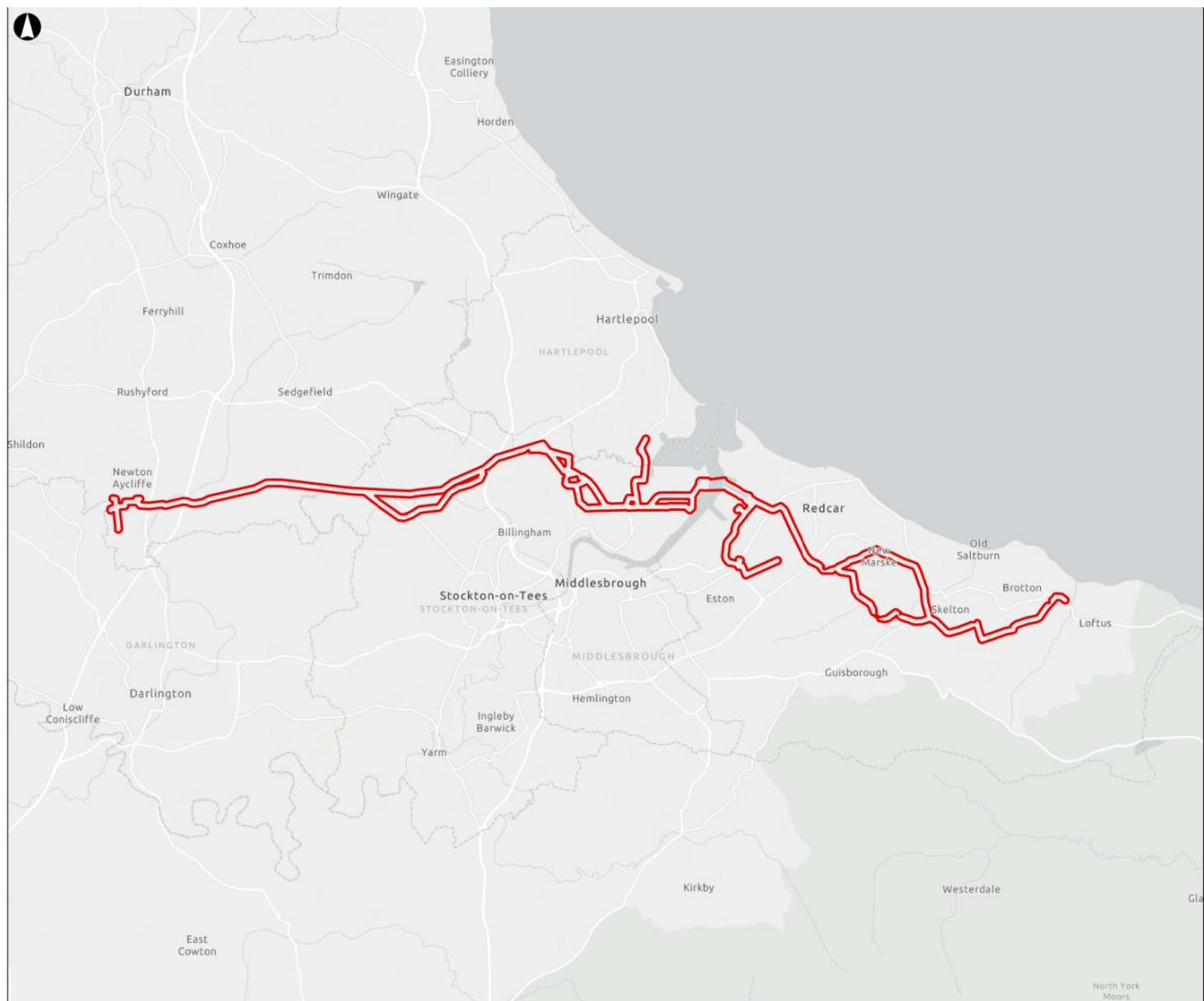
- 1.1.1 Ove Arup & Partners Limited ('Arup') has been appointed by Northern Gas Networks (NGN) ('The Applicant') to prepare an Environmental Impact Assessment (EIA) Scoping Report for the East Coast Hydrogen Teesside Pipeline (hereafter referred to as the 'Proposed Development') to support an application for an EIA Scoping Opinion under Regulation 10 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended in 2018) (the 'EIA Regulations') (Ref 1.1). The Proposed Development forms part of the proposed East Coast Hydrogen (ECH) Project ('the ECH Project¹').
- 1.1.2 The Applicant is preparing a Front End Engineering Design (FEED) study for how the gas network could be used to transport hydrogen across the North East of England. By converting existing assets and installing new infrastructure, the ECH Project will create a reliable hydrogen network to support decarbonisation for hard-to-electrify industrial sectors (such as dispatchable power, cement, steel, chemicals) which currently use large volumes of natural gas. The ECH Project would lead to significant investment and is crucial to decarbonise and support industry in the North East and Yorkshire regions.
- 1.1.3 The Proposed Development will convey hydrogen from production and storage locations proposed by third-parties in the Teesside region to a range of industrial consumers across Teesside and County Durham, including potential connection(s) to other third-party hydrogen networks. As currently proposed, the Proposed Development comprises the construction and operation of approximately 63km of new and potentially repurposed underground high (HP) (>7bar) and intermediate (IP) (2>7bar) pressure hydrogen pipelines between Skinningrove and Newton Aycliffe. The Proposed Development will include spurs off the main pipeline to connect with off-takers and will also include associated infrastructure (e.g. Above Ground Installations (AGI), Pressure Reduction Installations (PRI) and Block Valve Stations (BVS) along the route of the pipeline. The Proposed Development may also include necessary replacement of sections of natural gas pipeline within the Scoping Boundary.
- 1.1.4 The route of the Proposed Development crosses land within the administrative boundaries of Redcar and Cleveland Borough Council (RCBC), Stockton Borough Council (SBC), Hartlepool Borough Council (HBC), Durham County Council (DCC) and Darlington Borough Council (DBC) from approximate National Grid Reference (NGR) 470829, 519277 to 427083, 522555.
- 1.1.5 In addition to the Proposed Development, the following may also be required/ proposed:
- other necessary replacement of sections of natural gas pipelines; and
 - an 'expansion' network.
- 1.1.6 Necessary natural gas pipeline section replacement that may be required to enable repurposing that are not located within the Scoping Boundary will be progressed under separate consent and where relevant, assessed in the cumulative effects assessment (CEA) that accompanies the Application.

¹ Further detail on the wider East Coast Hydrogen project can be found at: <https://www.eastcoasthydrogen.co.uk/>

- 1.1.7 Subject to future demand, an expansion to the core network may also be progressed following further consultation and assessment. This would be subject to separate consenting through applications for planning permission, or for certain elements, be subject to use of permitted development rights under Schedule 2 Part 15 Class A of The Town and Country Planning (General Permitted Development) Order 2015 (as amended) (the GPDO) (Ref 1.2), unless considered 'EIA Development' following EIA screening.
- 1.1.8 The Proposed Development location in the context of the UK is shown in Picture 1 and within its regional context, in Picture 2.



PICTURE 1: PROPOSED DEVELOPMENT WITHIN UK CONTEXT



PICTURE 2: THE PROPOSED DEVELOPMENT LOCATION

1.2 Requirement for a Development Consent Order

- 1.2.1 Section 14(1) of the Planning Act 2008 ('the 2008 Act') (Ref 1.3) defines the types of development that constitute a Nationally Significant Infrastructure Project (NSIP) and therefore require development consent under Section 31 of the 2008 Act. Based on the length, diameter and pressure of the proposed pipeline, it is considered that the Proposed Development would constitute an NSIP under Section 14 (1)(f) of the 2008 Act (i.e. the construction of a pipeline by a gas transporter²).
- 1.2.2 As an NSIP, the Proposed Development will require the submission of a Development Consent Order (DCO) application (the 'Application') to the Planning Inspectorate (PINS), on behalf of the Secretary of State for Energy Security and Net Zero (DESNZ), under the 2008 Act.

1.3 Requirement for an Environmental Impact Assessment

- 1.3.1 Section 37 of the 2008 Act governs the form, content and accompanying documents that are required as part of the Application. The requirements are implemented through the

² Ofgem issues licences to companies to carry out activities in energy markets, including the construction and operation of gas pipelines. The Applicant has a Gas Transporter Licence.

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations ('APFP Regulations') (Ref 1.4) which state that an application must be accompanied by an Environmental Statement (ES), where a development is an 'EIA development' under the EIA Regulations.

1.3.2 Regulation 3(1) of the EIA Regulations defines the meaning of EIA development (with reference to Schedules 1 and 2 to the EIA Regulations). Schedule 1 of the EIA Regulations describes developments for which an EIA is necessary in all cases. Pipelines that fall under Schedule 1, paragraph 16 of the EIA Regulations 2017 are those that have a diameter of more than 800mm and a length of more than 40km and transport gas. Pipelines under Schedule 2 are those where the area of works exceeds 1ha or the installation has a design operating pressure exceeding 7 bar gauge.

1.3.3 The Proposed Development (or parts thereof) is of a description outlined in both Schedule 1 and Schedule 2. EIA is compulsory for Schedule 1 developments, given that the type and/ or the scale of the development is likely to have the potential for significant effects on the environment. As such, an EIA is required for the Proposed Development, and an ES must be prepared in accordance with the EIA Regulations to accompany the Application. A formal EIA Screening Opinion is therefore not being sought from the Secretary of State. As the Applicant proposes to provide an ES with the Application, this EIA Scoping Report constitutes the Applicant's notification under Regulation 8 (1b) of the EIA Regulations.

1.4 The Applicant

1.4.1 The Applicant distributes natural gas to homes and businesses in the north of England. It is responsible for supplying the North East, North Cumbria, and North, East and West Yorkshire. The East Coast region is home to the UK's two largest industrial emission clusters (Tees Valley and the Humber), hosting concentrated industrial energy demand, significant gas storage and abundant offshore wind power.

1.4.2 The ECH Project was established by the Applicant, Cadent and National Gas Transmission (NGT) to identify and ultimately deliver a pipeline network for low carbon hydrogen thereby, facilitating the decarbonisation of industry in the east coast region which currently use large volumes of natural gas. NGN is the sole Applicant for the Proposed Development with Cadent and NGT progressing additional sections of the ECH Project under separate applications.

1.5 The EIA Scoping Report

1.5.1 Having determined that an ES will accompany the Application, pursuant to Regulation 10(1) of the EIA Regulations, the Applicant is applying to the Secretary of State for their opinion as to the scope and level of detail of the information to be provided in the ES i.e. an application for an EIA Scoping Opinion. Table 1-1 sets out where relevant information, required under Regulation 10(1) of the EIA Regulations, has been provided.

TABLE 1-1: INFORMATION REQUIRED UNDER REGULATION 10(1) OF THE EIA REGULATIONS.

Description of information required under Regulation 10 (1)	Location in this Scoping Report
A plan sufficient to identify the land	Figure 1.2: Scoping Boundary (Volume II). Figure 1.3: Scoping Boundary Aerial (Volume II).

Description of information required under Regulation 10 (1)	Location in this Scoping Report
A description of the Proposed Development, including its location and technical capacity	Section 4: The Proposed Development.
An explanation of the likely significant effects of the development on the environment	Section 8: Topics Scoped Into the EIA.
Such other information or representations as the person making the request may wish to provide or make	Section 5: Consideration of alternatives and Section 9: Matters to be Scoped Out.

- 1.5.2 This Scoping Report has been prepared with due consideration of PINS Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements ('PINS Advice Note 7') (Ref 1.5). The location of relevant information recommended to be included in the Scoping Report by PINS Advice Note 7, is set out in Table 1-2.

TABLE 1-2: INFORMATION RECOMMENDED FOR INCLUSION BY PINS ADVICE NOTE 7

Description of information recommended for inclusion by PINS Advice Note 7	Location in this Scoping Report
The Proposed Development	
An explanation of the approach to addressing uncertainty where it remains in relation to elements of the Proposed Development e.g. design parameters.	This is presented in Section 4.4: Rochdale Envelope .
Referenced plans presented at an appropriate scale to convey clearly the information and all known features associated with the Proposed Development.	Figure 1.2: Scoping Boundary (Volume II) and Figure 1.3: Scoping Boundary Aerial (Volume II) display the Proposed Development location and Scoping Boundary. Figure 1.4: Scoping Boundary (Local Planning Authorities) (Volume II) displays an overview of the administrative areas in which the Proposed Development is located. Figures 3.1 – 3.4 (Volume II) display an overview of the key constraints in the local area. Figure 4.1: Indicative Site Layout (Volume II) shows the key components of the Proposed Development including indicative AGI siting areas.
EIA Approach and Topics	
An outline of the reasonable alternatives considered and the reasons for selecting the preferred option.	This is presented in Section 5: Consideration of Alternatives .
A summary table depicting each of the aspects and matters that are requested to be scoped out allowing for quick identification of issues.	Each technical sub-section within Section 8: Topics Scoped into the EIA (sub-sections 8.1– 8.16 of the Scoping Report contains a summary table identifying those matters (or aspects) which will be 'Scoped In' and those ' Scoped Out ' of the ES.

Description of information recommended for inclusion by PINS Advice Note 7	Location in this Scoping Report
	Section 9: Matters to be Scoped Out outlines those topics that are Scoped Out of the ES.
A detailed description of the aspects and matters proposed to be scoped out of further assessment with justification provided.	Summarised within Section 8: Topics Scoped into the EIA (sub-sections 8.2 – 8.16) of the Scoping Report and Section 9: Matters to be Scoped Out .
Results of desktop and baseline studies where available and where relevant to the decision to scope in or out aspects or matters.	Information on baseline characteristics are included within Section 8: Topics Scoped into the EIA (sub-sections 8.2– 8.16) of the Scoping Report and Section 9: Matters to be Scoped Out .
Aspects and matters to be scoped in, the report should include details of the methods to be used to assess impacts and to determine significance of effect e.g. criteria for determining sensitivity and magnitude.	Section 7: EIA process presents the methodology for the EIA. Items considered to be ‘Scoped In’ for the purposes of the ES are identified within each technical sub-section within Section 8: Topics Scoped into the EIA (sub-sections 8.2 – 8.16) and an overview of the assessment methodology is also provided.
Any avoidance or mitigation measures proposed, how they may be secured and the anticipated residual effects.	These details are provided within Section 8: Topics Scoped into the EIA (sub-sections 8.2 – 8.16).
Information Sources	
References to any guidance and best practice to be relied upon.	Appropriate references are provided at the end of each section.
Evidence of agreements reached with consultation bodies (for example the statutory nature conservation bodies or local authorities).	Consultation and technical engagement activities are currently underway. Section 6: Consultation provides details of activities undertaken to date, and further consultation and engagement proposed.
An outline of the structure of the proposed ES.	This is presented in Section 10: Summary .

- 1.5.3 This EIA Scoping Report has been prepared to provide an overview of the likely significant environmental effects that have been considered in scoping the EIA for the Proposed Development. It sets out the intended scope and methodologies for assessment of the likely significant environmental effects to be reported in the Applicant’s consultation materials³ (formerly the Preliminary Environmental Information Report (PEIR)) and Environmental Statement (ES), the latter of which will be submitted with the Application.
- 1.5.4 The ES will include at least the information set out in Regulation 14(a) to (e) of the EIA Regulations, and any additional information specified in Schedule 4 relevant to the specific characteristics of the Proposed Development, and to the environmental features likely to be significantly affected by it. It will include the information reasonably required for reaching a reasoned conclusion on the likely significant effects of the Proposed Development.

³ The Applicant will monitor any forthcoming statutory guidance on consultation and adapt its consultation and engagement strategy and materials, as required.

1.6 EIA Scoping Report structure

1.6.1 This EIA Scoping Report is structured in two volumes:

- Volume I - Main Report and Appendices; and
- Volume II – Figures.

1.6.2 The remainder of Volume I of this EIA Scoping Report is structured as follows

- **Section 2: Legislation and planning policy** identifies the key documents relating to national and local planning policy in the area, as relevant to the Proposed Development;
- **Section 3: The Site and surrounding area** describes the Scoping Boundary and surrounding area together including any environmentally sensitive areas/ receptors within the vicinity of the Scoping Boundary;
- **Section 4: The Proposed Development** describes the key aspects of the Proposed Development including the infrastructure to be developed, its construction, the function of the operational plant and its decommissioning;
- **Section 5: Consideration of alternatives** describes alternatives that have been considered during development of the Proposed Development;
- **Section 6: Consultation** sets out the approach to consultation and technical/ stakeholder engagement proposed by the Applicant;
- **Section 7: EIA process** presents an overview of the approach to be taken in the EIA and the approach proposed in relation to assessing cumulative and combined effects of the Proposed Development with other developments.
- **Section 8: Topics to be Scoped into the EIA** provides a discussion of how the Proposed Development may interact with the different aspects of the receiving environment, together with a description of the proposed assessment methodologies, guidance and best practice to be adopted for the topics proposed to be scoped into the EIA for the Proposed Development (or, as appropriate, its design). This is structured as follows:
 - **Section 8.2: Air quality**
 - **Section 8.3: Biodiversity and ecology**
 - **Section 8.4: Climate change**
 - **Section 8.5: Cultural heritage**
 - **Section 8.6: Greenhouse gases**
 - **Section 8.7: Ground conditions**
 - **Section 8.8: Landscape and visual amenity**
 - **Section 8.9: Major accidents and disasters**
 - **Section 8.10 Marine biodiversity**
 - **Section 8.11: Material assets and wastes**
 - **Section 8.12: Noise and vibration**
 - **Section 8.13: Socio-economics**
 - **Section 8.14: Soils and agricultural land**
 - **Section 8.15: Transport and movement**
 - **Section 8.16: Water resources and flood Risk**

- **Section 9: Matters to be Scoped Out** provides a summary of the matters proposed to be **Scoped Out** of the EIA and reasoning why.
- **Section 10: Summary** presents the draft structure of the ES that will accompany the Application.
- **Appendix A: Cumulative effects assessment**
- **Appendix B: Biodiversity baseline**
- **Appendix C: Climate change baseline and GHG potential impact tables**
- **Appendix D: Historic environment gazetteer**
- **Appendix E: Ground conditions assessment criteria**
- **Appendix F: LVIA methodology**
- **Appendix G: Materials and waste baseline data and assessment criteria**
- **Appendix H: Socio-economic assessment criteria**
- **Appendix I: Soils and agriculture assessment criteria**
- **Appendix J Water resources and flood risk impact assessment criteria**
- **Appendix K: Health baseline data**

1.6.3 **Appendix L** provides a list of useful abbreviations and a glossary of key terms that accompanies this report. Figures are provided in Volume II.

1.7 Competent experts

1.7.1 In accordance with the EIA Regulations, as amended, a Statement of Competence will be included within the ES, outlining the relevant expertise and qualifications of the EIA professionals including their professional accreditations and experience.

1.7.2 This EIA Scoping Report has been prepared by competent experts, Arup. Arup holds the Institute of Sustainability & Environmental Professionals (ISEP) EIA Quality Mark, demonstrating a commitment to excellence in EIA activities that is independently reviewed. The EIA Quality Mark is a voluntary scheme.

1.8 References

- Ref 1.1 UK Government, 2017. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available at:
<https://www.legislation.gov.uk/ukxi/2017/572/regulation/10> (Accessed April 2026)
- Ref 1.2 UK Government, 2015. The Town and Country Planning (General Permitted Development) (England) Order 2015. Available at:
<https://www.legislation.gov.uk/ukxi/2015/596/schedule/2> (Accessed April 2026)
- Ref 1.3 UK Government, 2008. Planning Act 2008. Available at:
<https://www.legislation.gov.uk/ukpga/2008/29/section/14> (Accessed April 2026)
- Ref 1.4 UK Government, 2009. The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009. Available at:
<https://www.legislation.gov.uk/ukxi/2009/2264/contents/made> (Accessed April 2026)
- Ref 1.5 Planning Inspectorate, 2020. Nationally Significant Infrastructure Projects - Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements. Available at:
<https://www.gov.uk/government/publications/nationally-significant-infrastructure->

[projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an](#) (Accessed April 2026)

2 Legislation and planning policy

2.1 Introduction

- 2.1.1 This section provides a summary of the legislation and national planning policy environment relevant to the Proposed Development, which have been considered when defining the scope of the EIA. Where specific aspects of these policies are directly relevant to specific environmental topics, these are addressed further in **Section 8: Topics Scoped into the EIA** and **Section 9: Matters to be Scoped Out**.
- 2.1.2 The DCO application will be accompanied by a Planning Statement which will set out each relevant national, regional and local planning policy in more detail and demonstrate how the Proposed Development accords with policy.

2.2 Legislation

The Planning Act 2008

- 2.2.1 The 2008 Act provides for the development consenting regime for major infrastructure projects and sets the thresholds for which development is considered to be a NSIP. Consent under the 2008 Act (“development consent”) is required for any development that is or forms part of an NSIP.
- 2.2.2 Based on the length, diameter and pressure of the proposed pipeline, the Proposed Development constitutes an NSIP under Section 14 (1)(f) of the 2008 Act (i.e. the construction of a pipeline by a gas transporter). The 2008 Act sets out that the relevant Secretary of State is responsible for the determination of an application for development consent, which in this case, is the Secretary of State for Energy Security and Net Zero. PINS will appoint an Examining Authority to examine the application and make a recommendation to the Secretary of State as to whether to grant development consent.
- 2.2.3 The 2008 Act also enabled The Infrastructure Planning (Decisions) Regulations 2010 (Ref 2.1), which set out regulations regarding issues which must be taken into account by decision makers in certain circumstances. Regulations 3 and 7 are relevant to the Proposed Development.
- 2.2.4 Regulation 3 states that the decision maker shall have regard to the desirability of:
- preserving Listed Buildings or their setting or any feature of special architectural or historic interest which they possess;
 - preserving or enhancing the character or appearance of Conservation Areas; and
 - preserving Scheduled Monuments or their settings.
- 2.2.5 Regulation 7 states that the decision maker shall have regard to the United Nations Environment Programme Convention on Biological Diversity (Ref 2.2), one of whose objectives is the conservation of biological diversity.
- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017**
- 2.2.6 The 2008 Act is accompanied by the EIA Regulations which transposed into UK law Directive 2011/92/EU (Ref 2.3), as amended by Directive 2014/52/EU (“the EIA Directive”) (Ref 2.4), on the assessment of the effects of certain public and private projects on the environment as it relates to projects that fall under the remit of the 2008 Act. These regulations require that EIA be undertaken, and an ES submitted, in support of DCO applications.

- 2.2.7 The key aims and objectives of the EIA Regulations are to ensure environmental considerations are integrated into decision-making for large infrastructure projects and to improve transparency, public participation and clarity over assessment criteria and the quality of information provided.
- 2.2.8 The EIA Regulations set out the legislative requirements for undertaking an EIA for DCO applications.
UK planning reform
Levelling up and Regeneration Act 2023
- 2.2.9 The Levelling-up and Regeneration Act 2023 ('LURA') (Ref 2.5) covers planning, regeneration, local democracy, infrastructure, environmental protections and more. Its aims to strengthen environmental protection and better mechanisms for community engagement, seeking to streamline planning and reduces delays.
- 2.2.10 The LURA provides for replacing (via regulation) the current EU-derived systems of EIA with a new system called Environmental Outcomes Reports (EORs). This new system aims to create a simpler, clearer and more outcome focused environmental assessment. Instead of assessing and reporting likely impacts, it will measure and assess how developments perform against specified environmental outcomes that the government will define.
- 2.2.11 At the time of writing this Scoping Report, it is not yet determined what consents will be classed as Category 1 and 2, as defined in the LURA, or how the specific environmental outcomes will be defined. Consequently, the Applicant is still required to and intends to provide an ES in line with the EIA Regulations.
Planning and Infrastructure Act 2025
- 2.2.12 The Planning and Infrastructure Act 2025 (Ref 2.6) aims to overhaul and streamline the English planning and infrastructure consent system, including accelerating major infrastructure projects, and reforming the NSIP regime. One of its purposes is to accelerate the rollout of clean energy and support decarbonisation goals. Key reforms include:
- a review of National Policy Statements (NPSs) every five years;
 - streamlining consultation requirements;
 - allow the Secretary of State to direct a project out of the NSIP regime; and
 - reduce opportunities for judicial review especially for cases 'without merit'.
- Marine and Coastal Access Act 2009*
- 2.2.13 The Marine and Coastal Access Act 2009 (the MCAA) (Ref 2.7) provides the legal framework for activities in the UK marine area, which comprises the inshore waters (territorial sea between Mean High Water Springs (MHWS) and 12 nautical miles limit) and offshore waters (12 nautical miles to 200 nautical miles).
- 2.2.14 A marine licence is required for licensable activities under the MCAA. These activities include deposits, removals and construction/'alteration' works (Section 66, MCAA) which are below MHWS.
- 2.2.15 As described in **Section 4: The Proposed Development**, a crossing of the Greatham Creek/ Seaton on Tees Channel is proposed either via an existing pipe bridge, or a new crossing below the riverbed of Greatham Creek. If refurbishment activities are required within the tidal channel (below MHWS) it is anticipated that this activity may require a Marine Licence. Alternatively, subject to its design, works may be exempt from licensing.

2.2.16 Consultation regarding the need for a Marine Licence and any associated assessment will be held with the Marine Management Organisation (MMO) as the EIA and DCO application progress. Marine environment elements which have the potential to experience impacts during installation of the pipeline have been considered within this EIA Scoping Report.

2.2.17 A crossing of the River Tees is proposed either via an existing tunnel or alternatively via a new crossing below the bed of the River Tees. This activity will not require a Marine Licence, and this position will be confirmed with the MMO.

The Conservation of Habitats and Species Regulations 2017

2.2.18 The Conservation of Habitats and Species Regulations 2017 (Ref 2.8) protect designated wildlife sites within the UK, including Special Protection Areas ('SPA'), and Special Areas of Conservation ('SAC') and Ramsar Sites. The regulations set out the requirements that developers of land which may affect these statutory designated sites must follow. This includes the requirement to carry out A Habitat Regulations Assessment (HRA) screening assessment to determine whether a development will have any Likely Significant Effects (LSE) on the qualifying features of any statutory designated sites, followed by Appropriate Assessment which considers whether, following the application of mitigation, a development would result in adverse impacts to the integrity of the designation(s), in relation to the site's features and conservation objectives. If LSE cannot be ruled out, further stages of the HRA process must be carried out including compensation measures.

2.2.19 A HRA will be undertaken to accompany the Application including an HRA screening assessment to determine whether the Proposed Development will have any LSE on any qualifying features of relevant statutory designated sites.

2.3 National planning policy

2.3.1 The following section provides a summary of the relevant national planning policy.

National policy statements

2.3.2 In accordance with Section 104(2) of the 2008 Act, the NPS are the primary policy basis for NSIP development and the Secretary of State is directed in the 2008 Act to determine a DCO application in accordance with the relevant NPS. The NPS relevant to the Proposed Development are:

- Overarching National Policy Statement for Energy (EN-1) (Ref 2.14); and
- National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Ref 2.15).

National policy statements overview

2.3.3 NPS EN-1 requires the Secretary of State to take account of adverse environmental, social and economic impacts and weigh these against the benefits of the proposal. It identifies the generic issues which should be taken into account in assessing applications for development consent, recognising that these are the issues which are likely to arise most frequently, but that they are not equally applicable to all projects. In regard to hydrogen it states that 'there is an urgent need for all types of low carbon hydrogen infrastructure' (Paragraph 3.4.12) and classifies hydrogen distribution (i.e. pipelines) as a 'Critical National Priority' (CNP) (Section 4.2) for which it is likely that the urgent need for such infrastructure would likely 'outweigh any other residual impacts not capable of

being addressed by application of the mitigation hierarchy in all but the most exceptional circumstances’ (Glossary).

- 2.3.4 NPS EN-4 was drafted for natural gas infrastructure and thus does not have direct effect for hydrogen infrastructure, however it may be part of the matters considered important and relevant to decision-making by the Secretary of State (Paragraph 1.6.6).
- 2.3.5 In paragraph 1.1.4, NPS EN-4 acknowledges the role of clean hydrogen in decarbonising various sectors and highlights the need for infrastructure that can facilitate the production, storage, and transportation of hydrogen.

UK Marine Policy Statement

- 2.3.6 Under section 104(2)(aa) of the 2008 Act (Ref 2.9), in determining an application for development consent, the Secretary of State must have regard to any marine policy documents (if any), determined in accordance with section 59 of the MCAA (Ref 2.7).
- 2.3.7 As part of the Proposed Development is located within the UK Marine Area, the DCO application will be subject to the UK Marine Policy Statement (MPS) (Ref 2.10). The MPS acts as the planning framework for decision-making affecting the marine environment and was prepared and adopted in compliance with the MCAA. The MPS sets out high-level policy context within which national and sub-national Marine Plans are developed.
- 2.3.8 The relevant Marine Plan for the Proposed Development is the North East Inshore and North East Offshore Marine Plan (hereinafter referred to as the North East Marine Plan) (Ref 2.11). The North East Marine Plan sets the strategic approach to planning within inshore and offshore waters between the Scottish Border and Flamborough Head in Yorkshire. The Plan Area has three main tidal rivers, including the River Tees. The policies set out in the Marine Plan seek to enhance and protect the marine environment and achieve sustainable economic growth whilst respecting local communities both within and adjacent to the Marine Plan area.
- 2.3.9 Policy NE-CCUS-3 (Ref 2.12) is of relevance to the Proposed Development and ECH Project as it supports proposals associated with the deployment of low carbon infrastructure including hydrogen which help to decarbonise industrial clusters in Teesside as part of the East Coast Cluster being advanced by the Northern Endurance Partnership. The policy states:

“The government identified potential regional clusters which can be utilised for low carbon development in the Delivering clean growth: CCUS Cost Challenge Taskforce report and the subsequent plan, The UK carbon capture, usage and storage (CCUS) deployment pathway: an action plan. NE-CCUS-3 supports the development of low carbon industrial clusters where low carbon infrastructure, including carbon capture, usage and storage technologies could be deployed. Encouraging developments associated with industrial clusters aims to reduce the capital costs of deploying carbon capture, usage and storage, maximising the economies of scale” (Ref 2.12).

National Planning Policy Framework

- 2.3.10 The National Planning Policy Framework (NPPF) (Ref 2.13) was last revised on 12 December 2024 (with minor amendments made on 7 February 2025) and sets out the government’s planning policies for England and how these are expected to be applied. Chapter 2 of the NPPF states the purpose of the planning system is to contribute to the achievement of sustainable development. It also details how the planning system should provide ways for the UK to meet the challenge of climate change and transition to a low carbon future.

- 2.3.11 The NPPF states clearly the role of the NPS being the primary decision-making document for NSIPs under the 2008 Act. Paragraph 5 of the NPPF states: *“The Framework does not contain specific policies for nationally significant infrastructure projects. These are determined in accordance with the decision-making framework in the Planning Act 2008 (as amended) and relevant national policy statements for major infrastructure, as well as any other matters that are relevant (which may include the National Planning Policy Framework). National policy statements form part of the overall framework of national planning policy and may be a material consideration in preparing plans and making decisions on planning applications.”*
- 2.3.12 In December 2025, the UK government published a draft NPPF for consultation until March 2026. The draft NPPF restructures the document and sets out plan-making and decision-making policies. The draft reinforces national priorities around energy security, decarbonisation and economic growth, and updates the definition of ‘renewable and low carbon energy’ to include hydrogen. National decision-making Policy W3 sets out that the benefits of renewable and low carbon energy development (which includes hydrogen), for improving energy security, supporting economic development and moving to a net zero future, should be given substantial weight in decision-making. Policy W3 also states that applicants should not be required to demonstrate the need for renewable and low carbon energy development. The draft maintains the primacy of NPSs for NSIP decision-making (paragraph 12). Until the revised NPPF is published, the December 2024 remains in force.

2.4 Local planning policy

- 2.4.1 The Proposed Development is located across five local authority areas; RCBC, SBC, HBC, DCC and DBC . This is shown in **Figure 1.4: Scoping Boundary and Local Planning Authorities** (Volume II).
- 2.4.2 Relevant local planning policy will be outlined within the Applicant’s consultation materials and ES.

2.5 The need for the Proposed Development

- 2.5.1 As set out in Paragraph 2.3.3, the Overarching NPS for Energy (NPS EN-1) establishes that the delivery of low carbon energy infrastructure (including hydrogen gas pipelines), is of CNP for which there is an urgent need to meet the Clean Power 2030 Mission and net zero.
- 2.5.2 Hydrogen is essential for the United Kingdom to reach net zero. In 2021 the UK Government published its Hydrogen Strategy (Ref 2.16) outlining an ambitious vision for the development of the hydrogen economy across the UK to help meet the UK’s Sixth Carbon Budget (Ref 2.17) and net zero commitments.
- 2.5.3 The Executive Summary states that hydrogen is one of a handful of new, low carbon solutions that will be critical for the UK’s transition to net zero. As part of a deeply decarbonised, deeply renewable energy system, low carbon hydrogen could be a versatile replacement for high carbon fuels used today – helping to bring down emissions in vital UK industrial sectors and providing flexible energy for power, heat and transport.
- 2.5.4 Advice from the Climate Change Committee for Carbon Budgets suggests that hydrogen is required for the decarbonisation of industrial sub-sectors where electrification is not feasible, including the chemicals sector and the manufacture of high-volume ceramics such as bricks, with an anticipated 8% of industrial energy supplied by hydrogen by 2050.

The analysis confirms that hydrogen transport infrastructure is required for the delivery of these benefits.

- 2.5.5 The Applicant has validated the need for the Proposed Development within the Teesside region through an extensive programme of engagement with industrial users that currently use large volumes of natural gas and require hydrogen to decarbonise. Further information on this engagement is included in **Section 6.2: Stakeholder engagement** and consultation to date.
- 2.5.6 The Applicant has been collaborating with other hydrogen producers and pipeline network developers in the Teesside area to ensure that the Proposed Development is complementary to and supportive of those other developments. It is also of note that a hydrogen production and pipeline project previously being developed (H2Teesside) has been withdrawn.
- 2.5.7 The Government has been continuing to support the growth of a low carbon hydrogen network through the Net Zero Hydrogen Fund (NZHF) (Ref 2.18) and the Hydrogen Production Business Model (HPBM) (Ref 2.19). There is acknowledgement of the importance of a national distribution network to facilitate the adoption of this emerging industry. In its July 2025 Hydrogen Update to the Market (Ref 2.20), the Government announced its intention to launch in 2026 the first rounds of the Hydrogen Transport and Storage Models and a new Hydrogen to Power Business Model, with regional hydrogen networks aiming to be rolled out from 2031. An updated Hydrogen Strategy is being prepared by the Government and is expected to be published in 2026.

2.6 References

- Ref 2.1 UK Government, 2010. The Infrastructure Planning (Decisions) Regulations 2010. Available at: <https://www.legislation.gov.uk/uksi/2010/305/contents/made>
- Ref 2.2 United Nations Environment Programme (UNEP), 1992. Convention on Biological Diversity. Available at: <https://www.unep.org/resources/report/convention-biological-diversity-june-1992>
- Ref 2.3 UK Government, 2011. Directive 2011/92/EU of the European Parliament and of the Council . Available at: <https://www.legislation.gov.uk/eudr/2011/92/contents/england>
- Ref 2.4 UK Government, 2014. Directive 2014/52/EU of the European Parliament and of the Council. Available at: <https://www.legislation.gov.uk/eudr/2014/52/contents>
- Ref 2.5 UK Government, 2023. Levelling-up and Regeneration Act 2023. Available at: <https://www.legislation.gov.uk/ukpga/2023/55/contents>
- Ref 2.6 UK Government, 2025. Planning and Infrastructure Act 2025. Available at: <https://www.legislation.gov.uk/ukpga/2025/34/contents/enacted>
- Ref 2.7 UK Government, 2009. Marine and Coastal Access Act 2009. Available at: <https://www.legislation.gov.uk/ukpga/2009/23/contents> .
- Ref 2.8 UK Government, 2017. The Conservation of Habitats and Species Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents>
- Ref 2.9 UK Government, 2008. Planning Act 2008 (section 104(2)(aa)). Available at: <https://www.legislation.gov.uk/ukpga/2008/29/section/104>

- Ref 2.10 UK Government, 2011. UK Marine Policy Statement. Available at:
<https://www.gov.uk/government/publications/uk-marine-policy-statement>
- Ref 2.11 UK Government, 2021. North East Inshore and North East Offshore Marine Plan. Available at: <https://www.gov.uk/government/publications/the-north-east-marine-plans-documents>
- Ref 2.12 UK Government, 2021. North East Inshore and North East Offshore Marine Plan, Page 40. Available at:
https://assets.publishing.service.gov.uk/media/60f6f3df8fa8f50c7450ebf1/FINAL_North_East_Marine_Plan_1.pdf#page=40
- Ref 2.13 UK Government, 2025. National Planning Policy Framework. Available at:
<https://www.gov.uk/government/publications/national-planning-policy-framework--2>
(Accessed May 2026)
- Ref 2.14 DESNZ, 2026. Overarching National Policy Statement for energy (EN-1). Available at:
<https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025/overarching-national-policy-statement-for-energy-en-1-2025-accessible-webpage> (Accessed May 2026)
- Ref 2.15 DESNZ, 2024. National Policy Statement for Natural Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4). Available at:
<https://www.gov.uk/government/publications/national-policy-statement-for-natural-gas-supply-infrastructure-and-gas-and-oil-pipelines-en-4/national-policy-statement-for-natural-gas-supply-infrastructure-and-gas-and-oil-pipelines-en-4> (Accessed May 2026)
- Ref 2.16 DESNZ, 2021. UK hydrogen strategy. Available at:
<https://www.gov.uk/government/publications/uk-hydrogen-strategy> (Accessed May 2026)
- Ref 2.17 Climate Change Committee, 2020. Sixth Carbon Budget. Available at:
<https://www.theccc.org.uk/publication/sixth-carbon-budget/> (Accessed May 2026)
- Ref 2.18 DESNZ, 2022. Net Zero Hydrogen Fund strands 1 and 2: Round 2 (closed to applications). Available at: <https://www.gov.uk/government/publications/net-zero-hydrogen-fund-strand-1-and-strand-2#full-publication-update-history> (Accessed May 2026)
- Ref 2.19 DESNZ, 2022. Hydrogen production business model. Available at:
<https://www.gov.uk/government/publications/hydrogen-production-business-model>
(Accessed May 2026)
- Ref 2.20 DESNZ, 2025. Hydrogen update to the market: July 2025. Available at:
<https://www.gov.uk/government/publications/hydrogen-update-to-the-market-july-2025> (Accessed May 2026)

3 The Site and surrounding area

3.1 Definitions

- 3.1.1 For the purposes of this report, the main uses of each part of the land required for the Proposed Development (i.e. land within the 'Scoping Boundary') have been summarised and simplified and are illustrated on **Figure 4.1: Indicative Site Layout** (Volume II). These include new/ repurposed hydrogen gas pipelines and repurposed/ modified AGI. The location of new necessary sections of natural gas pipeline within the Scoping Boundary, that may be required to reinforce the network and allow repurposing of sections to hydrogen, are not shown on **Figure 4.1** as route optioneering is ongoing for these elements. The location of these will be confirmed on the Applicant's consultation materials and in the ES that accompanies the Application.

3.2 Scoping Boundary

- 3.2.1 The Scoping Boundary is denoted by the red line shown in Picture 1 and Picture 2 and is indicative at this stage, comprising an area of approximately 2,593 hectares (ha) of land under consideration and evaluation for the routeing options for the new and repurposed hydrogen pipelines and related permanent infrastructure i.e. modified/ repurposed AGI and necessary replacement of sections of natural gas pipelines. The Scoping Boundary contains a wide route corridor (approximately 300m in width, and slightly wider for the River Tees crossing) that is being considered at EIA Scoping stage to provide flexibility in the routeing to take account of environmental, technical, planning and land constraints, whilst further studies are carried out to allow corridor routeing and area optionality to reduce over the pre-application period. The Scoping Boundary for permanent infrastructure will be refined down to around 100m in width as the design develops and this will become the 'draft Order Limits' for the Application. The actual construction area within that corridor would typically be around 35m in width for most of the route of any pipeline.
- 3.2.2 Although much of the land required for construction including the 'working width' is likely to fall within the Scoping Boundary, the Applicant is identifying additional requirements for construction including access and compounds, and for biodiversity mitigation and enhancement, which are not currently shown in the Scoping Boundary. The draft Order Limits for the Application are therefore likely to be refined down to a corridor of around 100m for permanent infrastructure but may be enlarged at key locations. Where enlargements are made, this would typically be to encompass additional areas for highway improvements, to facilitate access to the working width during construction, to include additional land for compounds, laydown areas or areas for biodiversity mitigation and enhancement. The draft Order Limits may also be subject to change in response to environmental and technical factors as identified as part of the EIA process, discussions with landowners and consultation feedback from key stakeholders and the wider community. The assessment within the ES will be based on the final draft Order Limits, which will include the maximum limits of deviation at the time of the Application. This will provide flexibility regarding any deviations in the alignment during detailed design or post-consent.

3.3 Environmental context

- 3.3.1 Environmental receptors have been identified both within and in the vicinity of the Scoping Boundary. Where these receptors have been identified within the study area for

each assessment topic (within **Section 8: Topics Scoped into the EIA** and **Section 9: Matters to be Scoped Out**), they are identified under ‘baseline conditions’ sub-heading, as appropriate. As such, the list of receptors identified in this section is not intended to be exhaustive but is included for the purposes of describing the Scoping Boundary and its surrounding setting.

- 3.3.2 An overview of environmental designations and environmental receptors within 2km of the Scoping Boundary, is shown in **Figures 3.1 – 3.5** (Volume II), respectively.
- 3.3.3 Where distances are quoted in this EIA Scoping Report, the distance is defined (unless otherwise stated) as the shortest distance between the receptor and the closest point of the Scoping Boundary. All distances are rounded to the nearest 5m.

Agriculture and soils

- 3.3.4 The majority of the land within the Scoping Boundary is in agricultural land use with approximately (42.1%) of the land in urban/ non-agricultural use. Natural England’s Provisional Agricultural Land Classification (ALC) mapping (Ref 3.1) shows that there is no land within the Scoping Boundary at ALC Grade 1 (excellent quality), 11.7% is ALC Grade 2 (good quality), and 46.6% is ALC Grade 3 (good to moderate quality) land. ALC Grade 1, 2 and 3a are considered to provide the Best and Most Versatile (BMV) agricultural land. Grade 3b, Grade 4 and Grade 5 are not considered BMV land.
- 3.3.5 Further information on agricultural land use and soils in the study area are described in **Section 8.14: Soils and agricultural land**.

Landscape context

- 3.3.6 The Proposed Development passes through three National Landscape Character Areas: North York Moors and Cleveland Hills, Tees Lowlands and Durham Magnesian Limestone Plateau.
- 3.3.7 The landscape context and visual receptors in the wider topic study area are described in **Section 8.8: Landscape and visual amenity**. **Figure 8.4: Landscape Designations** (Volume II) provides an overview of landscape constraints.

Cultural heritage

- 3.3.8 There are no World Heritage Sites or Historic Battlefields within the Scoping Boundary.
- 3.3.9 The following designated heritage assets intersect or are located immediately adjacent (within 10m) of the Scoping Boundary:
- deserted village scheduled monument [National Heritage List Entry (NHLE) 1002335];
 - railway bridge, 365 Metres West of Elstob Crossing Grade II Listed Building [NHLE 1159773];
 - Wynard Park Grade II* Registered Park and Garden [NHLE 1000372]; and
 - Kirkleatham, Yearby, Wolviston, Skelton, and Cowpen Bewley conservation areas.
- 3.3.10 Designated and non-designated heritage assets located in the wider topic study area are described in **Section 8.5: Cultural heritage**. **Figure 3.2: Statutory Designated Heritage Assets and Cemeteries** (Volume II) provides an overview of cultural heritage constraints.

Water environment

- 3.3.11 The Environment Agency ‘Flood map for planning’ (Ref 3.2) indicates that the majority of areas within the Scoping Boundary (86.5%) are located within Flood Zone 1 (defined as land that has a less than 0.1% annual exceedance probability (AEP) of flooding from rivers or the sea) and is therefore at a low risk of flooding. Around 10.9% of land within the Scoping Boundary primarily associated with the Tees Estuary, west of the River Tees

is located within Flood Zone 3 (1% or greater AEP river flooding and 0.5% or greater AEP sea flooding, i.e. a high probability of flooding without flood defences) with small areas (2.6%) within Flood Zone 2 (between 0.1% and 1% AEP river flooding and between 0.1% and 0.5% AEP sea flooding). The Environment Agency has completed Phase 1 and Phase 2 of the Greatham Creek Flood Alleviation Scheme (FAS) to respond to increasing flood risk associated with climate change, including the construction of flood embankments and upgraded defences to reduce tidal and fluvial flood risk from Greatham Creek and the River Tees, to benefit the Seal Sands Industrial area which includes the route of the Proposed Development.

3.3.12 The Scoping Boundary is intercepted by eight Statutory Main Rivers:

- Skelton Beck;
- Skelton Ellers Beck;
- River Tees;
- Greatham Creek/ Seaton on Tees Channel;
- Cowbridge Beck;
- Claxton Beck;
- Thorpe Beck; and
- River Skerne.

3.3.13 **Figure 3.3: Water Resources and Flood Risk** (Volume II) presents the location of main rivers and flood map for planning information.

3.3.14 The Scoping Boundary intersects with the following Water Framework Directive (WFD) areas (all are of which are of moderate ecological status) (east to west):

- Kilton Beck from Middle Gill Beck to North Sea;
- Kilton Beck from Source to Middle Gill Beck;
- Saltburn Gill Catch trib of North Sea;
- Skelton Beck Catch (Saltburn) trib of North Sea;
- Tees Estuary (S Bank);
- North Burn from Source to Claxton Beck
- Cowbridge Beck from Source to North Burn;
- Billingham Beck from Brierley Beck to Tees Es;
- Billingham Beck from Bishopton Beck to Brierley;
- Billingham Beck from Source to Bishopton Beck;
- Skerne from Woodham Burn to Demons Beck; and
- Skerne from Demons Beck to Tees.

Biodiversity and ecology

3.3.15 Teesmouth and Cleveland SPA, Ramsar and SSSI is within the Scoping Boundary. There are also three other SSSIs within 2km of the Scoping Boundary:

- Railway Stell West SSSI, approximately 555m east of the Scoping Boundary;
- Lovell Hill Pools SSSI, approximately 1.2km south of the Scoping Boundary;
- Whitton Bridge Pasture SSSI, approximately 1.3km south of the Scoping Boundary; and
- Saltburn Gill SSSI approximately 1.6km north of the Scoping Boundary.

- 3.3.16 Teesmouth National Nature Reserve (NNR) is approximately 60m east of the Scoping Boundary.
- 3.3.17 Land within Cowpen and Bewley Woodland Country Park Local Nature Reserve (LNR) is crossed by the Scoping Boundary, and there are ten other LNR within 2km that could potentially be indirectly impacted by the Proposed Development. The closest of these is Thorpe Wood LNR which is located within 10m of the Scoping Boundary.
- 3.3.18 There are a number of non-statutory designated local wildlife sites (LWS) that the Scoping Boundary intersects; these are Skelton Beck Complex LWS, Greatham Creek North Bank Saltmarsh/ Greenabella Marsh LWS/ Philips Tanks Farm Grassland LWS (which border the A178 and are all partially intersected), Cowpen Bewley Woodland Park LWS, Wynward Woodland Park LWS and the Snipe LWS.
- 3.3.19 Other LWS that partially span the Scoping Boundary:
- Eston Pumping Station;
 - Wynyard Woodland Park;
 - Dunsdale Wood Complex;
 - Dunsdale Beck Grassland;
 - Capon Hall Farm Brown Hills Grassland;
 - Wilton Woods Complex;
 - Unknown Name LWS;
 - Tot Fenny's Meadow; and
 - Claphow Reservoir Wood.
- 3.3.20 Thirty-one other LWS are located within 1km of the Scoping Boundary.
- 3.3.21 There are ten parcels of ancient woodland, an irreplaceable habitat, within the Scoping Boundary.
- 3.3.22 Further information in relation to ecology and biodiversity is provided in **Section 8.3: Biodiversity and ecology.**
- Air quality**
- 3.3.23 There are no Air Quality Management Areas (AQMA) within proximity of the Scoping Boundary. The closest AQMA is DCC AQMA which is approximately 17km north of the Site. Further information in relation to air quality is provided in **Section 8.2: Air quality.**
- Human receptors**
- 3.3.24 The Scoping Boundary has been routed to avoid residential receptors. Key residential receptors along (or in local proximity to) the Scoping Boundary include the settlements of:
- Carlin How;
 - Skelton;
 - New Marske;
 - Brotton;
 - Redcar;
 - Cowpen Bewley;
 - Eston;
 - Wolviston;
 - Thorpe Thewles; and
 - Newton Aycliffe.

- 3.3.25 A number of individual residential properties are located within or close to the Scoping Boundary. The Proposed Development will be designed appropriately considering the location of residential receptors and the Scoping Boundary will be refined as the application progresses to avoid, as far as reasonably practicable, interactions with residential properties for the new pipelines. Where existing natural gas pipelines are being repurposed for hydrogen, existing easements will be used, as far as possible.
- 3.3.26 Key sensitive human receptors that fall within the Scoping Boundary are outlined in Table 3-1 below. The location of schools and hospitals are illustrated on **Figure 3.4: Other Constraints** (Volume II).

TABLE 3-1: SENSITIVE HUMAN RECEPTORS INTERACTING WITH THE SCOPING BOUNDARY

Receptor	Location compared to the Scoping Boundary
Education	
Whitecliffe Primary School	Immediately adjacent to the Scoping Boundary
Medical	
No identified receptors identified within the Scoping Boundary	
Recreation	
Cowpen Bewley Woodland Park	Partially within the Scoping Boundary
Cleveland Way National Trail	Directly interacts with the Scoping Boundary, north to south, south of Skelton
King Charles III England Coast Path	Directly interacts with the Scoping Boundary at multiple places across its geographic extent
National Cycle Network Route 1	Directly interacts with the Scoping Boundary at multiple places across its geographic extent
National Cycle Network Route 14	Directly interacts with the Scoping Boundary at multiple places across its geographic extent
National Cycle Network Route 168	Directly interacts with the Scoping Boundary, south of Brotton

Traffic and transport

- 3.3.27 The key highway links or routes within the local area include:
- A167;
 - A1(M);
 - A177;
 - A19;
 - A689;
 - A1185;
 - A178;
 - A1085;
 - A1053;
 - A174; and
 - A173.
- 3.3.28 The A1(M), A19, A174 form part of the Strategic Road Network (SRN) and intersect/ are located in close proximity to the Scoping Boundary at four locations. Other roads

intersected across the route corridor form part of the jurisdiction of relevant local highway authorities.

3.3.29 The Scoping Boundary is also crossed by operational rail lines including the East Coast Main Line.

3.3.30 A number of public rights of way (PRoW) intersect the Scoping Boundary. These are shown on **Figure 8.4: Landscape Designations** (Volume II). Refer to **Section 8.8: Landscape and visual amenity** for further details on PRoW.

3.4 Elements of the Proposed Development within the marine environment

3.4.1 A crossing of Greatham Creek/ Seaton on Tees Channel is required via an existing third-party pipe bridge which may involve works in the marine environment. Alternatively, a new crossing below the bed of Greatham Creek would be used which would not interact with the marine environment. Further information is provided in Paragraph 4.2.12

3.4.2 The Proposed Development will also require a crossing of the River Tees via an existing tunnel operated by a third-party, or alternatively via a new crossing below the bed of the River Tees. At this early stage in the design and assessment process, a broad (approximate 400m) corridor is under consideration applying the Rochdale Envelope approach for the crossing of the River Tees. It is anticipated that this corridor, and optionality, will be refined down prior to submission of the Application. As no works will take place within the river, there will be no interaction with the marine environment for the crossing of the River Tees. Further information is provided in Paragraph 4.2.9.

3.5 References

Ref 3.1 Natural England, 2019. Provisional Agricultural Land Classification (ALC) (England). Available at: <https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::provisional-agricultural-land-classification-alc-england/about> (Accessed April 2026) (Accessed April 2026)

Ref 3.2 Environment Agency, 2026. Flood map for planning. Available at: <https://flood-map-for-planning.service.gov.uk/> (Accessed April 2026) (Accessed April 2026)

4 The Proposed Development

4.1 Objectives of the Proposed Development

4.1.1 The Proposed Development has the following technical objectives:

- connecting hydrogen supply with demand across multiple end use cases whilst maintaining natural gas supply to customers;
- transporting hydrogen through repurposed and new build hydrogen gas pipelines;
- building resilience through interconnectivity with other hydrogen networks and storage facilities; and
- balancing supply and demand to support effective market growth.

4.2 Overview of the Proposed Development

Introduction

4.2.1 The Proposed Development could utilise a number of routes to connect to potential hydrogen off-takers, therefore, the Scoping Boundary is currently indicative, optionality is included where a final routing choice has not been made, and corridors are broad to allow for further refinement following completion of ongoing technical and commercial studies. These studies include pipeline design, repurposing viability and safety assessments which will inform the Applicant's ability to repurpose existing natural gas assets, or alternatively, the need to develop new hydrogen pipelines/ Above Ground Installations (AGI).

4.2.2 The Proposed Development includes the construction (including repurposing), operation and maintenance of a hydrogen pipeline up to approximately 63km in length to supply hydrogen from production projects in the Teesside region and other network connections to industry within the Teesside region and into County Durham.

4.2.3 Along the proposed pipeline route, a series of AGIs will be constructed at key locations. These will include PRI, BVS and district governors. These facilities are essential for the operation and maintenance of the network. Engineering work is currently being undertaken to identify the optimum size and most appropriate locations for these facilities including the potential for modifying existing natural gas AGI.

Hydrogen pipelines

4.2.4 The new build hydrogen pipelines will include High Pressure (HP) (>7 bar) and Intermediate Pressure (IP) (2>7 bar) and will vary from approximately 6 to 42 inches (150 to 1,070mm) in diameter. The Proposed Development is anticipated to utilise two principal pipe materials: carbon steel (CS) and polyethylene (PE), with the material choice depending on the pressure and capacity of the pipeline being installed.

Pipeline Consenting

4.2.5 Following initial route corridor appraisal activities, the emerging preferred route corridor (approximately 300m wide) has been identified, including alternative route options at some key locations. This corridor was identified through a series of design reviews incorporating engineering and environmental considerations and is defined by the Scoping Boundary.

4.2.6 The Scoping Boundary (**Figure 1.2: The Scoping Boundary** (Volume II)) includes the maximum extent of land envisaged as necessary for construction (including repurposing) of hydrogen pipelines at this stage. This may include some new necessary sections of

natural gas pipeline to reinforce the network, allowing repurposing of sections to hydrogen.

- 4.2.7 At this stage, the Scoping Boundary may not include all ecological mitigation land, off-route access roads, temporary construction compounds, and connections to local utilities, as the locations of these elements are not yet confirmed. These parts of the Proposed Development are subject to ongoing technical studies. Supporting infrastructure to the construction of the Proposed Development will be defined as the project progresses and incorporated within the draft Order Limits to be assessed within the EIA, and consulted on during subsequent pre-application stages. Paragraph 1.1.6 describes that in addition to the Proposed Development, necessary replacement of sections of natural gas pipeline may also be required outside the Scoping Boundary and would be consented separately, as appropriate.
- 4.2.8 Through further detailed engineering and environmental assessment, together with feedback obtained through planned consultation activities, the Scoping Boundary will be refined to an approximate 100m wide corridor (the draft Order Limits) within which consent will be sought for construction of the Proposed Development through the Application. Securing consent for a corridor of this width provides the appointed construction contractor with flexibility to make minor routing refinements at the detailed design stage, which may include, but are not limited to:
- optimising crossings alignments;
 - minimising impacts on ecological features;
 - mitigating archaeological and environmental impacts;
 - accommodating existing/other land uses and landowner requests; and
 - addressing potential constructability and safety issues.

River Tees and Greatham Creek Crossings

- 4.2.9 The Proposed Development will require a crossing of the River Tees. It is currently anticipated that this could be via an existing tunnel operated by a third-party or alternatively via a new crossing below the bed of the River Tees.
- 4.2.10 The Applicant's preferred option is for the installation of the pipeline within an existing tunnel. In this scenario, the existing tunnel is a minimum of >10m below the riverbed level. Any works to install the pipeline within an existing tunnel would therefore take place below MHWS, and no in-water works including drilling or piling would be required in the marine environment within the River Tees.
- 4.2.11 Alternative trenchless crossing methods such as a new horizontal directional drilling (HDD) or microbore tunnel (MBT) crossing also remain under consideration. In the event that such crossings are used, it is anticipated that the locations of entry and exit pits would be above MHWS and no drilling or piling would be required in the marine environment.
- 4.2.12 Similarly, a crossing of Greatham Creek/ Seaton on Tees Channel is required to supply hydrogen to an industrial user. It is currently anticipated that this could be via an existing third-party pipe bridge or via a new crossing below the bed of Greatham Creek/ Seaton on Tees Channel. In the event an existing pipe bridge is utilised, refurbishment and upgrades to the existing structure may be required which may require minor in-river works (e.g. inspections/ repairs with the use of a support barge) but are not currently anticipated to require interaction with the riverbed. Alternatively, a new trenchless crossing would be used, within suitable strata a minimum of 10m beneath the riverbed

and no in-water works including drilling or piling would be required in the marine environment.

- 4.2.13 At this early stage in the design and assessment process, broad corridors (approximate 400m for the River Tees and 300m for Greatham Creek) are under consideration applying the Rochdale Envelope approach. It is anticipated that these corridors, and optionality, will be refined down prior to submission of the Application.

Above Ground Installations (AGI)

- 4.2.14 AGIs act as key interface points along the pipeline network, providing the infrastructure necessary to support the safe and effective operation of the system. In addition, these facilities enable access for inspection, monitoring, and maintenance activities, helping to maintain operational integrity and meet relevant regulatory requirements.
- 4.2.15 The Proposed Development requires a range of AGI which are required to facilitate the control of hydrogen on the network. A number of existing natural gas AGI are under consideration which may be modified so that these AGI are suitable for hydrogen. These will be designed to Institution of Gas Engineers and Managers (IGEM)/TD/13 Edition 3: Pressure regulating and exceeding 7 bar pipeline installations (Ref 4.1) and IGEM/TD/1 Edition 6 with amendments May 2024 - Steel pipelines for high pressure gas transmission (Ref 4.2) (including published hydrogen supplements where applicable), with consideration of other existing and evolving UK and international standards applicable to hydrogen service. At detailed/ final design stages the latest standards/ regulations will be reviewed and adhered to.
- 4.2.16 The following AGI types will be included within the Proposed Development:
- PRI – from HP to IP.
 - Pipeline Inspection Gauge (PIG) trap – facilitating inspection of the pipeline, these may be standalone facilities or incorporated into another AGI site as required. The PIG traps may be fixed in place or portable.
 - BVS – facilitating the isolation of pipeline sections, these may be standalone facilities or incorporated into another AGI site as required.
 - Industrial connection / Regulator – from HP or IP to Medium Pressure (MP) (<2bar) to facilitate connection to users which require MP gas.
- 4.2.17 Indicative siting areas for modified AGI currently under consideration are shown on **Figure 4-1: Indicative Site Layout** (Volume II).
- 4.2.18 The design of the PRI AGIs will be based on the anticipated demand of the connected off-takers, with an additional allowance for network expansion. This will be on a case-by-case basis at each off-take.
- 4.2.19 A typical PRI AGI comprises a control kiosk housing electrical equipment and instrumentation, which enable remote monitoring and control of the AGI and pipeline infrastructure. The AGI site also incorporates a range of associated infrastructure, including both above and below ground auxiliary pipework and valves, instrumentation and sensors and cable trays. In some instances, AGI's would include provision of inline inspection (ILI) facilities. Localised venting may also be required. The above ground components will be kept at low level as far as reasonably practicable, for safety and to reduce visual impact.

- 4.2.20 All AGIs will require connections to be made to the local electrical network, and further engineering design work is ongoing in order to determine the connections which would be required.
- 4.2.21 AGIs are designed for remote operation and will not be permanently manned. To provide site security, each AGI may be equipped with a range of measures such as closed circuit television (CCTV) and other detection systems appropriate to the location.
- 4.2.22 The footprint required for an AGI compound varies depending on factors such as AGI type, pipeline diameter and operational requirements but generally ranges from 40m x 40m for smaller compounds, to up to 100m x 150m for larger compounds. A compound typically comprises a combination of gravel and hardstanding, with appropriate rainwater drainage solutions incorporated, and specific solutions developed on a case-by-case basis. AGIs structures are expected to be approximately up to 1.5 – 3m high and will be surrounded by security fencing anticipated to be approximately up to 2.4 – 3.6m high.
- 4.2.23 To allow for emergency depressurisation, and for maintenance, stacks of up to 15m above ground level (AGL) may be required as critical infrastructure to allow venting and/or flaring to enable the safe operation of the system at AGIs. Venting would release uncombusted hydrogen directly to atmosphere, whereas flaring would burn the gas in a controlled flame. If required, these would operate only during routine maintenance and emergency situations. Venting would be controlled, infrequent and short term, and would be managed through established operational and safety procedures. Flaring would only be undertaken in the event that emergency depressurisation of pipelines sections or AGIs is required and would be of limited duration and only in exceptional circumstances. The need for either vent or flare stacks is subject to ongoing design development and will be confirmed as the Application progresses, with effects assessed in the Environmental Statement (ES).
- 4.2.24 Lighting columns on site are anticipated to be up to approximately 3.0 – 5.0m high and would only be used during maintenance activities or during emergencies on site. Low level lighting will be installed where feasible. Access points to the AGIs will be provided for maintenance activities.

Block Valve Stations

- 4.2.25 BVS are essential facilities along the pipeline, each housing a block valve that enables the isolation of specific pipeline sections. This isolation capability is crucial for carrying out maintenance activities or responding swiftly in the event of an emergency. Each BVS is equipped with a local bypass, which supports start-up procedures and facilitates maintenance operations. Collectively, these features also contribute to reducing the risk and consequences of any loss of containment.
- 4.2.26 The dimensions of a BVS are typically approximately 40m x 40m. During the construction phase, a larger temporary working area may be required to support construction activities, plant, and equipment. Any temporary land take would be reinstated following completion of construction and commissioning works, returning the land to its former condition.
- 4.2.27 BVS facilities are designed to operate remotely and would not be permanently staffed. The BVS will be surrounded by security fencing anticipated to be approximately up to 2.4 – 3.6m high.

Cathodic Protection (CP Cabinets)

- 4.2.28 Steel pipelines are commonly protected against corrosion through the installation of a CP system. Where required, the majority of CP infrastructure, including cabling and any ground beds, would be installed below ground level. Surface components associated with the CP system would be located within AGIs or along the pipeline route. Transformer rectifier cabinets are typically prefabricated and delivered to site ready for installation. These cabinets are generally around 1.0m high, 1.0m long and 0.5m wide, and would be mounted on concrete plinths to provide stability and protection. In addition to the cabinets, the CP system may incorporate above ground test posts. These features are typically installed within the AGI and BVS, and may also be positioned at locations such as road, river, and rail crossings where monitoring access is required. Test posts are normally located directly above the pipeline and, where practicable, sited within existing verges to limit disturbance to surrounding land uses. The final positioning of test posts would be determined during the detailed design stage once the pipeline alignment has been confirmed.

Marker posts

- 4.2.29 For identification and safety purposes, marker posts would be installed along the pipeline alignment at key locations, including road, rail, river and canal crossings, points where the pipeline changes direction, and at field boundaries.
- 4.2.30 The final number, siting, and specification of marker posts would be confirmed during the detailed design stage and would be informed by relevant industry standards. Wherever practicable, posts would be positioned to minimise effects on existing land uses, for example by locating them along field boundaries or within highway verges.
- 4.2.31 For HP pipelines (>7 bar), the route may also be delineated using aerial marker posts at selected changes in direction and along field boundaries. These markers are intended to support monitoring activities, including inspection by helicopter where required.
- 4.2.32 Where feasible, a permanent clear area of approximately 1.0m would be maintained around marker posts.

Fibre optic cables

- 4.2.33 Fibre optic cabling may be installed either within the same trench as the pipeline or within a separate trench to support communications between AGI/BVSs. Where provided, the fibre optic system may also be used as part of pipeline integrity management, including early-warning detection of external interference, such as unauthorised excavation activities, during the operational phase.

4.3 Design principles

- 4.3.1 The following design principles have been used to develop the initial pipeline route included within this Scoping Report:
- avoid areas with a high density of human receptors, with preference given to rural/agricultural areas;
 - allowance for appropriate separation distances to residential properties, buildings such as schools and hospitals, and significant infrastructure such as the National Transmission System (NTS);
 - avoid sensitive environmental features as far as reasonably practicable;
 - minimise routeing through difficult terrain;
 - avoid running parallel to high density traffic routes including roads and rail lines;

- avoid/ minimise the number of major infrastructure crossings (motorways, rail lines, A roads, main rivers etc.) which would be assumed to require trenchless techniques, such as HDD or MBT;
- avoid running parallel to high voltage AC/DC overhead or buried powerlines where known; and
- minimise overall length of pipeline.

4.3.2 It should be noted that some of the above principles vary in applicability based on the pressure tier of the pipeline, (e.g. routeing along roads is practical for IP pipelines, but not for HP pipelines).

4.3.3 Table 4-1 below outlines the environmental and social constraint criteria that have been considered within the initial routeing presented within this Scoping Report.

TABLE 4-1: ENVIRONMENTAL AND SOCIAL ROUTEING OBJECTIVES

Designation	Routeing Objective Seek to Avoid or Seek to Minimise	Reason
Gas Pipelines (HP/MP/LP)	N/A	Interaction with gas pipelines an intrinsic part of the Proposed Development
Overhead Electrical Lines/ Substations	Seek to minimise	Due to increased risk and potential for interaction
Underground Cables	Seek to minimise	Due to the cost of trenchless crossing techniques or diversion of existing assets
Other Pipelines	Seek to minimise	Due to the cost of trenchless crossing techniques or diversion of existing assets
Rail Lines	Seek to minimise	Due to the cost of trenchless crossing techniques
Motorways and Trunk Roads	Seek to minimise	Due to the cost of trenchless crossing techniques
Civil and Military Aviation and Defence Interests (EN-1, Section 5.5)	Seek to avoid	NPS EN-1 safeguards military aviation, radar, training areas, and other defence assets so that energy infrastructure does not interfere with military operations/ equipment
Active and historic underground mines, cavities, mineral workings, landfill sites (e.g. Coal Mining Reporting Areas)	Seek to avoid	NPS EN-4 acknowledges as a constraint to consider in routeing due to ground conditions
Major Accident Hazards (MAH) Control of Major Accident Hazard (COMAH) Sites Nuclear Regulated Sites	Seek to avoid unless these form part of the routeing objective	NPS EN-4 acknowledges considerations regarding pipeline safety and HSE/ Office for Nuclear Regulation (ONR) will expect risk of interaction to be a key consideration in routeing

Designation	Routeing Objective Seek to Avoid or Seek to Minimise	Reason
Unexploded Ordnance (UXO) High Risk Areas	Seek to minimise	NPS EN-4 acknowledges as a constraint to consider in routeing due to risk of interaction
Schools/ Hospitals	Seek to avoid unless a routeing objective	NPS EN-4 acknowledges as a constraint to consider in routeing due to risk of interaction – use appropriate buffers
NSIP	Seek to avoid	Where there could be a conflict with the Proposed Development
Major Planning Applications / Minerals and Waste EIA Development	Seek to minimise	NPS EN-4 acknowledges as a constraint to consider in routeing due to risk of interaction
Strategic (Large Scale) Housing or Other Allocations	Seek to avoid	NPS EN-4 acknowledges as a constraint to consider in routeing due to risk of interaction
Other (Medium/ Small Scale) Applications and Allocations	Seek to minimise	Where there could be a conflict with the Proposed Development
Green Belt	Seek to Minimise	NPS EN-1 para 5.11.22 does not preclude underground pipelines where they preserve openness of Green Belt
Community Facilities (sport including golf courses/ recreational use etc.)	Seek to Minimise	Disruption to community facilities to be minimised, but para 5.11.33 acknowledges mitigation can be appropriate
Green/ Blue Infrastructure (parks, trees and woodland, hedgerows, canals and other water features)	Seek to Minimise	Considered not reasonably practicable to avoid all green/ blue infrastructure and NPS EN-1 para 5.11.27 acknowledges mitigation can be appropriate
Peat Soils	Seek to Minimise	Given ground conditions/ engineering risk and climate change and ecological impacts afforded policy weight in NPS EN-1
BMV Agricultural Land ⁴	Seek to Minimise	Effects on BMV would be temporary
International Designations SAC SPA Ramsar site	Seek to Avoid	Due to potential effects of construction activities on qualifying features and/ or site integrity
National Designations SSSI NNR	Seek to Avoid	Due to potential effects of construction activities on qualifying features and/ or site integrity

⁴ Grades 1, 2 and 3a of the Agricultural Land Classification system. Note whether soils are Grade 3a (BMV) or 3b (non-BMV) can only be identified by survey which would be undertaken during subsequent stages of the DCO

Designation	Routeing Objective Seek to Avoid or Seek to Minimise	Reason
Irreplaceable Habitats including Ancient Woodland (AW) (as defined in the Biodiversity Net Gain (BNG) Requirements (Irreplaceable Habitat) Regulations 2024 (Ref 4.3) ⁵	Seek to Avoid	Considered an irreplaceable habitat within NPS EN-1. Government commitment to maintain existing AW
Regional and Locally Important Designations Regionally Important Geological Sites (RIGS) LNR LWS	Seek to Avoid	NPS-EN1 outlines in para 5.4.13 that RIGS, LNR and LWS are areas of substantive nature conservation value. NPS-EN1 outlines in para 5.4.14 that LWS should be secured from harm or loss
Habitats of Principal Importance (HoPI)/ Section 41 Habitats (as defined in the Natural Environment and Rural Communities (NERC) Act 2006) (Ref 4.4)	Seek to Minimise	NPS-EN1 in para 5.4.49 states that the Secretary of State should ensure appropriate weight is attached to HoPI
Other Designations Royal Society for the Protection of Birds (RSPB) Reserves RSPB Important Bird Areas (IBA)	Seek to Minimise	NPS-EN1 states in para 5.4.23 that energy NSIP proposals need to consider the movement of mobile/ migratory species such as birds
Environment Banks for BNG	Seek to Avoid	NPS-EN1 states in para 5.4.45 that any habitat creation or enhancement delivered including linkages with existing habitats for compensation or biodiversity net gain should generally be maintained for a minimum period of 30 years, or for the lifetime of the project, if longer and therefore land reserved for BNG will need to be maintained for other projects where already committed to
Flood Zone 2 and 3	Seek to Minimise	Noting that underground pipeline would not exacerbate or be at risk from flooding
Risk of Surface Water Flooding	Seek to Minimise	
Statutory Designated Heritage assets	Seek to Avoid	NPS EN-1 states in paras 5.9.30 and 5.9.31 that substantial harm or loss of

⁵ Defined in the Regulations as Ancient woodland, Ancient and veteran trees, Blanket bog, Limestone pavements, Coastal sand dunes, Spartina saltmarsh swards, Mediterranean saltmarsh scrub, Lowland fens. Note many veteran and ancient trees can only be identified by survey and therefore it is anticipated that additional siting to avoid veteran and ancient trees that do not form part of designated ancient woodland would be undertaken during subsequent stages of the DCO.

Designation	Routeing Objective Seek to Avoid or Seek to Minimise	Reason
World Heritage Sites (and buffer zones) Scheduled Monuments Listed Buildings Registered Parks and Gardens Registered Battlefields Conservation Areas		significance should be exceptional or wholly exceptional
Cemeteries, burial grounds (active and historic) and crematoria	Seek to Avoid	Key assets that cannot be relocated and setting must be protected
Nationally Designated Landscapes National Parks National Landscapes Heritage Coasts	Seek to Avoid	NPS EN-1 states in para 5.10.7 that projects should be design sensitively to protect National Parks and National Landscapes. NPS EN-1 in para 5.10.11 states that development within a Heritage Coast is unlikely to be appropriate unless it is compatible with the natural beauty and special character of the area
Locally Valued Landscapes e.g. Area of Special Landscape Value	Seek to Minimise	NPPF states in para 186 that planning decisions should protect and enhance valued landscapes however it is noted that NPS EN-1 states in para 5.10.12 that locally valued landscapes should not be used in themselves to refuse consent
Tranquil Areas e.g. those areas protected by local planning policy	Seek to Minimise	
Promoted Recreational Routes National Trails NCN	Seek to Minimise	NPS EN-1 para 5.11.30 acknowledges mitigation measures are appropriate
PRoW	Seek to Minimise	NPS EN-1 para 5.11.30 acknowledges mitigation measures are appropriate
Tree Protection Orders/ AW Inventory Trees	Seek to Avoid	High level of protection afforded to trees/ BNG implications
Main Rivers/ Ordinary Watercourses	Seek to Minimise	Due to the cost of trenchless crossing techniques
Licenced Water Abstractions	Seek to Minimise	Development not incompatible but mitigation measures to avoid contamination may be more stringent

Designation	Routeing Objective Seek to Avoid or Seek to Minimise	Reason
Groundwater Source Protection Zone (SPZ) 1	Seek to Minimise	Development not incompatible but mitigation measures to avoid contamination may be more stringent
Groundwater SPZ 2/3	Seek to Minimise	If alternatives exist, although development not incompatible
Drinking Water Safeguard Zones	Seek to Minimise	If alternatives exist, although development not incompatible
Groundwater Dependent Terrestrial Ecosystems (GWDTE)	Seek to Avoid	Often likely to coincide with SSSI based wetland sites
Nutrient Neutrality Catchments	Seek to Minimise	If alternatives exist, although development not incompatible
Mineral Safeguarding Area (MSA)	Seek to Minimise	NPS EN-1 acknowledges in para 5.11.28 that mitigation measures are appropriate
Places of Interest/ Tourism/ Local Business Facilities	Seek to Minimise	NPS EN-1 acknowledges mitigation measures are appropriate
Countryside and Rights of Way Access Land (includes Registered Common Land)	Seek to Avoid	Consenting implications to be avoided, where possible

Environmental and Social Design Aims

- 4.3.4 As part of the design approach document, a set of Design Principles and embedded mitigation measures will be developed to guide the design of the Proposed Development. This may include minimum offsets from natural features that the Applicant will seek to apply including (from fencing) as applicable. Examples of embedded measures committed to at this stage include:
- an appropriate buffer will be maintained between residential properties and construction areas as far as reasonably practicable to mitigate localised disturbance effects (e.g. visual amenity, noise, dust etc.);
 - access locations and access routes from the strategic road network (SRN) will be planned to avoid major settlements and villages as far as reasonably practicable. Where not reasonably practicable, timing to avoid heavy goods vehicles (HGV) movements during 'peak' hours will be considered;
 - the design of the Proposed Development will seek to minimise areas of temporary hardstanding required for laydown and construction compounds and as far as reasonably practicable, construction compounds will be located to avoid habitats of higher diversity/distinctiveness on lower diversity habitat;
 - irreplaceable habitat (including lowland fen, blanket bog etc) will be retained through micro-siting / design unless their loss is unavoidable. The loss of AW will be avoided and where this is not possible, the loss of these features will be minimised. Ancient and veteran trees will seek to be avoided and where this is not possible, the loss of these features will be minimised. Any loss of individual trees will be compensated;

- disturbance of habitats of ecological value (e.g. woodland, hedgerow and other HoPI will be kept to a minimum;
- as far as reasonably practicable, direct effects on irreplaceable and valued habitats will be avoided through route selection or refinement and the use of trenchless crossing techniques;
- where it is not reasonably practicable to retain valued habitats in situ, habitat loss or severance will be mitigated for (e.g. development of new hedgerows and grassland etc), and these areas will be replanted and enhanced using appropriate species/ mix as soon as reasonably practicable;
- habitat connectivity would be retained as far as reasonably practicable by maintaining links within and to green corridors;
- areas of temporary habitat loss will be reinstated back to the type of habitat affected (or betterment where required for BNG) as soon as reasonably practicable following the completion of construction in each area;
- where open-cut trench techniques are used in proximity to ecological features of importance, avoidance of physical disturbance through design and relevant avoidance measures in construction method statements will be implemented, including appropriate stand offs between assets and areas of construction activity;
- a minimum 10m offset will be maintained from the bank top of all watercourses from all infrastructure (including fencing) and construction works (other than where these watercourses are to be crossed);
- measures to ensure legislative compliance will be undertaken where crossings of watercourses are proposed to prevent entrapment of fish and other potential adverse impacts on aquatic/freshwater features;
- suitable stand offs/avoidance measures (to be determined dependent on construction activities, local conditions and potential presence of ecological features) will be maintained from waterbodies, springs, spring catchments or boreholes to minimise risk of pollution;
- as far as reasonably practicable, construction access tracks will be permeable to allow water to filtrate through and maintain greenfield runoff rates;
- any infrastructure within or alongside watercourses will be designed to reduce the potential for significant detrimental impact on flow conveyance and localised or catchment-wide impacts on flood risk;
- sensitive habitats such as wetlands and potential GWDTE, and existing abstractions will be considered and avoided where reasonably practicable within the Proposed Development design;
- where suitable alternatives exist, drilling fluids containing substances hazardous to groundwater will be avoided for trenchless crossings;
- the design of the Proposed Development will seek to avoid localised increases in groundwater flooding risk and changes to the availability of water resources;
- the integrity of existing agricultural land drainage systems will be maintained including maintaining provision of water for livestock, as far as reasonably practicable;

- impacts on soils during construction will be mitigated through minimisation of construction footprints within areas of BMV soils and sensitive ecological sites, with micro-siting of compounds and laydown areas outside such areas as far as reasonably practicable;
- where possible, soils will be retained in their field/area of origin. A soil restoration plan (SRP) and statement will be prepared detailing the restoration approach and aftercare programme that is to be implemented;
- avoidance of physical disturbance through design, including appropriate stand offs between designated heritage assets and areas of construction activity will be maintained;
- where archaeological features are identified through surveys and evaluation, where reasonably practicable, design mitigation will be considered to avoid identified areas of constraint (preservation in situ). Where cultural heritage assets cannot be avoided, archaeological excavations or archaeological monitoring during construction in archaeologically sensitive areas would be undertaken to mitigate against the loss of cultural heritage assets (preservation by record) secured via requirement of the draft DCO;
- existing access to local businesses and community facilities will be maintained at all times or a suitable equivalent provided;
- temporary impacts on development land allocations and areas of open space during construction will be avoided, as far as reasonably practicable;
- the final route of the Proposed Development will be designed in consideration of the network of PRow and promoted routes that cross the Scoping Boundary, maintaining access to PRow during the construction phase or otherwise providing signed temporary diversion routes if required;
- appropriate offsets from PRow will be considered;
- siting and routeing will seek to continue to avoid or reduce effects on more sensitive landscape features such as woodland, including trees protected by Tree Preservation Orders (where known) and/ or mature tree specimens;
- planting will be used to integrate permanent structures e.g. AGI into the landscape to minimise visual impacts;
- contractors will segregate waste streams prior to them being taken for recycling or disposal. Waste will be removed from site by an appropriately licensed waste carrier and taken to permitted waste sites;
- contractors will consider procuring materials with recycled content as far as reasonably practicable and consider local sources for aggregate supplies, whenever possible;
- MAH assessments and studies will be prepared over the course of the design development; and
- relevant MAH Pipeline Safety Notifications under the Pipeline Safety Regulations (PSR) will be provided, prior to construction of the Proposed Development.

4.4 The Rochdale Envelope

- 4.4.1 The Planning Inspectorate's Advice Note Nine: Using the Rochdale Envelope (Ref 4.5), provides guidance regarding the degree of flexibility that may be considered appropriate within an application for development consent under the 2008 Act. The Advice Note Nine acknowledges that there may be aspects of a proposed project design that are not yet fixed, and therefore, it may be necessary for the EIA to assess likely credible worst-case variations to ensure that all foreseeable significant environmental effects of a project have been assessed.
- 4.4.2 NPS EN-1 provide further guidelines on flexibility and in justifying the amount of design detail contained within an application, stating in Section 4.3.12: *"Where some details are still to be finalised, the ES should, to the best of the applicant's knowledge, assess the likely worst-case environmental, social and economic effects of the proposed development to ensure that the impacts of the project as it may be constructed have been properly assessed."*
- 4.4.3 The National Infrastructure Planning Association (NIPA) has published reports, such as its first Insights Report entitled 'Balancing detail and flexibility - through planning to delivery' (Ref 4.6) on striking the right balance between design detail and flexibility in DCOs, and Insights II (Ref 4.7) instigated to review progress against the Insights I recommendations. Their recommendations for best practice will be considered in preparing the DCO Application.
- 4.4.4 It is prudent to maximise flexibility given the long lead in times to consent and subsequent engagement of EPC (engineering, procurement, and construction) contractors. This is particularly the case under the 2008 Act where the process for post-consent amendments can add unnecessary costs and delays to project delivery. It is typical for a DCO (especially linear schemes) to envelope the final design of a scheme by using (inter alia) parameters and limits of deviation to define the consent within which the detailed design is developed.
- 4.4.5 For the Proposed Development pipeline, the final draft Order Limits are expected to be set at around 100m wide, with a minimum working width corridor of approximately 35m and additional working width needed at some crossings, for example where HDD or MBT compounds are required. Further details would be provided within the ES, ensuring that reasonable worst-case assessment parameters are used. Final parameters and limits of deviation will be presented in the ES, draft order and works plans that accompany the Application.
- 4.4.6 This EIA Scoping Report is based on the emerging preliminary design for the Proposed Development available at the time of preparation, as described below. The design of the Proposed Development will evolve further through a series of design stages which will form the basis for future consultation activities and then the DCO application.

4.5 Construction activities

Pipeline construction

- 4.5.1 Following confirmation of the preferred pipeline alignment, the approach to construction and associated mitigation will be developed, with detailed planning undertaken to establish the construction sequence and overall programme. All works will be delivered in accordance with applicable UK legislation and recognised industry standards.

Site preparation

- 4.5.2 As part of the post-consent approvals process, pre-construction surveys including ecological surveys will be conducted as required.
- 4.5.3 Before pipeline construction begins, surveys of the construction site would be completed including utilities and UXO checks and utility/ service diversions would be undertaken, where required.
- 4.5.4 Where the preliminary risk assessments for ground contamination identify unacceptable risks, and remedial measures are advised, mitigation/ remediation of contamination would be undertaken prior to, or as part of, the enabling works phase.
- 4.5.5 Establishment of the working corridor would involve vegetation clearance where necessary, installation of temporary fencing or demarcation, stripping and storage of topsoil, and construction of access arrangements or haul routes where required. These activities would all be controlled by a Construction Environmental Management Plan (CEMP) with the Landscape and Ecological Management Plan (LEMP) specifying protection measures for habitats/ species including vegetation to be retained and exclusion zones.
- 4.5.6 It is not currently anticipated that site wide reprofiling would be required as this will be avoided where possible and considered when establishing the preferred pipeline alignment, although it is likely that areas would require localised profiling to provide safe, level access within the draft Order Limits. The ES will describe the anticipated cut and fill volumes, spoil movements, minimum and, where relevant, maximum final ground heights and the associated impacts (e.g. construction traffic volumes).

Construction compounds

- 4.5.7 Construction compounds/ laydown areas will be required along the pipeline working width to facilitate construction of the pipelines and AGIs. These areas will be used for temporary storage of materials, access to the pipeline working widths, to construct AGIs and BVS. The final number and location of construction laydown areas/ compounds will be identified within the ES that accompanies the Application.
- 4.5.8 The size, scale and location of construction compounds depend on multiple factors and will be defined as the design of the project evolves. Construction compounds are likely to include the following:
 - secure fencing, CCTV and lighting;
 - hardcore or sealed surfaces and drainage;
 - site offices;
 - vehicle/ plant storage and associated fuel storage; and
 - storage for pipes, equipment and materials.

Repurposed Hydrogen Gas Pipelines/ Necessary Replacement of Sections of Natural Gas

- 4.5.9 In some areas where existing natural gas pipelines are proposed to be repurposed for hydrogen, sections of new natural gas pipeline will be required to maintain the continuity of the natural gas network. The Applicant is currently assessing the feasibility of repurposing existing natural gas pipeline assets for hydrogen service and will confirm, at subsequent stages, the sections of existing gas pipeline proposed for repurposing.
- 4.5.10 Where repurposing of existing natural gas pipelines is proposed, construction works to modify the pipeline for hydrogen would be dependent on the condition of the pipeline and any remedial works required at specific sections. It is anticipated that construction

works would be limited to the connections at AGIs and within existing pipeline easements. A working width of 35m is assumed for sections where repurposed and new build gas pipelines coincide.

Open trench installation and working width

- 4.5.11 Construction of the pipelines would predominantly be undertaken using open-cut trenching methods. During the construction phase, the contractor would define a temporary working width, representing the area within which pipeline installation activities can be safely undertaken.
- 4.5.12 This working corridor would accommodate the excavation of the trench, storage of excavated soils, placement of pipe sections along the route, and movement of construction plant and vehicles. The width required would be influenced by a range of site-specific factors, including ground conditions, pipeline diameter, terrain, and the presence of crossings or other constraints. At this stage, a nominal minimum working width of approximately 35m has been assumed.
- 4.5.13 Additional temporary working space may be required in certain locations, such as at road, railway and watercourse crossings, locations with sloping ground, and at points where the pipeline alignment changes direction. These areas would provide sufficient space to enable safe construction, manage spoil storage, and accommodate plant, equipment, and temporary laydown.
- 4.5.14 Pipe sections would be delivered and laid out along the route prior to welding. Welded joints would be inspected and coated before excavation of the trench and lowering of the pipeline. The trench would then be backfilled using excavated material. Construction activities would be sequenced to limit the length of open trench at any one time.
- 4.5.15 Where shallow rock is encountered, controlled blasting may be required to facilitate trench excavation, where mechanical break-out is unfeasible.
- 4.5.16 Prior to commissioning, the pipeline would undergo pre-commissioning activities, including hydrostatic testing, post-construction drainage installation, followed by reinstatement of disturbed ground, services, and stored topsoil.
- 4.5.17 Where permitted, minor watercourses and drainage ditches would be temporarily crossed using flumed arrangements and ramped access (or similar) to maintain a continuous construction route while allowing uninterrupted water flow. Any land drainage affected during construction would be appropriately managed through the installation of pre-construction drainage to ensure continued operation of local drainage systems.

Trenchless pipeline installation

- 4.5.18 In certain locations along the proposed pipeline route, trenchless construction methods would be employed where open-cut trenching is either impracticable or not appropriate due to physical or environmental constraints. Such locations typically include crossings of strategic transport infrastructure, such as motorways and major highways, rail infrastructure, environmentally sensitive receptors (including designated and irreplaceable habitats), and major watercourses such as main rivers and canals. A range of trenchless installation techniques may be utilised, with the most commonly applied methods including:
 - HDD: typically applied where ground conditions are suitable and longer, relatively small-diameter crossings are required. The pipeline is assembled along the full length of the crossing prior to installation, meaning that temporary stringing areas are

generally comparable in length to the crossing itself. HDD is most appropriate where settlement impacts are not a key constraint. At this stage, it is assumed that temporary launch and reception areas of up to approximately 750m² would be required on either side of the crossing.

- Auger Boring: generally used for shorter crossings undertaken at shallow depth where ground conditions are favourable and limited surface disruption is required.
- Micro-tunnelling: typically employed in locations where overlying infrastructure is particularly sensitive to ground movement, or where challenging subsurface conditions make other trenchless methods unsuitable.

4.5.19 The specific trenchless construction method to be adopted at each crossing would be selected following consideration of a range of factors, including the nature of the feature being crossed, requirements agreed with third-party asset owners, ground conditions, and the length and depth of the crossing. These details would not be confirmed until after the DCO has been granted, the construction contract let, and detailed design completed. As a result, the EIA supporting the Application will consider the potential effects associated with all feasible trenchless techniques, with impacts assessed on a reasonable worst-case basis. Where relevant, the assessment will also take account of the need in some instances for continuous (24-hour) working for some trenchless installation activities.

Refurbishment of above ground pipe bridge

4.5.20 As described in Paragraph 4.2.12, a crossing of Greatham Creek/ Seaton on Tees Channel is required to supply hydrogen to an industrial user. If use of the existing pipe bridge is selected, refurbishment activities would include inspection, and depending upon condition, localised repairs to supports (if required), protective coating of steel elements, and installation of upgraded access and safety features.

Above Ground Installations

4.5.21 For AGIs, the key construction activities will include:

- site preparation;
- earthworks;
- civil construction;
- equipment installation which can occur in parallel with construction;
- heavy lifting;
- piping and electrical and instrumentation (EI) installation can occur in part, with equipment installation; and
- testing and commissioning.

Soil management

4.5.22 During construction, stripping of topsoil would take place in sections, with appropriate storage of soil within the working width, prior to backfilling the trench with the excavated soil once pipeline laying is complete. An outline Soil Management Plan (oSMP) submitted with the Application will incorporate best practice measures to minimise likely adverse effects on agricultural land and soil, as far as reasonably practicable.

Management of arisings

4.5.23 Excavation spoil would be stored temporarily within designated areas. The spoil would be utilised to backfill the pipeline trenches, HDD launch and exit pits, reinstate the

temporary construction compounds and any temporary access roads. Should contaminated spoil be identified during construction, this would be transported off-site to a licenced waste facility for treatment or disposal.

- 4.5.24 Any excess spoil generated during construction will be managed through the Site Waste Management Plan (SWMP) that would form part of the final CEMP. An outline SWMP (oSWMP) would form part of the outline CEMP (oCEMP) that accompanies the Application.

Lighting

- 4.5.25 Temporary lighting would be provided where necessary to ensure the safety of personnel undertaking works during periods of darkness, which are most likely to occur during the winter months. This may include task-specific lighting installed for individual activities, as well as lighting associated with temporary construction compounds.

4.6 Construction programme

- 4.6.1 Submission of the Application is currently scheduled for early (Q1) 2028. Subject to consent being granted, and a financial investment decision being made, the earliest anticipated commencement of construction works is Q2 2030. Construction is anticipated to take around 4 years to complete across the whole route although each section will be constructed over a shorter timeframe than this. Within this period, the construction of the AGIs will take approximately 12 months. This will be further defined as FEED and consenting progresses.

- 4.6.2 Construction disruption would not occur across the entire length of the pipeline for the whole construction period as the pipeline will be built in sections.

4.7 Construction staff and hours of work

- 4.7.1 Construction activities are likely to be carried out during core daytime working hours i.e. Monday to Friday 07:00-18:00 and between 08:00 and 13:30 on Saturdays with works not normally scheduled on Sundays or Bank/Public Holidays. However, some activities may require to be undertaken in the evening/ night-time where they cannot be readily paused. This may include, for example, abnormal load deliveries, dewatering, concrete pours, trenchless crossings, and night-time works within public highways. Some activities may also need to be undertaken outside daytime hours due to programme constraints, if activities do not give rise to unacceptable noise impacts. Potential adverse effects may be mitigated through the final CEMP (an outline version of which will accompany the Application).

- 4.7.2 Construction of the pipeline would be undertaken by multiple working crews operating concurrently at different locations along the route. As works progress, these crews would move sequentially along the alignment. A typical crew is expected to comprise up to approximately 30 personnel, with the overall construction workforce anticipated to range between around 200 and 500 staff at peak periods based on initial estimates. Separate construction teams would also be mobilised for the delivery of AGI. Workforce estimates will be subject to further refinement and reported within the Applicant's consultation materials.

4.8 Construction traffic management

- 4.8.1 Temporary access to the pipeline corridor from the local highway network would be determined in consultation with the local Highway Authorities. The location of site accesses will consider existing capacity/ safety issues and the need for improvements/ temporary traffic management measures (e.g. speed limits, managed site access points using banksmen).
- 4.8.2 Construction plant and vehicles are expected to comprise a range of typical equipment, including four-wheel-drive vehicles, HGVs, light good vehicles (LGV), cranes, hydraulic excavators, earth-moving plant such as bulldozers, and welding equipment. Further detail on the types and numbers of vehicles required will be confirmed as the design is progressed and the construction programme is developed and will be reported at the ES stage.
- 4.8.3 The need for temporary haul roads/ access tracks would be established as the project progresses considering the need to access all working areas, and based on site conditions.
- 4.8.4 Prior to construction, a final Construction Traffic Management Plan(s) (CTMP) will be produced illustrating how traffic resulting from the Proposed Development will be managed during construction. The CTMP will include access routes for HGVs, requirements for any temporary road closures and procedures for managing abnormal indivisible loads, if required. An outline CTMP (oCTMP) will accompany the Application.

4.9 Construction environmental management

- 4.9.1 An oCEMP will be submitted with the Application. This will describe the framework of embedded and additional mitigation measures taken into account within the ES assessments.
- 4.9.2 The oCEMP will include measures to reduce impacts during construction in relation to:
- use of land for temporary laydown areas, welfare facilities etc.;
 - construction traffic (including parking and access requirements) and changes to access and temporary road or footpath closures (only if required);
 - utilities diversions required;
 - handling of soil resources;
 - earthworks;
 - control of noise and vibration, through the implementation of best practicable means (BPM);
 - construction lighting;
 - utilities diversions, if required;
 - dust suppression;
 - water resources, flood risk mitigation, run off and drainage; and
 - waste management.
- 4.9.3 The final CEMP will be secured by a requirement of any DCO that is granted and will identify the relevant procedures to be adhered to throughout construction.
- 4.9.4 Contracts with companies involved in the construction works will incorporate environmental control, health and safety regulations and current guidance with the intention that construction activities are sustainable and that all contractors involved

with the construction stages are committed to agreed best practice and meet all relevant environmental legislation including:

- Control of Pollution Act 1974 (COPA) (Ref 4.8);
- Environment Act 2021 (Ref 4.9);
- Hazardous Waste (England and Wales) Regulations 2005 (as amended) (Ref 4.10);
- Environmental Permitting (England and Wales) Regulations 2016 (Ref 4.11); and
- Waste (England and Wales) Regulations 2011 (Ref 4.12).

Restoration/ landscaping

- 4.9.5 Following completion of pipeline and AGI construction, temporary construction compounds would be decommissioned and the affected land reinstated to its pre-construction condition as far as reasonably practicable.
- 4.9.6 Landscaping and ecological management will be provided as appropriate following restoration. Technical work will be undertaken as part of the Application to quantify the change in biodiversity units predicted to arise from the Proposed Development, with the overall objective to achieve a net gain in biodiversity via habitat restoration, enhancement and creation in line with the prevailing targets for NSIPs which are expected to be implemented, prior to submission of the Application. An outline LEMP (oLEMP) will accompany the Application.

4.10 Operation and maintenance activities

Pipeline maintenance

- 4.10.1 The pipeline would be designed in line with the requirements of PSR (Ref 4.13), with consideration given from the outset to enabling safe inspection, access, and ongoing maintenance. Following installation, the route would be protected through the establishment of appropriate legal agreements, such as easements or leases. These arrangements would help control third-party activities near the pipeline, limit the risk of accidental damage from groundworks, and ensure that access can be maintained for inspection, maintenance, or repair if required.
- 4.10.2 Once the pipeline is operational, it would be managed in accordance with an established inspection and maintenance regime that reflects regulatory requirements and recognised industry good practice. This would typically comprise the following activities:
- routine visual inspections of the pipeline corridor from vantage points or via aerial surveying methods, generally undertaken at regular intervals (for example, on an approximately fortnightly basis);
 - scheduled walk-over inspections along the full length of the pipeline route, carried out at defined intervals (no less frequently than every four years);
 - ongoing monitoring and testing of the CP system, including:
 - periodic checks of transformer rectifier units and current measurements at designated CP test points (commonly undertaken monthly);
 - inspections of electrical components, safety and protection systems, and confirmation of operational status (typically undertaken every six months); and
 - surveys to identify any damage or defects in pipeline coatings at longer-term intervals (typically around every four years).

- internal inspection and cleaning of the pipeline using PIGs, generally undertaken on a cyclical basis (approximately every five years).

4.10.3 Any issues identified through monitoring or inspection activities would be managed through the implementation of appropriate follow-up measures to address the matter identified.

Above Ground Installations

4.10.4 The AGIs would as standard usually be monitored and controlled remotely from an off-site control room. The precise frequency of on-site maintenance has not yet been confirmed; however, activities would typically comprise the following:

- approximately fortnightly routine inspections, involving one to two staff attending site on one day;
- annual maintenance visits undertaken by two staff visiting site for approximately one day;
- periodic major maintenance, undertaken every two to five years, involving up to five staff who would be on site for approximately one week;
- pipeline inspection operations, carried out at intervals of approximately five to 15 years, involving around ten staff for approximately one week; and
- occasional breakdown or emergency call outs, with access available at any time on a 24-hour basis if necessary.

4.10.5 Staff would typically travel to site by car or light commercial vehicle. The use of HGVs would be by exception and would generally only be required when large items of equipment require replacement (this could be due to the end of its operational life or through unexpected equipment failure).

4.11 Decommissioning

4.11.1 Pipelines for the Proposed Development will have a design life of approximately 50 years, with operational life likely to be extended further through appropriate monitoring and maintenance.

4.11.2 At the end of the operational life of the Proposed Development the pipeline would be decommissioned safely and left in situ in line with current UK industry practice (e.g. UK Onshore Pipeline Operators Association (UKOPOA), Good Practice Guide: Pipeline Decommissioning and Abandonment (UKOPOA/GP/038) (Ref 4.14). All above ground structures, including sections of pipework, will be removed and land will be restored as far as reasonably practicable to its previous condition, unless otherwise agreed with landowners.

4.11.3 At the end of its operational life, the AGIs will be decommissioned following regulatory guidelines and environmental best practices. Decommissioning would involve safely separating the AGIs from the pipeline system and removing associated infrastructure, including inspection facilities, valves, instrumentation, and any supporting structures.

4.11.4 At the end of their operational life, the BVSs will be decommissioned following regulatory and environmental guidelines. Decommissioning activities would be designed to limit environmental effects and ensure that all applicable safety, regulatory, and environmental obligations are met.

4.12 References

- Ref 4.1 IGEM, 2023. IGEM/TD/13 Edition 3 Pressure regulating and exceeding 7 bar pipeline installations (Accessed May 2026)
- Ref 4.2 IGEM , 2024. IGEM/TD/1 Edition 6 with amendments May 2024 - Steel pipelines for high pressure gas transmission (Accessed May 2026)
- Ref 4.3 UK Government, 2024. The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024. Available at:
<https://www.legislation.gov.uk/ukxi/2024/48/contents/made>
- Ref 4.4 UK Government, 2006. Natural Environment and Rural Communities Act 2006. Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents>
- Ref 4.5 PINS, 2018. Nationally Significant Infrastructure Projects - Advice Note Nine: Rochdale Envelope . Available at: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope> (Accessed May 2026)
- Ref 4.6 NIPA, 2017. NIPA Insights. Available at: <https://nipa-uk.org/resources/> (Accessed May 2026)
- Ref 4.7 NIPA, 2019. NIPA Insights II. Available at: <https://nipa-uk.org/resources/> (Accessed May 2026)
- Ref 4.8 UK Government, 1974. Control of Pollution Act 1974. Available at:
<https://www.legislation.gov.uk/ukpga/1974/40/contents>
- Ref 4.9 UK Government, 2021. Environment Act 2021. Available at:
<https://www.legislation.gov.uk/ukpga/2021/30/contents>
- Ref 4.10 UK Government, 2005. The Hazardous Waste (England and Wales) Regulations 2005. Available at: <https://www.legislation.gov.uk/ukxi/2005/894/contents>
- Ref 4.11 UK Government, 2016. The Environmental Permitting (England and Wales) Regulations 2016. Available at: <https://www.legislation.gov.uk/ukxi/2016/1154/contents>
- Ref 4.12 UK Government, 2011. The Waste (England and Wales) Regulations 2011. Available at:
<https://www.legislation.gov.uk/ukxi/2011/988/contents> (Accessed May 2026)
- Ref 4.13 UK Government, 1996. The Pipelines Safety Regulations 1996. Available at:
<https://www.legislation.gov.uk/ukxi/1996/825/contents>
- Ref 4.14 United Kingdom Onshore Pipeline Operators' Association, 2023. Good Practice Guide: Pipeline Decommissioning and Abandonment. Available at: <https://ukopa.co.uk/wp-content/uploads/2025/04/GPG038-Decommissioning-and-Abandonment-V1.0-approved-Oct-2023.pdf> (Accessed May 2026)

5 Consideration of alternatives

5.1 Overview

- 5.1.1 This section has been prepared in compliance with the requirements of the EIA Regulations to provide a description of the reasonable alternatives studied by the Applicant at this EIA scoping stage of the design development process, as well as the proposed approach for the assessment of alternatives as part of the ES. This approach is also in accordance with NPS EN-1.
- 5.1.2 An assessment of alternatives is not a statutory requirement when seeking a Scoping Opinion. However, PINS Advice Note Seven (Ref 5.1) encourages the inclusion within a Scoping Report of: *“an outline of the reasonable alternatives considered and the reasons for selecting the preferred option.”*
- 5.1.3 Schedule 4 of the EIA Regulations requires that an ES contains the following information: *“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.”*
- 5.1.4 The Scoping Boundary, illustrated on Picture 2, encompasses the land that may be required to deliver the infrastructure associated with the Proposed Development, including retained options for land where the final choice of route or location has not yet been made. The Scoping Boundary has been informed by optioneering work carried out by the Applicant which is summarised below.

5.2 Route selection optioneering

- 5.2.1 There is no standard methodology for the consideration of site selection for hydrogen pipeline developments. Therefore, the approach undertaken has been informed by policy and guidance, starting with the NPS EN-4 (Section 2.20 – Natural Gas and Oil Pipelines: Applicant Assessment) (Ref 5.2) which sets out a series of criteria and considerations to inform site selection and design of the route of new gas pipelines.
- 5.2.2 The route selection process was progressed in accordance with the factors influencing site selection and design, as set out in section 2.21 of NPS EN-4. The key stages were:
- **Stage 1: Defining the initial search area.** The Applicant has undertaken studies to evaluate the development of a hydrogen-ready pipeline network by evaluating current gas infrastructure and identifying areas where further improvements are required to accommodate future demand. This future demand included developing a register of natural gas connected industrial users, their gas demand and identifying which routes/connection points supply them, as well as stakeholder engagement to identify commitments of users to using hydrogen as a future fuel source. Hard-to-abate industries in particular were identified and targeted as these are a key driver for the Proposed Development.
 - **Stage 2: Refining the search area.** Once the strategic options had been developed, an area of search was established within which potential pipeline routes were assessed. Consideration of the factors within NPS EN-4 informed routeing i.e.: *“When designing the route of new pipelines applicants should research relevant constraints including proximity of existing and planned residential properties, schools and hospitals, railway*

crossings, major road crossings, below surface usage and proximity to environmentally sensitive areas, main river and watercourse crossings. Applicants should be aware of plans and strategies that may impact upon these constraints, such as water level management plans in areas with peat soils.”

- Desk based and GIS led routeing studies therefore focussed on routeing which sought to avoid, as far as reasonably practicable, key environmental and planning constraints. These included international conservation designations (SAC, SPA and Ramsar), designated landscapes – National Parks and National Landscapes, national conservation designations including SSSI, and NNR, ecological features (ancient woodland and irreplaceable habitats), statutory designated cultural heritage assets (scheduled monuments, listed buildings, registered parks and gardens, conservation areas etc.), cemeteries/ burial grounds, Grade 1 and 2 agricultural land, water resources and the water environment (main rivers, canals, lakes, wetlands, reservoirs, ponds), areas of higher flood risk (as far as reasonably practical, noting the extent of Flood Zone 3 across the Scoping Boundary), designated green belt, green space and open space, and peat soils. Minimising interactions with other environmental constraints (e.g. grade 3 agricultural land where there was an option to route through grade 4), was also undertaken to refine routeing.

5.2.3 The routeing assessment incorporated an appraisal of technical/ engineering related constraints associated with existing infrastructure and land use that could increase construction risk or create delivery challenges. Pipeline routeing was informed by technical standards including IGEM TD/1 and Supplement 2, including Sections 6.10, 6.11 and 7.21, which outlines key factors to consider during route selection. Factors included avoiding areas of population density (unless routeing into these is required), major highway crossings, rail line crossings, major watercourse crossings, difficult ground conditions, existing/ future and built developments, existing gas pipelines (including parallelism with other major pipelines), overhead power lines, minerals/ mining extraction/ landfill sites and Ministry of Defence land as identified in Table 4-1.

5.2.4 Through an iterative process of route identification and optimisation, an emerging preferred pipeline corridor for the Proposed Development was identified, including optionality that it was necessary to retain.

5.3 Scoping stage

5.3.1 At this scoping stage, the Scoping Boundary contains several wide options for the pipeline routeing to a number of different users, or between sections of pipeline that it is currently anticipated could be repurposed. It is intended that the Scoping Boundary will be refined following the identification of a preferred pipeline corridor and the final draft Order Limits will evolve in response to environmental and technical factors identified as part of the EIA process. Discussions with landowners and consultation feedback received from key stakeholders and the wider community within which the pipeline, including AGIs would be located, will also inform the final draft Order Limits.

5.3.2 It is possible that further alternative routes will be identified that are outside the Scoping Boundary as the design, environmental assessment and consultation activities are undertaken. Given that the development consists of underground pipelines that would be routed to avoid sensitive locations as far as reasonably practicable, and would be in a similar geographic area, it is not considered likely that locating the pipeline or above

ground elements (e.g. AGI) in different locations would alter the scope of assessment as set out in this EIA Scoping Report.

5.3.3 The consideration of alternatives will continue throughout the EIA process as the design evolves with the aim to reduce and avoid any likely significant environmental effects, in line with legislative and policy requirements, whilst maintaining operational efficiency.

5.3.4 In providing a description of reasonable alternatives studied by the Applicant, the ES will demonstrate the rationale for the preferred design of the Proposed Development, considering its effects on the environment and sensitive receptors.

5.4 References

Ref 5.1 Planning Inspectorate, 2020. Nationally Significant Infrastructure Projects - Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements. Available at:

<https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an> (Accessed May 2026)

Ref 5.2 DESNZ, 2023. National Policy Statement for natural gas supply infrastructure and gas and oil pipelines (EN-4). Available at: <https://www.gov.uk/government/publications/national-policy-statement-for-natural-gas-supply-infrastructure-and-gas-and-oil-pipelines-en-4> (Accessed May 2026)

6 Consultation

6.1 Regulatory context and guidance

- 6.1.1 Stakeholder engagement and consultation are central to the 2008 Act and will play a key role in supporting the successful delivery of the Proposed Development. Effective and meaningful engagement and consultation is also a vital component in the preparation of a robust and balanced ES, helping to inform and refine the scope of environmental assessment and to highlight matters requiring further consideration.
- 6.1.2 As advised by the Ministry of Housing, Communities and Local Government (MHCLG) guidance on pre-application consultation for major infrastructure projects (Ref 6.1), the Applicant's approach to engagement and consultation will be iterative to enable stakeholders to gain an understanding of the proposals early on in the process and to have genuine opportunities for influence.
- 6.1.3 The Applicant will have regard to the guidance provided in PINS Advice Note: Advice on EIA Notification and Consultation (Ref 6.2) in taking a precautionary approach to identifying relevant consultees for the Proposed Development and demonstrating compliance with the requirements of the EIA Regulations, the current requirements for consultation under the 2008 Act and the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (APFP) Regulations.
- 6.1.4 The Applicant will also aim to ensure that reporting on engagement and consultation activities are carried out in accordance with relevant guidance including PINS Advice Note: Advice on the Consultation Report (Ref 6.3) and advice provided by PINS in their NSIP 2024 Pre-application Prospectus (Ref 6.4).
- 6.1.5 The Applicant notes the publication of the Planning and Infrastructure Act 2025 (Ref 6.5), passed by the Parliament in December 2025, introducing a series of reforms intended to streamline the planning and consenting process for NSIPs, including the removal of the statutory requirement for pre-submission consultation. Statutory guidance is expected to be published in 2026 following consultation draft guidance published in autumn 2025 which set out: *"strong expectations that developers undertake consultation and engagement prior to submitting an application."* The Applicant will monitor and seek to comply with relevant emerging statutory guidance and changes to legislation where this is developed by Government during the pre-application stage. Notwithstanding this, the Applicant's current position is that a two-stage consultation process will be undertaken.

6.2 Stakeholder engagement and consultation to date

- 6.2.1 The Proposed Development has a broad and diverse stakeholder base, including users of hydrogen gas to be supplied by the Proposed Development, landowners, statutory and prescribed bodies, local communities and specialist interest groups, each with distinct interests and information needs.
- 6.2.2 The Applicant's core principles underlying the approach to stakeholder engagement are set out in Picture 3.



PICTURE 3: APPLICANT'S CORE ENGAGEMENT PRINCIPLES

- 6.2.3 A stakeholder mapping exercise has been undertaken, including engaging with a broad range of potential off-takers to assess anticipated hydrogen demand, readiness, and development timelines. In addition, the Applicant has commenced engagement with a wide range of stakeholders including hydrogen producers, industry partners and other parties including hydrogen storage providers and other parties.
- 6.2.4 A number of meetings with statutory consultees have already taken place to introduce the proposals, including:
- RCBC;
 - SBC;
 - DCC;
 - HBC;
 - DBC;
 - Environment Agency;
 - Historic England;
 - Natural England; and
 - PINS.
- 6.2.5 Invitations for introductory meetings to other key stakeholders including National Highways have also been extended, although no response has been received within the timescale of this Scoping Report.
- 6.2.6 The Applicant has launched a website for the Proposed Development prior to the submission of this EIA Scoping Report, which provides information to the wider community on the Proposed Development, its anticipated programme and the opportunity to contact the Applicant with any queries or for further information.
- 6.3 Scoping consultation**
- 6.3.1 Under Regulation 10(6) of the EIA Regulations, this EIA Scoping Report will be issued by PINS (on behalf of the Secretary of State) to statutory consultees, for comment on the scope, methodology and approach proposed for the EIA. Comments received will be compiled and presented within the EIA Scoping Opinion, which is to be issued by PINS to the Applicant.
- 6.3.2 Following receipt of the Scoping Opinion and associated consultee responses, technical engagement will be undertaken by the Applicant with stakeholders to inform further EIA

work to be undertaken and to seek to reach agreement on relevant matters. A summary of these discussions will be presented in the ES that accompanies the Application.

6.4 Development Consent Order consultation

- 6.4.1 The Planning and Infrastructure Act 2025 (Ref 6.5) amends the 2008 Act (Ref 6.6) and removes certain statutory consultation duties which previously required engagement with prescribed bodies, relevant stakeholders and local communities during the pre-application stage, as set out in Sections 42, 47 and 48 of the 2008 Act. The requirements of Regulation 3 and Schedule 1 of the APFP Regulations in respect of consultation, and Regulation 13 of the EIA Regulations remain in force.
- 6.4.2 The previous legislative framework under the 2008 Act included requirements for publicising the Proposed Development and the DCO application, alongside the preparation of specific consultation documents. These included a Statement of Community Consultation (SoCC), Preliminary Environmental Information (typically presented within a PEIR), and a Consultation Report.
- 6.4.3 Notwithstanding amendments to statutory consultation requirements introduced through the Planning and Infrastructure Act 2025, the Applicant remains committed to undertaking proportionate, transparent and meaningful engagement and will seek to agree the consultation strategy and methods with the host local authorities prior to engagement with local communities. This will include methods for providing environmental information within the Applicant's consultation materials that is proportionate to support meaningful consultation.
- 6.4.4 Engagement with statutory and non-statutory consultees will be undertaken throughout the EIA process to gather feedback on the emerging project proposals. Engagement with statutory consultees will focus on agreeing on an approach to baseline survey and assessment methodologies for each assessment topic throughout the pre-Application period.

First stage of consultation

- 6.4.5 It is anticipated that a first round of consultation and engagement activities will be undertaken in 2026 to introduce the Proposed Development, present emerging design proposals and outline the alternative options previously considered, as well as to seek feedback from interested parties.

Second stage of consultation

- 6.4.6 A second stage of formal consultation will be undertaken, likely in 2027, taking into consideration the prevailing statutory guidance at that time (expected to be published by the UK Government later in 2026). The consultation is likely to include the Applicant's consultation materials that provide environmental information on the findings of preliminary assessments of likely significant environmental effects of the Proposed Development. Activities will be tailored to fulfil any requirements for demonstrating Adequacy of Consultation Milestone (if this remains following the implementation of secondary legislation).

Technical and landowner engagement

- 6.4.7 Technical engagement with relevant stakeholders will continue following submission of the Scoping Report, as required, to inform the Application.
- 6.4.8 The Planning and Infrastructure Act 2025 removes statutory pre-application consultation requirements, but the need for early, targeted engagement with affected land interests, particularly where land rights, access and/ or compulsory acquisition powers are

proposed is still expected. The Applicant is commencing engagement with landowners in 2026.

Consultation report

- 6.4.9 Submission of a Consultation Report as part of the Application will evidence how consultation has been carried out and how feedback has been considered in developing the proposals.

Environmental statement

- 6.4.10 An overview of consultation activities will be presented within the ES, including a summary of all engagement undertaken with technical consultees, which will be summarised within the relevant technical chapters.

6.5 References

- Ref 6.1 Department for Levelling Up, Housing and Communities (DLUHC), 2024. Planning Act 2008: pre-application stage for nationally significant infrastructure projects. Available at: <https://www.gov.uk/guidance/planning-act-2008-pre-application-stage-for-nationally-significant-infrastructure-projects> (Accessed May 2026)
- Ref 6.2 Planning Inspectorate, 2024. Nationally Significant Infrastructure Projects: Advice on EIA Notification and Consultation. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-eia-notification-and-consultation> (Accessed May 2026)
- Ref 6.3 Planning Inspectorate, 2024. Nationally Significant Infrastructure Projects: Advice on the Consultation Report. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-the-consultation-report> (Accessed May 2026)
- Ref 6.4 Planning Inspectorate, 2024. Nationally Significant Infrastructure Projects: 2024 Pre-application Prospectus. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-2024-pre-application-prospectus> (Accessed May 2026)
- Ref 6.5 UK Government, 2025. Planning and Infrastructure Act 2025. Available at: <https://www.legislation.gov.uk/ukpga/2025/34/contents/enacted>
- Ref 6.6 UK Government, 2008. Planning Act 2008. Available at: <https://www.legislation.gov.uk/ukpga/2008/29/contents>

7 EIA process

7.1 Overview

- 7.1.1 The EIA process, as outlined in Regulation 5 of the EIA Regulations and PINS Advice Note Seven, is used to identify likely significant effects on the environment that could occur as a result of a proposed development. The information gathered through EIA is taken into account by the decision-making body (the Secretary of State) when determining an application for consent.
- 7.1.2 This section of the EIA Scoping Report outlines the general approach to EIA for the Proposed Development.

7.2 EIA guidance

- 7.2.1 The EIA will be carried out in accordance with the requirements of the EIA Regulations. In addition, the approach to the EIA will have regard to the guidance and advice provided within the following:
- NPS EN-1 (Ref 7.1);
 - NPS EN-4 (Ref 7.2);
 - The NPPF (Ref 7.3);
 - Planning Act 2008: Pre-Application Stage for Nationally Significant Infrastructure Projects (Ref 7.4);
 - Nationally Significant Infrastructure Projects: Advice on EIA Notification and Consultation (Ref 7.5);
 - Nationally Significant Infrastructure Projects: Advice on the Preparation and Submission of Application Documents (Ref 7.6);
 - PINS Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements (Ref 7.7);
 - PINS Advice Note Nine: Rochdale Envelope (Ref 7.8);
 - PINS Advice on NSIP: Advice on Cumulative Effects Assessment (Ref 7.9);
 - PINS Advice on NSIP: Advice on the Water Framework Directive (Ref 7.10);
 - PINS Advice on NSIP: Advice on Commitments Register (Ref 7.11);
 - PINS Advice on NSIP: Advice on Preparing Applications for Linear Projects (Ref 7.12);
 - ISEP Guidance: Delivering Proportionate EIA (Ref 7.13);
 - ISEP Guidance: Implementing the Mitigation Hierarchy from Concept to Construction (Ref 7.14); and
 - Topic specific guidance as set out in the relevant sections of this EIA Scoping Report.

7.3 Overview of approach to assessment

- 7.3.1 This section of the EIA Scoping Report sets out further detail on the assessment methodology that will be adopted in the ES. The following general methodology will apply to all assessments undertaken unless otherwise specified within the individual topic methodologies.

Establishing baseline conditions and data collection

- 7.3.2 An important step in the EIA process is to establish a baseline against which to assess the effects of the Proposed Development. The ES will include a description of the current baseline and the future baseline for each environmental topic. The future baseline

scenario will describe the changes from the current baseline scenario without implementation of the Proposed Development as far as natural changes (or climate change considerations, where appropriate) can be established. Information relating to the existing environmental baseline will be collected through field and desk-top study, including:

- online/ digital resources;
- data searches, e.g., Local Biological Record Centres, Historic Environment Record (HER), etc.;
- baseline field surveys; and
- available environmental information submitted in support of other planning and consent applications for development in the vicinity.

7.3.3 For each environmental topic section, the methods of baseline data collection will be discussed with the relevant consultees, as appropriate.

Defining the spatial study area and assessment scenarios

7.3.4 Spatially, the area over which impacts and effects could occur may be wider than the boundary of the final draft Order Limits. The appropriate study area will be determined for each environmental topic individually. Specific study areas will be defined in each topic section and will allow for assessment of indirect as well as direct effects, together with off-site factors such as traffic routes, where relevant.

7.3.5 Specific temporal periods will be defined for the assessment of baseline conditions and the impacts of the Proposed Development. In doing so, consideration will be given to the likely durations of construction, operational and decommissioning activities. Where relevant, consideration will be given to the duration for environmental design measures to become established and effective. Timeframes for which mitigation measures are likely to have achieved their desired outcome will be defined within the ES.

7.3.6 The assessment will consider effects at the phases defined below:

- **construction phase:** this relates to all works associated with construction (site preparation and installation);
- **operational phase:** this relates to effects once the Proposed Development is installed/ developed and in use, including ongoing maintenance requirements and equipment upgrades; and
- **decommissioning phase:** this relates to effects after operation of the Proposed Development has ceased.

7.3.7 The potential effects arising as a result of the Proposed Development will be assessed against the following baseline and assessment year scenarios:

TABLE 7-1: INDICATIVE ASSESSMENT SCENARIOS

Phase	Description
Current Baseline	The current baseline environment (2026 - 2028) for all relevant topics will be described in accordance with published sources and field surveys/ data collection undertaken as part of the EIA up to the point of submission of the DCO application.
Future Baseline	Anticipated changes to the environment will be described, using forecasting methods (e.g. anticipated natural succession of habitats and considering the

Phase	Description
	effects of climate change) and considering that the future baseline can also change as a result of other developments being constructed within the study areas to be used in the assessment for the Proposed Development.
Construction Phase	The indicative construction programme is outlined in Section 4.6: Construction programme (i.e. subject to the necessary consent being granted and an investment decision being made) may commence at the earliest in Quarter 2 2030. Construction is anticipated to take around 4 years to complete across the whole route although each section will be constructed over a shorter timeframe than this. Within this period, the construction of each AGI will take approximately 12 months. Considering that the DCO would allow construction to commence up to five years from the date of consent, construction activities may commence as late as Q2 2035 (depending on market needs and financing). For this reason, a scenario whereby construction commences later in the programme, in 2035 (five years after the DCO could have been granted) may also be considered as a reasonable worst-case for some technical assessments in the EIA.
Operation Phase	The operational phase is expected to commence Q2 2034. On this basis, topics will select a future operational year scenario, if relevant, after the opening year when mitigation measures are likely to have achieved their desired outcome (e.g. 15 years following landscape planting) for landscape and visual amenity.
Decommissioning Phase	At the end of the operating life, the pipeline would be decommissioned safely and left in situ in line with current UK industry practice.

Identification of receptors

- 7.3.8 Receptors are defined as the physical resource or ‘user group’ that would experience an effect. The environmental effect would depend on the spatial relationship between the source of the effect (impact) and the receptor. Some receptors will be more sensitive to certain environmental effects than others. The baseline studies will identify the potential environmental receptors.

7.4 Impacts and effect prediction

- 7.4.1 Some environmental topic assessments will use calculations and modelling to determine the predicted impacts of the Proposed Development on receptors in order to assess the likely significance of effects. Others will be based on the expert judgement of the assessment team and initial assessments, taking into account relevant technical advice and guidance.
- 7.4.2 Each environmental topic assessment will present a clear justification for the strategy adopted and state all relevant assumptions to facilitate independent review.

Assessment of likely significant effects

- 7.4.3 The EIA will identify the likely significance of environmental effects (beneficial or adverse) arising from three phases (construction, operation (including maintenance) and decommissioning) of the Proposed Development, in addition to cumulative and combined effects as set out in **Section 7.5: Cumulative and combined effects** and **Appendix A: Cumulative effects assessment**. The likely significance of effects will be determined by reference to the criteria set out for each environmental topic.

- 7.4.4 Each environmental topic will also set out the relevant embedded mitigation measures (i.e. those that form part of the engineering design and industry standard practice approaches through management plans). The first stage of assessment is undertaken with embedded mitigation in place. Following this, where there are likely significant adverse effects, any additional mitigation measures will be identified. Additional mitigation are additional project specific measures identified during the EIA to avoid, reduce or offset potential impacts that could otherwise result in effects likely to be considered significant in the context of the EIA Regulations. Additional mitigation will be identified by environmental topic specialists, where required, taking into account the embedded mitigation and good practice commitments.
- 7.4.5 Residual effects are the effects that remain following the implementation of additional mitigation measures. The likely residual effects of the Proposed Development will be set out for each topic assuming implementation of all mitigation measures identified. A commitments register will accompany the Application to demonstrate how these measures are secured.
- 7.4.6 The approach to assessing and assigning significance to an environmental effect is derived from a variety of sources including:
- legislative requirements, including the EIA Regulations;
 - national policy, including NPS EN-1, and the NPPF;
 - local planning policy and relevant planning practice guidance;
 - topic specific guidelines, standards and codes of practice;
 - advice from statutory consultees and other stakeholders; and
 - professional judgement of the EIA team.
- 7.4.7 The likely effects that the Proposed Development may have on identified environmental receptors will be influenced by a combination of the sensitivity or value of the receptor and the predicted magnitude of impact from the baseline conditions. Assignment of environmental sensitivity of a receptor will generally depend on the vulnerability, recoverability and value of the receptor. The environmental sensitivity (or importance) will be determined using the categories set out in Table 7-2, or as stipulated in individual topic sections.

TABLE 7-2: INDICATIVE ENVIRONMENTAL SENSITIVITY OF A RECEPTOR

Sensitivity	Criteria
High	High importance and rarity, international level and very limited potential for substitution
Medium	High or medium importance and rarity, regional level and limited potential for substitution
Low	Low or medium importance and rarity and local level
Negligible	Very low importance or rarity and local level

- 7.4.8 Where other categories of sensitivity have been used, this will be set out in the individual environmental topic assessment.
- 7.4.9 The categorisation of the magnitude of impacts will take into account the following factors, or as stipulated in individual topic chapters:

- scale of alteration/ change;
- geographical extent;
- duration and reversibility (for example: temporary, short term and reversible; or temporary long term and reversible; or permanent and irreversible); and
- frequency.

7.4.10 The magnitude of impact will be assigned using the categories outlined in Table 7-3, or as stipulated in individual topic sections.

TABLE 7-3: INDICATIVE MAGNITUDE OF IMPACT

Magnitude	Criteria
High	Total loss or major alteration to key elements/ features of the baseline (i.e. pre-development) conditions
Medium	Partial loss or alteration to one of more key elements/ features of the baseline (i.e. pre-development) conditions
Low	Minor shift away from baseline (i.e. pre-development) conditions
Negligible	Very slight change from the baseline (i.e. pre-development) conditions

7.4.11 Further details of the topic-specific methodologies adopted for the EIA will be defined within the methodology section of each of the topic chapters.

7.4.12 In order to provide a consistent approach to expressing the outcomes of the various technical assessments undertaken as part of the ES, and thereby enable comparison between likely significant effects upon different environmental components, the following terminology will be used:

- Adverse - detrimental or negative effect to an environmental resource or receptor; or
- Beneficial – advantageous or positive effect to an environmental resource or receptor;
- and
- Negligible – imperceptible effect to an environmental resource or receptor; or
- Minor – slight, very short or highly localised effect of no significant consequence; or
- Moderate – more than a slight, very short or localised effect (by extent, duration or magnitude) which may be considered significant; or
- Major – considerable effect (by extent, duration or magnitude) of more than local significance or in breach of recognised acceptability.

7.4.13 The level of an environmental effect will be assigned by the interaction of both sensitivity of the receptor and magnitude of impact. Classification of likely significant environmental effects will generally follow the matrix outlined in Table 7-4 but will be confirmed in each technical assessment which will consider relevant topic-specific legislation, planning policy and guidance.

TABLE 7-4: CLASSIFICATION OF ENVIRONMENTAL EFFECTS MATRIX

Sensitivity of resource	Magnitude of impact				
		High	Medium	Low	Negligible
	High	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Minor	Negligible
	Low	Moderate	Minor	Negligible	Negligible
	Negligible	Minor	Negligible	Negligible	Negligible

7.4.14 In general, any likely effect (be it adverse or beneficial) assessed as ‘major’ or ‘moderate’ would be considered to be ‘significant.’ This is a widely used methodology based on current best practice.

7.4.15 Each of the technical chapters will clearly identify the criteria, including sources and justifications, for quantifying the impact magnitude. Where possible, this will be based upon quantitative and accepted criteria, together with the use of value judgements and expert interpretations to establish to what extent an impact is environmentally significant.

7.5 Cumulative and combined effects

7.5.1 In accordance with Regulation 14(2) part (5)(e) of the EIA Regulations, the ES will include a description of ‘the cumulation of effects’ which result from:

- **combined (intra-project) effects** where there is potential for more than one effect on an individual receptor or receptor group from the Proposed Development for example, a community may be affected by noise, dust and traffic during construction or, recreational users of a PRow may be affected by impacts to visual amenity, severance, disruption or access; and
- **cumulative (inter-project) effects** where effects of the Proposed Development are considered with other existing and/or approved projects, which in-combination with each other, may be more (or less) than the sum of the individual effects.

7.5.2 A cumulative assessment is undertaken to identify whether other developments may lead to an elevated effect on the environment during construction, or once a development is built and in use. Other developments need to be of a sufficient scale and/or proximity to the Proposed Development for potential cumulative effects to be likely. Other developments may also precede the Proposed Development being assessed thereby changing future baseline conditions, or in some cases introducing new sensitive receptors (and would be considered in the future baseline assessments within the ES).

7.5.3 As the Proposed Development is classified as an NSIP, the approach to the assessment of cumulative effects will follow guidance set out in PINS Advice Note 17: Advice on Cumulative Effects Assessment (‘PINS Advice Note 17’) (Ref 7.9).

7.5.4 Combined effects will be reported for each receptor/ receptor group, for example, recreational users of PRow, which will allow the aggregation of all the identified minor, moderate and major effects to be understood.

7.5.5 A description of the combined and cumulative effects assessment methodology is presented in **Appendix A: Cumulative effects assessment**, along with the initial long list of relevant developments identified.

7.6 Mitigation measures and monitoring

- 7.6.1 Where adverse effects can be reduced to acceptable levels through incorporation of appropriate design or management measures, these will be identified within the commitments register of the ES along with an explanation as to how such measures will be secured.
- 7.6.2 Opportunities for environmental enhancement, and the delivery of environmental benefits, will also be sought through the ongoing design of the Proposed Development and where these are proposed, reported in the ES that accompanies the Application.
- 7.6.3 Where appropriate, monitoring procedures will be identified to address any likely residual significant adverse effects in order to measure the effectiveness of the mitigation proposed. A range of supporting management plans will be produced to secure mitigation and will accompany the Application.

7.7 Transboundary effects

- 7.7.1 Schedule 4 Part 5 of the EIA Regulations requires a description of the likely significant transboundary effects to be provided in an ES where the Proposed Development is likely to have significant impacts on another European Economic Area (EEA) State. PINS has produced guidance on NSIP: Advice on Transboundary Impacts and Process (Ref 7.15) which describes the Applicant's role in providing information about the potential for transboundary effects as part of the EIA Scoping Opinion request.
- 7.7.2 Having considered the nature of the Proposed Development and its distance from other EEA States, potential pathways of effect to other EEA states have not been identified, either alone, or cumulatively with other developments and an assessment of transboundary effects is proposed to be **Scoped Out**. It is the Applicant's opinion that Regulation 32 of the EIA Regulations does not need to be engaged by the Secretary of State.

7.8 Assumptions, limitations and uncertainty

- 7.8.1 In accordance with the EIA Regulations, any difficulties encountered during assessment work that could affect the assessment and limitations and assumptions used for individual assessment areas will be clearly set out in the ES.

7.9 References

- Ref 7.1 DESNZ, 2026. Overarching National Policy Statement for energy (EN-1). Available at: <https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025/overarching-national-policy-statement-for-energy-en-1-2025-accessible-webpage> (Accessed May 2026)
- Ref 7.2 DESNZ, 2023. National Policy Statement for Natural Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4). Available at: https://assets.publishing.service.gov.uk/media/64252f7260a35e00120cb159/NPS_EN-4.pdf (Accessed May 2026)
- Ref 7.3 UK Government, 2025. National Planning Policy Framework. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2> (Accessed May 2026)

- Ref 7.4 UK Government (2008) Planning Act 2008. Available at:
<https://www.legislation.gov.uk/ukpga/2008/29/contents>
- Ref 7.5 PINS, 2024. Nationally Significant Infrastructure Projects: Advice on EIA Notification and Consultation. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-eia-notification-and-consultation> (Accessed May 2026)
- Ref 7.6 PINS, 2024. Nationally Significant Infrastructure Projects: Advice on the Preparation and Submission of Application Documents. Available at:
<https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-the-preparation-and-submission-of-application-documents> (Accessed May 2026)
- Ref 7.7 PINS, 2020. Nationally Significant Infrastructure Projects - Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements. Available at:
<https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an>
- Ref 7.8 PINS, 2018. Nationally Significant Infrastructure Projects - Advice Note Nine: Rochdale Envelope . Available at: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope> (Accessed May 2026)
- Ref 7.9 PINS, 2024. Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment> (Accessed May 2026)
- Ref 7.10 PINS, 2024. Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-the-water-framework-directive> (Accessed May 2026)
- Ref 7.11 PINS, 2024. Nationally Significant Infrastructure Projects: Commitments Register. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-commitments-register> (Accessed May 2026)
- Ref 7.12 PINS, 2025. Nationally Significant Infrastructure Projects: Advice on Preparing Applications for Linear Projects. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-preparing-applications-for-linear-projects> (Accessed May 2026)
- Ref 7.13 ISEP (formally IEMA), 2025. Delivering Proportionate EIA. Available at:
<https://www.isepglobal.org/media/zi2e44qg/delivering-proportionate-eia.pdf> (Accessed May 2026)
- Ref 7.14 ISEP (formally IEMA), 2024. Implementing the Mitigation Hierarchy from Concept to Construction. Available at: <https://www.isepglobal.org/resources/blogs/2024/08/iema-guidance-implementing-the-mitigation-hierarchy-from-concept-to-construction/> (Accessed May 2026)

- Ref 7.15 PINS, 2024. Nationally Significant Infrastructure Projects: Advice on Transboundary Impacts and Process. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-transboundary-impacts-and-process> (Accessed May 2026)

8 Topics to be scoped into the EIA

8.1 Introduction

- 8.1.1 The aim of the scoping stage is to focus the EIA on those environmental aspects that may be significantly affected by the Proposed Development. Clear scoping underpins proportionate EIA in justifying that applicants only survey, assess and report (in an ES) on the matters that are needed to identify the likely significant environmental effects of a project in accordance with the EIA Regulations.
- 8.1.2 This scoping report in its own right seeks to be proportionate and does not repeat methodologies where these are 'standard' published methods; making use instead of signposting and referencing where recognised standards and guidance will be used for topics.
- 8.1.3 This section outlines the proposed scope for each environmental topic that is proposed to be scoped into the assessment. Within each topic, a sub-topic may be scoped in or out during the construction phase (C), operation and maintenance phase (O) and decommissioning phase (D), with a rationale provided for each.
- 8.1.4 In addition, the baseline conditions, sensitive receptors, embedded mitigation measures taken into account when considering the likelihood for significant effects, potential impacts, methodology, consultation, assumptions and limitations are described for each topic.
- 8.1.5 Each topic scope has been prepared with reference to the key legislation and policy documents listed in **Section 2: Legislation and planning policy** as well as the environmental design principles and suite of management plans described in **Section 4: The Proposed Development**, assumed to be implemented as part of the Proposed Development and secured by the draft DCO.
- 8.1.6 This section is presented in table format for ease of demonstrating compliance with the Scoping Opinion in the Applicant's consultation materials and ES.

8.2 Air quality

- 8.2.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

Air quality scope and methodology

Legislation, planning policy context and guidance

Relevant legislation, policy and guidance in addition to the key documents listed in **Section 2:**

Legislation and planning policy that have been considered and will inform the assessment include:

- The Environmental Protection Act 1990 (Ref 8.1);
- The Air Quality Standards (England) Regulations 2010 (Statutory Instrument (SI) 2010/1001), as amended (Ref 8.2);
- The Non-Road Mobile Machinery (NRMM) (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018 (SI 2018/764) (Ref 8.3);
- Directive 2008/50/EC on ambient air quality and cleaner air for Europe (the 'Ambient Air Directive') (Ref 8.4);
- Wildlife and Countryside Act 1981 (Ref 8.5);

Air quality scope and methodology

- Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001) (Ref 8.6);
- Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK), Land-use Planning and Development Control: Planning for Air Quality (Ref 8.7);
- IAQM, A guide to the assessment of air quality impacts on designated nature conservation sites (Ref 8.8);
- IAQM, Guidance on the assessment of dust from demolition and construction (Ref 8.9); and
- Local Air Quality Management (LAQM) Technical Guidance LAQM.PG (Ref 8.10).

Baseline conditions

Baseline ambient air quality refers to the concentrations of relevant substances that are already present from various sources such as industrial processes, commercial and domestic activities, agriculture, traffic and natural sources.

RCBC (Ref 8.11), SBC (Ref 8.12), HBC (Ref 8.13), DCC (Ref 8.14) and DBC (Ref 8.15) undertake ambient air quality monitoring as part of their LAQM responsibilities under Part IV of the Environment Act (1995) (Ref 8.16). The latest air quality status reports (ASR) publish the air quality monitoring data obtained by each local authority, from automatic monitoring stations and a network of passive diffusion tubes.

Measured data obtained from the most recent air quality ASR, show that there are no recorded exceedances of the nitrogen dioxide (NO₂) annual mean objective of 40 µg/m³ at any monitoring site in RCBC, SBC, HBC, DBC or DCC reported one exceedance of the annual mean air quality objective for NO₂ in Gilesgate; within Durham Air Quality Management Area (AQMA) outside of the study area (approximately 19km north of the Scoping Boundary).

The Scoping Boundary and study area does not intercept with any AQMA.

The Scoping Boundary intersects both rural and urban/ industrialised landscapes. In industrialised areas including around Redcar, Middlesbrough, Greatham, and Newton Aycliffe, there are installations operating that are regulated industrial air pollution sources with stringent air quality limits. The local air quality of the Proposed Development is also heavily influenced by vehicle emissions, given the close proximity of the A1, A19 and A1053, in addition to regulated industrial processes. These roads are likely to be a source of NO₂ and particulate matter < 10 microns (PM₁₀) and <2.5 microns (PM_{2.5}) emissions. Other more local roads throughout the study area that do not carry significant volumes of traffic but are important transport routes for the local area and will also be a source of NO₂, PM₁₀ and PM_{2.5} emissions. The presence of rail lines that intersect the Scoping Boundary will also contribute to background concentrations of NO₂. It is assumed that any emissions from industrial, road and rail traffic sources are included in the background data published in the ASR by each local authority.

Future baseline

The future baseline will be presented and will consider natural changes from the existing baseline scenario without implementation of the Proposed Development. Concentrations of NO₂, PM₁₀ and PM_{2.5} are likely to continue to decrease in future years (despite overall projected growth in the number of vehicles on public highways) as a result of vehicle turnover and fleet renewal,

Air quality scope and methodology

improvements in technology and the introduction of more stringent regulations and policies. It is likely that over time, with greater regulation, emissions to air will decrease; however, for the purposes of this assessment, it is assumed that there will be no material changes to the existing baseline ambient conditions to provide a conservative assessment.

Sensitive receptors and study area

Sensitive human receptors are defined as those residential properties/ schools/ hospitals that are likely to experience a change in pollutant concentrations and/ or dust nuisance due to the construction of the Proposed Development.

The study area is defined as the area within which air quality receptors may experience effects as a result of the Proposed Development during construction, operation and/ or decommissioning.

During the construction phase, based on IAQM guidance (Ref 8.9), receptors potentially affected by dust soiling and short term concentrations of PM₁₀ generated during construction activities would include:

- human beings within 250m of the site (draft order limits) and/ or 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s); and
- ecological receptors within 50m of site and/ or 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s).

With respect to human beings, the Scoping Boundary is located in proximity to the following settlements:

- Carlin How;
- Brotton;
- Lingdale;
- Skelton;
- New Marske;
- Brotton;
- Redcar;
- Middlesbrough;
- Stockton-on-Tees;
- Cowpen Bewley;
- Eston;
- Wolviston;
- Thorpe Thewles;
- Stillington; and
- Newton Aycliffe.

With respect to ecological receptors:

- Teesmouth and Cleveland Special Protection Area (SPA), Ramsar and Site of Special Scientific Interest (SSSI) and Cowpen Bewley Woodland Country Park Local Nature Reserve (LNR) are within the Scoping Boundary and will be included in the assessment.
- All statutory designated ecological receptors within 250m of the Scoping Boundary will be assessed. This includes Teesmouth National Nature Reserve (NNR), Thorpe Wood Local Nature Reserve (LNR), Stillington Forest Park LNR and Errington Wood LNR.

Air quality scope and methodology

- Non-statutory designated ecological receptors within 250m of the Scoping Boundary will be included in the assessment including ancient woodlands (AW) at Tocketts Mill Wood, Village Wood, Wilton Wood, Howl Close Plantation and 15No. other unnamed ancient and semi-natural woodland (ASNW) parcels within 250m.
- Other non-statutory designated ecological receptors to be included in the assessment include: Skelton Beck Complex Local Wildlife Site (LWS), Greatham Creek North Bank Saltmarsh/ Greenabella Marsh LWS/ Philips Tanks Farm Grassland LWS (which border the A178 and are all partially intersected), Cowpen Bewley Woodland Park LWS, Wynward Woodland Park LWS, the Snipe LWS, Eston Pumping Station, Tot Fenny's Meadow which are all intersected by the Scoping Boundary, and a further 7No. LWS within 250m.
- Any other statutory or non-statutory designated sites within 50m of the route(s) used by construction vehicles on the public highway will also be included as receptors in the assessment.

Potential impacts

Construction

The movement and handling of soils and spoil during site preparation and construction activities for the Proposed Development is anticipated to lead to the generation of some short term airborne dust. The occurrence and significance of dust generated by earth moving operations is difficult to estimate and depends heavily upon the meteorological and ground conditions at the actual time and location of the work, and the nature of the activity being carried out. There is potential for impacts resulting from construction activities from dust deposition, resulting in the soiling of surfaces; visible dust plumes; and elevated PM₁₀ and PM_{2.5} concentrations as a result of dust generating activities on site. A construction dust assessment is therefore Scoped In and will be undertaken for the ES.

There is also potential for impacts due to traffic movements associated with construction. While the exact construction traffic volumes are not yet known at this stage, an initial screening using the EPUK/ IAQM criteria would be undertaken to inform whether impacts to human and ecological receptors can be considered insignificant (screened out), or whether further detailed assessment is merited.

The key pollutants of concern resulting from construction of the Proposed Development and that have potentially elevated background concentrations from other sources are therefore NO₂, PM₁₀ and PM_{2.5}. The construction assessment would consider these pollutants and dust emissions only.

Operation

During operation of the Proposed Development, fugitive emissions associated with very localised maintenance could occur. As described in Paragraph 4.2.23, venting at above ground installation (AGI) locations may also be required during maintenance. This would be controlled, infrequent and short term and managed through established operational and safety procedures. Hydrogen has no ambient air quality standards and is not a concern for human health or ecological receptors. Routine or infrequent venting events are therefore of limited relevance to air quality as they would not give rise to likely significant effects for air quality receptors.

Paragraph 4.2.23 describes the consideration of flaring that may be required, subject to ongoing technical studies. If required, flaring would only be undertaken at AGIs in the event that

Air quality scope and methodology

emergency depressurisation of pipelines sections or AGIs is required. Flaring would release oxides of nitrogen (NO_x), but flaring events would be of limited duration and only in exceptional circumstances. Such releases would be trivial and not give rise to likely significant effects for air quality receptors.

An Operational Environmental Management Plan (OEMP) would control emissions during the operational phase. **An outline OEMP (oOEMP) would accompany the Application.**

Decommissioning

Given that the Proposed Development (pipelines) will be left in situ on decommissioning, (refer to **Section 4.11: Decommissioning**), no sources of emissions at this stage, other than localised emissions resulting from decommissioning of AGI, are anticipated to occur. Such localised short term emissions would not result in likely significant effects. A Decommissioning Environmental Management Plan (DEMP) would control emissions during the decommissioning phase. **An outline DEMP (oDEMP) would accompany the Application.**

Embedded measures

Construction

A CEMP will form part of the embedded mitigation. An outline CEMP (oCEMP) will be prepared as part of the Application, providing an overview of relevant air quality management measures, including proposals for good site practice to reduce dust, trackout and emissions from NRMM, providing a framework of measures and principles to be taken forward and developed further by the appointed contractor via the Final CEMP. The Final CEMP will be secured by the draft DCO.

Construction dust mitigation measures will be considered in order for the effects from the construction phase to be considered not significant according to IAQM guidance, however the degree of mitigation will be evaluated at the assessment stage. The mitigation will be included in the Air Quality chapter, in the oCEMP, and will include relevant measures set out in the IAQM guidance (Ref 8.9).

Mitigation for construction traffic emissions would be via the oCEMP which would reference, where necessary, an oCTMP and outline Construction Workers' Travel Plan (oCWTP) that would accompany the Application.

Operation

Considering the very low numbers of operational traffic movements described in **Section 4.10: Operation and maintenance activities**, mitigation will not be considered for the operational phase traffic of the Proposed Development as this element is **Scoped Out**. The ES will include an estimate of operational traffic to demonstrate that effects would not exceed the IAQM screening threshold during operation.

Decommissioning

An oDEMP will be prepared as part of the Application and will likely include similar measures as included within the CEMP. The final DEMP would be secured via requirement of the draft DCO.

The ES will present a comprehensive list of all mitigation required to help avoid or reduce any adverse impacts.

Air quality scope and methodology					
Summary of potential likely significant effects and ES scope					
Scope – Construction (C) Operation and maintenance (O); Decommissioning (D)					
Sub topic; Scoped In ✓ Scoped Out ✗ or n/a	Proposed Development component	C	O	D	Rationale
Dust emissions	Pipeline	✓	n/a	✗	The construction of the pipeline may impact on air quality in the local area due to potential fugitive emissions of dust from construction works, and emissions from plant and equipment. A baseline assessment of ambient conditions for the pipeline has not yet been undertaken; however, due to the positioning of the pipeline, it is anticipated that there will be sensitive human and ecological receptors within proximity to the construction site. Therefore, dust emissions for construction have been Scoped In. The pipeline is underground during operation, and therefore no dust generating activities are likely and an operational dust assessment has been Scoped Out. At decommissioning, the pipeline will remain in situ below ground. Therefore, it has been Scoped Out for assessment.
	AGI	✓	n/a	✗	The construction of the AGI may impact on air quality in the local area due to potential fugitive emissions of dust from construction works, and emissions from plant and equipment. A baseline assessment of ambient conditions for the AGIs have not yet been undertaken; however, it is anticipated that there will be sensitive human and ecological receptors within proximity to the construction site. Therefore, dust emissions for construction have been Scoped In. No operational activities are anticipated to generate dust; and so will not be considered further in this assessment.

Air quality scope and methodology					
					Dust-related impacts as a result of decommissioning will be assessed at the time of decommissioning; therefore, a demolition dust assessment has been Scoped Out .
Vehicle Movements	Pipeline	✓	X	X	Air quality impacts from the Proposed Development could arise due to traffic changes on the local road network during the construction phase. Although detailed construction information is not yet available, it is expected to result in changes to the use of the local road network. As exact figures are unknown, construction vehicle movements will be Scoped In. Due to the nature of the Proposed Development, as described in Section 4.10, operational traffic effects are expected to be negligible and only appear when repairs and maintenance is required. Therefore, operational traffic will be Scoped Out of the assessment. Impacts as a result of vehicle movements for decommissioning are likely to be less than that of construction as only the AGIs will be deconstructed. Therefore, decommissioning is Scoped Out of the assessment.
	AGI	✓	X	X	
Operational Emissions	Pipeline	n/a	X	n/a	Due to the nature of the pipeline and the AGI, no operational emissions that could give rise to likely significant effects for air quality receptors are anticipated. Any flaring events that could release NO_x would be of limited duration and only in exceptional circumstances. Therefore, operational phase emissions have been Scoped Out.
	AGI	n/a	X	n/a	

Proposed Assessment Methodology

The overall approach to the air quality assessment will comprise:

- a review of the existing air quality conditions at, and in the vicinity of, the Proposed Development;
- an assessment of the potential changes in air quality arising from construction of the Proposed Development;
- comparison of the changes with the defined significance criteria to determine the level of impact; and
- formulation of mitigation measures, where appropriate, to avoid or reduce any likely significant adverse effects on air quality.

Air quality scope and methodology

As there are no overall changes anticipated to the rail traffic associated with the Proposed Development, rail emissions will not be considered further in the assessment.

Baseline data collection including surveys

The desk-based review undertaken for the EIA Scoping Report will be reviewed and updated at ES stage to confirm air quality conditions around the Proposed Development Site. Further details on the existing ambient conditions through background monitoring data from both the local authorities and the Department for Environment, Food & Rural Affairs (Defra) will be included and assessed in the next stage of the assessment when the design including traffic routing is more progressed. To do this, a desk-based review of the following data sources will be undertaken to determine air quality conditions around the Proposed Development:

- Defra background pollutant concentration online database (Ref 8.17); and
- ASR for the local authorities intersected by the Proposed Development.

It is anticipated that sufficient baseline data will be available from these published sources without the need for additional surveys. The need for any targeted specific monitoring to establish baseline conditions would be agreed on a case by case basis (if required) and the extent of any survey will be proportionate to the scale of the vehicle related transport effects anticipated to arise from the Proposed Development and sensitivity of receptors.

Assessment methodology and significance criteria

Construction dust

At present, there are no statutory UK or EU standards relating to the assessment or control of dust. The emphasis of the regulation and control of construction dust, therefore, is through the adoption of BPM when working on site to mitigate any potential impacts. It is intended that significant adverse environmental effects are avoided at the design stage and through embedded mitigation where possible, including the use of good working practices to minimise dust formation.

The IAQM provides guidance for good practice and for qualitative assessment of risk of dust emissions from construction and demolition activities (Ref 8.9). The guidance considers the risk of dust emissions from unmitigated activities to cause human health impacts (associated with PM₁₀), dust soiling impacts, and ecological impacts (such as physical smothering, and chemical impacts for example from deposition of alkaline materials). The appraisal of risk is based on the scale and nature of activities and on the sensitivity of receptors, and the outcome of the appraisal is used to determine the level of good practice mitigation required to control the potential for construction dust.

The steps in the assessment will therefore include:

- identify receptors within the appropriate study area for the Proposed Development;
- identify the magnitude of impact through consideration of the scale, duration and location of activities being carried out (including earthworks, construction and trackout, where construction vehicles could carry mud onto the public highway);
- establish the sensitivity of the area through determination of the sensitivity of receptors and their distance from construction activities;

Air quality scope and methodology

- determine the risk of significant impacts on receptors occurring as a result of the magnitude of impact and the sensitivity of the area, assuming no additional mitigation (beyond the identified development design and impact avoidance measures) is applied;
- determine the level of additional mitigation required based on the level of risk, to reduce potential impacts at receptors to insignificant or negligible; and
- summarise the potential residual effects of the mitigated works.

Site-specific mitigation measures will be informed by the IAQM guidance (Ref 8.9) and incorporated and controlled through the oCEMP. It is anticipated that with the implementation of effective site specific mitigation measures, the environmental effect for air quality during construction will be not significant. The significance criteria will be those set out in IAQM 2024 (Ref 8.9).

NRMM emissions

There are likely to be emissions to air during construction activities arising from on-site construction plant or NRMM. The IAQM guidance (Ref 8.9) states: *“Experience of assessing the exhaust emissions from on-site plant (NRMM) and site traffic suggests that they are unlikely to make a significant impact on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed. For site plant and on-site traffic, consideration should be given to the number of plant/vehicles and their operating hours and locations to assess whether a significant effect is likely to occur.”*

The screening criterion in the Design Manual for Roads and Bridges (DMRB) (Ref 8.18) and EPUK/IAQM (Ref 8.7) states that only properties and habitat sites within 200m of roads should be considered in traffic assessments. This approach will be adopted in determining the potential for impacts from NRMM associated with the Proposed Development on sensitive receptors. A qualitative assessment of the potential for impact from NO₂ and PM₁₀ emissions from NRMM on identified receptors will be made based on the criteria outlined in the DMRB guidance.

Vehicle emissions

The EPUK/ IAQM (Ref 8.7) thresholds will be used to screen whether vehicle emissions during construction warrant a detailed air quality assessment. The criteria used to identify the need for a detailed air quality assessment will be a change of 500 light duty vehicles or 100 heavy duty vehicles (HDV). For changes in traffic below these criteria, significant changes in air quality are not expected.

In the event that a detailed assessment is warranted due to construction vehicles, dispersion modelling software such as ‘ADMS-Roads’ (v5.0.1) will be used to quantify baseline pollution levels at selected receptors due to road traffic emissions. The traffic data used in the assessment will include current (2026-2028) baseline; a ‘worst-case’ future year do-minimum and do-something scenarios, taking into consideration the assessment scenarios set out in Table 7-1. It is anticipated that as air quality is expected to improve as traffic emissions and emissions from other sources progressively decrease across the UK (due to increasing manufacturer efficiency and growing numbers of low/electric vehicles in the fleet mix outweighing any increases in vehicle movements), an earlier year in construction (i.e. 2030) would likely provide a more conservative assessment of potential air quality effects. The selected year would be determined based on the

Air quality scope and methodology

traffic data, including consideration of other committed developments which may be generating potential cumulative traffic emissions in future years.

The 2017 EPUK/IAQM guidance (Ref 8.7) note 'Land-Use Planning & Development Control' provides an approach to determining the air quality impacts resulting from a Proposed Development and the overall significance of local air quality effects arising from a Proposed Development. Firstly, impact descriptors are determined based on the magnitude of incremental change as a proportion of the relevant assessment level, in this instance the annual mean NO₂, PM₁₀, and PM_{2.5} objectives. The change is then examined in relation to the predicted total pollutant concentrations in the assessment year and its relationship with the annual mean NO₂, PM₁₀, and PM_{2.5} objectives. If the impact descriptor is negligible or slight, this is considered to not have a significant effect. The overall significance is determined by professional judgement based on the potential for the Proposed Development to contribute to, or interfere with, the successful implementation of policies and strategies for the management of local air quality and any change to the likelihood of future achievement of the National Air Quality Standards (NAQS), (which also relate to compliance with local authority goals for LAQM and objectives set for the protection of human health), as indicated below.

The NAQS for NO₂, PM₁₀ and PM_{2.5} (Ref 8.19) are set out below.

Pollutant	Averaging period	Limit value/objective
Human Receptors		
NO ₂	Annual mean	40µg/m ³
	1 hour mean	200µg/m ³ [1]
PM ₁₀	Annual mean	40µg/m ³
	1 hour mean	50µg/m ³ [2]
PM _{2.5}	Annual mean	20µg/m ³
		12µg/m ³ [3]
		10µg/m ³

[1] not to be exceeded more than 18 times a year (99.79th percentile)

[2] updated on 1 January 2020

[3] The Environmental Targets (Fine Particular Matter) (England) Regulations 2023 updated in 2023, to state that the annual mean level of PM_{2.5} in ambient air must be equal to or less than 10µg/m³ ("the target level") by 31st December 2040. The Environmental Improvement Plan (2023) sets an interim target of 12µg/m³, to be achieved by 31st January 2028. Due to the timescales of the Proposed Development, this assessment has considered the interim target of 12µg/m³.

If the overall effect of the Proposed Development on local air quality or on amenity is found to be 'moderate' or 'major' this will be deemed to be 'significant' for EIA purposes. Effects found to be 'minor' or 'negligible' are considered 'not significant'.

Consultation

No engagement or consultation has so far been undertaken regarding air quality due to the early stage of the Proposed Development. As the Proposed Development progresses, technical

Air quality scope and methodology

engagement will be undertaken with relevant local authority officers if required, to clarify any comments/ technical approach matters raised in consultation.

Assumptions and limitations

The extent of the study area for the assessment of vehicle emissions relies on identification of the affected road network that has not been defined at this stage as it will depend on the evolution of the design, and detailed construction traffic routeing.

Given the scale of the Proposed Development, this section is only intended to identify potential pathways to significant effects for the purpose of defining a scope for the air quality assessment as part of the ES.

8.3 Biodiversity and ecology

8.3.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

Biodiversity and ecology scope and methodology

Legislation, planning policy context and guidance

Relevant legislation, policy and guidance in addition to the key documents listed in **Section 2:**

Legislation and planning policy that have been considered and will inform the assessment include:

- The Environment Act 2021 (Ref 8.20);
- The Wildlife and Countryside Act 1981 (as amended) (Ref 8.5);
- The Conservation of Habitats and Species Regulations 2017 (as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations, 2019) (Ref 8.21);
- The Countryside and Rights of Way Act 2000 (Ref 8.22);
- The Natural Environment and Rural Communities Act (NERC) 2006 (Ref 8.23);
- The Hedgerows Regulations 1997 (Ref 8.24);
- The Protection of Badgers Act 1992 (Ref 8.25);
- Invasive Alien Species (Enforcement and Permitting) Order (2019) (Ref 8.26);
- The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024 (Ref 8.27);
- Guidelines for Preliminary Ecological Appraisal, 2nd ed. Chartered Institute of Ecology and Environmental Management (CIEEM) (Ref 8.28);
- Guidelines for Ecological Impact Assessment in the UK and Ireland CIEEM, 2024 (Ref 8.29);
- Habitats Regulations Assessments: Protecting a European site (Ref 8.30);
- Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments (Ref 8.31);
- A guide to the assessment of air quality impacts on designated nature conservation sites (Ref 8.32); and
- Advisory Note: Ecological Assessment of Air Quality Impacts (Ref 8.33).

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Further information on biodiversity and ecology legislation, policy and guidance, is provided in **Appendix B: Biodiversity baseline**.

Baseline conditions

This section should be read in conjunction with **Section 8.10: Marine biodiversity** (which addresses impacts below mean high water springs (MHWS) of this EIA Scoping Report.

This section is accompanied by and should be read in conjunction with **Figure 3.1: Statutory and Non-Statutory Designated Ecological Sites** (Volume II) and **Figure 8.1: Ecological Designations and Habitats** (Volume II). Data used to inform this scoping assessment is from desk-based sources only.

The following publicly accessible sources have been used to identify the existing baseline conditions within the study area:

- Multi-Agency Geographic Information for the Countryside (MAGiC) mapping (Ref 8.34) - internationally designated statutory sites (Ramsar, SPA and SAC) and nationally designated statutory sites (SSSI, NNR, LNR, priority habitats and protected species licence returns;
- available data provided online by local authorities (RCBC, SBC, HBC, DCC and DBC) in relation to LWS;
- AW Inventory (Ref 8.35)- AW sites and their historic land use (semi-natural, replanted) and Ancient Tree Inventory - mapped ancient, veteran and notable trees;
- Priority Rivers Map (Ref 8.36) – priority river sites in England; and
- Google Earth – Historical Mapping.

This baseline section is supported by and should be read in conjunction with **Appendix B: Biodiversity baseline** which presents further information on the habitats, species and qualifying features described briefly here.

Study area

The study area used to inform the ecological impact assessment section of the scoping report includes the Scoping Boundary and following areas detailed in **Appendix B: Biodiversity baseline** and shown in **Figure 8.1: Ecological Designations and Habitats** (Volume II):

- International/European statutory designated sites (Ramsar, SPA, SAC) within 10km of the Scoping Boundary;
- Statutory designated sites (SSSI, NNR and LNR) within 2km of the Scoping Boundary;
- Non-statutory designated sites (LWS) within 2km of the Scoping Boundary;
- Irreplaceable habitats and priority habitats within 500m of the Scoping Boundary; and
- European Protected Species Licences (EPSL) and licence returns within 2km of the Scoping Boundary.

These distances are widely accepted as representing the likely Zone of Influence (ZoI) for projects of this nature. Significant effects on designated sites are not expected beyond these ranges. The selected radii remain appropriate when considering potential cumulative impacts from other development proposals in the vicinity, in line with CIEEM guidance on cumulative assessment.

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Based on professional judgement, if appropriate, extensions would be made to these distances where statutorily designated sites' features include mobile species such as wintering/ breeding birds or bats. Consideration would also be given to hydrological connectivity with designated sites in order to ensure that the proposed study area is appropriate to the Proposed Development's Zol.

Sensitive Receptors

As the Scoping Boundary is within 10km of three European designated sites (Teesmouth and Cleveland SPA and Ramsar intersected by the Scoping Boundary and North York Moors SAC and Thrislington SAC), as indicated in Paragraph 2.2.19, a HRA will accompany the Application.

The Teesmouth and Cleveland Coast SSSI falls within the Scoping Boundary. There are also four other SSSI within 2km of the Scoping Boundary including Railway Stell West SSSI, Lovell Hill Pools SSSI, Whitton Bridge Pasture SSSI and Saltburn Gill SSSI - the Scoping Boundary is located within Impact Risk Zones (IRZ) for each of these. Cowpen Bewley Woodland Country Park LNR is also located within the Scoping Boundary, and there are 11 other LNR and one NNR within 2km of the Scoping Boundary that could potentially be indirectly impacted.

There are four non-statutory designated sites that span the full breadth of the Scoping Boundary (i.e. where a crossing cannot be avoided via alternative routeing); these are Skelton Beck Complex (around 100m or 150m section, depending on route chosen), Greatham Creek North Bank Saltmarsh (around 100m section), Cowpen Bewley Woodland Country Park LWS (a number of sections existing may which involve around 200m - 375m of crossings) and Wynward Woodland Park LWS (around 100m section). Several other LWS (including sections of some of the LWS above) partially intersect the Scoping Boundary.

The Scoping Boundary intersects 10No. parcels of AW (irreplaceable habitat). However, with the exception of those parcels that form part of the Skelton Beck Complex LWS, all other parcels of AW or ancient semi-natural woodland (ASNW) only partially intersect the Scoping Boundary with the potential to avoid by routeing around or under them. Additionally, there are 17 No. parcels of AW/ ASNW, 7No. notable/ veteran trees recorded on the ancient tree inventory (ATI) and one sand dune parcel within 500m of the Scoping Boundary – all irreplaceable habitat.

The Scoping Boundary passes through 62 parcels of deciduous woodland. Due to the extent of some of these parcels, avoidance of direct impacts to all parcels is unlikely. The Scoping Boundary also crosses over seven main rivers which are a priority habitat. Overall, there are 13No. types of priority habitat within 500m of the Scoping Boundary, of which eight are within the Scoping Boundary, that could be directly or indirectly impacted.

There are great crested newt (GCN) licence records within the Scoping Boundary, with waterbodies and terrestrial habitat present that would likely support this species. Natural England District Level Licensing (DLL) is partially running in the study area, covering Northumberland, Durham, Tyne and Wear Tees valley in the section to the west of the River Tees. In the study area east of the River Tees, there does not currently appear to be DLL scheme in place although it is noted that previous schemes have sought to utilise the DLL where they cross into Redcar. Therefore there may be the potential to use DLL for the entirety of the Proposed Development,

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subject to further technical engagement with Natural England. Alternatively, a proportionate approach to survey will be agreed, including timings of any EPSL licences that may be required.

There are several bat licence records within 2km of the Scoping Boundary. The study area covers habitats suitable for roosting bats, such as individual trees as well as trees within hedgerows and woodlands. Beyond roosting, the study area supports important commuting and foraging habitats such as mature tree lines, hedgerows, ditches, woodlands, watercourses, waterbodies, scrub and grassland.

The Scoping Boundary also contains habitat which is likely suitable for a range of other protected and notable species including breeding and wintering birds, badger, otter, water vole, reptiles, invertebrates, aquatic fauna and terrestrial mammals such as hedgehogs.

Section 8.10: Marine biodiversity of this EIA Scoping Report outlines those species in the marine environment which may also be receptors.

Future baseline

The future baseline will take into account the potential for gradual habitat change driven by climate change, natural ecological succession, and shifts in species distribution. Habitat structure and species presence can vary over time due to climatic stressors (e.g. increased summer temperatures, altered rainfall patterns), changes in land management, and the establishment of new ecological receptors.

In the absence of the Proposed Development, habitat condition within the study area is expected to remain broadly consistent, particularly where intensive agricultural practices or regular management constrain succession. Minor changes (upwards or downwards) in the abundance or distribution of certain species (e.g. nesting birds, foraging bats) may occur as a result of small scale habitat structure shifts or routine inter-annual variation, but these changes are likely to remain within normal ecological variability. In addition, potentially relevant protected species (e.g. badger) could establish in new locations where they would impose new working constraints, due to a need to assist in compliance with the legislation protecting these species.

New development schemes located within the Scoping Boundary (or in proximity to) have the potential to change the future baseline, where these comprise other developments and involve site clearance/ disturbance of habitats or other indirect effects depending on the nature of e.g. emissions to air (point source, road traffic, noise etc.).

Within the Scoping Boundary, water quality is expected to improve due to legislation requirements and interventions such as WFD targets, positively supporting the potential for terrestrial and aquatic ecology.

Potential impacts

During the construction, operational and decommissioning phases of the Proposed Development designated sites, irreplaceable and priority habitats could be impacted by habitat loss, change, fragmentation, disturbance, pollution and degradation.

Construction

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The following potential impacts on ecological features could occur during the construction of the Proposed Development:

- fragmentation of habitats and/ or populations, where a previously continuous ecological network (e.g. hedgerow) is broken up physically (e.g. sections of hedgerow removed) or by light or noise pollution on the hedgerow (or similar) creating a barrier to animal movements - this can prevent sensitive species (e.g. bats) crossing from their roosts to their feeding areas;
- temporary loss of functionally linked land (FLL) and/ or noise and visual disturbance to birds listed as qualifying species of European designated sites;
- direct loss of habitat reducing biodiversity and impacting species which utilise the habitat;
- surface water and groundwater pollution as well as deposition of nitrogen and dust on statutory and non-statutory designated sites located within the ZOI;
- deposition of nitrogen, silt and dust to on-site habitats, including deciduous woodland and watercourses located on-site and directly adjacent to the draft Order Limits;
- temporary loss of habitat (e.g. for the installation of pipeline and creation of equipment laydown areas);
- incidental mortality or injury of species as a result of construction activity (e.g. vehicle impact or during habitat clearance);
- displacement/ disturbance and loss of foraging habitat used by species such as bats, GCN, reptiles, small mammals and amphibians;
- risk of impacts to ground nesting farmland and wintering birds;
- habitat modification and degradation which could reduce the value of the existing habitat from physical means (e.g. soil compaction from construction vehicles) or chemical changes (e.g. pollution of watercourses); and
- construction lighting on bats.

Though no buildings or structures should be directly impacted by the Proposed Development, bats that may be roosting within them could be impacted by disturbance.

The Proposed Development could impact the following species during construction:

- breeding and wintering birds (notably qualifying features of statutory designated sites including Teesmouth and Cleveland Coast SPA, including FLL, and farmland specialists and ground nesting species) as well as Schedule 1 and common nesting birds;
- amphibians, including GCN;
- bats;
- badger;
- otter;
- water vole;
- invertebrates;
- other mammals, such as hedgehog;
- aquatic fauna and flora; and
- reptiles.

These species could be impacted through habitat loss, change, fragmentation and degradation. They could also be killed, injured or disturbed.

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Operation

Given the nature of the pipeline being below ground/ buried, as described in **Section 4: The Proposed Development**, it is unlikely there will be any impacts during operation that could give rise to likely significant effects on habitats or species. The potential disturbance to flora and fauna through from ongoing/ cyclical maintenance activities at AGIs as described in **Section 4.10: Operation and maintenance activities** are likely to be highly localised and not give rise to likely significant effects. The Proposed Development will not generally be lit (beyond the lighting required for security purposes at AGIs) and therefore any lighting disturbance effects would be expected to be very limited and unlikely to result in significant effects on species.

Potential impacts during operation and maintenance would also include habitat creation and enhancement: beneficial impacts would be expected from creation of new habitats for the purposes of BNG, alongside the enhancement of retained habitats through sensitive management; this would include maintaining development-free buffer zones and improving habitat connectivity.

Decommissioning

As described in **Section 4.11: Decommissioning**, at the end of the operational life of the Proposed Development, the pipeline would be decommissioned safely and left in situ in line with current UK industry practice. AGIs would be decommissioned and therefore temporary disturbance to protected and notable species locally in the vicinity of the AGIs related to lighting, noise, vibration, or pollution has the potential to occur, and would be controlled via a DEMP.

Embedded measures

This section describes the typical measures that will be considered to mitigate for any potential adverse ecological effects that could arise from the Proposed Development. Four common forms of mitigation are recognised as follows and will be taken into consideration:

- **avoidance** – avoidance and prevention of adverse effects through the design of the Proposed Development and sensitive programming of works, for example re-aligning the pipeline to retain important ecological features;
- **reduction** – mitigation to reduce the scale and severity of effects, for example the use of wildlife proof fencing or restricting construction access in areas of ecological interest;
- **compensation/ replacement/ restoration** – compensation to offset adverse ecological effects through habitat creation, for example provision of bat boxes / houses to replace bat roosts lost by the proposed scheme or replanting hedgerows/reseeding grassland; and
- **enhancement** – enhancement and improvement of existing conditions, for example plant species chosen to enhance diversity and ecological interest of the area.

At the outset of this design process, the Applicant has set out a series of Design (refer to **Section 4.3: Design principles**) that it is seeking to achieve, as far as reasonably practicable, in the design of the Proposed Development. The Proposed Development will be designed to embed, as far as reasonably practicable, the ecological separation zones described below (in addition to those outlined within **Section 4.3: Design principles**):

- for all retained veteran/ ancient trees, in accordance with precautionary advice, seeking to maintain a 50m buffer from ancient and veteran trees, where reasonably practicable;

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- where a 50m buffer is not reasonably practicable for retained veteran/ ancient trees, and for all category A trees and other woodland, maintaining a minimum of 15m buffer (or larger where informed by biodiversity requirements and arboricultural surveys);
- 5m buffer from hedgerows and/or land parcel fence lines;
- 10m buffer from hedgerows with trees;
- 5m buffer from existing waterbodies;
- 10m buffer from the bank top of watercourses;
- 20m buffer from potential bat roost structures and trees;
- 30m buffer from active badger setts;
- as far as reasonably practicable maintaining separation distances from statutory designated sites – distances to be informed by source-pathway-receptor linkages;
- maintaining suitable buffers as appropriate from non-statutory designated sites;
- avoiding direct loss of irreplaceable habitat with a 15m buffer; and
- avoiding direct loss of priority habitat and habitats of high distinctiveness; with a 15m buffer where possible.

If required to avoid likely significant effects, restrictions on the timing of construction works will also be considered.

Once Preliminary Ecological Appraisal (PEA) surveys, and any additional species specific surveys, have been completed and the likely pipeline routeing is known, a suite of environmental and ecological management plans, including an oCEMP, OEMP, oLEMP and oDEMP will be prepared for each phase of the Proposed Development. These management plans will include measures to manage effects on habitats and species and inform the final management plans that would be prepared and agreed prior to the commencement of works, secured via requirement of the draft DCO.

Once habitat and species surveys have been completed, further survey, mitigation and licencing may be required. The approach to/ requirement for this would be discussed and agreed via ongoing technical engagement with relevant stakeholders.

Summary of potential likely significant effects and ES scope Construction (C) Operation and maintenance (O); Decommissioning (D)

Sub topic; Scoped In ✓ Scoped Out X or n/a	Proposed Development component	C	O	D	Rationale
European Statutory designated sites	Pipeline	✓	X	X	Land within the ZOI of the Scoping Boundary contains designated sites, irreplaceable and priority habitats, and has the potential to support protected/ notable species. At this stage it is not possible to scope out impacts on the majority of ecological features due to the limited desk
	AGI	✓	✓	✓	
National Statutory designated sites	Pipeline	✓	X	X	
	AGI	✓	✓	✓	
Non-statutory designated sites	Pipeline	✓	X	X	

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	AGI	✓	✓	✓	study, absence of field surveys and limited information available relating to construction activities.
Irreplaceable habitats	Pipeline	✓	✗	✗	
	AGI	✓	✓	✓	
Priority habitats	Pipeline	✓	✗	✗	During operation, it is not anticipated that there would be any source of impact that would give rise to likely significant effects as the pipeline would be buried below ground. Marker posts along the pipeline would not give rise to effects on valued features that would be considered significant. Routine maintenance of land above the pipeline (e.g. standard vegetation clearance) would be controlled via the final LEMP. On this basis, operational impacts for the pipeline are Scoped Out .
	AGI	✓	✓	✓	
Hedgerow	Pipeline	✓	✗	✗	
	AGI	✓	✓	✓	
Breeding birds	Pipeline	✓	✗	✗	
	AGI	✓	✓	✓	
Wintering birds	Pipeline	✓	✗	✗	
	AGI	✓	✓	✓	
Amphibians, including GCN	Pipeline	✓	✗	✗	
	AGI	✓	✓	✓	
Bats	Pipeline	✓	✗	✗	
	AGI	✓	✓	✓	
Badger	Pipeline	✓	✗	✗	
	AGI	✓	✓	✓	
Otter and water vole	Pipeline	✓	✗	✗	
	AGI	✓	✓	✓	
Reptiles	Pipeline	✓	✗	✗	
	AGI	✓	✓	✓	
Terrestrial invertebrates	Pipeline	✓	✗	✗	
	AGI	✓	✓	✓	
Aquatic ecology	Pipeline	✓	✗	✗	
	AGI	✓	✓	✓	
Other mammals	Pipeline	✓	✗	✗	
	AGI	✓	✓	✓	
Proposed assessment methodology					

Biodiversity and ecology scope and methodology

The overall approach to the assessment will take into account designated sites, irreplaceable and priority habitats, and protected and notable species, and will follow best practice guidance and legislation.

Baseline data collection including surveys

A PEA (including a biological records data search from the relevant Local Environmental Records Centres), as well as specific surveys, will be undertaken following EIA Scoping to inform likely species presence or absence and therefore survey and mitigation requirements. The desk study will include review of planning portals and local plans for any relevant information on designated sites and relevant planning policies and notable species within the Scoping Boundary not already identified and review of the Environment Agency Ecology and Fish Data Explorer (Ref 8.37) for records of aquatic species. Where appropriate, contact with local and specialist recording groups e.g. for badger, amphibians, and/or bats will also be undertaken to inform the desk study. The British Trust for Ornithology (BTO) Wetland Birds Survey (WeBS) will be consulted for records of wetland birds at coastal and inland WeBS count sectors will also be obtained. The sectors for which data are obtained will depend on the availability of count data at each sector within the study area, which will be discussed with the relevant WeBS officer prior to purchase. The Applicant also notes that other NSIPs in the Teesside area have published data available for birds using the Teesmouth and Cleveland Coast SPA/ Ramsar. Where the Scoping Boundary coincides and data is considered to be relevant/ up to date, reference can be made to this data for broader context.

A PEA survey would be completed of the full draft Order Limits. This would include a UK Habitat Classification Survey (Ref 8.38) whereby habitat classifications are based principally on vegetation, and the survey allows for location, extent and distribution of all relevant habitats to be recorded. The condition of habitats will be assessed against the perceived 'ecological optimum' for their relevant habitat type using condition assessment.

As part of the PEA, invasive species will be identified and habitats will be assessed for their potential to support protected and notable species in accordance with CIEEM PEA guidelines (Ref 8.28). Invasive species are defined as any non-native species introduced outside its natural past or present distribution which can cause damage to the environment. All species listed on Schedule 9 of the Wildlife and Countryside Act (Ref 8.5) or in the Alien Invasive Species Order (Ref 8.26) are classed as invasive.

Following the results of the desk study, and UK Habitat Classification survey, a suite of species surveys will be completed within the draft Order Limits and ZOI to assess the potential presence of protected and notable species. The scope of these surveys will be determined following refinement of the Proposed Development design and consultation with Natural England and where relevant, the Environment Agency. These surveys will be focussed upon important ecological features and will take place within the ZOI of each of these features in the context of the Proposed Development. Survey methodologies for each species Scoped In for assessment will be produced and described within the ecological impact assessment (EclA).

The PEA field survey area will include all land within the extent of the draft Order Limits (subject to land access) plus at least a 50m buffer (to check for species features with disturbance buffer zones such as badger *Meles meles*) where either temporary or permanent land-take is proposed.

Biodiversity and ecology scope and methodology

Some species have specific geographical considerations and may dictate wider survey areas, for example ponds suitable to support great crested newt *Triturus cristatus* within 250m of the draft Order Limits, and temporary construction areas may need to be surveyed for their potential to support GCN.

EclA methodology and significance criteria

The EclA, in accordance with good practice guidance issued by CIEEM, will focus on those ecological features that are 'relevant' as it is not advised in the assessment to address all ecological features with potential to occur. CIEEM guidance (Ref 8.29) states that it is only necessary to: *"undertake a systematic assessment of important ecological features that could be significantly affected (including negative and positive effects)." (paragraph 2.26).*

For each ecological feature only those characteristics relevant to understanding the ecological consequences (effect) of the impact and its relative significance are described, based on the project description and the assumption that standard industry best practice would be applied (e.g. implementation of standard dust suppression and pollution prevention measures).

Potential impacts on relevant ecological features will be assessed using professional judgement to identify whether or not the resultant effect on conservation status or structure and function is likely to be significant. This process will take into consideration the characteristics of the impact, the sensitivity of the ecological feature concerned, and the geographic scale at which the feature is considered important with reference to the following:

- international (generally this is within a European context, reflecting the general availability of good data to allow cross-comparison);
- national (Great Britain, but considering the potential for certain ecological features to be more notable (of higher value) in an England context relative to Great Britain as a whole);
- regional (North-East England);
- county (Tees Valley/ Co. Durham);
- district (Redcar and Cleveland, Stockton Borough, Hartlepool, Darlington, Durham);
- local (ecological features that do not meet criteria for valuation at a District or higher level, but that have sufficient value at the site level to merit retention or mitigation); and
- negligible (common and widespread ecological features that have very low value at the site level and which do not require retention or mitigation at the relevant location to otherwise maintain a favourable nature conservation status, or to deliver wider relevant biodiversity objectives).

In order to provide consistency of terminology in the conclusions of the assessment, the residual effects of the Proposed Development (following the application of any additional mitigation considered necessary) will be translated to a significance level on a scale of neutral, minor, moderate and major comparable to that used in other ES chapters.

Biodiversity and ecology scope and methodology

Habitats Regulations Assessment

It is necessary to consider whether the Proposed Development is likely to have a significant effect on areas that have been designated for their international nature conservation value, known as European Sites. These include SACs, SPAs and, as a matter of government policy, Ramsar sites.

The Scoping Boundary is located within 10km of three European designated sites including the Teesmouth and Cleveland SPA and Ramsar. Stage 1 of the HRA process (Test of Likely Significant Effects) will consider the potential pathways of effect between the Proposed Development and the European designated sites within 10km of the draft Order Limits, and whether there is potential to have a significant adverse effect on the integrity of the European designated sites, either alone or in-combination with other plans or projects. Potential pathways of effect currently include noise, light and visual disturbance during construction, pollution (in relation to air quality impacts and via hydrological links to the designated sites) and dust emissions and loss/ disturbance of FLL⁶ used by qualifying bird species. Information used to support the HRA process will include desk study data and a suite of bird surveys, informed by the PEA and subsequent technical engagement/ consultation including making use of available third-party data, where available.

Where there is potential for the Proposed Development to have a likely significant effect upon the qualifying features of the European designated sites, the pathway will be taken forward to Stage 2 - Appropriate Assessment. At Appropriate Assessment, the measures that will be implemented to either avoid the impact in the first place, or to mitigate the ecological effect to such an extent that it is no longer significant, will be set out.

Biodiversity Net Gain

BNG is not currently a mandatory legal requirement for NSIPs. The UK Government has set out an expectation that the policy will become mandatory for NSIP from 2 November 2026, with draft legislation and a Biodiversity Gain Statement expected to be published in June 2026. The Proposed Development will seek to deliver BNG in accordance with expected guidance and legal requirements. As submission of the Applicant's DCO will be after this date, it is assumed that statutory BNG will apply.

Consultation

Technical engagement commenced in April 2026 with Local Planning Authorities (LPAs), Natural England, the Environment Agency and other key stakeholders to introduce the Proposed Development and outline the approach to ecological surveys, assessment and mitigation. Technical engagement will continue following receipt of the Scoping Opinion with these bodies, and also include engagement with biodiversity officers from the relevant LPAs.

Engagement with Natural England to discuss licensing including potential for incorporating the Proposed Development under a DLL scheme will be undertaken following completion of the PEA.

⁶ Defined by Natural England as "areas of land or sea occurring outside a designated site which is considered to be critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying feature for which a Special Areas of Conservation (SAC)/ Special Protection Area (SPA)/ Ramsar site has been designated. These habitats are frequently used by SPA species and supports the functionality and integrity of the designated sites for these features"

Biodiversity and ecology scope and methodology

Assumptions and limitations

Assumptions regarding the potential or likely presence of protected and notable species have been informed by the limited desk study data, habitat suitability, and known patterns of geographical distribution.

Information on statutory and non-statutory conservation sites is considered current at the time of writing.

No ecological baseline surveys have been completed and those surveys undertaken after EIA Scoping may reveal the presence of new significant ecological features that could be affected by the Proposed Development and will be considered within the assessment and reported in the ES.

8.4 Climate change and resilience

8.4.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

Climate change and resilience

Legislation, planning policy context and guidance

In addition to the documents identified in **Section 2: Legislation and planning policy**, the climate change assessment will have regard to the following legislation, policy and guidance:

- The Climate Change Act (2008) (Ref 8.39) as amended by the Climate Change Act (2050) Target Amendment Order 2019 (Ref 8.40);
- The UK Climate Change Risk Assessment (CCRA) (Ref 8.41);
- Carbon Budget Order 2016: Sets the carbon budget total for the Fifth (2028-2032) Carbon Budget period (Ref 8.42);
- The Carbon Budget Order 2021: Sets the carbon budget total for the Sixth (2033-2037) Carbon Budget period (Ref 8.43);
- The Committee on Climate Change's recommendations for the 7th carbon budget (2038–2042) (Ref 8.44);
- The Third National Adaptation Plan (Ref 8.45);
- Designing for Infrastructure Resilience (Ref 8.46);
- Flood risk assessments: climate change allowances, Environment Agency (Ref 8.47); and
- ISEP (formally IEMA) Environmental Impact Assessment Guide to: Climate Change Resilience & Adaptation (Ref 8.48).

Baseline Conditions

This section sets out the methodology for:

- Climate Change Resilience (CCR) assessment – to identify what climate changes are forecast to occur in the future, and the vulnerability of the Proposed Development to those forecast changes in climate; and
- In-combination climate change impact (ICCI) assessment – to identify where a changing climate will combine with environmental impacts arising from the Proposed Development, resulting in likely significant effects on environmental receptors within the scope of the EIA which are not present under current climate conditions.

Climate change and resilience

Climate resilience policy is intrinsically linked with greenhouse gas (GHG) emissions policy; therefore, this section should be read in conjunction with **Section 8.6: Greenhouse gases**.

The baseline for the CCR assessment is the current and projected climate conditions and hazards at the Scoping Boundary using HadUK observation data (Ref 8.49) and UKCP18 published data (Ref 8.50). As the Proposed Development encompasses a wide area, the climate data has been averaged by taking three 12km grid squares at the east, middle and west of the Scoping Boundary. This data is presented in **Appendix C: Climate change baseline and GHG potential impact tables**.

Future baseline

ISEP Guidance (Ref 8.48) recommends the use of the Met Office's UKCP18 (Ref 8.50) when defining the future baseline. UKCP18 data uses the latest climate science to provide observations and climate change projections up to 2100 in the UK. RCP 8.5 has been selected for the future baseline, this represents a high emissions and high impact future scenario and is a conservative approach to climate scenario selection.

The future climate conditions data shows that in the future, land within the Scoping Boundary is projected to experience changes in climate and associated extreme weather events, most notably:

- higher mean summer and winter temperatures;
- higher daily maximum summer and winter temperatures;
- increase in the number of hot days and heat waves;
- increase in dry spells; and
- increase in heavy rainfall days (at the 50th and 90th percentile).

Projections (Ref 8.51) show a clear shift to higher probability levels of dry summers, and lower average summer precipitation. The projections show a pattern of larger increases in winter precipitation. By 2070, winters are projected to be up to 30% wetter (Ref 8.52).

There are no compelling trends in changes to storminess, as determined by maximum gust speeds, from the UK wind network over the last four decades. From 2050 onwards, increase in the frequency and intensity of winter storms is expected over the UK (Ref 8.53).

From 2050 onwards, there is a projected increase in near surface wind speeds over the UK in winter. Surface wind speeds increase over western parts of the UK and over the ocean in winter and decrease across the UK in summer (Ref 8.54). Change to wind direction is currently not modelled and has not been considered in this report.

The 2060-2080 (average 50th percentile) sea level rise for the coastal areas closest to the Scoping Boundary is 0.42m (Ref 8.55).

The baseline for the ICCI assessment will be taken from the other environmental topics assessed as part of the ES.

Sensitive receptors and study area

The receptor for the CCR assessment is the Proposed Development itself, including workers and infrastructure (pipelines, AGIs, hardstanding/ drainage infrastructure and electrical equipment).

Climate change and resilience

The study area for the CCR assessment and ICCI assessment includes the land within the Draft Order Limits (which will include all permanent and temporary land take) and surrounding areas that may impact the Proposed Development Site (e.g. River Tees).

The study area for the ICCI assessment will be determined by the EIA topic assessments, as reported in this EIA Scoping Report and will be included in the ES. Other relevant topic chapters include:

- Air quality;
- Biodiversity and ecology;
- Cultural Heritage;
- Ground conditions;
- Landscape and visual amenity;
- Major accidents and disasters; and
- Marine biodiversity;
- Materials and waste.
- Noise and vibration;
- Socio-economics;
- Transport and access; and
- Water resources and flood risk;

A full list of receptors including assets and processes that may be impacted by climate change will be identified and assessed as part of the assessment process.

Potential impacts

Construction

Climate change is not expected to be significant enough within the construction programme timescales as to require additional mitigation beyond current best practice. The timescale currently anticipated for construction are outlined in **Section 4.6: Construction programme**. It is anticipated that current environment, health and safety regimes during the construction phase will provide appropriate levels of mitigation for changes in climate during the construction period. It is therefore proposed to **Scope Out** the construction phase of the CCR and ICCI assessments.

Operation

As described in **Section 4.11: Decommissioning**, pipelines are expected to have a design life of approximately 50 year. The operational life of each pipeline may extend beyond this depending on market conditions and the condition of each pipeline. Taking into consideration the predicted changes to the UK climate presented in 'Baseline Conditions', the resultant hazards identified as relevant to the Proposed Development are presented below, along with the possible impacts on operation which would be further considered in the ES.

Climate hazard	Impact on operation
Increased likelihood of extreme hot weather.	Extreme high temperature causing asset failure and or decrease in lifespan. Electronic and communication equipment particularly at risk. Health impacts on workforce from extreme heat.

Climate change and resilience

Intense rainfall events following dry spells/dry summers.	Surface flooding on-site or at key access points. Fluvial flooding causing access disruption. Cascading impacts from disruptions caused by flooding in the supply chain and other systems on which the Proposed Development relies.
Possible future increase in drought events – caused by changes to seasonal rainfall (less rain in summer) and increase in dry periods, combined with increasing hot weather events.	Possible water restrictions which could halt or slow down processes, particularly water intensive processes. Potential ground movement from moisture loss in shrink-swell soils (particularly clay) leading to differential settlement/ heave resulting in potential damage to infrastructure.
Increase in the frequency and intensity of winter storms/ high winds.	Direct damage to assets from high winds. Indirect damage to assets from high winds e.g., debris blown into assets. Damage or blocking of access routes. Cascading impacts from disruption to supply chain and other systems (for example electricity and telecommunication networks) on which the Proposed Development relies.
Increased sea level rise	Increased risk of damage to assets and supporting infrastructure resulting from storm surges. Reduction in access, or damage, to assets resulting from a rise in sea level.

Decommissioning

The nature of risks during decommissioning are considered similar to those during construction.

Embedded measures

Through the completion of the CCR and ICCI assessments, mitigation measures will be identified. These will be outlined within the ES and will be informed by discussions with the design team and the results of other environmental assessments. Mitigation measures will likely include methods to increase the resilience of the Proposed Development to climate change.

In terms of CCR, it is envisaged that a CEMP will form part of the embedded mitigation. An oCEMP will be prepared as part of the Application, providing an overview of management measures in particular related to flood risk and extreme weather events during construction. This mitigation further justifies the decision to **Scope Out** the assessment of CCR for the construction phase of the Proposed Development.

It is expected that a range of design measures will be considered as the project progresses which may include:

Climate change and resilience

- The location of AGIs/ BVS will take into consideration flood risk from all sources, including climate change allowances and sea level rise according to the prevailing UK guidance. A flood risk assessment (FRA) will be undertaken to consider the risk of potential extreme flood events as a result of climate change and will identify suitable mitigation which will be embedded into the design. Further information will be provided in the FRA that forms part of the ES that accompanies the Application.
- Outdoor equipment at AGIs will be designed to consider predicted temperature changes but given the nature of equipment, the need for cooling systems is not anticipated.
- With the exception of stacks up to 15m AGL which may be required, outdoor equipment at AGIs is not anticipated to exceed 3m AGL. All outdoor equipment will be designed to consider wind loading in accordance with relevant standards. All outdoor equipment will be weather-sealed.
- Surface drainage of AGI compounds considering projected climate change, specifically seasonal shifts in rainfall (a higher proportion of the annual rainfall occurring in the winter months) and intense rainfall events following dry periods in the summer.
- Material specifications which increase the resilience of structures to higher temperatures/ overheating of equipment and fire.
- Any landscaping containing planting or planting of species in other areas will consider the resilience of the species to future climates e.g. drought or flood resistant species.

For the decommissioning phase, embedded mitigation will be included in the ES which commits the Applicant to review and consider CCR risks as part of a DEMP to be produced prior to eventual decommissioning of the Proposed Development; recognising that the DEMP will be developed a number of decades from now when climate conditions for the time period will be better understood and technologies and techniques to mitigate any risks will have evolved. A DEMP would be secured by requirement of the draft DCO.

Summary of potential likely significant effects and ES scope

Construction (C) Operation and maintenance (O); Decommissioning (D)

Sub topic; Scoped In ✓ Scoped Out ✗ or n/a	Proposed Development component	C*	O	D*	Rationale
CCR Assessment	Pipeline	✗	✓	✗	It is unlikely that climate changes between present day and the construction period will be so different as to require further assessment. It is anticipated that construction best practice including measures within the CEMP will be sufficient to mitigate any potential effects on-site during the construction period.
	AGI	✗	✓	✓	
					Future climate for the study area is projected to change and as such further assessment will be undertaken at ES for operation and decommissioning stages. The pipeline will remain in situ once operation has ceased and therefore

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					decommissioning effects in relation to the pipeline are Scoped Out .
ICCI Assessment	Pipeline	X	✓	X	It is unlikely that climate changes between present day and the construction period will be so different as to require further assessment. It is anticipated that construction best practice will mitigate any potential effects on-site during the construction period. Future climate for the study area is projected to change and as such further assessment will be undertaken at ES for operation and decommissioning stages. The pipeline will remain in situ once operation has ceased and therefore decommissioning effects in relation to the pipeline are Scoped Out .
	AGI	X	✓	✓	

Proposed assessment methodology

Baseline data collection including surveys

Climate change projections including winter and summer temperature and precipitation using the UK Climate Projections 2018, will be embedded into the future baseline, consistent with the ISEP (formerly IEMA) Guide to Climate Change Resilience and Adaptation.

As the Proposed Development itself (i.e. its infrastructure and workforce) is the primary receptor for the CCR assessment, the current baseline will be defined through a review of historic and contemporary climate data from the Meteorological Office. This will provide an understanding of the prevailing climatic conditions across the draft Order Limits and inform the assessment of existing climate-related risks.

The CCRA will then assess the resilience of the Proposed Development to future climatic conditions by applying projections from UKCP18. This will enable an appraisal of how the Proposed Development may be affected by anticipated changes in temperature, precipitation, and extreme weather events, and will support the identification of appropriate mitigation measures.

No surveys are proposed or considered necessary to inform the current or future baseline.

Assessment methodology and significance criteria

CCR assessment

The CCR assessment will evaluate the ability of the Proposed Development to withstand both current and projected future climate hazards. This will be achieved by identifying anticipated changes in climatic conditions and the associated risks that may arise over the lifecycle of the Proposed Development. Using the ISEP guidance (Ref 8.48), the assessment will include two steps in order to assess each impact and identify if the risk is significant. The steps include:

Qualitative assessment of impacts: Each identified impact will be incorporated into a risk assessment and scored based on a combination of;

- (1) the sensitivity of the receptor;
- (2) the likelihood of the hazard/ impact occurring; and

Climate change and resilience

(3) the consequence of the resultant impact

The risk assessment will consider any existing mitigation measures within the design and operation of the Proposed Development and identify the need for any additional resilience measures to protect against the impacts of climate change, based on those risks assessed as 'high' or 'very high'. High-level resilience measures will be identified through liaison with the Applicant, key engineering and design experts as appropriate.

As per ISEP guidance, it is acknowledged that there is no legislative definition of 'significance'; the judgement of whether an effect is significant/ the level of significance is based on professional opinion of the topic specialist, in conjunction with project team. For the CCR assessment, ISEP guidance states: *"appropriate criteria for sensitivity, magnitude and significance for the climate resilience assessment should be developed on a project-by-project basis by the CCAR Coordinator in conjunction with the EIA Coordinator, and should take into account the aims/purpose of the project."*

It is considered unlikely that significant climate resilience effects will be identified, or, where the potential for these are identified it is expected that adequate mitigation will be included within wider environmental and engineering design approaches. This will be confirmed within the ES.

ICCI

The ICCI assessment will examine how the resilience of relevant environmental and human receptors may be influenced by the Proposed Development when considered alongside projected future climatic conditions. This assessment will identify where climate-related pressures (e.g. changes in temperature, precipitation patterns or extreme weather events) may interact with the impacts arising from the Proposed Development.

Receptors considered within the ICCI assessment will be those identified as potentially affected by the Proposed Development through the topic specific EIA assessments. The appraisal will be undertaken in close collaboration with the technical specialists responsible for each environmental discipline to ensure that in-combination climate effects are appropriately assessed within the ES.

Consultation

No specific future engagement is currently planned for the CCR or ICCI assessment over and above that proposed as part of planned consultation. Any feedback received from consultation will be considered in the next stages of the Proposed Development and in the ES, together with a response on how the comments have been considered, where applicable.

Assumptions and limitations

The limitations and assumptions for using the proposed methodology are:

- the assessment method will be largely qualitative, particularly the process of scoring risks;
- there is limited methodological guidance on the assessment of individual risks;
- there is inherent uncertainty in climate change projections. The quantitative data used in this study was obtained from UKCP18 (Ref 8.50), the latest set of probabilistic projections for the UK;

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- there is often uncertainty in the relationship between changes in climate hazards and the respective response in terms of asset performance. This uncertainty has been assessed qualitatively;
- the UKCP18 projections extend to 2100, therefore the climate impacts beyond this period will not be included in the assessment due to the increased uncertainty; and
- consideration of post 2100 conditions will be limited to a high-level qualitative narrative.

8.5 Cultural heritage

8.5.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

Cultural heritage scope and methodology

Legislation, planning policy context and guidance

Relevant legislation, policy and guidance in addition to the key documents listed in **Section 2: Legislation and planning policy** that have been considered and will inform the assessment include:

- The Ancient Monuments and Archaeological Areas Act (1979) (Ref 8.56);
- The Planning (Listed Buildings and Conservation Areas) Act (1990) (Ref 8.57);
- The Town and Country Planning (Development Management Procedure) (England) Order (2015) (Ref 8.58);
- The Infrastructure Planning (Decisions) Regulations (2010) (Ref 8.59);
- Treasure Act (1996) (Ref 8.60);
- Burial Act (1857) (Ref 8.61);
- Protection of Military Remains Act (1986) (Ref 8.62);
- Historic Buildings and Ancient Monuments Act (1953) (Ref 8.63);
- The NPPF: Section 16: Conserving and enhancing the historic environment (2025) (Ref 8.64);
- The PPG: Historic environment (2019) (Ref 8.65);
- Historic England: Good Practice Advice (GPA) Note 2: Managing Significance in Decision-Taking in the Historic Environment (2015) (Ref 8.66);
- Historic England: GPA Note 3: The Setting of Heritage Assets (2017) (Ref 8.67);
- Historic England: Statements of Heritage Significance: Analysing Significance in Heritage Assets (2019) (Ref 8.68);
- Historic England: Conservation Principles, Policies and Guidance (2008) (Ref 8.69);
- Chartered Institute for Archaeologists (CiFA): Standard and Guidance for Historic Environment Desk-based Assessment (2020) (Ref 8.70);
- ISEP (formally IEMA), Institute of Historic Building Conservation (IHBC) & CiFA: Principles of Cultural Heritage Impact Assessment in the UK (2021) (Ref 8.71); and
- Secretary of State criteria for Scheduling Monuments (Scheduled Monument Statement) (2013) (Ref 8.72).

Baseline conditions

This section should be read in conjunction with **Figure 3.2: Statutory Designated Heritage Assets and Cemeteries** and **Figure 8.2: Cultural Heritage** (Volume II). The following desk-top sources

Cultural heritage scope and methodology

have been used to inform the existing baseline conditions of the study area for the assessment of cultural heritage:

- National Heritage List for England (NHLE) (Ref 8.73);
- Natural England – National Character Area (NCA) Profiles (Ref 8.74);
- British Geological Survey (BGS) mapping (Ref 8.81);
- National Library of Scotland (historic mapping) (Ref 8.82);
- National Historic Landscape Characterisation (Ref 8.83);
- North Yorkshire, York and Lower Tees Valley Historic Landscape Characterisation (Ref 8.84); and
- Tees Archaeology Historic Environment Record online webviewer (Ref 8.85).

The Scoping Boundary traverses the Tees Lowlands, a broad, low-lying area comprising predominantly of arable agricultural land, cleared extensively more than 2000 years ago. The modern landscape is punctuated by major industrial installations with high concentrations of modern industrial development within the Tees Valley, including the major settlements of Middlesbrough and Stockton-on-Tees. This contrasts with lower levels of historic development and primarily comprises greenfield and agricultural land.

The Scoping Boundary and study area are located within the extent of the last glacial maximum with the ice beginning to retreat from the area c.19,500 years ago. The climate remained harsh for much of the Upper Palaeolithic, however gradual warming meant that the region was largely free of permanent ice by the beginning of the Mesolithic (c.10,000 BCE). Mesolithic activity across the Tees region is limited to those finds associated with the Hartlepool ‘Submerged Forest’ (an area containing nationally significant paleoenvironmental deposits), and a limited number of lithic finds north of Hartlepool and to the far south of the region, in the area of Ingleby Barwick.

The large scale transformation of previously wooded areas into an early agricultural landscape during the later prehistoric periods corresponds to the later Neolithic and early Bronze Age and is likely indicative of localised nucleated settlement, in the form of emergent farming communities on newly deforested land. These communities would also have made use of the resources offered by the River Tees and small watercourses across the surrounding landscape, which retained areas of waterlogged and marsh land. Two contemporary round barrows are located within the study area [National Heritage List for England (NHLE): 1018659].

Scattered evidence for Roman and Romano-British activity is present to the north and south of the River Tees, including earthworks and enclosures recorded within the study area, north of Newton Bewley. Evidence of early medieval settlement and earthworks has also been identified at this location.

The study area and wider Tees region was well populated across the medieval period, with many village cores likely dating from the later early medieval and Norman periods. High status settlement is noted in the presence of the remains of Kilton Castle [NHLE: 1136489] located north-east of the village of Lingdale, and a deserted manorial settlement with associated field system [NHLE: 1018948].

Cultural heritage scope and methodology

Classic Norman village layouts in the form of linear plan farmsteads either side of a village green are evident across the wider landscape. Many villages north of the River Tees were owned by the Bishop of Durham. A deserted village of assumed medieval date [NHLE: 1002335] is located within the study area to the east of Newton Aycliffe at Preston-le-Skerne, with a second scheduled medieval settlement and associated field system recorded at Kilton Thorpe [NHLE: 1019915]. Deserted or shrunken medieval villages are a common phenomenon across parts of England, linked to the economic contraction of the later 14th century, influenced by numerous factors including the Black Death (and other recurring waves of serious illness), climatic conditions, and the additional financial and labour pressures introduced by the Hundred Years War.

Intensification of agricultural practices in the post-medieval period led to widespread land drainage of previously waterlogged land and increased the agricultural availability of the region further. The abundance of mineral deposits in the Tees Estuary area led to rapid industrialisation and development of local transport infrastructure, including early railways, to move goods out of the area. The later 20th century saw a decline in many of the traditional local industries which has led to a decline of historic industrial sites in the eastern part of the study area, many of which now stand derelict.

The tables in **Appendix D: Historic environment baseline gazetteer** outline the baseline historic environment designated assets recorded within 1km of the Scoping Boundary. A summary is provided below:

Designated Heritage Assets

The following designated heritage assets, shown in **Figure 8.2: Cultural Heritage** (Volume II), are within or intersect with the Scoping Boundary:

- **Two Listed buildings:**
 - School Aycliffe Lane overbridge [Grade II, 1478390]
 - Aycliffe Wood occupation bridge [Grade II, 1478497]
- **One Conservation Area;** Cowpen Bewley

209 additional designated heritage assets have been identified within the 1km study area, shown in **Figure 8.2: Cultural Heritage** (Volume II), comprising:

- **Five scheduled monuments** including one scheduled monument under 100m from the Scoping Boundary; Deserted village (Preston-le-Skerne) [1002335]
- **198 Listed buildings** including eight Grade I, 15 Grade II* Listed buildings
- One Grade II* Listed building is within 100m of the Scoping Boundary; Ivy House [1139244]
- There are 15 Grade II Listed buildings within 100m of the Scoping Boundary
- **Ten Conservation Areas:** Kirkleatham, Yearby, Wolviston, Skelton, Upleatham, Skinningrove, Marske-by-the-Sea, Aycliffe Village, Brotton and Wilton
- **A Registered Park/Garden,** Wynard Park [Grade II*, 1000372], is adjacent to the Scoping Boundary

There are no World Heritage Sites or Historic Battlefields within the Scoping Boundary or study area.

Cultural heritage scope and methodology

Non-designated heritage assets

A formal HER search was not carried out for the purposes of this scoping report but will be completed post-scoping to inform route refinement. It is assumed that previously recorded archaeological and heritage sites exist within the Scoping Boundary and study area which may be sensitive to impacts from the Proposed Development.

Future baseline

The future baseline for cultural heritage and archaeology is expected to remain as the current existing baseline in the absence of the Proposed Development proceeding, as the resource will not be altered or increased. A future baseline would comprise greater records of the wider resource in the surrounding area along with a refined calibration of understanding of the significance of that resource. This is provided that the present agricultural land use were to continue. Normal farming activities would potentially have some continuing attritional influence on any buried remains that may be present as a consequence of regular ploughing in arable fields. Further archaeological remains may be discovered through archaeological investigations where other developments are implemented within the study area. Built heritage assets have the potential to change both in terms of setting changes (caused by other developments) or due to decay to their fabric. There also remains the possibility that assets could be designated, although this is difficult to forecast.

Sensitive receptors and study area

The following designated asset types have initially been identified as potentially sensitive receptors located within the study area:

- Scheduled Monuments;
- Conservation Areas;
- Grade I and II* Listed Buildings;
- Grade II Listed Buildings within the Scoping Boundary; and
- Registered Parks and Gardens.

There is the potential for non-designated assets of equivalent cultural significance (value) to those designations set out above to be identified during the assessment process for the ES. Professional judgement will be used in the ascription of cultural significance (value) to provide a robust assessment of any impacts within the ES.

Study area

The study area is defined as the area within which historic environment assets may experience effects as a result of the Proposed Development during construction, operation and/ or decommissioning. Effects to heritage assets may arise as a result of physical impacts or through change to their setting affecting heritage significance.

Designated heritage assets

A study area of 1km from the draft Order Limits for designated heritage assets will be taken forward for assessment in the ES. 1km is recommended and considered proportionate as the pipeline is a predominantly below ground facility so views towards construction activities will largely be limited to the immediate area, and any impacts arising as a result of changes within the setting of heritage assets will be temporary and largely restricted to the construction phase.

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Given the dimensions included within **Section 4: The Proposed Development** for the AGIs and the temporary nature of the construction period, a study area of 1km is considered suitable for the AGIs.

Non-designated heritage assets

A study area of 500m from the draft Order Limits for non-designated heritage assets will be taken forward for assessment in the ES. 500m from the draft Order Limits is sufficient to establish a baseline from which determine the archaeological potential within the site and determine the potential impacts through changes in setting which may arise for non-designated assets. The pipeline will be an entirely below ground facility so views towards construction activities will largely be limited to the immediate area, and any impacts arising as a result of changes within the setting of heritage assets will be temporary and largely restricted to the construction phase.

Potential Impacts

Construction

Construction of the Proposed Development may lead to direct, permanent impacts on below ground heritage assets and through changes to the setting of designated and non-designated heritage assets. Temporary impacts may occur through changes within the setting of heritage assets as a result of increased noise, light and other construction activities. These changes would be fully resolved on completion of construction.

Operation

No direct cultural heritage impacts are predicted to arise during the operation of the pipeline. Any impacts would arise and be addressed at the construction phase. Where maintenance works could occur, these are anticipated to take place within the footprint of previous construction impacts.

Paragraph 4.2.23 describes the consideration of venting/ flaring that may be required, subject to ongoing technical studies. It is possible that the installation of such infrastructure at modified AGI could result in changes within the setting of designated heritage assets identified within the Baseline section above, depending upon their location. It is unlikely that any modified AGI will materially affect the setting of any designated heritage assets in such a way that would impact upon their significance, but this would be confirmed once AGI locations and the need for stacks is identified.

Decommissioning

No permanent impacts on below ground heritage assets are predicted to arise during the decommissioning of the Proposed Development. Any impacts would arise and be addressed at the construction phase when the pipelines are installed as the pipelines will be safely decommissioned in situ during the decommissioning phase with no new impacts arising to buried archaeological assets. There may be temporary impacts through change to the setting of designated and non-designated heritage assets during decommissioning of the AGIs and sections of above ground pipeline (depending on their location) and temporary impacts on landscape character.

Embedded measures

The routeing of the pipeline is designed to minimise impacts to heritage assets and their setting, as far as reasonably practicable, with particular consideration to designated assets and known

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archaeological sites located within the Scoping Boundary. Avoidance, micro-siting and route refinement will be embedded into the design of the Proposed Development where practicable including the Design Aims outlined in **Section 4.3: Design principles**.

Appropriate buffers will be maintained between heritage assets and the construction works.

A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process. This will include an Archaeological Mitigation Strategy (including Outline Written Scheme of Investigation for archaeology (oWSI)).

Scope – Construction (C) Operation and maintenance (O); Decommissioning (D)

Sub topic; Scoped In ✓ Scoped Out ✗ or n/a	Proposed Development component	C	O	D	Rationale
Temporary impacts through change to the setting of designated heritage assets	Pipeline	✓	✗	✗	Temporary impacts through change to setting are likely to occur during construction due to the presence of construction activity and equipment. These effects are Scoped In to the assessment. Once the construction phase has completed, as the pipeline is below ground, there is no pathway for impacts on the setting of designated heritage assets during the operational phase; operational effects are Scoped Out of the assessment. With the exception of very small sections of above ground pipeline which may need to be removed, the majority of the pipeline will remain in situ once operation has ceased and therefore decommissioning effects on designated heritage assets are Scoped Out of the assessment.
	AGI	✓	✗	✓	Temporary impacts arising through changes to setting are likely to occur during construction due to the presence of construction activity and equipment. These effects are Scoped In to the assessment. During the operation of the scheme, no temporary changes are anticipated. As repairs and maintenance are carried out during the operational phase, activities will be highly localised within the AGI compounds, with no likely significant effects on designated heritage assets and all works managed via an OEMP. As

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					such, operational effects are Scoped Out of the assessment. During the decommissioning phase, temporary impacts equivalent to, or less than, those resulting from the installation of the AGIs during the construction phase are anticipated. Accordingly, decommissioning effects are Scoped In to the assessment where any AGIs are located within the study area.
Temporary impacts through change to the setting of non-designated heritage assets	Pipeline	✓	✗	✗	Temporary impacts through changes to setting are likely to occur during construction due to the presence of construction activity and equipment and are therefore Scoped In. Once the construction phase has completed, no temporary changes in the setting of heritage assets are anticipated during the operation phase and therefore operational effects are Scoped Out. With the exception of very small sections of above ground pipeline which may need to be removed, the majority of the pipeline will remain in situ once operation has ceased and therefore decommissioning effects are Scoped Out of the assessment.
	AGI	✓	✗	✓	Temporary impacts arising through changes in setting are likely to occur during construction and decommissioning due to the presence of construction activity and equipment. Construction and decommissioning effects are Scoped In to the assessment. During the operation of the scheme, no temporary changes are anticipated as no construction activities are planned. Should repairs and maintenance be carried out during the operational phase, it is assumed that these will be highly localised with all works managed via an OEMP. Operational effects associated with routine maintenance are Scoped Out of the assessment.
	AGI (flare/vent stacks) if required	✓	✓	✓	Stacks (if required) as described in Paragraph 4.2.23, depending on their location, have the potential for setting effects due to their built

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					form and operational nature. Operational effects due to stacks, if required, are Scoped In to the assessment.
Permanent impacts through change to the setting of designated and non-designated assets	Pipeline	X	X	X	There will be no permanent impacts arising from changes to the setting of designated or non-designated heritage assets during any phase of works as the majority of the pipeline will be below ground. Above ground elements will be focussed in existing industrial areas. With the exception of very small sections of above ground pipeline which may need to be removed, the majority of the pipeline will remain in situ once operation has ceased and therefore all effects (construction, operation and decommissioning) are Scoped Out of the assessment.
	AGI	X	✓	X	There may be permanent impacts arising through changes in the setting of designated heritage assets at modified AGI locations during the operational phase as a result of the new infrastructure associated with the scheme; operational effects for modified AGIs are Scoped In to the assessment. Potential impacts during construction and decommissioning of the AGI will be temporary in nature and are discussed above. These are Scoped Out of the assessment.
Physical impacts to below ground archaeological remains	Pipeline	✓	X	X	Physical impacts are only likely to occur during the construction of the Proposed Development and are Scoped In to the assessment. No works are anticipated within the operation phase. Should repairs and maintenance be carried out during the operational phase, it is assumed that these will be carried out within areas impacted during the construction phase with all works managed via an OEMP. Operational effects are Scoped Out of the assessment. With the exception of very small sections of above ground pipeline which may need to be removed, the majority of the pipeline will remain in situ once operation has ceased and therefore decommissioning effects are Scoped Out of the assessment.

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	AGI	✓	X	X	Physical impacts are only likely to occur during the construction of the Proposed Development and are Scoped In to the assessment. No works are anticipated within the operation phase. Should repairs and maintenance be carried out during the operational phase, it is assumed that these will be carried out within areas impacted during the construction phase with all works managed via an OEMP. Operational effects are Scoped Out of the assessment It is assumed that impacts relating to the decommissioning of the AGIs result in no greater impact than their installation and will be limited to areas already disturbed. Decommissioning effects are therefore Scoped Out of the assessment.
Temporary impacts on historic landscape character	Pipeline	✓	X	X	Temporary impacts as a result of e.g. visual intrusion or noise etc. on historic landscape character are likely to occur during the construction phase due to the establishment of construction access and working areas. No works are planned within the operation phase and reinstatement of the landscape is proposed following construction. Should repairs and maintenance be carried out during the operational phase, this would be carried out within areas impacted during the construction phase with all works managed via an OEMP. Operational effects are Scoped Out of the assessment. With the exception of very small sections of above ground pipeline which may need to be removed, the majority of the pipeline will remain in situ once operation has ceased and therefore decommissioning effects are Scoped Out of the assessment.
	AGI	✓	X	✓	Temporary impacts on historic landscape character are likely to occur during the construction and decommissioning phase due to the establishment of construction access and working areas. Construction and decommissioning effects are Scoped In to the assessment.

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				During the operation of the Proposed Development, no temporary changes are anticipated. Where repairs and maintenance are carried out during the operational phase, works will be highly localised and managed via an OEMP. Operational effects are Scoped Out of the assessment.
Permanent impacts on historic landscape character	Pipeline	✓	✗	✗
	AGI	✗	✓	✗

Cultural heritage scope and methodology				
				decommissioning effects are Scoped Out of the assessment.
Proposed assessment methodology				
Baseline data collection including surveys Desk-based and on-site surveys associated with the cultural heritage assessment will include: • Historic Environment Baseline Desk-based Assessment (DBA) - Collation of baseline information on designated and non-designated heritage assets and historic landscape character, geoarchaeological potential and identification of assets to be Scoped In for assessment in the ES. This will include information from the following sources: • the NHLE; – Relevant HER data; – local authority conservation area appraisals, management documents and plans; – Historic Landscape Characterisation mapping undertaken by local planning authorities; – geological mapping and borehole information as held by the British Geological Survey; and – documentary, cartographic and other resources as deposited with local studies libraries, county libraries, archives, including Ordnance Survey (OS) maps, tithe, estate and other maps. • Heritage Walkover Survey (including settings assessment) - Site visits to view relevant designated and non-designated assets and identify additional assets not recorded in existing datasets. • Aerial Photographs (AP)/ LiDAR Survey - Route wide survey of existing LiDAR data and aerial photographs. • Geophysical Survey - Non-intrusive survey of suitable and accessible land to identify archaeological potential utilising the most appropriate technique for local site conditions and their underlying geology, informed by the existing archaeological and geoarchaeological record. • Targeted Trial Trench Evaluation - Excavation of targeted trial trenches based on a DBA, AP/Lidar and geophysical survey results to prove/disprove archaeological potential and inform mitigation strategy, including avoidance by design (within limits of deviation). The timing and extent of the trial trench evaluation strategy will be discussed with relevant stakeholders to agree a proportionate approach to pre-determination evaluation to inform the EIA, versus post determination as part of an advanced archaeological works programme. Trenching would take place when the draft Order Limits have been refined to 100m and areas of likely physical disturbance are better understood. • All surveys will be carried out in accordance with the latest relevant CiFA Standards and Guidance. Baseline conditions will be compiled using information and data sources listed which will be reviewed and updated to incorporate the findings of field investigations as these become available. The baseline will be prepared in accordance with standard guidance for Historic				

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Environment Desk-based Assessment and a gazetteer of heritage assets within the study area will be appended to the ES.

Assessment methodology and significance criteria

Effects will be assessed using a methodology informed by professional judgement and experience adapted from the DMRB (Ref 8.86) incorporating standards and guidance to enable assessment of the:

- cultural significance (value) of heritage assets;
- magnitude of direct or indirect impact(s) to heritage assets; and
- significance of effect resulting from received impact(s).

The cultural significance (value) of heritage assets can be fined as the sum of the value/ interest that society places upon them. An asset's cultural significance (value) will be determined by the criteria set out below alongside the application of professional judgement and experience:

Cultural Significance (value)	Typical descriptors
High	Assets valued at national/international level with a limited or very limited potential for their substitution including: • World Heritage Sites • Scheduled monuments • Previously unrecorded or non-designated archaeological features, remains, and/or deposits of a schedulable quality • All listed buildings • Grade I and Grade II* registered parks and gardens. • Conservation areas containing very important buildings • Archaeological features, remains, and/or deposits that are common nationally but are rare regionally may also be determined as being of high importance • Undesignated structures of clear national importance, or undesignated resources of schedulable quality and importance
Medium	Assets common at national level with some potential for substitution, but valued at regional level including: • Recorded non-designated archaeological sites and previously unrecorded archaeological features, remains, and/or deposits that are not of a schedulable quality • Archaeological features, remains, and/or deposits that are rare within a region • Grade II registered parks and gardens. • Conservation areas containing buildings that contribute to its historic character
Low	Very common assets with a limited ability to enhance understanding of the historic environment and/ or valued at local level. Examples include:

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	- Partially lost archaeological features and disturbed or destroyed archaeological remains and deposits that are already recorded - Unrecorded archaeological features, remains, and/or deposits that may enhance the understanding of the historic environment on a local scale - Locally listed buildings
Negligible	Assets that are very common nationally, regionally, and locally and unlikely to enhance understanding of the historic environment. Examples include: recorded and unrecorded material culture findspots with limited (if any) archaeological context.

Impact(s) to the cultural significance (value) of a heritage asset will be assessed by determining the magnitude of impact (degree of change). This is the degree to which direct or indirect change(s) will occur, the type of impact (whether this is adverse or beneficial), and the sensitivity of a heritage asset's cultural significance (value) to change. The assessment will also take into account guidance on 'substantial harm' and 'less than substantial harm' as set out in NPS EN-1 (Ref 8.87) and the NPPF (Ref 8.88). Criteria for determining the magnitude of change are set out below:

Magnitude of impact (degree of change)	Type	Typical impact
Major	Adverse	The total physical loss of a heritage asset and the removal of its integrity Severe damage, either directly or indirectly, to several key characteristics that contribute to the cultural significance (value) of a heritage asset.
	Beneficial	Large scale improvement to the integrity of a heritage asset and/or the extensive conservation or restoration, other improvements to condition, and the active and sustainable management of physical remains. The removal of, or a considerable reduction in, vulnerabilities and/or a reduction in critical risks. Extensive enhancements and favourable alterations, either directly or indirectly, to several key characteristics that contribute to the cultural significance (value) of a heritage asset.
Moderate	Adverse	The partial physical loss of a heritage asset and the removal of some of its integrity. Damage, either directly or indirectly, to key characteristics that contribute to the cultural significance (value) of a heritage asset.
	Beneficial	Improvements to, and the active management of, physical condition and improvements to its integrity. This may include the design and/or implementation of management

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		plans. Reduction in vulnerabilities and a reduction in risks. Favourable alterations and enhancement, either directly or indirectly, to key characteristics that contribute to the cultural significance (value) of a heritage asset.
Minor	Adverse	Some minor physical loss to part of a heritage asset or a measurable loss of its integrity or quality, or an increase in its vulnerability. Minor detrimental alteration, either directly or indirectly, to at least one key characteristic that contributes to the cultural significance (value) of a heritage asset.
	Beneficial	Some minor improvement to physical condition or reduction in vulnerability. Minor favourable alterations, either directly or indirectly, to at least one key characteristic that contributes to the cultural significance (value) of a heritage asset.
Negligible	Adverse	Very minor physical loss to part of a heritage asset or an alteration to its integrity or quality. Very minor detrimental alteration, either directly or indirectly, to one or characteristics that contribute to the cultural significance (value) of a heritage asset.
	Beneficial	Very minor improvement of physical condition or reduction in vulnerability. Very minor favourable alterations, either directly or indirectly, to one or more characteristics that contribute to the cultural significance (value) of a heritage asset.
No Change	-	There are no physical adverse or beneficial impacts to a heritage asset or alterations, either directly or indirectly, to the attributes that comprise its cultural significance (value).

The effect of the Proposed Development upon a heritage asset will be determined using the matrix presented above. Combining the Cultural Significance (value) of a heritage asset with the magnitude of impact (degree of change) that may result from the Proposed Development will establish the effect upon the heritage asset.

Magnitude of Impact	Significance of Asset			
	High	Medium	Low	Negligible
High	Major	Major/moderate	Moderate/minor	Minor
Medium	Major/moderate	Moderate	Minor	Minor/negligible
Low	Moderate/minor	Minor	Minor/negligible	Minor/negligible
Negligible	Minor	Minor/negligible	Minor/negligible	Negligible

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Effects that are assessed as moderate, or major adverse will be reported as significant in the ES. Likely significant adverse effects typically equate to 'substantial harm' as described in NPS EN-1 and defined in the NPPF, although moderate adverse effects might, depending on the nature of the asset affected, equate to an NPS EN-1/NPPF assessment outcome of 'less than substantial harm'. Effects that are assessed as moderate, or major beneficial will be reported as significant in the ES. Other beneficial effects are not significant.

Consultation

In addition to formal consultation, engagement with Historic England and relevant Archaeological Advisors for LPAs will be undertaken to confirm the scope of the Historic Environment Baseline DBA and heritage surveys. Further consultation and engagement will be undertaken with stakeholders following the completion of the DBA and at key stages of survey work.

Assumptions and limitations

This section includes a high-level review of available data and presents an overview of the historic environment baseline, focused on designated heritage assets. Given the scale of the Proposed Development, this section is only intended to identify potential pathways to likely significant effects for the purpose of defining a scope for the historic environment assessment as part of the ES. It does not present all known or previously unrecorded heritage receptors which will be presented in subsequent assessments.

As previously stated, non-designated heritage assets have not been presented in this section. Information for these assets will be requested from the relevant HERs and incorporated into the assessment presented within the DBA and ES.

Data supporting this report was obtained from third-party sources and may include errors or omissions. Reasonable efforts were made to identify and rectify any such issues.

8.6 Greenhouse gases

8.6.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

Greenhouse gas scope and methodology

Legislation, planning policy context and guidance

Relevant legislation, policy and guidance - in addition to the documents identified in **Section 2:**

Legislation and planning policy, regard will be given to the following:

- The Kyoto Protocol (United Nations Framework Convention on Climate Change (UNFCCC) (1997) (Ref 8.89);
- The Paris Agreement (UNFCCC) (2015) (Ref 8.90);
- The Climate Change Act (2008) (Ref 8.39);
- The Climate Change Act 2008 (2050 Target Amendment) Order (2019) (Ref 8.40);
- The Carbon Budget Order 2021 (Ref 8.43);
- Climate Change Committee Seventh Carbon Budget (2025) (Ref 8.44);
- NPPF Section 14: Meeting the challenge of climate change, flooding and coastal change (2025) (Ref 8.91);

Greenhouse gas scope and methodology

- The PPG on Climate Change (2019) (Ref 8.92);
- UK Clean Growth Strategy (2018) (Ref 8.93);
- UK Hydrogen Strategy (2021) (Ref 8.94);
- UK's Nationally Determined Contribution (2025) (Ref 8.95);
- UK Low Carbon Hydrogen Standard (Ref 8.96);
- ISEP (formally IEMA) Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance (2022) (Ref 8.97);
- World Business Council for Sustainable Development and World Resources Institute GHG Protocol guidelines (2024) (Ref 8.98);
- Government Construction Industry Strategy (Ref 8.99);
- PAS 2080:2023 Carbon Management in Infrastructure and Buildings (2023) (Ref 8.100);
- Royal Institution of Chartered Surveyors (RICS) Whole Life Carbon Assessment for the built environment (2nd edition) (2024) (Ref 8.101);
- ISEP Pathways to Net Zero: Using the GHG Management Hierarchy (2020) (Ref 8.102);
- BS EN 17472:2022 Sustainability of construction works – sustainability assessment of civil engineering works – calculation method (2022) (Ref 8.103); and
- ISEP Assessing Greenhouse Gas Emissions And Evaluating Their Significance. Supplementary Guidance (Edition 2.1) (2026) (Ref 8.104).

Baseline Conditions

Existing baseline

Aligning with ISEP (Ref 8.97 and Ref 8.104) guidance, the baseline (do-minimum (DM) scenario) is the reference against which the impact of the Proposed Development will be compared and assessed. The DM scenario comprises the cumulative GHG emissions within the study area without implementation of the Proposed Development (i.e., existing emissions from the consumption of natural gas if the Proposed Development were to not proceed) over the appraisal period.

The GHG baseline will be taken as the historic GHG emissions for the Scoping Boundary and a continuation of the current situation in which the Proposed Development is not delivered. This existing baseline includes emissions and/ or sequestration associated with existing habitats within the Scoping Boundary. Land within the Scoping Boundary comprises largely agricultural land (excluding the section of the Proposed Development within the areas of Middlesbrough and Stockton-on-Tees), which typically emits emissions in the form of methane (CH₄) and nitrous oxide (N₂O) from the soils. Baseline agricultural GHG emissions are dependent on soil and vegetation types present, and fuel use for the operation of on-site vehicles and machinery associated with arable land use. Other sources of emissions within the Scoping Boundary include those from the hard-to-abate industries which the Proposed Development is designed to serve with low carbon hydrogen, once operational.

Future baseline

The future baseline for the GHG assessment reflects a business-as-usual position whereby the Proposed Development is not implemented. This includes emission and/ or sequestration from land use within the Scoping Boundary.

Over the future baseline, it is expected that indirect GHG emissions/ carbon intensity will continue to decline due to a combination of the following factors.

- national government carbon budget;

Greenhouse gas scope and methodology

- local carbon reduction targets; and
- decarbonisation of industry, energy supply (including the electricity grid due to the phase out of fossil fuels) and transportation. This is in line with DESNZ projections assuming near zero carbon for grid electricity by 2050.

Sensitive receptors and study area

GHG emissions are not geographically limited and have a global effect rather than directly affecting local receptors. In line with the ISEP guidance (Ref 8.97 and Ref 8.105), the receptor is the global atmosphere. The receptor has a high sensitivity, given the severe consequences of global climate change and the cumulative contributions of all GHG emission sources.

The GHG assessment study area is defined by the Scoping Boundary and covers all sources and sinks of GHG emissions associated with construction, operation, maintenance and decommissioning of the Proposed Development. It also includes relevant indirect emissions arising outside the Scoping Boundary, for example, emissions embedded within the construction materials arising as a result of the energy used for their production and transport to the Proposed Development; and energy consumption during operation of the Proposed Development within the Site. The spatial study area for the GHG assessment is therefore determined by the GHG emissions sources that fall within the scope of the quantification process for the assessment.

Potential impacts

The Proposed Development has the potential to affect climate change (positively and negatively), during construction, operation and during decommissioning, due to the impact of GHG emissions arising directly and indirectly over the lifetime of the Proposed Development.

As set out in the ISEP guidance, GHG quantification within an EIA should follow the principles outlined in key documents such as the GHG Protocol Corporate Standard or PAS 2080 and in doing so ensure the assessment achieves relevance, completeness, consistency, transparency and accuracy. PAS 2080 outlines a modular approach to life cycle stages for GHG emissions assessments. This approach would be used when considering potential impacts. This provides a framework for considering different emissions sources across the life cycle of the Proposed Development, and informs the methodology adopted to address inclusions and exclusions from the assessment process, and the resolution of any gaps in available data to inform the assessment. Potential sources of GHG emissions associated with each life cycle stage for the Proposed Development are presented within the modular framework set out in PAS 2080 (and other associated guidance) in **Appendix C: Climate change baseline and GHG potential impact tables**.

Paragraph 4.2.23 describes the consideration of venting/ flaring that may be required, subject to ongoing technical studies. Potential GHG emissions associated with venting/ flaring would be assessed in the ES that accompanies the Application based on anticipated use/ design parameters.

Embedded measures

The Proposed Development throughout the detailed design phase will be designed, as far as practicable, to avoid and reduce impacts and effects on climate change through the process of design development, and by embedding measures into the Proposed Development design. In addition, how the Proposed Development is constructed, operated and maintained, and decommissioned would be appropriately controlled in order to manage and minimise potential environmental effects (required as a result of legislative requirements and/ or standard sectoral practices).

Greenhouse gas scope and methodology

Hydrogen distribution projects such as the Proposed Development are essential for driving up the demand for hydrogen to stimulate investment in its production and infrastructure. The sooner the demand for hydrogen exists, the sooner the supply is likely to become more readily available. The Applicant considers that the Proposed Development will provide an additional driver to accelerate and provide certainty to hydrogen production, storage and transportation infrastructure in Teesside. Therefore, the Proposed Development is considered to be fundamental to the UK Government achieving its ambitions to increase hydrogen availability in the UK (as outlined in EN-1 and the Net Zero Strategy) and ultimately achieving its 2050 net zero target.

As per the NPS EN-1 requirement, a GHG Reduction Statement will be prepared to accompany the Application which will outline GHG mitigation measures, and the carbon management approach to be adopted for the Proposed Development.

The following good practice GHG mitigation measures will be included within the Proposed Development design:

- where practicable, the use of alternative materials with lower embodied GHG emissions such as locally sourced products and materials with a higher recycled content, increased efficiency of construction plant and machinery, and use of renewable/ low carbon fuels for construction vehicles and machinery;
- low carbon design specifications, such as energy-efficient lighting and durable construction materials to reduce maintenance and replacement cycles; and
- although the Proposed Development will have beneficial impacts on the global climate, further embedded mitigation measures will be considered, and secured as appropriate through various environmental management plans such as the CEMP and DEMP.

GHG mitigation and enhancement measures resulting from the Proposed Development, as far as reasonably practicable, will be identified and presented in the ES.

Opportunities to mitigate GHG emissions will be developed in line with the IEMA GHG Management Hierarchy of “Eliminate”, “Reduce”, “Substitute” and “Remove.” (Ref 8.102).

Scope – Construction (C) Operation and maintenance (O); Decommissioning (D)

Sub topic; Scoped In ✓ Scoped Out X or n/a	Proposed Development component	C	O	D	Rationale
GHG assessment	Pipeline	✓	✓	X	All aspects are Scoped In for the GHG assessment except pipeline decommissioning as the pipeline will be left in situ after operation of the Proposed Development ceases.
	AGI	✓	✓	✓	

Proposed assessment methodology

Baseline data collection including surveys

Activity data will be gathered from project specific information available at the current design stage alongside publicly available industry benchmarks to provide an assessment of GHG emissions for the Proposed Development.

Greenhouse gas scope and methodology

GHG factors will be obtained from industry recognised sources commonly used in GHG assessments, such as:

- GHG reporting conversion factors (Ref 8.105);
- the Inventory of Carbon and Energy (ICE) database (Ref 8.106); and
- Valuation of energy use and GHG emissions for appraisal: supplementary guidance to the HM Treasury Green Book (Ref 8.107).

Where site-specific data sources are unavailable, a literature review will be undertaken for the range of processes and technologies within the Proposed Development to understand associated emissions. No surveys are proposed or considered necessary.

Assessment methodology and significance criteria

The sensitivity of the receptor (i.e. the global climate) to increases in GHG emissions is always defined as 'high' as any additional GHG impacts could compromise the UK's ability to reduce its GHG emissions and therefore meet its future 5-year carbon budgets and because of the critical importance of limiting global warming to below 2°C this century, as broadly asserted by the International Paris Agreement and the climate science community.

The GHG assessment will follow a project lifecycle approach to calculate estimated GHG emissions arising from the construction, operation and maintenance phases of the Proposed Development and to identify GHG 'hot spots' (i.e. emissions sources likely to generate the largest amount of GHG emissions). This will enable the identification of priority areas for mitigation in line with the principles set out in ISEP guidance. The GHG assessment will quantify and report the GHG emissions anticipated to be generated or avoided by the Proposed Development.

The temporal boundary for GHG assessment will align with the anticipated development timescales set out in **Section 4.6: Construction programme** using Rochdale Envelope principles to account for a potential later start to construction. These are broadly as reported in **Table 7-1** i.e. a construction phase (lasting approximately 4 years), operational phase (approximately 50 years) and decommissioning phase (around 2 years).

In line with applicable guidelines from the GHG Protocol (Ref 8.98), GHG emissions anticipated emissions generated by the Proposed Development will be reported as tonnes of carbon dioxide equivalent (tCO₂e) and consider the seven Kyoto Protocol gases:

- carbon dioxide (CO₂);
- methane (CH₄);
- nitrous oxide (N₂O);
- hydrofluorocarbons (HFCs);
- perfluorocarbons (PFCs);
- sulphur hexafluoride (SF₆); and
- trifluoride (NF₃).

Although hydrogen is not classified as a GHG under the Kyoto Protocol, it indirectly impacts climate by extending methane's atmospheric lifetime. The assessment will therefore consider the impact of hydrogen leakage.

Greenhouse gas scope and methodology

These GHG emissions will be broadly referred to in the GHG assessment ES chapter under an encompassing definition of 'GHG emissions', with the unit of tCO₂e or millions of tonnes of carbon dioxide equivalent (MtCO₂e) as the single metric of the global warming potential of the main GHG emissions. Expected GHG emissions will be quantified using a calculation-based methodology using the following equation and aligned with the GHG Protocol as follows:

Activity data (measure of the quantity of an activity) x GHG emissions factor (measure of the GHG emissions per unit of activity) = GHG emissions.

The methodology focuses on assessing the impact of the Proposed Development on GHG emissions by quantifying the GHG emissions arising from each lifecycle stage aligned with the GHG Protocol. Emissions associated with the Proposed Development will be compared to the baseline DM scenario (as described in Baseline Conditions) to quantify the net impact of the Proposed Development. All assumptions and limitations will be clearly stated and described.

ISEP guidance (Ref 8.97) revised the overall approach to assessing the impacts and significance of effects of GHG emissions from projects. The guidance directs that emissions must be contextualised as part of the assessment process, including, but not exclusively, against national Carbon Budgets. UK carbon budgets are in place to restrict the amount of GHG emissions the UK can legally emit in a five-year period. These have been established by the UK Government and cover the period from 2023 to 2042, albeit the latest seventh Carbon Budget has yet to be legislated by government.

The guidance restates the principles that:

- GHG emissions from all projects will contribute to climate change, the largest interrelated cumulative environmental effect; and
- the consequences of a changing climate have the potential to lead to significant environmental effects on all topics in the EIA Directive (e.g. human health, biodiversity, water, land use, air quality).

The GHG assessment will be carried out across the lifecycle phases presented in **Appendix C: Climate change data and GHG potential impact tables.**

For the GHG emissions assessment, the magnitude of impact will consider the output of the GHG quantification process, i.e. the Proposed Development's life cycle GHG footprint, in the context of its contribution to the UK's carbon budgets and the possible impact of the Proposed Development on the UK meeting its net zero target. Emissions from the Proposed Development will be contextualised against appropriate carbon budget periods to understand its relative contribution to climate change. Further detail will be provided within the ES.

Upstream and downstream emissions

Upstream effects are those that occur before the Proposed Development activities begin or that relate to inputs and supply chains to the Proposed Development. For example, in the construction phase, upstream effects might include those associated with extracting raw materials, manufacturing building components, and transporting these materials to the Site. During operation, upstream effects are those associated with the upstream, production of hydrogen, and

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the supply of consumables and equipment for the operation and maintenance of the Proposed Development.

Downstream effects are those that occur after the Proposed Development activities or that relate to outputs, products or services generated by the Proposed Development. For example, downstream effects might arise from the use of the hydrogen by the end users. This is likely to have a beneficial effect on GHG emissions as the hydrogen displaces the use of natural gas.

As per the ISEP guidance and the implications of the 'Finch Case', the ES will consider potential upstream and downstream effects of the Proposed Development. This will include:

- estimated GHG emissions associated with the construction of potential hydrogen production facilities (based on the UK Low Carbon Hydrogen Standard (Ref 8.96) emission factors and is likely to be a high-level assessment given that the Proposed Development is not linked to any specific production facilities);
- estimated GHG emissions associated with the production of low carbon hydrogen (based on the UK Low Carbon Hydrogen Standard (Ref 8.96) emission factors and is likely to be a high-level assessment); and
- estimated GHG emission reductions associated with the switch of users from natural gas to hydrogen or utilisation of hydrogen by other end users (based on UK standard emission factors).

The ES will also consider secondary GHG effect (i.e. indirect warming) caused by hydrogen emissions.

At the ES stage, potential upstream and downstream effects will be subject to:

- consideration of whether there is an inevitable causal link between each potential effect and the Proposed Development; and
- consideration of what information is available to determine whether a meaningful assessment of identified inevitable causally linked effects can be undertaken.

Where there is an inevitable causal link and sufficient information available to assess the potential effect, a proportionate assessment will be carried out. It should be noted that the Applicant and this Proposed Development are separate to the hydrogen production facilities and end users. Similarly, the Proposed Development is an enabler to wider deployment of hydrogen and is not specifically linked to any production facilities or off-takers. Therefore, information and influence over upstream and downstream emissions is limited.

Significance criteria

The ISEP guidance (Ref 8.97) notes that some projects will lead to increases in emissions but that this alone does not represent a significant effect. Instead, it is the role of the competent professional carrying out the assessment to consider the scale of changes in emissions; the context within which these are expected to occur; the mitigation undertaken to minimise negative impacts; and the overall alignment of the Proposed Development with the UK's carbon targets.

The ISEP (Ref 8.97) guidance states that: *"when determining significance, any embedded/committed mitigation measures that form part of the design should be considered."* Therefore, the

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embedded mitigation within the design of the Proposed Development will be incorporated into the determination of significance.

When evaluating the significance of the GHG emissions, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or baseline activity that has a higher GHG profile. The significance of a project's emissions should therefore be based on its net impact over its design life. The ISEP guidance (Ref 8.97) describes five distinct levels of significance which are not solely based on whether a project emits GHG emissions alone, but how the project makes a relative contribution towards achieving a science-based 1.5°C aligned transition towards net zero. The ISEP significance criteria will be used to evaluate the Proposed Development's significance. These are set out in **Appendix C: Climate change data and GHG potential impact tables**.

A 'minor adverse' or 'negligible' i.e. non-significant effect conclusion does not necessarily refer to the magnitude of GHG emissions being carbon neutral (i.e. zero on balance); but refers to the likelihood of avoiding severe climate change, aligning project emissions with a science-based 1.5°C compatible trajectory and achieving net zero by 2050.

Consultation

Given the nature of the Proposed Development and its direct contribution towards supporting the UK's net zero targets for energy infrastructure, no specific future engagement is currently planned for GHG emissions over and above that proposed as part of statutory consultation. The ES will be informed by statutory consultation.

Any feedback received from consultation will be considered in the next stages of the Proposed Development and in the ES, together with a response on how the comments have been considered, where applicable.

Assumptions and limitations

Available information at the time of the assessment will be used. A reasonable worst-case assessment will be developed using appropriate industry benchmarks, and conservative assumptions on materials, design, assembly, earthworks and use of components to provide a robust assessment of likely GHG emissions. Where benchmarks and conservative assumptions are required, these will be based on:

- emerging design detail;
- relevant specialist knowledge;
- manufacturer specifications; or
- proxy engineering data from previous comparable projects.

The Proposed Development will transport low carbon hydrogen which is compliant with the UK Low Carbon Hydrogen Standard (Ref 8.96). The intent of the standard is to ensure new low carbon hydrogen infrastructure supported by government makes a direct contribution to the UK's GHG emissions reduction targets. The GHG assessment will make relevant assumptions regarding blue and/ or green hydrogen for the purposes of carbon intensity for emissions during the operational lifecycle phase (refer to **Appendix C: Climate change baseline and GHG potential impact tables**).

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In GHG accounting, it is common practice to consider exclusion of emission sources that are <1% of a given emissions inventory on the basis of a minimal contribution and the disproportionate effort to gather the information. PAS 2080 (Ref 8.100) allows emissions sources of <1% contribution to be excluded from emission inventories, and these inventories to still be considered complete for verification purposes. The 2026 ISEP guidance also clarifies that small sources, each <1% of total emissions and collectively estimated to be <5% of the total emissions of a project, can be excluded from detailed assessment if it would require disproportionate effort to gather information about these. Therefore, activities that do not significantly change the result of the assessment can be excluded where expected emissions are less than 1% of total emissions, and where all such exclusions total a maximum of 5% of total emissions.

All assumptions and limitations, including any exclusions, together with assumptions for choices and criteria leading to exclusion of input and out data will be reported in the ES.

8.7 Ground conditions

8.7.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

Ground conditions scope and methodology

Legislation, planning policy context and guidance

Relevant legislation, policy and guidance in addition to the key documents listed in **Section 2: legislation and planning policy** that will inform the assessment include:

- The Environmental Protection Act (1990) (Ref 8.1);
- The Environmental Damage Regulations (2015) (Ref 8.122);
- The Water Resources Act (1991) (Ref 8.123);
- The Environmental Permitting Regulations (2016) (Ref 8.124);
- The Environment Agency Land Contamination Risk Management (LCRM) guidance (2025) (Ref 8.125);
- Construction Industry Research and Information Association (CIRIA) Contaminated land risk assessment guidance (2001) (Ref 8.126);
- DMRB Sustainability and Environment (Ref 8.86) Appraisal LA 109 Geology and soils (2019) (Ref 8.127);
- DMRB LA 113 - Road drainage and the water environment (Ref 8.128);
- ISEP: A New Perspective on Land and Soil in Environmental Impact Assessment (Institute of Environmental Management and Assessment (2022) (Ref 8.129); and
- ISEP Impact Assessment Guidance: Soil Health and Environmental Assessment (2025) (Ref 8.130).

Baseline conditions

Geological and hydrogeological context

Superficial Geology

The Scoping Boundary is largely underlain by till with localised lacustrine deposits concentrated around the mouth of the River Tees.

Based upon a high-level review of available information, the superficial deposits are indicated below:

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- Till is indicated extensively throughout the Scoping Boundary, making up the primary superficial deposit underlying the route between Skinningrove to Teesside Core East and Cowpen Bewley to Newton Aycliffe. Small, isolated deposits of diamicton and glaciofluvial deposits of sand and gravel are also present.
- Alluvium deposits are found concentrated along watercourses within the Scoping Boundary. Extending from the banks of the lower course of the River Tees are tidal flat deposits comprised of sand, silt and clay, transitioning to glaciolacustrine deposits comprised of clay and silt. These are the primary superficial deposits underlying the route from east of the River Tees to Cowpen Bewley. Watercourses associated with the River Tees, including the banks of Thorpe Beck, comprise alluvium as well as glaciofluvial deposits (sand and gravel) and head deposits (clay, silt, sand and gravel).

Bedrock

According to published sources, (Ref 8.81) the bedrock geology of land within the Scoping Boundary includes: Whitby Mudstone Formation-Mudstone, Saltwick Formation and Cloughton Formation (Undifferentiated)-Sandstone, siltstone and mudstone, Scalby Formation-Sandstone, siltstone and mudstone, Whitby Mudstone Formation-Mudstone, Saltwick Formation-Sandstone, siltstone and mudstone, Redcar Mudstone Formation-Mudstone, Mercia Mudstone Group-Mudstone, Sherwood Sandstone Group-Sandstone, Sherwood Sandstone Group-Sandstone, Roxby Formation-Calcareous mudstone, Seaham Formation-Dolomitic limestone, Edlington Formation-Calcareous mudstone, Ford Formation-Dolostone.

Hydrogeology

In the bedrock, land within the Scoping Boundary is underlain by Principal aquifers (which provide significant quantities of drinking water, and water for business needs and may also support rivers, lakes and wetlands), Secondary A, Secondary B (mainly lower permeability layers that may store and yield limited amounts of groundwater through characteristics like fissures and openings or eroded layers) and Secondary (undifferentiated) aquifers.

In the superficial deposits, land within the Scoping Boundary is underlain by Secondary A aquifers (permeable layers capable of supporting water supplies at a local scale, they may also form an important source of base flow to rivers) and Secondary (undifferentiated) aquifers (aquifers where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type).

Land within the western extent of the Scoping Boundary between Stillington and Newton Aycliffe, intercepts areas of Source Protection Zone (SPZ)1 (inner zone), SPZ2 (outer zone) and SPZ3 (total catchment). The Proposed Development lies within the SPZ for approximately 11km. Information on the Water Framework Directive (WFD) waterbodies that are crossed by the route of the Proposed Development is presented in **Section 8.16: Water resources and flood risk**.

Sensitive receptors

Land use

The land within the Scoping Boundary is predominantly agricultural (>60%) with the remaining land in predominantly industrial/ commercial use in the industrial clusters around Teesside (Seal Sands and Redcar Steelworks Sites west and east of the River Tees) and at Newton Aycliffe in the west. There are a number of sensitive land use areas within and in proximity to the Scoping

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Boundary. This includes schools and educational establishments, medical buildings, public open space/ recreational facilities and residential receptors within urban areas and settlements described in **Section 8.13: Socio-economics**.

Hydrology

The Scoping Boundary is within the Tees Management Catchment. The Scoping Boundary crosses eight main rivers – Skelton Beck, Skelton Ellers Beck, River Tees, Greatham Creek/ Seaton on Tees Channel, Cowbridge Beck, Claxton Beck, Thorpe Beck and the River Skerne. The route also crosses a significant number of ordinary watercourses and drainage ditches given its length. A number of natural watercourses including Greatham Creek/ Seaton on Tees Channel and Thorpe Beck, are associated with Flood Zones with elevated levels of flood risk. Further information on the watercourses within the study area is provided in **Section 8.16: Water resources and flood risk**. There are no drinking water protected zones within the Scoping Boundary. The closest is the Tees from River Greta to River Skerne, approximately 6.5km south of the Scoping Boundary.

Soils

Natural England's Provisional Agricultural Land Classification (ALC) mapping (Ref 8.131) shows that 11.6% of land within the Scoping Boundary is classified as ALC Grade 2 (good quality), and 46.6% is ALC Grade 3 (good to moderate quality) land with the remainder (41.8%) in grade 4, Grade 5, urban/ non-agricultural use. No land within the Scoping Boundary is classified as ALC Grade 1 (excellent quality) land. Further information is provided in **Section 8.14: Soils and agricultural land**. The provisional ALC for the Scoping Boundary is shown on **Figure 3.5: Agricultural Land Classification** (Volume II).

Geodiversity sites

The Teesmouth and Cleveland Coast SSSI, has been notified as a result of both its ecological and geological importance. The geological aspects of the designation relate to:

- Jurassic strata exposed in the foreshore between Redcar Rocks and Coatham Rocks at Redcar, approximately 1.7km north-east of the Scoping Boundary; and
- Quaternary deposits exposed in the foreshore at Hartlepool, approximately 5 km to the north of the Scoping Boundary.

Neither of these areas are considered to be in close enough vicinity to the Proposed Development to be impacted by it.

According to published sources (Ref 8.222), the Scoping Boundary does not intersect any RIGS/ Local Geological Sites (LGS). The closest to the Scoping Boundary is Errington Woods LGS/ RIGS located 70m west of the Scoping Boundary south of New Marske.

Designated ecology receptors

The study area contains a number of designated statutory and non-statutory ecological sites, as identified in **Figure 8.1: Ecological Designations and Habitats** (Volume II). A site of international/ national importance includes Teesmouth and Cleveland SPA, Ramsar and SSSI which is crossed by the Scoping Boundary. Areas of this are classified as groundwater dependent terrestrial ecosystems (GWDTE).

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Potential contamination sources

Landfill

The Scoping Boundary directly intercepts with 22 historic landfill sites (as shown on **Figure 3.4:**

Other Constraints (Volume II)).

- Hurworth Road, Aycliffe Industrial Park (EAHLD03484);
- South of the Seal Sands Road, Adjacent to the Monsanto site (EAHLD05490);
- Highington Lane - Long Tens Way, Newton Aycliffe (EAHLD05441);
- Field No. 0011, Newton Bewley (EAHLD05486);
- To the West of the Wolviston to Seal Sands link road, Billingham (EAHLD05492);
- Seabanks Lagoon Site No.4, Seal Sands, North Bank (EAHLD05497);
- Thorpe Thewles (EAHLD05544);
- Blakestone Lane, Thorpe Thewles (EAHLD05546);
- West Side of Proposed A13 Diversion, Thorpe Thewles (EAHLD05551);
- Capon Hall Farm, Upleatham, Redcar (EAHLD05568).
- Teesport Eston Tip, Redcar (EAHLD05578);
- Bells Containers, Sludge Farm Teesport Refinery, Redcar (EAHLD05579);
- Mushroom Grove Allotments, Grangetown (EAHLD05586);
- Bolckow Road, Grangetown (EAHLD05587);
- Area adjacent to Teesdock Road, Grangetown (EAHLD05588);
- Redcar Trunk Road Landscaping, Redcar (EAHLD05591);
- Perimeter Mounds / Perimeter of Wilton Works, Wilton (EAHLD05662);
- Sewage Works North of A1185, Cowpen Bewle (EAHLD05689);
- Sandy Lane, New Marske (0700/0065);
- Great Lakes Chemical Europe, Newton Aycliffe (EAHLD06187);
- Refuse Tip of Durham Road, Thorpe Thewles (EAHLD31570); and
- Blakeston Lodge, Thorpe Thewles (EAHLD31883).

There are also 12 historic landfill sites within 250m of the Scoping Boundary (as shown on **Figure 3.4: Other Constraints (Volume II)**):

- Thorpe Thewles Landfill, Stockton On Tees (EAHLD35692), approximately 50m north of the Scoping Boundary;
- Stillington Tip, Stillington (EAHLD36059), approximately 50m south of the Scoping Boundary;
- Seal Sands, North Bank, Middlesbrough (EAHLD05488), 60m east of the Scoping Boundary;
- West Coatham Lane, Dormanstown (EAHLD05592), approximately 90m north of the Scoping Boundary;
- Middlefield Farm, Thorpe Thewless Quarry (EAHLD31877), approximately 105m south of the Scoping Boundary;
- Blakeston Hall, Stockton-on-Tees (EAHLD05545), approximately 95m north of the Scoping Boundary;
- North of the Thorpe Thewles to Wolviston Road, West of Wynyard Park (EAHLD05542), approximately 95m north of the Scoping Boundary;
- Marske Bypass, Richmond (EAHLD05566), approximately 190m north of the Scoping Boundary;

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- Wynyard Road, Thorpe Thewless (EAHLD31878) approximately 220m north of the Scoping Boundary;
- Wynyard, Thorpe Thewles (EAHLD05543) approximately 230m north of the Scoping Boundary;
- Lumpsey Mine, Brotton (EAHLD35798), approximately 105m north of the Scoping Boundary; and
- Skinningrove Gas Works Site, Saltburn by the Sea (EAHLD05552), approximately 230m north-east of the Scoping Boundary.

These historic landfill sites have the potential for variable forms and levels of soil contamination, contaminated leachate and landfill gas. The nature and levels of contaminant sources and ground gas and therefore risk to the Proposed Development would be dependent on the composition of landfilled materials and extent and functionality of any leachate or gas control systems.

The Scoping Boundary intercepts with three permitted landfill sites:

- Bran Sands Landfill Site (797601), operated by Anglo American Woodsmith (Other Landfill Site taking Special Waste);
- Wilton Perimeter Mounds (665067), operated by ICI Chemicals & Polymers Limited (Industrial Waste Landfill (Factory curtilage); and
- Cowpen Bewley Open Windrow Composting Facility (EPR/EB3707CF), operated by Highfield Environmental (Physical Treatment Facility - RP3531DV).

Coal mining and quarries

The Scoping Boundary is not within Coal Mining Reporting Areas. The west of the Scoping Boundary is close (approximately 800m south-east at its closest point) to the NORTH EAST Coal Mining Reporting Area. The east of the Scoping Boundary is close (approximately 2km at its closest point) to NOTTS Coal Mining Reporting Areas.

Brine storage caverns

Brine storage caverns are present in the study area, north of Seal Sands road, related to the SABIC Brinefields at Seal Sands. They were originally mined to extract brine which was used to manufacture chlorine. In present day, the cavities are used to store chemicals. When not in use the cavities are filled with brine from the above-ground Brine Reservoirs. Some (more limited) quantities of brine are still also mined in the Brine Fields to maintain the salinity of the brine in the brine reservoirs.

UXO potential

According to Online Zetica UXO risk mapping (Ref 8.132), the majority of the section of the route corridor between Skinningrove to Grangetown is classified as low UXO risk with areas south of New Marske classified as high UXO risk related to bombing during World War II. Areas between Grangetown to Wolviston (either side of Seal Sands/ Wilton and the River Tees) are located in a high UXO risk area. According to Zetica, the closest UXO find is approximately 2.5km north of the Scoping Boundary in Seaton Carew. The majority of land east of Wolviston to Newton Aycliffe (i.e. in the western part of the Scoping Boundary) is located within a UXO low risk area. A more detailed appraisal of UXO risk will be undertaken and presented in the Preliminary Risk

Ground conditions scope and methodology

Assessment (PRA) which will accompany the ES, focussed on land within the east of the Scoping Boundary.

Future baseline

The geology and ground conditions are unlikely to change over time without a significant change of land use. However, natural attenuation processes can mitigate risks over time where existing sources of contaminants are present within soil and groundwater. Changes in groundwater abstractions have the potential to affect groundwater flow regimes. Climate change could also influence the future baseline conditions e.g. due to changes in the rainfall regime, recharge rates, groundwater levels and flow. Such changes are long term and not predictable at this stage. Any future development within the study area will be subject to appropriate consenting regimes. These require consideration of the potential for contamination to be present and could therefore trigger the need for remediation strategies so that developments are suitable for their proposed uses. The potential for existing contaminant linkages to be broken therefore exists, although this is also difficult to predict.

Sensitive receptors and study area

Sensitive receptors include:

- groundwater;
- surface water;
- ecological receptors, including GWDTE;
- geodiversity receptors; and
- site workers and neighbours.

For further information on surface water receptors, please refer to **Section 8.16: Water resources and flood risk**.

The study area for the assessment of geology and contamination will comprise a 250m buffer beyond the draft Order Limits. A 250m distance is routinely used within the UK to identify potential contamination risks (based upon historic landfill assessment guidance). Industry guidance does not provide a definitive study area for the assessment of Ground Conditions impacts, however, LA 109 identifies that the study area should be sufficient to allow any sources of contamination that could migrate and any sensitive receptors that could be affected by the Proposed Development to be appropriately identified.

Due to the interface of the Proposed Development with soils within the construction footprint for the works, the draft Order Limits has been selected as the appropriate study area for the purposes of assessing impacts due to contamination on soils. The draft Order Limits is an appropriate study area to address potential impacts due to physical disturbance on geodiversity sites.

Potential impacts

Construction

Based upon the preliminary review of likely contaminative sources, there is potential for contamination to be present on land required for the Proposed Development in both urban and rural areas, with the most significant risk around the former heavy industrial use areas of Seal Sands and Wilton Industrial Estate, depending upon the extent of land remediation that has already taken place.

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Contaminants could be mobilised or disturbed during the construction phase through site clearance, the movement of construction vehicles and construction activities, or wherever ground is disturbed. Soil and groundwater contamination may be present due to historical potentially contaminative activities and/or ongoing contaminative land uses.

Impacts will depend on the design and construction methodology for the Proposed Development and will be confirmed in the ES that accompanies the Application. Open excavation works and, in particular, associated dewatering has the potential to mobilise contaminants. Groundwater control is likely to be needed, to varying degrees dependent on ground conditions, for pipeline construction and may also be needed locally for foundation/ substructure construction.

The impairment or destruction of identified RIGS/ LGS is also a potential impact that requires consideration. None are present within the Scoping Boundary and it is considered unlikely that the Proposed Development could interact with the Errington Woods LGS, located 70m west, given that it currently has dense tree cover and Local Nature Reserve (LNR) status, considering the Environmental Design Aims noted in **Section 4.3: Design principles**. Impacts on this and other RIGS/LGS are therefore **Scoped Out**.

Resulting impacts could include:

- human exposure through direct contact/ inhalation/ ingestion/ dermal uptake of contaminants potentially present in soil and groundwater;
- spread of nuisance dusts and soils to the wider environment and local roads;
- pollution of surface watercourses as a result of contaminated runoff or leaching and lateral migration of contamination from soils disturbed during the works;
- pollution of groundwater resources as a result of leaching of contamination and vertical migration of groundwater, particularly as a result of creation of preferential pathways and mobilisation of contamination;
- infiltration and/ or runoff into the local drainage/sewerage network – pollution of drainage and sewerage network and any adjacent surface water features;
- runoff and infiltration of contaminants from material stockpiles;
- contamination of natural soils, driving of contamination into aquifers; and
- harm to health of ecological receptors as a result of airborne dust, contaminated run-off or leaching and groundwater migration.

Operation

Contamination impacts during the operational phase are anticipated to be substantially reduced compared to during construction, particularly where remedial works have formed part of the design. Where this is the case, there is the potential that there may be a beneficial impact during the operation of the Proposed Development resulting from a reduction in overall contamination levels or breaking of contamination pathways. During pipeline construction, there is also the potential for contamination pathways to be formed as note above. However, impacts would be controlled through appropriate design and construction including the design specification for pipelines to meet standards such as the Health and Safety Executive (HSE) Pipeline Safety Regulations (PSR), 1996, IGEM/TD/13 Edition 3: Pressure regulating and exceeding 7 bar pipeline installations (Ref 4.1) and IGEM/TD/1 Edition 6 with amendments May 2024 - Steel pipelines for high pressure gas transmission (Ref 4.2) (including published hydrogen supplements where

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applicable). On this basis, contamination impacts associated with existing contaminant linkages is proposed to be **Scoped Out** for the operational phase.

On-site activities when the Proposed Development is complete and operational will be limited to the maintenance and replacement of the infrastructure (as described in **Section 4.10: Operation and maintenance activities**) including internal inspection and cleaning of the pipeline using PIGs, which would generally be undertaken on a cyclical basis (approximately every five years). An outline Operational Environmental Management Plan (oOEMP) will be prepared to accompany the DCO and a final OEMP will be produced in substantial accordance with the oOEMP following grant of DCO, to control operational environmental effects. This will include a spillage environmental response plan, which maintenance staff will be required to have read and understood. On-site provisions will be made to contain a serious spill or leak through the use of booms, bunding and absorbent material. Given these control measures via the OEMP, operational activities are proposed to be **Scoped Out** of the assessment of ground conditions.

Decommissioning

The impacts during decommissioning will depend on the final design for permanent works, the nature and extent of any remediation undertaken at construction stage and the form of proposed decommissioning. The pipeline will be left in situ post decommissioning.

Changes to baseline information that could happen in the intervening period would be addressed via a commitment to a DEMP, which would be secured via the draft DCO.

Embedded measures

The requirements for mitigation will be dependent on the Proposed Development design (including optionality retained) at the time of submission of the Application, the ground, contamination and soil conditions and assessment of the associated risks. Actual conditions will be confirmed prior to construction through an appropriate programme of development specific ground investigation (GI) to inform detailed design; scoped to consider the relevant geotechnical and where relevant, geo-environmental and risks.

Design

The design of the pipeline including micro-siting will consider the presence of sensitive (e.g. Principal) aquifers and in particular, presence of SPZ1 and SPZ2.

Construction

Section 4.3: Design principles includes a number of environmental design aims already committed to that are relevant to the scope of the ground conditions chapter of the ES including (but not limited to):

- an appropriate buffer will be maintained between residential properties and construction areas as far as reasonably practicable to mitigate localised disturbance effects (e.g. contaminated dust etc.);
- suitable stand offs/ avoidance measures (to be determined dependent on construction activities, local conditions and potential presence of ecological features) will be maintained from waterbodies, springs, spring catchments or boreholes to minimise risk of pollution;

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- sensitive habitats such as wetlands and potential GWDTE, and existing abstractions will be considered and avoided where reasonably practicable within the Proposed Development design; and
- where suitable alternatives exist, drilling fluids containing substances hazardous to groundwater will be avoided for trenchless crossings.

Other design and construction mitigation measures will be established and set out in the ES that accompanies the Application and form part of the CEMP. This will include measures where working is proposed within areas of Principal aquifer/ SPZ1/ SPZ2, to control the risks to groundwater resources and groundwater quality so that these would be protected throughout the construction and via design, the operational phases of the Proposed Development. Measures would be agreed with relevant regulators including the Environment Agency via the final CEMP.

An oCEMP will accompany the Application and set out good site practices and management measure to limit the potential for dispersal and accidental releases of potential contaminants, soil derived dusts and uncontrolled runoff during construction. The final CEMP will also establish procedures for dealing with unexpected soil and groundwater contamination. Submission, approval and implementation of the final CEMP will be secured via a requirement of the draft DCO.

Contamination

The construction phase controls and mitigation for contamination will be established by the appointed contractor, based upon the actual form and level of contamination present on site and materials to be bought onto site by the contractor. This will be determined prior to construction based upon the findings of the potential development specific GI, and evaluation of any residual uncertainty following targeted GI. Risk assessments will be undertaken to confirm the construction phase risks. These will include (but not be limited to) assessment of the potential impacts of any dewatering on the migration of ground contamination.

Where the contamination risk assessments identify unacceptable risks, remedial measures will be advised.

Operation

Operational and maintenance philosophy controls will verify the integrity of the pipeline during the operational phase of the Proposed Development.

Decommissioning

The mitigation of impacts on soils during and after decommissioning are expected to be similar to those identified above at construction and would be controlled through the DEMP.

Scope – Construction (C) Operation and maintenance (O); Decommissioning (D)

Sub topic; Scoped In ✓ Scoped Out X or n/a	Proposed Development component	C	O	D	Rationale
Geodiversity	Pipeline	X	X	X	Construction is Scoped Out due to there being no interactions with RIGS/ LGS sites.

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					Operation and decommissioning is Scoped Out for the pipeline as with the exception of very minor sections in existing industrial areas, the majority of the pipeline will be left in situ for operation and decommissioning.
	AGI	X	X	X	The AGIs will not be located in areas where RIGS are present and so can be Scoped Out for assessment.
Groundwater and water contamination	Pipeline	✓	X	X	There is the potential for land contamination within the Scoping Boundary and sensitive receptors within the study area have been identified. Therefore, construction impacts require assessment and are Scoped In. Potential for contamination during operation is not likely to give rise to new significant effects given the nature of hydrogen and the design specification for pipelines to meet standards such as the HSE PSR, 1996 and so is Scoped Out . With the exception of very minor sections in existing industrial areas, the pipeline will be left in situ for decommissioning and there is no contamination pathway. Potential contamination during the decommissioning of AGIs will be controlled via a DEMP. Therefore, decommissioning is Scoped Out for assessment.
	AGI	✓	X	X	
Proposed assessment methodology					
Baseline data collection including surveys A PRA will be completed including a desk study that will identify known and potential contamination and ground gas sources. The assessment will identify the sources based upon a desk based review of information on the geological setting, ground conditions, and historical and recent land uses and recorded contamination incidents. The review will take into account the findings of any GI available at the time of the assessment. For the purposes of the ES, the assessment will be desk-based and will consider potential receptors to contamination including site users, adjacent site users, controlled waters and designated ecological receptors. Appropriate measures will be embedded within the design and construction methodology to mitigate impacts to construction materials within the Proposed Development and to manage risks to construction workers. These receptors will therefore not be considered as part of the assessment.					
Assessment methodology and significance criteria Impacts on ground conditions will be assessed in line with the process described in LA 109: Geology and Soils (Ref 8.127). Whilst the proposed scheme is not a highway scheme, LA 109 presents the most comprehensive and authoritative current UK guidance on the assessment of ground conditions aspects in EIA. For the assessment of impact on soils, reference will also be made to the ISEP guidelines for land and soil in environmental impact assessment (Ref 8.129).					

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Contamination

Contamination or ground gas disturbed or otherwise mobilised by the Proposed Development could result in impacts on human health or the environment. Such impacts could occur as a result of contaminant linkages (source-pathway-receptor relationships) that may exist, be created or changed during either construction or post-construction (operation) phases of the project. Changes to existing and creation of new contaminant linkages could occur as a result of introduction of receptors, changes to contamination distribution, or creation or modification of exposure pathways.

A two-stage assessment process will be undertaken for the identified potential sources of contamination:

1. screen the identified potential sources of contamination to assess if the contamination could feasibly be disturbed or mobilised by the Proposed Development. This will consider the location of the source in relation to the proposed works, the nature of the works proposed in the vicinity of the source (including, for example, any earthworks, dewatering, or ground improvement), and the likely type and form of contaminants present.
2. assess the remaining potential contamination sources that have not been screened out at the first stage. The contamination risks at each Scoped In stage of the Proposed Development will be assessed by identifying and qualitatively assess plausible contamination linkages in line with the Environment Agency LCRM online guidance (Ref 8.125) and CIRIA C552: Contaminated land risk assessment – A guide to good practice (Ref 8.126). Impacts will be identified by comparison of the construction and operational phase risks against the risks identified at baseline. Where identified, the significance of these will be assessed.

The assessment of receptor sensitivity for geology and ground conditions follows the procedure described in Table 3.11 of LA 109. The assessment of receptor value (importance) for groundwater/ surface water resources follows the procedure described in Table 3.70 of the DMRB LA 113 (Ref 8.128). The criteria to be applied to classify likely significant effects is presented in

Appendix E: Ground conditions assessment criteria.

Consultation

Early engagement has been undertaken with Natural England, the Environment Agency and each of the LPA crossed by the Proposed Development in April and May 2026 to introduce the scheme and anticipated scope of assessment; it is anticipated that the scope will be formally agreed via the EIA Scoping Opinion request with the LPAs, the Environment Agency and Natural England.

Following receipt of the EIA Scoping Opinion, additional technical engagement will be undertaken with relevant consultees including the LPAs and the Environment Agency to obtain data to inform baseline conditions, including location of private water supplies. The aim of this will be to identify any known contamination issues or concerns not captured by the available information and that will need to be considered within the baseline conditions, impact assessment and mitigation sections.

Where required, additional technical engagement with Natural England will be undertaken to agree the methodology for the assessment of impact on soils supporting designated ecological sites and GWDTE, considering the design and proposed methods of construction of the Proposed Development, assessment findings and proposed mitigation measures.

Ground conditions scope and methodology

Assumptions and limitations

There is limited design information availability at the time of writing this EIA Scoping Report. The assessment within the ES will therefore be in line with the latest design information available at the time of submission. Where design information is unknown or unavailable, conservative or worst-case assumptions will be made.

The assessment is to be undertaken based upon available existing information. There is the potential that actual ground and contamination conditions may vary from those indicated.

Some datasets, including RIGS/ LGS which may be located in Stockton-on-Tees, were unavailable when searching online.

8.8 Landscape and visual amenity

8.8.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

Landscape and visual scope and methodology

Legislation, planning policy context and guidance

Information on policies relevant to the EIA are set out in **Chapter 2: Legislation and planning policy**. **Appendix F: Landscape and Visual Impact Assessment (LVIA) methodology** presents landscape and visual amenity specific legislation and policy context.

Baseline

This section should be read in conjunction with the following figures within Volume II:

- **Figure 8.3: Site Location and LVIA study area;**
- **Figure 8.4: Landscape Designations;** and
- **Figure 8.5: National Landscape Character Area.**

An initial study of the baseline environment has been undertaken through desk-based research and is presented below.

The baseline environment section of the LVIA will provide a description of the landscape and visual receptors identified, indicating their sensitivity against which any potential changes arising from the Proposed Development will be assessed.

Key sources of information for the landscape and visual baseline include:

- OS mapping, and aerial photography;
- Natural England NCA Profiles (Ref 8.74);
- local landscape designations; and
- published Landscape Character Assessments.

The data sources that will inform the landscape and visual baseline are set out below. This list will be reviewed during the assessment.

Landscape and visual scope and methodology	
Data	Source
OS Mapping and Aerial Imagery	OS
National Character Area	National Character Area by Natural England (Ref 8.74)
Landscape Character Assessment	Redcar & Cleveland Landscape Character Assessment (Ref 8.75)
	Stockton-on-Tees Landscape Character Assessment (Ref 8.76)
	Hartlepool Landscape Assessment (Ref 8.77)
	County Durham Landscape Character Assessment (Ref 8.78)
	Darlington Borough Council Landscape Character Assessment (Ref 8.79)
Seascape Character Assessment	Seascape Character Assessment for the North East Inshore and Offshore marine plan areas (Ref 8.80)

Landscape Designations

Landscape designations and other relevant environmental designations within the LVIA study area are shown on **Figure 8.4: Landscape Designations** (Volume II).

There are no national landscape designations such as National Landscapes or National Parks within the study area. The closest national designation is the North York Moors National Park near Slapewath, located approximately 2.3km to the south-east of the Scoping Boundary near Skelton. The Yorkshire Dales National Park is located approximately 24.5km south-west of the Scoping Boundary.

The Cleveland Way, a designated National Trail, crosses the Scoping Boundary and the study area north to south to the south of Sketon on its route from Saltburn-by-the-Sea into North York Moors National Park.

The Scoping Boundary does not cross any National Nature Reserves (NNR). The closest is the Teesmouth NNR, located 60m east of the Scoping Boundary at Seal Sands which is located within the LVIA study area for pipelines and AGI (identified below). Two other NNR are located in the initial 10km LVIA study area; the Thrislington NNR, located approximately 8km north-west of the Scoping Boundary and Durham Coast NNR. Although within the initial 10km study area, each is located at considerable distance from the nearest indicative siting area for modified AGIs (refer to **Figure 4.1: Indicative Site Layout** – Volume II) so would fall outside the LVIA study area for AGIs.

Wynyard Park [NHLE 1000372] is a Grade II* listed Registered Park and Garden located adjacent to the Scoping Boundary north of Thorpe Thewles, south of Wynyard and so falls within the LVIA 1km study area for pipelines but outside of the 2km study area for AGI (identified below) as at its closest point, the Registered Park and Garden is over 5km from the nearest modified AGI (near Cowpen Bewley). The Grade II listed Valley Gardens, Saltburn [NHLE 1001429] is located 2.3km north-east of the route near Skelton and so falls outside of the LVIA study areas for AGI and pipelines.

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There are four Country Parks located within 2km of the Scoping Boundary. From east to west these are Saltburn Valley; Cowpen Bewley Woodland Park; Billingham Beck Valley; and Wynyard Woodland Park. Only two are crossed by the Scoping Boundary: Cowpen Bewley Woodland Park and Wynyard Woodland Park south of Grindon. The Scoping Boundary currently includes two potential options for the Proposed Development routeing in each case as crossing of these Country Parks cannot be avoided. Cowpen Bewley Country Park falls within the LVIA study area for both pipelines and modified AGI. There are no modified AGI proposed that would impact Wynyard Woodland Park and so this receptor is only within the study area for pipelines.

Ecological designations within the study area are described in **Section 8.3: Biodiversity and ecology** and include the Teesmouth and Cleveland Coast SPA, Ramsar Site and SSSI, located within the Scoping Boundary. North York Moors is located within 2.7km and is designated as a SAC, SPA and SSSI.

There are four additional SSSIs within 2km of the Scoping Boundary:

- Railway Stell West SSSI, approximately 0.6km east of the Scoping Boundary;
- Lovell Hill Pools SSSI, approximately 1.3km south of the Scoping Boundary;
- Whitton Bridge Pasture SSSI, approximately 1.3km south of the Scoping Boundary; and
- Saltburn Gill SSSI approximately 1.7km north of the Scoping Boundary.

Other relevant designations located within the LVIA study area have the potential to inform landscape value because of their contribution to landscape character and visual amenity. Further detail regarding these designations is provided in **Section 8.3: Biodiversity and ecology** and **Section 8.5: Cultural heritage**.

Local landscape designations

The Scoping Boundary crosses five different councils from east to west, including RCBC, SBC, HBC, DBD and DCC.

Only DCC and RCBC assess and identify local landscape designations, as discussed below. Darlington Borough Council Landscape Character Assessment does not extend into the Scoping Boundary but provides relevant context for the study area south of Thorpe Thewles.

Redcar and Cleveland Landscape Character Assessment (Ref 8.75) identifies Sensitive and Restoration Landscapes. This assessment and local designation ensures that landscapes that have a character: *“which should be retained and where change would be damaging”* are classified as Sensitive Landscapes and where *“the landscape may be improved”*, are designated as Restoration Landscapes. The Scoping Boundary intersects a sensitive landscape area south of Upleatham and areas of Restoration Landscape.

A number of areas are designated in the County Durham Structure Plan and Local Plans as Areas of High Landscape Value (AHLV) and Areas of Landscape Value (ALV). They are recognised as landscapes that are important at a county and local level and should be protected due to their scenic quality, local identity and landscape patterns. *“These include attractive, mature and undeveloped landscapes in the major river valleys of the Tees, Wear, Browney, Derwent and Team, together with much of the Durham coast and a number of coastal dunes.”*

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The Scoping Boundary is not directly affected by either of these Durham County local designations. However, the Scoping Boundary is located within areas designated as Landscape Conservation and Landscape Improvement Areas (LIA).

Landscape Character

The third edition Guidelines for Landscape and Visual Impact Amenity (GLVIA3) (Ref 8.136) defines landscape receptors as: *“aspects of the landscape resource that have the potential to be affected by a proposal.”* Landscape receptors have been identified via a review of published Landscape Character Assessments, maps and aerial photography, relevant planning policy and fieldwork surveys.

Landscape character is defined by GLVIA3 as: *“a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.”*

Published landscape character assessments at the national, regional and local level have been reviewed to identify Landscape Character Types (LCT) and Landscape Character Areas (LCA). These are mapped in **Figure 8.5: National Landscape Character Areas** (Volume II).

LCA are discrete occurrences of LCT which can occur in more than one place. Therefore, the LVIA will focus on LCA defined in published landscape character assessments to assess the likely impacts and effects on the landscape resource. Where there are gaps in published information, Local LCA (LLCA) may be defined.

The assessment of landscape effects will be carried out at a scale: *“appropriate to the context into which the development proposal will be introduced,”* (Ref 8.136) defined in published studies at the district level. The LCAs that will be Scoped Into the LVIA are summarised below. The baseline landscape character will be mapped and described in the ES.

National Landscape Character Assessment

Parts of three National Character Areas (NCA) defined by Natural England fall within the LVIA study area. From east to west, the NCA crossed by the route of the Proposed Development include:

The eastern portion of the Scoping Boundary crosses the North York Moors and Cleveland Hills (NCA25) in Brotton, Skelton and New Marske areas. This NCA is described as: *“well-defined upland area, rising from the Tees Lowlands to the north, the Vale of Mowbray and Howardian Hills to the west and the Vale of Pickering to the south. To the east it is bordered by the North Sea, the extensive stretches of high coastal cliffs exposing the geology that shaped these uplands. Some 85 per cent of the area falls within the North York Moors National Park.”* This part of the LCA is notably more sensitive than other LCA due to the presence of the North York Moors National Park which it includes.

The majority of the Proposed Development would be located in the area covered by the Tees Lowlands (NCA 23), which is described as: *“broad, open plain dominated by the meandering lower reaches of the River Tees and its tributaries, with wide views to distant hills. The large conurbation*

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around the Lower Tees and Teesmouth contrasts with the rural area to the south and west, which is largely agricultural in character.” Particularly sensitive areas include the Tees Estuary which is noted to be: “internationally designated as Teesmouth and Cleveland Coast Special Protection Area and Ramsar site, due to importance for waterfowl. These areas are in close proximity to heavy industry, which has developed due to the estuary’s strategic location close to; mineral reserves, a network of main roads, railways and Teesport. Industrial installations form a dramatic skyline when viewed from the surrounding hills.”

In the western part of the Scoping Boundary, a very small portion of the Proposed Development crosses the Durham Magnesium Limestone Plateau (NCA 15) around Newton Aycliffe. This area is characterised by an: *“open, agricultural landscape with sharply defined boundaries in the form of a steep limestone escarpment to the west and a dramatic coast of limestone cliffs, headlands and bays to the east.”*

The geographical extent of LCAs in published assessments at the national level are generally large and extend beyond the LVIA study area. As explained in paragraph 5.14 of GLVIA3, *“broad-scale assessments at national or regional level can be helpful in setting the landscape context but are unlikely to be helpful on their own as the basis for LVIA”*. LCAs defined at the national scale will therefore be included to provide context but effects on these receptors will not be assessed.

Regional and County Landscape Character Assessments

At the regional level the proposed development is located within the Tees Valley Combined Authority (TVCA) which consists of five counties including Hartlepool and Redcar and Cleveland which are both located in the study area. There is no regional or county scale Landscape Character Assessment covering this area. However, the LVIA study area is covered by several local/ county landscape character assessments. These include from east to west:

- Redcar and Cleveland Landscape Character Assessment which identifies four broad landscape tracts, which are further narrowed down to Landscape Types, and at a more local level Landscape units.
- Stockton-on-Tees Council has produced a Landscape Character Assessment which broadly defines seven Landscape Character Areas and in detail 197 Units. Its main focus is landscape character and countryside setting.
- Hartlepool Landscape Character Assessment was developed in the 2000s and focuses only on the broad landscape character types (noting only a very small part of the Scoping Boundary lies within Hartlepool Borough).
- County Durham Landscape Character Assessment which defines broad landscape types and character areas as well as local landscape character types and subtypes.
- Darlington Landscape Character Assessment. It is noted that only a very small part of the Scoping Boundary (in the western most extent within an existing industrial/ commercial area) is located within Darlington Borough.

Historic Landscape Character Assessments have been undertaken for Tees Valley and County Durham and Darlington.

- North Yorkshire, York & Lower Tees Valley HLC (2013); and
- The County Durham and Darlington Historic Landscape Characterisation (CD&D HLC)

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The North Yorkshire and Lower Tees Valley Historic Landscape Characterisation (HLC) identifies and describes the historic landscape components in the contemporary rural and urban landscape. The aim being to understand: *“how landscapes have evolved”* and to *“help to manage change and conserve landscape features that give places their unique character and identity.”*

The County Durham CD & HLC is an assessment developed as part of national programme led by Historic England to map and classify historic character of the landscape across the entire study area. *“The CD&D HLC attempts to tease apart the palimpsest landscape into its component parts, recording these changes in order to document how the landscape has changed. The results are then used to judge trajectory of change and guide decision-making in the future, in order to manage and retain the character of an area.”*

Regional Landscape Character Areas have been reviewed to provide strategic baseline context. However, due to their broad geographic scale and the predominantly below ground, localised nature of impacts related to the Proposed Development, it would not result in changes to the defining characteristics of any Regional Landscape Character Areas. Accordingly, Regional LCA are **Scoped Out** for the pipeline. On a precautionary basis, any likely impacts on Regional LCAs related to AGIs will be presented in the Applicant’s consultation materials and assessed in the LVIA that forms part of the ES.

Seascape Character Assessment

At a regional level, the Proposed Development Site is located in proximity to Marine Character Area (MCA) 22: Tyne, Tees and Wear Estuaries and Coastal Waters which is generally characterised by shelving coastal waters off the extensively developed coast, deepening to approximately 30-50m offshore and encompassing the estuaries and tidal rivers inland.

Sensitive receptors

Sensitive receptors

The identification of representative viewpoints will be undertaken, once sufficient further baseline and design information is available to support a robust visual assessment. This approach is necessary to allow the preparation of an appropriate Zone of Theoretical Visibility (ZTV), which will inform the extent of potential visibility of the Proposed Development and provide the technical basis for selecting representative viewpoints.

The ZTV will be used, alongside desk study and field survey, to identify locations from which the Proposed Development may be visible and to allow ensure that viewpoints to be selected to represent a range of visual receptors, viewing directions, distances and landscape contexts, rather than individual or typical views.

This approach will also assist in refining the identification of visual receptors, so that receptors are defined with reference to the actual extent and nature of potential visibility, viewing distance, orientation and context in accordance with GLVIA3 principles and Landscape Institute guidance on visual assessment.

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Visual receptors

Visual receptors are defined in GLVIA3 as: “*individuals and/or defined groups of people who have the potential to be affected by a proposal*”. This includes, for example, residents, users of public rights of way and motorists.

Visual Receptors likely to experience views of the Proposed Development have been identified through desktop analysis of maps and aerial photography. Where a collection of visual receptors in the same category is likely to experience similar views, they have been grouped. These are set out below:

Receptor type	Receptor or receptor group
Residents of local communities	Residents of larger settlements including: Loftus/ Carlin How, Skelton, Redcar, Cowpen Bewley Wolviston, and Newton Aycliffe. Residents of smaller settlements and more isolated properties within the open countryside, including residents of scattered farms and individual properties.
People using local open spaces such as Country Parks.	People attending Wynyard Woodland Park and the Cowpen Bewley Woodland Park.
People travelling on the transport network	People travelling through the landscape including those travelling on major and local road networks such as the A19, A167, A177, A689, A174, A178, A1085, A1185, A1053, on operational rail lines including the East Coast Main Line, other operational rail lines and bus routes.
People travelling along promoted recreational routes	People travelling along PRoW which are promoted routes, including National Trails such as Cleveland Way National Trail, National Cycle Network (NCN) Route 1, 14 and 168, King Charles II England Coast Path and those identified on OS maps.
People at work	People working indoors and outdoors.
People in other culturally sensitive locations	Users of Billingham Cemetery which is directly adjacent to the route of the Proposed Development at Cowpen Bewley.

Study area

An initial broad study area (10km) was established to support the scoping of potential landscape and visual effects and to inform the definition of the LVIA study area. The geographical extent of

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the study area has been determined by the size and scale of the elements of the Proposed Development, beyond which it is anticipated that significant effects are unlikely.

The first stage of defining the LVIA study area was informed by a desk study and included a review of published Landscape Character Assessments for an initial 10km area, studies, relevant supporting evidence base documents, aerial photography and mapping to define the baseline and to determine the extent of the study area within which there is potential for landscape and visual effects.

Further assessment of the existing landscape components, character and views of the Proposed Development will be carried out during the next stage following Scoping, to refine the LVIA study area further in consideration of the following:

- Proposed Development context;
- topography;
- vegetation including green infrastructure;
- roads, public rights of way and access;
- settlement and land use;
- landscape character; and
- representative views.

In addition to the above, preparation of computer-generated ZTV will be carried out. A ZTV is defined in GLVIA3 (Ref 8.136) as: *“a map, usually digitally produced, showing areas of land within which, a development is theoretically visible.”* ZTV do not indicate how much of the Proposed Development would be visible. The purpose of the ZTV is to:

- identify the theoretical extents of visibility of the Proposed Development i.e., areas from which it would not be visible and areas from which it could potentially appear in existing views;
- assist in the refinement (if necessary) of the LVIA study area;
- identify areas of landscape and visual receptors likely to be affected by the Proposed Development;
- identify locations that are representative of the views experienced by visual receptors at different locations within the LVIA study area (representative viewpoints); and
- inform the design, including the extent and type of proposed mitigation (if required).

ZTV will be modelled using the ‘Viewshed’ tool in ESRI ArcPro GIS software. As a result, the LVIA study area may be further refined to focus the assessment or extended to include other sensitive receptors, including cultural heritage receptors, as the design of the Proposed Development progresses. Such changes (if required) will be made using professional judgement, in consultation with relevant Local Authorities and potentially other stakeholders. The justification for the final study area extent will be set out in the ES.

The proposed study area for the LVIA is set out below and is illustrated in **Figure 8.3: Site Location and LVIA study area** (Volume II):

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Element of the Proposed Development	Study area
Pipeline	1km
AGIs	2km

In particular, the study area for the Proposed Development will be subject to refinement as the locations for any modified AGIs are identified from the current 'indicative siting areas' shown on **Figure 4.1: Indicative Site Layout** (Volume II). The indicative siting areas for modified AGIs, may include stacks up to 15m above ground level (AGL) (as described in Paragraph 4.2.23). The study area may be refined up or down but will be proportionate and focused on those areas where significant landscape and visual effects are likely to occur, including consideration of the North York Moors National Landscape just beyond 2km. Based upon experience on similar projects, significant effects are unlikely to occur beyond approximately 2km for development of this scale at the AGI compounds where the tallest elements (stacks) would be located.

Potential impacts

Construction

The potential sources of landscape and visual impacts during the construction phase of the Proposed Development would include the presence and views of:

- temporary boundary hoardings, materials storage, construction compounds and welfare facilities;
- landscape works including vegetation clearance and planting of new mitigation vegetation;
- earthworks including topsoil stripping, trench excavation, regrading of ground levels, and stockpiling of materials;
- HGV deliveries and transportation of materials and associated construction traffic and activity around the Proposed Development;
- construction modification works at a number of existing natural gas AGI, which may include extension works and reconfiguration of existing pipework;
- laying of below ground pipelines including the use of plant and machinery associated with trenchless and open-trench techniques; and
- temporary lighting (as described in Paragraph 4.5.25).

Section 4: The Proposed Development describes the proposals for completion of works at the end of pipeline and AGI construction activity, including decommissioning of temporary construction compounds and reinstatement of affected land, together with landscaping and ecological management in accordance with the oLEMP that will accompany the Application.

There is the potential for temporary impacts to sensitive receptor views and visual amenity due to the construction activities and equipment. There may also be temporary effects on the LCA within the LVIA study area and the seascape due to the construction activities. However, as noted in **Section 4.5: Construction activities**, construction disruption would not occur across the entire length of the pipeline for the whole construction period as the pipeline will be built in sections. Therefore, impacts are likely to be temporary and transient in nature at different visual receptors/ LCA across the duration of the construction programme.

Landscape and visual scope and methodology

Operation

The potential sources of landscape and visual impacts during operation of the Proposed Development would include:

- existence of new built form and supporting infrastructure (where pipeline infrastructure is above ground) i.e. modified AGI (as outlined in Paragraph 4.2.17);
- existence of stacks at the AGIs which if required, would operate infrequently during routine maintenance and emergency operations (as outlined in Paragraph 4.2.18);
- maintenance tracks with irregular vehicle movements for pipeline maintenance as described in **Section 4.10: Operation and maintenance activities**; and
- creation of new landscaping and habitat creation for BNG, including any mitigation planting required.

Decommissioning

It is assumed that the landscape and visual effects associated with the decommissioning phase of the Proposed Development would arise from the removal of AGI and any associated ground clearance/ remediation, if required, as described in **Section 4.11: Decommissioning**. It is considered that these impacts will not exceed those reported for construction.

Embedded measures

The LVIA will continue to inform the design, layout and routeing of the various elements of the Proposed Development throughout the design process. Mitigation measures will be implemented to minimise direct and indirect construction effects on landscape and visual receptors.

Construction

Embedded measures in the form of design aims are included in **Section 4.3: Design principles** and include, but are not limited to:

- an appropriate buffer will be maintained between residential properties and construction areas as far as reasonably practicable to mitigate localised disturbance effects (e.g. visual amenity etc.);
- the final route of the Proposed Development will be designed in consideration of the network of PRoW and promoted routes that cross the Scoping Boundary;
- appropriate offsets from PRoW will be considered;
- siting and routeing will seek to continue to avoid or reduce effects on more sensitive landscape features such as woodland, including trees protected by Tree Preservation Orders (where known) and/ or mature tree specimens;
- habitat connectivity would be retained as far as reasonably practicable by maintaining links within and to green corridors;
- planting will be used to integrate permanent structures e.g. AGI into the landscape to minimise visual impacts; and
- areas of temporary habitat loss will be reinstated back to the type of habitat affected (or betterment where required for BNG) as soon as reasonably practicable following the completion of construction in each area.

Other measures to be considered may include, but not be limited to:

- minimising the visibility of activity within temporary construction compounds, where practicable. For example, through use of screening;
- minimisation of hedgerow and tree loss through micro-siting;

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- enhancement of existing hedgerows; and
- implementation of a final LEMP in accordance with an oLEMP that will accompany the Application.

Operation

Figure 4.1: Indicative Site Layout (Volume II) provides indicative siting areas for up to five modified AGI where existing natural gas AGI are present that may need to be modified and/ or extended so that they are suitable for the Proposed Development. The siting of any modifications/ extensions to AGI will be informed by both technical and environmental (including LVIA) constraints including ZTV as the design of the Proposed Development progresses.

Scope – Construction (C) Operation and maintenance (O); Decommissioning (D)

Sub topic; Scoped In ✓ Scoped Out ✗ or n/a	Proposed Development component	C	O	D	Rationale
Temporary effects to landscape character	Pipeline	✓	✗	✗	Based upon the size, scale, and geographical extent of the construction works it is anticipated that significant effects to the physical fabric, perceptual and experiential elements of landscape character have the potential to occur and are Scoped In. These would be temporary effects that are reversible following completion of construction. As the majority of the pipeline would remain buried at decommissioning, it is anticipated that significant effects are unlikely to occur and these aspects are Scoped Out .
	AGI	✓	✗	✓	
Long term effects on landscape character	Pipeline	✗	✓	✗	Due to the durations of the scoping and decommissioning stages long term effects are Scoped Out for these stages.
	AGI	✗	✓	✗	
Temporary effects on the LCA within the LVIA study area	Pipeline	✓	✗	✗	Based upon the size, scale, and geographical extent of the construction works it is anticipated that significant effects to the physical fabric, perceptual and experiential elements of landscape character have the potential to occur and are Scoped In. These would be temporary effects that are reversible following completion of construction. As the majority of the pipeline would remain buried during operation and at decommissioning, it is anticipated that significant effects are unlikely to occur and these aspects are Scoped Out .
	AGI	✓	✗	✓	

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Long term effects on the LCA within the LVIA study area	Pipeline	X	✓	X	As the majority of the pipeline is to be buried, with the affected land reinstated to its pre-construction condition as far as reasonably practicable, it is anticipated that significant effects are unlikely to occur however any potential changes will be assessed within the ES.
	AGI	X	✓	X	Based upon the anticipated parameters for the AGIs described in Section 4: The Proposed Development (i.e. up to 1.5 – 3m high, surrounded by security fencing up to 2.4 – 3.6m high, with lighting columns up to 3.0 – 5.0m high and if required, stacks up to 15m AGL) and indicative locations presented in Figure 4.1: Indicative Site Layout (Volume II), it is anticipated that significant effects to the physical fabric, perceptual and experiential elements of landscape character have the potential to occur, depending upon the surrounding context, and as the need for stacks/ their location is not yet confirmed, this element is Scoped In.
Effects on the seascape character area	Pipeline	X	X	X	Given the temporary nature of the pipeline construction works, and the context of the extensively developed coast within this large seascape area, and the underground nature of the pipeline, this matter is Scoped Out for assessment.
	AGI	X	X	X	Given the context of the extensively developed coast within this large seascape area and distance of the AGI to the seascape character area, this matter is Scoped Out for further assessment.
Temporary disruption to people's views and visual amenity as a result of construction of the Proposed Development	Pipeline	✓	X	X	Based upon the size and scale of the construction works it is anticipated that significant temporary effects to views have the potential to occur and this matter is Scoped In.
	AGI	✓	X	✓	Based upon the size and scale of operational infrastructure it is anticipated that significant effects to views have the potential to occur during construction and this matter is Scoped In.
Long term effects to people's views and visual amenity as a	Pipeline	X	✓	X	As the pipeline is to be buried, with the affected land reinstated to its pre-construction condition as far as reasonably practicable, it is anticipated that significant effects are unlikely to occur during operation, however any potential changes will be assessed within the ES. Due to the durations of the

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result of the existence and operation of the Proposed Development					scoping and decommissioning stages long term effects are Scoped Out for these stages.
	AGI	X	✓	X	Based upon the anticipated parameters for the AGIs described in Section 4: The Proposed Development (i.e. up to 1.5 – 3m high, surrounded by security fencing up to 2.4 – 3.6m high, with lighting columns up to 3.0 – 5.0m high and if required, stacks up to 15m AGL) and indicative locations presented in Figure 4.1: Indicative Site Layout (Volume II), it is anticipated that significant effects to views as a result of new/ modified operational infrastructure have the potential to occur and this matter is Scoped In.
Temporary effects associated with lighting	Pipeline	✓	X	X	There is the potential for temporary effects associated with lighting during the construction of the pipeline, as described in Section 4: The Proposed Development . Given that the location of construction compounds remains subject to ongoing studies, this matter is Scoped In on a precautionary basis.
	AGI	✓	X	X	There is the potential for temporary effects associated with lighting during the construction of the modified AGI and effects are Scoped In on a precautionary basis.
Long term effects associated with lighting	Pipeline	X	X	X	The majority of the pipeline will be buried and not lit. This matter is Scoped Out .
	AGI	X	X	X	Long term effects associated with any task/ emergency lighting at AGI are unlikely to change the existing baseline and it is anticipated that significant effects would not occur. This matter is Scoped Out .
Assessment methodology					
Baseline data collection including surveys The assessment of landscape and visual impacts including approach to baseline data collection and surveys, will follow the methodology set out in the GLVIA3 (Ref 8.136) as described in Appendix F: LVIA methodology. Assessment methodology and significance criteria The assessment will be carried out in line with the primary legislation and policy set out in Section 2: Legislation and planning policy, as well as relevant legislation, policy and guidance summarised in Appendix F: LVIA methodology.					

Landscape and visual scope and methodology

Consultation

Early engagement has been undertaken with Natural England and a number of host LPA in April 2026 to introduce the Proposed Development. Technical engagement will be undertaken with each LPA and other key consultees early in the LVIA process. This technical engagement will inform a proportionate scope for the LVIA focussed on likely significant effects relevant to each authority, given that only a very minor proportion of the Proposed Development is located in Darlington and Hartlepool (refer to **Figure 1.4: The Scoping Boundary and Local Authorities**) and therefore the need for viewpoints/ potential for likely significant effects may be more limited, compared to other authorities. Technical engagement will seek to agree baseline survey and data collection methods, identification of the location of representative viewpoints that will form the basis of the visual assessment; and, to agree the approach to any visualisations and landscape reinstatement.

Assumptions and limitations

All fieldwork will be undertaken from publicly accessible locations. Professional judgement will be used to consider residents' views, aided by aerial photography and fieldwork observations.

The assumption is that construction activity will be undertaken all year round but, as a reasonable worst-case, the ES will assess construction during winter. This assumes that existing deciduous vegetation is not in leaf, thereby representing a worst-case assessment scenario. For the assessment of effects at year 15 of operation, the assumption is that all new planting would have successfully established, having increased in height by 4.5m since year one of operation (i.e. 30cm of growth per year).

The assessment will be based on the maximum parameters of the Proposed Development, taking account of embedded mitigation and design principles, to represent a reasonable worst-case.

8.9 Major accidents and disasters

8.9.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

Major accidents and disasters scope and methodology

Legislation, planning policy context and guidance

Relevant legislation, policy and guidance in addition to the key documents listed in **Section 2:**

Legislation and planning policy that will inform the assessment include:

- The Control of Major Accident Hazards Regulations (COMAH Regulations) (Ref 8.137);
- The Pipeline Safety Regulations (PSR) (Ref 8.138);
- The Planning (Hazardous Substances) Regulations (Ref 8.139);
- Health and Safety at Work etc. Act (as amended) (HSWA) (Ref 8.140);
- The Workplace (Health, Safety and Welfare) Regulations (Ref 8.141);
- The Gas Safety (Management) Regulations (Ref 8.143);
- The Lifting Operations and Lifting Equipment Regulations (Ref 8.144);
- The Management of Health and Safety at Work Regulations (as amended) (Ref 8.145);

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- The Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) (Ref 8.146);
- The Control of Substances Hazardous to Health Regulations (COSHH) (Ref 8.148);
- Civil Contingencies Act (Ref 8.149);
- The Regulatory Reform (Fire Safety) Order (Ref 8.150);
- The Building Regulations (Ref 8.151);
- The Construction Design and Management (CDM) Regulations (as amended) (Ref 8.152);
- National Risk Register (NRR) (Ref 8.153);
- ISEP Major Accidents and Disasters in EIA: A Primer (Ref 8.154);
- Emergency Preparedness guidance on part 1 of the Civil Contingencies Act (CCA) (the 'CCA risk assessment framework') (Ref 8.157);
- UK Government: Working with public bodies in the infrastructure planning process (including Annex G: The Health and Safety Executive) (HSE) (Ref 8.158);
- European Commission: Overview of Natural and Man-made Disaster Risks the European Union (EU) May Face (Ref 8.159);
- HSE: Reducing Risks Protecting People decision-making process (Ref 8.160); and
- Major Hazard Regulatory Model: Safety Management in Major Hazard Sectors (Ref 8.167).

Baseline

The document, "Major Accidents and Disasters (MA&D) in EIA: An IEMA Primer" (Ref 8.154), defines major accidents and disasters as follows: *"A major accident is an event (for instance, train derailment or major road traffic incident) that threatens immediate or delayed serious effects to human health, welfare and/or the environment and requires the use of resources beyond those of the client or its appointed representatives (e.g., contractors) to manage."* and *"A disaster is a man-made/external hazard (such as an act of terrorism) or a natural hazard (such as an earthquake) with the potential to cause an event or situation, which meets the definition of a major accident above."*

Events that have the potential to cause a MA&D are termed risk events, which are also defined in the IEMA guidance as follows: *"An identified, unplanned event, which is considered relevant to the development and has the potential to result in a major accident and/or disaster, subject to assessment of its potential to result in a significant adverse effect on an environmental receptor."*

The scope and methodology for MA&D assessment considers the potential for adverse environmental effects related to the vulnerability of the Proposed Development to risks of major accidents and/or disasters.

The baseline conditions relevant to MA&D primarily comprises:

- features external to the Proposed Development that contribute a potential source of hazard to the Proposed Development itself;
- sensitive environmental receptors at risk of any likely significant effects; and
- identified major accident and disaster risks which currently exist within the local area.

The following desk-top sources have been used to inform the existing baseline conditions of the study area:

Major accidents and disasters scope and methodology

- applicant supplied data on existing utilities and infrastructure;
- the NRR (Ref 8.153);
- The Cleveland Community Risk Register (Ref 8.161);
- The County Durham & Darlington Community Risk Register (Ref 8.162)
- COMAH 2015 Public Information Search (Ref 8.163);
- BGS GeoIndex Onshore (Ref 8.164);
- Mining Remediation Authority online map viewer (Ref 8.247); and
- publicly available base mapping, such as Bing maps.

The NRR is based on information from the National Security Risk Assessment, which is the Government's assessment of the most serious risks facing the UK. The risks that meet the threshold for inclusion in the NRR would have a substantial impact on the UK's safety, security and/ or critical systems at a national level. The risk register classifies risks into categories including terrorism; cyber; state threats; geographic and diplomatic; accidents and systems failures; natural and environmental hazards; human, animal and plant health; societal; and conflict and instability.

The NRR states that for risks that are most relevant to a local area, a review of the relevant Community Risk Register should be undertaken. According to community risk registers, key local hazards within the Cleveland and County Durham & Darlington region which are crossed by the route of the Proposed Development include:

- flooding;
- adverse Weather;
- industrial / COMAH incidents;
- hazardous transport;
- utility failures;
- marine pollution (Cleveland);
- disease outbreaks (human, animal);
- cyber-attacks and fraud; and
- terrorism/malicious attacks.

These local risks, together with those on the NRR have informed the risks to the Proposed Development addressed in this section and will inform how the Proposed Development will be designed, taking into consideration it's vulnerability to risks of major accidents and/ or disasters.

According to an initial online search of the HSE website, eight COMAH sites are located within the Scoping Boundary, (noting that a number of these are future users of the Proposed Development).

In Teesside

- BOC Limited (upper tier) along Teesport Road;
- Navigator Terminals Seal Sands Limited (upper tier) on the western bank of the River Tees;
- Exolum Seal Sands Limited/ Conoco Phillips Site (upper tier) on the western bank of the River Tees;
- Fine Organics Limited (Lianhetec) (upper tier) in Stockton on Tees;
- Central Area Transmission System (upper tier) in Stockton on Tees;
- Teesside Gas Processing Plant - Seal Sands (upper tier) in Stockton on Tees; and
- Venator Materials UK Limited (upper tier) in Hartlepool.

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In Newton Aycliffe

- INOVYN ChlorVinyls Limited (upper tier - plastic and rubber manufacture) at Newton Aycliffe.

Around twenty other COMAH sites are located within an approximate 3km radius of the Scoping Boundary, mostly clustered either side of the River Tees according to the HSE online search facility. These include:

In Teesside

- Ensus UK Limited (upper tier), approximately 15m south of the Scoping Boundary
- ConocoPhillips (U.K.) Teesside Operator Limited (upper tier), approximately 75m north-west from the Scoping Boundary;
- Alpek Polyester UK Limited (lower tier), approximately 175m north from the Scoping Boundary;
- Air Products (BR) Limited (lower tier), approximately 435m south from the Scoping Boundary;
- SABIC UK Petrochemicals Limited (upper tier) approximately 700m south from the Scoping Boundary;
- Navigator Terminals North Tees Limited (upper tier), approximately 880m south from the scoping Boundary;
- Exwold Technology Limited (upper tier), approximately 915m north from the Scoping Boundary;
- Huntsman Polyurethanes (UK) Limited (upper tier), approximately 945m south from the Scoping Boundary;
- Qualitech Environmental Services Limited (lower tier), approximately 1.1km north from the Scoping Boundary;
- EDF Energy Nuclear Generation Limited (lower tier), approximately 1.1km east from the Scoping Boundary;
- Exwold Technology Limited (upper tier), approximately 1.2km south from the Scoping Boundary;
- SNF Oil and Gas Limited (upper tier), approximately 1.2km south-west from the Scoping Boundary;
- Calor Gas Limited (upper tier), approximately 1.7km south from the Scoping Boundary;
- Natara Global Limited (lower tier), approximately 1.7km north-west from the Scoping Boundary;
- Chemoxy International Ltd (upper tier), approximately 1.7km south-west from the Scoping Boundary;
- Industrial Chemical Limited (upper tier), approximately 2.2km south from the Scoping Boundary;
- MP Storage and Blending Limited (lower tier), approximately 2.6km south from the Scoping Boundary;
- Exolum Riverside Limited (upper tier), approximately 2.7km south from the Scoping Boundary; and
- Univar Solutions UK Limited (upper tier), approximately 2.9km south from the Scoping Boundary.

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In Newton Aycliffe

- Prefere Resins UK Limited (upper tier), approximately 25m east of the Scoping Boundary.

Upper Tier sites are those facilities that store, handle, or process significant quantities of hazardous substances set out in Schedule 1 of the COMAH Regulations 2015, whilst Lower Tier sites exceed lower-tier thresholds (requiring a COMAH licence) but remain below upper-tier thresholds.

There are a number of below ground gas and other pipelines, including in Teesside the existing 'Link Line'⁷ and other cross-country pipelines for transporting natural gas and chemicals. Underground electricity cables also cross the Scoping Boundary and study area. Above and below ground electrical distribution and transmission infrastructure, including 400kV and lower voltage overhead lines and pylons also cross the Scoping Boundary. The location and relevant protections required for these assets will be considered in the ongoing design of the Proposed Development and following technical engagement with NGT, National Grid Electricity Transmission (NGET), relevant Distribution Network Operators (DNO) and other pipeline operators, relevant measures to protect assets will be described and protective provisions will be included in the DCO to ensure the protection of apparatus.

As described in **Section 8.16: Water resources and flood risk** and shown on **Figure 3.3: Water Resources and Flood Risk** (Volume II), the Scoping Boundary is intersected by eight Statutory Main Rivers including areas with elevated flood risk around Greatham Creak/ Seaton on Tees Channel and near Thorpe Thewles associated with Thorpe Beck. The Environment Agency has completed Phase 1 and Phase 2 of the Greatham Creek Flood Alleviation Scheme (FAS) constructing flood embankments and upgraded defences to reduce tidal and fluvial flood risk from Greatham Creek and the River Tees, to benefit the Seal Sands Industrial area which includes the route of the Proposed Development. Other relevant flood adaptation measures are described in **Section 8.16: Water Resources and Flood Risk**.

As described in **Section 8.16: Transport and movement** and shown on **Figure 8.9: Road and Rail Transport Connections** (Volume II), the A1(M), A19, A174 form part of the Strategic Road Network (SRN) and intersect/ are in proximity to the Scoping Boundary at four locations. Other roads intersected across the route corridor form part of the jurisdiction of relevant local highway authorities. The associated protective provisions would be agreed with National Highways and other relevant consultees.

The Scoping Boundary is also crossed by operational rail lines including the Tees Valley Line between Middlesbrough and Redcar Central, the Durham Coast Line between Billingham and Seaton Carew and the East Coast Main Line from Darlington Station to Durham. As far as reasonably practicable, direct effects on rail assets will be avoided through ongoing design development and refinement of the land required for the Proposed Development through routeing and siting studies.

⁷ The Link Line is a term used to refer to a pipeline corridor that was historically installed across Teesside to connect the former ICI plants at Billingham and Wilton. The pipeline corridor is predominantly above ground and provides a functional connection between major industrial users.

Major accidents and disasters scope and methodology

Future baseline

The future baseline will assume the likely future conditions in the study area in the absence of the Proposed Development but considering implementation of other committed developments that are consented and likely to be constructed/ become operational prior to construction and/ or operation of the Proposed Development. This includes the additional strategic improvements planned and recently completed by the Environment Agency, SBC, Natural England, and relevant nature conservation partners to manage tidal flood risk and promote nature recovery in the Tees Estuary as part of the Tees Tidelands programme (Ref 8.165). The Tees Tidelands Programme includes other nature based flood alleviation measures recently completed at Billingham Beck (benefiting Thorpe Beck) (Ref 8.166).

It is anticipated that the proximity and number of installations storing and using hazardous substances within the study area in the future baseline scenarios will be similar to those currently present. Given the highly regulated nature under the COMAH regime, in the absence of the Proposed Development, it is assumed that locally there would be a similar risk of a major accidents and disasters occurring as currently exists.

Sensitive receptors and study area

Sensitive receptors

It is considered reasonable to exclude certain receptor groups from the outset. Construction workers, as a receptor, have been excluded from the assessment, because existing legal protection is considered to be sufficient to reduce any risk from major events to a reasonable level.

Legislation applied to protect workers in workplaces includes:

- CDM 2015 Regulations (Ref 8.168);
- The Management of Health and Safety at Work Regulation (1999) (as amended) (Ref 8.169);
- The Workplace (Health, Safety and Welfare) Regulations 1992 (as amended) (Ref 8.170); and
- HSWA 1974 (as amended) (Ref 8.171).

In addition to the infrastructure and built environment including transport infrastructure, industrial infrastructure, and energy infrastructure receptors noted above, sensitive receptor groups to a major accident and natural disaster risk event are considered to include:

- human health - private residences (and their inhabitants) within the local area (described in **Section 2.4: Local planning policy**);
- community receptors, including PRoW, community land, and community buildings (described in **Section 8.13: Socio-economics** and **Section 8.15: Transport and movement**);
- human health - local economic receptors including businesses and **employees (described in Section 8.13: Socio-economics and Section 9.1: Human Health)**;
- statutory and non-statutory designated ecological sites, (**described in Section 8.3: Biodiversity and ecology**);
- the historic and cultural assets described in **Section 8.5: Cultural heritage**;
- the water environment, (described in **Section 8.16: Water resources and flood risk**); and
- the interactions between the receptors above.

Major accidents and disasters scope and methodology

Designated statutory and non-statutory sites of ecological interest are outlined in **Section 8.3: Biodiversity and ecology** and within **Appendix B: Biodiversity baseline** and statutory designated cultural heritage assets are outlined in **Appendix D: Historic environment baseline gazetteer**.

The study area for assessment of MA&D is not defined within regulatory guidance or by using a standardised methodology. It is considered that a study area of 5km from the Scoping Boundary is appropriate for the assessment. This is based on professional judgement and taking precedence from similar projects.

In line with the ISEP Primer (Ref 8.154) the MA&D chapter of the ES will define a study area based upon the assessment on individual risk events as appropriate, and therefore may extend beyond this initial study area for scoping, to consider effects on receptors or risks from other sources using a source-pathway-receptor approach.

Professional judgement will be used for features outside of these study areas.

Potential impacts

A number of potential major accident scenarios could occur during the construction, operational and decommissioning phases of the Proposed Development.

Where design development is ongoing, or there is currently insufficient evidence (e.g. through consultation) to enable the risk event to be **Scoped Out**, events have been Scoped In on a precautionary basis. Refer to the Scope section below for the list of events that have been Scoped In to the assessment.

Embedded measures

Embedded measures are modifications to the design of a Proposed Development, made during the pre-application phase, that are an inherent part of the design and do not require additional action to be taken. Embedded measures relevant to MA&D include:

Design

The designers for the Proposed Development have due regard to the CDM Regulations (Ref 8.152) and Safety in Design Principles, including process safety and safeguarding from accidental scenarios. The design will consider both on-site hazards in terms of vulnerability to a MA&D and location of receptors off-site (in terms of the potential for the Proposed Development to be a source of a MA&D risk). Risk assessed will include those presented in each of the local community risk registers as well as those related to industrial/ COMAH sites, and transport and utility infrastructure noted above.

The PSR (Ref 8.138) and the Gas Safety (Management) Regulations 1996 (GS(M)R) (Ref 8.143) will be adhered to where applicable in the design of the Proposed Development. It is noted that GS(M)R does not currently apply to 100% hydrogen networks, however the principles of producing a Safety Case for the pipeline will be adhered to whilst emerging evolution of the GS(M)R with relation to hydrogen is monitored. Appropriate good practice standards, including all relevant British Standards Institute (BSI) and Institution of Gas Engineers and Managers (IGEM) guidance, will be adhered to in the design of the pipelines and AGI. Hazard identification will be considered at all stages of the detailed design process and risks that relate to MA&D designed out as far as reasonably practicable.

Major accidents and disasters scope and methodology

A design hazard management plan will be routinely prepared, and a number of hazard identification (HAZID) and Quantitative Risk Assessments (QRA) evaluation assessments carried out on the Proposed Development during the design process and FEED studies – this is a standard approach for the identification of hazards and the development of risk mitigation measures for preventing or otherwise minimising hazardous scenarios through appropriate design during the FEED studies that are being progressed.

Construction

All works will be undertaken in accordance with the CDM Regulations including provision of appropriate pre-construction information to the construction contractor(s), notification of construction works to the HSE prior to their commencement and provision of a Health and Safety File for the Applicant/ operator following completion of construction works.

The final CEMP, secured as a Requirement of the draft DCO, will form a key part of the embedded mitigation. The oCEMP prepared to accompany the Application will explain how construction activities will be managed and controlled to demonstrate compliance with health, safety and environmental legislation, and other environmental permits, consents and licenses that will be required for construction of the Proposed Development, where relevant. The PRA and associated mitigation measures will feed into the oCEMP and oDEMP.

The appointed construction contractor(s) will use risk assessments, working method statements, operating procedures and apply appropriate personnel training in order to minimise the risk of accidental scenarios occurring during the construction of the Proposed Development. A written risk assessment will be completed to reduce risks to As Low As Reasonably Practicable (ALARP).

The Lifting Operation and Lifting Equipment Regulations 1998 (LOLER) (Ref 8.144) and Provision and Use of Work Equipment Regulations 1998 (PUWER) (Ref 8.172) will be adhered to. In accordance with the DSEAR (Ref 8.146), the Applicant will assess the locations of flammable materials under normal or abnormal operating conditions and ensure that suitable mitigation is applied.

A MAH Pipeline Safety Notification will be required, prior to construction of the Proposed Development.

Operation

The designers for the Proposed Development have due regard to safety in design principles, including process safety and safeguarding from accidental scenarios. Safety measures integrated into the Proposed Development include locational safety (designing out unstable ground), isolation and pressure reduction stations, provision of emergency shutdown and if required, depressurisation of plant and equipment, including use of stacks, if required, for flaring and/ or venting during routine maintenance and emergency scenarios (as described in 4.2.23). The engineering design layout is considering both on-site hazards in terms of vulnerability to a MA&D and location of facilities and receptors off-site (in terms of the potential for the Proposed Development to be a source of a MA&D risk).

Major accidents and disasters scope and methodology					
Summary of potential likely significant effects and ES scope					
Scope – Construction (C) Operation and maintenance (O); Decommissioning (D)					
Sub topic; Scoped In ✓ Scoped Out X or n/a	Proposed Development component	C	O	D	Rationale
Natural hazards					
Earthquakes	Pipeline	X	X	X	The Proposed Development is not located in a geologically active area and as such earthquakes are not considered to be a credible risk. The Proposed Development will be designed to withstand foreseeable ground motions. Earthquakes are therefore not considered to be a MA&D risk and can be Scoped Out .
	AGI	X	X	X	
Volcanic eruption	Pipeline	X	X	X	A hypothetical ash-producing volcanic event in UK airspace has been considered for the reasonable worst-case, but the likelihood of this scenario is extremely low and no significant effects on the Proposed Development are anticipated taking a source-pathway-receptor approach. Volcanic activity is therefore not considered to represent a MA&D risk and can be Scoped Out .
	AGI	X	X	X	
Landslides	Pipeline	✓	✓	X	A review of the National Landslide Database (Ref 8.147) confirms the presence of recorded landslide events within the Scoping Boundary of the Proposed Development along Skelton Ellers Beck. The risk of landslides will be considered as part of the geotechnical design, ensuring that any risk, is designed to ALARP and considers the vulnerability of the Proposed Development to these types of events; and groundwater flood risk will be considered in the FRA and design. The Proposed Development will not significantly change the erosion potential of the soil or stability of the land and so is not anticipated to increase the risk of a landslide happening on-site or elsewhere. Construction and operational phases
	AGI	✓	✓	X	

Major accidents and disasters scope and methodology					
					are Scoped In. Works associated with decommissioning would not contribute to an increased landslide risk to or from the Proposed Development and the decommissioning phase can therefore be Scoped Out .
Sinkholes	Pipeline	✓	X	X	Certain sinkholes can occur where soluble geological materials, such as limestone within the underlying bedrock, have been dissolved over time. The risk of sinkholes will be considered as part of the geotechnical design, so that any risk, if present, can be designed to ALARP and considers the potential for the Proposed Development to increase the risk of such an event happening off-site. This aspect therefore remains Scoped In for construction. Works associated with the operational and decommissioning phases would not contribute to an increased sinkhole risk to or from works related to the Proposed Development and these phases can therefore be Scoped Out .
	AGI	✓	X	X	
Tsunamis	Pipeline	X	X	X	The Scoping Boundary is not located in a tsunami risk zone. Tsunami risk is therefore not considered to represent a credible MA&D risk and can be Scoped Out .
	AGI	X	X	X	
Flooding	Pipeline	X	X	X	Parts of the Scoping Boundary are located within areas at risk from flooding. Both the vulnerability of the Proposed Development to flooding, and its potential to exacerbate flooding off-Site, will be assessed in the FRA that accompanies the Application. This will consider relevant climate change scenarios, as agreed with the Environment Agency. No further consideration of flooding as a MA&D risk is therefore required as this would be a duplicate assessment. Flood risk is therefore not considered further as a MA&D risk and can be Scoped Out .
	AGI	X	X	X	
Avalanches	Pipeline	X	X	X	

Major accidents and disasters scope and methodology					
	AGI	X	X	X	Given the geographic location of the Proposed Development, avalanche hazards are not considered to be relevant and are therefore Scoped Out .
Cyclones, hurricanes, typhoons, storms and gales	Pipeline	X	X	X	The pipeline will be predominantly below ground and unlikely to be impacted by weather events. Cyclones, hurricanes, typhoons, storms and gales are therefore Scoped Out .
	AGI	X	X	X	Modified AGI including flare stacks would be designed in accordance with applicable UK standards, with consideration given to environmental factors such as exposure to prevailing weather (including wind) conditions. Any residual risks will be reported under Chapter 9: Climate Change and Resilience of the ES. On this basis, weather-related effects on AGI are not considered to represent a MA&D risk and can be Scoped Out .
Thunderstorms	Pipeline	X	X	X	The pipeline will be predominantly below ground and unlikely to be impacted by thunderstorms. Thunderstorm effects on the pipeline are therefore not considered to represent a MA&D risk and can be Scoped Out .
	AGI	X	X	X	As the Proposed Development includes metal components, there is a risk of lightning strikes. Lightning strikes are being considered during the engineering design of above ground infrastructure, and the appropriate standards and protection systems will be used. As these risks will be removed or reduced through design and in-built control systems, this is therefore not considered a MA&D risk and can be Scoped Out .
Extreme Temperatures	Pipeline	X	X	X	The Proposed Development will be designed to withstand reasonably low and high temperatures in line with relevant standards and guidelines. As any residual risks will be reported
	AGI	X	X	X	

Major accidents and disasters scope and methodology					
					under Chapter 9 Climate Change Resilience of the ES, this is not considered a MA&D risk and therefore is Scoped Out .
Droughts	Pipeline	X	X	X	Droughts are only considered as a disaster due to water shortages for essential services and where there are indirect impacts on food production, loss of soils etc. The Proposed Development is not considered to be vulnerable to drought or a potential contributor to drought. Therefore, this is not considered a MA&D risk and therefore is Scoped Out .
	AGI	X	X	X	
	AGI	X	X	X	
Wildfires	Pipeline	X	X	X	While the Scoping Boundary includes areas of woodland and vegetation, if extended periods of hot and dry weather occur during construction, additional controls would be considered in relation to the location and management of any hot works. The ES will set out the additional controls which may be deployed. On this basis, wildfire risk is not considered to represent a MA&D risk and can be Scoped Out .
	AGI	X	X	X	
Fog	Pipeline	X	X	X	Should fog (i.e. visibility) become an issue during the construction or decommissioning phase, standard site safety measures would be used. It is not expected that fog would increase the risk of activities during typical operations for either the pipeline or AGI, therefore fog-related visibility can be Scoped Out .
	AGI	X	X	X	
Biological hazards					
Disease epidemics	Pipeline	X	X	X	The construction, operational, and decommissioning phases of the Proposed Development are not expected to result in the emergence or spread of disease outbreaks or be particularly vulnerable to them, compared to other developments. As a result, disease outbreaks are not considered to represent a MA&D risk and can be Scoped Out .
Animal diseases	AGI	X	X	X	

Major accidents and disasters scope and methodology					
Plants	Pipeline	X	X	X	During the construction phase, the appointed contractor would apply standard management measures for the handling and disposal of any diseased or invasive plant material, with the aim of preventing its spread. New planting may be susceptible to biosecurity issues, such as increased prevalence of pests and diseases, due to climate change. The planting design will take account of biosecurity risks through a wider mix of species including some non-natives. Chapter 8: Biodiversity and Ecology Chapter 13: Landscape and Visual Amenity and the oLEMP will address this issue and therefore it is not considered a MA&D risk. Biosecurity risks can therefore be Scoped Out .
	AGI	X	X	X	
Societal hazards					
Political considerations e.g. demonstrations	Pipeline	X	X	X	The UK is considered to be a politically stable country, and the Proposed Development is not considered particularly controversial. Political instability is therefore not considered to represent a MA&D risk and can be Scoped Out .
	AGI	X	X	X	
Terrorism/ crime	Pipeline	X	X	X	The Proposed Development is unlikely to be a particular target or more vulnerable to these types of incident than any other facility in the Seal Sands area - an existing industrial cluster of upper tier COMAH sites handling hazardous substances. Although presence of these regulated sites indicates a potential for incidents to occur, such sites are highly regulated with Safety Reports in place and consultation zones for works that present a risk to them. Security resilience measures against deliberate events are inherent in design and operation. Given the low number of exposed targets (modified AGIs) which will include appropriate security measures, malicious acts and terrorism
	AGI	X	X	X	

Major accidents and disasters scope and methodology					
					are not considered to represent a MA&D risk and can be Scoped Out .
Displaced Populations	Pipeline	X	X	X	The Proposed Development will not lead to any displaced populations. Population displacement is therefore not considered to represent a MA&D risk and can be Scoped Out .
	AGI	X	X	X	
Industrial and Urban Hazards					
Major Accidents Hazards – Chemical Sites	Pipeline	✓	✓	X	There are COMAH sites within the Scoping Boundary (as users) and those within the wider study area which could be both hazards sources and receptors. Although presence of these regulated sites indicates a potential for incidents to occur, such sites are highly regulated with Safety Reports in place and consultation zones for works that present a risk to them. It is anticipated that engagement with COMAH site operators would be undertaken to agree detailed routeing and construction interfaces, where relevant, taking into consideration safety matters. However, a major accident at one of these installations—such as a fire, explosion or toxic release—could cause off-site effects impacting personnel, construction compounds, operational assets or hydrogen infrastructure. Given the proximity of these sites, this represents a credible major accident pathway and is therefore Scoped In to the MA&D assessment. Risks associated with decommissioning of the pipeline, which will remain in situ below ground once safely decommissioned, can be Scoped Out .
	AGI	✓	✓	✓	
Major Accidents Hazards – Pipelines	Pipeline	✓	✓	X	It is anticipated that data on MAH pipelines, which is not publicly available would be obtained following consultation with the HSE on the Scoping Report. In the event that MAH pipelines are located within the Scoping Boundary, interaction with these could represent a credible major
	AGI	✓	✓	✓	

Major accidents and disasters scope and methodology					
					accident pathway and is therefore Scoped In to the MA&D assessment. Risks associated with decommissioning of the pipeline, which will remain in situ below ground once safely decommissioned, can be Scoped Out
Nuclear sites	Pipeline	✓	✓	✓	Hartlepool Nuclear Power Station is approximately 1.1km north of the Scoping Boundary. Nuclear sites are designed, built, and operated so that the chance of accidental releases of radiological material in the UK is extremely low. However, as the Proposed Development is located within the Detailed Emergency Planning Zone (DEPZ) (Ref 8.142), as a precautionary measure, this is considered a credible potential MA&D risk that is Scoped In assessment. The Office of Nuclear Regulation (ONR) will be consulted during the course of the Application regarding potential risks to/ from the pipeline. Any mitigation measures advised by the ONR will be integrated into the Proposed Development and reported in the MA&D chapter as evidence that any risk is reduced to ALARP.
	AGI	X	X	X	No modified AGI will be located in the DEPZ and therefore these can be Scoped Out.
Dam/ Reservoir/ Flood Defence Failure	Pipeline	X	X	X	A failure of a UK dam, reservoir or flood defence is considered highly improbable. In the unlikely event that such an incident were to occur, emergency services would issue appropriate warnings and may determine that evacuation measures are required. Presence of, and risk of failure of, any flood defences, reservoirs and dams will be addressed in the FRA that accompanies the Application which will assess any residual risk in relation to any breach. Dam, reservoir and flood defence
	AGI	X	X	X	

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					failure is therefore not considered to represent a MA&D risk and can be Scoped Out , as this would duplicate the assessment undertaken within the FRA.
Mines and storage caverns	Pipeline	✓	X	X	As identified in Section 8.7: Ground Conditions , according to the Mining Remediation Authority Map Viewer, the Scoping Boundary does not cross land that may be affected by previous coal mining activity (although immediately west of Newton Aycliffe, previous coal mining areas are present). Engagement with the Mining Remediation Authority is being undertaken. The presence of other brine caverns in the area related to the SABIC Brinefields at Seal Sands are noted which require consideration. Risks related to below ground workings will be considered as part of the geotechnical design, ensuring that any risk, is designed to ALARP and considers the vulnerability of the Proposed Development to risk events related to caverns/ previous mining. This aspect is Scoped In . As risks associated with mines and storage caverns will be addressed and designed to ALARP during the construction phase, no residual risk is anticipated during the operational or decommissioning phases, and these phases can therefore be Scoped Out .
	AGI	✓	X	X	
Fire and/ or explosion including hydrogen release	Pipeline	X	✓	X	The characteristics of pipeline operation mean that fire ignition is not anticipated, as operational activities are limited. A residual risk relates to loss of containment from the pipeline and explosive atmospheres which could result, which with an ignition source, could result in an explosion and/ or fire. This risk is therefore Scoped In . The risk of fire at AGIs will be managed through the design process, with QRA and process safety assessments undertaken to minimise
	AGI	X	✓	X	

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					the likelihood of fires and also the potential escalation to ALARP levels and remains Scoped In. The risk of fire during construction and decommissioning would be managed through the CEMP and DEMP and is not considered a credible risk as there would be no source (inventory). Construction and Decommissioning is therefore Scoped Out.
Transport accidents					
Road	Pipeline	X	X	X	During construction of the Proposed Development there will be an increased number of HGV and plant equipment on the local road network which may increase the risk of accidents. This will be assessed in the Transport and movement chapter of the ES, including cumulative effects with other committed development. No further consideration of road transport accidents during construction and decommissioning as a MA&D risk is therefore required as this would be a duplicate assessment. Appropriate mitigation will be included in the CTMP. There will be low traffic numbers associated with operation and decommissioning – therefore the risk of road accidents is low and all risks related to road traffic accidents are Scoped Out for further assessment.
	AGI	X	X	X	
Rail	Pipeline	✓	X	X	The Scoping Boundary crosses the Tees Valley Line, the Durham Coast Line and the East Coast Main Line. As far as reasonably practicable, direct effects on rail assets will be avoided through ongoing design development and refinement of the land required for the Proposed Development through routeing and siting studies. There will be close liaison and agreement with the railway operator(s) before construction works commence in the vicinity of any rail line in relation to protection of apparatus.
	AGI	X	X	X	

Major accidents and disasters scope and methodology					
					Appropriate mitigation measures and safe working practices will be implemented during construction by the contractors when working near railways. Appropriate mitigation measures will be included in the CEMP. There are unlikely to be works near railways during operation and decommissioning. Therefore, the operational and decommissioning phases are Scoped Out of assessment.
Maritime disaster	Pipeline	X	X	X	There is one navigable waterway within the study area, the River Tees, which the Scoping Boundary crosses, as well as the port, Teesport. The Proposed Development crossing of the River Tees (as outlined in Paragraph 4.2.9) will use an existing tunnel or alternatively, a new HDD/MBT crossing would be constructed beneath the Tees which will therefore not interfere with, or otherwise impact, the ongoing navigation uses of the river or local ports including Teesport. No maritime risk from an MA&D perspective is therefore likely and is Scoped Out .
	AGI	X	X	X	There will be no interaction with waterways during the construction, operation and decommissioning of the AGI. Therefore, these aspects are Scoped Out for assessment.
Aviation	Pipeline	X	X	X	Teesside International Airport is 9.1km south of Thorpe Thewles. Given the intervening distance, and the fact that the Proposed Development is considered no more vulnerable to aircraft disasters than any other development in the local area it is Scoped Out of further assessment during all phases. Should infrastructure or cranes be required during construction that require aviation warning lighting, appropriate guidance in relation to
	AGI	X	X	X	

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					lighting would be adhered to reduce the risk to aircraft as 'standard' practice. The AGI stacks (if required) are not of a height that would require aviation warning lighting or notification.
Pollution accidents					
Air quality/ human health	Pipeline	X	✓	X	A large-scale containment failure could result in the release of hydrogen to the surrounding environment. Although such a release would not impact air quality, any explosive atmosphere/ subsequent fire and/ or explosion could have consequences for human health. Accordingly, this potential effect will be assessed within the MA&D chapter of the ES. No hydrogen inventory will be present during construction or decommissioning, therefore these aspects are Scoped Out for assessment.
	AGI	X	✓	X	
Land	Pipeline	X	X	X	The construction phase could give rise to an increased likelihood of hazardous material spills associated with construction operations. Appropriate control and management procedures will be secured through the CEMP, OEMP and corresponding arrangements included in the DEMP for decommissioning activities. An assessment of land contamination will be included in the PRA that accompanies the Application and ground conditions chapter and so will be Scoped Out of the M&AD as this would be a duplicate assessment.
	AGI	X	X	X	
Water	Pipeline	X	X	X	During the construction phase, there may be an increased risk of leaks, spillages and unplanned releases of hazardous materials associated with construction activities, including tunnelling works and potential tunnel dewatering, which could create pathways for contamination of surface waters and groundwater. Tunnel dewatering activities have the
	AGI	X	X	X	

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					potential to mobilise sediments or existing contaminants within groundwater and, if not appropriately controlled, discharge these to receiving water bodies. These risks would be managed through the implementation of standard embedded mitigation and good practice construction techniques, which will be defined within the CEMP (and DEMP where relevant). This will include measures for pollution prevention, control of hazardous materials, and the management, treatment and, where required, permitting of dewatering discharges to ensure compliance with regulatory requirements. Potential effects on water quality arising from construction activities, including those associated with dewatering, will be assessed in detail within the Ground Conditions and Water Environment topic assessments. As such, these risks are considered within those specialist assessments and are Scoped Out of the MA&D assessment to avoid duplication. During operation, routine inspection and maintenance activities would be localised and controlled, and there is a low likelihood of significant pollution events or loss of containment. Accordingly, potential MA&D effects associated with water contamination during operation are Scoped Out.
Electricity	Pipeline	X	X	X	Where works are required in proximity to overhead or below ground electrical infrastructure, appropriate controls will be implemented in consultation with the relevant network operator, supported by site-specific risk assessments. It is anticipated that this matter can be Scoped Out given the safe working practices that would
	AGI	X	X	X	

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					routinely be applied to prevent construction utility strikes. The design of the Proposed Development has considered the presence of existing electrical infrastructure and appropriate precautionary measures have been incorporated into the routing to avoid risks due to parallelism. Presence of electrical infrastructure continues to be a key constraint considered in the ongoing design. As the pipeline would be left in situ, no risk to electrical infrastructure during decommissioning is anticipated. Electrical infrastructure risks during all phases are Scoped Out .
Gas	Pipeline	✓	X	X	Underground gas transmission pipelines are located within the Scoping Boundary and are Scoped In given the interaction with these assets. Effects during operation are Scoped Out as no potential interaction with existing pipelines will occur once the pipeline is built. The pipeline will remain in situ after operation ceases and therefore pipeline effects during decommissioning are Scoped Out .
	AGI	✓	X	✓	
Water supply	Pipeline	X	X	X	Water supply pipeline operators will be consulted so that impacts to supply lines do not occur during any phase. On this basis, impacts to water supply infrastructure are not considered to represent a MA&D risk and can be Scoped Out .
	AGI	X	X	X	
Sewage system	Pipeline	X	X	X	The Proposed Development is not expected to require any connection to, or use of, the public sewage network and can therefore be Scoped Out .
	AGI	X	X	X	
Unexploded ordnance (UXO)	Pipeline	✓	X	X	The majority of the section of the route corridor between Skinningrove to Grangetown is classified as low UXO risk with areas south of New Marske classified as high UXO risk related to bombing during World War II. Areas between Grangetown to Wolviston (either side of Seal Sands/ Wilton and the River Tees) are located in a high
	AGI	✓	X	X	

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					UXO risk area. The closest UXO find is approximately 2.5km north of the Scoping Boundary in Seaton Carew. The majority of land east of Wolviston to Newton Aycliffe (i.e. in the western part of the Scoping Boundary) is located within a UXO low risk area. Given the UXO risk in some areas there is a risk of UXO being disturbed during construction and therefore UXO risk during construction will be Scoped In. A qualitative assessment for UXO will be presented in the PRA Report that accompanies the Application and will inform standard mitigation measures that will be outlined in the oCEMP that accompanies the Application. The contractors' CEMP will be required to accord with these measures. Operational effects are Scoped Out as maintenance activities would not result in UXO risk. The pipeline would remain in situ following safe decommissioning therefore risks associated with decommissioning are also Scoped Out.
Chemical / Biological / Radiological / Nuclear Transport Systems / Crowded places	Pipeline	X	X	X	The likelihood of the Proposed Development being subject to this type of event is considered low. Therefore Chemical / Biological / Radiological / Nuclear Transport Systems Crowded places hazards are Scoped Out .
	AGI	X	X	X	
Technological or engineering accidents and failures					
Cyber	Pipeline	X	X	X	The Applicant will adhere to the appropriate standards and guidance to protect their systems from cyber-attack. Suitable measures will be in place if this were to occur. The safe operational practices in place for emergency shutdown mean that this risk can be Scoped Out .
	AGI	X	X	X	
Infrastructure	Pipeline	✓	✓	✓	The Proposed Development will be designed and delivered in accordance with the regulatory framework and technical standards in force at the time
	AGI	✓	✓	✓	

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					of construction. These standards are intended to minimise the risk of accidents and system failures and are informed by international experience. This matter will be considered further within the ES.
Bridge failure	Pipeline	X	X	X	The Proposed Development may interact with existing bridges where pipe racks are used to cross them. No new bridges are required for the Proposed Development. The Proposed Development will be designed and delivered in accordance with the regulatory framework and technical standards in force at the time of construction. The integrity of existing bridges to be used and potential for bridge failure will be considered as part of design and can therefore be Scoped Out .
	AGI	X	X	X	
Mast and tower collapse	Pipeline	X	X	X	The monitoring and maintenance of any radiocommunication and telecommunication masts in the study area is not within the control of the Applicant, and the Proposed Development is not considered any more vulnerable to mast/ tower collapse than other existing development in the area, and this can therefore be Scoped Out .
	AGI				
Tunnel collapse or failure	Pipeline	X	X	X	The Proposed Development may utilise existing tunnels and/ or pipelines to facilitate crossings of the River Tees (as outlined in Paragraph 4.2.9). The design of the preferred crossing solution is ongoing and includes consideration of the structural integrity of existing tunnels, which currently accommodate operational pipelines serving surrounding industrial and commercial land uses. The risk of structural failure (e.g. tunnel collapse) is being addressed through embedded design measures and construction methodologies that will reduce risk to as low as reasonably

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					practicable (ALARP). As these risks are being managed through design and standard engineering controls, and do not give rise to likely significant environmental effects, they are therefore Scoped Out of the EIA. During the operational phase, the Proposed Development could be located within existing tunnels and is not expected to materially increase the risk of structural failure beyond that associated with existing pipeline infrastructure. Accordingly, potential effects associated with tunnel collapse during operation are not considered likely to be significant and are Scoped Out. The Proposed Development is anticipated to remain in situ during decommissioning. As such, decommissioning activities are unlikely to give rise to structural impacts on the existing tunnels, and potential effects associated with tunnel failure during this phase are also Scoped Out.
	AGI	X	X	X	No tunnel structures are associated with the AGI. Therefore, all phases for this aspect are Scoped Out.
Proposed assessment methodology					
Baseline data collection including surveys The baseline conditions for the study area applicable to each topic as described in the relevant topic chapter of the ES will be used. It is not considered that any surveys or monitoring will be required to adequately identify the baseline environment. Assessment methodology and significance criteria The methodology adopted for this assessment will align with the methodology in the IEMA Primer (Ref 8.154). The initial screening exercise undertaken to produce the initial long list of risk events outlined above will be given further consideration in the ES, taking into consideration the local CRR and any comments from consultees, including PINS in relation to the Scoping Opinion. In line with guidance from the ISEP Primer any new/ amended risk events will be screened out or into the assessment, as relevant.					

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The level of consequence of the risk of a major event will be determined through several factors to identify potential likely significant effects that will be reported in the MA&D chapter of the ES.

These are:

- geographic extent of the effects - effects beyond the draft Order Limits are more likely to be considered significant;
- duration of effects - effects which are permanent (i.e. irreversible) or long-lasting are more likely to be considered significant;
- severity of the effects in terms of number, degree of harm to those affected and the response effort required - effects which trigger the mobilisation of substantial civil emergency response effort are more likely to be considered significant;
- the sensitivity of the identified receptors – criteria presented in the relevant chapters shall be used where applicable; and
- effort required to restore the affected environment - effects requiring substantial clean-up or restoration efforts are more likely to be considered significant.

The criteria included in the assessment to define an accident or disaster as major will align with the criteria for an incident which would be notifiable to the European Commission as listed within Schedule 5 of the COMAH Regulations. This notification to the European Union (EU) is no longer required following the UK's exit from the EU, however the criteria are still considered relevant to the identification of a MA&D, as an accident or disaster that causes:

- an injury to a person which is fatal;
- up to six (6) persons are injured within the establishment and hospitalised for at least twenty-four (24) hours (hrs);
- one person outside the establishment is hospitalised for at least twenty-four (24) hrs;
- a dwelling outside the establishment is damaged and is unusable as a result of the accident;
- the evacuation or confinement of persons for more than two (2) hrs, where the value (persons × hrs) is at least five hundred (500);
- the interruption of drinking water, electricity, gas or telephone services for more than two (2) hrs, where the value (persons × hrs) is at least one thousand (1,000) Euro;
- damage to property in the establishment, to the value of at least two million Euro;
- damage to property outside the establishment, to the value of at least five hundred thousand Euro;
- permanent or long term damage to terrestrial habitats involving (i) 0.5hectares (ha) or more of a habitat of environmental or conservation importance protected by legislation; or (ii) 10ha or more of more widespread habitat, including agricultural land;
- significant or long term damage to freshwater and marine habitats involving: (i) 10km or more of river or canal; or (ii) 1ha or more of a lake or pond; or (iii) 2ha or more of delta; or –(iv) 2ha or more of a coastline or open sea; or
- significant damage to an aquifer or underground water of 1ha or more.

Consultation

No pre-scoping engagement has been undertaken for major accidents and disasters. Future engagement is not proposed unless a requirement to undertake future engagement arises, however the Applicant will engage with COMAH operators at the appropriate time, pre-construction.

Major accidents and disasters scope and methodology

Assumptions and limitations

There is no recognised standard methodology for the assessment of major events. The ISEP Primer will be utilised alongside professional judgement to undertake and inform the assessment.

The screening presented in this section and MA&D assessment presented in the ES will be based on the construction, preliminary design, process and decommissioning information that is currently available and early appraisal of potential hazards. These will be refined and reappraised as the design progresses and will be reported in the final ES.

8.10 Marine biodiversity

- 8.10.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

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Legislation, planning policy context and guidance

Relevant legislation, policy and guidance in addition to the key documents listed in **Section 2:**

Legislation and planning policy that have been considered and will inform the assessment include:

- European Commission Directive 2009/147/EC (codified version of 79/409/EC) on the Conservation of Wild Birds (the 'Birds Directive') (Ref 8.155);
- European Commission Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (known as the 'Habitats Directive') (Ref 8.156);
- The Wildlife and Countryside Act 1981 (as amended) (Ref 8.5);
- Conservation of Seals Act 1970 (Ref 8.115);
- The Water Environment (Water Framework Directive) (WFD) (England and Wales) Regulations 2017 (Ref 8.251);
- The Marine Strategy Regulations 2010 (Ref 8.108);
- The Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) (Ref 8.109);
- North East Inshore and Offshore Marine Plans (Ref 8.110);
- Chartered Institute of Ecology and Environmental Management (CIEEM), Guidelines for Ecological Impact Assessment in the UK and Ireland, 2024 (Ref 8.29);
- Marine Management Organisation (MMO) guidance on Marine Licensing and EIA, 2025 (Ref 8.111);
- Environment Agency guidance on Water Framework Directive assessment: estuarine and coastal waters, 2023 (Ref 8.112);
- Natural England guidance on Marine Protected Areas: conservation advice packages (Ref 8.113);
- Natural England guidance on Improvement Programme for England's Natura 2000 Sites (IPENS), 2012 (Ref 8.114); and
- Joint Nature Conservation Committee guidance on Monitoring guidance for marine benthic habitats, 2018 (Ref 8.116).

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Baseline conditions

This section should be read in conjunction with **Figure 8.6: Marine Biodiversity Constraints** (Volume II). Data used to inform this scoping assessment is from desk-based sources only. Baseline below Mean High Water Springs (MHWS) is considered in this Section, Marine Biodiversity. Any baseline above MHWS is considered in **Section 8.3: Biodiversity and ecology**. Underwater noise is considered in this section and not duplicated in **Section 8.12: Noise and vibration**.

The following publicly accessible sources have been used to identify the existing baseline conditions within the study area:

- MAGiC mapping (Ref 8.34) - internationally designated statutory sites (Ramsar, SPA and SAC), nationally designated statutory sites (SSSI, NNR, Marine Conservation Zones (MCZ) and Highly Protected Marine Areas (HPMA), local statutory designations (LNR), and priority habitats designated under the UK Biodiversity Action Plan (BAP) list and protected species licence returns.
- National Biodiversity Network (NBN) Gateway (Ref 8.120), providing records of protected and notable species. The UK BAP list was then consulted to identify any species or habitats found within the Zol that are protected under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.
- Other data from local monitoring programmes (as stated).

Study area

Section 4: The Proposed Development describes the relatively limited scope of any potential in-river works anticipated below the MHWS and assumptions in relation to construction methods are also set out in the section 'Assumptions' at the end of this table.

As noted in **Section 4.2: Overview of the Proposed Development**, for the River Tees crossing, there may be use of an existing tunnel, repurposing of an existing third-party operated pipeline, or via the construction of a new crossing situated at least 10m beneath the riverbed and within suitable strata, with no in-river works (including drilling, dredging or piling) required in the marine environment (Paragraph 4.2.10). For the crossing of Greatham Creek/ Seaton on Tees Channel, either an existing third-party above ground pipe bridge will be used, which may require refurbishment; or a trenchless crossing will be used a minimum of 10m below the riverbed and within suitable strata (Paragraph 4.2.12). On this basis, a Zol extending 2km from the areas of Scoping Boundary below the MHWS is considered proportionate. Significant effects on designated sites, habitats and species are not expected beyond this range given the nature of works and potential impact pathways to receptors.

Sensitive receptors

International statutory designated sites

Ramsar

The proposed River Tees and Greatham Creek crossing is located within the Teesmouth and Cleveland Coast Ramsar site. The site qualifies under Ramsar criterion 5 as it is regularly used by over 20,000 waterbirds in any season. This includes more than 1% of the Great Britain populations of the following species listed in Annex I of the EC Birds Directive; pied avocet (*Recurvirostra avosetta*), sandwich tern (*Thalasseus sandvicensis*), common tern (*Sterna hirundo*), little tern (*Sternula albifrons*) and ruff (*Calidris pugnax*). It also regularly supports more than 1% of the

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biogeographic population of two regularly occurring migratory species not listed in Annex I of the EC Birds Directive; red knot (*Calidris canutus*) and common redshank (*Tringa totanus*).

Highly Protected Marine Areas

There are no HPMA located within or surrounding the study area for the Proposed Development. The nearest HPMA is located approximately 90 km north-east: the North East of Farnes Deep HPMA.

Special Protection Areas (Marine Components)

The proposed River Tees and Greatham Creek/ Seaton on Tees Channel crossings are located within the Teesmouth and Cleveland Coast SPA and encompass marine components. The SPA regularly supports more than 1% of the Great Britain populations of the following species listed in Annex I of the EC Birds Directive; pied avocet, sandwich tern, common tern, little tern and ruff. It regularly supports more than 1% of the biogeographic population of two regularly occurring migratory species not listed in Annex I of the EC Birds Directive; red knot and common redshank. It is also regularly used by over 20,000 waterfowl (waterfowl as defined by the Ramsar Convention) or 20,000 seabirds in any season.

Ramsar sites

The proposed River Tees crossing and Greatham Creek/ Seaton on Tees Channel crossings are located within the Teesmouth and Cleveland Ramsar site which qualifies under Ramsar criterion 5 as it is regularly used by over 20,000 waterbirds in any season. The site qualifies under criterion 6 as it is regularly used by 1% or more of the biogeographic populations of the following bird species in any season; red knot, common redshank, and sandwich tern.

Special Areas of Conservation (Marine Components)

There are no SAC with marine components located within or surrounding the study area for the Proposed Development. The Durham Coast SAC is located outside of the study area, 10.8km north.

National statutory designated sites

Sites of Special Scientific Interest

The proposed River Tees and Greatham Creek/ Seaton on Tees Channel crossings are located within the Teesmouth and Cleveland Coast SSSI. The SSSI includes seven previous SSSI which were expanded to create a single, landscape scale SSSI comprising of 3000 ha. The Teesmouth and Cleveland Coast SSSI is notified for its extensive and diverse complex of coastal and freshwater habitats (including mudflats, saltmarsh and sand dunes), nationally important populations of breeding and non-breeding waterbirds, harbour seal (*Phoca vitulina*), invertebrate assemblages, and significant geological features.

National Nature Reserve

The study area intersects with Teesmouth NNR, which is designated for the presence of sand dunes, grazing marsh, intertidal salt flats, harbour seals and grey seals (*Halichoerus grypus*), marsh orchids and migratory waterbirds. This NNR is approximately 95m east of Greatham Creek/ Seaton on Tees Channel crossing and 1km north-east of the elements of the proposed River Tees crossing.

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Marine Conservation Zone

There are no MCZ within the study area. The nearest MCZ, Runswick Bay, is located approximately 25km south-east.

Local statutory designated sites

Local Nature Reserves

The nearest LNR, Seaton Dunes and Common SSSI (LNR), is located approximately 1.4km north-east within the study area.

Irreplaceable habitats

The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024 set out those habitats which are considered most difficult to compensate for the loss of under the BNG regime. The following habitats are relevant for the marine environment.

Spartina saltmarsh swards and Mediterranean saltmarsh scrub (component parts of Coastal Saltmarsh)

The Scoping Boundary crosses small areas (around 1.2ha) of coastal saltmarsh (Priority Habitat) on the southern approach to the Greatham Creek / Seaton on Tees Channel crossing, with further areas of coastal saltmarsh/ saline lagoons in the vicinity. The potential for these coastal saltmarsh habitats to be classified as irreplaceable habitat i.e. Spartina saltmarsh swards and Mediterranean saltmarsh scrub (both component species within saltmarsh) is not considered likely as they do not appear as a designating feature of any of the designated sites outlined above. However, this would be confirmed via survey and areas avoided, as far as reasonably practicable.

Coastal Sand Dunes

Coastal sand dunes, which form some of the qualifying features for the Teesmouth and Cleveland Coast SSSI and Teesmouth NNR, are located within the study area, downstream of the River Tees crossing location along the Emergency Access Road at Seal Sands and around Bran Sands. The closest dunes are located 455m east of the Greatham Creek / Seaton on Tees Channel crossing. Encompassing a variety of sand dune types, and considered irreplaceable habitat under the Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024, their presence forms part of the 180 sand dune habitat across the Tees Bay Dune system. Sand dunes can support a variety of species including those which are designated for the Teesmouth and Cleveland Coast SPA, Ramsar and SSSI. However, this habitat will not be crossed by the route of the Proposed Development.

Priority habitats

Intertidal Mudflats

Intertidal mudflats, a UK BAP priority habitat (now listed as a Habitat of Principal Importance (HoPI) under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006), are located along the shoreline of the River Tees and Dabholm Cut, and within Greatham Creek and the Seaton on Tees Channel, which are intersected by the proposed crossing locations. These habitats form part of the coastal habitat mosaic underpinning the qualifying features of the Teesmouth and Cleveland Coast SSSI, SPA and Ramsar site.

As defined within the UK BAP Priority Habitat Description, intertidal mudflats are: *“sedimentary intertidal habitats created by deposition in low energy coastal environments, particularly estuaries*

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and other sheltered areas. Their sediment consists mostly of silts and clays with a high organic content.”

Mudflats are closely linked to adjacent habitats such as saltmarsh and play an important role in coastal processes, including the dissipation of wave energy and protection of upper shore habitats from erosion. Organic-rich sediments also play a key role in nutrient cycling and contaminant sequestration, with sediments capable of binding pollutants including heavy metals.

This habitat supports a high biomass of benthic invertebrates, including oligochaete and polychaete worms, bivalve molluscs and crustaceans, which form an important food resource for wading birds and waterfowl that are designated features of the Teesmouth and Cleveland Coast SPA and Ramsar site. Characteristic species include common cockle (*Cerastoderma edule*) and ragworm (*Hediste diversicolor*). Intertidal mudflats also provide important nursery and feeding habitats for fish species, including juvenile flatfish such as plaice (*Pleuronectes platessa*), thereby contributing to wider estuarine ecosystem functioning.

Coastal Saltmarsh

Coastal saltmarsh, a UK BAP priority habitat (now listed as a HoPI under Section 41 of the NERC Act 2006), is present within the study area, including around Seal Sands and along Greatham Creek, typically occurring landward of intertidal mudflats. Saltmarsh habitats develop within low-energy intertidal environments where sediment accretion allows colonisation by salt-tolerant (halophytic) vegetation, generally within the upper tidal frame between mean tide level and the highest astronomical tides.

The development of coastal saltmarsh is closely associated with adjacent mudflats, which provide a stable sedimentary environment that facilitates gradual habitat establishment. Vegetation is characterised by halophytic plant species adapted to periodic tidal inundation and fluctuating salinity conditions typical of estuarine environments.

Coastal saltmarsh exhibits clear zonation of vegetation communities, with lower marsh communities closest to the tidal edge being more tolerant of frequent inundation and salinity, and upper marsh communities less frequently inundated. Typical lower marsh species include glasswort (*Salicornia spp.*), while upper marsh communities may include species such as sea aster (*Aster tripolium*), common cordgrass (*Spartina anglica*), golden samphire (*Limbarda crithmoides*) and sea beet (*Beta vulgaris* subsp. *maritima*).

Coastal saltmarsh provides important ecological functions, supporting a range of species including invertebrates, fish and birds. Wader species such as curlew (*Numenius arquata*), ringed plover (*Charadrius hiaticula*) and lapwing (*Vanellus vanellus*) are known to utilise these habitats for foraging. Tidal creeks and channels associated with saltmarsh may support crustaceans such as shore crab (*Carcinus maenas*), fish species including bass (*Dicentrarchus labrax*), and a variety of invertebrates including specialist insect species such as the starwort moth (*Cucullia asteris*). Coastal saltmarsh within the study area is represented by a range of National Vegetation Classification (NVC) communities. At Seal Sands, communities include SM8 (*Salicornia spp.* pioneer saltmarsh), SM9 (*Suaeda maritima* saltmarsh) and SM10 (transitional low-marsh communities with *Puccinellia maritima*, *Salicornia spp.* and *Suaeda maritima*). At Greatham North, both SM8 and SM9 communities are present. Along Greatham Creek, additional communities are recorded,

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including SM13a (*Puccinellia maritima* saltmarsh, *Puccinellia*-dominated sub-community), SM13c (*Puccinellia maritima* saltmarsh, *Limonium vulgare*–*Armeria maritima* sub-community), SM24 (*Elymus pycnanthus* saltmarsh) and SM28 (*Elymus repens* saltmarsh).

Saline Lagoons

Saline lagoons, a UK BAP priority habitat (now listed as a HoPI under Section 41 of the NERC Act 2006), are present within or immediately adjacent to the study area, associated with tributaries of Greatham Creek in close proximity to the proposed crossing.

As defined within the UK BAP Priority Habitat Description, saline lagoons are: “*essentially bodies, natural or artificial, of saline water partially separated from the adjacent sea. They retain a proportion of their seawater at low tide and may develop as brackish, fully saline or hypersaline water bodies. Lagoons can contain a variety of substrata, often soft sediments which in turn may support tasselweeds, stoneworts, and filamentous green and brown algae.*”

Saline lagoons are of high ecological importance, supporting a range of specialist invertebrates and plant species, as well as bird assemblages. These habitats may be utilised by waterfowl, waders and seabirds, including species that also form qualifying features of the nearby Teesmouth and Cleveland Coast SPA, Ramsar and SSSI. Avian species that may utilise lagoon habitats include teal (*Anas crecca*), curlew, knot (*Calidris canutus*), redshank, shelduck (*Tadorna tadorna*) and cormorant (*Phalacrocorax carbo*).

Indicative lagoonal biotopes include communities dominated by submerged fucoids (brown seaweeds), green and red algae, as well as sublittoral sand, mud and mixed sediments under reduced salinity conditions, and angiosperm communities adapted to brackish environments.

Coastal and Floodplain Grazing Marsh

Extensive areas of coastal and floodplain grazing marsh, a UK BAP priority habitat (now listed as a HoPI under Section 41 of the NERC Act 2006), are present within the study area, including along Greatham Creek and within areas designated as SPA, Ramsar and SSSI.

As defined within the UK BAP habitat description, this habitat comprises: “*periodically inundated pasture or meadow with ditches which maintain water levels, containing standing brackish or fresh water. The ditches are especially rich in plants and invertebrates. Almost all areas are grazed, and some are cut for hay or silage. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities, but not extensive areas of tall fen species such as reeds.*”

This habitat is of particular importance for breeding waders, including snipe (*Gallinago gallinago*), lapwing and curlew, and also supports internationally important populations of wintering wildfowl such as Bewick’s swan (*Cygnus bewickii*) and whooper swan (*Cygnus cygnus*).

Whilst this habitat does not form part of the marine environment, it occurs immediately adjacent to Greatham Creek including north of the crossing where it is hydrologically and functionally connected to the estuarine system (designated as a GWDTE). As such, there is potential for indirect influence from works within the marine environment (e.g. via changes in hydrology, water quality or disturbance), and the habitat has been considered within this assessment.

Marine biodiversity

Protected Species

Marine cetaceans

All marine cetaceans (whales, dolphins and porpoises) are designated as European Protected Species (EPS) under the Conservation of Habitats and Species Regulations 2017 (as amended). Such species are considered to have a reduced likelihood of regular occurrence within close proximity to the Proposed Development, including the River Tees and Greatham Creek/ Seaton on Tees Channel crossings, due to the highly industrialised nature of the area, including elevated levels of marine vessel movement, underwater noise and general disturbance associated with port activities along the Tees.

Elevated underwater noise levels from shipping and industrial activities may influence cetacean behaviour by affecting communication and navigation, while increased vessel activity also presents a potential collision risk. In addition, water quality and habitat modification within heavily managed estuarine environments may reduce habitat suitability compared to offshore or less disturbed coastal areas. As such, these areas are considered to provide suboptimal conditions for regular foraging or breeding, although transient use by some species cannot be ruled out. A desk-based review of NBN Atlas records identified occurrences of Common dolphin (*Delphinus delphis*), Risso's dolphin (*Grampus griseus*), Harbour porpoise (*Phocoena phocoena*), Bottlenose dolphin (*Tursiops truncatus*), White-beaked dolphin (*Lagenorhynchus albirostris*) and Minke whale (*Balaenoptera acutorostrata*) within the study area. These species are also listed as Species of Principal Importance (SoPI) under Section 41 of the NERC Act 2006 (derived from the former UK BAP priority species list).

However, due to sensitivity controls applied by Natural England, the spatial resolution of NBN Atlas records is generalised (typically to 10km), and therefore precise locations cannot be confirmed. Accordingly, these records are considered to represent the wider coastal environment rather than specifically the inner estuary or harbour area within which the Proposed Development will take place.

Seals

Harbour seal and grey seal are Annex II species under the Habitats Directive, for which SACs are designated where populations are of European importance. The UK supports a significant proportion of European populations of both species.

Both species are protected under a range of legislation, including the Conservation of Seals Act 1970 (as amended). Additional protection is provided by the Conservation of Seals (England) Order 1999. Harbour seal is listed as a priority species under the former UK BAP and is retained as a SoPI under Section 41 of the NERC Act 2006.

Seals are a notified feature of the Teesmouth and Cleveland Coast SSSI, which is designated in part for its breeding harbour seal population. The breeding season generally runs from mid-June to mid-September. A small resident population of harbour seals is present within the Tees Estuary and is known to utilise the estuary and wider tidal environment, with haul-out sites located at Greatham Creek and at Seal Sands.

Marine biodiversity

Data obtained from the NBN Atlas indicates records of harbour and grey seals within the study area; however, due to sensitivity controls, record coordinates are generalised (typically to 10km resolution), and therefore precise locations are not available from this source for the purposes of this Scoping Report.

Industry and Nature Conservation Association (INCA) (Ref 8.117) has managed an annual monitoring programme for seals in the study area until 2024-25, when it was reportedly phased out. The Tees Estuary Seals Study (TESS) (Ref 8.118) was reportedly initiated as a replacement study in 2024. The primary purpose is reported to be to determine the total number of seal pups born each year and the peak in local population size, particularly during breeding season from mid-June to mid-September. Further review of data, as part of a marine baseline desk-study, will be undertaken and reported in the ES.

Fish

Migratory Fish Species

Migratory fish species including Atlantic salmon (*Salmo salar*), sea trout (*Salmo trutta*) and river lamprey (*Lampetra fluviatilis*) may use the River Tees to migrate between marine feeding areas and upstream spawning grounds.

Atlantic salmon and sea trout are protected under the Salmon and Freshwater Fisheries Act 1975 (Ref 8.250) and the Marine and Coastal Access Act 2009 (Ref 8.249). Both species are also listed in Annex II of the Habitats Directive, Appendix III of the Bern Convention, and as Priority Species in the UK BAP. Atlantic salmon are classified as 'Endangered' by the International Union for Conservation of Nature (IUCN) within Great Britain.

River lamprey is protected under the Wildlife and Countryside Act 1981 (as amended) and is listed on Annex II of the Habitats Directive.

Atlantic salmon are known to be present within the River Tees and are likely to pass through the study area during upstream migration to spawning grounds (typically October to February). While no records were identified within the NBN Atlas for the study area itself, their presence cannot be discounted given that the River Tees supports a recovering population.

Environment Agency records (Ref 8.121) of fish passage at the Tees Barrage, located approximately 13km upstream of the proposed River Tees crossing, confirm the presence of Atlantic salmon and sea trout since installation of the fish counter in 2011. Salmon and sea trout counts have fluctuated in recent years, generally ranging between approximately 200 and 500 individuals annually, indicating ongoing but variable use of the river system. The records show that there was a sudden decline after 2013, with counts generally stabilising from 2014. However, numbers since 2020 have incrementally declined with numbers increasing again in 2024 for Atlantic salmon and sea trout migrating upstream (376), and numbers declining again in 2025 (207).

Greatham Creek is hydrologically connected to the wider Tees Estuary and is subject to tidal influence, forming part of the lower estuarine system. However, it is considered less likely to function as a primary migratory pathway for fish species, which are typically associated with the main river channel during upstream migration. Nevertheless, transient use of the wider estuarine environment, including peripheral channels such as Greatham Creek, cannot be excluded.

Marine biodiversity

It is unlikely that migratory species would remain within the proposed River Tees and Greatham Creek/ Seaton on Tees Channel crossing areas for extended periods beyond migration. This reflects the industrialised nature of the estuary, where water quality, physical disturbance and underwater noise may influence behaviour. Whilst such pressures may deter prolonged residency, migratory fish are adapted to utilise estuarine environments during transit and may therefore pass through the study area as part of their life cycle.

Non-Migratory Fish Species

The River Tees supports populations of European eel (*Anguilla anguilla*), northern pike (*Esox lucius*) and several commercial fish species, including herring (*Clupea harengus*), Atlantic cod (*Gadus morhua*), whiting (*Merlangius merlangus*), plaice and pollack (*Pollachius pollachius*). Greatham Creek also has the potential to support populations of these species. Based on the brackish nature of the River Tees at the proposed Tees crossing location and recognising that white-clawed crayfish (*Austropotamobius pallipes*) and freshwater pearl mussel (*Margaritifera margaritifera*) are typically associated with fast-flowing freshwater upland rivers, the crossing location is not considered suitable habitat for these species. However, the potential for these species to be present within Greatham Creek cannot be excluded.

A review of the NBN Atlas identified a limited number of records of non-migratory (estuarine resident) fish species within the study area. These include species such as three-spined stickleback (*Gasterosteus aculeatus*), sand goby (*Pomatoschistus minutus*), eelpout (*Zoarces viviparus*), hooknose (*Agonus cataphractus*) and bull rout (*Myoxocephalus scorpius*), which are typically associated with shallow coastal and estuarine habitats. Only a small number of species recorded are listed as SoPI under Section 41 of the NERC Act 2006, including European eel, which is also recognised as a UK BAP Priority Species. None of the non-migratory estuarine resident species identified are themselves listed under the NERC Act. These records represent available data and may not provide a complete representation of species distribution within the study area.

The distribution and abundance of non-migratory fish species, as well as commercial fish species, within an industrialised estuary such as the Tees are likely to vary spatially and temporally, influenced by factors including water quality, underwater noise, and the intensity of human activities. Whilst industrial activity may deter some species, many fish species demonstrate a degree of tolerance to such conditions and may persist in modified estuarine environments.

Intertidal and benthic species

Intertidal and benthic communities within the Tees Estuary are typically dominated by polychaete worms (e.g. *Hediste diversicolor*, *Nephtys hombergii*, *Capitella capitata*), bivalves (e.g. *Cerastoderma edule*, *Macoma balthica*, *Abra tenuis*, *Mya arenaria*), crustaceans (e.g. *Corophium volutator* and amphipods), gastropods (e.g. *Hydrobia ulvae*) and oligochaetes (*Tubificoides spp.*). Subtidal sediments support assemblages including *Nephtys spp.*, *Fabulina fabula*, *Magelona mirabilis*, and associated bivalves and amphipods. Saltmarsh creeks and intertidal margins also support fish species such as flounder, grey mullet and goby, together with crabs and shrimps. Due to the intensity of human activities within the study area, the condition of intertidal and benthic habitats may be influenced by water pollution, physical disturbance and underwater noise. Habitats associated with the Teesmouth NNR located within 95m of the Greatham Creek/ Seaton on Tees Channel crossing are likely to be less intensively affected by these pressures, reflecting the protections afforded by its national designation and ongoing site management.

Marine biodiversity

Within the study area, a review of the NBN Atlas identified records of polychaete worms (e.g. *Capitella capitata*, *Nephtys hombergii*, *Alitta virens*), crustaceans (e.g. *Corophium volutator*, *Carcinus maenas*), and bivalves (e.g. *Abra alba*, *Mya arenaria*), together with associated meiofauna (including Oligochaeta and Nematoda). Records also include benthic algae (*Ulva spp.*) and seagrass (*Zostera noltei*).

Marine Invasive Non-Native Species

Marine INNS pose a range of risks to the marine environment, including biodiversity loss through competition with native species, habitat alteration, and the introduction and spread of disease. Examples of marine INNS relevant to UK waters include Asian kelp (*Undaria pinnatifida*), Japanese wireweed (*Sargassum muticum*), Asian shore crab (*Hemigrapsus sanguineus*) and leathery sea squirt (*Styela clava*).

A review of publicly available records held within the NBN Atlas did not identify any recorded marine INNS within the study area. However, it should be noted that the NBN Atlas represents a compilation of available species occurrence records and may not provide a complete representation of species presence.

Future baseline

Predicting the effects of climate change on marine habitats and communities within the study area is inherently uncertain due to the complex interaction of multiple influencing factors. These include external pressures such as nutrient inputs, land use change, and ongoing management of designated sites, alongside natural variability in ecological communities. This uncertainty is particularly pronounced for benthic communities, which exhibit high spatial and temporal variability even in the absence of external drivers, reflecting their life cycles and distribution patterns.

Projected increases in sea temperature may influence fish populations within the study area, potentially resulting in shifts in species distribution as conditions become less suitable. Species such as salmon, which are sensitive to temperature thresholds for survival and growth, may be particularly affected. Elevated temperatures can increase physiological stress, with potential implications for growth rates, reproduction, and overall survival.

Conversely, some factors may contribute to improvements in migratory fish populations in the River Tees and Greatham Creek over the lifetime of the Proposed Development. In particular, implementation of WFD objectives is expected to support improvements in biological water quality, with a target for water bodies to achieve good ecological status. In addition, nutrient management measures within the Tees catchment may further support ecological recovery.

Given the spatial overlap between the Proposed Development and the Teesmouth and Cleveland Coast SPA, Ramsar site and SSSI, the continued management of these designated sites will be a key influence on the future baseline. Management measures aimed at maintaining or restoring qualifying features are likely to affect ecological conditions within the wider study area. Examples of projects that have the potential to influence the future baseline include projects in the terrestrial/ coastal lagoon environment related to delivery of landbanks for BNG by the RSPB at Saltholme; the seagrass restoration project located at Seal Sands (Ref 8.119) and similar projects being implemented by Tees River Trust in the coastal/ estuarine environment.

Marine biodiversity

The study area is also subject to ongoing industrial development associated with the Tees estuary. Future land use change has the potential to alter the baseline, including through habitat loss or fragmentation (including effects on qualifying features of designated sites), changes in air and water quality, and shifts in the distribution of priority habitats. There is potential for indirect effects on the marine environment, particularly during construction phases, arising from runoff, accidental pollution events, and noise and vibration.

In addition, increased industrial activity may lead to higher levels of vessel traffic within the estuary and adjoining marine environment, which could further influence ecological conditions within the study area.

Potential impacts

Potential impacts on marine biodiversity have been identified based on the likely and/ or potential risk of interactions between the Proposed Development and sensitive receptors within the study area, including internationally and nationally designated sites, priority habitats, and protected and notable species.

Although design of the Proposed Development is ongoing, works within the marine environment are expected to be limited to trenchless crossings located below the riverbed of the River Tees/ Greatham Creek/ Seaton on Tees Channel or reuse of existing assets below and above these watercourses/ waterbodies respectively (as outlined in Paragraphs 4.2.9 to 4.2.13). No in-water works such as piling, dredging or drilling are anticipated. Assumptions regarding the Proposed Development impacts are set out at the end of this Section. Accordingly, the potential for any likely significant effects is expected to arise primarily through indirect pathways during construction and/ or decommissioning, with limited potential for direct physical disturbance during any project phase.

Construction

For the crossing options under consideration, no in-river construction activities are proposed and as such, no direct impacts to the marine environment are anticipated.

The potential impacts identified in relation to construction works for the River Tees and Greatham Creek/ Seaton on Tees Channel crossings include:

- Potential water pollution of the River Tees and Greatham Creek arising from accidental events associated re-use of existing crossings, including:
 - loss of integrity or failure of an existing tunnel (e.g. collapse, leakage or failure during installation works);
 - controlled or uncontrolled discharge during dewatering and refilling of an existing tunnel; and
 - accidental release of fuels, oils or other contaminants during construction activities, leading to degradation of water quality and effects on intertidal and benthic habitats.
- Potential release of drilling fluids during trenchless crossing techniques (e.g. HDD or MBT), including inadvertent returns ('frac-out'), resulting in localised contamination of intertidal or subtidal environments.

Marine biodiversity

- Potential sediment mobilisation and runoff arising from the establishment of temporary construction compounds, access tracks and working areas, including soil stripping, stockpiling and ground disturbance, with sediments transported via surface water pathways into the River Tees and Greatham Creek.
- Localised disturbance to riverbanks and nearshore environments at trenchless entry and exit locations, which may result in limited sediment disturbance and introduction of suspended solids into the waterbody.
- Disturbance to marine ecological receptors, including marine mammals (e.g. seals), fish and benthic communities, arising from:
 - construction noise and activity;
 - ground-borne vibration associated with trenchless installation techniques; and
 - increased human presence.

These impacts are expected to be limited to temporary behavioural disturbance, with no significant underwater noise generation anticipated due to the absence of in-water works (refer to assumptions section).
- Potential for the introduction or spread of INNS through movement of plant, equipment and materials (including vessels to the working area at Greatham Creek) during construction.

Using a source, pathway, receptor approach, this is summarised below.

Receptor	Impact (Source)	Pathway
Teesmouth and Cleveland Coast Ramsar (crossings located within)	Water pollution (tunnel integrity failure/ leakage; dewatering/ refilling discharge; spills), drilling fluid release (frac-out), sediment mobilisation/ runoff, localised bank disturbance.	Contaminants/ sediments enter River Tees/ Greatham Creek via drainage/ runoff or accidental release, then disperse tidally/ fluvially to supporting intertidal habitats (mudflats/ saltmarsh) that support bird use of the sites.
Teesmouth and Cleveland Coast SPA (marine components)	As above: water quality/ pollution, accidental release of drilling fluids, sediment runoff, localised bank disturbance; plus disturbance effects (noise/ activity/ vibration) that could indirectly affect supporting prey/ habitat function.	Waterborne pathways to supporting habitats; any disturbance effects would be indirect (via changes to habitat quality/ prey availability) rather than direct in-water noise, given no in-water works.
Teesmouth and Cleveland Coast SSSI (crossings located within; features include mudflats/ saltmarsh/ sand dunes, waterbirds, harbour seal, invertebrates) etc.	Water pollution, accidental release of drilling fluids, sediment runoff, localised bank disturbance; disturbance (noise/ activity/ vibration) affecting notified species (e.g. harbour seal) and habitat quality.	Waterborne transport of contaminants/ sediments into estuary; disturbance pathway via visual/ auditory presence and ground-borne vibration transmitted through substrate/ air (no underwater piling proposed).

Marine biodiversity		
Teesmouth NNR (study area intersects; designated for dunes, intertidal salt flats, harbour seals and grey seals, migratory waterbirds)	Water pollution/ sediment runoff (affecting intertidal salt flats), disturbance to seals and birds from construction activity; drilling fluid release (localised).	Waterborne pathway to intertidal areas; disturbance pathway (noise/ activity /lighting /human presence).
Coastal sand dunes (downstream; qualifying features for SSSI/NNR; 455m downstream of Greatham Creek crossing at its closest point)	Indirect effects via water pollution/ sediment mobilisation in the estuary (if severe) could theoretically influence coastal systems.	Would require contaminants/ sediments to enter estuary then be transported and materially affect dune system processes; no mechanism in the defined construction activities that alters coastal geomorphology/ sediment budgets at that scale.
Intertidal mudflats (within River Tees/ Greatham Creek/ Seaton on Tees Channel; intersected by crossings)	Water pollution (tunnel events, dewatering discharge, spills), drilling fluid release (frac-out), sediment runoff, localised bank disturbance increasing suspended solids.	Direct waterborne pathway: runoff/ discharge enters river/ Creek and deposits on mudflats; contaminants can bind to fine sediments.
Saline lagoons (present within/ adjacent to study area near Greatham Creek tributaries)	Water pollution/ drilling fluid release/ sediment runoff could alter lagoon water quality and turbidity.	Hydrological linkage (surface water/ drainage) from works into lagoon waterbodies/ tributaries.
Coastal saltmarsh (present within/ adjacent to study area; linked to mudflats)	Sediment deposition/ runoff, contamination (spills/ dewatering discharge), localised bank disturbance affecting marsh margins.	Waterborne pathway via runoff/ discharge into Creek/ estuary and deposition on marsh surfaces; functional linkage with mudflats.
Coastal and floodplain grazing marsh (adjacent to Greatham Creek; not marine but hydrologically/ functionally connected)	Indirect water quality impacts (e.g. runoff/ pollution) could influence connected ditches/ wet areas.	Indirect hydrological pathway (via Creek/ ditches)
Marine cetaceans (potential presence)	Disturbance from construction noise/ activity and ground-borne vibration; water quality changes from pollution/ runoff.	Pathway (risk) is weak given no significant underwater noise source (no in-water works); any exposure would be limited/ indirect
Seals (harbour and grey) (haul-out at Greatham Creek/ Seal Sands; SSSI feature)	Disturbance from construction noise/ activity, lighting and human presence; indirect effects via water quality changes affecting prey.	Disturbance pathway via visual/ auditory cues and ground-borne vibration; indirect water quality pathway via runoff/ discharge affecting foraging areas.

Marine biodiversity		
Migratory fish (including Atlantic salmon, sea trout, lamprey; River Tees migration corridor; Greatham Creek less likely but included)	Water pollution (tunnel related risk events/ dewatering /spills), drilling fluid release, sediment runoff increasing turbidity.	Waterborne pathway: turbidity/ contaminants transported in river/ estuary; potential behavioural avoidance during migration.
Non-migratory fish (incl. eel; estuarine residents)	Minor water quality/ turbidity changes from runoff/ pollution; limited disturbance.	Waterborne pathway exists, but baseline has high industrial influence and receptor has adapted tolerance.
Intertidal and benthic species/ communities (polychaete worms bivalves, crustaceans etc.)	Sediment deposition/ smothering from runoff and bank disturbance; contamination from spills/ dewatering discharge/ drilling fluids.	Direct exposure pathway: sediments/ contaminants enter estuary and settle on/ interact with benthic substrates and intertidal margins.
Marine INNS (no INNS records identified, but does not exclude presence)	Introduction/ spread via movement of plant/ equipment/ vessels/ materials during construction.	Vector pathway: transfer on machinery/ gear; establishment in suitable habitats.

Operation

During operation, there are not expected to be any credible impact pathways. The pipeline crossing of the River Tees (as outlined in Paragraphs 4.2.9 and 4.2.10) will be undertaken either using a trenchless solution located below the riverbed, or use of existing assets, with no in-water works, infrastructure or operational activities within the marine environment. As such, the operational pipeline will be fully buried and will not interact physically with marine habitats or hydrodynamic processes. Similarly, the pipeline crossing of Greatham Creek/ Seaton on Tees Channel (as outlined in Paragraphs 4.2.11 and 4.2.12) may be undertaken using an existing pipe bridge which does not interact with the marine environment or hydrodynamic processes. In-water works during operation would be limited to scheduled inspections and where required, minor refurbishment using small vessels. Alternatively, a trenchless crossing located below the riverbed would be used, and therefore no infrastructure or operational activities would occur within the marine environment.

Other operational activities are limited to remote monitoring and infrequent maintenance visits to shoreline infrastructure (e.g. tunnel shafts for Tees crossing/ pipe bridge for Greatham Creek/ Seaton on Tees Channel crossing). The crossings will involve no routine discharges, abstractions, or emissions to water. There are no sources of underwater noise or vibration during operation, and the design is subject to regulatory controls and integrity management systems which minimise the likelihood of accidental releases. Consequently, no plausible pathways exist for operational effects on marine receptors.

Marine biodiversity

Decommissioning

During decommissioning there are not expected to be any credible impact pathways. As described in **Section 4.11: Decommissioning**, all above ground sections of pipework will be removed, unless otherwise agreed with landowners. In the case of Greatham Creek crossing (if required), similar to construction, it is currently anticipated this would be deconstructed from the shoreline.

As a result, decommissioning would:

- not involve excavation, dredging, or disturbance of the riverbed, intertidal habitats, or subtidal sediments;
- not generate sediment mobilisation or re-suspension, thereby avoiding any pathway for effects on benthic communities or water quality;
- not require in-channel or in-water works, including drilling or piling, within the marine environment;
- not introduce noise, vibration, or visual disturbance in the marine or intertidal environment; and
- not result in the release of contaminants or materials to the water environment, as the pipeline would be cleaned, isolated, and left in situ in line with good practice.

Above ground infrastructure (e.g. AGIs and BVSs) would be removed at the end of the operational life; however, these are located outside of the marine environment, and their removal would not give rise to marine impact pathways.

Given the absence of physical disturbance, pollutant pathways, or disturbance mechanisms, there is no plausible mechanism by which decommissioning activities could impact marine receptors.

Embedded measures

Embedded mitigation has been incorporated into the design and construction strategy of the Proposed Development to avoid or minimise potential effects on marine biodiversity.

Measures to deliver compliance with industry good practice and environmental protection legislation during construction, operation and decommissioning of the Proposed Development accordance with NPS EN-1 paragraph 4.12. It must be assumed that all measures available to regulators to secure such requirements will be properly applied and enforced by the relevant regulators. Such measures required will be committed and set out in the oCEMP which accompanies the Application.

The River Tees and Greatham Creek crossings will either use existing assets or be undertaken using trenchless techniques at a depth greater than 10m below the riverbed and within suitable strata, with no in-water works (including drilling, dredging or piling) required (as described in Paragraphs 4.2.9 to 4.2.13). This approach avoids direct disturbance to marine and intertidal habitats, eliminates underwater noise generation, and prevents physical interaction with benthic environments.

The route selection process has sought to avoid designated sites and ecologically sensitive habitats where reasonably practicable, supported by the application of trenchless construction techniques at environmentally sensitive crossings.

Marine biodiversity

A minimum 10m stand-off from watercourses will be maintained for construction activities and infrastructure, with additional buffers applied to water bodies and hydrological receptors to minimise the risk of pollution and sediment runoff.

Construction activities will be managed through the implementation of a CEMP and LEMP, which will include measures to protect habitats, control runoff and contamination, minimise disturbance, and ensure reinstatement of temporary habitat loss as soon as practicable. Measures to prevent impacts on marine and benthic receptors will also be implemented during watercourse crossings.

For any in-water working using a vessel for minor refurbishment of the existing pipe bridge, speed restrictions will be implemented in proximity to sensitive marine areas to reduce potential for vessel collision with marine mammals (e.g. seals) and potential damage to intertidal habitats from wave wash.

The timing of works will consider the relevant tidal constraints.

Additional measures including seasonal restrictions to works (including their location) and use of ecological safeguard zones will be considered and agreed with relevant regulators to reflect ecological constraints.

Together, these embedded measures significantly reduce the likelihood and magnitude of potential effects on marine biodiversity and underpin the proportionate scoping approach adopted for this assessment.

Summary of potential likely significant effects and ES scope

Construction (C) Operation and maintenance (O); Decommissioning (D)

Sub topic; Scoped In ✓ Scoped Out X or n/a	Proposed Development component	C	O	D	Rationale
Ramsar (Teessmouth and Cleveland Coast)	Pipeline	✓	X	X	Construction - Works proposed within designation; hydrological connectivity; potential for pollution (runoff, spills, drilling fluids) and sediment mobilisation affecting supporting habitats. No impact pathways present during operation or decommissioning
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.
SPA (Teessmouth and Cleveland Coast)	Pipeline	✓	X	X	Construction - Works proposed within designation; hydrological connectivity; potential for pollution (runoff, spills, drilling

Marine biodiversity					
					fluids) and sediment mobilisation affecting supporting habitats. No impact pathways present during operation or decommissioning.
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.
SSSI (Teesmouth and Cleveland Coast)	Pipeline	✓	X	X	Construction - Works proposed within designation; hydrological connectivity; potential for pollution (runoff, spills, drilling fluids) and sediment mobilisation affecting supporting habitats. Potential for disturbance to qualifying features, including seals. Therefore, is Scoped In. No impact pathways present during operation or decommissioning.
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.
NNR (Teesmouth)	Pipeline	✓	X	X	Adjacent to Greatham Creek crossing and within study area; potential for direct disturbance to species it supports, including seals. Hydrological connectivity; potential for pollution (runoff, spills, drilling fluids) and sediment mobilisation affecting supporting habitats. No impact pathways present during operation or decommissioning.
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.
Irreplaceable habitat – Coastal sand dunes	Pipeline	X	X	X	Located approximately 455m downstream of Greatham Creek Crossing; no credible impact

Marine biodiversity					
					pathway during construction that would result in geomorphological or ecological change. No impact pathways present during operation or decommissioning.
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.
Intertidal mudflats	Pipeline	✓	X	X	Works at River Tees and Greatham Creek crossings directly intersect; sensitive to sediment runoff, drilling fluid release, and pollution incidents. No impact pathways present during operation or decommissioning.
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.
Saline lagoons	Pipeline	✓	X	X	Works at Greatham Creek directly intersect/ adjacent (within terrestrial environment); plausible hydrological pathway for sedimentation, pollution and water quality change. No impact pathways present during operation or decommissioning.
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.
Coastal saltmarsh	Pipeline	✓	X	X	Works at Greatham Creek directly adjacent (marine environment and within terrestrial environment); plausible hydrological pathway for sedimentation, pollution and water quality change.

Marine biodiversity					
					No impact pathways present during operation or decommissioning.
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.
Floodplain grazing marsh (connected)	Pipeline	✓	X	X	Works at Greatham Creek directly adjacent (within terrestrial environment); plausible hydrological pathway for sedimentation, pollution and water quality change. No impact pathways present during operation or decommissioning.
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.
Marine cetaceans	Pipeline	X	X	X	Low likelihood of presence given the industrial environment; no underwater noise or in-water works. No impact pathways present during operation or decommissioning.
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.
Seals	Pipeline	✓	X	X	Known presence (haul-out sites) within the study area, including haul out areas at Seal Sands; sensitive to construction disturbance (noise, activity). No impact pathways present during operation or decommissioning.
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.

Marine biodiversity					
Migratory fish	Pipeline	✓	X	X	River Tees is known migration corridor; species sensitive to turbidity, pollution, and disturbance. No impact pathways present during operation or decommissioning.
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.
Non-migratory fish	Pipeline	X	X	X	Lower sensitivity due to tolerance of existing industrial environment as such magnitude of impact likely to be minor. No impact pathways present during operation or decommissioning.
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.
Intertidal and benthic communities	Pipeline	✓	X	X	Present within the study area and sensitive to sedimentation, pollution and disturbance. No impact pathways present during operation or decommissioning.
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.
Marine INNS	Pipeline	X	X	X	Risk controlled through standard CEMP biosecurity No impact pathways present during operation or decommissioning.
	AGI	X	X	X	Works associated with AGI's would not interfere with the marine environment due to intervening distance.

Marine biodiversity

Proposed assessment methodology

The marine biodiversity assessment will be undertaken in accordance with CIEEM Ecological Impact Assessment (EclA) Guidelines (Ref 8.29), focusing on relevant ecological features that may be affected by the Proposed Development. The assessment will consider any Scoped In statutory designated sites, irreplaceable and priority habitats; and protected or notable species within the study area of the River Tees and Greatham Creek/ Seaton on Tees Channel crossing, including intertidal habitats, fish and marine mammals.

Baseline conditions will be established through a desk-based study, supported by consultation with relevant statutory bodies, including Natural England, Marine Management Organisation (MMO) and the Environment Agency. Data sources will include Local Environmental Records Centres, the NBN Atlas, and Environment Agency datasets (including the Ecology and Fish Data Explorer). Given the absence of in-water works and the use of trenchless crossing techniques, no marine field surveys are proposed at this stage, and a proportionate approach based on existing data is considered appropriate.

A refined ZoI will be defined based on the nature of construction activities and potential pathways of effect, including hydrological connectivity, sediment mobilisation and pollutant transport within the estuarine system, as well as disturbance to mobile species such as fish and seals.

The assessment will focus on ecological features of conservation importance and will characterise impacts in terms of their extent, duration, frequency and reversibility. The significance of effects will be determined using professional judgement, considering the sensitivity of receptors and the magnitude of impact, in line with CIEEM guidance. Effects will be reported at an appropriate geographic scale (international, national or local).

The assessment will take into account embedded mitigation measures within the project design, including the use of trenchless crossing techniques and avoidance of in-water works, prior to identifying any additional mitigation where required. Residual effects will then be evaluated, and cumulative effects considered where relevant.

Habitats Regulations Assessment (HRA) will be undertaken alongside the EIA to assess potential effects on European Sites (including SPA and Ramsar sites), with pathways such as water quality change, sediment dispersion and disturbance considered as part of the Test of Likely Significant Effects.

Consultation

Technical engagement will be undertaken with biodiversity officers from the relevant Local Planning Authorities including Hartlepool Borough Council, MMO, Natural England, Environment Agency and other key stakeholders to discuss and agree the approach to ecological surveys, assessment and mitigation.

Assumptions and limitations

General

Assumptions regarding the potential or likely presence of protected and notable species have been informed by the limited desk study data, habitat suitability, and known patterns of geographical distribution.

Information on statutory and non-statutory conservation sites is considered current at the time of writing.

Marine biodiversity

No ecological baseline surveys have been completed and those surveys undertaken after EIA Scoping may reveal the presence of new significant ecological features that could be affected by the Proposed Development and will be considered within the assessment and reported in the ES.

Construction

Tees Crossing (use of an existing tunnel option/ repurposing of an existing pipeline option)

As described in **Section 4: The Proposed Development**, in the event that an existing tunnel crossing is used:

- Dewatering of the tunnel would be required and access points for the dewatering and proposed pipeline installation would be located above ground a minimum of 30m - 40m from the MHWS.
- Dewatering of any tunnel would be scheduled to occur in phases, wherein sections of tunnel are isolated and emptied progressively. Water would be river water that filled the tunnel naturally following installation of existing pipeline(s), following construction completion and removal of pumps.
- In the event that re-purposing of an existing pipeline is pursued, construction works would be limited to the installation of new piperacks and works compounds onshore.
- No percussive machinery is required to facilitate the Proposed Development within any existing tunnel, if selected.

Tees Crossing / Greatham Creek Crossing (trenchless crossing option)

In the event that a new HDD or MBT is selected as the crossing method:

- Land either side of the crossing will be required for launch and pipeline stringing including relevant construction activities - landing points on either side of the river would be located above MHWS, within the terrestrial environment/ within existing industrial areas.
- No new excavation in the riverbed is required as all drilling would take place within competent strata below the riverbed. A minimum depth of approximately 10m (at the deepest point of crossing) and within suitable strata is envisaged to prevent impacts on river channel integrity.
- Works for the River Tees crossing are expected to be carried over a period of around two years, with no in-water works (including drilling, dredging or piling) required. This eliminates underwater noise generation.
- Construction noise is likely to be generated; however, this is not expected to exceed the current background noise levels.

Greatham Creek Crossing (pipe bridge option)

- Subject to ongoing pipeline constructability assessments, any new pipeline utilising the existing pipe bridge across Greatham Creek would be constructed from the shoreline, as far as reasonably practicable.
- In the event that in-river working is required, the nature of any works required in-river is subject to ongoing design. It is currently anticipated that works would be restricted to minor repair/ refurbishment activities during construction, supported by small specialist workboats, comparable to those activities typically required periodically for maintenance on the existing pipe bridge.

8.11 Material assets and waste

8.11.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

Materials and waste scope and methodology

Legislation, planning policy context and guidance

Relevant legislation, policy and guidance in addition to the key documents listed in **Section 2:**

Legislation and planning policy, that will inform the assessment include:

- Waste Framework Directive (WFD) (2008) (Ref 8.173);
- The European Commission Circular Economy (CE) A new Circular Economy Action Plan for a cleaner and more competitive Europe (2020) (Ref 8.174);
- Environmental Protection Act (1990) (Ref 8.1);
- The Waste (England and Wales) Regulations (as amended) (2011) (Ref 8.175);
- The Waste Electrical and Electronic Equipment (WEEE) Regulations (as amended) (2018) (Ref 8.176);
- National Planning Policy for Waste (2014) (Ref 8.177);
- Our Waste, Our Resource: a strategy for England (2018) (Ref 8.178);
- A Green Future: Our 25 year plan to improve the Environment (2018) (Ref 8.180);
- Outcome Indicator Framework for the 25 Year Environment Plan (Ref 8.181);
- Guide to Materials and Waste in Environmental Impact Assessment, Guidance for a Proportionate Approach (referred to herein as the 'ISEP Guidance') (Ref 8.188);
- Waste and Resources Action Programme (WRAP) Designing Out Waste: A Design Team Guide for Civil Engineering (Ref 8.183); and
- Contaminated Land: Applications in Real Environments (CL:AIRE) Definition of Waste: Development Industry Code of Practice (DoW CoP) (Ref 8.133).

Baseline

Current baseline and study areas

Materials

Materials used during construction will include primary raw materials, such as aggregates and minerals, and manufactured construction products which include recycled and secondary aggregates. The term 'aggregate' is an umbrella descriptor for bulk raw materials used in large development and infrastructure construction schemes.

Metals, aggregate, pavement, concrete and soils required for construction of a typical project will often originate off-site, purchased as construction products, whilst some would arise on-site such as excavated soils.

Baseline information on national and global availability for material resources has been collected for the key raw materials likely to be used in the Proposed Development:

- sand and gravel (UK) 2022 – 53,000,000 (tonnes per annum) (Ref 8.182);
- crushed rock (UK) 2021 – 148,000,000 (tonnes per annum) (Ref 8.183);
- asphalt (UK) 2021 – 28,000,000 (tonnes per annum) (Ref 8.184);
- cement (UK) 2021 – 11,000,000 (tonnes per annum) (Ref 8.184);
- refined copper (global) 2021 – 24,800 (tonnes per annum) (Ref 8.184); and
- crude steel (global) 2021 - 1,915,000,000 (tonnes per annum) (Ref 8.184).

Materials and waste scope and methodology

The study area for the material assets and waste assessment will follow those outlined in the ISEP Guidance on Materials and Waste in EIA. Two study areas are defined.

- a) the Proposed Development study area within which waste associated with the Proposed Development is generated, construction materials are used and safeguarded mineral and waste sites are present – this relates to the Scoping Boundary; and
- b) an expansive study area within which landfills and other waste facilities that manage waste generated by the Proposed Development are likely to be located and constructional materials are available – this consists of the geographical area of Tees Valley.

The expansive study area is expanded to include national materials stocks where relevant. In addition, the expansive study area for hazardous waste landfill capacity is within England. As indicated within the ISEP Guidance, professional judgement is used to provide consideration on a balance of the proximity principle and value for money principle for establishing the expansive study area.

The sensitivity of off-site raw material resources in the expansive study area are considered to be Low, due to the existing trend in available materials.

The Scoping Boundary intercepts with Mineral Safeguard Areas (MSA) for deep and shallow resources. Deep resources that intersect with the Scoping Boundary include potash, salt and gypsum. The Potash MSA covers the easternmost extent of the Scoping Boundary in the vicinity of Brotton. The Salt MSA covers the area east of Billingham and thus includes the entirety of the Scoping Boundary in RCBC and HBC and part of the Scoping Boundary in SBC. The Gypsum MSA covers Scoping Boundary in its entirety, east from the area south of Wynyard. There are also scattered Shallow MSAs for Sand & Gravel (west of Skelton and New Marske, and north and west of Billingham) and Limestone (north of Thorpe Thewles) that intersect with the Scoping Boundary.

The availability of construction materials in the Teesside region is set out in the Tees Valley Joint Local Aggregates Assessment (LAA) (Ref 8.185). Tees Valley currently has no operational sand and gravel extraction sites. This means there is considerable uncertainty about the supply options from Tees Valley for this resource. Tees Valley is therefore dependent on supply from marine dredged sand and gravel and are reliant on supply from adjoining areas such as North Yorkshire and County Durham.

Marine dredged sands and gravels are known to be within two mineral safeguard wharves on the River Tees:

- Tees Dock (Redcar and Cleveland); and
- Billingham Reach Industrial Estate (Stockton-on-Tees).

There is sand and gravel extraction Hart Quarry (Hartlepool) which lies c.8km north of the Scoping Boundary in HBC. No direct impacts on this quarry is anticipated from the Proposed Development although it may be used to provide local material supplies, where relevant. Stockton Quarry (east of Thorpe Thewles) is safeguarded for minerals extraction, however the most recent planning history on the site suggests it is no longer operational and has been restored.

County Durham's availability of construction materials is set out in the County Durham Local Aggregate Assessment (Ref 8.179). County Durham does not have sufficient reserves of sand and

Materials and waste scope and methodology

gravel to meet future need, and DCC has allocated two sites for further sand extraction. The LAA notes that should permissions be granted on these sites, further permissions and allocations would be required to reinforce supply.

There is one brinefield currently active near Seal Sands, Stockton-on-Tees. Two further brinefields in the Seal Sands area have extant planning permissions and two brinefield cavities at Wilton (Redcar and Cleveland) have extant permission for extraction under an 'Instrument of Consent'. However there is no anticipated interaction between brinefield workings and the Proposed Development.

There is only one operational quarry in Tees Valley with permitted reserves of crushed rock for aggregate use. This site has an average output of 75,000 tonnes of magnesian limestone for aggregate uses per annum. There is likely to be a shortfall to meet the needs of the Tees Valley and therefore the area will be a net importer.

Waste

It has been assumed as a reasonable worst-case, that no waste is currently generated within the Scoping Boundary on an ongoing basis.

The latest available information from the Environment Agency (Ref 8.186) has been used to inform the baseline with respect to waste infrastructure capacity in the Teesside region. The Environment Agency provides landfill capacity data in volume (cubic metres), and this has therefore been converted to mass (tonnes) using the following industry recognised conversion factors (Ref 8.187):

- 1.5 tonnes per cubic metre for hazardous waste landfill;
- 0.83 tonnes per cubic metre for non-hazardous waste landfill; and
- 1.5 tonnes per cubic metre for inert waste landfill.

Based on Environment Agency 2024 data (Ref 8.186), the landfill capacity is as follows:

- hazardous waste – England – 15 million tonnes;
- non-hazardous – North East – 5.643 million tonnes; and
- inert waste – North East – 5.289 million tonnes.

Further information on waste volumes in the Teesside and Co. Durham region is provided in **Appendix G: Materials and wastes baseline data and assessment criteria**.

The Scoping Boundary intercepts with three permitted waste sites (further information is provided in **Section 8.7: Ground conditions**) with a further 47 sites licenced to accept wastes (licences issued or active) within the expansive study area.

The Scoping Boundary intersects with the Bran Sands Regional Sludge Treatment Centre (Policy MWC9) and the South Tees Eco-Park (Policies MWP8 and MWP10(b)) to the east of the River Tees. According to development plan documents, the following waste sites are safeguarded:

- Policy MWP4 Graythorp Industrial Estate (Hartlepool);
- Policy MWP5 Haverton Hill, Haverton Road, Stockton-on-Tees;
- Policy MWP6 New Road, Billingham, Stockton-on-Tees;

Materials and waste scope and methodology

- Policy MWP7 Port Clarence Stockton-on-Tees;
- Policy MWP9 Area of Search for Stockton South Household Waste Recycling Centre, Stockton-on-Tees; and
- Policy MWP10 Other potential Construction and Demolition Waste Recycling sites.

The ISEP Guidance (Ref 8.188) (page 14): *“does not consider waste processing and recovery facilities as sensitive receptors, rather: they are part of a system that has the potential to reduce the magnitude of adverse impacts associated with waste generation and disposal. Waste processing and recovery facilities are, hence, different to landfills, in that the latter are finite resources.”* Therefore, a full list of waste management infrastructure is not included in the baseline.

Future baseline

There is no publicly available information on any potential long term changes to the national and regional demand by the time of construction of the Proposed Development. Construction material demand is closely aligned to both the quantity of construction taking place and the general economy; therefore, it is deemed inappropriate to forecast future demand as the demand is unlikely to be linear. It is therefore not possible to set a future baseline for materials. Therefore, future consumption is assumed to be the same as the current baseline.

There is no publicly available information regarding any potential changes to landfill capacity by the time of the Proposed Development’s construction. It is anticipated that different types of waste infrastructure capacity will continue to be available during the construction, operation and decommissioning of the Proposed Development. Landfill will experience some use of available capacity as void space is taken. Government policy measures are also likely to continue to divert waste from landfill. However, due to the cyclic nature of inert and hazardous landfill capacity (e.g. landfill capacity decreasing, and then new sites or landfill cells being opened with landfill capacity increasing), it is not realistic to forecast future landfill capacity. Therefore, inert and hazardous landfill capacity is assumed to remain the same as the current baseline.

Sensitive receptors

Material receptors

- Primary raw material resources and non-renewable materials (e.g. steel, aggregates, concrete).

As outlined in the ISEP Guidance: *“Materials are, in their own right, sensitive receptors. Consuming materials impacts upon their immediate and (in the case of primary material) long term availability; this results in the depletion of natural resources and adversely impacts the environment.”*

Waste receptors

- Regional inert landfill void capacity and regional non-hazardous landfill void capacity.

As outlined in the ISEP Guidance: *“Landfill is a finite resource, and hence – through the ongoing disposal of waste – there is a continued need to expand existing and develop new facilities. This requires the depletion of natural and other resources which, in turn, adversely impacts the environment.”*

Materials and waste scope and methodology

National hazardous landfill void capacity is **Scoped Out** as it is not anticipated that the Proposed Development during construction would generate significant volumes of hazardous waste.

Safeguarded Minerals and Waste Sites will also be considered as receptors.

Potential impacts

Construction

With respect to materials, impacts relate to the extraction of primary raw materials and the production of construction materials. In addition, the Proposed Development has the potential to constrain existing or future use and extraction of materials. According to ISEP Guidance (Ref 8.188), by consuming materials, developments potentially impact upon their immediate, and for primary materials, their long term availability resulting in the depletion of natural resources with consequential adverse impacts for the environment.

In terms of waste, the potential environmental impacts are primarily related to the production, movement, transport, processing, use and disposal of waste from the Proposed Development.

Potential impacts include temporary use of waste management facilities' capacity (during treatment) and a permanent decrease in landfill capacity (disposal). As landfill is a finite resource, disposal of waste by landfill creates pressure on existing facilities or requires new sites to be developed. Similarly, waste management and treatment facilities have limits on processing capacity which can be affected if used by the Proposed Development.

Operation

There is expected to be minimal material requirement or waste generation during the operation of the Proposed Development. Waste and materials during operation are therefore proposed to be **Scoped Out**.

Decommissioning

Waste arisings will occur during the decommissioning of above ground infrastructure, but are expected to be limited, with opportunities to minimise waste during the decommissioning stage by applying the waste hierarchy (re-use and recycling) sought and controlled via the DEMP. Therefore, it is proposed that waste and materials are **Scoped Out** of the decommissioning stage assessment.

Embedded measures

Considering materials at the earliest opportunity in the design process is likely to provide the greatest opportunities for resource efficiency. Similarly, contractors will be encouraged to consider the sustainability of construction materials (e.g. materials with a high recycled content) which help to support the principles of a Circular Economy.

The Proposed Development will follow the principles of the waste hierarchy (Plate 8-1) and so will prioritise prevention through early consideration in the design to provide early opportunities for resource efficiency.



PLATE 8-1: THE WASTE HIERARCHY

Site levels and grading of the Proposed Development will be designed to achieve a cut and fill balance as far as reasonably practicable to minimise excavation quantities and thereby the requirement for bulk material import.

A Site Waste Management Plan (SWMP) within the final CEMP will set out the requirement for the completion of a construction stage SWMP and present the approach that would be adopted during the construction phase to manage wastes in accordance with the waste hierarchy. An outline SWMP (oSWMP) will form part of the oCEMP that accompanies the Application.

In practice, it is expected that the majority of construction and demolition wastes from the Proposed Development would be recycled or otherwise recovered. Government statistics (Ref 8.189) report that the recovery rate for construction and demolition waste in England was 93.3% in 2020 (the most recent year for which there is published data).

The SWMP will specify waste streams to be monitored and set goals with respect to waste produced and recycled. The Applicant will require that the contractor segregates waste streams prior to them being taken for recycling or disposal and wastes will be removed from the Proposed Development Site by fully licenced waste carriers and taken to permitted waste sites.

The SWMP, secured via the final CEMP, will also incorporate measures that include specifying that contractors:

- consider procuring materials with recycled content, as far as reasonably practicable; and
- consider local sources for aggregate supplies preferentially, whenever possible.

A DEMP will be produced prior to decommissioning and will likely include similar measures as included within the CEMP. The final DEMP would be secured via requirement of the draft DCO. The DEMP will contain guidance on how risks can be removed or mitigated to avoid potential adverse impacts in accordance with the waste hierarchy and environmental legislation prevalent at that time. On this basis, no residual significant effects in relation to material assets and waste would be anticipated during decommissioning with the implementation of the DEMP (secured by requirement of the draft DCO).

Materials and waste scope and methodology					
Scope – Construction (C) Operation and maintenance (O); Decommissioning (D)					
Sub topic; Scoped In ✓ Scoped Out X or n/a	Proposed Development component	C	O	D	Rationale
Changes in demand for materials	Pipeline	✓	X	X	Construction: At the current stage of design, detailed information on the type and quantity of construction materials has not yet been confirmed. Accordingly, and applying a precautionary approach, the potential implications of material requirements have been included within the scope of the assessment. Operation: Drawing on professional judgement regarding the anticipated nature and scale of materials required during operation, any associated effects are expected to be negligible and therefore effects during operation are Scoped Out. Decommissioning: As the majority of the pipeline will be left in situ, and only AGI will be decommissioned/ removed, material use during decommissioning via importation of minor volumes of clean fill to the AGI compounds described in Section 4.11: Decommissioning is anticipated to result in negligible impacts, with no likely significant effects and therefore decommissioning is Scoped Out.
	AGI	✓	X	X	
Changes in available landfill capacity	Pipeline	✓	X	X	Construction: The nature and volumes of waste that may arise during construction have not yet been confirmed. On a precautionary basis, the assessment of the potential implications for waste management and landfill capacity have therefore been Scoped In. Operation: The pipeline and AGI are expected to require only limited routine maintenance during operation. As a result, waste generation is anticipated to be minimal and can be Scoped Out as this will not give rise to likely significant effects. Decommissioning: As the majority of the pipeline will be left in situ and only wastes from AGI or above ground pipeline that cannot otherwise be reused/ recycled will need to use landfill capacity, no likely significant effects for the expansive study area are predicted. Accordingly, effects
	AGI	✓	X	X	

Materials and waste scope and methodology					
					associated with decommissioning are Scoped Out .
Changes to safeguarded mineral sites.	Pipeline	✓	✗	✗	Construction: The presence and location of safeguarded waste/ mineral resources within/ adjacent to the draft Order Limits will be identified within the assessment. Impacts on and interactions with safeguarded allocated waste and mineral sites during construction will be included within the assessment where relevant and appropriate. It is not anticipated that the Proposed Development will interact with safeguarded allocated minerals or waste sites during operation, or during decommissioning and therefore these are Scoped Out .
	AGI	✓	✗	✗	
Waste generated through the extraction, processing and manufacture of construction materials and components.	Pipeline	✗	✗	✗	Construction, Operation and Decommissioning: It is assumed that materials and components would be produced within established manufacturing facilities that operate their own waste management arrangements and are supported by existing supply chains. These processes are likely to be located outside the geographic extent of the expansive study area, potentially in different parts of the UK or internationally, and therefore fall beyond the scope of the assessment. As these matters depend on future procurement decisions that cannot be confirmed within the timeframe of the Application, they cannot be reliably defined or assessed within the ES and are therefore Scoped Out .
	AGI	✗	✗	✗	
	AGI	✗	✗	✗	
Environmental effects arising at off-site waste management facilities.	Pipeline	✗	✗	✗	Construction, Operation and Decommissioning: In establishing the assessment scope, regard has been had to the principles set out in ISEP Guidance, which recognises that indirect effects associated with off-site material production and waste management facilities are normally addressed through the separate planning and permitting frameworks governing those facilities. On this basis, such effects would not typically require separate assessment for a development that makes use of external supply chains or waste management infrastructure and assessment is therefore Scoped Out .
	AGI	✗	✗	✗	

Materials and waste scope and methodology

Assessment methodology

The ISEP guidance (Ref 8.188) will be followed for the materials and wastes assessment. A reasonable worst-case scenario will be assessed.

Materials

The materials assessment will include:

- establishing the baseline for national and regional availability (inferred from consumption, sales and requirement) of key construction materials by weight;
- establishing the quantities of key construction materials required for the construction of the Proposed Development;
- assessing the sensitivity of materials including the availability and types of materials to be used by the Proposed Development during construction; and
- comparing the total quantities of key construction materials with the availability using recent/ available data (utilising a percentage approach).

Waste

The waste assessment will include:

- establishing the baseline landfill void capacity in the expansive study area;
- assessing the sensitivity of landfill void capacity;
- establishing the quantities of construction waste to be generated by the Proposed Development (assuming that operation and decommissioning are agreed to be **Scoped Out**); and
- comparing the total waste arisings during construction against the landfill void capacity (using a percentage approach) assuming a worst-case that waste goes to landfill.

The criteria for identifying receptor sensitivity, impact magnitude and significance of effects are set out in **Appendix G: Materials and wastes baseline data and assessment criteria**, adapted from ISEP Guidance.

Consultation

As part of the EIA process, consultation will be undertaken with the relevant statutory bodies, if required, to inform the assessment and mitigation for the Proposed Development.

Assumptions and limitations

The material assets and waste assessment will be based on the information available at the time of writing the ES.

The assessment within the ES will be in-line with the available design information at the time of submission of the Application. Where design information is unknown or unavailable, worst-case assumptions will be made in accordance with Rochdale Envelope principles. It is anticipated that material assets and waste types and quantities will remain indicative and subject to change as the design develops.

8.12 Noise and vibration

8.12.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

Noise and vibration scope and methodology

Legislation, planning policy context and guidance

In addition to the documents identified in **Section 2: Legislation and planning policy**, the noise and vibration assessment will have regard to the following legislation, policy and guidance:

- Control of Pollution Act (COPA) (1974) (Ref 8.190);
- Environmental Protection Act 1990 (Ref 8.1);
- Noise Policy Statement for England (NPSE) (2010) (Ref 8.191);
- National Planning Policy Framework (NPPF);
- Planning Practice Guidance (PPG) – Noise (2019) (Ref 8.192);
- BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (2019) (Ref 8.193);
- Method of implementation document for BS4142 (2023) (Ref 8.194);
- BS 5228:2009+A1:2014 Part 1 (Noise) and Part 2 (Vibration): Code of practice for noise and vibration control on construction and open sites (2014) (Ref 8.195);
- BS 7445-1:2003 Description and measurement of environmental noise – Part 1;
- Guide to quantities and procedures (2003) (Ref 8.196);
- BS 6472-1:2008 Guide to evaluation of human exposure to vibration in buildings – vibration sources other than blasting (2008) (Ref 8.197);
- BS 7385-2:1993 Evaluation and measurement for vibration in buildings - Guide to damage levels from groundborne vibration (1993) (Ref 8.198);
- NANR45 Proposed criteria for the assessment of low frequency noise disturbance (2005) (Ref 8.199);
- ISO 9613-1:1993 Acoustics – Attenuation of sound during propagation outdoors – Part 1: Calculation of the absorption of sound by the atmosphere (1993) (Ref 8.200);
- ISO 9613-2 Acoustics — Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure levels outdoors (2024) (Ref 8.201);
- Design Manual for Road and Bridges (DMRB) LA 111 Noise and Vibration (2020) (Ref 8.202);
- Calculation of Road Traffic Noise (CRTN) (1988) (Ref 8.203);
- World Health Organization (WHO) Environmental Noise Guidelines for the European Region (2018) (Ref 8.204);
- WHO Guidelines for Community Noise (1999) (Ref 8.205);
- Night Noise Guidelines for Europe (NNG) (2009) (Ref 8.206);
- ISEP Guidelines for Environmental Noise Impact Assessment (2014) (Ref 8.207); and
- Association of Noise Consultants (ANC) Green Book: Environmental sound measurement guide (Ref 8.208).

Baseline conditions

The land use within the Scoping Boundary is primarily agricultural with approximately 42% of the land in urban/ non-agricultural use. The surrounding land use is predominantly arable, with other farming, woodland and residential/ commercial areas included in isolated pockets of the Scoping Boundary. NSR include residential properties, sensitive commercial and community uses (such as

Noise and vibration scope and methodology

educational premises, medical facilities, places of worship), and public open spaces/ recreation facilities, including ProW.

The existing sources of noise in the study area consist of parts of the SRN including the A1(M), A19 and A174, local roads, rail lines which cross the study area, and local industrial users and agricultural noise sources. In isolated areas, noise from other uses such as airfields is also likely to prevail intermittently.

Noise Important Areas (NIA) are locations in England where Defra strategic noise mapping has identified that the population is exposed to high levels of transportation noise and are therefore more sensitive to any increase in noise. The following road traffic NIA, based on Noise Action Planning Important Areas Round 4 England, are located within the Scoping Boundary:

- NIA 10081, located along the extent of Stockton Road that passes through the Newton Bewley village, partially within the Scoping Boundary.

Other road traffic NIA, located within 1km of the Scoping Boundary include:

- NIA 10083, along the A19, approximately 70m east;
- NIA 2289, along the A1185, approximately 100m south;
- NIA 1097, along Broadway, approximately 195m south-west;
- NIA 2314, along the A66, approximately 690m south-west;
- NIA 2315, along the A66, approximately 230m west;
- NIA 2316, along the A1085, approximately 195m west;
- NIA 6708, along the A1(M), approximately 510m south;
- NIA 2314, along the A66, approximately 725m south-west;
- NIA 10094, along the A174, approximately 750m south-east;
- NIA 13940, along Haverton Hill Road, approximately 765m south;
- NIA 10102, along Kirkleatham Lane, approximately 820m east;
- NIA 6726, along the A174, approximately 900m south;
- NIA 6727, along the A174, approximately 965m south; and
- NIA 2343, along Port Clarence Road, approximately 1km south of the Scoping Boundary.

Further consideration will be given to whether the road traffic NIA will be potentially affected by increases in traffic noise on the wider road network in the ES.

No railway NIA were identified, and the Proposed Development does not propose to transport materials via the rail network.

The sound environment across the Scoping Boundary, which is characterised by extensive industrial land uses interspersed with areas of open land and estuarine corridors, is influenced by a combination of existing industrial operations and transport infrastructure. While baseline noise levels are typically elevated across much of these urban/ industrial areas, areas set back from the SRN and principal industrial hubs are comparatively less affected by noise sources. In such locations, strategic noise mapping (Defra Round 4) indicates that noise levels may fall within the range of approximately 45 to 55 dB Lden, although higher levels are expected closer to dominant sources.

Noise and vibration scope and methodology

In contrast, receptors located adjacent to the SRN, including the A1(M), A19 and A174, are shown to experience road traffic noise levels in the range of approximately 55 to 70 dB Lden according to the Defra Round 4 strategic noise maps. Other local roads and rail lines within the Scoping Boundary generally give rise to lower noise levels, with receptors in close proximity typically experiencing levels of around 50 to 65 dB Lden, with the upper end of this range associated with busier routes and more heavily trafficked rail corridors such as the East Coast Main Line.

Established industrial areas and port-related activities associated with the Tees Estuary give rise to a relatively elevated and characteristically industrial sound environment, with a combination of continuous and intermittently varying sources forming a key component of the prevailing baseline across much of the study area.

Future baseline

The future baseline for noise and vibration in some parts of the study area is expected to remain as the current existing baseline in the absence of the Proposed Development proceeding due to its largely rural and agricultural nature.

However, the future baseline sound environment is expected to change in the absence of the Proposed Development due to the construction and operation of nearby local developments that include significant noise sources and/or introduce future receptors. Additionally, changes in road and railway traffic resulting from these local committed developments including any new noise sensitive receptors (NSR) where these are allocated within relevant development plan documents (DPD) e.g. for new residential development. The long list of potentially relevant developments which will be considered as part of the EIA, along with the proposed assessment methodology, is set out in **Appendix A: Cumulative effects assessment** and includes a number of housing allocations across the RCBC and DCC administrative areas in proximity to the Scoping Boundary. These and other potentially relevant developments will be evaluated to determine whether they can be considered in the future baseline as new potential sources of noise or new NSR, depending on whether these are already consented or may be consented and developed in the future (although this is difficult to forecast). **Appendix A: Cumulative effects assessment** will be reviewed and updated as the ES progresses.

There are no climate change variables that will materially affect the outcome of the noise impact assessments. As set out in **Section 8.4: Climate change and resilience**, climate variables that have may have relevance to the noise and vibration assessment include changes to temperature, mean daily maximum temperature, and mean daily minimum temperature. These variables do not directly affect the levels of predicted noise but may have an indirect effect on the average internal noise level if windows are open more frequently (as a result of mean changes in temperature due to climate change). Changes to temperature or other meteorological conditions may slightly influence the baseline noise and vibration climate over a long period of time, though not within any ranges that could be quantified within the framework of this assessment.

Sensitive receptors and study area

Noise and vibration sensitive receptors include residential properties, sensitive commercial and community uses (such as educational premises, medical facilities, places of worship), and public open spaces. There are also sensitive terrestrial and marine ecological receptors as outlined in **Section 8.3: Biodiversity and ecology** and **Section 8.10: Marine biodiversity**.

Noise and vibration scope and methodology

A desktop study will be undertaken in order to identify representative NSR across the Scoping Boundary, including those receptors closest to the location of construction activity; for human beings, this will include both individual properties, and representative NSR for properties in the settlements of:

- Carlin How;
- Brotton;
- Lingdale;
- Skelton;
- New Marske;
- Brotton;
- Redcar;
- Middlesbrough;
- Stockton-on-Tees;
- Cowpen Bewley;
- Eston;
- Wolviston;
- Thorpe Thewles;
- Stillington; and
- Newton Aycliffe.

Key NSR within/ immediately adjacent to the Scoping Boundary as set out in **Section 3.3: Environmental context** have been identified for consideration including:

- Whitecliffe Primary School;
- Cowpen Bewley Woodland Park;
- users of Billingham Cemetery;
- King Charles III England Coast Path;
- Cleveland Way National Trail; and
- National Cycle Network (NCN) Routes 1, 14 and 168.

In conjunction with the ecological project team, the desktop study will also identify the locations where targeted ecological NSR may be appropriate. This may include locations in particular to inform the HRA Screening and where necessary, Appropriate Assessment that will accompany the Application related to construction impacts and any likely significant effects on qualifying features/ species of Habitats Sites (SPA, Ramsar, SAC) such as the Teesmouth and Cleveland SPA and Ramsar or other ecologically sensitive locations close to where construction works may take place, including in the marine environment. All reporting in relation to ecological receptors will be in the terrestrial ecology and marine ecology chapters of the ES (refer to **Section 8.3: Biodiversity and ecology** and **Section 8.10: Marine biodiversity**).

For construction noise, a study area of 300m around the Scoping Boundary is considered appropriate to assess impacts to both human and ecological receptors where relevant, based on precedent from other projects and the limitations of prediction methods beyond this distance, as noted in British Standard (BS) 5228-1. Local extensions to 300m study area will be made for ecological NSR where construction activity is likely to occur beyond this distance.

Noise and vibration scope and methodology

For construction vibration, a study area of 100m is considered to be appropriate to assess potential construction vibration effects on people, buildings and ecology receptors, since it is unlikely that significant effects from vibration would occur at distances greater than 100m from construction activity.

For any construction activities that may be undertaken during extended working hours when ambient sound levels are quieter, there is the potential for impacts to occur at a greater distance. To provide a worst-case assessment for any activities likely to take place outside of core working hours, the study area would be extended to the area within which sound levels from the Proposed Development are forecast to give rise to potential impacts, if this is greater than 300m. For construction vibration, it is unlikely that significant effects from vibration would occur at greater distances, although the study area would be extended, if activities are forecast to give rise to potential impacts at greater distances outside of core working hours.

For construction traffic noise a study area of 50m from the carriageway edge of public roads with the potential for an increase in basic noise level (BNL) of 1 dB(A) or more will be used. The procedure for calculating a BNL is set out by the CRTN document (Ref 8.203) and relates to a noise level at a reference location 10m from the carriageway edge.

During operation, the study area is restricted to locations around the modified AGI, as these are the key components of the Proposed Development with the potential to emit operational noise. Sound cannot propagate from buried pipework or valves and, consequently, the below ground pipeline would operate without generating noise. Noise emissions would be limited to above-ground elements only, where present, such as exposed pipework or valve bodies at AGI, including block valves and/or industrial connections/regulators and intermittent use of any stacks (where required) for infrequent flaring and/or venting (as described in Paragraph 4.2.23). A study area of 1km will be used to assess impacts from modified AGI, BVS and metering facilities.

The operation of the Proposed Development is not anticipated to give rise to significant vibration effects. No rotating or reciprocating equipment is proposed that would generate vibration, and vibration transmitted through pipework is unlikely to be perceptible.

Effects during decommissioning of AGIs are assumed to be similar to those during construction and so the assessment of construction effects is considered representative of decommissioning effects as a worst-case.

Potential impacts

Construction

Whilst information about the construction methodology and phases of construction work are not fully developed, it is likely that the construction works may give rise to the following temporary adverse impacts:

- temporary noise effects due to construction equipment and activities, in particular potentially noisy activities e.g. directional drilling for watercourse, rail or road crossings, which need to take place close to sensitive receptors and/or during the night-time;
- temporary vibration effects due to construction equipment and activities with the potential to generate substantial levels of vibration such as excavation or compaction; and

Noise and vibration scope and methodology

- temporary noise effects from additional vehicle movements such as heavy goods vehicles (HGV), mobile machinery, construction related vehicles accessing construction compounds from the surrounding road network and vehicles on haul roads within the construction site may occur.

As noted in **Section 4.5: Construction activities**, construction activities will typically be undertaken during the daytime, although it is anticipated that some activities may require to be undertaken in the evening/ night-time with impacts during these periods therefore requiring consideration.

Operation

Paragraph 4.2.23 describes the consideration of venting/ flaring that may be required, subject to ongoing technical studies. Impacts during operation related to the presence/ function of any stacks/ venting at receptors within the study area would be assessed in the ES that accompanies the Application. In addition, there may be noise emissions associated with the operation of mechanical and electrical plant at the AGI which will be assessed within the ES.

The pipeline is installed predominantly below ground and in the small sections above ground, would not emit any noise that would give rise to effects perceptible at NSR. No operational vibration effects are anticipated.

As noted in **Section 4: The Proposed Development**, the Proposed Development is unlikely to result in a significant increase in traffic flows during operation, with trips largely for maintenance and not involving HGVs.

Decommissioning

The impacts and effects of decommissioning the Proposed Development infrastructure are anticipated to be similar to those associated with construction. The ES will provide a general description of the activities and works (including the anticipated duration) which are likely to be required during decommissioning. Where any likely significant effects have been identified for construction stage activities, the chapter will consider whether similar likely significant effects could occur during decommissioning.

Changes to baseline information that could happen in the intervening period would be addressed via the production of a DEMP, which will be developed and agreed with the Environment Agency at the appropriate time.

Embedded measures

Noise and vibration considerations will continue to inform the design, layout and routeing of the various elements throughout the design process.

The Proposed Development will be designed to embed, where possible, the environmental design principles described in **Section 4.3: Design principles** which will include:

- an appropriate buffer will be maintained between residential properties and construction areas as far as reasonably practicable to mitigate localised disturbance effects (e.g. noise etc.);

Noise and vibration scope and methodology

- access locations and access routes from the SRN will be planned to avoid major settlements and villages as far as reasonably practicable;
- where open-cut trench techniques are used in proximity to ecological features of importance, avoidance of physical disturbance through design and relevant avoidance measures in construction method statements will be implemented, including appropriate stand offs between assets and areas of construction activity;
- avoidance of physical disturbance through design, including appropriate stand offs between designated heritage assets and areas of construction activity will be maintained;
- appropriate offsets from PRoW will be considered; and
- measures to ensure legislative compliance will be undertaken where crossings of watercourses are proposed to prevent entrapment of fish and other potential adverse impacts on aquatic/freshwater features.

A suite of environmental management plans (oCEMP, oCTMP, oOEMP and oDEMP) described in **Section 4: The Proposed Development**, to be implemented where practicable for each phase of the Proposed Development, will be submitted with the Application. The management plans will assume the application of Best Practicable Means (BPM), as defined in Section 72 of Control of Pollution Act 1974 (Ref 8.209) and Section 79 of the Environment Protect Act 1990 (Ref 8.1). This may include, but is not limited to the following measures:

- where practicable, all construction activities to be undertaken during core/ daytime working hours;
- careful selection of plant and construction methods;
- design and use of enclosures, housing and temporary stockpiles to provide screening at the earliest opportunity;
- careful programming so that activities which may generate significant noise are planned with regard to nearby sensitive receptors;
- all vehicles and mechanical plant to be fitted with effective exhaust silencers and maintained in good and efficient working order and operated to minimise noise emissions;
- all machines in intermittent use to be shut down in the intervening periods between works or throttled down to a minimum and lorry engines switched off, as soon as practicable, when vehicles are stationary;
- use of temporary noise barriers to reduce noise levels where appropriate and practicable, such measures can be particularly appropriate for stationary or near-stationary plant;
- location of plant and equipment liable to create noise and/or vibration whilst in operation, as far as reasonably practicable, away from sensitive receptors and away from walls reflecting towards sensitive receptors;
- where reasonably practicable, fixed items of construction plant to be electrically powered in preference to combustion engine driven;
- implementation of a communication strategy for prior warning of activities with potential to cause disturbance, including process to address noise complaints or queries;
- use of alternative methods to achieve compaction that do not require a vibratory system, to minimise potential vibration impacts; and

Noise and vibration scope and methodology

- consideration of potential noise and vibration effects during development of the oCTMP.

Appropriate best practice mitigation measures will be applied during any decommissioning works and documented in a DEMP to control noise effects.

Detailed management plans will be prepared substantially in accordance with the outline management plans and agreed prior to commencement of works within the relevant phase as a requirement of the Order.

Scope – Construction (C) Operation and maintenance (O); Decommissioning (D)

Sub topic; Scoped In ✓ Scoped Out ✗ or n/a	Proposed Development Component	C	O	D	Rationale
Noise	Pipeline	✓	✗	✗ (all pipeline elements) ✓ (Greatham Creek Crossing only)	Noise from construction of the pipeline has the potential to result in temporary significant effects at sensitive receptors during construction and is Scoped In. An assessment of operational noise emissions from pipelines has been Scoped Out as the Proposed Development is predominantly installed below ground, and where minor sections are above ground, would not produce any noise emissions. Decommissioning effects are Scoped Out as the pipeline will remain in situ after operation ceases. In the event that above ground sections of pipeline/ assets need to be deconstructed (e.g. Greatham Creek/ Seaton on Tees Crossing), impacts will be similar to construction and therefore assessed/ reported in the ES.
	AGI	✓	✓	✓	Noise from construction, operation and decommissioning of the modified AGIs has the potential to result in significant effects at sensitive receptors. Operational noise from the Block Valve Stations has been Scoped Out as no noise generating plant will be installed above ground at each installation. In the event that emergency venting and/ or flaring is required, such emissions would be infrequent, controlled and short term. These would not be

Noise and vibration scope and methodology					
					expected to result in likely significant effects and will be described qualitatively in the ES that accompanies the Application.
Vibration	Pipeline	✓	X	X	Vibration from construction of the pipeline has the potential to result in significant effects at sensitive receptors and therefore construction stage effects are Scoped In. Operational vibration has been Scoped Out as the pipeline would be designed to not emit vibration in order to maintain pipeline integrity and condition. Decommissioning effects are Scoped Out as the pipeline will remain in situ after operation ceases.
	AGI	✓	X	✓	Vibration from construction and decommissioning of the AGIs has the potential to result in significant effects at sensitive receptors. The AGI will not cause significant vibration levels during operation and effects are therefore Scoped Out .
Noise from road traffic	Pipeline	✓	X	X	Noise from construction traffic operating on the public road network has the potential to result in temporary significant effects at the sensitive receptors. Road traffic movements during operation are expected to be negligible/ infrequent related to routine maintenance and would not be sufficient to result in any likely significant effects. These are proposed to be Scoped Out , and the ES would specify the number and type of anticipated vehicle movements, including anticipated frequency of planned maintenance trips to support scoping this matter out. Decommissioning effects are Scoped Out as the pipeline will remain in situ after operation ceases.
	AGI	✓	X	✓	Noise from construction traffic operating on the public road network has the potential to result in temporary significant effects at NSR. Road traffic movements associated with the

Noise and vibration scope and methodology					
					operation of the AGI are expected to be negligible and not likely to result in significant effects and therefore operational effects are Scoped Out . The ES would specify the number and type of anticipated vehicle movements during each phase which will support scoping this matter out during operation.
Proposed assessment methodology					
Baseline data collection including surveys Environmental sound level surveying will be undertaken to establish baseline at locations representative of existing sensitive receptors as part of the ES assessment. Consultation will be undertaken with the relevant authorities prior to undertaking the surveys to confirm the assessment approaches, NSR measurement locations and methodology. Surveys will be undertaken in accordance with BS7445-1:2003 (Ref 8.210) and follow the guidance presented in the ANC Environmental Sound Measurement Guide (Ref 8.208). Meteorological measurements will be taken in parallel with sound level measurements, to verify that appropriate conditions prevail during the surveys. Assessment Methodology Construction noise - Construction noise assessment undertaken in line with the methodologies presented in BS5228-1 (Ref 8.212), for construction works that may cause the greatest impact within each phase of works at the closest sensitive receptors. - Noise predictions to be based on information available at the time of writing, including the sound power level of construction plant items, percentage of on-time operation, number of items and any partial screening that could be implemented. In the absence of detailed information, assumptions will be made based on benchmarking and experience from other similar projects. - Annex E of BS5228-1 (Ref 8.212) describes the 'ABC' method of assessment, which is proposed to establish the threshold of potential significant effects. These thresholds are based on baseline environmental sound measurements and predicted construction noise levels at locations representative of sensitive receptors. - Having established whether there is a potential significant effect using the 'ABC' method, the final assessment of significance is made by considering factors such as the exceedance over the established thresholds of potential significant effect, levels of noise exposure and character of existing sound environment, sensitivity of receptors, duration of the construction impact and professional judgement. Construction vibration - Vibration generated by construction activities will be assessed according to BS5228-2 (Ref 8.213), which presents guidance on the assessment of vibration impacts upon human receptors and risk of building damage. Once the levels of vibration due to the					

Noise and vibration scope and methodology

proposed construction works have been established, an assessment of impacts will be made according to Annex B of BS5228-2 (Ref 8.213).

- Significance will be based on factors such as likelihood of exceedance over the established thresholds, sensitivity of receptors, the duration of the construction vibration impact and professional judgement.

Construction traffic noise

- Construction traffic noise predictions will be undertaken in accordance with the methodology defined in CRTN (Ref 8.203) and in DMRB LA 111 (Ref 8.202). The results of the predictions will be used as a screening exercise to determine whether changes in traffic flow and composition during construction works are likely to give rise to a noise level change of more than 1dB(A).
- The identification of likely significant effects will be made by considering factors such as change in traffic noise levels, levels of noise exposure and character of existing sound environment, sensitivity of receptors, duration of the construction traffic impact and professional judgement.

Operational noise

- Noise emissions from operational sources will be assessed in accordance with the methodology presented in BS4142 (Ref 8.194). To estimate the rating level of new sources, a three-dimensional noise model will be developed in proprietary noise modelling software and noise emissions predicted in line with BS ISO 9613-2.
- Consultation with relevant stakeholders will be undertaken to agree on the noise limits for operational noise sources. Where appropriate, consideration will be given to guidance in NANR45 for risks of low frequency noise disturbance. The identification of likely significant effects will be made by considering factors such as likelihood and magnitude of exceedance over the established thresholds of significant effect, level and character of the existing sound environment, the sensitivity of receptors and professional judgement.
- Where appropriate, consideration will be given to the absolute noise levels of noise as noted in BS4142 (Ref 8.194), especially if measured background sound levels are relatively low.
- Reference will therefore be given to the WHO Guidelines for Community Noise (Ref 8.205), Environmental Noise Guidelines for the European Region (Ref 8.204) and Night Noise Guidelines for Europe (Ref 8.206) guidelines.

Operational noise from maintenance

- The assessment of operational noise arising from the maintenance activities Scoped In will be undertaken using the same methodologies as those applied for the construction noise assessment, as set out in BS5228 (Ref 8.212). This approach is considered appropriate due to the temporary nature of maintenance activities.

Noise and vibration scope and methodology

Decommissioning noise and vibration

- The works which take place during the decommissioning phase of the Proposed Development are expected to be similar in magnitude (or less intensive) than those required during the construction phase at AGI. Therefore, the assessment presented for construction noise and vibration will be representative of the decommissioning phase.

Consultation

Consultation will be undertaken with the Environmental Health officers and RCBC, SBC, HBC, DCC and DBC, as relevant to agree the NSR locations for the baseline noise survey and to verify periods/ methods of data collection.

Assumptions and limitations

Any uncertainties associated with the assessment will be reported in the ES.

8.13 Socio-economics

- 8.13.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

Socio-economics scope and methodology

Legislation, planning policy context and guidance

There is no legislation specific to the assessment of socio-economic effects arising as part of the Proposed Development. Where relevant, legislation specific to elements of the assessment, such as the Countryside and Rights of Way Act (Ref 8.22) will be referenced. Other standards and guidance, in addition to the key documents listed in **Section 2: Legislation and planning policy**, that will inform the assessment include:

- Homes and Communities Agency (HCA) 2014 Additionality Guide (Ref 8.214);
- Social Impact Assessment in Environmental Impact Assessment in the UK and Ireland, 2025 (Ref 8.215); and
- Green Book: UK Government Guidance on Appraisal, HM Treasury, 2026 (Ref 8.216).

Baseline

This section should be read in conjunction with **Figure 8.7: Socio-economics** (Volume II) and **Figure 8.4: Landscape Designations** (Volume II) which shows the network of Public Rights of Way (PRoW) intersected by the Proposed Development.

Desktop sources:

- review of aerial imagery and mapping of the Scoping Boundary and surrounding areas;
- RCBC Local Plan documents including Policies Map (Ref 8.220);
- SBC Local Plan documents including Policies Map (Ref 8.221);
- DCC Local Plan documents including Policies Map (inclusive of Mineral Safeguarding Areas)(Ref 8.222);
- DBC Local Plan documents including Policies Map (Ref 8.223);
- HBC Local Plan documents including Policies Map (Ref 8.223);
- Tees Valley Minerals and Waste Development Plan (Ref 8.185); and
- Office for National Statistics data (including 2021 Census data) (Ref 8.225).

Socio-economics scope and methodology

Baseline conditions

Population and employment

- The study area of the North East region supports a resident population of 2,647,013, with 53.6% of those defined as economically active. This is below the national average when compared to Great Britain as a whole.
- According to 2021 Census data, the largest employment sectors within the region are human health and social work activities (17.0%), wholesale and retail trade (14.7%), education (9.9%), manufacturing (8.6%), public administration and defence (8.2%), and accommodation and food service activities (5.2%).
- The Gross Value Added (GVA) per head per hour worked in 2023 was £35.72p, which is less than the average GVA per head per hour worked in England.
- The region also saw a higher than average population growth between 2019 and 2024 at 9%, which is over double when compared to the national average of 4.3%.

Public rights of way

There are a number of PROW (including footpaths, bridleways, byways open to all traffic, cycle track and restricted byways) which directly interact with the Scoping Boundary as shown on **Figure 8.4: Landscape Designations** (Volume II). The usage of these PROW is not known at this stage.

In addition to PROW, the following recreational routes interact with the Scoping Boundary as shown on **Figure 8.7: Socio-economics** (Volume II):

- Cleveland Way National Trail – directly interacts with the Scoping Boundary, north to south, south of Skelton;
- A stretch of the North-East portion of the King Charles III England Coast Path, which runs between the Scottish Border (just north of Berwick-upon-Tweed) and the Wash, passes through the Scoping Boundary along Seaton Carew Road before ending at Old Saltburn;
- National Cycle Network Route 1 – directly interacts with the Scoping Boundary at multiple places across its geographic extent;
- National Cycle Network Route 14 – directly interacts with the Scoping Boundary at multiple places across its geographic extent including through Cowpen Bewley Woodland Park; and
- National Cycle Network Route 168 – directly interacts with the Scoping Boundary, south of Brotton.

Local businesses, community and recreation facilities

The Proposed Development is predominantly set within agricultural and industrial land, which due to its existing uses, is not in itself a key recreational attraction or destination. The land does, however, play a role in providing a landscape context to recreational use, walking and cycling routes.

The Proposed Development crosses part of Saltholme Wildlife Reserve and Discovery Park (Ref 8.217) including wildlife hides, managed by RSPB and the Cowpen Bewley Woodland Country Park (Ref 8.218). It is located within 95m of the Teesmouth NNR (Ref 8.219) – these and other local attractions are important socio-economic assets providing residents and visitors with access to nature and greenspace within one of the largest concentrations of heavy industry in the UK. Other

Socio-economics scope and methodology

community facilities, including places of worship (Billingham Cemetery) are located in proximity to the Scoping Boundary.

The table below sets out a representative example of the local businesses, community and recreation facilities which interact with (or are immediately adjacent to) the Scoping Boundary (from east to west).

Settlement	Receptor	Relationship with the Scoping Boundary
Carlin How	Whitecliffe Primary School	Immediately adjacent to the Scoping Boundary
Carlin How	Carlin How Methodist Church	Partially interacts with the Scoping Boundary
Seal Sands	Saltholme Nature Reserve	Partially intersects with the Scoping Boundary across Seal Sands and south of Cowpen Bewley
New Marske	New Marske Cricket Club	Partially interacts with the Scoping Boundary
Cowpen Bewley	Cowpen Bewley Woodland Park	Partially interacts with the Scoping Boundary
Wolviston	Wolviston Football Club	Partially interacts with the Scoping Boundary
Thorpe Thewles	Wynyard Woodland Park	Partially interacts with the Scoping Boundary
Newton Aycliffe	Newton Aycliffe Youth Football Club	Partially interacts with the Scoping Boundary
Newton Aycliffe	OakLeaf Sports Complex	Partially interacts with the Scoping Boundary

It is the intention of the Applicant to avoid direct impacts wherever practicable i.e. so as to ensure that access is retained and no land is removed from local business and community facility receptors. Therefore, whilst there is no direct impacts anticipated on local businesses or community facilities, these do exist within the study area, typically in close proximity to settlements, and include independent businesses, public houses, places of worship and convenience stores.

Given the agricultural nature of land within a proportion of the Scoping Boundary, there are a number of farm businesses that the Proposed Development will interact with. Engagement with landowners to seek voluntary agreements for the Proposed Development will be undertaken as the project progresses.

Further baseline data will be gathered and presented in the ES chapter and accompanying Figures at ES stage.

Socio-economics scope and methodology

Development land allocations (including Mineral Safeguarding Areas (MSAs)) and open space

The table below identifies the development land allocations which interact with the Scoping Boundary, using data which has been gathered from the relevant local planning authorities local plan interactive mapping.

Local Planning Authority	Development Land Allocation
Intersects Scoping Boundary	
RCBC	ED6.1, Employment Land
RCBC	ED6.2 and South Tees Development Corporation areas
RCBC	ED6.3, Employment
RCBC	ED6.6, Employment
RCBC	ED6.8, Employment
RCBC	H3.27, Housing
SBC	H1, Housing Commitments
SBC	EG4, Employment
HBC	EMP4c, Employment
HBC	EMP4b, Employment
HBC	EMP4h, Employment
DCC	EMP132, Employment
DCC	Weardale Railway Line, Mineral (non-operational)
Joint Tees Valley	MWP10(a) and MWC5, Stockton Quarry
Joint Tees Valley	Policy MWC4, Gypsum Safeguarding Area
Joint Tees Valley	Policy MWC4, Salt Safeguarding Area
Joint Tees Valley	Policy MWC4, Potash Safeguarding Area
Joint Tees Valley	Policy MWC4, Sand & Gravel Safeguarding Area
Joint Tees Valley	Policy MWC4, Limestone Safeguarding Area
Joint Tees Valley	Policy MWC11, Tees Dock Safeguarded Wharf
Joint Tees Valley	Policies MWP8 and MWP10(b), South Tees Eco-Park
Joint Tees Valley	Policy MWC9, Bran Sands Regional Sludge Treatment Centre
Within study area	
SBC	H1, Housing
SBC	EG1, Employment
DCC	1 Travellers Green, Housing
DCC	EMP133, Employment
DCC	EMP135, Employment
DCC	Heighington Household Waste Recycling Centre, Waste
DCC	Heighington (Transfer Station), Waste
DBC	Heighington Lane North, Employment

There are also a number of areas of open space which interact with or are directly adjacent to the Scoping Boundary, including allotments at Grangetown and New Marske and playing fields at New Marske. Further baseline data will be gathered on these receptors, reported in the ES and shown in Figures that accompany the Application at ES stage.

Socio-economics scope and methodology

Future baseline

Due to the relatively short time period between the socio-economic assessment that accompanies the Application and anticipated construction if development consent is granted (Q2 2030 commencement, lasting approximately 4 years) there is unlikely to be a notable change in the baseline conditions. Other developments will be identified through the cumulative assessment, as set out in **Section 7.5: Cumulative and combined effects** of this EIA Scoping Report, and these will be reviewed and any relevant changes taken into account.

Sensitive receptors and study area

Sensitive receptors, shown in **Figure 8.4: Landscape Designations** (Volume II), **Figure 8.7: Socio-economics** and **Figure 3.2: Statutory Designated Heritage Assets and Cemeteries** (Volume II), include:

- users of PROW;
- King Charles III England Coastal Path;
- Cleveland Way National Trail;
- NCN Route 1;
- NCN Route 14;
- NCN Route 168;
- places of worship including Billingham Cemetery;
- OakLeaf Sports Complex;
- Newton Aycliffe Youth Football Club;
- Wynyard Woodland Park;
- Wolviston Football Club;
- Cowpen Bewley Woodland Park;
- Carlin How Methodist Church; and
- Whitecliffe Primary School.

The Scoping Boundary is situated across 5 no. main local authority boundary areas. These are RCBC, SBC, HBC, DCC, and DBC. The scale and geographic distribution of the Proposed Development means that its effects have the potential to impact a significant geographic area and the associated population. As such, the areas set out below will be assessed as the study area for socio-economic impacts.

- Potential employment effects may be felt over a wide area given the somewhat specialist nature of some of the construction tasks. The study area for consideration of economic effects would therefore be the North East region.
- Potential effects on the PROW network would focus on the draft Order Limits only.

Potential effects on land uses such as community facilities and recreation facilities, development land allocations and open space would focus on areas within 300m of the Proposed Development.

Potential impacts

Construction and decommissioning

The Proposed Development has the potential to generate a range of socio-economic impacts, many of which would be temporary and focused on the construction phase. As noted in **Section 4: The Proposed Development**, during construction, the overall construction workforce is anticipated to range between around 200 and 500 staff at peak periods based on initial estimates. The timescales currently anticipated for construction are outlined in **Section 4.6: Construction programme** of this EIA Scoping Report.

Socio-economics scope and methodology

The following impacts may arise during construction:

- temporary impacts on employment and supply chains;
- temporary impacts on the network of PRoW and recreational routes within the draft Order Limits, with sections of PRoW or recreational routes requiring temporary closures/diversions or potentially severance;
- potential temporary impacts on local business and community receptors; and
- potential temporary impacts on Development Land allocations and MSA.

It is anticipated that the potential impacts of the decommissioning of the Proposed Development would be similar to those identified for construction in relation to job creation and supply chain opportunities (staff and local contractors), albeit of lesser magnitude given that the pipeline will remain in situ upon decommissioning.

Operation

As outlined in **Section 4.10: Operation and maintenance activities**, maintenance will be required infrequently/ intermittently during the lifetime of the Proposed Development. Operational phase impacts may include the following:

- infrequent maintenance visits to the Proposed Development during operation with impacts on employment and supply chains.

Embedded measures

The Proposed Development is currently evolving through an iterative design process. Embedded measures for the design of the Proposed Development relevant to socio-economics in the form of design aims are outlined in **Section 4.3: Design principles** and include:

- an appropriate buffer will be maintained between properties and construction areas;
- existing access to local businesses and community facilities will be maintained at all times or a suitable equivalent provided;
- temporary impacts on development land allocations and areas of open space during construction will be avoided, as far as reasonably practicable;
- the final route of the Proposed Development will be designed in consideration of the network of PRoW and promoted routes that cross the draft Order Limits, maintaining access to PRoW during the construction phase or otherwise providing signed temporary diversion routes if required; and
- appropriate offsets from PRoW will be considered.

The measures confirmed as part of the EIA process will be described in the outline management plans, and their implementation secured by a Requirement of the DCO. Specifically, impact to users of PRoW will be managed through an outline PRoW Management Plan (oPRoWMP) that will accompany the Application. These outline Management Plans will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process.

Socio-economics scope and methodology					
Scope – Construction (C) Operation and maintenance (O); Decommissioning (D)					
Sub topic; Scoped In ✓ Scoped Out X or n/a	Proposed Development Component	C	O	D	Rationale
Employment and supply chain effects	Pipeline	✓	✓	X	Construction and Decommissioning: the Proposed Development has the potential to generate significant beneficial effects. It is therefore proposed that potential effects in relation to employment and supply chain effects are Scoped In with the exception of the pipeline during decommissioning as the pipeline will be left in situ and therefore decommissioning effects are Scoped Out for the pipeline. This includes any requirement to remove the Greatham Creek/ Seaton on Tees Channel pipe bridge (if present) for which socio-economic effects would not be significant. Operation: The operation phase has the potential to generate a limited amount of additional employment opportunities, as well as some local supply chain requirements. As such, effects upon employment and supply chain effects are Scoped In.
	AGI	✓	✓	✓	
Land use – PRow	Pipeline	✓	X	X	Construction and Decommissioning: The network of PRow and recreational routes within the draft Order Limits could be impacted by the Proposed Development, with sections of PRow or recreational routes requiring temporary closure, diversion or potentially severance. It is considered that potential effects on PRow and recreational resources would occur during the construction phase with mitigation measures developed during construction designed in such a way that they provide the ongoing design solution (e.g. PRow diversions implemented on their ongoing/ operational alignment). It is therefore proposed that potential effects on the PRow network are Scoped In with the exception of the pipeline during decommissioning as the pipeline will be left in situ and therefore decommissioning effects are Scoped Out for the pipeline. This includes any requirement to remove the Greatham Creek/ Seaton on Tees Channel pipe bridge (if present) for which socio-economic effects would not be significant for PRow and no PRow would be directly impacted. Operation: Any opportunities for enhancement
	AGI	✓	X	✓	

Socio-economics scope and methodology					
					of the PRoW network would be reported during construction and would not be considered further as part of the operational assessment. It is therefore proposed that potential effects in relation to the PRoW network are Scoped Out for the operation stage.
Land use – potential indirect effects on local businesses and community facilities	Pipeline	X	X	X	Construction and Decommissioning: In relation to local businesses and community facilities, the Proposed Development has the potential to generate a temporary rise in use, during the construction phase, due to an increase in construction workers. However, owing to the geographic spread of the Proposed Development it is anticipated that any impact would be negligible, and it is therefore Scoped Out . Operation: There would be no effects during operation on local businesses and community facilities, and it is therefore Scoped Out of the assessment.
	AGI	X	X	X	
Land use – development land allocations (including mineral resource) and open space	Pipeline	✓	X	X	Construction and Decommissioning: Development land allocations are located within the Scoping Boundary spreading across its geographical extent. There may be further allocations within the 300m study area that impacts may arise for as a result of the Proposed Development. Interactions with Development Allocations including open space are therefore Scoped In for construction but Scoped Out for operation and decommissioning as there will be no further interaction with allocations or green space related to the pipeline following construction. Parts of the Proposed Development are also located within Mineral Safeguarded Areas. However, mineral deposits within the Safeguarding Areas will not be permanently sterilised by the Proposed Development and the minerals and waste policies do not currently identify proposals for mineral extraction in the area. As such, it is proposed that these are Scoped Out for the pipeline. Impacts resulting from modified AGI are Scoped In to the assessment, owing to the preliminary stage of design for C and D. Operation: Any impacts would be felt construction and would not be considered
	AGI	✓	✓	✓	

Socio-economics scope and methodology				
				further as part of the operational phase. It is therefore proposed that potential effects in relation to development land allocations are Scoped Out for the operation stage.
Proposed assessment methodology				
An assessment of potential impacts would be undertaken against the established baseline environment to consider the potential resultant effects of the Proposed Development and whether they are considered significant. Baseline data collection including surveys Further baseline data collection will be undertaken for the ES to inform the baseline socio-economic conditions in the local area. Other NSIP will be reviewed in the ES, including (but not limited to) those set out within the initial long list of developments set out within Appendix A: Cumulative effects assessment. A list of ProW would be set out in the baseline chapter of the ES, by local authority area. Engagement with relevant LPA PRoW officers would be undertaken to identify use of PRoW. The assessment will assume that all PRoW are used, and therefore the number of users will not inform the sensitivity of each receptor or the magnitude of change. No surveys are therefore deemed necessary. Assessment methodology and significance criteria The assessment would use a methodology, consistent with wider industry best practice, and significance criteria, as well as professional judgement to assess the scale and nature of the impacts of the Proposed Development against baseline conditions. It is, however, recognised that effects are categorised based upon the relationship between the scale (or magnitude) of impact and the sensitivity (or value) of the affected resource or receptor. Socio-economics It is proposed that the assessment of employment effects during construction, operation and decommissioning is informed by data provided by the Applicant and based on staffing requirements of similar UK based projects. Assumptions would be made in relation to the proportion of the workforce who may be sourced from the immediate region, and the HCA Additionality Guide (Ref 8.214) would be used to calculate leakage and displacement effects, providing a net direct employment estimate for the Proposed Development. Indirect and induced effects would also be considered using ready reckoner figures from the HCA Additionality Guide (Ref 8.214). Land use receptors It is proposed that the assessment of potential effects on wider land use receptors, including recreational and community facilities, development land and PRoW considers the potential direct and indirect effects during construction, operation and decommissioning. Receptors would be identified using both published datasets, as well as through consultation and engagement activities. The sensitivity of each receptor would be defined based on the criteria				

Socio-economics scope and methodology

presented in **Appendix H: Socio-economic assessment criteria**, and consideration given to any direct or indirect effects.

Professional judgement would be used to consider the potential effects and mitigation requirements considered where necessary.

Assessment criteria

Appendix H: Socio-economic assessment criteria, sets out the criteria to be used in the assessment of socio-economic effects to determine sensitivity of receptor, magnitude of impact and overall significance of effect. Moderate and major effects are considered to be significant and minor and negligible not significant.

Consultation

The following stakeholders will be consulted with regards to socio-economics as part of the assessment process:

- RCBC, SBC, HBC, DCC, and DBC in relation to PRoW;
- local access or recreation groups as identified in relation to PRoW and permissive trails,
- RCBC, SBC, HBC, DCC, and DBC and Local Business Groups in respect of supply chain opportunities and/ or mitigation measures; and
- RCBC, SBC, HBC, DCC, and DBC in relation to development land allocations.

Additionally, statutory consultees will be formally requested by PINS to comment upon this Scoping Report. Views from statutory consultees will be considered to inform the Scoping Opinion. Comments received will be considered and addressed through the EIA process and reported in the ES, where relevant.

Assumptions and limitations

The socio-economic assessment would rely on secondary data published by various third-party sources; therefore, the assessment will be based on data and baseline conditions at a specific point in time.

Decommissioning will likely impact socio-economic and land use receptors; however, the scale of these impacts cannot be quantified at this stage due to uncertainty with regards to potential evolution of decommissioning processes over the lifetime of the Proposed Development. Therefore, effects during decommissioning will be assumed to be similar to those during construction as a worst-case.

8.14 Soils and agricultural land

8.14.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

Soils and agricultural land scope and methodology

Legislation, planning policy context and guidance

In addition to the documents identified in **Section 2: Legislation and planning policy**, regard will be given to the following:

- The Environment Act 2021 (Ref 8.1);
- Environmental Improvement Plan (EIP), 2025 (Ref 8.226)

Soils and agricultural land scope and methodology

- Agricultural Land Classification (ALC) of England and Wales - Revised guidelines and criteria for the grading of the quality of agricultural land 1988 (updated 2025) (Ref 8.280)
- Agricultural Land Classification: Protecting the best and most versatile land, Technical Information Note (TIN049) (Ref 8.227);
- Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, 2009 (Ref 8.134);
- Guide to assessing development proposals on agricultural land, 2021 (Ref 8.228);
- A New Perspective of Land and Soil in Environmental Assessment, 2022 (Ref 8.229);
- Benefitting from Soil Management in Development and Construction, 2022 (Ref 8.230);
- Building on soil sustainability: Principles for soils in planning and construction, 2022 (Ref 8.231);
- Good Practice Guide for Handling Soils in Mineral Workings (Ref 8.232);
- Working with Soil Guidance Note on 'Benefitting from Soil Management in Development and Construction' (Ref 8.233); and
- National Planning Policy Guidance for the Natural Environment (PPGNE) (Ref 8.234).

Baseline conditions

Natural England's Provisional ALC mapping (Ref 8.131)⁸ has been used to provide an overview of the existing baseline conditions or agricultural grading of land within the Scoping Boundary which is shown in **Figure 1.3: The Scoping Boundary Aerial** and **Figure 3.5: Agricultural Land Classification** (Volume II). The Scoping Boundary currently includes an approximately 300m wide corridor and so comprises approximately 2,593ha of land. It is anticipated that refinement of this area will be completed for the Application submission down to an approximate 100m corridor, with potentially reduced optionality where this is currently retained at Scoping Stage.

The majority of the land within the Scoping Boundary is in agricultural land use with 11.6% of the land being ALC Grade 2 (good quality) and 46.6% ALC Grade 3 (good to moderate quality) land. There is no land within the Scoping Boundary at ALC Grade 1 (excellent quality). The remaining land within the Scoping Boundary is in urban/ non-agricultural use (42.1%).

The Provisional ALC data cannot be used to classify individual sites due to limitations of scale and changes to the classification system. Detailed ALC surveys are required to establish the definitive grade of agricultural land. Therefore, provisional ALC grades will be verified by soil survey. Further information will be provided in the ES that is provided in the Application.

Future baseline

Future baseline considerations include factors such as change in soil functionality due to climatic factors and future land use changes arising from pressures of development on agricultural land and changing agricultural practices. Studies commissioned by Defra and the Welsh Government (Ref 8.236) found soil droughtiness is the likely to be the main determining factor of ALC under the various climate scenarios, with the potential for very large areas of England to be downgraded to poor quality Grade 4 land. Therefore, it is expected that agricultural land within the draft Order Limits will deteriorate with climate change due to increased drought and require additional irrigation. As climate change to this extent is unlikely to occur within the timescales for

⁸ The Applicant notes the publication by Defra of Predictive Agricultural Land Classification Map for England which will be considered in the baseline data sources for the EIA following receipt of the Scoping Opinion

Soils and agricultural land scope and methodology

construction when the impacts to soils would occur, climate change will not be considered further for future baseline for this topic.

Study area

To provide a proportionate assessment, the study area will focus on the draft Order Limits (anticipated to be refined down to an approximately 100m corridor, prior to surveys). Therefore, the study area for surveys and impact assessment will not reflect the current extent of the Scoping Boundary.

Potential impacts

Construction

During construction, arable agricultural uses will be required to temporarily cease within relevant areas/ field parcels within the draft Order Limits for laying the underground pipelines. The potential for effects from short term disruption to farm operations or activities from the temporary occupation of land within the Order Limits to install underground pipelines will be assessed in the ES.

Valuable soils, potentially including soils from BMV agricultural land, are likely to be impacted by construction activities along the pipeline construction corridor, including laying of pipelines and formation of access routes and compounds; areas for which are yet to be defined. This could include loss of soils or their function as a result of processes such as removal, compaction, contamination, mixing or erosion.

For the pipelines, which locally cross land that is, or may potentially be classified as BMV land, the extent of impacts will be controlled by the proposed design, extent of land required to accommodate this, and the soil management and reinstatement undertaken at construction stage.

Operation

The basis of design assumes that pipelines will be installed predominantly below ground, with above ground elements limited to AGI along the route of the Proposed Development where these coincide with agricultural land. In addition, the Applicant is considering a range of potential crossing options at Greatham Creek/Seaton on Tees Channel (as outlined in Paragraph 4.2.12). One such option is the use of an existing pipe bridge, which intersects Grade 5 (non-BMV grazing) agricultural land. It is assumed therefore that during the operational stage, reinstatement of soils following construction would allow previous agricultural (including grazing) uses to continue along the terrestrial pipeline sections with no anticipated restrictions on the former agricultural use. Impacts on land use due to the pipeline elements during the operational phase is therefore **Scoped Out** of the ES.

Impacts would also occur in relation to AGI where permanent land-take would be required. Indicative siting areas for modified AGI are shown on **Figure 4.1: Indicative Site Layout** (Volume II) and are within areas of Urban, Grade 5, Grade 4 and Grade 3 (potential BMV) land. As modified AGI will by design, modify existing natural gas AGI, these installations are already on land that is disturbed and impacts will be limited to extensions of existing AGI. Maximum dimensions are provided in **Section 4.2: Overview of the Proposed Development** (i.e. half a hectare to up to 1.5ha). For AGIs, impacts reported will include permanent land-take during the construction phase and loss or reduction in soil-related features during the operational phase of the Proposed Development.

Soils and agricultural land scope and methodology

Decommissioning

The pipeline will be left in situ post decommissioning and therefore for the pipeline, impacts would be **Scoped Out**. In the event that a Greatham Creek/ Seaton on Tees Channel crossing requires deconstruction, the areas of Grade 5 (grazing) land affected would be small in the context of available grazing land and impacts at a farm holding scale would be 'de minimis'. This is also **Scoped Out**.

For modified AGI locations, the impacts during decommissioning will depend on the final design for permanent works, but it is assumed that the Outline Soil Management Plan (oSMP) that accompanies the Application will control the activities related to soils during decommissioning to allow reinstatement/ recovery to continue following the decommissioning.

Changes to baseline information that could happen in the intervening period would be addressed via a commitment to a DEMP which will reference the oSMP, and which would be secured via the draft DCO.

Embedded measures

The design aims stated in **Section 4.3: Design principles** include, where possible, the following principles:

- the integrity of existing agricultural land drainage systems will be maintained including maintaining provision of water for livestock, as far as reasonably practicable;
- impacts on soils during construction will be mitigated through minimisation of construction footprints within areas of BMV soils and sensitive ecological sites, with micro-siting of compounds and laydown areas outside such areas as far as reasonably practicable;
- where possible, soils will be retained in their field/ area of origin. A soil restoration plan and statement will be prepared detailing the restoration approach and aftercare programme that is to be implemented; and
- minimising of construction footprints within areas of BMV and sensitive ecological sites, with micro-siting of compounds and laydown areas outside such areas as far as reasonably practicable.

Soils will be managed and protected during the construction works in accordance with good practice, including the Defra Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Ref 8.134) and relevant British Standard (BS) for the use of soil on construction sites, which will be referenced in the CEMP. Soils will be restored following construction. The oSMP submitted with the Application will incorporate best practice measures to minimise likely adverse effects on agricultural land and soil, including soil health during temporary displacement, as far as reasonably practicable.

Scope - Construction (C); Operation and Maintenance (O); Decommissioning (D)

Sub topic; Scoped In ✓ Scoped Out X or n/a	Proposed Development component	C	O	D	Rationale
Agricultural land	Pipeline	✓	X	X	Potential for effects during construction and decommissioning from the loss or downgrading of

Soils and agricultural land scope and methodology					
	AGI	✓	✓	✓	arable land for agricultural production and disturbance caused are Scoped In for the pipeline construction and all phases of the AGI. During operation, the land above the pipeline will be reinstated and will return to agricultural use (with no anticipated restrictions on the agricultural use). Therefore, there will be no effects from the pipeline during operation, and this is Scoped Out. The majority of the pipeline will be left in situ after operation has ceased and therefore there will be no effects from the pipeline during decommissioning. Therefore decommissioning effects for the pipeline, including any 'de minimis' effects for a Greatham Creek crossing if this is present and requires deconstruction, are Scoped Out.
Agricultural holdings	Pipeline	✓	✗	✗	Potential for effects from short term disruption to farm operations or activities from the temporary occupation of land within the draft Order Limits to install underground pipelines at a depth enabling land to still be ploughed/ harvested before being handed back to the landowners, is Scoped In. Where relevant information is not available, clear assumptions will be stated in the ES.
	AGI	✓	✗	✗	Effects during operation/ maintenance due to the presence of the pipeline are Scoped Out as agricultural operations will be able to continue throughout operation. Inspections of the pipeline can be undertaken using in line inspection (ILI) technology and any intrusive maintenance works will be targeted and short term. It is not anticipated that land required for the small number of modified AGI would have any material impact on the much larger agricultural land holdings present at each location and therefore impacts on agricultural land holdings as a result of operation of AGI are Scoped Out. The majority of the pipeline will be left in situ after operation has ceased and therefore there will be no effects from the pipeline during decommissioning and therefore decommissioning effects for the pipeline are Scoped Out. Depending on the agreements with landowners, decommissioning of AGIs could result in a negligible increase in capacity of agricultural holdings as the land is returned to land owners. However, given the scale of land in relation to overall land holdings, impacts and

Soils and agricultural land scope and methodology					
					effects would not be significant, and impacts can be Scoped Out .
Soil carbon	Pipeline	✓	X	X	Effects on soil carbon during construction and decommissioning (AGI only) are Scoped In to assess changes in the organic carbon content of the resources within the draft Order Limits. The pipeline will be left in situ after operation has ceased and therefore there will be no effects from the pipeline during decommissioning and therefore decommissioning effects for the pipeline are Scoped Out . The operation stage has been Scoped Out as soil carbon emissions result from disturbance and not the presence of infrastructure. As above, inspections of the pipeline can be undertaken using ILI technology and any intrusive maintenance works will be targeted and short term.
	AGI	✓	X	✓	
Soil resource	Pipeline	✓	X	X	Potential for effects from disturbance of soil resource from installation of access tracks (causing compaction), underground pipes (temporary), built structures, maintenance/ replacement activities and final removal of infrastructure which may result in leftover voids is Scoped In. Operational effects are Scoped Out as effects result from disturbance and not the presence of infrastructure. The majority of the pipeline will be left in situ after operation has ceased and therefore there will be no effects from the pipeline during decommissioning and therefore decommissioning effects for the pipeline are Scoped Out .
	AGI	✓	X	✓	
Soil health	Pipeline	X	X	X	The oSMP submitted with the Application will incorporate best practice measures to minimise likely adverse effects on soil health during temporary displacement, as far as reasonably practicable including controlling placement and temporary storage of soils to maintain soil health. The final SMP that will be required, secured by the draft DCO will include measures to safeguard soil health due to temporary displacement. Soil health has therefore been Scoped Out as per ISEP guidance (Ref 8.229).
	AGI	X	X	X	
Methodology					
Baseline data collection including surveys					
The assessment of agricultural soils and agricultural farm holdings will be assessed through the following process:					

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- 1) Desk study of soils within the draft Order Limits using publicly available datasets including the Defra Predictive Mapping including National Soil Map for England and Wales, Natural England Provisional ALC grades, Natural England post-1988 surveys, British Geological Society (BGS) data on peat soils and environmental designations.
- 2) Use of a hybrid methodology to inform soil classification/ sensitivity i.e. reliance on published mapping for land identified as Grades 2 in the ES assessment. Targeted soil surveys would then be undertaken for areas of Grade 3 land to inform receptor sensitivity and to identify potential impacts and likely effects in the ES. This proportionate approach to Grade 3 BMV surveys would be undertaken when the draft Order Limits for the pipeline corridor has been refined down to approximately 100m and areas of physical disturbance are better understood.
- 3) Use of soil surveys at modified AGI locations where alterations in footprint occur, and other areas of longer term disturbance (construction compounds) to inform the oSMP.
- 4) The sampling intensity would be proportionate to the survey purpose (i.e. to inform the sensitivity of resource criteria assessed in the ES and to inform the management measures in the oSMP), scale and heterogeneity of the resource encountered.

Assessment methodology and significance criteria

- Assessment methodology will generally follow the published ISEP guidelines (Ref 8.229).
- Sensitivity of agricultural land and soil resources will be determined according to its ALC grade, with Grade 2 being the most sensitive of land within the Order Limits (noting no Grade 1 land is present according to published mapping) and Grade 5 the least, and its resilience to handling and disturbance (affected by texture and moisture content).
- Magnitude of impact will be determined according to the area of land removed from agricultural production, the duration of that removal and the extent to which ecosystem functions and services provided (including the land's use for agricultural purposes) are able to continue.
- Proposed criteria for the assessment of sensitivity and magnitude and evaluation of significance, are set out in **Appendix I: Soils and agriculture assessment criteria**.

Consultation

Initial technical engagement with Natural England has been undertaken in April 2026 to introduce the Proposed Development and to outline the proposed approach to be undertaken. Following receipt of the Scoping Opinion, additional technical engagement is proposed to clarify any outstanding matters and agree the proposed methodology for the assessment of impact on agricultural soils including approach to the SMP and mitigation measures.

Additional technical engagement with Natural England would be undertaken where any modifications to the agreed scope of surveys/ density of observations was considered proportionate, based on survey results once these become available.

Assumptions and limitations

Publicly available baseline information has been used to inform the description of the baseline conditions presented within this Scoping Report. Detailed soil and ALC survey data will be collected to inform the sensitivity of the soil resource and agricultural land on-site in order to identify the potential impacts and effects in the ES. Other assumptions/ limitations in respect of the Proposed Development will be set out in the ES that accompanies the Application and will include:

- Trenchless crossing techniques will be used at some locations throughout the draft Order Limits however, as a worst-case, the assessment will assume predominately open-cut

Soils and agricultural land scope and methodology

techniques will be used, other than where existing above ground pipeline elements (e.g. the Link Line) are proposed to be used.

- As described in **Section 4.11: Decommissioning**, all above ground sections of pipework will be removed, unless otherwise agreed with landowners. In the case of Greatham Creek crossing (if required), similar to construction, it is currently anticipated this would be deconstructed from the shoreline. All above ground infrastructure will be removed and the land will be reinstated to its former condition.
- The working width is expected to be approximately 35m with potential for micro-siting within an approximate 100m draft Order Limits where land of lower grade/ BMV is present.
- The footprint of AGIs is expected to range from 40m x 40m for smaller compounds, to up to 100m x 150m for larger compounds.
- Temporary construction compounds will be included along the pipeline route, as well as at crossing locations and AGIs. The compounds will be removed once construction is complete, and the land will be restored to its former condition.

8.15 Transport and movement

- 8.15.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

Transport and movement scope and methodology

Legislation, planning policy context and guidance

The wider legislation, policy and guidance documents – outlined in **Section 2: Legislation and planning policy** – will be reviewed to understand the requirements of the relevant local transport policies. In addition to these documents, the assessment methodology for transport and movement will consider:

- Highways Act 1980 (Ref 8.237);
- Traffic Management Act 2004 (Ref 8.238);
- Circular 01/2022 outlining how National Highways will engage in plan-making to support the delivery of sustainable development (Ref 8.239);
- ISEP Guidelines for the Environmental Assessment of Traffic and Movement (Ref 8.246);
- Department for Levelling Up, Housing and Communities (DLUHC) Guidance: Transport Evidence Bases in Plan Making and Decision Taking (Ref 8.240); and
- DLUHC Guidance: Travel Plans, Transport Assessments and Statements (Ref 8.241).

Baseline conditions

To inform this EIA Scoping Report, the existing baseline transport network in the vicinity of the Scoping Boundary is shown on **Figure 8.9: Road and Rail Transport Connections** (Volume II).

Existing baseline - road network

As described in **Section 3.3: Environmental context**, the key highway links or routes within the local area include:

- A167;
- A1(M);
- A177;

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- A19;
- A689;
- A1185;
- A178;
- A1085;
- A1053;
- A174; and
- A173.

The A1(M), A19, A174 form part of the strategic road network (SRN) and intersect/ are located in close proximity to the Scoping Boundary at four locations. Other roads intersected across the route corridor form part of the jurisdiction of relevant local highway authorities.

Existing baseline – walking

The Proposed Development is intersected by a number of long distance routes. The eastern extent of the Proposed Development between Skinningrove and Teesside Core East intersects the Teesdale Way, a 148km long distance walking route, the Langbaugh Loop, a 63km circular walking route and The Cleveland Way National Trail, a 175km walking route. A stretch of the North-East portion of the King Charles III England Coast Path, which runs between the Scottish Borders (just north of Berwick-upon-Tweed) and the Wash, also passes through the Scoping Boundary before ending at Old Saltburn. Other public rights of way (PRoW) crossed by the route of the Proposed Development are shown on **Figure 8.4: Landscape Designations** (Volume II). Refer to **Section 8.8: Landscape and visual amenity** and **8.13: Socio-economics** of this EIA scoping report for further information on the approach to assessing PRoW.

Existing baseline – cycling

The following National Cycle Network (NCN) directly interact with the Scoping Boundary:

1. NCN Route 1 directly intersects the Scoping Boundary at multiple places across its geographic extent;
2. NCN Route 168 directly interacts with the Scoping Boundary, south of Brotton; and
3. NCN Route 14 directly intersects the Scoping Boundary through Cowpen Bewley Woodland Park.

In addition, a number of other A, B and minor roads may be attractive to leisure cycling.

Existing baseline – horse riders

There are a number of bridleways that cross or are situated within the Scoping Boundary and surrounding study area that could be impacted during the construction of the Proposed Development. Public bridleways are shown on **Figure 8.4: Landscape Designations** (Volume II). Local horse riding groups including Saltburn and District Bridleways Group published mapping (Ref 8.242) indicates other permissive bridleways.

Existing baseline – public transport

The Scoping Boundary is crossed by operational rail lines including the Tees Valley Line between Middlesbrough and Redcar Central, the Durham Coast Line between Billingham and Seaton

Transport and movement scope and methodology

Carew and, East Coast Main Line from Darlington Station to Durham and the Tees Valley Line between Bishop Auckland and Saltburn, via Darlington.

The Scoping Boundary is crossed by a number of dedicated bus routes along A and B roads.

Existing baseline - navigable waterways

The Scoping Boundary crosses a number of waterways which are navigable including River Tees. Greatham Creek/ Seaton on Tees Channel is not generally navigable.

Future baseline

The future baseline reflects anticipated changes to current conditions that are expected to occur without the Proposed Development, accounting for underlying growth trends

Sensitive receptors and study area

Sensitive receptors

Receptor sensitivity within the study area will be determined based on the ISEP guidance (formally IEMA) (Ref 8.246) which categorises the routes within the study area from those with very high sensitivity to changes in traffic flows (for example links adjacent to education institutions, playgrounds and residential areas) to negligible receptors which are those would not be sensitive to changes in traffic flows.

Study area

The extent of the study area for the assessment of transport impacts has not been defined in detail at this stage as the detailed assignment of construction traffic has not yet been undertaken. Further detail on the specific roads to be used will be presented within the ES once information about the construction compounds and site access locations becomes available. The study area will take into consideration the anticipated construction for HGV and worker movements and include the highway links, bus routes, pedestrian/ cycle network, and railways and navigable waterways which could potentially be impacted by trips from and to the Proposed Development during construction.

It is assumed that construction HGVs will travel to the draft Order Limits via the SRN and primary road network and then use the most appropriate local routes to access the draft Order Limits. For the purpose of scoping, the routes listed above form the initial study area.

Potential impacts

Construction

The nature of the Proposed Development is such that the greatest impact is likely to occur during the construction phases, and this will be the focus of the assessment of transport effects presented in the ES.

As described in **Section 4.6: Construction programme**, construction of the pipeline would be undertaken by multiple working crews operating concurrently at different locations along the route. As works progress, these crews would move sequentially along the alignment. A typical crew is expected to comprise up to approximately 30 personnel, with the overall construction workforce anticipated to range between around 200 and 500 staff at peak periods based on initial estimates. Separate construction teams would also be mobilised for the delivery of AGI.

Transport and movement scope and methodology

On the basis of these initial estimates, and taking into consideration the impacts that potentially require assessment in the ES, the construction phase has potential to:

- generate increased traffic flows within the study area which could impact severance of communities;
- result in changes to vehicle movements on the network which could affect perceptions of driver delay;
- result in changes due to increased vehicle traffic on the network which could affect perceptions of pedestrian and other non-motorised user (NMT) delay;
- result in changes which could affect perceptions of NMT amenity due to the change in total traffic (or HGV component) on the local network;
- result in an increase to fear and intimidation; and
- impact on road user and pedestrian safety.

If the need for abnormal indivisible load (AIL) is identified as the design of the transport and access strategy develops, effects on receptors will be assessed and this element is therefore also Scoped In to the assessment on a precautionary basis.

Operation

As described in **Section 4.10: Operation and maintenance activities**, the operation of the Proposed Development is likely to involve a small number of staff for routine maintenance and security (i.e. approximately fortnightly visits) in addition to any emergency visits in the event of a breakdown. Walk-over inspections are also anticipated approximately every four years. Low volumes of traffic are therefore anticipated during the operational phase which are not likely to significantly increase traffic flows on the highway network. This matter can therefore be **Scoped Out**.

Decommissioning

Decommissioning traffic volumes are not yet known at this stage although it is anticipated that they will be notably less than construction traffic levels as the pipeline will be left in situ and there will be no cut and cover activities occurring as part of the decommissioning phase. Impacts from decommissioning traffic can be **Scoped Out** and will be controlled via the DEMP.

Any increases in traffic flows during the decommissioning stage at AGI could impact severance and perceptions of driver and pedestrian and other NMT delay, perceptions of NMT amenity, fear and intimidation and road user and pedestrian safety. Although it is considered likely that the construction phase estimates and impacts at AGI will be greater than those for decommissioning, this matter will be Scoped In on a precautionary basis.

Embedded measures

The Proposed Development has been routed taking into consideration the design principles described in **Section 4.3: Design principles** including:

- access locations and access routes from the SRN will be planned to avoid major settlements and villages as far as reasonably practicable. Where not reasonably practicable, timing to avoid HGV movements during 'peak' hours will be considered;

Transport and movement scope and methodology

- the final route of the Proposed Development will be designed in consideration of the network of PRoW and promoted routes that cross the Scoping Boundary, maintaining access to PRoW during the construction phase or otherwise providing signed temporary diversion routes if required; and
- existing access to local businesses and community facilities will be maintained at all times or a suitable equivalent provided.

Construction

The following transport and movement related mitigation measures will also be implemented where such measures are required to mitigate potentially significant effects:

- provision of suitable points of access for construction vehicles which as far as reasonably practicable, utilise existing access points where these exist;
- positioning of suitably qualified banksmen at the Site access points, to allow all vehicle arrivals and departures to be safely controlled during the construction period;
- providing road signs and/ or markings to increase awareness of the Site access points during construction phase and ensuring visibility for drivers is unobstructed in the vicinity of the Site access points; and
- application of Temporary Traffic Management (TTM) measures where necessary.

A CTMP including a Construction Workers' Travel Plan (CWTP) will form part of the embedded mitigation. Outline versions of the CTMP and CWTP will be prepared and submitted to accompany the Application, providing an overview of proposed/ agreed construction traffic routes and a range of associated management measures, including proposals for management of any affected PRoW via the oPRoWMP. The framework of measures and principles would need to be taken forward and developed further by the appointed contractor.

The CTMP will set out measures to manage construction HGV traffic, and these could potentially include where required to control likely significant effects, (but will not necessarily be limited to):

- identification of construction routes for HGVs;
- AIL routeing strategy (if required);
- timing restrictions on HGV to avoid 'peak' hours will be considered (e.g. school drop off and pick up times); and
- application of the waste hierarchy (refer to **Section 8.11: Material assets and waste**) which seeks to reduce the quantity of materials required to be transported off-site onto the local highway network through prioritising reuse and recycling.

The CWTP will be aimed at construction workers and would set out measures to reduce the impact of workers travelling to and from the Site. This document could potentially include initiatives such as provision of mini-buses to transport workers from defined 'pick-up' and 'drop-off' points located within the local area, measures to manage the level of on-site car parking, or measures to encourage workers to travel by more sustainable modes of transport.

A final CTMP and CWTP is expected to be secured by requirement of the draft DCO and prepared by the Contractor for agreement with the local highway authorities/ National Highways (where relevant) prior to commencing construction on-site.

Transport and movement scope and methodology

Operation

There are no embedded measures proposed during the operational phase of the Proposed Development. There will be minimal impact attributed to the operational traffic following construction of the Proposed Development.

Decommissioning

Traffic impacts which could arise during the decommissioning phase of the Proposed Development are likely to be similar or less than the impacts expected during the construction phase and would be mitigated similarly to the measures set out in the CTMP and CWTP via a Decommissioning Plan, inclusive of a DEMP. Traffic flows would need to be refreshed to account for conditions at the time of decommissioning.

With the potential exception of above ground elements which may need to be removed, the pipeline will be left underground in situ. The minor above ground sections that could require removal are not likely to generate significant numbers of HGV/ LGV movements and would be less than construction. Decommissioning traffic would be controlled via the DEMP. **Therefore**, decommissioning effects for the pipeline are **Scoped Out** for all subtopics.

Scope – Construction (C) Operation and maintenance (O); Decommissioning (D)

Sub topic; Scoped In ✓ Scoped Out X or n/a	Proposed Developme nt Componen t	C	O	D	Rationale
Severance	Pipeline	✓	X	X	Severance is the perceived division that can occur within a community when it becomes separated by a traffic route. Scoped Out for the pipeline during Operation and Decommissioning as no likely impact pathway.
	AGI	✓	X	✓	The construction phase has potential to generate increased traffic flows within the study area which could impact severance. Traffic flow increases on the highway network are not yet known as routes have not been assigned and construction logistics work is ongoing, therefore this is Scoped In for the construction assessment. Low volumes of traffic are expected to be generated during operation. This is not likely to significantly increase traffic flows on the highway network and therefore severance is Scoped Out of the operational assessment. The majority of the pipeline will be left underground in situ and therefore decommissioning effects for the pipeline are Scoped Out .

Transport and movement scope and methodology					
Road vehicle driver and passenger delay	Pipeline	✓	X	X	The Proposed Development could result in changes which could affect perceptions of driver delay during construction because of increased vehicle traffic on the network. Driver delay is therefore Scoped In for the construction assessment for both pipelines and AGI. Low volumes of traffic are expected to be generated during operation which will not significantly increase vehicle traffic on the network and therefore road vehicle driver and passenger delay is Scoped Out of the operational assessment for both pipelines and AGI. The majority of the pipeline will be left underground in situ and therefore decommissioning effects for the pipeline are Scoped Out while effects for AGI remain Scoped In on a precautionary basis.
	AGI	✓	X	✓	
Non-motorised user delay	Pipeline	✓	X	X	The construction of the Proposed Development may result in changes which could affect perceptions of pedestrian and other NMU delay during construction because of increased vehicle traffic on the network. This is therefore Scoped In for the construction assessment for both pipelines and AGI. Low volumes of traffic are expected to be generated during operation. This is not likely to significantly increase vehicle traffic on the network and therefore non-motorised user delay is Scoped Out of the operational assessment for both pipelines and AGI. The majority of the pipeline will be left underground in situ and therefore decommissioning effects for the pipeline are Scoped Out while effects for AGI remain Scoped In on a precautionary basis.
	AGI	✓	X	✓	
Non-motorised user amenity	Pipeline	✓	X	X	The Proposed Development could result in changes which could affect perceptions of non-motorised user amenity during the construction phase because of the change in total traffic (or HGV component) on the local network. This is therefore Scoped In for the construction assessment for both pipelines and AGI. Low volumes of traffic (including HGVs) are expected to be generated during operation. This is not likely to significantly change total vehicle traffic on the network and therefore NMU amenity is Scoped Out of the operational assessment for both pipelines and AGI. The majority of the pipeline will be left underground in situ and therefore decommissioning effects for the pipeline are Scoped Out while effects for AGI remain Scoped In on a precautionary basis.
	AGI	✓	X	✓	

Transport and movement scope and methodology					
Fear and intimidation	Pipeline	✓	X	X	The extent of fear and intimidation is dependent on traffic volumes, composition, vehicle speeds and the proximity of traffic to people. The construction traffic associated with the Proposed Development could result in an increase to fear and intimidation, therefore this is Scoped In for further assessment at this stage. The very low level of operational traffic means there is no increase in large or frequent vehicle movements, and therefore no potential for increased fear or intimidation for NMU and therefore fear and intimidation is Scoped Out of the operational assessment for both pipelines and AGI. The majority of the pipeline will be left underground in situ and therefore decommissioning effects for the pipeline are Scoped Out while effects for AGI remain Scoped In on a precautionary basis.
	AGI	✓	X	✓	
Road user and pedestrian safety	Pipeline	✓	X	X	Accidents and safety are Scoped In for assessment during the construction phase when traffic flows are expected to increase which could impact on road user and pedestrian safety. Operational activity will be limited and will not materially alter traffic patterns or access arrangements and therefore does not introduce any new road safety risks for motorists or pedestrians and therefore assessment of operations effects is Scoped Out for both pipelines and AGI. The majority of the pipeline will be left underground in situ and therefore decommissioning effects for the pipeline are Scoped Out while effects for AGI remain Scoped In on a precautionary basis
	AGI	✓	X	✓	
Road safety audits	Pipeline	X	X	X	Any new or amended access points required to serve the Proposed Development to/ from the public highway will be subject to Road Safety Audit at the appropriate stage, to be agreed with the Local Highway Authorities and where relevant to the SRN, National Highways. This will be considered as part of the Transport Assessment and is therefore Scoped Out of the ES.
	AGI	X	X	X	
Hazardous / large loads	Pipeline	✓	X	X	The Proposed Development is not expected to generate or attract hazardous loads at any Stage. AIL may be required to access the site during the construction period. AIL are therefore Scoped In to the assessment at this time on a precautionary basis. AIL are not expected to be required as part of the operation of the Proposed Development, therefore
	AGI	X	X	X	

Transport and movement scope and methodology					
					this topic is Scoped Out of the operation assessment. The majority of the pipeline will be left underground in situ and no AIL are anticipated at decommissioning. Therefore, decommissioning effects for the pipeline and AGI are Scoped Out.
Proposed assessment methodology					
Baseline conditions and surveys Baseline transport conditions will be established by utilising available desktop sources of transport information and this will be accompanied by additional surveys, where no desktop data is available. For traffic flow data, online data sources include: • National Highways WebTRIS data (Ref 8.243); and • Department for Transport (DfT) traffic count data (Ref 8.244). The above listed online data sources provide traffic flow information for the SRN within the study area. However, local roads will not be covered by online data sources and therefore, it is expected that online data will need to be supplemented by additional local traffic counts. Survey locations will be identified once further detail is available on construction access arrangements and the likely routeing of construction vehicles. The extent of survey collection will be proportionate to the scale of the transport effects anticipated to arise from the Proposed Development. Traffic flow data will be analysed to determine the baseline daily and peak period traffic flows and traffic composition within the study area. At this stage, the construction compound locations, construction routes and pipeline construction access points are not known; therefore, for the purposes of scoping, the strategic roads which intercept the Scoping Boundary have been identified as these could be used for construction HGV access. The study area will be confirmed in the Applicant's consultation materials, once construction information is available. In addition to traffic flows, the baseline review of the highway network will be informed by a review of road traffic collision data for the most recent five-year period that is available on CrashMap (Ref 8.245). Data will be acquired across the study area, allowing for evaluation of any existing accident clusters that could be exacerbated by the Proposed Development. Operational traffic movements are expected to be minimal, with occasional visits taking place by a handful of operatives. It is expected that any operational impacts on transport and movement will be minimal. Therefore, a future baseline will be developed to test the construction phase only. The future baseline will comprise the same study area and receptors as the existing (once confirmed). The future baseline will be produced by factoring the baseline traffic flows using growth factors derived from TEMPro. This will be balanced in consideration with any committed developments which could alter baseline traffic flows. Data from committed developments, identified through discussions with the relevant local authorities, and any projects identified by National Highways will be reviewed and may be incorporated into the future baseline scenario.					

Transport and movement scope and methodology

Professional judgement will be made to avoid double counting (balancing TEMPro growth against the known committed developments) when developing the future baseline.

The future baseline traffic volumes will be established for a single year for each location during the construction period. The peak construction period(s) will be identified within the ES when more detailed construction information is available.

Assessment methodology

The transport and movement assessment will be carried out in accordance with the ISEP Guidelines (Ref 8.246). The ISEP Guidelines recommend that several environmental effects may be considered important when considering traffic from a proposed development. The assessment will provide consideration of the following effects:

- severance of communities;
- driver delay;
- pedestrian delay;
- NMU amenity;
- fear and intimidation;
- road safety;
- road safety audits; and
- AIL.

The ISEP Guidelines state that a link on the highway network within the study area should be included within the assessment if one of the following criteria is met:

- *“Rule 1 – Include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%); or*
- *Rule 2 – Include highway links of high sensitivity where traffic flows have increased by 10% or more.”*

Once construction traffic has been assigned onto the highway network, those links that meet the above criteria will be considered within the assessment.

In line with the ISEP Guidelines, the following methodology will be applied and taken into account for each environmental aspect:

- **Severance** has thresholds defined as the ‘perceived division that can occur within a community when it becomes separated by a major transport infrastructure’ where changes in overall traffic flow or HGV flow of approximately 30%, 60%, or 90% are considered indicative of low, medium, and high severance impacts, respectively.
- **Driver delay** is generally considered significant only when traffic on the surrounding network is already at, or approaching, its capacity and may arise where a project introduces additional vehicular movements at junctions and along highway links and/or where new junctions or substantial changes to highway alignment are implemented. The Proposed Development could result in changes which could significantly affect perceptions of driver delay during construction because of increased vehicle travel demand on the local network. This will be reviewed once traffic flow forecasts and further assessment is undertaken. As a further consideration, where any temporary road closure or traffic management is likely to

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- be in place, any additional potential delay caused by the diversion routes will be reported.
- **NMU delay** in relation to pedestrian and cyclists, is assessed where changes in traffic volume, composition, or speed can influence the ability of pedestrians and non-motorised users to crossroads. There are no prescribed quantitative criteria; professional judgement will be applied to determine the significance of any change in NMU delay, taking into account the locational context. Criteria within Design Manual for Roads and Bridges (DMRB) LA 112 (Ref 8.130) will be used to evaluate changes in journey distance experienced by walkers, cyclists, and horse riders (all classified as NMUs) to determine the magnitude of impact.
 - **NMU amenity** is broadly defined for pedestrian and cycle amenity as ‘the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic.’ Previous guidance suggested that an appropriate threshold would be where traffic flow (of the HGV component of the traffic flow) more than doubles. It is therefore proposed that the effect on amenity will take into account the changes in traffic composition and the sensitivity of the roads impacted. It is acknowledged that pedestrian amenity on the PRoW network in the area may be affected, however this would be considered further in the socio-economic chapter of the ES. Where PRoW are affected, mitigation proposals including potential diversions, will be considered.
 - **Fear and intimidation** depend on factors such as traffic volume, HGV composition, proximity to pedestrians, and the level of protection provided by features such as pavement width. In the absence of thresholds for estimating levels of fear and intimidation, the same percentage change thresholds as those to be used for severance will be applied.
 - **Accidents and safety** - the key issue in assessing accidents and safety is in understanding the potential for change. There can be some small changes in prevailing road safety conditions arising as a result of having a greater number of journeys being made on a network; i.e. the more people that are travelling, the more people that are liable to become involved in an accident. By far the more important issue to consider is how travel and the design of the transport networks interrelate to affect prevailing road safety. This will be assessed through a detailed review of road traffic accident data for the most recent five-year period available and professional judgment will be applied to evaluate the implications of local circumstances, including any existing accident clusters that could be exacerbated by the Proposed Development.
 - **Large loads** will be assessed ‘Where the number of movements is considered to be significant, the assessment should include a risk or catastrophe analysis to illustrate the potential for an accident to happen and the likely effect of such an event.’ Any highway features that could pose an increased risk to the transportation of these loads beyond typical levels will also be considered.

Consultation

The Applicant has introduced the Proposed Development to each local authority in April and May 2026 and sought to engage National Highways, but no response has been provided within the timeframe for this assessment.

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The ES will be informed by further consultation and engagement with stakeholders, including National Highways and the local highway authorities which present within the study area. Other stakeholders, such as Network Rail and relevant statutory harbour authority will be consulted by PINS on the Scoping Opinion, and additional technical engagement will be undertaken, if required, once further details of the Proposed Development and construction routes are known and following receipt of comments on the Scoping Opinion. Comments received will be considered and addressed through the ES where relevant to transport.

Assumptions and limitations

This EIA scoping report chapter has been collated based on information available at scoping stage. At this stage, baseline traffic data has not yet been collated or reviewed, and surveys have not yet been undertaken to fully understand the baseline conditions. The traffic flow increases on the highway network during the construction phase are not yet known.

The extent of the study area for the assessment of transport impacts has not been defined in detail at this stage as it will depend on the evolution of the design, and detailed discussions with the relevant highway authorities i.e. National Highways and the Local Highway Authorities for the strategic and local road networks respectively. The study area will be further refined and confirmed for ES stage.

It is expected that the majority of construction traffic accessing the sites will fall into the 'normal' sized category (i.e. transit vans and HGVs). However, it is likely that there could be some AIL. If abnormal loads are required to access the Site, the necessary notifications/ permits will be sought from relevant authorities.

All future traffic flow forecasts include a degree of uncertainty. The assessors will take appropriate account of the reasonably conceivable uncertainty when assessing potential likely significant effects, in discussion with relevant stakeholders.

8.16 Water resources and flood risk

8.16.1 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

Water resources and flood risk scope and methodology

Legislation, planning policy context and guidance

Relevant legislation, policy and guidance in addition to the key documents listed in **Section 2: Legislation and planning policy** that will inform the assessment include:

- Water Act 2014 (Ref 8.255);
- Flood and Water Management Act 2010 (Ref 8.256);
- Marine and Coastal Access Act 2009 (Ref 8.249);
- Environment Act 1995 (Ref 8.16);
- Land Drainage Act 1991 (Ref 8.258);
- Water Resources Act 1991 (Ref 8.259);
- Environmental Protection Act 1990 (Ref 8.1);
- Salmon and Freshwater Fisheries Act 1975 (Ref 8.250);
- Control of Pollution Act 1974 (Ref 8.190);

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- Water Environment (Water Framework Directive) (WFD) (England and Wales) Regulations 2017 (Ref 8.251);
- Environmental Permitting (England and Wales) Regulations 2016 (Ref 8.124);
- Water Supply (Water Quality) Regulations (2016) as amended (Ref 8.259);
- Environmental Damage (Prevention and Remediation) Regulations 2015 (Ref 8.108);
- Flood Risk Regulations 2009 (Ref 8.263);
- Eels (England and Wales) Regulations 2009 (Ref 8.264);
- Control of Substances Hazardous to Health Regulations 2002 (Ref 8.148);
- National Policy Statement for Water Resources Infrastructure (Ref 8.265);
- The UK Government's 25 Year Environment Plan (Ref 8.180);
- The UK Government's Environmental Improvement Plan (Ref 8.226);
- The UK Government's Future Water Strategy (2011) (Ref 8.266);
- National standards for sustainable drainage systems (SuDS) (Ref 8.267);
- The Building Regulations 2010 Approved Document H Drainage and Waste Disposal (Ref 8.268);
- Planning Policy Guidance: Flood Risk and Coastal Change (Ref 8.269);
- CIRIA (2023) Environmental good practice on site (fifth edition) (C741) (Ref 8.270);
- National Planning Policy Framework: Meeting the challenge of climate change, flooding and coastal change (Ref 8.271);
- Flood Risk Assessment (FRA) Guidance for New Development (Ref 8.272);
- Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive (Ref 8.273);
- The Sustainable Urban Drainage Systems (SuDS) Manual (Ref 8.274);
- Highways England (2020) Design Manual for Roads and Bridges (DMRB) LA113 Road Drainage and the Water Environment (Ref 8.128); and
- National SuDS Standards (Ref 8.275).

Baseline conditions

This section should be read in conjunction with **Section 8.7: Ground conditions** which summarises the baseline, **Figure 3.3: Water Resources and Flood Risk** and **Figure 8.10: Water Resources** (Volume II).

An initial study of the baseline environment has been undertaken through desk-based research. Key sources of information include:

- Environment Agency (Catchment Data Explorer website (Ref 8.252);
- Environment Agency Flood Map for Planning website (Ref 8.253);
- Environment Agency Long Term Flood Risk Map for Planning website (Ref 8.254);
- Defra's Multi-agency geographical information for the countryside website (MAGiC) website (Ref 8.34);
- BGS GeoIndex (Ref 8.81);
- Environment Agency Tees Catchment Abstraction Licensing Strategy (ALS) (Ref 8.281);
- Northumbria River Basin District (RBD) River Basin Management Plan (Ref 8.282);
- RCBC Local Flood Risk Management Strategy (Ref 8.283);
- SBC Local Flood Risk Management Strategy (Ref 8.284);
- HBC Local Flood Risk Management Strategy (Ref 8.285);
- DCC Local Flood Risk Management Strategy (Ref 8.286);

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- DBC Local Flood Risk Management Strategy (Ref 8.287);
- Natural England Nutrient Neutrality Catchments (England) Open Data Geoportal (Ref 8.288);
- Natural England Water Quality and Nutrient Neutrality Advice (16 March 2022) (NE785) (Ref 8.289);
- Natural England Teesmouth and Cleveland Coast Special Protection Area/Ramsar - Evidence Pack (TIN204) (Ref 8.290); and
- Environment Agency Swimfo: Finding a bathing water website (Ref 8.291).

Geological context/ groundwater

An overview of the geological and hydrogeological context of the Scoping Boundary and surrounding study area is provided in **Section 8.7: Ground conditions** and for conciseness, is not repeated here.

The Scoping Boundary lies within the EA Tees Catchment ALS area, which covers the River Tees and its tributaries across Teesside and County Durham. The ALS includes a range of superficial deposits (including glacial till, alluvium and estuarine deposits) overlying bedrock units such as Mercia Mudstone Group and Sherwood Sandstone Group, with locally important groundwater resources present primarily within secondary and, in places, principal aquifers. Abstraction licensing and water resource availability considerations therefore apply to sections of the Proposed Development where groundwater or surface water abstractions are present.

Source Protection Zones (SPZ) are defined by the Environment Agency around large and public potable groundwater abstraction locations. The purpose of SPZ is to provide additional protection from potential pollutants to safeguard drinking water quality through constraining the proximity of an activity that may impact upon a drinking water abstraction. The following subdivisions are defined within SPZ:

- Zone 1: A groundwater SPZ1 is the area immediately around an abstraction point for domestic supply or for food production purposes. Groundwater in a SPZ1 is most vulnerable to pollution given the close proximity of the abstraction point and the water's intended use for human consumption. This zone is defined by a groundwater travel time of 50-days or less from any point within the zone at, or below, the water table. Additionally, the zone has as a minimum a 50m radius.
- Zone 2: This zone is further away from the source and represents a lower risk of contamination compared to SPZ1. This zone is defined by the 400-day groundwater travel time from a point below the water table. Additionally, this zone has a minimum radius of 250 or 500m, depending on the size of the abstraction.
- Zone 3: This zone is defined as the total area needed to support the abstraction or discharge from the protected groundwater source.

SPZ are shown on **Figure 8.10: Water Resources** (Volume II). As summarised in **Section 8.7: Ground conditions**, at the most western end of the Scoping Boundary in Newton Aycliffe, the Proposed Development intercepts areas of SPZ1 (inner zone), SPZ 2 (outer zone) and SPZ 3 (total catchment) as follows:

- The Scoping Boundary intersects an area of SPZ1 (inner zone) for approximately 430m, where the pipeline will be routed in Newton Aycliffe.

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- The Scoping Boundary intersects an area of SPZ2 (outer zone) for approximately 670m, surrounding SPZ1 in Newton Aycliffe. The Scoping Boundary has a minor intersection with an area classified as SPZ2 north of Stillington for approximately 360m.
- The route intersects areas of SPZ3 (total catchment) between Newton Aycliffe and Stillington for approximately 11.3km.

The Proposed Development lies within the overall SPZ for approximately 12.5km.

There are approximately eight licensed water abstraction licenses within the study area. Anglo American Woodsmith Limited groundwater water abstraction licence is located within the Scoping Boundary, the remaining seven are located outside of the Scoping Boundary, these include:

- North Tees Ltd groundwater water abstraction licence – general use relating to secondary category (very low loss);
- Cleveland Potash Ltd tidal water abstraction licence – used for dust suppression;
- SABIC UK Petrochemicals groundwater water abstraction licence – general use relating to secondary category (low loss);
- Able UK Ltd tidal water abstraction licence – used for dust suppression;
- KP Snacks Ltd groundwater water abstraction licence – used as process water; and
- Wynyard Golf Club Ltd surface water abstraction licence- used for direct spray irrigation.

Details of private water supplies and discharges will be provided in the Applicant's consultation materials following further desk based research.

Surface water

The Scoping Boundary is intersected by eight Statutory Main Rivers. East to west along the Scoping Boundary, these are:

- Skelton Beck;
- Skelton Ellers Beck;
- River Tees;
- Greatham Creek / Seaton on Tees channel;
- Cowbridge Beck;
- Claxton Beck;
- Thorpe Beck; and
- River Skerne.

A significant number of ordinary watercourses are also crossed by the route of the Proposed Development as well as other watercourses, land drains and ditches. These features fall under the administrative control of Lead Local Flood Authorities (LLFAs). There are no Internal Drainage Boards within the study area.

All watercourses fall within the Northumbria RBD, and within this the Tees Management Catchment. Environmental objectives are defined in the Northumbria RBD River Basin Management Plan (Ref 8.282).

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In addition to these surface water features, a review of OS mapping has identified a number of ponds and reedbeds (both priority habitats) within the study area, some of which may occur within the Scoping Boundary. Saltholme Brine Reservoirs are also located in proximity to the Proposed Development.

Water Environment Regulations

The Proposed Development is located within the Northumbria RBD. The current status, status objectives and programme of measures derived by the EA for waterbodies located within this RBD are outlined within the Northumbria RBD River Basin Management Plan (Ref 8.282).

The Scoping Boundary intersects with the following WFD/ WER watercourses (east to west):

- Kilton Beck from Middle Gill Beck to North Sea (moderate ecological status);
- Kilton Beck from Source to Middle Gill Beck (bad ecological status);
- Saltburn Gill Catch trib of North Sea (moderate ecological status).
- Skelton Beck Catch (Saltburn) trib of North Sea (poor ecological status); and
- Tees Estuary (S Bank) (moderate ecological status);
- North Burn from Source to Claxton Beck (bad ecological status);
- Cowbridge Beck from Source to North Burn (moderate ecological status);
- Billingham Beck from Brierley Beck to Tees Es (moderate ecological status);
- Brierley beck from Source to Billingham Beck (moderate ecological status);
- Billingham Beck from Brierley Beck to Tees Es (moderate ecological status);
- Billingham Beck from Source to Bishopton Beck (poor ecological status);
- Billingham Beck from Bishopton Beck to Brierley (poor ecological status);
- Skerne from Woodham Burn to Demons Beck (poor ecological status); and
- Skerne from Demons Beck to Tees (poor ecological status).

According to the EA's online Catchment Data Explorer website (Ref 8.252), land within the Scoping Boundary intersects the following groundwater WFD water bodies:

- Tees Mercia Mudstone & Redcar Mudstone (poor overall status);
- Tees Sherwood Sandstone (good overall status); and
- Skerne Magnesian Limestone (poor overall status).

There are no Drinking Water Protected Areas (DWPA) within the study area.

Environmental Designations – Water Dependent Terrestrial Ecosystems

Groundwater Dependent Terrestrial Ecosystems (GWDTE) are designated by Defra based on SSSI outlines provided by Natural England, filtered to include only those sites with wetland vegetation communities. Details regarding these environmental designations as well as other statutory and non-statutory designated ecological sites are presented in **Appendix B: Biodiversity baseline**.

The following GWDTE within 1km of the Scoping Boundary (east to west) are:

- Teesmouth and Cleveland Coast SSSI, directly intersected; and
- Railway Stell West (SSSI), approximately 550m north.

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Environmental Designations – Nitrate vulnerable zone

The Scoping Boundary and broader study area lies within two Nitrate Vulnerable Zones (NVZ), Billingham Beck from Brierley Beck to River Tees NVZ (NVZ ID S245) and Skerne NVZ (NVZ ID S243) indicating that groundwater and surface water receptors are sensitive to diffuse agricultural nitrogen inputs.

The Billingham Beck waterbody (from Brierley Beck to the River Tees) is classified as a heavily modified river system within the Tees Lower and Estuary catchment and is currently at Moderate ecological status. Water quality pressures within this waterbody include elevated nutrient concentrations, with phosphate classified as Poor or Moderate, alongside contributions from diffuse agricultural sources (e.g. nutrient and livestock management) and point sources such as sewage discharges.

The Skerne NVZ (S243) reflects similar pressures within the adjacent Skerne catchment, including diffuse agricultural inputs, surface water–groundwater connectivity, and water quality constraints linked to nutrient and pollutant loading.

Nutrient Neutrality Catchments

The study area includes land that is hydrologically connected to the River Tees and downstream estuarine systems, which contribute to the Teesmouth and Cleveland Coast SPA and Ramsar site. These designated sites are recognised as sensitive to nutrient enrichment particularly nitrogen (for which the SPA has unfavourable status), which can adversely affect water quality and ecological integrity through eutrophication.

The conservation objectives for the SPA are to: “*restore water quality to mean winter dissolved inorganic nitrogen levels where biological indicators of eutrophication (opportunistic macroalgal and phytoplankton blooms) do not affect the integrity of the site and features*”. Natural England has therefore implemented Nutrient Neutrality policy, implemented a catchment wide scheme (which covers the entire Scoping Boundary including to Newton Aycliffe in the west). A Nutrient Mitigation Scheme has been implemented by Natural England which seeks to mitigate for any increase in pollution so that it is offset by mitigation resulting in reduced pollution within the same area. Delivery of nutrient mitigation in areas affected by pollution generates nutrient credits for developers to purchase in order to discharge obligations under the Habitats Regulations.

As part of the Habitat Regulations Assessment (HRA) that accompanies the Application, a nutrient neutrality assessment will be prepared, considering nutrient pathways, including surface water runoff, sediment transport and groundwater connectivity, will inform the identification of potential impact pathways to nutrient-sensitive receptors.

Bathing Waters

There are no designated bathing waters within the study area, however a number of locations along the Teesmouth and Cleveland Coast may be hydrologically connected through watercourses and catchment drainage. The designated bathing waters downstream of the Scoping Boundary are:

- Seaton Carew North (good annual classification as of 2025);
- Seaton Carew Centre (good annual classification as of 2025);
- Seaton Carew North Gare (excellent annual classification as of 2025);

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- Redcar Coatham (good annual classification as of);
- Redcar Lifeboat Station (excellent annual classification as of 2025);
- Redcar Granville (excellent annual classification as of 2025);
- Redcar Stray (excellent annual classification as of 2025);
- Marske Sand (excellent annual classification as of 2025); and
- Saltburn (excellent annual classification as of 2025).

These designated bathing waters are all >2km downstream of the nearest areas where construction works are likely to be undertaken for the Proposed Development.

Flood risk

According to the EA's flood map for planning and shown on **Figure 3.3: Water Resources and Flood Risk** (Volume II):

- 86.5% of the Scoping Boundary is within Flood Zone 1 where the probability of flooding is 'low' and defined as 'Land having a less than 0.1% annual probability of river or sea flooding'.
- 2.6% of the Scoping Boundary is within Flood Zone 2 where the probability of flooding is as 'medium' and defined as 'Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding'.
- 10.9% of the Scoping Boundary is within Flood Zone 3 where the probability of flooding is 'high' and defined as 'Land having a 1% or greater annual probability of river flooding; or land having a 0.5% or greater annual probability of sea flooding.' Land shown within Flood Zone 3 on the EA's flood map for planning includes all land within Flood Zone 3a (high risk of flooding) and Flood Zone 3b (functional floodplain) as the plan does not distinguish between the two categories. Flood Zone 3b (functional floodplain) is identified by local authorities as part of their Strategic Flood Risk Assessments (SRFA) although access to the geospatial datasets varies by local authority and is not fully accessible for the purposes of Scoping. This data will be requested and reviewed as part of the assessment.

Flood Zone 3 areas broadly correspond to the central section of the study area, west of the Tees, which has large areas of flood risk associated with the estuarine environment. The wetlands have several pools and streams within them which flood as a mechanism of the habitat, in addition to inundation by tidal water. Other areas of Flood Zone 3 within the Scoping Boundary and study area broadly correspond to localised areas main rivers and ordinary watercourses present.

As outlined in Northumbria RBD River Basin Management Plan (Ref 8.282); flood risk within the Tees catchment is managed through a combination of engineered and nature-based measures addressing fluvial, tidal and surface water flooding. Existing flood defences within the Teesside area comprise flood embankments, walls and coastal protection infrastructure associated with the River Tees and its estuary. In addition, the management approach is increasingly focused on catchment-scale and adaptive measures, including floodplain management, surface water controls and the restoration of intertidal habitats such as saltmarsh and mudflats. These measures contribute to reducing flood risk and improving resilience to climate change across the estuarine and coastal environment.

Water resources and flood risk scope and methodology

Shoreline Management Plans provided a planned approach to managing flood and coastal erosion risk across England including maintaining coastal defences and creating coastal adaptation and habitat creation plans. The Tyne to Flamborough Head Shoreline Management Plan (Ref 8.292) covers Hartlepool Headland to Saltburn PDZ65 and Skinningrove (PD6). These planning development zones (PDZ) will be further reviewed as part of the FRA that will accompany the Application.

The EA has completed Phase 1 and Phase 2 of the Greatham Creek Flood Alleviation Scheme (FAS) to respond to increasing flood risk associated with climate change, including the construction of flood embankments and upgraded defences to reduce tidal and fluvial flood risk from Greatham Creek and the River Tees, to benefit the Seal Sands Industrial area which includes the route of the Proposed Development.

Future baseline

It is reasonable to assume that improvements in the biological quality of all rivers may occur over time due to the WER, which requires all water bodies to achieve 'good ecological status' by 2027 (which is defined with reference to quantifiable parameters relating to ecological, hydromorphological, physico-chemical and chemical condition) and to experience no deterioration in status. This is underpinned by Natural England's Nutrient Neutrality Policy and Mitigation Scheme noted above. Good ecological status by 2027 is therefore to be assumed, and a continuation of good ecological status under future WER cycles.

Section 8.4: Climate change and resilience and accompanying **Appendix C: Climate change baseline and GHG potential impact tables** identify climate projections based on UKHab data which provides the context for the future baseline. Consistent with UK climate projections, the area is expected to experience warmer, drier summers and milder, wetter winters, alongside an increased frequency and intensity of storm events. These changes are likely to exacerbate flood risk and drainage pressures within highly modified industrial landscapes and urban catchments along the route. It is considered that these predicted changes to climate are also likely to lead to greater variability in groundwater levels along the alignment, particularly where the route crosses alluvial and made ground associated with the estuary and historic industrial activity. Prolonged periods of high groundwater levels may occur following sustained rainfall, while extended dry periods may result in reduced recharge, reflecting broader variability in rainfall patterns under future climate scenarios.

For flood risk, future climate change will increase the likelihood of extreme storm events. Planning Policy Guidance for flood risk and coastal change outlines the required climate allowances to be applied to either peak river flows or to peak rainfall intensity (depending on the nature of the analysis). The allowances that will need to be applied are determined by the location, the Flood Zone the development is in, and the vulnerability classification of the Proposed Development. These will be defined at ES stage of the assessment and considered in the FRA that accompanies the Application.

It is noted that additional strategic improvements are planned by the EA, Stockton on Tees Borough Council, Natural England, and relevant nature conservation partners in the study area to

Water resources and flood risk scope and methodology

manage tidal flood risk and promote nature recovery in the Tees Estuary as part of the Tees Tideland programme (Ref 8.165).

Sensitive receptors and study area

Receptors relevant to the assessment include:

- surface water bodies (including all watercourses);
- groundwater bodies (superficial and bedrock aquifers);
- GWDTE/ other water dependant environmentally designated sites;
- WER groundwater and surface water bodies;
- abstractions (both licensed and private water supplies) and consented discharges;
- other water features identified from OS mapping (including springs, lakes, ponds and reedbeds).

The water resources study area will be defined by the draft Order Limits plus a 1km buffer selected based on professional judgement of the potential impacts and pathways related to the Proposed Development. The study area will be reviewed as the design develops to take into account any activities which have the potential to impact water resources at greater distance, including underlying aquifers, SPZ, springs, groundwater abstractions and potential GWDTE beyond 1km where features are likely to have hydrological connectivity to the Proposed Development.

With regard to flood risk, the study area encompasses all crossings of main rivers and ordinary watercourses, including any associated floodplains that may experience physical impacts as a result of the Proposed Development. The final study area will consider all receptors that are potentially in hydraulic continuity with the Proposed Development (including downstream receptors and wider flood risk areas) as well as areas where flood defences will benefit the Proposed Development.

Potential impacts

Construction and decommissioning

Potential for direct impacts (changes) to water quality of surface water receptors within the draft Order Limits and downstream (including WFD river waterbodies and tributary watercourses) from the introduction of contaminants and/ or sediment, and potential indirect impacts to hydraulically connected water dependant habitats and protected areas/ sites. The potential for impacts to arise from the following construction activities is noted:

- earthworks, site clearance and ground disturbance leading to potential sediment releases;
- construction of trench for laying pipeline;
- construction of laydown areas and construction compounds;
- construction of access roads;
- construction of modified AGI;
- modification of existing assets over/ under watercourses;
- HDD or other trenchless construction methods for pipeline installation under or in close proximity to watercourses and potential bentonite break-out;
- temporary dewatering including potential discharge following treatment;
- other open-cut watercourse crossings; and
- demand for water supply and potentially foul drainage at construction compounds.

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During construction the following impacts may occur:

- reductions in water quality and aquatic habitat quality of surface water bodies present within the Site, or downstream water bodies, as a result of localised dewatering, ground disturbance and associated sediment releases during construction activities;
- reductions in water quality and aquatic habitat quality of surface water bodies as a result of localised dewatering, sediment release and disturbance from the construction;
- reductions in water quality and increased turbidity of groundwater, resulting from localised dewatering, the groundwork and associated sediment releases during construction activities; and
- reductions in water quality of surface water bodies or groundwater bodies present within the Site, as a result of dewatering and accidental release of contaminants (such as fuel oils and lubricants from construction plant, accidental spillage during refuelling, spillage of construction materials, wheel washing and waste storage).

As described in **Section 4.2: Overview of the Proposed Development**, in the event that an existing tunnel is used for the Tees Crossing, water from the dewatering activities would either be discharged to the River Tees following treatment in a filtration system or transported off-site via tanker to a licensed water treatment facility. Testing will be undertaken to determine the status of water within existing tunnel(s), including any contaminants present in order to identify methods for treatment/ solutions for discharge of water following dewatering.

Potential for impacts (changes) to flow/ levels of surface water receptors within the draft Order Limits and downstream (including WFD river waterbodies and tributary watercourses), and potential indirect impacts to hydraulically connected water dependant habitats/ riparian habitats and protected areas/ sites. Potential for effects to arise from:

- physical loss of land drains that are present within the draft Order Limits and associated impacts to hydromorphological condition and aquatic habitat quality, as a result of construction activities;
- changes to surface runoff patterns and land drainage, resulting in altered flows/ levels of receiving watercourses or other surface water features including flood risk;
- subsoil compaction and reduced infiltration, resulting in increases in localised overland flooding and reduced recharge to groundwater;
- impacts on local hydrogeology and groundwater resources including any private water supplies and licensed abstractions. Changes to groundwater levels, flows and quality arising from construction activities including temporary dewatering;
- placement of impermeable structures/ surfaces/ temporary laydown areas leading to reduced infiltration/ groundwater recharge and a potential reduction in groundwater-surface water interactions (including flows/ levels of nearby watercourses or other surface water features);
- physical loss or degradation of existing ordinary watercourses/ land drains and/ or riparian habitats present;
- river continuity from the construction of watercourse crossings;
- increased risk of flooding within the draft Order Limits and to neighbouring land due to temporary changes in nature and extent of the floodplain, including displacement or changes in floodplain storage; and

Water resources and flood risk scope and methodology

- potential increased exposure to flood risk during the construction phase by introducing new receptors in areas potentially at risk of flooding, i.e. construction infrastructure and workers.

Pipeline integrity typically needs to be tested using water which depending on the source may require a biocide to be added (i.e. hydrostatic testing). The source of this water, how much is needed, and where it will be discharged will need to be determined, and the need for any additional quantitative studies agreed with the EA at a later stage. At this stage it is assumed that there is no requirement for water abstraction from surface water or groundwater during construction. Should this position change at ES stage, the Applicant would discuss the approach with the relevant consultees.

As the location of construction compounds and requirement for connections to foul drainage have not yet been determined, impacts will be reported in the ES that accompanies the Application following engagement with relevant stakeholders.

Operation

Potential for direct impacts (changes) to water quality of surface water receptors within the draft Order Limits and downstream (including WFD river waterbodies and tributary watercourses).

Potential for effects to arise from:

- changes to surface water drainage patterns and land drainage due to changes to the drainage network;
- the potential for existing contaminants to migrate along the Proposed Development infrastructure impacting upon controlled waters (Scoped In in **Section 8.7: Ground conditions**);
- accidental spillages of contaminants or pollutants (such as fuel oils, construction materials or waste storage) during any repair/ maintenance activities; and/ or
- runoff of potentially contaminated water in the unlikely event of a fire.

Potential for impacts (changes) to flow/ levels of surface water and groundwater receptors within the draft Order Limits and downstream (including WFD river and groundwater bodies and tributary watercourses), and potential indirect impacts to hydraulically connected water dependant habitats and protected areas/ sites. Potential for effects to arise from:

- restoration of permeable surfaces at construction compounds following completion of construction; and/ or
- placement of lower permeability areas (compounds typically comprising a combination of gravel and hardstanding structures) at modified AGI locations, leading to reduced infiltration/ groundwater recharge and a potential reduction in groundwater-surface water interactions (including flows/ levels of nearby watercourses or other surface water features).

Potential for impacts to hydromorphological condition (including form, processes and in-channel and/ or riparian habitats) of surface water receptors within the draft Order Limits and downstream (including WFD river water bodies and tributary watercourses). Potential for effects to arise from:

- river continuity from any new features relating to watercourse crossings; and/ or

Water resources and flood risk scope and methodology

- changes to surface runoff patterns and land drainage, resulting in altered flows/ levels of receiving watercourses with potential impacts on fluvial geomorphological processes.

Potential flood risk impacts during operation have the potential to arise from:

- changes in the nature and extent of the floodplain, including displacement or changes in floodplain storage due to presence of pipelines/ AGI;
- the potential for groundwater emergence and increased groundwater flood risk due to presence of pipeline below ground in areas where groundwater flood risk exists;
- placement of impermeable structures/ surfaces and/ or soil compaction, resulting in reduced infiltration and increases in localised overland flooding at modified AGI locations;
- increased risks due to other forms of flooding (e.g. sewer/ reservoir/ canal breach) at AGI locations; and/ or
- changes to surface runoff patterns and land drainage, resulting in altered watercourse flows/levels and fluvial flood risk.

Decommissioning

During decommissioning of the pipeline(s), it is assumed that above ground infrastructure will be removed and below ground infrastructure will be left in situ. Therefore, the impacts during the decommissioning are considered comparable with, or likely less than, those of the construction stage. As a result, this has been Scoped In to the EIA.

Embedded measures

Design

Watercourse crossings will be minimised where possible within the design of the Proposed Development via routeing and micro-siting. The design of major crossings will be informed by desk study and where required, ground investigation.

Any infrastructure within or alongside watercourses will be designed to reduce the potential for significant detrimental impact on flow conveyance and localised or catchment-wide impacts on flood risk; this will include any watercourse diversions, or any culverting advised as a result of the permanent works.

Any permanent watercourse diversions or crossings will be designed to assist in continuity of conveyance and floodplain utilisation such that there is no residual significant detrimental impact on the wider catchment.

Sensitive habitats such as wetlands and potential GWDTE, and existing abstractions will be considered and where reasonably practicable, avoided, within the design.

Any infrastructure impacting the floodplain and areas of high and medium flood risk will be accompanied by a suitable floodplain compensation strategy to include measures to manage the impacts of loss of floodplain storage or conveyance.

Other design impact avoidance measures outlined in **Section 4.3: Design principles** include:

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- a minimum 10m offset will be maintained from the bank top of all watercourses from all infrastructure (including fencing) and construction works (other than where these watercourses are to be crossed);
- suitable stand offs/ avoidance measures (to be determined dependent on construction activities, local conditions and potential presence of ecological features) will be maintained from water bodies, springs, spring catchments or boreholes to minimise risk of pollution;
- as far as reasonably practicable, construction access tracks will be permeable to allow water to filtrate through and maintain greenfield runoff rates;
- any infrastructure within or alongside watercourses will be designed to reduce the potential for significant detrimental impact on flow conveyance and localised or catchment-wide impacts on flood risk;
- sensitive habitats such as wetlands and potential GWDTE, and existing abstractions will be considered and avoided where reasonably practicable within the Proposed Development design;
- where suitable alternatives exist, drilling fluids containing substances hazardous to groundwater will be avoided for trenchless crossings;
- the design of the Proposed Development will seek to avoid localised increases in groundwater flooding risk and changes to the availability of water resources; and
- the integrity of existing agricultural land drainage systems will be maintained including maintaining provision of water for livestock, as far as reasonably practicable.

Construction

An oCEMP will be produced to accompany the Application with the final CEMP secured via a requirement of the draft DCO. The final CEMP would be produced by the appointed contractors in accordance with the oCEMP and be implemented to avoid, minimise or mitigate effects on the water environment during the construction phase of the Proposed Development. The oCEMP would include all measures specified in the ES to avoid or reduce likely significant effects on water resources and flood risk.

Standard measures to be included in the oCEMP will be based on the EA's Pollution Prevention Guidelines (PPG) (which are currently being reviewed and replaced where advised), the relevant CIRIA publications and best practice measures outlined its replacement series, guidance for pollution prevention (GPP).

Subject to the assessments provided in the ES, the oCEMP may also include:

- A surface water management system using measures such as temporary silt fencing, cut off ditches, settlement ponds and bunds set up early in the construction period to capture runoff and prevent ingress of sediments and contaminants into existing drainage ditches where advised.
- Management of construction spillage risk i.e. details of how fuel and other chemicals will be stored, used on site, and equipment and plant cleaned, as well as how leaks and spillages will be prevented or remediated if needed. This will also include the implementation of a Pollution Prevention Plan and an Emergency Response Plan.

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- Where required, laydown areas will be levelled to provide an even surface and underlain by semi-permeable surfacing, to allow surface water and rainwater to percolate through. No hazardous materials will be stored unbunded within the construction laydown areas.
- Contaminated water that cannot be treated on site would, if advised, be pumped to a suitably licenced tanker before being exported off-site for treatment at an appropriately permitted facility.
- For any open-cut crossings, it is assumed that flow would be temporarily over-pumped, diverted around or flumed through the working area and the watercourse fully reinstated on completion of works, in keeping with standard construction practice;
- Any temporary groundwater dewatering, including discharges, if required will be undertaken in line with the requirements of the Environment Agency under the Water Resources Act 1991 as amended (Ref 8.259), Environmental Permitting (England and Wales) Regulations 2016 (Ref 8.124) and the Water Abstraction and Impounding (Exemptions) Regulations 2017 (Ref 8.278).
- A Flood Warning and Evacuation Plan will be developed where works are within areas potentially affected by flooding. This will set out the potential risks and identify a procedure for receiving and acting on flood warnings or for monitoring conditions on site to assist in the awareness of potential risks for site operatives how to mitigate them through safe working practices.
- Works in the floodplain would be suspended during out-of-bank river flows, coastal water inundation or during intense rainstorms.
- A suitable strategy will be developed for managing any temporary impacts on floodplain storage or conveyance which may include identifying specific areas outside the floodplain for storage of materials or providing compensatory storage on a temporary basis.
- Water use efficiency measures will be adopted where applicable, for example rainwater harvesting and grey water re-use for wheel washing and dust suppression.

The final CEMP would also set out the requirements for monitoring the effectiveness of mitigation measures to reduce pollution or flood risk.

Operation

Measures set out for 'Design' will be effective at avoiding/ reducing to as low as reasonably practicable, any ongoing risks during operation. Potential mobilisation of contaminated groundwater and potential for new preferential pathways for poor water quality due to potential location of new structures will be assessed through design development. The design of the pipeline will take account of groundwater level and flow, to prevent loss of baseflow to groundwater dependent receptors, and minimise groundwater flood risk.

Appropriate permanent drainage design will be installed at AGI locations, considering SuDS principles.

Decommissioning

At the end of its operational life, all below ground infrastructure will remain in situ; however, all connection and access points will be sealed or grouted to ensure disconnection. At this stage it is assumed that decommissioning impacts are expected to be limited and will be the same/ similar

Water resources and flood risk scope and methodology					
to the construction impacts, as discussed above. A DEMP will be produced prior to decommissioning and will likely include similar measures as included within the CEMP. The final DEMP would be secured via requirement of the draft DCO.					
Scope – Construction (C) Operation and maintenance (O); Decommissioning (D)					
Sub topic; Scoped In ✓ Scoped Out ✗ or n/a	Proposed Development component	C	O	D	Rationale
Changes to surface water and groundwater quality	Pipeline	✓	✓	✗ (Below ground elements)	During the construction and operational phases, there is the potential for direct and indirect adverse effects on surface water and groundwater quality and water resources as set out in 'Impacts' section above. Given the presence of two NVZ within the scoping boundary and hydrological connectivity to the Teesmouth and Cleveland Coast SPA and Ramsar site which are sensitive to nutrient enrichment, the potential for nutrient mobilisation via surface water pathways during construction will be considered as part of this. As the majority of the pipeline would remain in situ after the operational life of the pipeline, it is anticipated that significant effects are unlikely to occur and are Scoped Out. Where above ground elements are deconstructed, impacts and effects are Scoped In.
	AGI	✓	✓	✓	Likelihood for non-significant effects but Scoped In to provide scheme wide assessment.
Changes to surface water and groundwater quantity including water supply	Pipeline	✓	✓	✗	During the construction and operational phases, there is the potential for direct and indirect adverse effects on surface water and groundwater quantity including abstractions set out in 'Impacts' section above. At this stage it is not known how water supplies will be obtained

Water resources and flood risk scope and methodology					
					and managed during construction of the pipeline. The pipeline is expected to need to be hydrostatically tested. However, once installed there should be no requirement for water supply. As the majority of the below ground sections of pipeline would remain in situ after its operational life ceases, it is anticipated that significant effects are unlikely to occur and are Scoped Out .
	AGI	✓	✓	✓	Likelihood for non-significant effects but Scoped In to provide scheme wide assessment.
Changes to hydromorphology of watercourses	Pipeline	✓	✓	X	During construction there is the potential for temporary adverse impacts on the hydromorphology of watercourses as set out in 'Impacts' section above. Permanent structures affecting watercourses, can also result in hydromorphological impacts during operation. During decommissioning, the majority of the pipeline will be left in situ under watercourses and thus it is anticipated that significant effects are unlikely to occur and are Scoped Out .
	AGI	✓	✓	✓	Likelihood for non-significant effects but Scoped In to provide scheme wide assessment.
Water Framework Directive Assessment	Pipeline	✓	✓	X	During construction, there is the potential for temporary adverse impacts on WFD objectives which could continue into operation, depending upon the effectiveness of design and impact avoidance measures set out above. As the majority of the pipeline would remain in situ after the operational life of the pipeline, it is anticipated that significant effects are unlikely to occur and are Scoped Out .

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	AGI	✓	✓	✓	Likelihood for non-significant effects but Scoped In to provide scheme wide assessment.
Flood risk related impacts	Pipeline	✓	✓	✓	The ES would identify all sources of flood risk and assess the potential for likely significant effects to and from the Proposed Development from sources of flood risk where they are likely to occur. The FRA that accompanies the Application will describe how the Proposed Development is designed with regard to flood risk, including relevant climate change allowance that address projected increases in flood risk. Any flood defences within the Scoping Boundary will be considered within the assessment in regard to potential breach events and the residual risk of defence failures.
	AGI	✓	✓	✓	Likelihood for non-significant effects but Scoped In to provide scheme wide assessment.

Assessment methodology

Baseline conditions and surveys

A desk study will be prepared using publicly available data and data received from stakeholders through technical engagement/ Product 4 requests in order to identify all relevant receptors within the study area (i.e. water bodies and the services they support and to enable classification of their importance). A Groundsure report (or similar) will inform the desk study.

A baseline water environment walk-over survey will be carried out (where land access allows) to ground-truth and expand on the data received during the desk study and to gain an understanding of the existing topography, hydrological and hydrogeological conditions of the study area, and, where possible, address data deficiencies. The geographical scope of the survey will be limited to land within the draft Order Limits, the wider upstream/ downstream sections of watercourse within the study area will also be visited where accessible from PRow/ roads etc. This survey can be carried out at any time but is best undertaken during the winter and early spring when visibility of the watercourses is likely to be greatest. The location, characteristics and flow direction of water features (including visible ponds) will be undertaken. Qualitative observations of the morphology of water features will be made and olfactory observations regarding their water quality noted.

Following the surveys, the baseline condition and conceptual understanding of the geology, hydrogeology and hydrology within the draft Order Limits will be refined. Identification of all key

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receptors and assignment of importance/ sensitivity will be completed before completing the impact assessment.

As the Scoping Boundary passes through areas of Principal Aquifer (which is associated with high groundwater vulnerability) review of any existing ground investigations would be undertaken to assess the potential for groundwater flooding, or otherwise new investigations may be required.

Impact assessment

Source – Pathway – Receptor approach

The impact assessment will be based on a source-pathway-receptor approach. For an impact on the water environment to exist the following is required:

- an impact source (such as the release of polluting chemicals, particulate matter, or biological materials that cause harm to humans or other living organisms, or the loss or damage to all or part of a waterbody);
- a receptor that is sensitive to that impact (i.e. waterbodies and the services they support); and
- a pathway or pathways by which the two are linked.

The assessment methodology will involve:

The sources will be identified through a review of the details of the Proposed Development during construction, operational and decommissioning phases, including the size and nature of development, potential construction methodologies and timescales.

As the receptors will have been identified by walk-over/ desk study, the next step is to determine if there is a viable exposure pathway or a 'mechanism' linking the source of impact to the receptor. This will be undertaken in the context of local conditions relative to the water receptors within the study area, such as topography, geology, climatic conditions and considering the nature of the impact (e.g. the mobility of a liquid pollutant or the proximity to works that may physically impact a waterbody. Embedded measures will be taken into consideration in identifying the likely risk of an impact occurring, including adherence to legislation.

The assessment of the likely significant effects will be largely qualitative, and will consider construction, operational (and maintenance) and decommissioning phases that are Scoped In by combining receptor sensitivity and magnitude of impact. In the event any quantitative assessment is required, this would be discussed with relevant stakeholders. Criteria that will be used to classify receptor importance, impact magnitude and likely significant effects are presented in

Appendix J: Water resources and flood risk impact assessment criteria.

Where any likely significant effects are identified, proposed mitigation will be designed and embedded or included in relevant management plans (e.g. the oCEMP, oOEMP, oDEMP) and identification of residual effects will be reported on this basis in the ES.

Flood Risk Assessment (FRA)

National Policy Statement (NPS) EN-1, paragraph 5.8.36 states: *"In determining an application for development consent, the Secretary of State should be satisfied that where relevant:*

- *the application is supported by an appropriate FRA;*
- *the Sequential Test has been applied and satisfied as part of site selection;*

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- *a sequential approach has been applied at the site level to minimise risk by directing the most vulnerable uses to areas of lowest flood risk;*
- *the proposal is in line with any relevant national and local flood risk management strategy;*
- *SuDS have been used unless there is clear evidence that their use would be inappropriate;*
- *in flood risk areas the project is designed and constructed to remain safe and operational during its lifetime, without increasing flood risk elsewhere;*
- *the project includes safe access and escape routes where required, as part of an agreed emergency plan, and that any residual risk can be safely managed over the lifetime of the development; and*
- *land that is likely to be needed for present or future flood risk management infrastructure has been appropriately safeguarded from development to the extent that development would not prevent or hinder its construction, operation or maintenance."*

The FRA that accompanies the Application will be prepared in accordance with the NPS EN-1.

Flood risk will be assessed using existing data and information requested from the Environment Agency and where relevant, each LLFA. Initially, a preliminary FRA will be undertaken to qualitatively identify flood risks from all sources, both to the Proposed Development, and from the Proposed Development to other receptors. Where the preliminary (scoping) FRA identifies the potential for flood risk impacts, a more detailed FRA may be subsequently undertaken using hydraulic calculations or models to be agreed with the EA, to identify likely impacts on receptors and to inform the need for mitigation design.

WER Compliance Assessment

A standalone WER Compliance Assessment will be undertaken to assess the potential impacts of the Proposed Development on the status and status objectives of the WFD surface and groundwater bodies present within the draft Order Limits and any linked WFD waterbodies. Initially, a screening WER Compliance Assessment will be undertaken. Where this screening assessment identifies the potential for any non-compliance risks, a scoping level of assessment will be undertaken and inform the identification and design or any additional mitigation requirements. The assessment will follow the process set out in the PINS guidance on WFD Assessments for Nationally Significant Infrastructure Projects (NSIP).

Outline Drainage Strategy

An Outline Drainage Strategy will be prepared, and appended to the FRA, to demonstrate the appropriate management of surface water runoff from the Proposed Development at AGI locations. The strategy will outline how surface water will be managed during the operational phase, including consideration of SuDS where relevant.

Consultation

The following key stakeholders will be consulted:

- Environment Agency – regarding baseline data/ information and potential impacts on water environment and resource receptors, flood risk, and WFD/ WER objectives.
- The LLFA at each LPA – regarding baseline data/ information and potential impacts on flood risk (including site drainage).

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Assumptions and limitations

The following data limitations apply at this stage:

- The current baseline understanding of the water environment within the study area, summarised above, has been collated based on a range of publicly available data and information. The accuracy of the baseline condition assessment is reliant upon the accuracy of the data available from the sources. Any third-party information, including the readily available data sources and input from external consultations is to be assumed to be accurate at the time of writing.
- A detailed baseline assessment and receptor valuation of all the watercourses within study area will be undertaken within the ES. This will be supported by targeted surveys to ground -truth and verify the receptor values where there is uncertainty from the available desk-based information and/ or in key impact/ risk areas (e.g. proposed watercourse crossing sites).
- The environmental importance of receptors, together with the magnitude of potential impacts and significance of environmental effects, may change during later phases as more information and data becomes available, although a reasonable worst-case will be assumed in the assessment to identify likely significant effects.

8.17 References

- Ref 8.1 UK Government, 1990. Environmental Protection Act 1990. Available at: <https://www.legislation.gov.uk/ukpga/1990/43/contents>
- Ref 8.2 UK Government, 2010. The Air Quality Standards Regulations 2010. Available at: <https://www.legislation.gov.uk/uksi/2010/1001/contents>
- Ref 8.3 UK Government, 2018. The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018. Available at: <https://www.legislation.gov.uk/uksi/2018/764>
- Ref 8.4 European Union, 2008. Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe. Available at: <https://eur-lex.europa.eu/eli/dir/2008/50/oj/eng>
- Ref 8.5 UK Government, 1981. Wildlife and Countryside Act 1981. Available at: <https://www.legislation.gov.uk/ukpga/1981/69/contents>
- Ref 8.6 Natural England, 2018. Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001). Available at: <https://publications.naturalengland.org.uk/publication/4720542048845824> (Accessed May 2026)
- Ref 8.7 IAQM and EPUK, 2017. Land-use Planning and Development Control: Planning for Air Quality. Available at: <https://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf> (Accessed May 2026)
- Ref 8.8 IAQM, 2020. A guide to the assessment of air quality impacts on designated nature conservations. Available at:

<https://safe.menlosecurity.com/doc/docview/viewer/docNF6ECD17A9D55656a6e7d94ef4a8a0c40c8d262accac312d2b21de842c1fb840b11dbfdfe9eba> (Accessed May 2026)

- Ref 8.9 IAQM, 2024. Guidance on the assessment of dust from demolition and construction. Available at: <https://safe.menlosecurity.com/doc/docview/viewer/docNB6A97DB1193Cb2860c26e68411f64f2ecedc09ccdb24b7da43e040cb0ebdc3a7a275882c3fed> (Accessed May 2026)
- Ref 8.10 Local Air Quality Management (LAQM) Technical Guidance LAQM.PG (2022). (Accessed May 2026)
- Ref 8.11 Redcar and Cleveland, 2025. 2025 Air Quality Annual Status Report (ASR). Available at: <https://www.redcar-cleveland.gov.uk/sites/default/files/2025-08/Annual%20Status%20Report%20-%20Air%20Quality%20-%202025.pdf> (Accessed May 2026)
- Ref 8.12 Stockton-on-Tees, 2025. 2025 Air Quality Annual Status Report (ASR). Available at: <https://www.stockton.gov.uk/air-quality> (Accessed May 2026)
- Ref 8.13 Hartlepool Borough Council, 2024. 2024 Air Quality Annual Status Report (ASR). Available at: <https://www.hartlepool.gov.uk/downloads/file/205/hbc-air-quality-annual-status-report-2024> (Accessed May 2026)
- Ref 8.14 Durham County Council. 2024. 2024 Air Quality Annual Status Report (ASR). Available at: <https://durham.gov.uk/media/31865/Air-Quality-Annual-Status-Report-ASR/pdf/AirQualityAnnualStatusReport.pdf?m=1717432038257> (Accessed May 2026)
- Ref 8.15 Darlington Borough Council, 2025. 2025 Air Quality Annual Status Report (ASR). Available at: <https://www.darlington.gov.uk/media/jqdfeshz/asr-2025-final.pdf> (Accessed May 2026)
- Ref 8.16 UK Government, 1995. Environment Act 1995. Available at: <https://www.legislation.gov.uk/ukpga/1995/25/contents>
- Ref 8.17 DEFRA, 2021. Background Mapping data for local authorities. Available at: <https://uk-air.defra.gov.uk/data/laqm-background-home> (Accessed May 2026)
- Ref 8.18 National Highways, 2024. LA 105 – Air Quality. Available at: <https://www.standardsforhighways.co.uk/search/af7f4cda-08f7-4f16-a89f-e30da703f3f4> (Accessed May 2026)
- Ref 8.19 DEFRA, 2023. National air quality objectives and European Directive limit and target values for the protection of human health. Available at: https://uk-air.defra.gov.uk/assets/documents/Air_Quality_Objectives_Update_20230403.pdf (Accessed May 2026)
- Ref 8.20 UK Government, 2021. Environment Act 2021. Available at: <https://www.legislation.gov.uk/ukpga/2021/30/contents>
- Ref 8.21 UK Government, 2017. The Conservation of Habitats and Species Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents>

- Ref 8.22 UK Government, 2000. Countryside and Rights of Way Act 2000. Available at: <https://www.legislation.gov.uk/ukpga/2000/37/contents>
- Ref 8.23 UK Government, 2006. Natural Environment and Rural Communities Act 2006. Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents>
- Ref 8.24 UK Government, 1997. The Hedgerows Regulations 1997. Available at: <https://www.legislation.gov.uk/uksi/1997/1160/contents>
- Ref 8.25 UK Government, 1992. Protection of Badgers Act 1992. Available at: <https://www.legislation.gov.uk/ukpga/1992/51/contents>
- Ref 8.26 UK Government, 2019. The Invasive Alien Species (Enforcement and Permitting) Order 2019. Available at: <https://www.legislation.gov.uk/uksi/2019/527>
- Ref 8.27 UK Government, 2024. The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024. Available at: <https://www.legislation.gov.uk/uksi/2024/48/contents/made>
- Ref 8.28 CIEEM, 2017. Guidelines for Preliminary Ecological Appraisal. Available at: <https://cieem.net/resource/guidance-on-preliminary-ecological-appraisal-gpea/> (Accessed May 2026)
- Ref 8.29 CIEEM, 2024. Guidelines for Ecological Impact Assessment in the UK and Ireland. Available at: <https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/> (Accessed May 2026)
- Ref 8.30 DEFRA, Natural England, Natural Resource Wales and Welsh Government, 2021. Habitats regulations assessments: protecting a European site. Available at: <https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site> (Accessed May 2026)
- Ref 8.31 PINS, 2024. Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-habitats-regulations-assessments> (Accessed May 2026)
- Ref 8.32 IAQM, 2020. A guide to the assessment of air quality impacts on designated nature conservation sites. Available at: <https://safe.menlosecurity.com/doc/docview/viewer/docN5D02F43F91F57827ab06e9c2986876447cb3152cd2e69e19bb5bb026b3dd67e0256bc0989af6> (Accessed May 2026)
- Ref 8.33 CIEEM, 2023. Advisory Note: Ecological Assessment of Air Quality Impacts. Available at: <https://cieem.net/resource/advisory-note-ecological-assessment-of-air-quality-impacts/> (Accessed May 2026)
- Ref 8.34 DEFRA, 2026. MAGIC Map. Available at: <https://magic.defra.gov.uk/MagicMap.html> (Accessed May 2026)
- Ref 8.35 Natural England, 2019. Ancient Woodland (England). Available at: https://naturalengland-defra.opendata.arcgis.com/datasets/a14064ca50e242c4a92d020764a6d9df_0/about (Accessed May 2026)

- Ref 8.36 Natural England, 2017. Priority River Habitat - Rivers (England). Available at: <https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::priority-river-habitat-rivers-england/about> (Accessed May 2026)
- Ref 8.37 Environment Agency, 2026. Ecology and Fish Data Explorer. Available at: <https://environment.data.gov.uk/ecology/explorer/> (Accessed May 2026)
- Ref 8.38 UKHab, 2023. The UK Habitat Classification Version 2.0. Available at: <https://www.ukhab.org.uk> (Accessed May 2026)
- Ref 8.39 UK Government, 2008. Climate Change Act 2008. Available at: <https://www.legislation.gov.uk/ukpga/2008/27/contents>
- Ref 8.40 UK Government, 2019. The Climate Change Act 2008 (2050 Target Amendment) Order 2019. Available at: <https://www.legislation.gov.uk/ukdsi/2019/9780111187654>
- Ref 8.41 DEFRA, 2022. UK Climate Change Risk Assessment 2022. Available at: <https://www.gov.uk/government/publications/uk-climate-change-risk-assessment-2022> (Accessed May 2026)
- Ref 8.42 UK Government, 2016. The Carbon Budget Order 2016. Available at: <https://www.legislation.gov.uk/uksi/2016/785/made>
- Ref 8.43 UK Government, 2021. The Carbon Budget Order 2021. Available at: <https://www.legislation.gov.uk/uksi/2021/750/contents/made>
- Ref 8.44 Climate Change Committee, 2025. The Seventh Carbon Budget. Available at: <https://www.theccc.org.uk/publication/the-seventh-carbon-budget/> (Accessed May 2026)
- Ref 8.45 DEFRA, 2023. Third National Adaptation Programme (NAP3). Available at: <https://www.gov.uk/government/publications/third-national-adaptation-programme-nap3> (Accessed May 2026)
- Ref 8.46 UK Government, 2016. Designing for Infrastructure Resilience. Available at: https://assets.publishing.service.gov.uk/media/57d6bc5be5274a34fb00002e/Designing_for_Infrastructure_Resilience_July_2016_external.pdf
- Ref 8.47 Environment Agency, 2022. Flood risk assessments: climate change allowances. Available at: <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances> (Accessed May 2026)
- Ref 8.48 ISEP, 2020. ISEP EIA Guide to: Climate Change Resilience and Adaptation. Available at: <https://www.isepglobal.org/content/iema-eia-guide-to-climate-change-resilience-and-adaptation-2020/> (Accessed May 2026)
- Ref 8.49 Met Office; Hollis, D.; McCarthy, M.; Kendon, M.; Legg, T.; Simpson, I, 2018. HadUK-Grid gridded and regional average climate observations for the UK. Centre for Environmental Data Analysis, Available at: <http://catalogue.ceda.ac.uk/uuid/4dc8450d889a491ebb20e724debe2dfb> (Accessed April 2026)

- Ref 8.50 Met Office Hadley Centre, 2018. UKCP18 Regional Projections at 12km Resolution for 1980-2080. Centre for Environmental Data Analysis, date of citation.
<https://catalogue.ceda.ac.uk/uuid/8c6c0ae2c25947168826a70d2241b797> (Accessed April 2026)
- Ref 8.51 Maisiey P, Fung F, Harris G, Lowe J, McSweeney C, Mitchell JFB, Murphy J, Rostron J, Sexton D and Yamazaki K, 2026. UKCP18 Factsheet: Precipitation. Met Office Hadley Centre. Available at:
<https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-precipitation-factsheet-january-2026.pdf> (Accessed April 2026)
- Ref 8.52 Met Office, n.d. Climate change in the UK. Available at:
<https://weather.metoffice.gov.uk/climate-change/climate-change-in-the-uk> (Accessed April 2026)
- Ref 8.53 Pirret JSR, Fung F, Locatelli T and Manning C, 2023. UK Climate Projections Factsheet: Storms. Met Office, Available at:
<https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-factsheet-storms.pdf> (Accessed April 2026)
- Ref 8.54 Fung F, Bett P, Maisiey P, Lowe J, McSweeney C, Mitchell JFB, Murphy J, Rostron J, Sexton D and Yamazaki K, 2019. UKCP18 Factsheet: Wind. Met Office Hadley Centre. Available at:
https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-fact-sheet-wind_march21.pdf (Accessed April 2026)
- Ref 8.55 Met Office, 2026. UK Climate Projections. Available at: <https://ukclimateprojections-ui.metoffice.gov.uk/ui/home> (Accessed April 2026)
- Ref 8.56 UK Government, 1979. Ancient Monuments and Archaeological Areas Act 1979. Available at: <https://www.legislation.gov.uk/ukpga/1979/46/contents>
- Ref 8.57 UK Government, 1990. Planning (Listed Buildings and Conservation Areas) Act 1990. Available at: <https://www.legislation.gov.uk/ukpga/1990/9/contents>
- Ref 8.58 UK Government, 2015. The Town and Country Planning (Development Management Procedure) (England) Order 2015. Available at:
<https://www.legislation.gov.uk/uksi/2015/595/contents>
- Ref 8.59 UK Government, 2010. The Infrastructure Planning (Decisions) Regulations 2010. Available at: <https://www.legislation.gov.uk/uksi/2010/305/contents/made>
- Ref 8.60 Department for Culture, Media and Sport, 2023. Treasure Act 1996: Code of Practice (3rd Revision). Available at: <https://www.gov.uk/government/publications/treasure-act-1996-code-of-practice-3rd-revision> (Accessed May 2026)
- Ref 8.61 UK Government, 1857. Burial Act 1857. Available at:
<https://www.legislation.gov.uk/ukpga/Vict/20-21/81/contents>
- Ref 8.62 UK Government, 1986. Protection of Military Remains Act 1986. Available at:
<https://www.legislation.gov.uk/ukpga/1986/35/contents>

- Ref 8.63 UK Government, 1953. Historic Buildings and Ancient Monuments Act 1953. Available at: <https://www.legislation.gov.uk/ukpga/Eliz2/1-2/49/contents>
- Ref 8.64 UK Government, 2025. National Planning Policy Framework: 16. Conserving and enhancing the historic environment. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>
- Ref 8.65 UK Government, 2019. The PPG: Historic environment. Available at: <https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment>
- Ref 8.66 Historic England, 2015. Historic Environment Good Practice Advice in Planning: 2: Managing Significance in Decision-Taking in the Historic Environment. Available at: <https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/> (Accessed May 2026)
- Ref 8.67 Historic England, 2017. Historic Environment Good Practice Advice in Planning: 3 (2nd Edition): The Setting of Heritage Assets. Available at: <https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/> (Accessed May 2026)
- Ref 8.68 Historic England, 2019. Statements of Heritage Significance: Analysing Significance in Heritage Assets, Historic England Advice Note 12. Available at: <https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/heag279-statements-heritage-significance/> (Accessed May 2026)
- Ref 8.69 Historic England, 2008. Conservation Principles, Policies and Guidance. Available at: <https://historicengland.org.uk/advice/constructive-conservation/conservation-principles> (Accessed May 2026)
- Ref 8.70 Chartered Institute for Archaeologists, 2020. Standard and guidance for historic environment desk-based assessment. Available at: <https://www.archaeologists.net/sites/default/files/2023-11/CIfA-SandG-DBA-2020.pdf> (Accessed May 2026)
- Ref 8.71 IEMA (now ISEP), IHBC, and CiFA, 2021. Principles of Cultural Heritage Impact Assessment in the UK. Available at: https://www.archaeologists.net/sites/default/files/2024-11/CIfA-IEMA-Principles-Cultural-Heritage-Impact-UK_2021.pdf (Accessed May 2026)
- Ref 8.72 UK Government, 2013. Scheduled monuments policy statement. Available at: <https://www.gov.uk/government/publications/scheduled-monuments-policy-statement>
- Ref 8.73 Historic England, 2026. National Heritage List for England. Available at: <https://historicengland.org.uk/listing/the-list> (Accessed May 2026)
- Ref 8.74 Natural England, 2026. National Character Area Profiles. Available at: <https://nationalcharacterareas.co.uk/> (Accessed May 2026)
- Ref 8.75 Redcar and Cleveland, 2006, Landscape Character Assessment. Available at: <https://www.redcar-cleveland.gov.uk/sites/default/files/2022-04/Landscape%20Character%20Assessment%20%282006%29.pdf> (Accessed May 2026)

- Ref 8.76 Stockton-on-Tees Borough Council, 2011, Landscape character assessment and capacity study. Available at: <https://www.stockton.gov.uk/article/1878/Landscape-character-assessment-and-capacity-study> (Accessed May 2026)
- Ref 8.77 Hartlepool Borough Council, n.d, Hartlepool Landscape Assessment List of Contents. Available at; https://docslib.org/doc/9347422/hartlepool-landscape-assessment-list-of-contents#google_vignette (Accessed May 2026)
- Ref 8.78 Durham Landscape, 2008, The Landscape Character Assessment. Available at: <https://durhamlandscape.info/durham-landscape/the-landscape-character-assessment/> (Accessed May 2026)
- Ref 8.79 Darlington Borough Council, 2015, Landscape Character Assessment. Available at: <https://www.darlington.gov.uk/planning-and-building-regs/planning/planning-and-environmental-policy/strategies-projects-and-studies/landscape-character-assessment/> (Accessed May 2026)
- Ref 8.80 Marine Management Organisation, 2018. Seascape Character Assessment for the North East Inshore and Offshore marine plan areas. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/750226/North_East_-_Seascape_character_assessment_report.pdf (Accessed May 2026)
- Ref 8.81 British Geological Survey, 2026. BGS Geology Viewer. Available at: <https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/> (Accessed May 2026)
- Ref 8.82 National Library of Scotland, 2026. Historic Mapping. Available at: <https://maps.nls.uk/os/> (Accessed May 2026)
- Ref 8.83 Historic England, 2026. Historic Landscape Characterisation. Available at: <https://historicengland.org.uk/research/methods/characterisation/historic-landscape-characterisation/> (Accessed May 2026)
- Ref 8.84 Historic England, 2013. North Yorkshire, York and Lower Tees Valley Historic Landscape Characterisation. Available at: https://archaeologydataservice.ac.uk/archives/view/nyorks_hlc_2013/ (Accessed May 2026)
- Ref 8.85 Tees Archaeology, 2026. Tees Archaeology Historic Environment Record online webviewer. Available at: <https://teesarchaeology.com/historical-environmental-record-her/> (Accessed May 2026)
- Ref 8.86 National Highways, 2020. Design Manual for Roads and Bridges, Sustainability & Environment Appraisal. [Online]. Available at: <https://www.standardsforhighways.co.uk/dmrb> (Accessed May 2026)
- Ref 8.87 DESNZ, 2025. Overarching National Policy Statement (NPS) for Energy (EN-1). Available at: <https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025> (Accessed May 2026)
- Ref 8.88 UK Government, 2025. National Planning Policy Framework. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

- Ref 8.89 UNFCCC, 1998. Kyoto protocol to the united nations framework convention on climate change. Available at: <https://unfccc.int/resource/docs/convkp/kpeng.pdf> (Accessed May 2026)
- Ref 8.90 UNFCCC. The Paris Agreement. Available at: <https://unfccc.int/process-and-meetings/the-paris-agreement> (Accessed May 2026)
- Ref 8.91 UK Government, 2025. National Planning Policy Framework: 14: Meeting the challenge of climate change, flooding and coastal change. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>
- Ref 8.92 UK Government, 2019. PPG on Climate Change. Available at: <https://www.gov.uk/guidance/climate-change>
- Ref 8.93 UK Government, 2018. Clean Growth Strategy. Available at: <https://www.gov.uk/government/publications/clean-growth-strategy>
- Ref 8.94 UK Government, 2021. UK hydrogen strategy. Available at: <https://www.gov.uk/government/publications/uk-hydrogen-strategy>
- Ref 8.95 UK Government, 2025. UK's 2035 Nationally Determined Contribution (NDC) emissions reduction target under the Paris Agreement. Available at: <https://www.gov.uk/government/publications/uks-2035-nationally-determined-contribution-ndc-emissions-reduction-target-under-the-paris-agreement>
- Ref 8.96 UK Government, 2026. UK Low Carbon Hydrogen Standard. Available at: <https://www.gov.uk/government/publications/uk-low-carbon-hydrogen-standard-emissions-reporting-and-sustainability-criteria>
- Ref 8.97 ISEP, 2022. ISEP Guide: Assessing Greenhouse Gas Emissions and Evaluating their Significance. <https://www.isepglobal.org/content/iema-guide-assessing-greenhouse-gas-emissions-and-evaluating-their-significance/> (Accessed May 2026)
- Ref 8.98 World Resource Institute, 2024. Greenhouse Gas Protocol. Available at: <https://www.wri.org/initiatives/greenhouse-gas-protocol> (Accessed May 2026)
- Ref 8.99 UK Government, 2025. Construction 2025: strategy. Available at: <https://www.gov.uk/government/publications/construction-2025-strategy>
- Ref 8.100 BSI, 2023. Carbon Management in Buildings and Infrastructure - PAS 2080. Available at: <https://www.bsigroup.com/en-GB/insights-and-media/insights/brochures/carbon-management-in-buildings-and-infrastructure/> (Accessed May 2026)
- Ref 8.101 RICS, 2024. Whole life carbon assessment for the built environment. Available at: [https://www.rics.org/content/dam/ricsglobal/documents/standards/Whole life carbon assessment PS Sept23.pdf](https://www.rics.org/content/dam/ricsglobal/documents/standards/Whole_life_carbon_assessment_PS_Sept23.pdf) (Accessed May 2026)
- Ref 8.102 ISEP, 2020. ISEP - Pathways to Net Zero: Using the ISEP GHG Management Hierarchy. Available at: <https://www.isepglobal.org/content/pathways-to-net-zero-using-the-iema-ghg-management-hierarchy-november-2020/> (Accessed May 2026)
- Ref 8.103 BSI, 2022. Sustainability of construction works. Sustainability assessment of civil engineering works. Calculation methods. Available at:

<https://landingpage.bsigroup.com/LandingPage/Standard?UPI=00000000030408035>
(Accessed May 2026)

- Ref 8.104 Institute of Sustainability and Environmental Professionals (ISEP), 2026. Assessing Greenhouse Gas Emissions and Evaluating their Significance. Supplementary Guidance (Edition 2.1). Available at: <https://www.isepglobal.org> (Accessed May 2026)
- Ref 8.105 DESNZ, 2025. Greenhouse gas reporting: conversion factors 2025. Available at: <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2025> (Accessed May 2026)
- Ref 8.106 Circular Ecology, 2025. Inventory of Carbon & Energy (ICE) Database. Available at: <https://circularecology.com/news/ice-database-v4-1-released> (Accessed May 2026)
- Ref 8.107 DESNZ, 2023. Valuation of energy use and greenhouse gas (GHG) emissions, Supplementary guidance to the HM Treasury Green Book on Appraisal and Evaluation in Central Government. Available at: <https://assets.publishing.service.gov.uk/media/65aadd020ff90c000f955f17/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal.pdf> (Accessed May 2026)
- Ref 8.108 UK Government, 2010. The Marine Strategy Regulations 2010. Available at: <https://www.legislation.gov.uk/uksi/2010/1627/contents>
- Ref 8.109 UK Government, 2017. The Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended). Available at: <https://www.legislation.gov.uk/uksi/2017/1013/contents>
- Ref 8.110 Marine Management Organisation (MMO), 2021. North East Inshore and North East Offshore Marine Plans. Available at: <https://www.gov.uk/government/publications/the-north-east-marine-plans-documents> (Accessed May 2026)
- Ref 8.111 Marine Management Organisation (MMO), 2025. Marine licensing: Information you may need to supply to support your marine licence application. Available at: <https://www.gov.uk/guidance/marine-licensing-impact-assessments> (Accessed May 2026)
- Ref 8.112 Environment Agency, 2023. Water Framework Directive assessment: estuarine and coastal waters (Clearing the Waters for All). Available at: <https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters> (Accessed May 2026)
- Ref 8.113 Natural England, 2026. Marine Protected Areas: conservation advice packages. Available at: <https://www.gov.uk/government/collections/conservation-advice-packages-for-marine-protected-areas> (Accessed May 2026)
- Ref 8.114 Natural England, 2012. Improvement Programme for England's Natura 2000 Sites (IPENS). Available at: <https://www.gov.uk/government/publications/improvement-programme-for-englands-natura-2000-sites-ipens> (Accessed May 2026)
- Ref 8.115 UK Government, 1970, Conservation of Seals Act. Available at: <https://www.legislation.gov.uk/ukpga/1970/30>

- Ref 8.116 Joint Nature Conservation Committee (JNCC), 2018. Monitoring guidance for marine benthic habitats (Revised June 2018). Available at: <https://jncc.gov.uk/resources/9ade4be8-63dd-4bbc-afd0-aefe71af0849> (Accessed May 2026)
- Ref 8.117 Industry Nature Conservation Association (INCA), 2024, Tees Seals Research Programme Monitoring Report No.34. Compiled by Ian Bond. (Accessed May 2026)
- Ref 8.118 Tara Seal Research, n.d., Tees Estuary. Available at: <https://www.sealresearch.org/research/publications/tees-estuary> (Accessed May 2026)
- Ref 8.119 Tees River Trust, n.d., Seagrass Reintroduction. Available at: <https://www.teesrivertrust.org/seagrass-reintroduction> (Accessed May 2026)
- Ref 8.120 NBN Trust, 2026. The National Biodiversity Network (NBN) Atlas. Available at: <https://nbnatlas.org/> (Accessed May 2026)
- Ref 8.121 Environment Agency, 2017. River Tees upstream fish counts. Available at: <https://www.gov.uk/government/statistical-data-sets/river-tees-upstream-fish-counts> (Accessed May 2026)
- Ref 8.122 UK Government, 2015. The Environmental Damage (Prevention and Remediation) (England) Regulations 2015. Available at: <https://www.legislation.gov.uk/ukxi/2015/810/contents>
- Ref 8.123 UK Government, 1991. Water Resources Act 1991. Available at: <https://www.legislation.gov.uk/ukpga/1991/57/contents>
- Ref 8.124 UK Government, 2016. The Environmental Permitting (England and Wales) Regulations 2016. Available at: <https://www.legislation.gov.uk/ukxi/2016/1154/contents>
- Ref 8.125 Environment Agency, 2025. Land contamination risk management (LCRM). Available at: <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm> (Accessed May 2026)
- Ref 8.126 Ciria, 2001. Contaminated land risk assessment - a guide to good practice. Available at: <https://cis.ihs.com/CIS/document/252468?PreviousPage=browse%252fpublishers%252fciria> (Accessed May 2026)
- Ref 8.127 National Highways, 2019. DMRB LA 109 - Geology and soils. Available at: <https://www.standardsforhighways.co.uk/search/adca4c7d-4037-4907-b633-76eae30b9c0> (Accessed May 2026)
- Ref 8.128 National Highways, 2020. DMRB LA 113 - Road drainage and the water environment. Available at: <https://www.standardsforhighways.co.uk/search/d6388f5f-2694-4986-ac46-b17b62c21727> (Accessed May 2026)
- Ref 8.129 ISEP, 2022. A New Perspective on Land and Soil in Environmental Impact Assessment. Available at: <https://www.shropshire.gov.uk/media/27336/cd-910-iema-land-and-soils-guidance.pdf> (Accessed May 2026)

- Ref 8.130 ISEP, 2025. New ISEP advice note: Soil health in environmental assessment. Available at: <https://www.isepglobal.org/resources/blogs/2026/january/new-isep-advice-note-soil-health-in-environmental-assessment/> (Accessed May 2026)
- Ref 8.131 Natural England, 2019. Provisional Agricultural Land Classification (ALC) (England). Available at: <https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::provisional-agricultural-land-classification-alc-england/about> (Accessed May 2026)
- Ref 8.132 Zetica, 2026. Risk Maps. Available at: <https://zeticauxo.com/guidance/risk-maps/> (Accessed May 2026)
- Ref 8.133 CL:AIRE, 2011. The Definition of Waste: Development Industry Code of Practice. Available at: [file:///C:/Users/ellie.francis/Downloads/Definition%20of%20Waste.%20Development%20Industry%20Code%20of%20Practice%20\(1\).pdf](file:///C:/Users/ellie.francis/Downloads/Definition%20of%20Waste.%20Development%20Industry%20Code%20of%20Practice%20(1).pdf) (Accessed May 2026)
- Ref 8.134 DEFRA, 2011. Code of practice for the sustainable use of soils on construction sites. Available at: <https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites> (Accessed May 2026)
- Ref 8.135 National Highways, 2019. DMRB LA 109 - Geology and soils. Available at: <https://www.standardsforhighways.co.uk/search/adca4c7d-4037-4907-b633-76eaed30b9c0> (Accessed May 2026)
- Ref 8.136 Landscape Institute, 2024. Guidelines for Landscape and Visual Impact Assessment (GLVIA3). Available at: <https://landscapeinstitute.org/policy-practice/technical/assessments-standards/glvia3-panel/> (Accessed May 2026)
- Ref 8.137 UK Government, 2015. The Control of Major Accident Hazards Regulations 2015. Available at: <https://www.legislation.gov.uk/uksi/2015/483/contents>
- Ref 8.138 UK Government, 1996. The Pipelines Safety Regulations 1996. Available at: <https://www.legislation.gov.uk/uksi/1996/825/contents>
- Ref 8.139 UK Government, 2015. The Planning (Hazardous Substances) Regulations 2015. Available at: <https://www.legislation.gov.uk/uksi/2015/627/contents>
- Ref 8.140 UK Government, 1974. Health and Safety at Work etc. Act 1974. Available at: <https://www.legislation.gov.uk/ukpga/1974/37/contents>
- Ref 8.141 UK Government, 1992. The Workplace (Health, Safety and Welfare) Regulations 1992. Available at: <https://www.legislation.gov.uk/uksi/1992/3004/contents>
- Ref 8.142 Hartlepool Borough Council, 2020, Detailed Emergency Planning Zone Determination Report. Available at: [DEPZ Determination Report | Detailed Emergency Planning Zone Determination Report | Hartlepool Borough Council](#) (Accessed May 2026)
- Ref 8.143 UK Government, 1996. The Gas Safety (Management) Regulations. Available at: <https://www.legislation.gov.uk/uksi/1996/551/contents>
- Ref 8.144 UK Government, 1998. The Liftin Operations and Lifting Equipment Regulations 1998. Available at: <https://www.legislation.gov.uk/uksi/1998/2307/contents>

- Ref 8.145 UK Government, 1999. The Management of Health and Safety at Work Regulations 1999. Available at: <https://www.legislation.gov.uk/uksi/1999/3242/contents>
- Ref 8.146 UK Government, 2002. The Dangerous Substances and Explosive Atmospheres Regulations 2002. Available at: <https://www.legislation.gov.uk/uksi/2002/2776/contents>
- Ref 8.147 British Geological Survey, (n.d.). National Landslide Database. Available at: <https://www.bgs.ac.uk/geology-projects/landslides/national-landslide-database/> (Accessed May 2026)
- Ref 8.148 UK Government, 2002. The Control of Substances Hazardous to Health Regulations 2002. Available at: <https://www.legislation.gov.uk/uksi/2002/2677/contents>
- Ref 8.149 UK Government, 2004. Civil Contingencies Act 2004. Available at: <https://www.legislation.gov.uk/ukpga/2004/36/contents>
- Ref 8.150 UK Government, 2005. The Regulatory Reform (Fire Safety) Order 2005. Available at: <https://www.legislation.gov.uk/uksi/2005/1541/contents>
- Ref 8.151 UK Government, 2010. The Building Regulations 2010. Available at: <https://www.legislation.gov.uk/uksi/2010/2214/contents>
- Ref 8.152 UK Government, 2015. The Construction (Design and Management) Regulations 2015. Available at: <https://www.legislation.gov.uk/uksi/2015/51/contents>
- Ref 8.153 UK Government, 2025. Guidance: National Risk Register 2025. Available at: <https://www.gov.uk/government/publications/national-risk-register-2025>
- Ref 8.154 ISEP (formerly IEMA), 2020. Major Accidents and Disasters in EIA: A Primer. Available at: https://www.iema.net/media/brbdeibt/j27374_iema_major_accidents_disasters_final-1.pdf (Accessed May 2026)
- Ref 8.155 European Commission, 2009. Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds. Available at: <https://www.legislation.gov.uk/eudr/2009/147/adopted> (Accessed May 2026)
- Ref 8.156 The Council Of The European Communities (1992) Council Directive (92/43/EEC) on the Conservation of Natural Habitats and of Wild Fauna and Flora. Available at: <https://www.legislation.gov.uk/eudr/1992/43/contents?view=plain> (Accessed May 2026)
- Ref 8.157 UK Cabinet Office, 2021. Emergency Preparedness. Available at: <https://www.gov.uk/government/publications/emergency-preparedness> (Accessed May 2026)
- Ref 8.158 Planning Inspectorate, 2024. Advice on working with public bodies in the infrastructure planning process, Annex G: The Health and Safety Executive. Available at: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-eleven-working-with-public-bodies-in-the-infrastructure-planning-process/nationally-significant-infrastructure-projects-advice-note-eleven-annex-g-the-health-and-safety-executive> (Accessed May 2026)

- Ref 8.159 European Commission, 2020. Overview of natural and man-made disaster risks the European Union may face 2020 edition. Available at: <https://op.europa.eu/en/publication-detail/-/publication/89fcf0fc-edb9-11eb-a71c-01aa75ed71a1> (Accessed May 2026)
- Ref 8.160 Health and Safety Executive, 2001. Reducing Risks Protecting People decision-making process. Available at: <https://www.hse.gov.uk/enforce/assets/docs/r2p2.pdf> (Accessed May 2026)
- Ref 8.161 Cleveland Local Resilience Forum, 2024. Cleveland Community Risk Register. Available at: <https://www.hartlepool.gov.uk/downloads/file/163/cleveland-community-risk-register-2024> (Accessed May 2026)
- Ref 8.162 County Durham and Darlington Local Resilience Forum, 2024. County Durham & Darlington Community Risk Register (CRR) 2024 – 2026. Available at: https://www.ddfire.gov.uk/sites/default/files/2024-09/CDDLRF_Community_Risk_Register_2024-2026.pdf (Accessed May 2026)
- Ref 8.163 HSE (2015) COMAH 2015 Public Information. Available at: <https://notifications.hse.gov.uk/COMAH2015/Search.aspx> (Accessed May 2026)
- Ref 8.164 British Geological Survey, n.d., GeoIndex Onshore. Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.40744864.343672629.1778830319-1084368743.1778830319 (Accessed May 2026)
- Ref 8.165 Environment Agency and Natural England, 2023, Tees programme launched to reduce flood risk and boost nature. Available at: <https://www.gov.uk/government/news/tees-programme-launched-to-reduce-flood-risk-and-boost-nature> (Accessed May 2026)
- Ref 8.166 Environment Agency, 2024, Wetland restored and 55km of river opened at Billingham Beck. Available at: <https://www.gov.uk/government/news/wetland-restored-and-55km-of-river-opened-at-billingham-beck> (Accessed May 2026)
- Ref 8.167 Health and Safety Executive (n.d) Major Hazard Regulatory Model - Safety management in major hazard sectors. Available at: <https://www.hse.gov.uk/regulating-major-hazards/assets/docs/major-hazards-regulatory-model.pdf> (Accessed May 2026)
- Ref 8.168 UK Government, 2015. The Construction (Design and Management) Regulations 2015 (SI 2015/51). Available at: <https://www.legislation.gov.uk/ukxi/2015/51/contents>
- Ref 8.169 UK Government, 1999. The Management of Health and Safety at Work Regulations 1999 (SI 1999/3242). Available at: <https://www.legislation.gov.uk/ukxi/1999/3242/contents>
- Ref 8.170 UK Government, 1992. The Workplace (Health, Safety and Welfare) Regulations 1992 (SI 1992/3004) (as amended). Available at: <https://www.legislation.gov.uk/ukxi/1992/3004/contents>
- Ref 8.171 UK Government, 1974. Health and Safety at Work etc. Act 1974 (c. 37). Available at: <https://www.legislation.gov.uk/ukpga/1974/37/contents>
- Ref 8.172 UK Government, 1998. The Provision and Use of Work Equipment Regulations 1998. Available at: <https://www.legislation.gov.uk/ukxi/1998/2306/contents>

- Ref 8.173 European Commission, 2008. Waste Framework Directive. Available at: https://environment.ec.europa.eu/topics/waste-and-recycling/waste-framework-directive_en (Accessed May 2026)
- Ref 8.174 European Commission, 2020. A new Circular Economy Action Plan For a cleaner and more competitive Europe. Available at: https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC_1&format=PDF (Accessed May 2026)
- Ref 8.175 UK Government, 2011. The Waste (England and Wales) Regulations 2011. Available at: <https://www.legislation.gov.uk/uksi/2011/988/contents>
- Ref 8.176 UK Government, 2018. Regulations: Waste Electrical and Electronic Equipment (WEEE). Available at: <https://www.gov.uk/guidance/regulations-waste-electrical-and-electronic-equipment>
- Ref 8.177 UK Government, 2014. National planning policy for waste. Available at: <https://www.gov.uk/government/publications/national-planning-policy-for-waste>
- Ref 8.178 UK Government, 2018. Our Waste, Our Resource: a strategy for England. Available at: <https://assets.publishing.service.gov.uk/media/5c18f11740f0b60bbe0d827/resources-waste-strategy-dec-2018.pdf>
- Ref 8.179 Durham County Council, 2026, County Durham Local Aggregate Assessment (2024 Sales & Reserves Data). Available at: <https://www.durham.gov.uk/media/49089/County-Durham-Local-Aggregate-Assessment-January-2026-2024-Sales-and-Reserves-Data/pdf/CountyDurhamLocalAggregateAssessment2024ReservesAndSales.pdf?m=1773307254150> (Accessed May 2026)
- Ref 8.180 UK Government, 2018. A Green Future: Our 25 year plan to improve the Environment. Available at: <https://www.gov.uk/government/publications/25-year-environment-plan>
- Ref 8.181 UK Government, 2021. Outcome Indicator Framework. Available at: <https://oifdata.defra.gov.uk/outcome-indicator-framework/>
- Ref 8.182 Department for Business and Trade, 2024. Monthly Statistics of Building Materials and Components. Available at: <https://www.gov.uk/government/collections/building-materials-and-components-monthly-statistics-2012#2026-monthly-bulletins> (Accessed May 2026)
- Ref 8.183 WRAP. Designing Out Waste: A Design Team Guide for Civil Engineering. Available at: <https://www.ciria.org/CIRIA/Resources/REK/Guidance/Designing%20out%20waste%20guidance%20a%20design%20team%20guide.aspx> (Accessed May 2026)
- Ref 8.184 British Geological Society, 2024. World Mineral Production 2017 -2021. Available at: <https://www.bgs.ac.uk/mineralsuk/news/world-mineral-production/> (Accessed May 2026)
- Ref 8.185 Darlington Borough Council, Hartlepool Borough Council, Middlesbrough Council, Redcar and Cleveland Borough Council and Stockton-on-Tees Borough Council, 2023. Tees Valley Joint Local Aggregates Assessment. Available at:

<https://www.middlesbrough.gov.uk/media/pqqpmvec/tees-valley-local-aggregates-assessment-2023.pdf> (Accessed May 2026)

- Ref 8.186 Environment Agency, 2024. 2024 Waste Data Interrogator. Available at: <https://www.data.gov.uk/dataset/81f9d676-e77c-4d68-ab0c-b67e0b0b353e/2024-waste-data-interrogator> (Accessed May 2026)
- Ref 8.187 High Speed Rail (2015) High Speed Rail London to West Midlands Environmental Statement. Available at: <https://www.gov.uk/government/collections/hs2-phase-one-environmental-statement-documents> (Accessed May 2026)
- Ref 8.188 ISEP, 2020. Materials and Waste in Environmental Impact Assessment. Available at: <https://www.isepglobal.org/content/materials-and-waste-in-environmental-impact-assessment-march-2020/> (Accessed May 2026)
- Ref 8.189 DEFRA, 2025. UK statistics on waste. Available at: <https://www.gov.uk/government/statistics/uk-waste-data/uk-statistics-on-waste> (Accessed May 2026)
- Ref 8.190 UK Government, 1974. Control of Pollution Act 1974. Available at: <https://www.legislation.gov.uk/ukpga/1974/40/contents>
- Ref 8.191 UK Government, 2010. Noise policy statement for England. Available at: <https://www.gov.uk/government/publications/noise-policy-statement-for-england>
- Ref 8.192 UK Government, 2019. PPG – Noise. Available at: <https://www.gov.uk/guidance/noise--2>
- Ref 8.193 BSI, 2019. BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound. Available at: https://www.warrington.gov.uk/sites/default/files/2020-08/cf54_bs_4142_2014_a1_2019.pdf (Accessed May 2026)
- Ref 8.194 UK Government, 2023. Method implementation document (MID) for BS 4142. Available at: <https://www.gov.uk/government/publications/method-implementation-document-mid-for-bs-4142/method-implementation-document-mid-for-bs-4142>
- Ref 8.195 BSI, 2014. BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Available at: <https://landingpage.bsigroup.com/LandingPage/Standard?UPI=000000000030258086> (Accessed May 2026)
- Ref 8.196 BSI, 2003. BS 7445-1:2003 Description and measurement of environmental noise - Guide to quantities and procedures. Available at: <https://knowledge.bsigroup.com/products/description-and-measurement-of-environmental-noise-guide-to-quantities-and-procedures> (Accessed May 2026)
- Ref 8.197 BSI, 2008. BS 6472-1:2008 Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting. Available at: <https://landingpage.bsigroup.com/LandingPage/Standard?UPI=000000000019971044> (Accessed May 2026)

- Ref 8.198 BSI, 1993. BS 7385-2:1993 Evaluation and measurement for vibration in buildings - Guide to damage levels from groundborne vibration. Available at:
<https://landingpage.bsigroup.com/LandingPage/Standard?UPI=000000000000315191>
(Accessed May 2026)
- Ref 8.199 Moorhouse, AT, Waddington, DC and Adams, MD, 2005. Procedure for the assessment of low frequency noise disturbance. Available at:
<https://safe.menlosecurity.com/doc/docview/viewer/docND8601FF6F6499ca77b0d0cfcb78ce15753c3b2c2f4fd17131ac2a9e6c38b054bb5221ec88d70> (Accessed May 2026)
- Ref 8.200 ISO, 1993. 9613-1:1993 Acoustics – Attenuation of sound during propagation outdoors – Part 1: Calculation of the absorption of sound by the atmosphere. Available at:
<https://www.iso.org/standard/17426.html> (Accessed May 2026)
- Ref 8.201 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. Available at: <https://www.iso.org/standard/74047.html> (Accessed May 2026)
- Ref 8.202 National Highways, 2020. LA 111 Noise and Vibration. Available at:
<https://www.standardsforhighways.co.uk/tse/attachments/cc8cfcf7-c235-4052-8d32-d5398796b364?inline=true> (Accessed May 2026)
- Ref 8.203 Department of Transport Welsh Office, 1988. Calculation of Road Traffic Noise. Available at: <https://n-somerset.gov.uk/sites/default/files/2022-11/CD13.02%20Department%20of%20Transport%20and%20Welsh%20Office%20%281988%29.%20Calculation%20of%20Road%20Traffic%20Noise..pdf> (Accessed May 2026)
- Ref 8.204 World Health Organisation, 2018. Environmental noise guidelines for the European Region. Available at: <https://www.who.int/europe/publications/i/item/9789289053563> (Accessed May 2026)
- Ref 8.205 World Health Organisation, 1999. Guidelines for community noise. Available at:
<https://www.who.int/publications/i/item/a68672> (Accessed May 2026)
- Ref 8.206 World Health Organisation, 2009. Night noise guidelines for Europe. Available at:
<https://www.who.int/europe/publications/i/item/9789289041737> (Accessed May 2026)
- Ref 8.207 IEMA, 2014. Guidelines for Environmental Noise Impact Assessment. Available at:
https://www.communities.heidelbergmaterials.co.uk/sites/default/files/2024-08/CD6.4%20Institute%20of%20Environmental%20Management%20%26%20Assessment%20%28IEMA%29%20Guidelines%20for%20Environmental%20Noise%20Impact%20Assessment%20-%20November%202014_194885551_1.pdf (Accessed May 2026)
- Ref 8.208 Acoustics & Noise Consultants (ANC), 2021. Environmental sound measurement guide. Available at: <https://www.association-of-noise-consultants.co.uk/green-book-environmental-sound-measurement-guide> (Accessed May 2026)
- Ref 8.209 UK Government, 1974. Control of Pollution Act 1974. Available at:
<https://www.legislation.gov.uk/ukpga/1974/40/contents>
- Ref 8.210 BSI, 2003. BS 7445-1:2003 - Description and measurement of environmental noise - Guide to quantities and procedures. Available at:

<https://knowledge.bsigroup.com/products/description-and-measurement-of-environmental-noise-guide-to-quantities-and-procedures> (Accessed May 2026)

- Ref 8.211 Acoustic and Noise Consultants, 2021. Green Book: Environmental Sound Measurement Guide. Available at: <https://www.association-of-noise-consultants.co.uk/publications-guidelines/> (Accessed May 2026)
- Ref 8.212 BSI, 2008. BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Noise. Available at: <https://landingpage.bsigroup.com/LandingPage/Standard?UPI=000000000030258086> (Accessed May 2026)
- Ref 8.213 BSI, 2008. BS 5228-2 Code of practice for noise and vibration control on construction and open sites. Vibration. Available at: <https://landingpage.bsigroup.com/LandingPage/Undated?UPI=000000000000041918> (Accessed May 2026)
- Ref 8.214 Homes and Communities Agency, 2014. Additionality Guide. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/378177/additionality_guide_2014_full.pdf (Accessed May 2026)
- Ref 8.215 ISEP, 2025. Social Impact Assessment in Environmental Impact Assessment in the UK and Ireland. Available at: <https://www.isepglobal.org/resources/blogs/2025/october/isep-launches-new-guide-on-social-impact-assessment/> (Accessed May 2026)
- Ref 8.216 UK Government, 2026. The Green Book (2026). Available at: <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government/the-green-book-2026>
- Ref 8.217 The Royal Society for the Protection of Birds, n.d., Saltholme Nature Reserve. Available at: <https://www.rspb.org.uk/days-out/reserves/saltholme> (Accessed May 2026)
- Ref 8.218 Tees Borough Council, n.d., Cowpen Bewley Woodland Park. Available at: <https://www.stockton.gov.uk/article/9601/Cowpen-Bewley-Woodland-Park> (Accessed May 2026)
- Ref 8.219 Natural England, 2010, Teesmouth National Nature Reserve (NE276). Available at: <https://publications.naturalengland.org.uk/publication/35029> (Accessed May 2026)
- Ref 8.220 Redcar and Cleveland Borough Council, 2018. Redcar and Cleveland local Plan Policies Map 2018. Available at: <https://rcbc.maps.arcgis.com/apps/webappviewer/index.html?id=a30313b145a94427a6084f160d2f20b9> (Accessed April 2026)
- Ref 8.221 Stockton-on-Tees, 2019. Local Plan Policies Map. Available at: <https://moderngov.stockton.gov.uk/Data/Council/201901301900/Agenda/att35555.pdf>
- Ref 8.222 Durham County Council, 2024. County Durham Statutory Development Plan Policies Map. Available at: <https://durhamcounty.maps.arcgis.com/apps/instant/sidebar/index.html?appid=98d8317175a445b98709b7a50815067e> (Accessed April 2026)

- Ref 8.223 Darlington Borough Council, 2016. Adopted local plan 2016 – 2036. Available at: <https://www.darlington.gov.uk/planning-and-building-regs/planning/planning-and-environmental-policy/adopted-local-plan-2016-2036/>
- Ref 8.224 Hartlepool Borough Council, 2018. Hartlepool Local Plan Policies Map. Available at: <https://www.hartlepool.gov.uk/downloads/download/16/hartlepool-local-plan-policies-map> (Accessed May 2026)
- Ref 8.225 Office for National Statistics, 2026. Available at: <https://www.ons.gov.uk/> (Accessed May 2026)
- Ref 8.226 DEFRA, 2025. Environmental Improvement Plan 2025. Available at: <https://www.gov.uk/government/publications/environmental-improvement-plan-2025> (Accessed May 2026)
- Ref 8.227 Natural England, 2009. Agricultural Land Classification: protecting the best and most versatile agricultural land (TIN049). Available at: <https://publications.naturalengland.org.uk/publication/35012> (Accessed May 2026)
- Ref 8.228 Natural England, 2021. Guide to assessing development proposals on agricultural land. Available at: <https://www.gov.uk/government/publications/agricultural-land-assess-proposals-for-development/guide-to-assessing-development-proposals-on-agricultural-land> (Accessed May 2026)
- Ref 8.229 ISEP (formally IEMA), 2022. A New Perspective of Land and Soil in Environmental Assessment. Available at: <https://www.shropshire.gov.uk/media/27336/cd-910-iema-land-and-soils-guidance.pdf> (Accessed May 2026)
- Ref 8.230 British Society of Soil Science, 2022. Benefitting from Soil Management in Development and Construction. Available at: <https://soils.org.uk/wp-content/uploads/2022/02/WWS3-Benefitting-from-Soil-Management-in-Development-and-Construction-Jan-2022.pdf> (Accessed May 2026)
- Ref 8.231 Soils in Planning and Construction Task Force. 2022. Building on soil sustainability: Principles for soils in planning and construction. Available at: <https://wp.lancs.ac.uk/sustainable-soils/files/2022/09/Soils-in-Planning-and-Construction-Sept-22.pdf> (Accessed May 2026)
- Ref 8.232 Institute of Quarrying, 2021. Good Practice Guide for Handling Soils in Mineral Workings. Available at: <https://www.quarrying.org/hubfs/Soils%20Guidance/IQ%20Soil%20Guidance%20full%20document%20including%20all%20practitioner%20advice%20updated%20May%202022.pdf> (Accessed May 2026)
- Ref 8.233 British Society of Soil Science, 2022. Working with Soil Guidance Note on ‘Benefitting from Soil Management in Development and Construction’. Available at: <https://soils.org.uk/wp-content/uploads/2022/02/WWS3-Benefitting-from-Soil-Management-in-Development-and-Construction-Jan-2022.pdf> (Accessed May 2026)
- Ref 8.234 UK Government, 2025. National Planning Policy Guidance for the Natural Environment. Available at: <https://www.gov.uk/guidance/natural-environment>

- Ref 8.235 Institute of Sustainability and Environmental Professionals (2025) Soil Health and Environmental Assessment. Available at: <https://www.isepglobal.org/resources/blogs/2026/january/new-isep-advice-note-soil-health-in-environmental-assessment/> (Accessed May 2026)
- Ref 8.236 DEFRA and Welsh Government, 2021. Soil Policy Evidence Programme SPEP2019-20. ALC Technical Review Part 3: Droughtiness. Available at: <https://www.gov.wales/sites/default/files/publications/2022-01/agricultural-land-classification-technical-review-part-3-spep2020-21-02.pdf> (Accessed May 2026)
- Ref 8.237 UK Government, 1980. Highways Act 1980. Available at: <https://www.legislation.gov.uk/ukpga/1980/66/contents>
- Ref 8.238 UK Government, Traffic Management Act 2004. Available at: <https://www.legislation.gov.uk/ukpga/2004/18/contents>
- Ref 8.239 Department for Transport and National Highways, 2022. Strategic road network and the delivery of sustainable development. Available at: <https://www.gov.uk/government/publications/strategic-road-network-and-the-delivery-of-sustainable-development> (Accessed May 2026)
- Ref 8.240 UK Government, 2015. Transport evidence bases in plan making and decision taking. Available at: <https://www.gov.uk/guidance/transport-evidence-bases-in-plan-making-and-decision-taking>
- Ref 8.241 UK Government, 2014. Travel Plans, Transport Assessments and Statements. Available at: <https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements>
- Ref 8.242 Saltburn and District Bridleways Group, 2005, Saltburn District Bridleways Map. Available at: <https://www.saltburndistrictbridleways.co.uk/wp-content/uploads/2015/12/Map-2016.jpg> (Accessed May 2026)
- Ref 8.243 National Highways, 2026. WebTRIS data. Available at: <https://webtris.highwaysengland.co.uk/> (Accessed May 2026)
- Ref 8.244 Department for Transport, 2026. Traffic count data. Available at: <https://roadtraffic.dft.gov.uk/count-points> (Accessed May 2026)
- Ref 8.245 CrashMap, 2026. Available at: <https://www.crashmap.co.uk/> (Accessed May 2026)
- Ref 8.246 ISEP, 2023. Environmental Assessment of Traffic and Movement. Available at: <https://www.isepglobal.org/resources/blogs/2023/07/12/iema-guidance-ea-of-traffic-and-movement/> (Accessed May 2026)
- Ref 8.247 Mining Remediation Authority, (n.d.). Online map viewer. Available at: <https://datamine-cauk.hub.arcgis.com/> (Accessed May 2026)
- Ref 8.248 National Highways, 2020. LA 112 Population and human health. Available at: <https://www.standardsforhighways.co.uk/tses/attachments/1e13d6ac-755e-4d60-9735-f976bf64580a?inline=true> (Accessed May 2026)
- Ref 8.249 UK Government, 2009. Marine and Coastal Access Act 2009. Available at: <https://www.legislation.gov.uk/ukpga/2009/23/contents>

- Ref 8.250 UK Government, 1975. Salmon and Freshwater Fisheries Act 1975. Available at: <https://www.legislation.gov.uk/ukpga/1975/51/contents>
- Ref 8.251 UK Government, 2017. The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/407/contents>
- Ref 8.252 Environment Agency, 2026. Catchment Data Explorer. Available at: <https://environment.data.gov.uk/catchment-planning> (Accessed May 2026)
- Ref 8.253 Environment Agency, 2026. Flood map for planning. Available at: <https://flood-map-for-planning.service.gov.uk/map> (Accessed May 2026)
- Ref 8.254 Environment Agency, 2026. Check Long Term Flood Risk. Available at: <https://check-long-term-flood-risk.service.gov.uk/map> (Accessed May 2026)
- Ref 8.255 UK Government, 2014. Water Act 2014. Available at: <https://www.legislation.gov.uk/ukpga/2014/21/contents>
- Ref 8.256 UK Government, 2010. Flood and Water Management Act 2010. Available at: <https://www.legislation.gov.uk/ukpga/2010/29/contents>
- Ref 8.257 UK Government, 2009. Marine and Coastal Access Act 2009. Available at: <https://www.legislation.gov.uk/ukpga/2009/23/contents>
- Ref 8.258 UK Government, 1991. Land Drainage Act 1991. Available at: <https://www.legislation.gov.uk/ukpga/1991/59/contents>
- Ref 8.259 UK Government, 1991. Water Resources Act 1991. Available at: <https://www.legislation.gov.uk/ukpga/1991/57/contents>
- Ref 8.260 UK Government, 2016. The Water Supply (Water Quality) Regulations 2016. Available at: <https://www.legislation.gov.uk/uksi/2016/614/contents>
- Ref 8.261 UK Government, 1975. Salmon and Freshwater Fisheries Act 1975. Available at: <https://www.legislation.gov.uk/ukpga/1975/51/contents>
- Ref 8.262 UK Government, 2017. The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/407/contents>
- Ref 8.263 UK Government, 2009. The Flood Risk Regulations 2009. Available at: <https://www.legislation.gov.uk/uksi/2009/3042/contents/made>
- Ref 8.264 UK Government, 2009. The Eels (England and Wales) Regulations 2009. Available at: <https://www.legislation.gov.uk/uksi/2009/3344>
- Ref 8.265 DEFRA, 2025. National Policy Statement: water resources infrastructure. Available at: <https://www.gov.uk/government/publications/national-policy-statement-water-resources-infrastructure> (Accessed May 2026)
- Ref 8.266 DEFRA, 2011. Future water: The government's water strategy for England. Available at: <https://www.gov.uk/government/publications/future-water-the-government-s-water-strategy-for-england> (Accessed April 2026).

- Ref 8.267 DEFRA, 2025. National standards for sustainable drainage systems (SuDS). Available at: <https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems/national-standards-for-sustainable-drainage-systems-suds> (Accessed April 2026).
- Ref 8.268 UK Government, 2010. Drainage and waste disposal: Approved Document H. Available at: <https://www.gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h> (Accessed April 2026).
- Ref 8.269 UK Government, 2014. Flood risk and coastal change. Available at: <https://www.gov.uk/guidance/flood-risk-and-coastal-change> (Accessed April 2026).
- Ref 8.270 CIRIA, 2023. Environmental good practice on site guide (fifth edition). Available at: https://www.ciria.org/ci/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=C811&Category=BOOK (Accessed April 2026).
- Ref 8.271 UK Government, 2012. National Planning Policy Framework 14. Meeting the challenge of climate change, flooding and coastal change. Available at: <https://www.gov.uk/guidance/national-planning-policy-framework/14-meeting-the-challenge-of-climate-change-flooding-and-coastal-change> (Accessed April 2026).
- Ref 8.272 DEFRA / Environment Agency, 2005. Flood Risk Assessment Guidance for New Development. Available at: https://assets.publishing.service.gov.uk/media/602d040fd3bf7f721a23a993/Flood_risk_assessment_guidance_for_new_development_-_phase_2_technical_report_Full_Documentation_and_Tools.pdf (Accessed April 2026).
- Ref 8.273 UK Government, 2024. Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-the-water-framework-directive> (Accessed April 2026).
- Ref 8.274 CIRIA, 2015. The SuDS Manual (C753). Available at: https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductcode=C753 (Accessed April 2026).
- Ref 8.275 DEFRA, 2025. National standards for sustainable drainage systems (SuDS). Available at: <https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems/national-standards-for-sustainable-drainage-systems-suds> (Accessed April 2026).
- Ref 8.276 Environment Agency, 2026. Catchment Data Explorer. Available at: <https://environment.data.gov.uk/catchment-planning> (Accessed April 2026).
- Ref 8.277 Environment Agency, 2026. Flood map for planning. Available at: <https://flood-map-for-planning.service.gov.uk/map> (accessed April 2026).
- Ref 8.278 UK Government, 2017. The Water Abstraction and Impounding (Exemptions) Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/1044/contents> (Accessed April 2026).

- Ref 8.279 Middlesbrough Council, 2011, Tees Valley joint minerals and waste DPD. Available at: <https://www.middlesbrough.gov.uk/planning-and-development/planning-policy/tees-valley-joint-minerals-and-waste-dpds/> (Accessed May 2026)
- Ref 8.280 Natural England, 2025, Agricultural Land Classification (ALC) of England and Wales - Revised guidelines and criteria for the grading of the quality of agricultural land 1988 (updated 2025). Available at: <https://publications.naturalengland.org.uk/publication/6257050620264448> (Accessed May 2026)
- Ref 8.281 Environment Agency, 2013, Tees abstraction licensing strategy. Available at: <https://www.gov.uk/government/publications/tees-abstraction-licensing-strategy>
- Ref 8.282 Environment Agency, 2022, Northumbria river basin district river management plan: updated 2022. Available at: <https://www.gov.uk/guidance/northumbria-river-basin-district-river-management-plan-updated-2022> (Accessed May 2026)
- Ref 8.283 Redcar and Cleveland Borough Council, 2017, Local Flood Risk Management Strategy. Available at: <https://www.redcar-cleveland.gov.uk/sites/default/files/2022-08/Flood%20Risk%20Strategy.pdf> (Accessed May 2026)
- Ref 8.284 Stockton-on-Tees Borough Council, 2016, Local Flood Risk Management Strategy. Available at: https://www.stockton.gov.uk/media/2981/Local-flood-risk-management-strategy/pdf/Local_flood_risk_management_strategy.pdf?m=1645801853630 (Accessed May 2026)
- Ref 8.285 Hartlepool Borough Council, 2016, Hartlepool Local Flood Risk Management Strategy. Available at: <https://docslib.org/doc/7951446/hartlepool-local-flood-risk-management-strategy-strategic-environmental-assessment> (Accessed May 2026)
- Ref 8.286 Durham County Council, 2017, Local Flood Risk Management Strategy 2016-2020. Available at: <https://www.durham.gov.uk/media/20637/Local-Flood-Risk-Management-Strategy/pdf/LocalFloodRiskManagementStrategy.pdf> (Accessed May 2026)
- Ref 8.287 Darlington Borough Council, 2016, Local Flood Risk Management Strategy. Available at: <https://docslib.org/doc/4918022/darlington-borough-council-local-flood-risk-management-strategy> (Accessed May 2026)
- Ref 8.288 Natural England, n.d., Nutrient Neutrality Catchments (England) Open Data Geoportal . Available at: https://naturalengland-defra.opendata.arcgis.com/datasets/9348edff77354c4ea20c2d47dcc2cf9c_0/explore?location=54.471517%2C-1.130504%2C10 (Accessed May 2026)
- Ref 8.289 Natural England, 2022, Natural England Water Quality and Nutrient Neutrality Advice (16 March 2022) (NE785). Available at: <https://publications.naturalengland.org.uk/publication/4792131352002560> (Accessed May 2026)
- Ref 8.290 Natural England, 2022, Teesmouth and Cleveland Coast Special Protection Area/Ramsar - Evidence Pack (TIN204). Available at:

<https://publications.naturalengland.org.uk/publication/6426151215169536> (Accessed May 2026)

Ref 8.291 Environment Agency, 2026, Swimfo: Find a bathing water. Available at:

<https://environment.data.gov.uk/bwq/profiles/> (Accessed May 2026)

Ref 8.292 Environment Agency, 2006, The Tyne to Flamborough Head Shoreline Management Plan.

Available at: <https://environment.data.gov.uk/shoreline-planning/shoreline-management-plan/SMP2> (Accessed May 2026)

9 Matters to be Scoped Out

9.1 Human health

- 9.1.1 This Section sets out the proposed scope and methodology for assessment of effects of the Proposed Development on human health. This has been informed by an overview of the environmental baseline conditions, along with the likely impacts of the Proposed Development on environmental, social and economic determinants of health.
- 9.1.2 This Section should be read in conjunction with, and draws upon, the following sections of this EIA Scoping Report:
- **Section 4: The Proposed Development;**
 - **Section 8.2: Air quality;**
 - **Section 8.7: Ground conditions;**
 - **Section 8.8: Landscape and visual amenity;**
 - **Section 8.9: Major accidents and disasters;**
 - **Section 8.12: Noise and vibration;**
 - **Section 8.13: Socio-economics;**
 - **Section 8.15: Transport and movement; and**
 - **Section 8.16: Water resources and flood risk.**
- 9.1.3 Please refer to **Appendix L: Glossary of defined terms and acronyms** for a list of acronyms used in this section.

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Legislation, planning policy context and guidance

Relevant legislation, policy and guidance in addition to the key documents listed in **Section 2:**

Legislation and planning policy include:

- Equality Act 2010 (Ref 9.1);
- Planning Practice Guidance: Healthy and safe communities, 2022 (Ref 9.2);
- ISEP Guide to: Determining Significance For Human Health In Environmental Impact Assessment (Ref 9.3);
- ISEP Guide to: Effective Scoping of Human Health in Environmental Impact Assessment (Ref 9.4);
- Public Health England (PHE) (now UK Health Security Agency): Advice on the content of Environmental Statements accompanying an application under the Nationally Significant Infrastructure Planning Regime (Ref 9.5);
- UK Health Security Agency Strategic Plan 2023-2026 (Ref 9.6); and
- Spatial Planning for Health: An Evidence Resource for Designing Healthier Places (Ref 9.7).

Study area

The study area is defined by the following:

- the local population, defined as the population within the lower super output area (LSOA) that fall within 300m of the Scoping Boundary; and
- the wider population who may experience indirect social and economic effects located within the administrative areas of RCBC, SBC, HBC, DCC and DBC.

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Baseline

Existing baseline

An initial desk-based baseline assessment has been undertaken to gather existing information relating to human health to define the study area.

Baseline information has been obtained from the following sources:

- Public Health Profiles for Redcar and Cleveland, Stockton-on-Tees, Hartlepool, County Durham and Darlington (Ref 9.9); and
- Office for National Statistics (ONS) Nomis general health data (Ref 9.10).

The Office for Health Improvement and Disparities (OHID) produces data (Ref 9.9) at the local authority level and publishes health profiles. These profiles provide a snapshot of public health in an area and help local government and health service providers to understand local community health needs and priorities.

Appendix K: Health baseline data shows health and wellbeing indicators for the local authorities in which the Proposed Development is located, compared to the regional and national averages.

Health and wellbeing indicators within the study area vary when compared with regional (North East) and national (England) averages. Overall, the local authority areas presented record poorer health outcomes than England, with lower life expectancy, higher deprivation and higher proportions of the population reporting poor health and disability. Population age structure is broadly comparable to regional and national averages, though economic activity is consistently lower than the England average across all authorities.

Redcar and Cleveland demonstrates poorer outcomes than both regional and national averages. Deprivation levels are high (IMD 29.8), well above the England average (21.7). Poor health is reported by 7.6% of the population, again exceeding national levels, while disability prevalence (22.4%) is also notably higher than England (17.3%). The authority has an older population profile (23.3% aged 65+) than both the North East (20.4%) and England (18.4%) and has a lower life expectancy than national averages for both females (81.8 years vs 83.5) and males (77.6 years vs 79.7).

Stockton-on-Tees performs slightly better than some neighbouring authorities but remains below England averages on several indicators. Deprivation levels (IMD 25.8) are above the England average (21.7) but below the regional average (28.0), and while the proportion reporting bad or very bad health (6.3%) is lower than in Hartlepool and Redcar and Cleveland, it remains above the national benchmark (5.2%). Disability prevalence (19.9%) is also higher than England (17.3%), though lower than several other authorities in the study area. A higher proportion of younger residents (19.6% aged under 16) relative to the North East (17.7%) and England (18.6%) is observed; however, health outcomes remain weaker than national averages and life expectancy is lower than England for both females (82.3 vs 83.5) and males (79.0 vs 79.7), indicating continued underlying inequalities.

Hartlepool has the smallest population of the authorities (92,338) and shows the greatest divergence from both regional and national averages, with deprivation levels notably high (Index of Multiple Deprivation (IMD) 35.0) compared to the England average (IMD 21.7). Poor health is

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more prevalent, with 8.0% of the population reporting bad or very bad health compared to 5.2% for England. The proportion of the population with disabilities (22.9%) is also substantially higher than the England average (17.3%). Life expectancy is comparatively low, with female life expectancy of 80.9 years and male life expectancy of 77.3 years, both below the regional (81.9 female; 77.9 male) and national averages (83.5 female; 79.7 male), reflecting health inequalities.

County Durham has the largest population of the authorities (522,068) and exhibits consistently poorer outcomes than England, with elevated deprivation (IMD 26.8) and among the highest disability prevalence within the study area (22.9%). Levels of poor health (7.5% bad or very bad) are higher than national averages (5.2%), and life expectancy is below England benchmarks for both females (81.7 vs 83.5) and males (78.0 vs 79.7). The population profile is older than the national average (21.3% aged 65+ vs 18.4% in England), reinforcing the picture of ongoing socioeconomic and health challenges across the authority, although outcomes are less extreme than in Hartlepool for deprivation.

Darlington shows comparatively better health outcomes within the study area, although still performing below England averages on several indicators. Economic activity (57.6%) is closer to the England average (58.6%) than other authorities, and deprivation (IMD 25.7) is lower than most of the wider study area but remains above England (21.7). Reported poor health (5.9% bad or very bad) is the lowest of all authorities and closer to the national benchmark (5.2%), and disability prevalence (19.6%) is above England (17.3%) but lower than several neighbouring authorities. Life expectancy remains below national averages for both females (81.7 vs 83.5) and males (78.0 vs 79.7), demonstrating that underlying inequalities persist despite relatively stronger performance compared to surrounding areas.

With regard to economic activity, all local authorities across the study area fall below the England average (58.6%), with rates ranging from 51.5% in Redcar and Cleveland to 57.6% in Darlington, broadly reflecting the North East regional average (53.6%). This indicates a consistent pattern of lower economic participation across the study area, which is closely linked to the observed health inequalities, particularly where deprivation and long-term health conditions/ disability are also elevated.

Future baseline

The ONS-aligned population projections indicate overall modest population growth across the Tees Valley authorities by 2030 (typically ~2–3%), with population ageing expected to remain a consistent feature across all areas. County Durham is projected to experience the largest absolute increase in population, whilst Stockton-on-Tees and Darlington show comparatively stronger proportional growth within the study area. In contrast, Redcar and Cleveland and Hartlepool are projected to experience relatively limited growth, indicating broadly stable population levels over the projection period.

This pattern reflects the wider North East context, where population growth is comparatively constrained relative to national trends and is influenced by underlying demographic processes, including net migration and an increasing proportion of older residents.

Sensitive receptors

A broad definition of health has been considered, defined by the WHO as: *“a state of complete physical, mental and social wellbeing and not merely an absence of disease or infirmity.”* The

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assessment is based on the ‘wider determinants of health’ model, which recognises that health is influenced by a range of social, economic and environmental factors known as health determinants, such as access to health and education services, availability of training and employment opportunities and the quality of the built and natural environment.

As stated in the ISEP Guide to Determining Significance (Ref 9.3), the consensus in literature and among public health practitioners and impact assessors is that a ‘population health’ approach may be taken when assessing health effects in EIA. Population health refers to the health outcomes of a group of individuals, including the distribution of such outcomes within the group. Health assessment considers effects on the general population and, where relevant, groups with specific vulnerabilities. Effects on individuals are not considered to lead to potential health effects in the context of this assessment.

The ISEP Guide to Effective Scoping of Human Health in Environmental Impact Assessment (Ref 9.4) recommends the inclusion of a health chapter within the EIA where: *“wider determinants of health not covered by other EIA technical topics have been scoped in,”* or *“where other topics have been scoped to assess potential effects to human and community receptors and there are likely and potentially significant population health implications from such assessments.”*

The ISEP Guide to Effective Scoping of Human Health in Environmental Impact Assessment (Ref 9.4) goes on to state that: *“Where other EIA technical topics do not have likely and potentially significant population health implications this should be explained with a concise justification within the EIA Scoping Report health section.”*

Therefore, the sensitive receptor for human health is the local population at a ‘population’ scale rather than any individual community/ receptor.

Impacts

Construction

The following potential impacts on environmental determinants of health have been considered:

- **Section 8.1: Air quality:** the effects to air quality from the Proposed Development will be assessed in the ES, with a focus on impacts from construction dust, non-road mobile machinery (NRMM) emissions, and vehicle emissions from construction traffic which are all Scoped In. Suitable mitigation measures for plant and motorised equipment will be recommended based on advice prescribed in the Institute for Air Quality Management (IAQM) (Ref 8.9) guidance and incorporated into the oCEMP. Both the road traffic emissions screening and dust air quality assessments will consider the effects of the Proposed Development on pollutants linked to human health outcomes including the potential effects as a result of increased exposure to pollutants at individual receptors. Health outcomes will be considered in the significance criteria used in these assessments, with sensitive human health receptors identified in the baseline. Consideration will be given to impacts on any AQMA, designated to meet national air quality objectives to protect human health. No overall change in exposure to air pollution is expected at the population level, and therefore there are no potential effects on population health.
- **Section 8.7: Ground conditions:** the effects to ground conditions from the Proposed Development during construction have been Scoped In to the ES and a preliminary risk assessment (PRA) will be produced to accompany the Application. Within the PRA,

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sensitive human health receptors will be identified in the contamination assessment. The significance criteria used in this assessment (refer to **Appendix E: Ground conditions assessment criteria**) take account of human health responses to contamination and mitigation measures will be provided to assist in compliance with regulations to protect health, where required. As a result of the embedded design and control measures secured via the oCEMP, no potential adverse effects on human health are anticipated.

- **Section 8.8: Landscape and visual:** The Proposed Development would be primarily routed through a mixed landscape of rural farmland, industrial fringe areas, and smaller settlements within the Teesside corridor. As a result, construction activities have the potential to give rise to temporary effects on visual amenity, particularly within rural and semi-rural areas where receptors may be more sensitive to landscape change compared to more urbanised or industrial settings. Any potential effects on visual amenity associated with the Proposed Development will be assessed and reported within the Landscape and Visual Amenity chapter of the ES.
- **Section 8.9: Major accidents and disasters:** (MA&D) considers a range of low probability/high consequence risk events that could impact receptors at the population scale. Impacts for human health at a population scale are implicitly considered in the MA&D methodology and embedded measures will be incorporated into the design of the Proposed Development in order to mitigate risks to As Low As Reasonably Practicable (ALARP) to minimise the likelihood of a risk event affecting receptors at a population scale.
- **Section 8.12: Noise and vibration:** The Proposed Development has the potential to generate noise and vibration effects during the construction phase as a result of on-site activities and associated construction traffic along the route corridor. While the pipeline route largely traverses rural and semi-rural areas and is typically separated from larger urban populations, a number of residential and other sensitive receptors are located in proximity to the Scoping Boundary, as identified in **Section 3: The site and surrounding area**. The assessment of noise and vibration effects will consider the sensitivity of these receptors and human responses to changes in noise levels, with Best Practicable Means (BPM) applied through embedded mitigation measures set out within the oCEMP. Any potential noise and vibration effects will be assessed and reported within the Noise and Vibration chapter of the ES and are not anticipated to give rise to likely significant effects at the population level.
- **Section 8.15: Transport and movement:** The Proposed Development has the potential to generate temporary traffic-related effects during the construction phase associated with increased construction vehicle movements, including HGVs. The route corridor benefits from good connectivity to the strategic road network (SRN) and key A roads, which helps to limit the extent of traffic passing through smaller communities and reduces the potential for disruption to local amenity and quality of life. Construction traffic will be managed through embedded mitigation measures, including the implementation of traffic management plans, (CTMP, CWMP and PROWMP) to minimise disruption and nuisance including to pedestrians and NMU. Due to the progressive nature of construction along the pipeline route, as described in **Section 4.6: Construction programme**, any traffic effects will be localised and temporary, and are not anticipated to result in community severance or give rise to likely significant effects at the population level. Any potential transport-related effects will be assessed and reported within the Transport and Movement chapter of the ES.

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- **Section 8.16: Water environment:** The Proposed Development has the potential to give rise to temporary effects on human health during the construction phase through pathways associated with changes to surface water and groundwater quality, including those affecting sources of drinking water. Construction activities such as excavation, handling of materials, and the potential for accidental spillages or sediment mobilisation could affect water quality in nearby surface water bodies, groundwater aquifers, and abstraction sources identified within the study area. These receptors include water environments that may contribute to potable water supply and bathing waters. The assessment will consider these pathways to human receptors, with adherence to relevant legal and regulatory frameworks and the implementation of embedded mitigation, including risk-based control measures secured through the oCEMP. Any potential effects on water quality relevant to human health will be assessed and reported within the Water Resources and Flood Risk chapter of the ES, and with embedded mitigation in place, significant adverse effects on population health are not anticipated.

Other Health Related Effects

Any potential direct or indirect effects to PRoW, amenity or access to recreational green space from the construction of the Proposed Development will be assessed within the ES chapters for Landscape and Visual Amenity, Noise and Vibration and Socio-economics. Construction impacts, which are temporary in nature, will reduce the value of these routes. However, due to the rural nature of the study area, residents will have access to alternative recreational routes locally. Overall, taking into consideration the oPRoWMP that will be prepared to accompany the Application, the construction impacts on PRoW are not considered to materially affect the local population's ability to enjoy green space and engage in outdoor activity, and therefore no potential health effects at a population level are identified. Therefore, health effects arising from construction impacts on green space and physical activity are proposed to be **Scoped Out**.

The construction phase will provide temporary employment opportunities, some of which may be taken by local people. Construction also has the potential to benefit local businesses and suppliers (see **Section 8.13: Socio-economics**). While some benefits may be experienced by individuals, the number of local construction jobs and the scale of local economic benefit is not considered likely to affect the overall health and wellbeing of communities in the study area. This issue is therefore **Scoped Out** of the EIA.

Effects on rural bridleways and footpaths that cross the site, including temporary and permanent diversions and amenity impacts, will be assessed in the Socio-economics and Transport and Movement chapters of the ES. This will consider effects on the value of these routes for users, which incorporates factors such as enjoyment of green space and physical activity. While construction may result in a temporary reduction in the quality of affected rural PRoW, the wide availability of alternative routes means that there will be no overall reduction in access to green space and physical activity for the study area population. Therefore, no potential effects on human health at population scale have been identified, and this is **Scoped Out** of the ES.

The Scoping Boundary crosses Cowpen Bewley Woodland Park and includes two potential options for the hydrogen pipeline to connect the modified AGIs. Construction works within the Scoping Boundary will not change the way in which users access areas of the park during construction. There will be no new AGI developed within the Park (refer to **Figure 4.1: Indicative Site Layout**

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(Volume II), nor will the existing AGI within the Park need to be extended. There are therefore no direct impacts on Cowpen Bewley Woodland Park. Any temporary impacts (e.g. noise) during construction will be mitigated through measures secured within the oCEMP and significant effects at a population scale are therefore unlikely. There would be no effects during operation, or decommissioning (as the pipeline will be below ground/ left in situ). The health effects are therefore **Scoped Out** of the EIA.

As outlined in **Section 8.13: Socio-economics**, construction of the Proposed Development is not anticipated to result in likely significant effects in terms of access to local business and community and recreational facilities. With the implementation of management plans including the oCEMP, no potential significant human health effects at a population scale are identified and this is therefore **Scoped Out** of the EIA.

Operation

Given the nature of the Proposed Development as a predominantly below ground pipeline, the potential for operational environmental effects is limited compared to the construction phase. Operational effects on individual sensitive receptors due to existence and operation of modified AGI is the primary consideration for the operational phase. Operational emissions from the infrequent use of any stacks if required (for flaring and/ or venting, as described in Paragraph 4.2.22) at AGI locations will be described/ qualitatively assessed and contextualised within the Air quality and Noise and vibration chapters of the ES respectively and will not give rise to likely significant effects. Risk events relating to MA&D will also be assessed and impacts on local populations reduced to ALARP by design. Longer term operational effects on SPZ via the pipeline acting as a preferential pathway for contamination will also be reduced by design. Taking into account embedded mitigation set out in each of the ES chapters, operational effects are not considered likely to result in significant effects on any health outcomes at the population level and therefore this is proposed to be **Scoped Out**.

Decommissioning

Potential impacts during the decommissioning phase are considered to be similar to the construction phase. The ES will provide a description of the activities and works (including the anticipated duration) which are likely to be required during decommissioning and where any likely significant effects have been identified for construction stage activities (within sections of the ES where potential health effects are considered), an evaluation of whether similar effects could occur during decommissioning will be undertaken. Changes to baseline information that could happen in the intervening period would be addressed via a commitment to a final DEMP, which would be secured via Requirement in the draft DCO.

Embedded measures

Embedded mitigation measures identified by the following topics in this EIA Scoping Report are relevant to human health:

- **Section 8.2: Air quality;**
- **Section 8.7: Ground conditions;**
- **Section 8.9: Major accidents and disasters;**
- **Section 8.12: Noise and vibration;**
- **Section 8.13: Socio-economics;**
- **Section 8.15: Transport and movement; and**

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- **Section 8.16: Water resources and flood risk.**

The construction and operation of the Proposed Development has the potential for limited impacts on human health. Assessment of potential impacts however, and inclusion of appropriate mitigation measures will be covered elsewhere in the ES and within supporting documentation including the chapters of the ES above and the following management plans which will support the Application:

- oCEMP;
- oCTMP/ oCWTP;
- oPRoWMP;
- oOEMP; and
- oDEMP.

Scope – Construction (C) Operation and maintenance (O); Decommissioning (D)

Sub topic; Scoped in ✓ Scoped out ✗ or n/a	Proposed Development component	C	O	D	Rationale
Environmental impacts	Pipeline	✗	✗	✗	Environmental impacts on sensitive receptors will be assessed in the relevant topic assessment chapters. These assessments include consideration of risks to human health at individual sensitive receptors. The scale of impacts, taking into account embedded and good practice mitigation measures, are not considered to result in any potential impacts on health outcomes at the population level.
	AGI	✗	✗	✗	
Traffic; Access and connectivity	Pipeline	✗	✗	✗	The proximity to the SRN and A road network will reduce the risk of impacts on wellbeing and quality of life associated with increased traffic flows and HGV. Design and control measures outlined in transport and movement chapter of the ES will mitigate disruption and annoyance associated with construction and decommissioning traffic. On this basis, this is Scoped Out for further assessment in human health. There are minimal traffic movements associated with operation and no likely operational impacts on traffic, access or connectivity. This is Scoped Out for assessment.
	AGI	✗	✗	✗	
Green space and physical activity	Pipeline	✗	✗	✗	Any minor reductions in some areas of publicly accessible green space during construction and operation are not considered to be material in terms of overall access to green space and opportunities for physical activity at a population level, particularly given the commitments to maintain access and implementation of a PRoWMP
	AGI	✗	✗	✗	

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					to secure this. Therefore, this aspect is Scoped Out for assessment.
Economic and employment impacts	Pipeline	X	X	X	The jobs created as part of the Proposed Development are not considered likely to affect the overall health and wellbeing of communities in the study area. Economics and employment effects will be considered in the socio-economic assessment and are therefore Scoped Out of the assessment.
	AGI	X	X	X	

9.2 References

- Ref 9.1 UK Government, 2010, Equality Act. Available at:
<https://www.legislation.gov.uk/ukpga/2010/15/contents>
- Ref 9.2 UK Government, 2022. Healthy and safe communities. Available at:
<https://www.gov.uk/guidance/health-and-wellbeing> (accessed May 2026).
- Ref 9.3 ISEP (formally IEMA), 2022. Determining Significance For Human Health In Environmental Impact Assessment. Available at:
<https://www.isepglobal.org/resources/blogs/2022/11/17/iema-launch-of-the-eia-guidance-for-considering-impacts-on-human-health-november-2022/> (accessed May 2026). (Accessed May 2026)
- Ref 9.4 ISEP (formally IEMA), 2022. Effective Scoping of Human Health in Environmental Impact Assessment. Available at:
<https://www.isepglobal.org/resources/blogs/2022/11/17/iema-launch-of-the-eia-guidance-for-considering-impacts-on-human-health-november-2022/> (accessed May 2026). (Accessed May 2026)
- Ref 9.5 Public Health England, 2021. Advice on the content of Environmental Statements accompanying an application under the Nationally Significant Infrastructure Planning Regime. Available at:
<https://khub.net/documents/135939561/390856715/Advice+on+the+content+of+environmental+statements+accompanying+an+application+under+the+Nationally+Significant+Infrastructure+Planning+Regime.pdf/a86b5521-46cc-98e4-4cad-f81a6c58f2e2?t=1615998516658> (accessed May 2026). (Accessed May 2026)
- Ref 9.6 UK Health Security Agency, 2023. UKHSA Strategic Plan 2023-2026. Available at:
https://assets.publishing.service.gov.uk/media/650d530e52e73c00139426c1/UKHSA_3_year_strategy.pdf (Accessed May 2026)
- Ref 9.7 Public Health England, 2017. Spatial Planning for Health: An Evidence Resource for Designing Healthier Places. Available at:
https://assets.publishing.service.gov.uk/media/5b59b090e5274a3ff828c70c/spatial_planning_for_health.pdf (Accessed May 2026).
- Ref 9.8 Planning Inspectorate, 2020. Nationally Significant Infrastructure Projects - Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental

information and environmental statements. Available at:

<https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an> (Accessed May 2026).

Ref 9.9 Department of Health and Social Care, 2026. Health Profiles. Available at:

<https://fingertips.phe.org.uk/profile/health-profiles/data#page/1/gid/1938132701/ati/6/iid/90366/age/1/sex/1/cat/-1/ctp/-1/yr/3/cid/4/tbm/1> (Accessed April 2026)

Ref 9.10 Nomis, 2021, Census local area data. Available at:

<https://www.nomisweb.co.uk/default.asp> (Accessed April 2026)

10 Summary

10.1 Overview

- 10.1.1 In line with Regulation 8(1)(b) of the EIA Regulations, this EIA Scoping Report confirms the Applicant's intention to complete an EIA for the Proposed Development and to report its findings within an ES.
- 10.1.2 This EIA Scoping Report has identified the potential for likely significant effects to arise from the construction, operation and maintenance and decommissioning of the Proposed Development and provides the information required to accompany a request for an EIA Scoping Opinion, in accordance with Regulation 10 of the EIA Regulations.
- 10.1.3 Where potential significant effects are considered likely, this EIA Scoping Report has described the approach to be used in assessments that will be undertaken for the EIA to characterise and understand the likely significance of these effects. It also identifies those elements that are proposed to be scoped out of the EIA, on the basis that these would not result in likely significant effects, and the rationale behind this conclusion.
- 10.1.4 This Scoping Report enables consultees to review and provide feedback on the proposed ES, including its scope, assessment approach and overall content. The proposed ES structure is described in the next section.

10.2 Structure of the Environmental Statement

- 10.2.1 The ES will be structured as follows:

Non-technical summary (NTS)

- 10.2.2 The NTS will summarise the findings of the ES as well as a concise description of the Proposed Development, the considered alternatives, baseline conditions, assessment methodology, potential environmental effects and mitigation measures. The NTS will be written in non-technical language and in an accessible format which can be understood by a wide audience.

Main report (Volume I)

- 10.2.3 This document will comprise the main body of the ES. It will detail the findings of the EIA and any identified additional mitigation measures to avoid, reduce or minimise any potentially significant adverse environmental effects.
- 10.2.4 Each topic will be assigned a separate technical chapter in the ES and will be preceded by a number of introductory chapters as follows:
- Chapter 1: Introduction
 - Chapter 2: The site and surrounding area
 - Chapter 3: The Proposed Development
 - Chapter 4: Alternatives and design evolution
 - Chapter 5: Consultation
 - Chapter 6: Environmental Impact Assessment methodology
 - Chapter 7: Air quality
 - Chapter 8: Biodiversity and ecology
 - Chapter 9: Climate change and resilience
 - Chapter 10: Cultural heritage
 - Chapter 11: Greenhouse gases
 - Chapter 12: Ground conditions

- Chapter 13: Landscape and visual amenity
- Chapter 14: Major accidents and disasters
- Chapter 15: Marine biodiversity
- Chapter 16: Materials assets and wastes
- Chapter 17: Noise and vibration
- Chapter 18: Socio-economics
- Chapter 19: Soils and agricultural land
- Chapter 20: Transport and movement
- Chapter 21: Water resources and flood risk
- Chapter 22: Cumulative and in-combination effects
- Chapter 23: Summary of environmental effects

Figures (Volume II)

10.2.5 This will comprise a complete set of figures which support the assessments undertaken.

Technical appendices (Volume III)

10.2.6 These will comprise the supporting technical appendices to the topic chapters including background data, technical reports and survey data which support the assessments in the Main Report (Volume I).

10.3 Standalone Assessments

- 10.3.1 In addition to the ES chapters, a number of standalone assessments will accompany the Application (as ES appendices). The findings of these will support the ES chapters where applicable, and inform the mitigation proposals for the Proposed Development:
- Biodiversity Net Gain Report (to accompany the ecology and biodiversity ES chapter);
 - Habitats Regulations Assessment Screening and Appropriate Assessment (including Nutrient Neutrality Assessment);
 - Cultural Heritage Desk-Based Assessment and Geophysical Survey Report (to inform the Cultural Heritage ES chapter);
 - Preliminary Risk Assessment (to accompany the Ground Conditions ES chapter);
 - Arboricultural Impact Assessment (to accompany the Landscape and Visual Amenity ES chapter);
 - Agricultural Land Classification Report (to accompany the Soils and agricultural land ES chapter);
 - Outline Drainage Strategy (to accompany the Water Environment ES chapter);
 - Water Environment Regulations (WER) Assessment (to accompany the Water Environment ES chapter); and
 - Flood Risk Assessment (to accompany the Water Environment ES chapter).

Appendix A: Cumulative effects assessment

A.1 Introduction

- A.1.1.1 Cumulative effects are the result of multiple actions on environmental receptors or resources over time and are generally additive or interactive (synergistic) in nature. Two categories of cumulative effects will be considered within cumulative effects assessment (CEA) chapter of the ES:
- interactive effects from the interrelationship between different environmental effects of the Proposed Development ('intra-project' or 'combined' effects); and
 - cumulative effects from the interrelationship between different projects along with the Proposed Development (or 'inter-project' effects).
- A.1.1.2 The CEA will be carried out following PINS Advice Note 17 and will be based on the best available data from other proposed and committed developments and associated information which is currently in the public domain or has been provided. The assessment will assume publicly available information is accurate and is also reliant on collaboration with a range of statutory consultees, neighbouring authorities and other developers to identify changes in information which may be pertinent to the assessment.

A.2 Interactive effects assessment methodology

- A.2.1.1 In line with PINS Advice Note 17, in-combination effects will generally be considered within each environmental topic chapter of the ES, where relevant.
- A.2.1.2 The cumulative and in-combination effects chapter will then identify common environmental receptors/ resources where there is the potential for more than one impact to be experienced (e.g. recreational users of PRow that are receptors and impacted in the LVIA and transport chapters) and the potential for interactions between these impacts.
- A.2.1.3 The overall combined environmental effects will then be reported. Only adverse or beneficial residual effects classified as minor, moderate or major will be considered in relation to potential effect interactions. Residual effects classified as negligible will be excluded as they are considered to be imperceptible effects to an environmental/ socio-economic receptor or resource.

A.3 Cumulative effects assessment methodology

- A.3.1.1 PINS Advice Note 17 provides a systematic approach to the CEA which is split into four distinct stages set out in Table A- 1. These stages will be applied to the Proposed Development and identification of 'other existing development and/or approved development'.
- A.3.1.2 To account for the evolution of other developments during the Application preparation timescales, the CEA will be iterative and updated during the preparation of the EIA.

TABLE A- 1: CEA STAGE AND ACTIVITIES

CEA Stage	Key activities
Stage 1: Establish the Zone of Influence (Zoi) and long list of 'other existing development and/ or approved development'	• Identify Zoi (study area) for each environmental aspect considered within the ES; at this stage a 10km search area has been identified. • Identify long list of other developments in the vicinity of the Proposed Development which may have cumulative effects, in consultation with relevant local authorities. • Undertake desk-top review of available environmental information for identified cumulative developments. • The long list will be compiled using the following search criteria: ➤ <i>development currently under construction;</i> ➤ <i>approved planning applications which have not yet been implemented (covering the past five years and taking account of those that received planning consent over three years ago and are still valid, but have not yet been completed);</i> ➤ <i>submitted planning applications not yet determined;</i> ➤ <i>refused planning applications, subject to appeal procedures not yet determined;</i> ➤ <i>development listed on the National Infrastructure Planning Programme of Projects;</i> ➤ <i>development identified in the relevant local plans of each local authority. Emerging plans will also be considered where these are approaching designation; and</i> ➤ <i>development identified in other plans and programmes which set the framework for future development consents/ approvals, where such development is reasonably likely to come forward.</i>
Stage 2: Establish shortlist of 'other existing development and/ or approved development'	• Identify which of the identified other developments from Stage 1 has the potential to give rise to significant cumulative effects by virtue of overlapping temporal scope, due to the scale and nature of the other development/ receiving environment; or any other relevant factors, such as potential impact pathways to identified sensitive receptors and their nature and capacity as the receiving environment. • Final shortlist of other existing and/ or approved development to be included within the CEA at the time of the DCO application developed from long list. • Conclusions of the shortlisting exercise reported in format aligned with PINS Advice Note 17. • Reasons for excluding any development from further consideration clearly documented in ES to provide consultees with a clear record of decisions made.

CEA Stage	Key activities
	Host local authorities and any other relevant consultation bodies consulted on shortlisted other existing developments and/ or approved developments.
Stage 3: Information gathering	Information relating to each of the other developments is gathered and reviewed, including proposed design, location, construction programme and associated environmental assessment.
Stage 4: Assessment	- An assessment of the cumulative effects is undertaken; each individual other development is reviewed in turn to identify whether there is potential for significant cumulative effects. - Significance of any cumulative effects determined using same criteria as used in relevant individual topic assessments. - Additional mitigation measures are identified, where necessary. - Reporting will follow Appendix 2 (matrix 1 – assessment matrix) of PINS Advice Note 17.

- A.3.1.3 For the purposes of scoping, developments which have either been submitted or determined and approved under the Town and Country Planning Act (TCPA) 1990 have been identified within 500m of the Scoping Boundary. Projects listed on the PINS National Infrastructure Planning website within 10km of the Scoping Boundary have also been identified. Relevant projects identified are shown in Table A- 2 below.
- A.3.1.4 Consultation with Redcar and Cleveland Borough Council (RCBC), Stockton Borough Council (SBC), Hartlepool Borough Council (HBC), Durham County Council (DCC) and Darlington Borough Council (DBC) has commenced to outline the initial long list and will continue to be undertaken in respect of identifying any additional proposals or planning applications submitted under the TCPA 1990 that may also have the potential to produce significant cumulative environmental effects.
- A.3.1.5 NSIP and projects submitted under other consenting regimes will also be considered in line with PINS Advice Note 17.

TABLE A- 2: INITIAL LONG LIST OF DEVELOPMENTS

Type	Application reference / name
Nationally Significant Infrastructure Projects	EN0710007 - Project Union: East Coast
	EN010051 - Dogger Bank Teesside A / Sofia Offshore Wind Farm (formerly Dogger Bank Teesside B) - Project previously known as Dogger Bank Teesside A&B
	EN0710005 - H2NorthEast (H2NE)
	EN0110025 - Lighthouse Green Fuels Project
	EN010082 - Tees CCPP
	EN010103 - The Net Zero Teesside Project
	TR030002 - York Potash Harbour Facilities Order
	EN010139 - Byers Gill Solar

Type	Application reference / name
Planning Application	DM/24/00330/FPA - Installation of a 50 seat stand to north-east pitch boundary
	DM/23/01258/FPA - Erection and siting of fibre telecom exchange, 2.4m boundary fencing and associated infrastructure including new access to Rembrandt Way
	DM/22/01244/FPA - 2no. industrial/warehouse units (use classes B2/B8) with ancillary office space, new access, landscaping and associated works
	DM/23/00634/FPA - Installation of a multi-use games area (MUGA) including 4.5m boundary fence and associated landscaping and external lighting, creation of playing field/outdoor activity area on land to west of building, 2m mesh fencing to east and south boundaries
	DM/21/04142/FPA - Erection of 43no. industrial units (B2/B8 use), including associated car parking and landscaping
	DM/21/04103/WAS - New raw materials reception and yard extension.
	DM/21/01296/FPA - Use of land for HGV and trailer park together with means of access, erection of fencing, gates, lighting, CCTV and associated works
	DM/23/03458/FPA - Erection of building to assist with stock control (retrospective)
	DM/24/03452/FPA - Engineering and associated works to form enclosed area in association with open storage use (Use Class B8), including the erection of security gate and fencing; installation of EV charging points (Sui Generis) and erection of 1 no. drive-thru coffee shop
	DM/24/03276/FPA - Erection of 1no warehouse (Use Class B8) and office block (Use Class E(g)(i)) with associated car parking, service yard space, hardstanding, secure boundary treatments and landscaping
	DM/22/03812/FPA - Change of use of open land to hardstanding for trailer storage (9no. bays) and creation of access from Hilton Road (No means of enclosure)
	DM/23/01225/FPA - To erect 7no. B2/B8 industrial units including associated car parking and landscaping
	DM/23/02008/FPA - Engineering and associated works to form enclosed area in association with storage use
	DM/25/00028/FPA - Warehouse and associated hardstanding.
	DM/25/01163/FPA - Erection of an ancillary storage building
	DM/25/01047/FPA - Erection of a metal framed storage unit within existing car park
	DM/26/00355/FPA - Erection of a surface-mounted, ancillary storage building of non-permanent construction on existing hardstanding with link to existing building.

Type	Application reference / name
	DM/23/02557/FPA - Demolition of existing stables, north-west boundary wall and store outbuildings and replacement with prefabricated purpose-made stableblock with 3no. stables, hay store, wash down bay and tack room (Personal use only) and post and rail fence to north-west
	H/2025/0411 - Demolition of empty and cleaned Bulk Fuel Oil Tank 3 (BFOT3) and the erection of a demineralised water storage tank.
	H/2021/0516 - Install and combine 6no. modular cabins to create single storey Induction centre building
	H/2023/0233 - Proposed office block building
	H/2025/0131 - Engineering operations to re-align Greenabella embankment to the River Tees, construction of new embankment together with reconstruction of embankment bordering the Brinefields (Greatham Creek embankment), upgrades to existing drainage outlets
	H/2025/0311 - Erection of 3no. industrial units (Use Class B8) with associated access, parking and 2.4 metre high enclosure.
	R/2025/0726/FF - Demolition of two existing rail mounted cranes and existing rails (with a combined capacity facilitating the harbour facility handling capability of 18.5 million tonnes per annum of bulky cargo); and the erection of two replacement rail mounted cranes and the installation of replacement rails
	R/2021/0432/FFM - Development of soil treatment area comprising of hard standing, water treatment area and associated apparatus and structures
	R/2023/0291/ESM - outline application (all matters reserved) for the development of a 3 line low-carbon lithium refinery and associated dock-side reception, handling, storage, and manufacturing facilities for the production of high-quality, battery-grade lithium hydroxide
	R/2023/0663/FF - installation of kiosk and 7(no) aeration blower units
	R/2024/0071/FFM - Demolition of existing industrial outbuilding, construction of 4 industrial commercial units and an Incubator Building within the Wilton Centre grounds
	R/2021/0748/FF - construction and demolition works relating to the modification of plant
	R/2025/0712/FFM - Erection of an electrolytic hydrogen facility and associated access, parking, landscaping, water purification, gas purification and other associated works
	R/2023/0830/FFM - remediation and strengthening works to the quay at Redcar bulk terminal
	R/2023/0482/OOM - Outline planning permission, with all matters reserved, for development comprising commercial, business and service, drive through restaurant, hotel, public house and a petrol filling station and associated retail, with associated

Type	Application reference / name
	R/2023/0280/FF - Erection of electricity substation including hardstanding and associated structures
	R/2021/0879/FF - Erection of a training facility with associated landscaping and parking areas
	R/2025/0512/F3 - Siting of two storage containers as 2-storey office use
	R/2022/0290/FFM - Plastics recycling facility
	R/2022/0231/FF - Proposed extension to surface water management infrastructure
	R/2021/0465/FFM - Erection of 3,396sqm of b2/b8 floorspace including waste storage area, installation of sprinkler tank and associated plant, creation of hardstanding and landscaping works
	R/2021/0927/FF - Installation of 6 floodlights (15 metre high) with led lighting
	R/2023/0046/RT - Single storey welfare site accommodation building with parking area (retrospective)
	R/2023/0343/FFM - Erection of an industrial unit with ancillary office space
	R/2023/0536/FFM - Erection of 28 bed HMO (contractor's only) two storey building with associated access; car parking & landscaping
	R/2023/0689/FF - Installation of a new pipe structure consisting of an evaporator, vapour separator and other ancillary vessels and equipment atop a concrete base and associated works
	R/2023/0799/FFM - Alterations to Tees Dock Roundabout to include new leg to provide access to Lackenby development site and widening of existing highway to provide an additional lane on the existing carriageways
	R/2023/0793/ESM - Hybrid application to include detailed planning permission for the erection of steel manufacturing facility (electric arc furnace) and outline permission for associated buildings, apparatus and infrastructure (all matters reserved)
	R/2024/0041/PSI - Erection of a Single Storey SEN Free School (Use Class F1a) with associated access, infrastructure, parking and landscaping works (Resubmission)
	R/2024/0023/RT - Construction of a single-storey office block as extension to the existing office block (part retrospective)
	R/2024/0148/FF - Construction of a new animal feed production facility and associated works
	R/2024/0537/FF - Erection of an end extension to existing industrial building for machine / plant storage and siting of two storey office / welfare cabins
	R/2024/0866/FFM - Erection and use of a battery energy storage facility with associated infrastructure and accesses
	R/2024/0839/ESM - Application for Reserved Matters approval (All Matters) following the outline planning application

Type	Application reference / name
	R/2020/0819/ESM for development comprising of an access road and building outlined in the Planning and EIA Compliance Statement
	R/2024/0838/ESM - Application for Reserved Matters approval (All Matters) following the outline planning application
	R/2020/0820/ESM for development comprising of an access road and building outlined in the Planning and EIA Compliance Statement
	R/2025/0308/FF - Proposed siting of 4no. cabins to provide facilities for catering, officials, and home and away teams along with palisade fencing and gates
	R/2025/0671/OO - Outline application (all matters reserved) for 9no. two-storey dwellings with associated landscaping
	R/2022/0150/FFM - Erection of two storey office block, 2 single storey industrial buildings and extension to existing warehouse including trailer/lorry parks, landscaping and 2.4m high perimeter fencing
	R/2023/0002/FFM - Construction and operation of a solar photovoltaic ('PV') development with a capacity of up to 49.9 MW with associated infrastructure and landscaping
	R/2025/0456/FFM - Proposed Battery Energy Storage Scheme (BESS) with associated works with associated works and landscaping
	R/2025/0395/FFM - Residential development comprising 87(no) two-storey dwellings and associated works
	R/2025/0837/RMM - Reserved Matters Application for approval (Access, Appearance, Landscaping, Layout and Scale) Pursuant to outline planning permission R/2017/0463/OOM for 325 Dwellings with Associated Vehicular and Pedestrian Accesses
	22/0074/FUL - Application for the installation of new and replacement of existing drop board sluice structures on existing ditches and associated infrastructure.
	22/1097/FUL - Application for proposed new 11KV substation to include access and walkways, upgrade of existing transformer pen and associated external works.
	22/0064/FUL - Provision of on shore gas compression facilities with ancillary infrastructure
	21/0489/EIAV - Section 73 application to vary condition no.3 (Temporary Permission) of planning approval 11/1425/EIS to extend the life of the composting facility to 31 December 2034.
	21/2559/FUL - Proposed new process hall, utility area and associated access.
	21/1092/FUL - Erection of 25no. industrial units for B2/B8 use with associated parking
	22/0827/FUL - Application for the erection of new training tower. Repositioning of existing oil storage tank, installation of concrete hard standing and erection of 2.4 metre high security fence/gate.
	21/1545/FUL - Application for the installation of a carbon dioxide capture plant plus ancillary and related equipment/works.

Type	Application reference / name
	21/2241/FUL - Erection of workshop extension to existing warehouse building to include small canopy over roller shutter door opening
	21/2497/RET - Retrospective application for two additional light industrial units.
	21/2896/FUL - Erection of 22 light industrial/employment units
	22/0339/FUL - Installation of 5no. pressurised liquified petroleum gas (LPG) and 1no. pressurised storage vessels with a new road tanker loading area and associated infrastructure.
	22/0868/REV - Revised application for the erection of 20 light industrial/employment units
	22/1239/FUL - Application for proposed substations, new compound to house switchboard/building and transformers with associated works to include access, hardstanding and lighting and erection of 2.4 metre high site perimeter security palisade fence.
	22/1525/EIS - Erection of an energy recovery facility and associated infrastructure for fuel receipt and storage, power generation, power export, process emissions control, maintenance, offices and car parking together with associated operations.
	22/2450/FUL - Demolition of existing infrastructure and installation of a Liquefied Petroleum Gas (LPG) facility with associated works.
	23/1019/EIS - Development of Greenergy Renewable Fuels and Circular Products Facility comprising a Sustainable Aviation Fuel Plant and Tyre Plant and associated infrastructure. A temporary construction laydown area, proposed services corridor, pipe bridge
	23/0997/FUL - Application for the installation an additional 4-inch pipeline (primarily below ground) that will tie into a new 4-inch pipeline to the Navigator Terminal Pipeline System 75.
	23/1156/FUL - Installation of an underground condensate gas pipe.
	23/1490/FUL - Partial demolition and sub-division of existing building into 45no self-storage units (Use Class B8) and 4no employment units (Use Class B2/B8), erection of 4no employment buildings (Use Class B2/B8) and 36no starter units (Use Class B2/B8)
	24/0053/FUL - Erection of 2no detached industrial storage buildings to include hard standing.
	24/0709/FUL - Application for a proposed Carbon Capture, Storage and Utilisation (CCSU) plant
	24/1208/FUL - Installation and operation of a Carbon Dioxide storage terminal.
	24/2141/FUL - Proposed Battery Energy Storage System (BESS) including substation, transformers, associated infrastructure, cabling, fencing, new access, internal service tracks and landscaping.
	25/2085/FUL - Erection of ancillary storage building.
	25/0649/FUL - Erection of 2no external structures around existing power plant enclosure and associated works.

Type	Application reference / name
	25/0490/EIAV - Section 73 application to vary conditions no2 (Approved Plans) and no12 (Biodiversity Management Plan) of planning approval 20/0583/EIAV (to revise the location of the two shallow lagoons on the Foremarsh are of the site)
	23/0342/VARY - Section 73 Application for Variation of Condition 37 to Extend the Life of Lambs Hill Wind Farm to 40 years and removal of Pre-commencement Conditions 1, 3, 5, 6, 13, 14, 22, 25, 27, 28, 30 and 39 of application ref. 10/2549/EIS
	23/2099/FUL - Erection of two storey factory building to include the creation of 58 car parking spaces, 8 EV parking spaces and demolition of 4no existing buildings.
	25/0245/VARY - Section 73 to vary conditions no2 (Approved Plans), no3 (Soft Landscaping), no4 (Soft Landscape Management), no5 (Arboricultural Impact Assessment), no9 (Construction Traffic Management Plan) and no10 (Construction, Decommissioning and Management Method Statement) of planning approval 20/2131/FUL - Installation of a ground mounted photovoltaic (PV) solar energy generation system (Solar Farm) with associated equipment and infrastructure.
	21/1892/VARY - Section 73 application to vary conditions no2 (Approved Plans), no3 (Tree Protection Plan) and no4 (Landscaping) of planning approval 20/0057/FUL - Application for the erection of 1no detached dwelling house.
	21/2772/FUL - Engineering operations including the laying of underground electricity cables and associated infrastructure to connect the consented solar farms to the approved 132kV substation in connection with planning approval 20/2131/FUL and 20/2692/FUL
	20/2692/FUL - Installation of a ground mounted photovoltaic (PV) solar energy generation system (Solar Farm), co-located battery storage, 132kV substation, associated equipment and infrastructure
	21/1478/VARY - Section 73 application to vary condition no2 (Approved Plans) and no4 (Landscaping) of planning approval 18/2696/FUL - Application for the erection of 31 dwellings with associated means of access, parking, and landscaping
	22/1553/FUL - Erection of 3no buildings (equestrian/general purpose)
	23/1691/VARY - Section 73 to vary the Restoration details (approved under condition 7 of approval 93/0719/P) to allow for a low level landform without the need to import inert waste materials.
	25/0579/FUL - Installation of a Power Island with the provision of ancillary equipment and associated infrastructure
	22/1724/FUL - Erection of two storey Integrated Control Building to include a connecting bridge at first floor and associated external alterations

Type	Application reference / name
	24/0109/RET - Part retrospective application for the siting of 3no module buildings to be used in association with dog boarding business and creation of dog exercise area and erection 1no building to be used for dogs.
	23/0329/FUL - Erection of 1no agricultural workshop and storage building.
	DM/23/03458/FPA - Erection of building to assist with stock control (retrospective) (description amended)
	DM/25/01047/FPA - Erection of a metal framed storage unit within existing car park
	DM/26/00681/FPA - Erection of a lightweight, removable steel frame storage building located on an existing concrete hard standing, intended for use in connection with the existing business
	DM/25/00028/FPA - Warehouse and associated hardstanding (Amended)
	DM/23/02008/FPA - Engineering and associated works to form enclosed area in association with storage use
	DM/21/04103/WAS - New raw materials reception and yard extension
	DM/25/00265/WAS - Expansion of anaerobic digestion facility from 120,000 to 150,000 tonnes per annum, including new tanks, a third digester, additional gas storage and treatment equipment, odour control, site road alterations, new buildings and relocated facilities with associated parking storage and loading areas
	DM/21/04142/FPA - Erection of 43no. industrial units (B2/B8 use), including associated car parking and landscaping
	DM/23/02905/FPA - Erection of industrial buildings including ancillary office space together with associated works.
	DM/21/01500/WAS - Construction and operation of a high temperature thermal treatment facility for clinical and hazardous wastes
	DM/22/00748/FPA - Erection of warehouse with ancillary office and retail space, access, car parking, HGV forecourt and landscaping
	DM/22/01647/FPA - 23no. affordable dwellings
Allocations	EMP3h - Employment (Hartlepool Borough Council)
	EMP4b - Employment (Hartlepool Borough Council)
	EMP4c - Employment (Hartlepool Borough Council)
	MWP4 & EMP4f - Waste (Tees Valley)
	EMP4e - Employment (Hartlepool Borough Council)
	EMP4g - Employment (Hartlepool Borough Council)
	ED6.2 & South Tees Development Corporation area - Employment (Redcar and Cleveland Borough Council)
	MWC9 - Sewage (Tees Valley)
	MWP8 & MWP10 - Waste (Tees Valley)
	H7 - Gypsy and Traveller (Redcar and Cleveland Borough Council)
	ED6.1 - Employment (Redcar and Cleveland Borough Council)

Type	Application reference / name
	MWP10(a) & MWC4 - Quarry (Tees Valley)
	EG4 - Employment (Stockton Borough Council)
	H1 - Housing (Stockton Borough Council)
	H30 - Housing (Durham County Council)
	EMP132 - Employment (Durham County Council)
	EMP135 - Employment (Durham County Council)
	48: Newton Aycliffe Concrete Plant - Mineral (Durham County Council)
	48: Heighington Household Waste Recycling Centre - Waste (Durham County Council)
	48: Heighington (Transfer Station) - Waste (Durham County Council)
	EMP135 - Employment (Durham County Council)
	1 Travellers Green - Housing (Durham County Council)
	Weardale Railway Line - Minerals and Waste (Durham County Council)
	Heighington Lane North - Employment (Darlington Borough Council)
	Aycliffe - Employment (Darlington Borough Council)
	H3.27 - Housing (Redcar and Cleveland Borough Council)
	ED6.3 - Employment (Redcar and Cleveland Borough Council)
	H3.23 - Housing (Redcar and Cleveland Borough Council)
	H3.22 - Housing (Redcar and Cleveland Borough Council)
	REG 2 - Heritage asset (not allocation) (Redcar and Cleveland Borough Council)
	ED6.6 - Employment (Redcar and Cleveland Borough Council)
	H3.15 - Housing (Redcar and Cleveland Borough Council)
	ED6.8 - Employment (Redcar and Cleveland Borough Council)

A.3.1.6 The location of NSIP within 10km of the Scoping Boundary are shown in **Figure 8.8: Local Planning Applications and NSIPs** (Volume II) (which also shows the location of allocations by local planning authorities which are being considered in routeing). Relevant planning applications will be included on the long and short list figures that accompany the ES.

Appendix B: Biodiversity baseline

B.1 Existing baseline conditions

B.1.1.1 The following tables summarise the existing baseline ecological conditions within the study area that have been identified using publicly available data sources.

TABLE B- 1: INTERNATIONAL DESIGNATED SITES WITHIN 10KM OF THE SCOPING BOUNDARY (SEE FIGURE 3.1 (VOLUME II))

Site name	Reason for designation	Distance /orientation from nearest point of the Scoping Boundary
Teesmouth and Cleveland Coast Special Protection Area (SPA) and Ramsar	The Teesmouth and Cleveland Coast Special Protection Area (SPA) is a 12km² complex of coastal habitats centred on the Tees estuary. These include sandflats, mudflats, rocky foreshore, saltmarsh, sand dunes, wet grassland and freshwater lagoons. Together they support internationally important populations of breeding and non-breeding waterbirds. Qualifying features include breeding little tern (<i>Sterna albifrons</i>) and passage sandwich tern (<i>Sterna sandvicensis</i>). It also supports wintering knot (<i>Calidris canutus islandica</i>), redshank (<i>Tringa totanus totanus</i>), and an assemblage of over 20,000 wintering waterfowl.	Within
North Yorks Moor SPA and Special Area of Conservation (SAC)	The North York Moors SPA contains the largest continuous tract of heather moorland in England. The site displays a wide range of high quality dry heathland and blanket bog vegetation types dominated by Calluna. The transition from dry heathland to blanket bog is complemented by a diverse mosaic of wet heath and flush communities. Qualifying features for the SPA are Merlin (<i>Falco columbarius</i>) and Golden Plover (<i>Pluvialis apricaria</i>). Qualifying features for the SAC are blanket bogs, European dry heaths and Northern Atlantic wet heaths with <i>Erica tetralix</i>.	2.7km west
Thrislington SAC	Thrislington is a small site but contains the largest of the few surviving stands of CG8 <i>Sesleria albicans</i> – <i>Scabiosa columbaria</i> grassland. This form of calcareous grassland is confined to the Magnesian Limestone of County Durham and Tyne and Wear, north-east England. It now covers less than 200ha and is found mainly as small, scattered stands.	7.9kmeast

TABLE B- 2: STATUTORY DESIGNATED SITES WITHIN 2KM OF THE SCOPING BOUNDARY (SEE FIGURE 3.1 (VOLUME II))

Site name	Reason for designation	Distance /orientation from nearest point of the Scoping Boundary
Site of Special Scientific Interest (SSSI)		
Teesmouth and Cleaveland Coast (SSSI)	This site contains an extensive mosaic of coastal and freshwater habitats centred on the Tees Estuary. These include sand dunes, saltmarshes, mudflats, rocky and sandy shores, saline lagoons, grazing marshes, reedbeds and freshwater wetlands. Breeding harbour seals (<i>Phoca vitulina</i>) as well as a diverse assemblage of breeding birds of sand dunes, saltmarsh and lowland open waters and their margins and 20,000 waterbirds during the non-breeding season. Additionally, the extensive complex of sand dunes within the site supports a nationally important invertebrate assemblage, including at least 14 threatened species	Within
Railway Stell West (SSSI)	This site is the only ditch known to support a typical fenland flora in the once extensive wetland of Bradbury, Morden and Preston Carrs. This ditch exhibits a range of community types including open water, tail fen and tall herb maintained by occasional ditch clearance.	555m east
Lovell Hill Pools (SSSI)	This site is set within an undulating, well-wooded agricultural landscape to the north of the North York Moors. The site supports assemblages of dragonflies and damselflies as well as great crested newt (<i>Triturus cristatus</i>).	1.2km south
Whitton Bridge Pasture (SSSI)	Whitton Bridge Pasture is nationally important for its areas of species-rich unimproved neutral grassland. The relatively base-poor nature of the glacial drift geology has influenced the character of the species-rich grasslands, the majority of which is characteristic of the more acidic <i>Danthonia decumbens</i> , heath-grass. Though formerly widespread, such grasslands (along with many of the characteristic species they support) are increasingly rare in the Tees Lowlands Natural Area. This site is one of two remaining examples of this habitat in the Natural Area.	1.3km south
Saltburn Gill (SSSI)	The site comprises the eastern slopes of the gill which are of particular importance in supporting one of the few relatively undisturbed areas of mixed deciduous woodland in Cleveland. It supports orchid species such as spotted orchid (<i>Dactylorhiza fuchsia</i>) and early-purple orchid (<i>early-purple orchid Orchis mascula</i>).	1.6km east
National Nature Reserve (NNR)		
Teesmouth NNR	This NNR supports sand dunes, grazing marsh, intertidal sand and mudflat habitats. Harbour seals and grey seals are present	60m north

Site name	Reason for designation	Distance /orientation from nearest point of the Scoping Boundary
	in the tidal channels and there are four different species of marsh orchid, and thousands of migratory waterbirds.	
Local Nature Reserve (LNR)		
Cowpen Bewley Woodland Country Park (LNR)	No citation information available.	Within
Thorpe Wood (LNR)	No citation information available.	5m east
Stillington Forest Park (LNR)	No citation information available.	50m west
Errington Wood (LNR)	No citation information available.	80m south
Whitecliff, lotus and Rosecroft Wood (LNR)	No citation information available.	365m north
Clarksons Wood (LNR)	No citation information available.	745m west
Byerley (LNR)	No citation information available.	1.3km south
Charlton's Pond (LNR)	No citation information available.	1.3km south
Rosecroft Woods (LNR)	No citation information available.	1.3km north
Seaton Dunes and Common (LNR)	No citation information available.	1.3km north
Billingham Beck Valley (LNR)	No citation information available.	1.5km west
Loftus Wood (LNR)	No citation information available.	1.6km north

TABLE B- 3: NON-STATUTORY DESIGNATED SITES WITHIN 2KM OF THE SCOPING BOUNDARY

Site name (All sites listed below are Local Wildlife Sites)	Reason for designation	Distance /orientation from nearest point of the Scoping Boundary
Wynward Woodland Park Eston Pumping Station Greatham Creek North Bank Saltmarsh The Snipe Cowpen Bewley Woodland Park Phillips Tank Farm Grassland Greatham Creek North Bank Saltmarsh Greenabella Marsh Tot Fenny's Meadow Skelton Beck Complex	No citation information available.	Within
Wynyard Woodland Park Wilton Woods Complex Dunsdale Wood Complex Dunsdale Beck Grassland Capon Hall Farm Brown Hills Grassland Unknown Name LWS Hobdale Terrace Grassland Wygrave Wood Aycliffe Nature Park Capon Hall Farm Grassland Cattersty Grassland Claphow Reservoir Wood	No citation information available.	0 – 100m
Merrys Wood Grassland Saltern Saltmarsh Cumby Pond Upleatham Bridge Layland Beck Woo Roakley House Farm Grassland North West Lumpsey Mine Grassland Soapwell Field Kilton Beck Complex Loftus Woods Complex Skinningrove Grassland Coatham Marsh Roakley House Farm Grassland South West Lingdale Common Billingham Beck Valley Country Park Saltburn to Staithes Coast 1	No citation information available.	100m – 1km

Site name (All sites listed below are Local Wildlife Sites)	Reason for designation	Distance /orientation from nearest point of the Scoping Boundary
Skelton Ellers Saltburn Gill Complex Branda Road Sewage Works School Aycliffe Wetland Skinningrove Cliffs (WEST) Skinningrove Cliffs (EAST) Simpasture Junction Saltburn to Staithes Coast 1 Aycliffe Quarry Power Station Grassland and Wetland Carling Howe Farm Kilton Mine		
Brenda Road Wetland Low Mill Slag Tip Margrove Ponds New Homer Carr Plantation Queen's Meadow Wetland South Bank Station Black Path LWS Unknown name Waytail Beck Grassland Seaton Common Teessaurus Park Hummersea Bank Cattersty Cliff Billingham Beck Valley Country Park North Burn Marsh Gravel Hole Saltburn Gill Complex Zinc Works Bird Field Close Woods Complex Jackdaw Crag Chaloner Pit Saltburn to Staithes Coast 2 Shildon Springs Billingham Beck Valley Country Park Rock Hole Quarry	No citation information available.	1 – 2km

TABLE B- 4: IRREPLACEABLE AND PRIORITY HABITATS WITHIN 500M OF THE SCOPING BOUNDARY (SEE FIGURE 8.1 (VOLUME II))

Irreplaceable and priority habitats within 500m of the Scoping Boundary
Irreplaceable habitats located within the Scoping Boundary are: • 10 parcels of ancient woodland. Irreplaceable habitats located within 500m of the Scoping Boundary are: • 82 parcels of ancient woodland, with the closest located 5m west of the Scoping Boundary. • 17 parcels of ancient woodland/ ancient semi-natural woodland. • One parcel of sand dunes located 455m east of the Scoping Boundary. There are no other known parcels of irreplaceable habitat within 500m of the Scoping Boundary. Priority habitats located within the Scoping Boundary and also within 500 of the Scoping Boundary are: • Hedgerows: from aerial mapping there are numerous hedgerows, mostly bordering agricultural land, that are likely to be priority hedgerow habitat and some may be classed as ‘important’ hedgerows. However, without survey this cannot be confirmed. • Rivers: The Scoping Boundary passes through the River Tees and the River Skerne and the following watercourses which are classed as statutory main rivers; Skelton Beck, Skelton Eilers Beck, Greatham Creek/ Seaton on Tees Channel, Cowbridge Beck, Claxton Beck, and Thorpe Beck. • Ponds: There are seven priority ponds within 500m of the Scoping Boundary, with the closest located 20m north. However, there are numerous standing waterbodies in the forms of ponds and ditches that are within the Scoping Boundary that could be classed as priority habitat. However, without a UK Habitat Classification (UKHabs) survey it is unknown if these would be classed as priority habitat or not. • Arable and horticultural: As the Scoping Boundary is mostly within agricultural land, it is likely that parcels of the priority habitat arable field margins are present. This cannot be confirmed without a UKHabs survey. • Deciduous woodland: 62 parcels within the Scoping Boundary and 129 within 500m. • Coastal and floodplain grazing marsh: 67 parcels within the Scoping Boundary and 147 parcels within 500m. • Lowland calcareous grassland: one parcel 75m east of Scoping Boundary. • Lowland meadows: one parcel within the boundary and two other parcels within 500m. • Mudflats: 28 parcels within the Scoping Boundary and 20 parcels within 500m. • Reedbeds: one parcel within the Scoping Boundary and 16 parcels within 500m • Coastal saltmarsh: six parcels within the Scoping Boundary and 199 parcels within 500m. • Saline lagoons: five parcels within the Scoping Boundary and 12 parcels within 500m. Traditional orchard: seven parcels within 500m of the Scoping Boundary, with the closest parcel located 110m north.

TABLE B- 5: BIODIVERSITY AND ECOLOGY LEGISLATION

Biodiversity and ecology legislation	
The Wildlife and Countryside Act 1981 (as amended) (WCA)	Primary legislation covering endangered species in England and sets out the framework for the designation of Sites of Special Scientific Interest (SSSI). It confers differing levels of protection on species themselves, their habitats, or both, depending on their conservation status. Species offered protection by the Act are listed in a series of schedules. These Schedules are subject to a rolling review on a five-yearly basis. Protected species are listed under Section 1 (birds), Schedule 5 (animals other than birds and invertebrates) and Schedule 8 (plants). The WCA prohibits planting in the wild or causing to grow certain invasive species listed in Schedule 9 (including Japanese knotweed <i>Fallopia japonica</i> and giant hogweed <i>Heracleum mantegazzianum</i>).
Countryside and Rights of Way Act 2000 (CRoW Act)	Affords a greater level of protection to SSSIs, provides enhanced management arrangements for Areas of Outstanding Natural Beauty (now National Landscapes), and strengthens wildlife enforcement legislation. This Act has amended the WCA by the addition of the term 'recklessly' to Section 1(5) and Section 9(4) which has resulted in additional obligations with respect to protected species. As such, it is now an offence to intentionally or recklessly disturb protected species listed on the relevant Schedules of the WCA.
Hedgerow Regulations 1997	Set out criteria for local planning authorities to assess whether hedgerows are considered to be 'important' for their historical, archaeological, landscape or wildlife value. An 'important' hedge can only be removed under planning permission, or by a specific Hedgerow Removal Notice to be issued by the Local Authority. The assessment within this report is limited to assessing the importance of hedgerows on the basis of the wildlife criteria of the Regulations.
Birds	All wild birds, their nests and their eggs are afforded legal protection through provisions in the WCA. It is an offence, with certain exceptions, to intentionally: kill, injure or take any wild bird; take, damage, or destroy the nest of any wild bird while it is in use or being built; and take or destroy the egg of any wild bird. In addition to the above listed offences, it is also illegal to intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building or is in, on or near a nest with eggs or young; or to disturb the dependent young of such a species. For certain species which are listed on Schedule 1 of the Act, consent from Natural England would be required to cause disturbance to a nesting individual or to disturb its dependent young. The European Union meets its obligations for bird species under the Bern Convention and Bonn Convention and more generally by means of Directive 2009/147/EC (Birds Directive) on the conservation of wild birds. In the UK, the provisions of the Birds Directive are implemented through the Wildlife and Countryside Act 1981 (as amended) and the Habitats Regulations (as well as other legislation related to land and sea). The main provisions of the Directive include: the maintenance of populations of all wild bird species across their natural range; the establishment of a general

Biodiversity and ecology legislation	
	scheme of protection for all wild birds; requirements to ensure that introduction of non-native birds do not threaten other biodiversity; and the identification and classification of SPAs for rare or vulnerable species listed in Annex I of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance (Article 4). Together with SACs designated under the Habitats Directive, SPAs form a network of European protected areas known as Natura 2000.
Bats	The Habitats and Species Regulations provide protection for European Protected Species (EPS) and their habitats, including bats, which make it an offence to: intentionally or recklessly capture, kill or injure bats; deliberately disturb bats (including when they are outside their roosts) or intentionally or recklessly disturb roosting bats; and damage or destroy their roosts or intentionally or recklessly obstruct access to their roosts (whether bats are present or not). Under the Habitats and Species Regulations, disturbance includes any disturbance which is likely to impair their ability to survive; breed or reproduce; rear or nurture their young; or hibernate or to affect significantly the local distribution or abundance of the species. Some bat species are also listed under the Section 41 list.
Reptiles	All native UK reptile species are protected against killing and injury under Schedule 9 of the WCA. This legislation makes it illegal to intentionally kill or injure a reptile.
Great crested newts	Great crested newt is afforded protection through the provisions of the WCA, the CroW Act and The Conservation of Habitats and Species Regulations 2017. As such, without a licence from Natural England, it is an offence to: kill, injure, or capture a great crested newt; damage, destroy or obstruct access to any breeding site or resting place of a great crested newt; or disturb a great crested newt while it is occupying a structure or place that it uses for shelter or protection. The legislation applies to all stages of the life cycle including eggs, larvae, juveniles, and adults.
Badgers	The Protection of Badgers Act 1992 makes it an offence (in the absence of a derogation licence) to: kill injure or take a badger; damage or interfere with a sett; or disturb a badger when it is occupying a sett. Specifically, it imposes restrictions on works carried out within certain distances of badger setts. Any works that will directly impact on an existing sett are only permitted subject to approval through the issue of a licence from Natural England.
Other wild mammals	European hedgehog is listed on Schedule 6 of the WCA, which makes it illegal to kill or capture wild hedgehogs by certain methods. Fox, rabbit and the rodent species that inhabit the site are not specifically protected by law, however under the Wild Mammals (Protection) Act 1996, it is an offence to inflict unnecessary suffering on any wild mammal by certain methods, including crushing and asphyxiation.

TABLE B- 6: BIODIVERSITY AND ECOLOGY KEY GUIDANCE

Biodiversity and ecology legislation	
Guidelines for Preliminary Ecological Appraisal, (2024)	Chartered Institute of Ecology and Environmental Management (CIEEM) (2024) <i>Guidelines for Preliminary Ecological Appraisal (GPEA)</i> . Version 1.3. [Online]. Available at: https://cieem.net/wpcontent/uploads/2018/08/EcIA-Guidelines-v1.3-Sept-2024.pdf [Accessed May 2026]
Guidelines for Ecological Impact Assessment in the UK and Ireland (2018)	Institute of Sustainability & Environmental Professionals (formerly Institute of Ecology and Environmental Management) (2018) <i>Guidelines for Ecological Impact Assessment in the UK and Ireland</i> . [Online]. Available: https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/ [Accessed May 2026]
The Statutory Biodiversity Metric User Guide (2024)	Defra (2024) <i>The Statutory Biodiversity Metric</i> . [Online]. Available at: https://assets.publishing.service.gov.uk/media/669e45fba3c2a28abb50d426/The_Statutory_Biodiversity_Metric_User_Guide_23.07.24.pdf [Accessed May 2026]

Appendix C: Climate change baseline and GHG potential impact tables

C.1 Climate change and resilience baseline

TABLE C- 1: BASELINE AND FUTURE CLIMATE PROJECTIONS - ABSOLUTE VALUES*

Factor	Unit	Baseline observation (Dec 1980- Nov 2000)	Future climate (Dec 2060 - Nov 2080)		
			10th percent ile	50th percent ile	90th percentil e
Summer mean temperature	°C	14.86	18.58	19.43	19.85
Winter mean temperature	°C	4.17	6.15	7.31	7.57
Average daily maximum temperature in summer	°C	19.25	23.43	24.44	25.08
Average daily minimum temperature in winter	°C	1.21	3.36	4.44	5.02
Number of hot days (daily maximum temperature higher than 25°C)	days/ year	2.23	11.46	16.31	19.97
Average number of heatwaves per year (3 days above 25°C)	occurrences/ year	3.70	18.01	25.96	30.91
Dry spells (10 days or more with no precipitation)	occurrences/ year	2.38	2.66	2.87	3.11
Heavy rainfall (annual number of days with >20mm rainfall)	days/ year	2.62	1.69	2.29	3.34

* UKCP18 Climate Change Projections and HadUK-Grid Baseline Observations for Extreme Temperature and Precipitation Climate Indicators for the Local Area (12km Grid Square) for the Time Periods 1980-2000 and 2060-2080 (under the RCP 8.5 High Emissions Scenario)

C.1.1.1 Data obtained from:

- Met Office Hadley Centre, 2018. UKCP18 Regional Projections at 12km Resolution for 1980-2080. Centre for Environmental Data Analysis, date of citation.
<https://catalogue.ceda.ac.uk/uuid/8c6c0ae2c25947168826a70d2241b797> (accessed April 2026)
- Met Office; Hollis, D.; McCarthy, M.; Kendon, M.; Legg, T.; Simpson, I, 2018. HadUK-Grid gridded and regional average climate observations for the UK. Centre for Environmental Data Analysis, Available at:
<http://catalogue.ceda.ac.uk/uuid/4dc8450d889a491ebb20e724debe2dfb> (accessed April 2026)

C.2 GHG potential impact

TABLE C- 2: CONSTRUCTION POTENTIAL SOURCES OF GHG EMISSIONS

Whole Life Carbon Life Cycle Stage	Activity	Emission Source and impact
Product stage (A1-3)	Raw material extraction and manufacturing of products required to build the equipment and infrastructure for the Proposed Development	Embodied GHG emissions from energy use in the extraction of materials and manufacture of components and equipment.
Construction process stage (Transport) (A4)	Transportation of materials for processes/ manufacturing (where available)	GHG emissions from transportation of equipment and materials during their processing and manufacture. Due to the nature of the equipment, this could require shipment of certain aspects over significant distances. Transport of materials from the manufacturing facility to the Site is included under construction phase.
Construction process stage (Transport) (A4)	On-site construction activity including emissions from construction compounds including water use	GHG emissions from energy (electricity, fuel, etc.) consumption from plant, vehicles and generators on-site. Provision of potable water, and treatment of wastewater. Includes any GHG emissions associated with land use change including impacts to peat/ soils which are a carbon sink.
Construction process stage (A5)	Transportation of construction workers to and from the Site	GHG emissions from fuel consumption of vehicles used for transportation of workers to the Site.
	Transportation and disposal of construction waste streams	GHG emissions from fuel consumption of vehicles used. GHG emissions released from waste disposal method.
	Transportation of construction materials to the Site.	GHG emissions from transportation of materials to and from the Site.

TABLE C- 3: OPERATION POTENTIAL SOURCES OF GHG EMISSIONS

Whole Life Carbon Life Cycle Stage	Activity	Emission Source and impact
Maintenance, repair and replacement (B2-B4)	Routine maintenance, repair and replacement of components	GHG emissions from energy consumption, transportation of maintenance workers and materials, material use and waste generation as a result of site maintenance.
Refurbishment (B5)	Planned refurbishment	GHG emissions associated with any planned refurbishment within the operational lifespan. Planned site refurbishment refers to large-scale

Whole Life Carbon Life Cycle Stage	Activity	Emission Source and impact
		interventions beyond routine replacement (B2-B4) so could theoretically include repurposing works towards the end of the Proposed Development's life, designed to extend the life of any pipeline element.
Use (B6) Operational Energy	Operation of the Proposed Development	Minimal impact envisaged. GHG emissions from fuel consumption during operation (both direct emissions to the atmosphere from the Proposed Development, and also indirect, upstream emissions from the natural gas, water, chemicals and other materials used in the hydrogen production process, and downstream emissions relating to the transport of the generated hydrogen). Emissions from leakage of hydrogen on the network and indirect GHG effects of hydrogen. Emissions associated with routine/ emergency venting/ flaring (if required – as outlined in Paragraph 4.2.23.
Operational water consumption (B7)	Water consumption	Minimal impact envisaged.
Other operational emissions and user activities (B8)	Users replacement of natural gas with hydrogen	GHG emission 'savings' associated with users replacing natural gas with hydrogen for their operation.

TABLE C- 4: DECOMMISSIONING POTENTIAL SOURCES OF GHG EMISSIONS

Whole Life Carbon Life Cycle Stage	Activity	Emission Source and impact
Deconstruction and demolition (C1)	On-site decommissioning activities	Energy (electricity, fuel, etc.) consumption from plant, vehicles and generators within the AGI boundary associated with the removal and dismantling of AGI equipment at the end of life of the Proposed Development.
Transport (C2)	Transportation of waste to landfill or processing centre	GHG emissions from fuel consumption of vehicles used at the end of life of the Proposed Development for transportation of waste.
Waste processing and disposal (C3-4)	Waste treatment and disposal of discarded material at end of life	GHG emissions from disposal.

- C.2.1.1 Other 'General' Effects will also be assessed in category 'D' i.e. Benefits and loads beyond the system boundary which relate to 'Displacement of other energy sources with hydrogen'. As part of the contextualisation of the assessment, the Applicant will seek to quantify the benefit that is predicted to accrue from displacement of emissions associated with end users switching from other GHG emitting fuels to hydrogen.

TABLE C- 5: SIGNIFICANCE CRITERIA AS PER IEMA GUIDANCE

Effects	Level of Significance	Description
Significant adverse	Major adverse	The project's GHG impacts are not mitigated or are only compliant with DM standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.
Significant adverse	Moderate adverse	The project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero.
Not Significant	Minor adverse	The project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.
Not Significant	Negligible	The project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.
Not Significant	Beneficial	The project's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

Appendix D: Historic environment baseline gazetteer

TABLE D- 1: SCHEDULED MONUMENTS

NHLE Asset ID	Asset name	Grid Reference	Distance from Scoping Boundary (m)
1002335	Deserted village	NZ 30578 24092, NZ 30736 23991	10
1019915	Medieval settlement and open field system at Kilton Thorpe	NZ 68978 17643	320
1018948	Manorial settlement, dovecote and fragment of field system, immediately north of Marske Inn Farm	NZ 63540 21668	375
1018659	Two round barrows on Patterson's Bank	NZ 62139 20005, NZ 62194 20027	750
1018946	Kilton Castle: tower keep castle 130m east of Castle Cottages	NZ 70286 17578	890

TABLE D- 2: LISTED BUILDINGS

NHLE Asset ID	Grade	Asset name	Grid Reference	Distance from scoping boundary (m)
1478390	II	School Aycliffe Lane overbridge	NZ 26957 24003	0
1478497	II	Aycliffe Wood occupation bridge	NZ 27043 23254	0
1159773	II	RAILWAY BRIDGE, 365 METRES WEST OF ELSTOB CROSSING	NZ 33101 24388	0
1322808	II*	The former Stockton and Darlington Railway's Heighington and Aycliffe Railway Station and attached workers' housing	NZ 27140 22513	0
1391940	II	HEIGHINGTON SIGNAL BOX	NZ 27111 22536	0
1263270	II	WELL HEAD, APPROXIMATELY 20 METRES SOUTH OF TROUT HALL FARMHOUSE	NZ 66628 18273	15
1329833	II	HALL'S FARMHOUSE	NZ 48292 24854	25
1139244	II*	IVY HOUSE	NZ 48235 24764	30
1251711	II	STABLE/COACH HOUSE, ADJOINING WEST SIDE OF TROUT HALL FARMHOUSE	NZ 66604 18284	30

NHLE Asset ID	Grade	Asset name	Grid Reference	Distance from scoping boundary (m)
1139245	II	BARN TO WEST OF IVY HOUSE	NZ 48216 24758	35
1250418	II	TROUT HALL FARMHOUSE	NZ 66618 18288	35
1139695	II	CARLIN HOW BARN, STABLE BYRE AND CART SHED RANGE, CIRCA 30 METRES SOUTH EAST OF CRAGGS HALL FARMHOUSE	NZ 70060 19207	40
1329832	II	VILLAGE FARM HOUSE	NZ 48005 24776	50
1387500	II	FELL BRIGGS FARMHOUSE	NZ 61395 21031	55
1250675	II	MILL HOUSE	NZ 46660 26715	70
1139242	II	LITTLE NEUK FARM COTTAGE	NZ 48166 24803	80
1106336	II	GOLDEN GATES, GATE PIERS, SCREEN RAILINGS AND LODGES TO WYNYARD PARK	NZ 42245 24780	80
1136586	II	STERNE'S WELL, CIRCA 100 METRES SOUTH WEST OF BACK LANE FARMHOUSE	NZ 65142 18357	85
1139243	II	NIGHTINGALE'S FARMHOUSE AND BARN ADJOINING	NZ 48191 24813	90
1139220	II	THE HAMILTON RUSSELL ARMS	NZ 40110 23381	90
1263233	II	FARM COTTAGES EAST OF BARNS FARMHOUSE	NZ 64725 18815	90
1159693	II	RAILWAY BRIDGE, 25 METRES NORTH EAST OF RICKNALL MILL FARMHOUSE	NZ 29480 23964	100
1250386	II	RAWCLIFFE HOUSE THE BUNGALOW	NZ 65788 18113	105
1250550	II	BARN, CART SHED AND STABLE CIRCA 15 METRES NORTH OF BARNS FARMHOUSE	NZ 64736 18841	110
1075331	II	48, DURHAM ROAD	NZ 45072 25699	135
1329466	II	46, DURHAM ROAD	NZ 45080 25698	135
1115824	II	Main engine house and associated structures, Skelton Park disused iron mine	NZ 64428 18092	140
1115825	II	Secondary winding engine house at Skelton Park disused iron mine	NZ 64417 18074	140
1342717	II	OUTBUILDING TO NORTH OF MANOR FARM HOUSE	NZ 45051 25686	140
1160357	II	27, YEARBY ROAD	NZ 59843 20909	150
1329822	II	THE VANE ARMS PUBLIC HOUSE	NZ 40096 23463	150
1115823	II	Fanhouse and associated structures at Skelton Park disused iron mine	NZ 64398 18053	150
1139921	II	SUNDIAL HOUSE FARM AND DIAL HOUSE	NZ 45281 25740	155

NHLE Asset ID	Grade	Asset name	Grid Reference	Distance from scoping boundary (m)
1139621	II	25, YEARBY ROAD	NZ 59855 20912	155
1310615	II	23, YEARBY ROAD	NZ 59861 20915	155
1139923	II	MANOR FARM HOUSE	NZ 45047 25663	160
1067689	II	NORTHERN GRANGE FARMHOUSE AND NUMBER 44	NZ 45117 25682	165
1329469	II	CHURCH OF ST PETER	NZ 45438 25779	165
1115787	II	Powerhouse, office and substation at Skelton Park disused iron mine	NZ 64435 18048	170
1329468	II	48, HIGH STREET	NZ 45367 25747	175
1342719	II	WYNYARD CLOSE	NZ 45363 25736	185
1329467	II	THE GREEN FARMHOUSE	NZ 45108 25656	185
1076996	II	METHODIST CHAPEL	NZ 45407 25740	195
1139922	II	Bradley Farm, 7, Durham Road	NZ 45201 25683	195
1329554	II*	TOCKETTS MILL	NZ 62693 18108	195
1139787	II	MILL HOUSE ADJOINING EAST SIDE OF TOCKETTS MILL	NZ 62704 18106	200
1329602	II	TUDOR COTTAGE	NZ 60032 21014	200
1320278	II	Workshops at Skelton Park disused iron mine	NZ 64418 18012	205
1159826	II	YEARBY OLD SCHOOL	NZ 60016 21027	220
1115786	II	Provender House at Skelton Park disused iron mine	NZ 64391 17975	225
1139635	II	SCHOOL HOUSE	NZ 60014 21031	225
1077030	II	GARTH END FARMHOUSE	NZ 45029 25580	235
1139224	II	CHURCH OF ST JAMES	NZ 40206 23509	250
1136698	II	KILTON MILL HOUSE	NZ 71107 18984	260
1310886	II	UPLEATHAM BRIDGE	NZ 63315 18055	265
1139924	II	24, HIGH STREET	NZ 45356 25641	270
1139679	II	KILTON MILL	NZ 71117 18974	275
1139925	II	1, LAX TERRACE	NZ 45214 25575	295
1342721	II	FARM BUILDINGS TO WEST AND SOUTH OF NUMBER 1	NZ 45211 25566	300
1139641	II*	OLD HALL MUSEUM	NZ 59223 21637	305
1329628	II	BYRE RANGE AND FOLDYARD C15 METRES WEST OF MANOR FARMHOUSE	NZ 58864 22369	305
1329470	II*	THE RECTORY	NZ 45093 25522	310
1139926	II	THE LONDONDERRY ALMHOUSES	NZ 45244 25566	310
1310786	I	SIR WILLIAM TURNER'S HOSPITAL	NZ 59307 21547	320
1076963	II	WAR MEMORIAL	NZ 45179 25532	325

NHLE Asset ID	Grade	Asset name	Grid Reference	Distance from scoping boundary (m)
1329606	I	ENTRANCE SCREEN LOGGIAS FORTS FLAT AND OUTHUSES TO SIR WILLIAM TURNERS HOSPITAL	NZ 59274 21598	330
1342739	II	WALLS, GATE AND GATE PIERS TO NORTH AND EAST OF THE RECTORY	NZ 45126 25511	330
1139647	II	Barn and stable adjoining south of Manor Farmhouse.	NZ 58901 22353	330
1139612	II	BARN SCREEN WALL AND PRIVY ADJOINING NORTH SIDE OF MANOR FARMHOUSE	NZ 58887 22387	335
1160171	II	MANOR FARMHOUSE ADJOINING CART SHED AND OUTHUSE	NZ 58896 22371	335
1310769	II*	STATUE OF JUSTICE IN COURTYARD OF SIR WILLIAM TURNERS HOSPITAL	NZ 59305 21580	340
1139642	II	HA-HA WALL AT ENTRANCE TO SIR WILLIAM TURNERS HOSPITAL	NZ 59281 21614	345
1121511	II	ACCOMMODATION BRIDGE, 640 METRES EAST OF ELSTOB CROSSING	NZ 34080 24200	345
1250417	II	APPLE ORCHARD FARMHOUSE AND ADJOINING STABLE	NZ 68179 18488	360
1139786	II	TOCKETTS HOUSE (THE KENNELS) AND EXTENSION	NZ 62164 17956	370
1312757	II	BARN/CART SHED, STABLES AND BYRE, CIRCA 40 METRES NORTH OF GREEN HILLS FARMHOUSE	NZ 68160 17298	385
1139757	II	ELLERS BRIDGE	NZ 63153 17983	390
1139927	II	HALL FARMHOUSE	NZ 44991 25403	390
1139646	II	BARN C.20M NORTH WEST OF FOXRUSH FARMHOUSE	NZ 58626 23070	395
1310702	II	FOXRUSH FARMHOUSE AND GARDEN WALL	NZ 58664 23064	425
1139643	II	BOUNDARY WALLS AND TRANSVERSE WALL ENCLOSING FORMER KIRKLEATHAM GARDENS	NZ 59392 21682	475
1159818	II	TURNER'S ARMS FARMHOUSE AND ATTACHED WALL	NZ 59956 21303	480
1159837	II	WESTFIELD HOUSE	NZ 58396 23772	480
1139759	II*	OLD CHURCH OF ST ANDREW	NZ 63712 19367	485
1159948	II	THE COTTAGES	NZ 59373 21771	500
1329605	II	THE COTTAGES NO 8 (THE DOWER HOUSE) AND NOS 9 AND 10	NZ 59385 21781	515

NHLE Asset ID	Grade	Asset name	Grid Reference	Distance from scoping boundary (m)
1251324	II	SKELTON MILL FARMHOUSE AND REMAINS OF MILL	NZ 64995 19689	515
1139761	II	War Memorial, Upleatham	NZ 63128 19357	515
1159964	II	THE COTTAGES THE OLD VICARAGE	NZ 59380 21796	515
1121510	II	RICKNALL GRANGE FARMHOUSE AND YARD WALL TO REAR	NZ 30588 24417	520
1329823	II*	WELLINGTON OBELISK TO SOUTH EAST OF WYNYARD HALL	NZ 42333 25347	520
1310808	II	NEWCOMEN TOMBSTONE CIRCA 8 METRES NORTH WEST OF CHURCH OF ST CUTHBERT	NZ 59386 21823	530
1159804	II	NUMBER 20 AND OUTBUILDING ADJOINING EAST SIDE	NZ 63180 19376	545
1356589	II	Church Of St John The Divine	NZ 37738 23624	545
1139638	I	CHURCH OF ST CUTHBERT	NZ 59406 21818	550
1329542	II	NUMBER 19 AND OUTBUILDINGS ADJOINING REAR (SOUTH) ELEVATION	NZ 63190 19379	550
1310858	II	METHODIST CHAPEL	NZ 63195 19384	555
1476552	II	Stockton and Darlington Railway Boundary Stone	NZ 27171 21853	555
1139639	II	GAUNT TOMBSTONE CIRCA 10 METRES NORTH OF CHURCH OF ST CUTHBERT	NZ 59408 21839	560
1159896	I	TURNER MAUSOLEUM ADJOINING CHURCH OF ST CUTHBERT	NZ 59419 21831	565
1329604	II	GATES, GATEPIERS, WALL STEPS AND MOUNTING BLOCK EAST OF CHURCH OF ST CUTHBERT	NZ 59430 21811	565
1139640	II	CORNEY CHEST TOMB ONE METRE EAST OF CHURCH OF ST CUTHBERT	NZ 59425 21822	565
1310799	II	BUTTRESS WITH COAT OF ARMS CIRCA 2 METRES EAST OF TURNER MAUSOLEUM	NZ 59425 21832	570
1139763	II	17 AND 18	NZ 63216 19397	575
1139722	II	BOUNDARY GARDEN WALLS TO NUMBERS 14 TO 20	NZ 63215 19404	580
1263268	II	17, SOUTH TERRACE	NZ 65360 18836	580
1159793	II	NUMBER 16 AND WEST EXTENSION	NZ 63236 19405	585
1251718	II	WEST TERRACE	NZ 65343 18869	595
1329541	II	VILLAGE HALL	NZ 63246 19411	595
1136754	II	Timm's Coffee House	NZ 71306 19849	595
1310744	II	GATEPIERS AT ENTRANCE TO DRIVE OF KIRKLEATHAM HALL SCHOOL	NZ 59450 21841	600

NHLE Asset ID	Grade	Asset name	Grid Reference	Distance from scoping boundary (m)
1139760	II	BOUNDARY WALLS, GATES AND GATEPIERS TO SOUTH OF CHURCH OF ST ANDREW	NZ 63237 19424	605
1251330	II	GROTTO, 120 METRES NORTH WEST OF SKELTON CASTLE	NZ 65105 19452	605
1159784	II	STONE SHAFT, 2 METRES SOUTH WEST OF TOWER OF CHURCH OF ST ANDREW	NZ 63234 19428	610
1250387	II	1 AND 2, CHURCH LANE	NZ 65241 18963	610
1139762	II	14 AND 15	NZ 63271 19420	610
1159780	II	CHURCH OF ST ANDREW	NZ 63244 19439	620
1221825	II	K6 TELEPHONE KIOSK, ON WEST SIDE OF NUMBER 13 (UPLEATHAM POST OFFICE)	NZ 63279 19430	625
1136574	II	CLAPHOW FARMHOUSE FARM COTTAGE	NZ 67486 16803	630
1139688	II	STABLES EAST OF CLAPHOW FARMHOUSE	NZ 67511 16805	635
1250450	II	GATES, GATEPIERS AND FLANKING WALLS, 10 METRES NORTH OF NUMBER 2	NZ 65244 18988	635
1159788	II	UPLEATHAM POST OFFICE	NZ 63290 19438	635
1136761	II	18 AND 19, STONE ROW	NZ 71303 19903	635
1250467	II	GROUP OF 3 TOMBSTONES, APPROXIMATELY 20 METRES SOUTH WEST OF TOWER OF OLD CHURCH OF ALL SAINTS	NZ 65236 19015	640
1263292	II	HUTTON TOMBSTONE CIRCA 13 METRES SOUTH WEST OF TOWER OF OLD CHURCH OF ALL SAINTS	NZ 65236 19024	640
1329607	I	GATEPIERS AT ENTRANCE TO FORECOURT OF KIRKLEATHAM HALL SCHOOL	NZ 59502 21872	660
1263246	II*	OLD CHURCH OF ALL SAINTS	NZ 65252 19038	660
1136581	II	CART SHED AND STABLE 35 METRES SOUTH EAST OF CLAPHOW FARMHOUSE	NZ 67518 16780	660
1262832	I	SKELTON CASTLE	NZ 65178 19321	660
1329588	II	CART SHED, BYRE, MILKING PARLOUR AND PRIVY/COALHOUSE, 10 METRES SOUTH EAST OF CLAPHOW FARMHOUSE	NZ 67497 16772	660

NHLE Asset ID	Grade	Asset name	Grid Reference	Distance from scoping boundary (m)
1160124	II*	BASTION 100 METRES NORTH WEST OF KIRKLEATHAM HALL FARM	NZ 59436 22015	660
1251620	II	NURSERY SCHOOL AND SCHOOL HOUSE	NZ 65486 18836	670
1329583	II	9-12, STONE ROW	NZ 71355 19905	670
1139644	II	BARN AND STABLE ADJOINING KIRKLEATHAM HALL FARM	NZ 59492 21929	675
1263264	II	SIX TOMBSTONES SOUTH OF GATEHOUSE TO SKELTON CASTLE	NZ 65199 19301	680
1329540	II	THORNTON FIELDS FARMHOUSE	NZ 61421 18136	680
1322809	II	OLD FARM COTTAGE	NZ 25904 23604	685
1322810	II	THRESHING BARN AND GIN GANG, 40 METRES NORTH OF ELSTOB HALL	NZ 33841 23722	685
1159746	II	DUNSDALE FARMHOUSE AND ADJOINING WINGS	NZ 60740 18850	690
1160085	II*	KIRKLEATHAM HALL FARM	NZ 59528 21919	700
1250412	I	STABLE BLOCK, STABLE HOUSE AND COACH HOUSE, 200 METRES SOUTH EAST OF SKELTON CASTLE	NZ 65278 19100	700
1159723	II	NURSES' TEACHING CENTRE, WALL AND GATE PIERS	NZ 25879 23590	710
1310873	II	ELSTOB HALL	NZ 33819 23678	715
1250402	II	12, HIGH STREET	NZ 65606 18789	720
1139756	II	BOUNDARY WALL AND GATEPIERS TO WEST OF DUNSDALE FARMHOUSE	NZ 60708 18835	720
1159736	II	FARM COTTAGE, ADJOINING NORTH EAST SIDE OF THORNTON FIELDS FARMHOUSE	NZ 61387 18108	725
1263298	II	4, EAST TERRACE	NZ 65560 18858	735
1263263	II	15, HIGH STREET	NZ 65614 18842	765
1250403	II	15A AND 17, HIGH STREET	NZ 65623 18841	770
1310671	II	GARDEN WALL SOUTH OF RYEHILLS FARMHOUSE	NZ 62384 22502	775
1440565	II	Stillington War Memorial	NZ 37289 23443	780
1139788	II	PLANTATION FARMHOUSE AND REAR (NORTH EAST) WING	NZ 62804 17535	780
1387503	II	53, HIGH STREET	NZ 63474 22040	790
1139645	II	BOUNDARY WALL HA-HA WALL GATES AND GATEPIERS TO SOUTH OF KIRKLEATHAM HALL SCHOOL	NZ 59760 21807	790
1387540	II	TOFTS FARM: BUILDING NORTH WEST OF FARMHOUSE	NZ 64540 21533	795

NHLE Asset ID	Grade	Asset name	Grid Reference	Distance from scoping boundary (m)
1387541	II	TOFTS FARM: BUILDING WEST OF FARMHOUSE	NZ 64559 21519	795
1310859	II	1-20, DORMANS CRESCENT	NZ 58562 24081	795
1329555	II	BARN, STABLES, CART SHED, FOLD YARD AND HORSE GIN, TO EAST OF PLANTATION FARMHOUSE	NZ 62840 17524	800
1139618	II	RYEHILLS FARMHOUSE	NZ 62374 22535	805
1250404	II	31, HIGH STREET	NZ 65664 18851	805
1160114	II*	GATEHOUSE 120 METRES NORTH EAST OF KIRKLEATHAM HALL FARM	NZ 59604 22006	810
1329608	II*	BASTION AND ADJOINING HA HA WALL 150 METRES NORTH OF KIRKLEATHAM HALL FARM	NZ 59570 22077	810
1478390	II	School Aycliffe Lane overbridge	NZ 26957 24003	815
1387539	II	TOFTS FARMHOUSE AND ATTACHED GARDEN WALLS	NZ 64587 21526	820
1250405	II	35, HIGH STREET	NZ 65686 18852	820
1120897	II	WHITE HOUSE FARMHOUSE	NZ 42602 22865	825
1139718	II	CHURCH OF ST AIDAN	NZ 66193 16873	825
1250406	II	37, HIGH STREET	NZ 65692 18853	825
1139755	II	GATEPIERS, TO NORTH EAST OF DUNSDALE LODGE	NZ 60692 18703	830
1250407	II*	CHURCH OF ALL SAINTS	NZ 66058 18994	835
1250666	II	45 AND 47, HIGH STREET	NZ 65723 18864	835
1387504	II	62 AND 64, HIGH STREET	NZ 63493 22083	840
1387501	II	48, HIGH STREET	NZ 63494 22084	840
1159740	II	DUNSDALE LODGE	NZ 60687 18698	840
1250410	II	CASTLE LODGE	NZ 65384 19252	845
1250411	II	GATEPIERS, GATES AND WALLS NORTH EAST OF CASTLE LODGE	NZ 65389 19268	855
1329632	II	FARM BUILDINGS AND TWO HOUSES CIRCA 50 METRES NORTH OF RYEHILLS FARMHOUSE	NZ 62376 22591	860
1262821	II	SAW MILL HOUSE	NZ 65386 19317	865
1250409	II	WORKSHOP AND STABLE ADJOINING SOUTH SIDE OF SAW MILL HOUSE	NZ 65394 19302	870
1139661	II	11, CHAPEL STREET	NZ 57246 19820	900
1139660	II	9, CHAPEL STREET	NZ 57248 19814	910
1329425	II	HOWDON HOUSE	NZ 42365 22603	910
1478497	II	Aycliffe Wood occupation bridge	NZ 27043 23254	915
1387505	II	91A, HIGH STREET	NZ 63429 22208	920

NHLE Asset ID	Grade	Asset name	Grid Reference	Distance from scoping boundary (m)
1420052	II	Explosives magazine for Skelton Shaft iron mines	NZ6383917217	925
1387545	II	ZETLAND ESTATE OFFICE	NZ 63184 22338	930
1387561	II	GARDEN WALLS IN FRONT OF MARSKE HALL WALLS AROUND GARDEN IN FRONT OF MARSKE HALL	NZ 63264 22304	935
1139720	II	BOUNDARY STONE, 460 METRES SOUTH EAST OF CLAPHOW FARMHOUSE	NZ 67909 16619	940
1251264	II	TOMBSTONE OF FOSTER FAMILY CIRCA 42 METRES SOUTH WEST OF CEMETERY GATES	NZ 69169 19715	955
1387564	II	NUMBERS 1 AND 2 MARSKE HALL COTTAGES AND ATTACHED STABLES	NZ 63209 22359	960
1250408	II	TOMBSTONE, CIRCA 40 METRES SOUTH WEST OF CEMETERY GATES	NZ 69170 19723	960
1136489	I	REMAINS OF KILTON CASTLE CIRCA 30 METRES EAST OF CASTLE COTTAGES	NZ 70286 17572	965
1139222	II*	LION BRIDGE TO EAST OF WYNYARD HALL	NZ 42210 25781	970
1139623	II	NORTH LODGE	NZ 58246 20239	970
1310948	II	LAMP POST 7 METRES EAST OF NUMBER 7, THE GREEN	NZ 28404 22512	970
1387550	II	WAR MEMORIAL OF CHURCH OF ST MARK WITH ATTACHED PIERS AND LINKING CHAINS WAR MEMORIAL SOUTH WEST OF CHURCH OF ST MARK WITH ATTACHED PIERS AND LINKING CHAINS	NZ 63337 22312	970
1311016	II	VILLAGE HALL AND GATEPIERS	NZ 57196 19718	975
1387548	II	WALLS AROUND GROUNDS OF CHURCH OF ST MARK	NZ 63341 22316	980
1139659	II*	OLD HALL FARMHOUSE AND GARDEN WALL	NZ 56503 19397	980
1329614	II	GRANGE FARMHOUSE AND FARM COTTAGE	NZ 57553 19863	990
1329613	II	STABLES BYRE BARN AND FOLD-YARD, CIRCA 10 METRES WEST OF OLD HALL FARMHOUSE	NZ 56485 19379	990
1387546	II	CHURCH OF ST MARK	NZ 63358 22328	995

TABLE D- 3: REGISTERED PARKS AND GARDENS

NHLE Asset ID	Grade	Asset name	Grid Reference	Distance from scoping boundary (m)
1000372	II*	Wynyard Park	NZ 41163 26111	0

TABLE D- 4: CONSERVATION AREAS

Region	Adoption date	Asset name	Distance from scoping boundary (m)
Stockton-on-Tees	1977	Cowpen Bewley	0
Redcar and Cleveland	April 1970	Kirkleatham	0
Redcar and Cleveland	November 1971	Yearby	0
Stockton-on-Tees	1972	Wolviston	0
Redcar and Cleveland	October 1978	Skelton	0
Redcar and Cleveland	October 1976	Upleatham	120
Redcar and Cleveland	August 1991	Skinningrove	525
Redcar and Cleveland	July 1976	Marske-by-the-Sea	625
County Durham	1981	Aycliffe Village	795
Redcar and Cleveland	October 1978	Brotton	835
Redcar and Cleveland	March 1971	Wilton	895

Appendix E: Ground conditions assessment criteria

E.1 Magnitude of impact

- E.1.1.1 The magnitude of impact (i.e. potential impacts on identified receptors), associated with the Proposed Development will be considered as the impact experienced from the baseline conditions at the sensitive receptor and will be determined using a four-point scale as set out in (i.e. negligible, minor, moderate, and major) as set out in **Section 7.4: Impacts and effect prediction**, taking into account the potential pathways through which an impact source/ hazard may affect identified receptors.
- E.1.1.2 These definitions are drawn from published policy and/ or good practice guidance and based on professional judgements and have been successfully used on other assessments.

TABLE E- 1: MAGNITUDE OF IMPACT

Survey	Scope of survey	Survey area extent	Justification
High Adverse	Result in loss of resource/designation or quality of the resource.	Geology	Loss of geological feature/designation and/ or quality and integrity, severe damage to key characteristics, features or elements.
		Soils	Physical removal or permanent sealing of soil resource or agricultural land.
	Human health: significant contamination identified. Contamination levels significantly exceed background levels and relevant screening criteria (e.g. category 4 screening levels – SP1010 (Contaminated Land: Applications in Real Environments). Potential for significant harm to human health.	Contamination	Contamination heavily restricts future use of land.
	Results in loss of attribute and / or quality and integrity of the attribute.	Groundwater	Loss of, or extensive change to, an aquifer. Loss of regionally important water supply. Calculated risk of pollution from spillages $\geq 2\%$ annually (Spillage Assessment). Potential high risk of pollution to groundwater from routine runoff – risk score >250

Survey	Scope of survey	Survey area extent	Justification
			(Groundwater quality and runoff assessment). Loss of, or extensive change to Groundwater Dependent Terrestrial Ecosystems (GWDTE) or baseflow contribution to protected surface water bodies. Reduction in waterbody Water Framework Directive (WFD) classification. Loss or significant damage to major structures through subsidence or similar effects.
		Surface Water	Failure of both acute-soluble and chronic-sediment related pollutants in Highways England Water Risk Assessment Tool (HEWRAT) and compliance failure with environmental quality standard (EQS) values. Calculated risk of pollution from a spillage $\geq 2\%$ annually (spillage assessment). Loss or extensive change to a fishery. Loss of regionally important public water supply. Loss or extensive change to a designated nature conservation site. Reduction in waterbody WFD classification.
Medium Adverse	Results in partial loss of resource/designation or quality of the resource.	Geology	Partial loss of geological feature/ designation, potentially adversely affecting the integrity; partial loss of/ damage to key characteristics, features or elements.
		Soils	Permanent loss/ reduction of one or more soil function(s) and restriction to current or approved future use (e.g. through degradation, compaction, erosion of soil resource).

Survey	Scope of survey	Survey area extent	Justification
	Human health: contaminant concentrations exceed background levels and are in line with limits of relevant screening criteria (e.g., category 4 screening levels SP1010). Significant contamination can be present.	Contamination	Control/ remediation measures are required to reduce risks to human health/ make land suitable for intended use.
	Results in effect on integrity of attribute, or loss of part of attribute.	Groundwater	Partial loss or change to an aquifer. Degradation of regionally important public water supply or loss of significant commercial/ industrial/ agricultural supplies. Potential medium risk of pollution to groundwater from routine runoff – risk score 150 to 250. Calculated risk of pollution from spillages $\geq 1\%$ annually and $< 2\%$ annually. Partial loss of the integrity of GWDTE. Contribution to reduction in waterbody WFD classification. Damage to major structures through subsidence or similar effects or loss of minor structures.
		Surface Waters	Failure of both acute-soluble and chronic-sediment related pollutants in HEWRAT but compliance with EQS values. Calculated risk of pollution from spillages $\geq 1\%$ annually and $< 2\%$ annually. Partial loss in productivity of a fishery. Degradation of regionally important public water supply or loss of major commercial/ industrial/ agricultural supplies. Contribution to reduction in waterbody WFD classification.

Survey	Scope of survey	Survey area extent	Justification
Low Adverse	Results in minor measurable change in resource / designation.	Geology	Minor measurable change in geological feature/ designation attributes, quality or vulnerability; minor loss of, or alteration to, one (may be more) key characteristics, features or elements.
		Soils	Temporary loss/ reduction of one or more soil function(s) and restriction to current or approved future use (e.g., through degradation, compaction, erosion of soil resource).
	Human health: contaminant concentrations are below relevant screening criteria (e.g. category 4 screening levels SP1010). Significant contamination is unlikely with a low risk to human health.	Contamination	Best practice measures can be required to minimise risks to human health.
	Results in some measurable change in attributes, quality or vulnerability.	Groundwater	Potential low risk of pollution to groundwater from routine runoff – risk score <150. Calculated risk of pollution from spillages ≥0.5% annually and <1% annually. Minor effects on an aquifer, GWDTEs, abstractions and structures.
		Surface Waters	Failure of either acute soluble or chronic sediment related pollutants in HEWRAT. Calculated risk of pollution from spillages ≥0.5% annually and < 1% annually. Minor effects on water supplies.
Very Low Adverse	Results in effect on attribute, but of insufficient magnitude to affect the use and integrity.	Geology	Very minor loss or detrimental alteration to one or more characteristics, features or elements of geological feature/ designation. Overall integrity of resource not affected.
		Soils	No discernible loss/ reduction of soil function(s) that restrict

Survey	Scope of survey	Survey area extent	Justification
			current or approved future use.
	Human health: contaminant concentrations substantially below levels outlined in relevant screening criteria (e.g., category 4 screening levels SP1010).	Contamination	No requirement for control measures to reduce risks to human health/ make land suitable for intended use.
	Human health: contaminant concentrations substantially below levels outlined in relevant screening criteria (e.g., category 4 screening levels SP1010).	Groundwater	No measurable impact upon an aquifer and/ or groundwater receptors and risk of pollution from spillages <0.5%.
	Results in effect on attribute, but of insufficient magnitude to affect the use and integrity.	Surface Waters	No risk identified by HEWRAT (pass both acute-soluble and chronic-sediment related pollutants). Risk of pollution from spillages <0.5%.
Low Beneficial	Results in some beneficial effect on attribute or a reduced risk of negative effect occurring.	Groundwater	Reduction of groundwater hazards to existing structures. Reductions in waterlogging and groundwater flooding.
		Surface Water	HEWRAT assessment of either acute soluble or chronic-sediment related pollutants becomes pass from an existing site where the baseline was a fail condition. Calculated reduction in existing spillage risk by 50% or more (when existing spillage risk is <1% annually).
Medium Beneficial	Results in moderate improvement of attribute quality.	Groundwater	Contribution to improvement in waterbody WFD classification. Improvement in waterbody catchment abstraction management Strategy (CAMS) (or equivalent) classification. Support to significant improvements in damaged GWDTE.
		Surface Water	HEWRAT assessment of both acute-soluble and chronic-sediment related pollutants

Survey	Scope of survey	Survey area extent	Justification
			becomes pass from an existing site where the baseline was a fail condition. Calculated reduction in existing spillage by 50% or more (when existing spillage risk >1% annually). Contribution to improvement in waterbody WFD classification.
High Beneficial	Results in major improvement of attribute quality	Groundwater	Removal of existing polluting discharge to an aquifer or removing the likelihood of polluting discharges occurring. Recharge of an aquifer. Improvement in waterbody WFD classification.
		Surface Water	Removal of existing polluting discharge or removing the likelihood of polluting discharges occurring to a watercourse. Improvement in waterbody WFD classification.
No Change	No temporary or permanent loss in resource of designation.	Geology	No temporary or permanent loss/disturbance of characteristics features or elements.
		Soils	No loss/reduction of soil function(s) that restrict current or approved future use.
	Human health: reported contaminant concentrations below background levels.	Contamination	No intervention required.
	No loss or alteration of characteristics, features or elements.	Groundwater/Surface Water	No observable impact in either direction.

E.2 Sensitivity

- E.2.1.1 The sensitivity of affected receptors will be considered on a scale of very high, high, medium, low or negligible. These definitions are drawn from published policy and/ or good practice guidance and based on professional judgements and have been

successfully used on other assessments. The definitions are presented in Table E- 2:
Receptor sensitivity

TABLE E- 2: RECEPTOR SENSITIVITY

Survey	Scope of survey	Survey timing	Survey area extent
Very high	Very rare and of international importance with no potential for replacement. Geology meeting international designation citation criteria which is not designated as such	Geology	UNESCO (United Nations Educational, Scientific and Cultural Organisation) World Heritage Sites, UNESCO, Global Geoparks, Sites of Special Scientific Interest (SSSIs) and Geological Conservation Review sites where citations indicate features of international importance.
	Soil directly supporting an EU designated site.	Soils	Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar Site; and/ or ALC Grades 1 and 2.
	Human health: very high sensitivity land use.	Contamination	Residential or allotments.
	Nationally significant attribute of high importance.	Groundwater	Principal aquifer providing a regionally important resource and/ or supporting a site designated under EC and UK legislation. Groundwater locally supports Groundwater Dependent Terrestrial Ecosystems (GWDTE). Source Protection Zone (SPZ1).
		Surface Water	Watercourse having a WFD classification shown in a RBMP and $Q95 \geq 1.0 \text{ m}^3/\text{s}$. Site protected/ designated under EU or UK legislation (SAC, SPA, SSSI, Ramsar site, salmonid water)/ Species protected by EC legislation
High	Rare and of national importance with little potential for replacement. Geology meeting national designation citation criteria which is not designated as such	Geology	Geological SSSI and National Nature Reserves (NNRs).
	Soils directly supporting a UK designated site.	Soils	e.g. SSSIs; and/ or ALC Grade 3a.
	Human health: high sensitivity land use.	Contamination	Public Open Space.

Survey	Scope of survey	Survey timing	Survey area extent
	Locally significant attribute of high importance.	Groundwater	Principal aquifer providing locally important resource or supporting a river ecosystem. Groundwater supports a GWDTE or SPZ2.
		Surface Water	Watercourse having a WFD classification shown in a River Basin Management Plan (RBMP) and Q95
Medium	Of regional importance with limited potential for replacement. Geology meeting regional designation citation criteria which is not designated as such.	Geology	Regionally Important Geological Sites (RIGS).
	Soils supporting non-statutory designated sites.	Soils	Local Nature Reserves (LNRs), Local Geological Sites (LGS), Sites of Nature Conservation Importance (SNCIs). ALC Grade 3b.
	Human health: medium sensitivity land use.	Contamination	Commercial or industrial land.
	Of moderate quality and rarity.	Groundwater	Aquifer providing water for agricultural or industrial use with limited connection to surface water. SPZ3.
		Surface Water	Watercourses not having a WFD classification shown in a RBMP and Q9 5 >0.001m ³ /s.
Low	Of local importance/interest with potential for replacement.	Geology	Non designated geological exposures, former quarries / mining sites.
	Soils supporting non-designated notable or priority habitats.	Soils	ALC Grades 4 and 5.
	Low sensitivity land use	Contamination	Highways and rail
	Lower quality	Groundwater	Unproductive Strata.
		Surface Water	Watercourses not having a WFD classification shown in a RBMP and Q9 5 ≤0.001m ³ /s.
Very low	No geological exposures, little/no local interest.	Geology	Significant depth of Made Ground.
	Soils: previously developed land formerly in 'hard uses' with little potential to return to agriculture.	Soils	Industrial land/soils not present.

Survey	Scope of survey	Survey timing	Survey area extent
	Human health: undeveloped surplus land, no sensitive land use proposed.	Contamination	Extensive areas of existing hard standing.
	Very Low is not applicable to Groundwater under Table 3.7 of LA 113.	Groundwater	N/A
	Very Low is not applicable to Surface Water under Table 3.7 of LA 113.	Surface Water	N/A

Classifying the significance of effect

- E.2.1.2 The level of effect attributed will be assessed based on the magnitude of change due to the Proposed Development and the evaluation of the sensitivity of the affected receptor, as well as a number of other factors. The level of effects will be based on professional judgement. For each of the potential impacts identified, an assessment will be made of the resulting level of effect on the receptor. The level of the effect will be assessed in accordance with Table E- 3 which is a tool which will assist with the process, and which takes into account the sensitivity of the receptor and the magnitude of change for the predicted effect. The assessment identifies whether the effects are beneficial or adverse for each receptor along with the significance.
- E.2.1.3 Major to Moderate effects are considered to be significant. In the assessment of the significance of a particular effect, professional judgement may also be applied to take account of site-specific factors that may be of relevance.

TABLE E- 3: SIGNIFICANCE MATRIX

Sensitivity of receptor	Magnitude of Change				
		Very Low	Low	Medium	High
	Very High	Moderate	Moderate	Major	Major
	High	Negligible/Minor	Minor/Moderate	Moderate	Major
	Medium	Negligible	Minor	Minor/Moderate	Moderate
	Low	Negligible	Negligible	Minor	Minor/Moderate
	Very Low	Negligible	Negligible	Negligible	Negligible/Minor

Appendix F: LVIA methodology

F.1 Introduction

- F.1.1.1 This section outlines the scope and methodology for the LVIA. The LVIA will assess the likely significant effects arising from the construction, operation and decommissioning of the Proposed Development on landscape and visual receptors for those aspects Scoped In in **Section 8.8: Landscape and visual amenity** of this Scoping Report.
- F.1.1.2 There are clear differences between landscape effects and visual effects, and the following distinctions will be made:
- Landscape effects relate to changes to the landscape as a resource, including physical changes to the fabric or individual elements of the landscape, its aesthetic or perceptual qualities, and landscape character.
 - Visual effects relate to changes to existing views of identified visual receptors ('people'), from the loss or addition of landscape features within their view due to the Proposed Development.
- F.1.1.3 Landscape effects and visual effects will therefore be assessed and reported separately.
- F.1.1.4 The LVIA will be undertaken with reference to other environmental topics, including ecology, heritage and arboriculture assessments. This section is supported by the following figures (Volume II):
- **Figure 8.3: Site location and LVIA study area;**
 - **Figure 8.4: Landscape Designations;** and
 - **Figure 8.5: National Landscape Character Areas.**

F.2 Legislation and policy

- F.2.1.1 Information on policies relevant to the EIA are set out in **Section 2: Legislation and planning policy**.
- F.2.1.2 The methodology for the LVIA will be informed by the standards and guidance outlined in **Section 2: Legislation and planning policy** within Volume I of the EIA Scoping Report.

TABLE F- 1: STANDARDS AND GUIDANCE

Standards and guidance	Relevance to assessment
The Environmental Landscape Convention 2007	Focuses specifically on landscape issues and highlights the importance of integration of landscape into areas of policy, to promote protection, management and planning of all landscapes including the assessment of landscape and analysis of landscape change.
Guidelines for Landscape and Visual Impact Assessment, 3rd edition (2013), Landscape Institute and Institute of Environmental	Underpins the methodology for undertaking the LVIA.

Standards and guidance	Relevance to assessment
Management and Assessment	
An Approach to Landscape Character Assessment (2014), Natural England	Informs the methodology for defining and describing the landscape character baseline.
Townscape Character Assessment Technical Information Note 05/17 (2017), Landscape Institute	Informs the methodology for defining and describing the townscape character baseline.
Visual Representation of Development Proposals, Technical Guidance Note 06/19 (2019), Landscape Institute	Informs the process for producing visualisations and photomontages.
Infrastructure, Technical Guidance Note 04/20 (2020), Landscape Institute	Background information for the planning and design process for infrastructure projects for landscape.
Planning Practice Guidance (PPG), Natural Environment (Landscape)	Sets out the benefits of landscape character assessments and the importance of considering Green Infrastructure in the early stages of schemes.
Assessing landscape value outside national designations, Technical Guidance Note 02/21 (2021), Landscape Institute	Informs the methodology for assessing the value attached to the landscape and whether a landscape can be considered 'valued landscape' in the context of NPPF paragraph 180(a).
Notes and Clarifications on aspects of the 3rd Edition Guidelines on Landscape and Visual Impact Assessment (GLVIA3)	Underpins the methodology for undertaking the LVIA.

F.3 Defining the study area

- F.3.1.1 Broad study area have been identified to support the scoping of likely landscape and visual effects and the definitions of the LVIA study area that will be set out in the ES. The geographical extent of these areas depends upon the size and scale of the elements of the Proposed Development, beyond which significant effects are unlikely. This is shown on **Figure 8.3: Site Location and LVIA study area** (Volume II).
- F.3.1.2 The first stage of defining the LVIA study area was informed by a desk study and included a review of published landscape character assessments, studies, relevant supporting evidence base documents, aerial photography and mapping to define the baseline and to determine the extent of the study area within which there is potential for landscape and visual effects.
- F.3.1.3 An assessment of the existing landscape components, character and views of the Proposed Development will be carried out during the EIA to refine the study area further in consideration of the following:

- site context;
- topography;
- vegetation including green infrastructure;
- roads, PRoW and access;
- settlement and land use;
- landscape character; and
- representative views.

F.3.1.4 In addition to the above, preparation of computer-generated Zones of Theoretical Visibility (ZTV) will be carried out. A ZTV is defined in GLVIA3 (Ref 8.136) as “*a map, usually digitally produced, showing areas of land within which, a development is theoretically visible.*” ZTVs do not indicate how much of the Proposed Development would be visible. The purpose of the ZTV is to:

- identify the theoretical extents of visibility of the Proposed Development i.e., areas from which it would not be visible and areas from which it could potentially appear in existing views;
- assist in the identification of the LVIA study area;
- identify areas of landscape and visual receptors likely to be affected by the Proposed Development;
- identify locations that are representative of the views experienced by visual receptors at different locations within the LVIA study area (representative viewpoints); and
- inform the design, including the extent and type of proposed mitigation.

F.3.1.5 ZTVs will be modelled using the ‘Viewshed’ tool in ESRI ArcPro GIS software.

F.3.1.6 As a result, the LVIA study area may be further refined to focus the assessment or extended areas to include other sensitive receptors as the design of the Proposed Development progresses. Such changes will be made in consultation with Local Authorities and other relevant stakeholders. The justification for its final extent will be set out in the ES.

F.3.1.7 The study area for the LVIA is set out in **Section 8.8: Landscape and Visual Amenity** and is illustrated on **Figure 8.3: Site Location and LVIA study area** (Volume II).

TABLE F- 2: LVIA STUDY AREA

Elements of the Proposed Development	Study area
Pipeline	2km
AGI	5km

F.4 Baseline conditions

F.4.1.1 An initial study of the baseline environment has been undertaken through desk-based research and is presented below.

- F.4.1.2 The baseline environment section of the LVIA will provide a description of the landscape and visual receptors identified, indicating their sensitivity against which the potential change arising from the Proposed Development will be assessed.
- F.4.1.3 Key sources of information for the landscape and visual baseline include:
- OS mapping, and aerial photography;
 - Natural England NCA Profiles;
 - Local Landscape Designations; and
 - Published landscape character assessments.
- F.4.1.4 The data sources that will inform the landscape and visual baseline are set out Table F- 3 below. This list will be reviewed during the assessment.

TABLE F- 3: DATA SOURCES

Data sources	Source
OS Mapping and Aerial Imagery	OS
NCA	NCA by Natural England
Landscape Character Assessment	Redcar & Cleveland Landscape Character Assessment (Ref 8.75)
	Stockton-on-Tees Landscape Character Assessment (Ref 8.76)
	Hartlepool Landscape Assessment (Ref 8.77)
	County Durham Landscape Character Assessment (Ref 8.78)
	Darlington Borough Council Landscape Character Assessment (Ref 8.79)
Seascape Character Assessment	Seascape Character Assessment for the North East Inshore and Offshore marine plan areas (Ref 8.80)

F.5 Views and visual amenity

- F.5.1.1 The identification of representative viewpoints will be undertaken following Scoping. This approach is necessary to allow the preparation of an appropriate ZTV, which will inform the extent of potential visibility of the Proposed Development and provide the technical basis for selecting representative viewpoints.
- F.5.1.2 The ZTV will be used, alongside desk study and field survey, to identify locations from which the development may be visible and to ensure that viewpoints are selected to represent a range of visual receptors, viewing directions, distances and landscape contexts, rather than individual or typical views.

- F.5.1.3 This approach will also assist in refining the identification of visual receptors, ensuring that receptors are defined with reference to the actual extent and nature of potential visibility, viewing distance, orientation and context in accordance with GLVIA3 principles and Landscape Institute guidance on visual assessment.

F.6 Visual receptors

- F.6.1.1 Visual receptors are defined in GLVIA3 as “*individuals and/or defined groups of people who have the potential to be affected by a proposal.*” This includes, for example, residents, users of PRow and motorists.
- F.6.1.2 Visual Receptors likely to experience views of the Proposed Development have been identified through desktop analysis of maps and aerial photography. Where a collection of visual receptors in the same category are likely to experience similar views, they have been grouped. These are set out in **Section 8.8: Landscape and visual amenity** and summarise in Table F- 4 below.

TABLE F- 4: VISUAL RECEPTORS

Receptor type	Receptor or receptor group
Residents of local communities	Residents of larger settlements. Residents of smaller settlements and more isolated properties within the open countryside, including residents of scattered farms and individual properties.
People travelling on the transport network	People travelling through the landscape including those travelling on major and local road networks, rail lines and bus routes.
People travelling along promoted recreational routes	People travelling along PRow which are promoted routes, including National Trails, the NCN and those identified on OS maps.
People at works	People working indoors and outdoors.

F.7 Consultation

- F.7.1.1 Engagement in addition to formal consultation will be held with relevant LPAs and statutory consultees early in the LVIA process. This will help to inform detailed baseline survey and data collection; identification of the location of representative viewpoints that will form the basis of the visual assessment; and, to agree the approach to mitigation measures and landscape reinstatement.

F.8 Scope and methodology

- F.8.1.1 This section outlines the scope and methodology that will be employed for identifying and assessing likely landscape and visual effects. The methodology for the LVIA involves the following stages:
- Review published landscape character assessments, studies, relevant supporting evidence base documents, aerial photography and mapping, and undertake fieldwork

to define the baseline and to define the extent of the LVIA study area within which there is potential for landscape and visual effects;

- Define the landscape and visual receptors and describe the landscape and visual baseline;
- Embed mitigation and enhancement measures into the Proposed Development to avoid or minimise adverse landscape and visual effects and maximise opportunities for landscape integration and enhancement;
- Determine the sensitivity of landscape and visual receptors, by considering the value attached to the landscape or views and susceptibility to change of the receptor;
- Assess the magnitude of impact of the Proposed Development in relation to size or scale, geographical extent, duration and reversibility; and
- Assess the significance of effect by considering the relationship between the sensitivity of the receptor and the magnitude of impact and determine which effects are significant.

F.8.2 Scope

F.8.2.1 The assessment of the likely landscape and visual effects of the Proposed Development will be undertaken for the following scenarios:

- Current baseline (winter and summer) – reflective of the conditions which exist at the time of gathering baseline environmental data and undertaking the LVIA;
- Future baseline (winter and summer) – reflective of the conditions that will be experienced in the future, immediately prior to construction of the Proposed Development;
- The peak of construction activity;
- Year 1 of operation, in winter, to reflect a worst-case assessment; and
- Year 15 of operation, in summer, to reflect the entirety of the Proposed Development in operation, when proposed vegetation has matured or achieved its design intention.

F.8.3 Landscape baseline

F.8.3.1 GLVIA3 defines landscape receptors as “*aspects of the landscape resource that have the potential to be affected by a proposal.*” (Ref 8.136).

F.8.3.2 Landscape receptors will be identified via a review of published landscape character assessments, maps and aerial photography, relevant planning policy and fieldwork surveys.

F.8.3.3 Landscape character is defined by GLVIA3 as “*a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.*”

F.8.3.4 Published landscape character assessments at the national, regional and local level will be reviewed to identify LCT and LCA.

F.8.3.5 The geographical extent of LCAs in published assessments at the national level are generally large and extend beyond the study area. As explained in paragraph 5.14 of GLVIA3, “*broad-scale assessments at national or regional level can be helpful in setting the landscape context, but are unlikely to be helpful on their own as the basis for LVIA.*”

These have therefore been included to provide context but effects on these have not been assessed.

- F.8.3.6 The key characteristics of published LCAs will be set out to provide a clear audit trail back to the original studies. This information will be critically reviewed and may inform the definition of LLCA to provide full coverage of the LVIA study area or additional detail.

F.8.4 Sensitivity of landscape receptors

- F.8.4.1 Paragraph 5.39 of GLVIA3 states that *“landscape receptors need to be assessed firstly in terms of their sensitivity, combining judgements of their susceptibility to the type of change or development proposed and the value attached to the landscape.”*

- F.8.4.2 Judging landscape sensitivity is thus a two-part process of:

- Value attached to the landscape – relates to the existing landscape and has been determined at the baseline stage in line with paragraph 5.19 of GLVIA3, which states that *“as part of the baseline description the value of the potentially affected landscape should be established,”*; and
- Susceptibility to change – which is considered in relation to the proposed development.

F.8.5 Value attached to the landscape

- F.8.5.1 Landscape Institute Technical Guidance Note (TGN) 02/21: Assessing landscape value outside national designations defines landscape value as *“the relative value or importance attached to different landscapes by society on account of their landscape qualities.”*

- F.8.5.2 For assessing landscape value outside national designations, Landscape Institute Technical Guidance Note 02/21 is now the primary source of guidance. The approach to assessing the value attached to the landscape has followed a three-stage process:

- Stage 1 identify if the landscape is covered by any landscape designations;
- Stage 2 consider each of the factors listed in Table F-5 below which have been developed with reference to Table 1 of TGN 02/21 and are pertinent and most important to understanding its value; and
- Stage 3 make an assessment the value attached to the landscape and assign value based on a five-point scale, clearly articulating the reasons for these judgements.

- F.8.5.3 An overall conclusion will be drawn on the value attached to the landscape for each landscape receptor considering the overall weight of evidence.

TABLE F- 5: ESTABLISHING LANDSCAPE VALUE CRITERIA

Stage 1 – Landscape designations	Stage 2 - Define landscape value factors with reference to TGN 02/21	Criteria	Description
Landscape with statutory status or national policy	Natural heritage - Landscape with clear evidence of ecological,	Very High	A designated landscape with statutory status

Stage 1 – Landscape designations	Stage 2 - Define landscape value factors with reference to TGN 02/21	Criteria	Description
protection: National Park, Area of Outstanding Natural Beauty, or World Heritage Sites Local landscape designation, such as Special Landscape Area or Area of Great Landscape Value, supported by policy and a detailed evidence base.	geological, geomorphological or physiographic interest which contribute positively to the landscape.		(National Park or National Landscape (formerly AONB)). Valued landscape in the context of NPPF paragraph 174 (a)
	Cultural heritage - Landscape with clear evidence of archaeological, historical or cultural interest which contribute positively to the landscape. Landscape condition - Landscape which is in a good physical state both with regard to individual elements and overall landscape structure. Associations - Landscape which is connected with notable people, events and the arts.	High	A locally designated landscape supported by a detailed evidence base or with other strong indicators of value, which may include other relevant designations such as AW or conservation areas, with identified quality in the development plan or evidence base. May be considered valued landscape in the context of NPPF paragraph 174(a) with strong supporting evidence.
	Distinctiveness - Landscape that has a strong sense of identity. Recreational - Landscape offering recreational opportunities where experience of landscape is important.	Medium	Unlikely to be a designated for landscape quality but may exhibit some indicators of value which are identified in the development plan or evidence base and are important at the community level.
		Low	Not designated for landscape quality and likely to exhibit few indicators of value which are identified in the development plan or evidence base.
	Perceptual (Scenic) - Landscape that	Very Low	A landscape dominated by industry

Stage 1 – Landscape designations	Stage 2 - Define landscape value factors with reference to TGN 02/21	Criteria	Description
No relevant designations.	appeals to the senses, primarily the visual sense. Perceptual (wildness and tranquillity) - Landscape with a strong perceptual value notably wildness, tranquillity and/or dark skies Functional - Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape.		or infrastructure or which is damaged or degraded landscape, not designated for landscape quality and not likely to exhibit indicators of value which are identified in the development plan or evidence base.

F.8.6 Valued landscape

- F.8.6.1 The principle of ‘valued landscape’ in England is supported by the NPPF 2021 (Chapter 15). Paragraph 174 requires that planning policies and decisions should contribute to and enhance the natural and local environment by, inter alia, (a) *“protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan).”*
- F.8.6.2 According to paragraph A4.2.11 of TGN 02/21, a ‘valued landscape’ is an area identified as having sufficient landscape qualities to elevate it above other more everyday landscapes. There is therefore a high bar for an area to be considered valued landscape in the context of the NPPF.
- F.8.6.3 Paragraph A4.2.5 of TGN 02/21 states that, *“where a landscape has a statutory status, such as a National Park or AONB, it is self-evident that it is a valued landscape.”* Therefore, where such landscapes are present within the study area, these have been attributed very high value and are recognised as valued landscapes in the context of the NPPF.
- F.8.6.4 A different approach will be taken to determine whether landscapes outside of nationally designated landscapes can be considered valued landscape in the context of the NPPF. Paragraph A4.2.6 of TGN 02/21 states that the interpretation of ‘identified quality in the development plan’ is not clear and that there are two fundamentally different interpretations that have been adopted by inspectors, which are considered below in more detail:

- It means non-statutory, locally designated landscapes;
- It means any landscape where there is evidence to justify the identification of a 'valued landscape'. Local designation alone may not be sufficient evidence.

F.8.6.5 For a landscape without statutory status to be considered valued landscape in the context of the NPPF it must be supported by strong evidence. The assessment has therefore considered each of the criteria set out in Table F-6, references in Local Plan policy and evidence base, including whether there are existing local landscape designations in forming an overall judgement. Landscapes with high value may also be considered valued landscape.

F.8.7 Susceptibility of Landscape Receptors to change

F.8.7.1 GLVIA3 paragraph 5.40 defines the susceptibility to change of landscape receptors as:

"the ability of the landscape receptor (whether it be overall character or condition of a particular landscape type or area, or an individual element and/or features, or a particular aesthetic and perceptual aspect) to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies." (paragraph 5.40).

F.8.7.2 The features and characteristics which are more or less susceptible to the type of changes proposed have been set out for each LCA. The narrative provides a clear explanation based upon analysis of the landscape receptor and the extent to which it is able to accommodate the type of change arising from the specific proposal. The susceptibility to change has then been categorised with reference to the criteria in Table F-6 below.

TABLE F- 6: ASSESSMENT CRITERIA

Criteria	Description
Very high	The type of change arising from the specific proposal are very likely to lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
High	The type of change arising from the specific proposal are likely to lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
Medium	The type of change arising from the specific proposal may lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
Low	The type of change arising from the specific proposal are unlikely to lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
Very low	The type of change arising from the specific proposal are very unlikely to lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.

F.8.8 Combining judgements to define the sensitivity of landscape receptors

F.8.8.1 The sensitivity of each LCA has been defined by combining professional judgements on the value attached to the landscape and its susceptibility to change and is supported by a clear narrative. Reference has been made to the criteria set out in Table F- 7 below.

TABLE F- 7: SENSITIVITY OF LANDSCAPE RECEPTORS CRITERIA

Criteria	Description
Very high	Landscapes with statutory status or national policy protection with very limited ability to accommodate the type of change without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
High	Landscapes which may be locally designated or otherwise supported by detailed evidence base or landscape with other strong indicators of value with limited ability to accommodate the type of change without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
Medium	Landscapes which are unlikely to be a designated for landscape quality but may exhibit some indicators of value and which may have some ability to accommodate the type of change without undue consequences for the maintenance of the baseline situation and/ or the achievement of landscape planning policies and strategies.
Low	Not designated for landscape quality and likely to exhibit few indicators of value and likely to accommodate the type of change no or limited undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
Very low	Landscapes of very low value able to accommodate the type of change without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.

F.8.9 Magnitude of landscape impacts

F.8.9.1 Paragraph 3.28 of GLVIA3 notes that the magnitude is informed by combining considerations relating to the “*scale, extent and duration,*” of impacts. This includes the geographical extent of influence, the spatial extent of the impact, the level of integration of new features with existing elements, its duration and degree to which the impact is reversible.

F.8.9.2 In summarising the magnitude of landscape impacts, reference has been made to the following:

- Size and scale – the degree to which key characteristics or features identified in the baseline would change.
- Geographical extent – the area over the change would occur.

- Duration and reversibility – the time over which the change would occur and if these changes are reversible, set out on the following scale: short (weeks); medium (months); and long (years).

F.8.9.3 The criteria set out in Table F- 8 have been referred to in determining the magnitude of landscape impacts.

TABLE F- 8: MAGNITUDE OF LANDSCAPE IMPACTS CRITERIA

Magnitude of landscape impacts	Criteria
Very high	Substantial changes to key characteristics across most of the area or to unique and distinctive features at a local level. May be longer term impacts, permanent or reversible.
High	Changes to the character of the landscape across large parts of the area or to distinctive features at a local level. May be longer term impacts, permanent or reversible.
Medium	Changes to the character of the landscape across parts of the area or to some existing features at a local level. May be medium term impacts, permanent or reversible.
Low	Slight change to landscape character or landscape features across a small area. May be short to medium term impacts, permanent or reversible.
Very low	Barely perceptible change to the landscape receptor or may impact a limited area or no key characteristics. May be short term impacts, permanent or reversible.

F.8.9.4 There may be cases where there will be no impacts on a receptor, for example where the design has been changed to avoid such impacts. In such cases this is recorded as no change.

F.8.10 Assessment of visual effects

F.8.10.1 As outlined in **Section 8.8: Landscape and visual amenity**, Computer-generated ZTV will be prepared to support the assessment. The ZTVs will provide some understanding of potential screening or filtering of views of the Proposed Development and will be further verified through fieldwork.

F.8.11 Visual receptors and representative viewpoints

F.8.11.1 Visual receptors are defined in GLVIA3 as “*individuals and/or defined groups of people who have the potential to be affected by a proposal.*” Visual receptors likely to experience views of the Proposed Development will be identified through interrogation of the ZTV, desktop analysis of maps and fieldwork surveys.

F.8.11.2 They will subsequently be categorised into the following types:

- Residents of local communities;
- People working in the area;
- People travelling through the area; and

- People using parks and open spaces.

- F.8.11.3 Where a collection of visual receptors in the same category are likely to experience similar views, they will be grouped. Representative viewpoints will be identified within the ZTV to assist in describing the baseline view and the effects likely to be experienced by visual receptor groups. These representative viewpoints will be selected to cover a range of viewing distances, elevations and orientations from locations with different viewing experiences of the Proposed Development, and the Applicant will seek to agree these with relevant LPAs.
- F.8.11.4 The selection of representative viewpoints will be informed by the following criteria:
- Accessibility to the public;
 - Number and sensitivity of people whose views can be affected;
 - Viewing direction, distance, openness and elevation; and
 - Nature of the viewing experience.
- F.8.11.5 Photographs taken during fieldwork surveys will be provided in the ES to help demonstrate the nature of baseline views including the extent of existing screening. These photographs will be presented as Type 1 annotated photographs.
- F.8.11.6 Type 4 photomontages will also be provided for a selection of viewpoints to illustrate the likely extent and nature of changes in baseline views in winter (year 1 of operation) and summer (year 15 of operation). All photographs and photomontages will be prepared in accordance with Landscape Institute TGN 06/19.
- F.8.11.7 The Landscape Institute clarified the extent to which the views of residents fall within the scope of LVIA in 6(1) of LI TGN 01/24. It explains that views from houses and individual properties are a matter of private amenity, noting that it is an established planning principle that there is no right to a view. It states that “*LVIA should consider views from local communities focusing on the way that a community currently experiences views from public locations such as streets and open spaces and how those will change,*” and that “*it may be helpful for an LVIA to comment on changes to views that will be experienced from groups of properties, or in some cases individual properties, if these changes are likely to be significant.*” Therefore, if the LVIA identifies the likelihood of residual effects on visual receptors which would be major adverse (the highest level of significance) at year 15 of operation (i.e. after the establishment of proposed planting and in summer) a Residential Visual Amenity Assessment (RVAA) will be carried out.

F.8.12 Sensitivity of visual receptors

- F.8.12.1 Paragraph 6.31 of GLVIA3 states that each visual receptor should be assessed in terms of both their susceptibility to change in views and visual amenity and also the value attached to particular views.
- F.8.12.2 The sensitivity of visual receptors results from a combination of parameters, such as:
- the activity/ occupation/ pastime of the receptors at particular locations;
 - the extent to which their attention or interest may be focused on the views; and
 - the visual amenity they experience.
- F.8.12.3 Consideration will also be given to the:
- location, focus and orientation;

- features or characteristics of value within the view;
- principal or secondary interests;
- static or kinetic nature of views; and
- duration of the view.

F.8.13 Value attached to views

F.8.13.1 A three-stage process will be used to determine the value attached to views.

- F.8.13.2 This relates to the features and characteristics of the baseline landscape within the view and other indicators of value, for example reference in policy, guidebooks, literature or art:
- Stage 1: identify if the view or the landscape within the view is covered by any relevant policy or designations and note features and characteristics of value with reference to the landscape baseline;
 - Stage 2: identify if the view is identified on maps, is likely to be from a popular visitor location or has historical or cultural importance or associations; and
 - Stage 3: Determine the value attached to the view with reference to the criteria provided in Table F- 9 using the evidence from Stages 1 and 2.

TABLE F- 9: VALUE ATTACHED TO VIEWS

Stage 3: criteria	Description
Very high	Views within or across a nationally or internationally designated landscapes and/ or specific views designated in national or regional policy. Views are likely to have few or no detracting features and which may also have strong cultural associations supported by evidence, which could include links to historical events or people, representation in art or literature, for example.
High	Views within or across regionally or locally designated landscapes, other or landscapes with strong indicators of value, or views identified in the development plan or evidence base. Views are likely to have few or no detracting features and may also have some cultural associations supported by strong evidence.
Medium	Views across landscapes which are unlikely to be designated but may exhibit some indicators of value which are identified in the development plan or evidence base and are important at the community level. Views may have some detracting features and cultural associations supported by evidence.
Low	Views across landscapes which are not designated for landscape quality and likely to exhibit few indicators of value which are identified in the development plan or evidence base. Views are likely to have some detracting features and lack cultural associations supported by evidence.
Very low	View across landscapes which are neither designated, nor identified in the development plan or evidence base, and without cultural associations. The landscape in the view is in poor condition or notably detracts from the experience of the view.

F.8.14 Susceptibility of visual receptors to change

- F.8.14.1 The sensitivity of visual receptors is also dependent upon their susceptibility to changes in views and the visual amenity they experience at particular locations.
- F.8.14.2 Paragraph 6.32 of GLVIA3 explains that *“the susceptibility of different visual receptors to changes in views and visual amenity is mainly a function of:*
- a. The occupation or activity of people experiencing the view at particular locations; and*
 - b. The extent to which their attention or interest may therefore be focussed on the views and the visual amenity they experience at particular locations.”*
- F.8.14.3 GLVIA3 notes that visual receptors *“most susceptible to change,”* include residents and visitors engaged in outdoor recreation *“whose attention or interest is likely to be focused on the landscape and on particular views.”* (para 6.33).
- F.8.14.4 Table F- 10 sets out the criteria referred to in determining the susceptibility of visual receptors to the Proposed Development.

TABLE F- 10: SUSCEPTIBILITY OF VISUAL RECEPTORS CRITERIA

Classification	Description
Very high	Visitors to nationally or internationally designated landscapes, particularly at specific viewpoints or viewing places, where views of the landscape are fundamental to the experience. People engaged in specific activities for enjoyment of dark skies.
High	Residents at home. Visitors to tourist hotspots, heritage assets or other attractions outside of nationally or internationally designated landscapes, particularly at specific viewpoints or viewing places, where views of the landscape are important to the experience. People engaged in outdoor recreation whose attention or interest is likely to be focussed on the landscape and on particular views, for example those using promoted walking and cycling routes. People travelling along promoted scenic routes.
Medium	People engaged in outdoor recreation or travelling along PRow or local roads, which are not promoted routes, but where an appreciation of the surrounding landscape are relevant to the experience. People working outdoors.
Low	People engaged in outdoor sport or recreation which does not involve or depend upon appreciation of views of the landscape People travelling on major road, rail or other transport routes which are not recognised as scenic routes.
Very low	People working indoors.

F.8.15 Summarising the sensitivity of visual receptors

- F.8.15.1 The sensitivity of visual receptors is based on professional judgement informed by the criteria in Table F- 11, considering the value attached to views and susceptibility of visual receptors to the changes proposed.

TABLE F- 11: SENSITIVITY OF VISUAL RECEPTORS CRITERIA

Criteria	Description
Very high	Activity where views are fundamental to the experience and are related to landscapes with national or international designation and with few or no detracting features and which may also have strong cultural associations supported by evidence.
High	Activity resulting in a particular interest or appreciation of the view and/or views within or across regionally or locally designated landscapes, other or landscapes with strong indicators of value, or views identified in the development plan or evidence base with few or no detracting features and may also have some cultural associations supported by strong evidence.
Medium	Activity resulting in a general interest or appreciation of the and/or a view, likely to exhibit some indicators of value which are identified in the development plan or evidence base and are important at the community level.
Low	Activity where interest or appreciation of the view is secondary to the activity or the period of exposure to the view is limited, and/or views across landscapes which are not designated for landscape quality and likely to exhibit few indicators of value and likely to have some detracting features and lack cultural associations supported by evidence.
Very low	Activity where interest or appreciation of the view is inconsequential to their activity, and/or across landscapes which are neither designated, nor recognised in policy, and without cultural associations or is in poor condition or notably detracts from the experience of the view.

F.8.16 Magnitude of visual impacts

- F.8.16.1 The magnitude of visual impacts relates to the extent to which the baseline view would change as a result of the Proposed Development.
- F.8.16.2 Paragraph 3.28 of GLVIA3 notes that magnitude is informed by combining considerations relating to the “*scale, extent and duration*,” of impacts. This includes the geographical extent of influence, the spatial extent of the impact, the level of integration of new features with existing elements, its duration and degree to which the impact is reversible.
- F.8.16.3 Reference has been made to the following in summarising the magnitude of visual impacts:
- Size and scale – loss of existing features or addition of new features.
 - Geographical extent – where the proposed changes would be visible and to what extent.

- Duration and reversibility – the time over which the change would occur and if these changes are reversible, set out on the following scale: short (weeks); medium (months); and long (years).

F.8.16.4 The criteria set out in Table F- 12 have been referred to in determining the magnitude of visual impacts.

TABLE F- 12: MAGNITUDE OF VISUAL IMPACTS CRITERIA

Criteria	Description
Very high	Activity where views are fundamental to the experience and are related to landscapes with national or international designation and with few or no detracting features and which may also have strong cultural associations supported by evidence.
High	Activity resulting in a particular interest or appreciation of the view and/or views within or across regionally or locally designated landscapes, other or landscapes with strong indicators of value, or views identified in the development plan or evidence base with few or no detracting features and may also have some cultural associations supported by strong evidence.
Medium	Activity resulting in a general interest or appreciation of the and/or a view, likely to exhibit some indicators of value which are identified in the development plan or evidence base and are important at the community level.
Low	Activity where interest or appreciation of the view is secondary to the activity or the period of exposure to the view is limited, and/or views across landscapes which are not designated for landscape quality and likely to exhibit few indicators of value and likely to have some detracting features and lack cultural associations supported by evidence.
Very low	Activity where interest or appreciation of the view is inconsequential to their activity, and/or across landscapes which are neither designated, nor recognised in policy, and without cultural associations or is in poor condition or notably detracts from the experience of the view.

F.8.16.5 There may be cases where there will be no impacts on a receptor, for example where the design has been changed to avoid such impacts. In such cases this is recorded as no change.

F.8.17 Level of landscape and visual effects

F.8.17.1 The approach to determining the level of landscape effects and visual effects will be the same.

F.8.17.2 Judgements on the sensitivity of each receptor and the magnitude of impact have been combined to establish the level of effect. Effects considered most important in the decision-making process are those assessed as being major or moderate. All other effects have been categorised as not important.

F.8.17.3 Table F- 13 has been used to guide judgements on the relationship between the sensitivity of a visual receptor, the magnitude of impact. Where conclusions differ from this guide, a reasoned explanation is provided in the assessment text.

TABLE F- 13: DETERMINING THE LEVEL OF LANDSCAPE AND VISUAL EFFECTS

Sensitivity of resource	Magnitude of impact					
		Very high	High	Medium	Low	Very low
	Very high	Major	Major	Major or moderate	Moderate	Moderate or minor
	High	Major	Major or moderate	Moderate	Moderate or minor	Minor
	Medium	Major or moderate	Moderate	Moderate or minor	Minor	Minor or negligible
	Low	Moderate	Moderate or minor	Minor	Minor or negligible	Negligible
	Negligible	Moderate or minor	Minor	Minor or negligible	Negligible	Negligible

F.8.17.4 The assessment will be undertaken using the professional judgement of experienced landscape specialists, and consultation with stakeholders. Table F- 14 defines what the levels of effect terms mean.

TABLE F- 14: LEVELS OF EFFECT

Level of effect	Landscape effects	Visual effects
Major beneficial	Effects that result in a considerable improvement of the existing landscape resource. Valued characteristic features would be restored or reintroduced as part of the development.	Effects that result in a substantial improvement in the existing view.
Moderate beneficial	Effects that result in a partial improvement of the existing landscape resource. Valued characteristic features would be largely restored or reintroduced.	Effects that result in a noticeable improvement in the existing view.
Minor beneficial	Effects that result in a slight improvement of the existing landscape resource. Characteristic features would be partially restored.	Effects that result in a limited improvement in the existing view.
Negligible beneficial	Effects that result in a very slight improvement to the existing landscape resource, not	Effects that result in a barely perceptible improvement in the existing view.

Level of effect	Landscape effects	Visual effects
	uncharacteristic within the receiving landscape.	
Neutral	Effects which are a balance between adverse and beneficial effects and are neutral in their consequences for the landscape.	Effects that are a balance between adverse and beneficial effects and are neutral in their consequences for the view of visual receptors.
Negligible adverse	Effects that result in a very slight deterioration to the existing landscape resource, not uncharacteristic within the receiving landscape.	Effects that result in a barely perceptible deterioration in the existing view.
Minor adverse	Effects that result in a slight deterioration of the existing landscape resource. Characteristic features would be partially lost.	Effects that result in a limited deterioration in the existing view.
Moderate adverse	Effects that result in a partial deterioration of the existing landscape resource. Valued characteristic features would be largely lost.	Effects that result in a noticeable deterioration in the existing view.
Major adverse	Effects that result in a considerable deterioration of the existing landscape resource. Valued characteristic features would be wholly lost.	Effects that result in a substantial deterioration in the existing view.

- F.8.17.5 Whether effects are adverse, beneficial or neutral has determined by considering the way in which the changes are likely to affect the baseline.
- F.8.17.6 Adverse effects are likely to occur where the Proposed Development introduces new elements or changes which are discordant or intrusive resulting in a deterioration to existing character or valued features of the landscape or of views and visual amenity.
- F.8.17.7 Beneficial effects are likely to occur where the proposed development enhances the character of the landscape or existing views.
- F.8.17.8 Paragraphs 5.37 and 6.29 of GLVIA3 state that is possible for effects to be neutral in their consequences for landscape and for visual receptors. Where a judgement of neutral effects has been reached, reference has been made to the contribution of the proposed development to the baseline and acknowledging the positive and negative aspects which have been considered.
- F.8.17.9 Where the assessment has concluded that there will be no impacts on a receptor, this is reported as no effect. This may, for example, be a consequence of changes to the design which has avoided impacts on receptors.
- F.8.17.10 Residual effects are those which remain even with embedded or primary mitigation at construction and year 15 of existence and operation and which cannot be further mitigated by design or other measures in this time period.

Appendix G: Materials and wastes baseline data and assessment criteria

TABLE G- 1: TRANSFER, TREATMENT AND METAL RECYCLING SITE INPUT IN THE NORTH EAST IN 2024 (000s TONNES)

Facility type	Tees Valley Unitary Authorities	Tyne & Wear	County Durham	Northumberl and	Total
Transfer total	690	1,098	484	350	2,612
Treatment total	2,520	707	559	374	4,161
Metal Recycling Sector Total	179	399	242	1	821

TABLE G- 2: WASTE INCINERATION CAPACITY IN THE NORTH EAST (000 TONNES)

Facility type	Tees Valley Unitary Authorities	Tyne & Wear	County Durham	Northumberl and	Total
Hazardous Waste	0	0	0	0	14
Co- Incineration of Non- Hazardous Waste	0	0	0	0	0
Municipal and/or Industrial & Commercial	1,256	0	0	0	1,256
Biomass / Waste Wood	310	0	125	0	435

TABLE G- 3: LANDFILL CAPACITY IN THE NORTH EAST 2024 (000 TONNES)

Facility type	Tees Valley Unitary Authorities	Tyne & Wear	County Durham	Northumberl and	Total
Inert waste landfill	0	311	9,248	0	9,558
Non- hazardous waste landfill	3,883	0	1,467	292	5,642
Hazardous waste landfill	5,594	0	0	0	5,594

TABLE G- 4: MATERIALS RECEPTOR SENSITIVITY

Effects	Receptor Sensitivity
Very High	On balance, the key materials required for the construction of the Proposed Development are forecast are known to be insufficient in terms of production, supply and/ or stock. And/or comprise no sustainable features and benefits compared to industry-standard materials.
High	On balance, the key materials required for the construction of the Proposed Development are forecast (through trend analysis and other information) to suffer from known issues regarding supply and stock. And/ or comprise little or no sustainable features and benefits compared to industry-standard materials.
Medium	On balance, the key materials required for the construction of the Proposed Development are forecast (through trend analysis and other information) to suffer from some potential issues regarding supply and stock. And/ or are available comprising some sustainable features and benefits compared to industry-standard materials.
Low	On balance, the key materials required for the construction of the Proposed Development are forecast (through trend analysis and other information) to be generally free from known issues regarding supply and stock. And/ or are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials.
Negligible	On balance, the key materials required for the construction of the Proposed Development are forecast (through trend analysis and other information) to be free from known issues regarding supply and stock. And/ or are available comprising a very high proportion of sustainable features and benefits compared to industry-standard materials.

TABLE G- 5: INERT AND NON-HAZARDOUS LANDFILL CAPACITY SENSITIVITY

Effects	Receptor Sensitivity
Very High	Across the construction phase, the baseline/future baseline (i.e. without the Proposed Development) of regional inert and non-hazardous landfill capacity is: expected to reduce very considerably (by >10%); end during construction or operation; is already known to be unavailable; or would require new capacity or infrastructure to be put in place to meet forecast demand.
High	Across the construction phase, the baseline/ future baseline (i.e. without the Proposed Development) of regional inert and non-hazardous landfill capacity is expected to reduce considerably by 6-10% as a result of wastes forecast.
Medium	Across the construction phase, the baseline/ future baseline (i.e. without the Proposed Development) of regional inert and non-hazardous landfill capacity is expected to reduce noticeably by 1-5% as a result of wastes forecast.
Low	Across the construction phase, the baseline/ future baseline (i.e. without the Proposed Development) of regional inert and non-hazardous landfill capacity is expected to reduce minimally by <1% as a result of wastes forecast.

Effects	Receptor Sensitivity
Negligible	Across the construction phase, the baseline/ future baseline (i.e. without the Proposed Development) of regional inert and non-hazardous landfill capacity is expected to remain unchanged or is expected to increase through a committed change in capacity.

TABLE G- 6: MATERIALS MAGNITUDE OF IMPACTS

Effects	Receptor Sensitivity
Major	Consumption of one or more materials is >10% by volume of the baseline availability.
Moderate	Consumption of one or more materials is between 6-10% by volume of the baseline availability.
Minor	Consumption of one or more materials is between 1-5% by volume of the baseline availability.
Negligible	Consumption of no individual material type is equal to or greater than 1% by volume of the baseline availability.
No Change	No consumption of materials is required.

TABLE G- 7: INERT AND NON-HAZARDOUS WASTE - MAGNITUDE OF IMPACTS

Effects	Receptor Sensitivity
Major	Waste generated by the Proposed Development will reduce Expansive study area landfill capacity baseline #by >10%.
Moderate	Waste generated by the Proposed Development will reduce Expansive study area landfill capacity baseline #by 6-10%.
Minor	Waste generated by the Proposed Development will reduce Expansive study area landfill capacity baseline #by 1-5%.
Negligible	Waste generated by the Proposed Development will reduce Expansive study area landfill capacity baseline #by <1%.
No Change	Zero waste generation and disposal from the Proposed Development.
#	Forecast as the worst-case scenario, during a defined construction phase

TABLE G- 8: CLASSIFICATION OF EFFECTS

Sensitivity of Receptor		Magnitude of Impact				
		No change	Negligible	Minor	Moderate	Major
	Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
	High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
	Medium	Neutral	Neutral or Slight	Slight	Slight or Moderate	Moderate or Large
	Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
	Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

TABLE G- 9: SIGNIFICANCE OF EFFECTS

Effects	Materials	Wastes
Neutral	Not Significant	
Slight		
Moderate	Significant	
Large		
Very Large		

Appendix H: Socio-economic assessment criteria

TABLE H- 1: RECEPTOR SENSITIVITY

Effects	Receptor Sensitivity
High	Businesses, individuals, groups of individuals, or other receptors possessing very significant economic, social and/or community value. These receptors are considered very likely to incur a significant loss or gain as a result of potential changes in the environment, with little to no potential for substitution. For example: residential properties, a regional or national trail, directly affected business premises or community facilities.
Medium	Businesses, individuals, groups of individuals, or other receptors possessing some significant economic, social and/or community value. These receptors are considered likely to incur some loss or gain as a result of potential changes in the environment, with limited potential for substitution. For example: a footpath or bridleway or land associated with a residential or business receptor.
Low	Businesses, individuals, groups of individuals, or other receptors possessing some economic, social and/or community value. These receptors are not considered likely to incur a loss or gain as a result of potential changes in the environment, with potential for substitution. For example: a permissive trail.
Negligible	No change to businesses, individuals, groups of individuals or other receptors.

TABLE H- 2: MAGNITUDE OF IMPACT

Effects	Receptor Sensitivity
High	An adverse or beneficial change that would be likely to result in total loss of an individual receptor or permanent changes to baseline situation for a large number of businesses, individuals or groups of individuals.
Medium	An adverse or beneficial change that would be very likely to result in partial changes to baseline situation for a moderate number of businesses, individuals or groups of individuals.
Low	An adverse or beneficial effect that would be likely to result in minor changes to baseline situation for a small number of businesses, individuals or groups of individuals.
Negligible	An adverse or beneficial effect that would be likely to result in little or no change to baseline situation for businesses, individuals or groups of individuals.

TABLE H- 3: SIGNIFICANCE OF EFFECTS

Magnitude of Impact	Receptor Sensitivity			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

Appendix I: Soils and agriculture assessment criteria

I.1 Assessment criteria

I.1.1.1 Table I- 1 to Table I- 3 set out the proposed assessment criteria for agricultural land and soils which will follow the ISEP guidance.

TABLE I- 1: AGRICULTURAL LAND AND SOIL - SENSITIVITY

Sensitivity	Agricultural land	Soil resources
Very High	Grades 1 and 2	Peat soils
High	Subgrade 3a	Soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams) and organo-mineral and peaty soils where the Field Capacity Days (FCD) are 150 or greater. Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where the FCDs are 225 or greater. All soils in wetness class (WC) V or WC VI.
Medium	Subgrade 3b	Clays, silty clays, sandy clays, heavy silty clay loams, heavy clay loams, silty loams and organo-mineral and peaty soils where the FCDs are fewer than 150. Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where FCDs are fewer than 225. Sands, loamy sands, sandy loams and sandy silt loams where the FCDs are 225 or greater or are in WC III and WC IV.
Low	Grades 4 and 5	Soils with a high sand fraction (sands, loamy sands, sandy loams and sandy silt loams) where the FCDs are fewer than 225 and are in WC I and WC II.

TABLE I- 2: MAGNITUDE OF CHANGE

Sensitivity	Soil resources
High	Permanent, irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading), over an area of more than 20 ha or loss of soil-related features (e.g. biomass production, habitat support, soil carbon, soil hydrology). or Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of more than 20 ha or gain in soil related features.
Medium	Permanent, irreversible loss of one or more soil functions or soil volumes, over an area of between 5 and 20 ha or loss of soil-related features. or

Sensitivity	Soil resources
	Potential for improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of between 5 and 20ha or gain in soil related features.
Low	Permanent, irreversible loss over an area of less than 5ha or a temporary, reversible loss of one or more soil functions or soil volumes, or temporary, reversible loss of soil-related features. or Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of less than 5 ha or a temporary improvement in one or more soil functions due to remediation or restoration or off-site improvement, or temporary gain in soil related feature.
Very Low	No discernible loss or reduction or improvement of soil functions or soil volumes that restrict current or proposed land use.

TABLE I- 3: SIGNIFICANCE MATRIX

	Sensitivity			
Magnitude	Very High	High	Medium	Low
High	Major	Major/Moderate	Moderate	Moderate / Minor
Medium	Major / Moderate	Moderate	Moderate Minor	Minor
Low	Moderate	Moderate / Minor	Minor	Negligible
Negligible	Moderate / Minor	Minor	Negligible	Negligible

Appendix J: Water resources and flood risk impact assessment criteria

J.1 Receptor importance

- J.1.1.1 Whilst other disciplines may consider ‘receptor sensitivity’, receptor importance is considered for the water environment topic. This is because when considering the water environment, the availability of dilution means that there can be difference between the sensitivity and importance of a waterbody. As an example, a small drainage ditch of low conservation importance and biodiversity with limited other ecological attributes may be very sensitive to impacts, whereas an important regional scale watercourse, may be less sensitive by virtue of its ability to assimilate discharges and physical effects. Irrespective of importance, all controlled waters in England are protected by law from being polluted.
- J.1.1.2 The importance of the baseline environment will be assessed using the criteria defined in Table J- 1. The criteria for evaluation of the importance of receptors has been established based upon available guidance, legislation, statutory designation and/ or professional judgement.
- J.1.1.3 Flood receptors such as property, land or infrastructure, at risk or potential risk of flooding that may be impacted by the Proposed Development (including the Proposed Development itself) will be reviewed against the National Receptors’ Database and associated Ordnance Survey MasterMap products. A vulnerability classification will be identified for each receptor in line with the NPPF.

TABLE J- 1: RECEPTOR SENSITIVITY

Environmental Importance of Receptor	Receptor
Very high (e.g. international)	Surface water: Watercourse having a WER classification and Q95 ≥ 1.0 m ³ /s. Site protected/designated under European Commission (EC) (SAC, SPA, SSSI, Ramsar site, salmonid water)/ Species protected by EC legislation Ecology and Nature Conservation. Licensed surface water abstraction matching waterbody importance.
	Groundwater: Principal aquifer providing a regionally important resource and/or supporting a site protected under EC legislation. Ecology and Nature Conservation. Groundwater locally supports designated GWDTE. Source Protection Zone I (inner zone) associated with a Public Water Supply.
	Flood risk: Essential Civil infrastructure or highly vulnerable development.
High (e.g. national)	Surface water: Watercourse having a WER classification and Q95 < 1.0 m ³ /s. Species protected under UK legislation (SSSI). Ecology and Nature Conservation. Licensed surface water abstraction matching waterbody importance. Designated bathing waters.

Environmental Importance of Receptor	Receptor
	Groundwater: Principal aquifer providing locally important re-source or supporting a river ecosystem. Groundwater supports a GWDTE. Licensed groundwater abstraction. Source Protection Zone (SPZ) I associated with a private water abstraction, SPZ 2 (outer zone) associated with a Public Water Supply. Flood risk: Highly vulnerable development.
Medium (e.g. Regional/ county)	Surface water: Watercourses not having a WER classification and Q95 >0.001m ³ /s. Watercourses with flow observed at survey, watercourses with no other information known. Licensed surface water abstraction matching waterbody importance. Undesignated but known recreational waters. Ponds or lakes with fishing or recreational usage activity. Groundwater: Aquifer providing water for agricultural or industrial use with limited connection to surface water. Secondary Aquifers, unlicensed abstractions, Source Protection Zone III (total catchment). Flood risk: Less vulnerable development.
Low	Surface water: Watercourses not having a WER classification and Q95 ≤0.001m ³ /s, or confirmed to have no flow at site survey. Licensed surface water abstraction matching waterbody importance. Ponds or lakes with no recreational usage. Groundwater: Unproductive strata. Flood risk: Water compatible development.

J.2 Impact magnitude

J.2.1.1 Table J- 2 summarises the potential magnitude of any construction or operation impact on the receptor, based on the DMRB LA113 guidance.

TABLE J- 2: IMPACT MAGNITUDE

Magnitude of Impact	Environmental Impact	Examples
Major	Negative: Loss of an attribute and / or quality and integrity of an attribute.	Negative: Increase in peak flood level * (> 100mm); deterioration in surface water ecological or chemical WER element status or groundwater qualitative or quantitative WER element status.
	Positive: Creation of a new attribute or major improvement in quality of an attribute.	Positive: Creation of additional flood storage and decrease in peak flood level* (> 100mm); increase in productivity or size of fishery; improvement in surface water ecological or chemical WER element status; improvement in groundwater

Magnitude of Impact	Environmental Impact	Examples
		qualitative or quantitative WER element status.
Moderate	Negative: Loss of part of an attribute or decrease in integrity of an attribute.	Negative: Increase in peak flood level* (> 50mm); measurable decrease in surface water ecological or chemical quality or flow with potential for deterioration in WER element status. Reversible change in the yield or quality of an aquifer, such that existing users are affected, with potential for deterioration in WER element status.
	Positive: Moderate improvement in quality of an attribute.	Positive: Creation of flood storage and decrease in peak flood level* (> 50mm); measurable increase in surface water ecological or chemical quality or flow with potential for WER element status to be improved. Measurable increase in the yield or quality of an aquifer, benefiting existing users, with potential for WER element status to be improved.
Minor	Negative: Measurable change to the integrity of an attribute.	Negative: Increase in peak flood level* (> 10mm); measurable decrease in surface water ecological or chemical quality or flow; decrease in yield or quality of aquifer, not affecting existing users or changing any WER element status.
	Positive: Measurable increase, or reduced risk of negative effect to an attribute.	Positive: Creation of flood storage and decrease in peak flood level* (> 10mm); measurable increase in surface water ecological or chemical quality; increase in yield or quality of aquifer not affecting existing users or changing any WER element status.
Negligible	Impacts which are beneath the level of perception, within normal bounds of variation or within the margin of forecasting error.	Negligible change to peak flood level* (< +/- 10mm); discharges to watercourse or changes to an aquifer which lead to no change in the attribute's integrity.
Neutral	Neutral effects are predicted where the proposal is unlikely to alter the present or future baseline situation.	No change to peak flood level*, discharges to watercourse or changes to an aquifer which have no appreciable effect.

Magnitude of Impact	Environmental Impact	Examples
		*Peak flood level for floods up to and including a 0.5% annual probability event, including climate change, as appropriate. Where access or egress routes are affected, the magnitude of the impact will be defined by the change in the Flood Hazard Rating as defined in Defra/EA report FD2320 (Ref 8.272).

J.3 Classifying the significance of effect

- J.3.1.1 By combining the magnitude of impact (or change) and the sensitivity (value) of each receptor, an assessment will be made of the likely significance of effect, considering the possibility and nature of mitigation. The resultant effects may be either negative (adverse), positive (beneficial) or neutral, depending on the nature of the impact. The significance of effect upon the receptor will be assessed using the significance matrix in Table J- 3.

TABLE J- 3: SIGNIFICANCE MATRIX

Importance of Resource	Magnitude of Impact					
		Major	Moderate	Minor	Negligible	Neutral
	Very High	Major	Major	Major	Moderate/ Minor	Neutral
	High	Major	Major	Moderate	Minor	Neutral
	Medium	Major	Moderate	Minor	Negligible	Neutral
	Low	Moderate	Minor	Negligible	Negligible	Neutral
	Negligible	Minor	Negligible	Negligible	Negligible	Neutral

J.3.1.2 Moderate or Major effects are generally considered significant in EIA terms, and Negligible or Minor are not significant. Significance conclusions for each residual effect will seek to incorporate, as far as possible, confirmed design and mitigation measure

Appendix K: Health baseline data

Data taken from the 2021 Census Profile for areas in England and Wales (Nomis, Official Census and Labour Market Statistics, Office for National Statistics) (Ref 8.225), and Local Authority Health Profiles from the Department of Health and Social Care (Ref 9.9).

Data set	Redcar and Cleveland	Stockton-on-Tees	Hartlepool	County Durham	Darlington	North East England	England
Population*	136,531	196,595	92,338	522,068	107,799	2,647,013	56,490,048
Population aged under 16 (%)*	17.8	19.6	19.1	16.9	18.3	17.7	18.6
Population aged 16-64 (%)*	59.0	61.4	61.1	61.8	61.3	61.9	63.0
Population aged 65 and over (%)*	23.3	18.9	19.8	21.3	20.4	20.4	18.4
Economically active (excluding full-time students)*	51.5	56.5	52.9	52.4	57.6	53.6	58.6
General health – Bad or Very Bad (%)*	7.6	6.3	8.0	7.5	5.9	7.0	5.2
General health – Good or Very Good (%)*	76.5	79.8	76.4	76.9	79.8	78.0	82.2
Disabled under the Equality Act (%)*	22.4	19.9	22.9	22.9	19.6	21.4	17.3
Life expectancy at birth (Female, 3 year range)**	81.8	82.3	80.9	81.7	81.7	81.9	83.5
Life expectancy	77.6	79.0	77.3	78.0	78.0	77.9	79.7

Data set	Redcar and Cleveland	Stockton -on-Tees	Hartlepool	County Durham	Darlington	North East England	England
at birth (Male, 3 year range)**							
Deprivation Score (IMD 2019)**	29.8	25.8	35.0	26.8	25.7	28.0	21.7

Appendix L: Glossary of defined terms and acronyms

Term	Definition
Scoping Boundary	The indicative land (approximately 2,593 hectares) required for the Proposed Development. The Scoping Boundary contains a wide route corridor (approximately 300m in width) that is being considered at EIA Scoping stage to provide flexibility in the routing. Figure 1.2: The Scoping Boundary (Volume II). displays the Scoping Boundary.
draft Order Limits	The Scoping Boundary for permanent infrastructure will be refined down to around 100m in width as the design develops and this will become the 'draft Order Limits' for the Application.
Proposed Development	The Proposed Development comprises the construction and operation of approximately 20km of new and potentially repurposed underground high (HP) (>7bar) and intermediate (IP) (2>7bar) pressure hydrogen pipelines between Skinningrove and Newton Aycliffe. The Proposed Development will include spurs off the main pipeline to connect with off-takers and will also include associated infrastructure (e.g. Above Ground Installations (AGI), Pressure Reduction Installations (PRI) and Block Valve Stations (BVS) along the route of the pipeline. The Proposed Development may also include natural gas pipeline reinforcements within the Scoping Boundary.
New hydrogen gas pipelines	New-build underground pipelines to transport hydrogen as part of the Proposed Development.
Replacement natural gas pipelines	New sections of natural gas pipeline, potentially within the Scoping Boundary, that may be required to reinforce the gas network and avoid disruption to users when existing natural gas pipeline sections are converted to hydrogen service.
Repurposed hydrogen gas pipeline	An existing natural gas pipeline section that is modified and reused so it can transport hydrogen instead of natural gas.
Modified AGI	An existing natural gas Above Ground Installation (AGI) that is proposed to be modified, rather than newly built, to support the safe control, operation, monitoring and maintenance of the hydrogen pipeline system.

Acronym	Definition
AGI	above ground installation
AGL	above ground level
AHLV	Areas of High Landscape Value
AIL	abnormal indivisible loads
ALARP	as low as reasonably practicable
ALC	Agricultural Land Classification
ALS	abstraction licensing strategy
ALV	Areas of Landscape Value
ANC	Association of Noise Consultants
AONB	Area of Outstanding Natural Beauty
APFP	Applications: Prescribed Forms and Procedure
AQMA	Air Quality Management Area
ASNW	ancient semi-natural woodland
ASR	annual status report
ATI	ancient tree inventory
AW	ancient woodland
BAP	Biodiversity Action Plan
BGS	British Geological Society
BMV	best and most versatile
BNG	biodiversity net gain
BNL	basic noise level
BPM	best practicable means
BSI	British Standards Institute
BS	British Standards
BTO	British Trust for Ornithology
BVS	Block Valve Stations

Acronym	Definition
CAMS	catchment abstraction management strategy
CCA	Civil Contingencies Act
CCRA	climate change risk assessment
CCR	climate change resilience
CDM	construction design and management
CE	circular economy
CEA	cumulative effects assessment
CEMP	Construction Environmental Management Plan
CH₄	methane
CIEEM	Chartered Institute of Ecology and Environmental Management
CiFA	Chartered Institute for Archaeologists
CIRIA	Construction Industry Research and Information Association
CL: AIRE	Contaminated Land: Applications in Real Environments
COMAH	Control of Major Accident Hazards
COPA	Control of Pollution Act 1974
COSHH	Control of Substances Hazardous to Health Regulations
CO₂	carbon dioxide
CRoW Act	Countryside and Right of Way Act 2000
CRTN	calculation of road traffic noise
CTMP	Construction Traffic Management Plan
CWTP	Construction Workers' Travel Plan
DBA	desk-based assessment
DBC	Darlington Borough Council
DCC	Durham County Council
DCO	Development Consent Order
DEFRA	Department for Environment, Food & Rural Affairs

Acronym	Definition
DEMP	Decommissioning Environmental Management Plan
DEPZ	Detailed Emergency Planning Zone
DESNZ	Department of Energy Security and Net Zero
DfT	Department for Transport
DLL	district level licensing
DLUHC	Department for Levelling Up, Housing and Communities
DM	do-minimum
DMRB	Design Manual for Roads and Bridges
DNO	Distribution Network Operator
DoW CoP	Definition of Waste: Development Industry Code of Practice
DPD	development plan documents
DSEAR	Dangerous Substances and Explosive Atmospheres Regulations
DWPA	drinking water protected areas
EA	Environment Agency
EC	European Commission
ECH	East Coast Hydrogen
EcIA	ecological impact assessment
EIA	Environmental Impact Assessment
EIP	Environmental Improvement Plan
EN-1	Overarching National Policy Statement for Energy
EPS	European Protected Species
EPSL	European Protected Species Licence
EPUK	Environmental Protection UK
EQS	Environmental Quality Standard
ES	Environmental Statement
EU	European Union

Acronym	Definition
FAS	Flood Alleviation Scheme
FCD	Field Capacity Days
FEED	front end engineering design
FLL	functionally linked land
FRA	flood risk assessment
GCN	great crested newt
GHG	greenhouse gas
GI	ground investigation
GIS	geographic information system
GLVIA3	third edition Guidelines for Landscape and Visual Impact Amenity
GPA	Good Practice Advice
GPP	guidance for pollution prevention
GS(M)R	Gas Safety (Management) Regulations
GVA	gross value added
GWDTE	groundwater dependent terrestrial ecosystem
HAZID	hazard identification
HBC	Hartlepool Borough Council
HCA	Homes and Communities Agency
HDD	horizontal directional drilling
HDV	heavy duty vehicles
HER	historic environment record
HEWRAT	Highways England Water Risk Assessment Tool
HFC	hydrofluorocarbons
HGV	heavy goods vehicle
HLC	historic landscape characterisation
HP	high pressure

Acronym	Definition
HPMA	Highly Protected Marine Areas
HRA	habitat regulations assessment
HSE	Health and Safety Executive
HSWA	Health and Safety at Work etc. Act
IAQM	Institute of Air Quality Management
ICCI	in-combination climate change impact
ICE	Inventory of Carbon and Energy
IEMA	Institute of Environmental Management and Assessment
IGEM	Institution of Gas Engineers and Managers
IHBC	Institute of Historic Building Conservation
ILI	inline inspection
IMD	Index of Multiple Deprivation
INCA	Industry and Nature Conservation Association
INNS	non-native species
IP	intermediate pressure
IPENS	Improvement Programme for England's Natura
IRZ	Impact Risk Zone
ISEP	Institute of Sustainability & Environmental Professionals
IUCN	International Union for Conservation of Nature
LAA	Local Aggregates Assessment
LAQM	Local Air Quality Management
LCA	landscape character area
LCRM	land contamination risk management
LCT	landscape character types
LEMP	Landscape and Ecological Management Plan
LGS	Local Geological Sites

Acronym	Definition
LIA	Landscape Improvement Areas
LLCA	local landscape character areas
LLFA	Lead Local Flood Authority
LNR	Local Nature Reserve
LOLER	Lifting Operation and Lifting Equipment Regulations
LPA	local planning authorities
LSOA	lower super output area
LVIA	Landscape and Visual Impact Assessment
LWS	Local Wildlife Site
MA&D	major accident and disaster
MAGiC	Multi-Agency Geographic Information for the Countryside
MAH	major accident hazard
MCZ	Marine Conservation Zones
MHWS	mean high water springs
MMO	Marine Management Organisation
MP	medium pressure
MSA	Mineral Safeguarding Areas
MtCO_{2e}	millions of tonnes of carbon dioxide equivalent
NAQS	National Air Quality Standards
NBN	National Biodiversity Network
NCA	National Character Area
NCN	National Cycle Network
NERC	Natural Environment and Rural Communities Act
NF₃	trifluoride
NGET	National Grid Electricity Transmission
NGG	National Grid Gas

Acronym	Definition
NHLE	National Heritage List for England
NIA	Noise Important Areas
NNG	Night Noise Guidelines
NNR	National Nature Reserve
NMU	non-motorised user
NO₂	nitrogen dioxide
NPPF	National Planning Policy Framework
NPS	National Policy Statements
NPSE	Noise Policy Statement for England
NRMM	non-road mobile machinery
NRR	National Risk Register
NSIP	Nationally Significant Infrastructure Project
NSR	noise sensitive receptors
NTS	National Transmission System
NVZ	Nitrate Vulnerable Zone
oCEMP	outline Construction Environmental Management Plan
oCTMP	outline Construction Traffic Management Plan
oCWTP	outline Construction Workers' Travel Plan
oDEMP	outline Decommissioning Environmental Management Plan
OEMP	Operational Environmental Management Plan
oOEMP	outline Operational Environmental Management Plan
OHID	Office for Health Improvement and Disparities
oLEMP	outline Landscape and Environmental Management Plan
ONR	Office for Nuclear Regulation
ONS	Office of National Statistics
oPRoWMP	outline Public Right of Way Management Plan

Acronym	Definition
OS	Ordnance Survey
oSMP	outline Soil Management Plan
oSUMP	outline Site Waste Management Plan
OWSI	Outline Written Scheme of Investigation
PEA	Preliminary Ecological Appraisal
PFC	perfluorocarbons
PHE	Public Health England
PIG	pipeline inspection gauge
PINS	Planning Inspectorate
PM₁₀ / PM_{2.5}	particulate matter (10µm / 2.5µm)
PPG	Planning Practice Guidance
PPG	Pollution Prevention Guidelines
PPGNE	National Planning Policy Guidance for the Natural Environment
PRA	preliminary risk assessment
PRI	pressure reduction installation
PRoW	public right(s) of way
PSR	Pipeline Safety Regulations
PUWER	Provision and Use of Work Equipment Regulations
QRA	quantitative risk assessments
RBD	river basin district
RBMP	River Basin Management Plan
RCBC	Redcar and Cleveland Borough Council
RICS	Royal Institution of Chartered Surveyors
SAC	Special Area(s) of Conservation
SBC	Stockton-on-Tees Borough Council
SI	Statutory Instrument

Acronym	Definition
SMP	Soil Management Plan
SNCI	Sites of Nature Conservation Importance
SPA	Special Protection Area
SPZ	source protection zone
SFRA	Strategic Flood Risk Assessment
SRN	Strategic Road Network
SSSI	Site of Special Scientific Interest
SF₆	sulphur hexafluoride
SuDS	sustainable drainage systems
SWMP	Site Waste Management Plan
tCO₂e	tonnes of carbon dioxide equivalent
TCPA	Town and Country Planning Act
the 2008 Act	The Planning Act 2008
TESS	Tees Estuary Seals Study
TTM	temporary traffic management
TVCA	Tees Valley Combined Authority
UKHabs	UK Habitat Classification
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
UXO	Unexploded Ordnance
WC	wetness class
WCA	The Wildlife and Countryside Planning Act 1981
WeBS	Wetland Birds Survey
WEEE	Waste Electrical and Electronic Equipment
WER	Water Environment Regulations
WFD	Water Framework Directive

Acronym	Definition
WHO	World Health Organization
WRAP	Waste and Resources Action Programme
ZoI	zone of influence
ZTV	Zone of Theoretical Visibility