EAST $CO_2$AST CLUSTER

Northern Endurance Partnership | Humber Carbon Capture Pipeline

# Humber Carbon Capture Pipeline

## Environmental Impact Assessment (EIA)

## Scoping Report

## Volume 1

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# Humber Carbon Capture Pipeline

Environmental Impact Assessment (EIA)

Scoping Report

Volume 1

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This report dated 02 January 2025 has been prepared for Net Zero North Sea Storage Limited (the "Client") in accordance with the terms and conditions of appointment dated 01 September 2022(the "Appointment") between the Client and Arcadis (UK) Limited ("Arcadis") for the purposes specified in the Appointment. For avoidance of doubt, no other person(s) may use or rely upon this report or its contents, and Arcadis accepts no responsibility for any such use or reliance thereon by any other third party.

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# Glossary and Abbreviations

## Glossary of Terms

| Term | Definition |
|---|---|
| **Technical Terms** | |
| Above Ground Installation (AGI) | An overarching term used to describe the above-ground facilities that form part of the Project. This includes the block valve stations, multi-junctions and pump facility. It is used to describe all above-ground structures and equipment within the fenced perimeter of each facility. |
| (Major) Accident | An event (for instance, train derailment or major road traffic accident) that threatens immediate or delayed serious effects to human health, welfare and/or the environment. |
| Aerial Photograph | A photograph taken using fixed or rotary wing aircraft or satellite which can be used to reveal features within a landscape and aid in assessment. |
| Agricultural Land Classification (ALC) | A framework for determining the physical quality of the land at national, regional and local levels. This is based on the long-term physical limitations of land for agricultural use. There are a number of factors that affect the grade and the main ones are climate, site and soil characteristics, and the interactions between them. |
| Air Quality Management Area (AQMA) | Air Quality Management Areas (AQMAs) are areas that are likely to exceed the national air quality objective for a specific pollutant. They are determined by Local Authorities. |
| Air Quality Strategy | The Air Quality Strategy for England, Scotland, Wales and Northern Ireland describes the plans drawn up by the Government and the Devolved Administrations to improve and protect ambient air quality in the UK in the medium-term. The Strategy sets objectives for the main air pollutants to protect health. Performance against these objectives is monitored where people regularly spend time and might be exposed to air pollution. |
| Allocated Minerals Site | A site allocated in the respective Local Authority's Development Plan for minerals resources but is not yet extracted or subject to mineral extraction development. |
| Ancient Woodland | Woodland that has been continuously in place since at least 1600 AD. Ancient Woodland is divided into ancient semi-natural woodland and plantations on Ancient Woodland sites. Both types are classed as ancient woods. |

| Term | Definition |
|---|---|
| Applicant | Net Zero North Sea Storage Limited (NZNSSL) is the applicant of the DCO. |
| Application | The Application for a Development Consent Order (DCO) that is submitted by the Applicant to the Secretary of State (SoS) for the Department of Energy Security and Net Zero (DESNZ). |
| Appropriate Assessment | Where a likely significant effect on the integrity of a European site/s cannot be ruled out at the screening stage of a Habitats Regulations Assessment (HRA), an Appropriate Assessment is required to further assess adverse impacts. |
| Archaeological Interest | There will be archaeological interest in a Heritage Asset if it holds, or potentially may hold, evidence of past human activity worthy of expert investigation at some point. Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them. |
| Archaeological Remains | Artefacts or physical evidence of past human activity which have been recovered or discovered as part of archaeological investigation. |
| As Low As Reasonably Practice (ALARP) | For a Risk to be ALARP, the cost, time or effort involved in reducing the Risk further would be grossly disproportionate to the benefit gained. |
| Asset (Heritage) | A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage asset includes designated heritage assets and assets identified by the local planning authority (including local listing). |
| Auger boring | A trenchless method of installing a pipeline involving excavating a 'pit' either side of the asset to be crossed which may be supported by concrete rings or sheet piles. An auger would be placed in one pit (launch pit) and used to bore horizontally beneath the feature to be crossed and end at the other pit (reception pit). Sections of the pipe would then be pushed through from the launch pit to the reception pit using equipment that would thrust against the reception pit wall |
| Background Sound Level $L_{A90,T}$ | A-weighted sound pressure level exceeded for 90% of the specified period 'T'. |
| Baseline | A reference level of existing Environmental Conditions against which a project is measured and controlled. |

| Term | Definition |
|---|---|
| Baseline Studies | Work done to determine and describe the current Environmental Conditions against which any future changes can be measured or predicted and assessed. |
| Bedrock Geology | Term used for the main mass of rocks forming the Earth that are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water. |
| Best and Most Versatile Land | Land comprising Grades 1, 2 and 3a of the Agricultural Land classification (ALC) system. |
| Best Practice Measures | Professional procedures that are accepted or prescribed as being correct or most effective to maintain quality. |
| Biodiversity | The biological diversity of the earth's living resources. The total range of variability among systems and organisms at the following levels of organisation: bioregional, Landscape, ecosystem, Habitats, communities, Species, populations, individuals, genes and the structural and functional relationships within and between these different levels. |
| Biodiversity Net Gain | An approach to development and/or land management that aims to leave the natural environment in a measurably better state than it was beforehand. |
| Biotope | An area of uniform environmental conditions providing a living place for a specific assemblage of plants and animals. |
| Block Valve | Block valves are located at intermediate points along a pipeline and are required for isolation and monitoring of the carbon dioxide or hydrogen pipeline transportation systems. These would include buried pipework, valves, and an instrument building. |
| Carbon Capture | The capture of anthropogenic carbon dioxide from industrial sources and power stations that would otherwise be emitted into the atmosphere. |
| Carbon Capture Projects | The existing industrial facilities for which the Project transport the captured carbon dioxide from |
| Carbon capture, usage and storage (CCUS) | The process whereby anthropogenic carbon dioxide emissions from power stations and industrial facilities are captured at the source before being compressed and transported to be injected under high pressure into depleted oil and gas fields or natural saline geological formations, either onshore or offshore, or used in industrial process. |
| Carbon Dioxide Storage | The locations for or act of providing the long-term geological storage of carbon dioxide. |

| Term | Definition |
|---|---|
| Carrying capacity | The maximum number of organisms or amount of biomass that can be supported in a given area or by an ecosystem. |
| Climate Change | The long-term shift in the Earth's weather patterns or average temperature. |
| Combined Effects | The interaction and combination of different residual (post-mitigation) environmental effects of the Project affecting the same Receptor. For example, visual and noise effects during construction affecting the same residential dwelling. |
| Community Infrastructure | Community facilities such as schools, doctor's surgeries, community centres, open space, child's play space, recreation facilities and sports facilities etc. |
| Connected Projects | An existing or proposed development that will generate, use or store carbon dioxide or hydrogen, which will be connected to the proposed carbon dioxide infrastructure provided by the Project. |
| Connectivity | A measure of the functional availability of the habitats needed for a particular species to move through a given area. Examples include the flight lines used by bats to travel between roosts and foraging areas or the corridors of appropriate habitat needed by some slow colonising species if they are to spread. |
| Conservation Area | An area of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance. |
| Conservation Status | The state of a species or habitat including for example, extent, abundance, distribution and their trends. |
| Construction Environmental Management Plan (CEMP) | Document containing the register of environmental actions and commitments setting out methods to avoid, minimise and mitigate impact on the environment and the surrounding area and the protocols to be followed in implementing these measures in accordance with environmental commitments during the Construction Stage. |
| Construction Exclusion Zone (CEZ) | Part of the construction site from which all pedestrian and vehicle activity is excluded by protective fencing. |
| Construction Stage | The stage during which construction works for the Project take place. |
| Consultation Documents | The documents submitted to support the formal pre-application consultation under the Planning Act 2008 (as amended) (PA2008). They include "*plans and maps* |

| Term | Definition |
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| | *showing the nature and location of the proposed development*" as stated in subsection (4) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009. |
| Construction Compound | A secure area from which work is managed and resourced, including, but not limited to, temporary offices, workshops, parking, storage areas etc. |
| Construction Right-of-Way | The strip of land where construction activities take place to install the pipeline. Typically, this includes a trench, a working area, a traffic lane, and space for soil storage. The width of the construction Right-of-Way is dependent on local conditions and is typically different to the width of the Order Limits or the permanent easement. |
| Cumulative Effects | The effects of the Project in cumulation with other existing development and/or approved development. |
| Decommissioning | The final process of shutting down the infrastructure comprised in the Project when it is no longer required once it has reached end of life. |
| Decommissioning Environmental Management Plan (DEMP) | Document containing the register of environmental actions and commitments setting out methods to avoid, minimise and mitigate Impact on the environment and surrounding area and the protocols to be followed in implementing these measures in accordance with environmental commitments during the decommissioning Stage. |
| Designated Heritage Asset | A heritage asset which is protected under legislation such as the Ancient Monuments Act 1979 or the Planning Act 1990. These are nationally important assets which are protected under law. |
| Development Consent Order (DCO) | Development Consent Order (DCO) is a Statutory Instrument (SI) made by the Secretary of State (SoS) pursuant to the Planning Act 2008 (as amended). |
| Dewatering | The action of removing groundwater or surface water from a construction site or work area. |
| Direct Effect | An effect that is directly attributable to the Project. |
| Discretionary Advice Service (DAS) | An advisory service offered by Natural England for complex development proposals that affect the environment. The DAS offers tailored advice aiming to reduce potential risk, delay and added cost. |
| District Level Licensing (DLL) | DLL is a type of strategic mitigation licence for great crested newts (GCN) granted in certain areas at a Local Authority or wider scale with the aim of improved conservation outcomes for GCN. Where a DLL scheme |

| Term | Definition |
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| | is in place, developers can make a financial contribution to strategic, off-site habitat compensation instead of applying for a separate licence or carrying out individual detailed surveys. |
| Draft Order Limits | The draft of the DCO application's boundary, which includes all areas required for temporary and permanent use by the Project |
| Drax BECCS | Drax Bio Energy with Carbon Capture Storage project. A consented DCO |
| Drinking Water Safeguard Zones | Catchment areas that influence the water quality for their respective Drinking Water Protected Area (Surface Water), which are at risk of failing the drinking water protection objectives. |
| East Coast Cluster | The East Coast Cluster comprises proposed common offshore infrastructure (to be developed by the Northern Endurance Partnership), and terrestrial infrastructure in each of the Humber and Teesside regions, to decarbonise industry and establish a platform for economic growth. The East Coast Cluster constitutes the Net Zero Teesside, Zero Carbon Humber and Northern Endurance partnerships |
| Ecological Clerk of Works (ECoW) | Person or persons providing technical advice and managing ecological risks during construction such as measures to protect ecological features, assistance on how to achieve compliance with legislation and managing contractors engaged in providing ecological mitigation |
| Ecological Impact Assessment (EcIA) | The process of identifying, quantifying and evaluating potential effects of development-related or other proposed actions on habitats, species and ecosystems. |
| Ecosystem | A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit. |
| Effect | Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of the impact with the importance, or sensitivity, of the ecological feature in accordance with defined significance criteria. |
| EIA Directive | Directive 85/337/EEC (as amended). The initial Directive of 1985 and its three amendments have been codified by Directive 2011/92/EU of 13 December 2011. Directive 2011/92/EU has been amended in 2014 by Directive 2014/52/EU. |

| Term | Definition |
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| EIA Regulations | The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. |
| EIA Scoping Opinion | The Secretary of State's written opinion as to the scope, and level of detail, of the information to be provided in the environmental statement. |
| EIA Scoping Report | A report prepared by an applicant to provide the information required under the EIA Regulations to request a Scoping Opinion from the Secretary of State. |
| Endurance Stores | Area of secure offshore storage under the North Sea |
| Engagement | Dialogue with stakeholders on the Project which occurs in addition to the Statutory Consultation required under the EIA Regulations. The dialogue is technical and associated with the topics in the EIA. |
| Enhancement | Improved management of ecological features or provision of new ecological features, resulting in a net benefit to biodiversity, which is unrelated to a negative impact or is 'over and above' that required to mitigate/compensate for an impact. |
| Environment Agency | A non-departmental public body sponsored by the United Kingdom government's Department for Environment, Food and Rural Affairs, with responsibilities relating to the protection and enhancement of the environment in England |
| Environmental Impact Assessment (EIA) | A systematic means of assessing the significance of effects from the Project, undertaken in accordance with The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (EIA Regulations). |
| Environmental Statement (ES) | A statement prepared in accordance with the EIA Regulations that includes the information that is reasonably required to assess the likely effects of a development and which the applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile. |
| Equivalent Continuous Sound Pressure Level, $L_{Aeq,T}$ | Average of total sound energy measured over a specific period. It is the equivalent steady, continuous sound level, which has the same energy as a measured fluctuating sound. |
| European Protected Species (EPS) | Plant or animal species receiving full protection under the Conservation of Habitats and Species Regulations 2010 (as amended). |
| Extended Phase 1 habitat survey | A standardised system for classifying and mapping habitats. |

| Term | Definition |
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| External Influencing Factor | A factor which occurs beyond the limits of the Project that may present a risk to the Project, e.g., if an external disaster occurred (e.g., earthquake, Control of Major Accident Hazards (COMAH) site major accident) it would increase the risk of serious damage to an environmental receptor associated with the Project. |
| Flood Risk Assessment (FRA) | An assessment of the risk of flooding. |
| Flood Zones | Zones based on the annual probability of flooding from Fluvial and tidal sources, as defined in the Flood Map for Planning. Areas are categorised into one of the following: Flood Zone 1, Flood Zone 2, Flood Zone 3a or Flood Zone 3b. |
| Flood Zone 2 | This zone comprises land assessed as having between a 1 in 100 (1%) and 1 in 1000 (0.1%) annual probability of flooding from rivers, or between a 1 in 200 (0.5%) and 1 in 1,000 (0.1%) annual probability of flooding from the sea in any year. |
| Flood Zone 3a | This zone comprises land assessed as having a 1 in 100 (1%) or greater annual probability of flooding from rivers or a 1 in 200 (0.5%) or greater annual probability of flooding from the sea in any year. |
| Flood Zone 3b | This zone comprises land where water has to flow or be stored in times of flood. |
| Fragmentation | Breaking up of, for example, an area of land or habitat resulting in difficulties in accessing or using some or all of that land. |
| Frequency Weighting Networks | A-weighting corresponds to the typical human frequency response to sound. Sound levels measured with an A-weighting are expressed in dB(A). |
| Functionally Linked Land | Areas of land or sea outside of the boundary of a European site that may be important ecologically in supporting the populations for which the site has been designated or classified. Occasionally impacts to such habitats can have a significant effect upon the species interest of such sites, where these habitats are considered to be functionally linked to the Site. |
| Future Baseline | The likely evolution of the baseline without implementation of the Project. |
| Geographical Information System (GIS) | A system that captures, stores, analyses, manages and presents data linked to location. It links spatial information to a digital database. |

| Term | Definition |
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| Greenhouse Gas (GHG) | Gases that absorb and emit reflected solar radiation which result in the warming of the Earth's atmosphere. It is absorbed and emitted at specific wavelengths within the spectrum of infrared radiation emitted by the earth's surface, the atmosphere and clouds. The six main GHGs whose emissions are human caused are: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbon and sulphur hexafluoride. In combination, these GHG emissions are commonly expressed in terms of 'carbon dioxide equivalents' according to their relative global warming potential. For this reason, the shorthand 'carbon' may be used to refer to GHGs. |
| Greenfield runoff rate | The rate of rainfall runoff that would occur from a site in its undeveloped and therefore undisturbed state. |
| Groundwater | Groundwater is the store of water present beneath the Earth's surface in rock and soil pore spaces and in the fractures of rock formations. |
| Groundwater Dependent Terrestrial Ecosystem | Wetlands such as springs, flushes and fens which are fed by groundwater rather than rainfall or surface runoff. They are particularly sensitive to hydrological changes caused by development. Foundations, borrow pits and linear infrastructure such as roads, tracks and trenches can disrupt groundwater flow and impact upon these sensitive habitats. |
| Habitat | The place or type of site where an organism or population naturally occurs. Often used in the wider sense referring to major assemblages of plants and animals found together. |
| Habitats Regulations Assessment (HRA) | A process which helps determine likely significant effects and (where appropriate) assesses adverse impacts on the integrity of European sites, required under the Habitats Directive and Regulations. The process consists of up to four stages of assessment: screening, appropriate assessment, assessment of alternative solutions and assessment of imperative reasons of over-riding public interest (IROPI) and compensatory measures. |
| Hazard | Anything with the potential to cause harm, including ill-health and injury, damage to property or the environment; or a combination of these. |
| Hazardous Waste | Waste containing material or substances harmful to humans or the environment. |

| Term | Definition |
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| Health Impact Assessment (HIA) | HIA is a tool to identify and optimise the health and wellbeing impacts of planning. |
| Heavy Goods Vehicle | Vehicles greater than 3.5 tonnes unladen weight. |
| Heritage | The historic environment and especially valued assets and qualities such as historic buildings and cultural traditions. |
| Heritage Asset | A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its Heritage interest. Heritage Assets include Designated Heritage Assets and Non-Designated Heritage Assets. |
| Historic England | The government's statutory adviser on the historic environment. |
| Historic Environmental Record (HER) | Information services that seek to provide access to comprehensive and dynamic resources relating to the historic environment of a defined geographic area for public benefit and use. |
| Historic Landfill | A known, closed, landfill site. |
| Historic Landscape | The historic landscape is a geographical area that historically has been used by people, or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways, and natural features. |
| HM Treasury Green Book | Her Majesty's Treasury guidance on how to appraise policies, programmes and projects, including principles of economic assessment. |
| Horizontal Directional Drilling (HDD) | A special steerable drill used to create an arced hole beneath the obstacle being crossed, slightly larger than the pipe. A winch then pulls the pipe through in a string – a long, welded section of pipe assembled onsite. |
| Humber Carbon Capture Pipeline (the Project) | The development for which a Development Consent Order (DCO) is sought to cover the terrestrial elements of onshore pipeline infrastructure to transport carbon dioxide. The pipeline system will start near the Drax Power Station in the west and finish at mean low water spring at a landfall location on the Holderness Coast.<br>The Project includes the following:<br>• An onshore pipeline system to transport carbon dioxide from industrial and power sector connected projects, Humber region. |

| Term | Definition |
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| | • Above Ground Installations including:<br>  ○ Pump Facility close to the Holderness coast to increase the pressure of the carbon dioxide for transportation offshore to the storage facility;<br>  ○ Pipeline inspection gauge (PIG) traps, strategically located along the pipeline, to ensure pipelines can be cleaned and inspected;<br>  ○ Multi-junction installations connecting the mainline pipeline and spur lines to Connected Projects; and<br>  ○ Block valves at intervals along the mainline pipeline to allow sections of the pipelines to be isolated for maintenance.<br>• A landfall on the Holderness coast which is the 'landing' point for the offshore carbon dioxide pipeline transportation system so it can connect into the Pumping Facility; this is where the carbon dioxide transportation pipeline infrastructure transitions from the onshore to the marine environment. |
| Hydrology | The movement, distribution and quality of water throughout the earth. |
| Impact | A physical or measurable change to the environment attributable to the Project. |
| Important Ecological Features (IEFs) | Ecological features requiring specific assessment within EcIA. Ecological features can be important for a variety of reasons (e.g., quality and extent of designated sites or habitats, habitat/species rarity). |
| Impact Risk Zone (IRZ) | A GIS tool developed by Natural England to make a rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts. |
| Important Ecological Feature (IEFs) | Ecological features requiring specific assessment within EcIA. Ecological features can be important for a variety of reasons (e.g., quality and extent of designated sites or habitats, habitat / species rarity). |

| Term | Definition |
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| Indirect Effect | An effect that results indirectly from the Project, as a consequence of a 'Direct Effect', often occurring away from the Site, or as a result of a sequence of interrelationships or a complex pathway. They may be separated by distance or in time from the source of the effect. |
| Inert Waste | Waste that will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter that it comes into contact with, in a way likely to cause environmental pollution or harm to human health. |
| Institute of Air Quality Management | The Institute of Air Quality Management is the professional body for air quality professionals. It occasionally produces guidance that is widely used and accepted by consultants and councils (dependent on the nature of the project). |
| Internal Drainage Board | Each internal drainage board (IDB) is a public body that manage water levels in an area, known as an internal drainage district, where there is a special need for drainage. They undertake works to reduce flood risk to people and property and manage water levels for agricultural and environmental needs within their district. |
| Inter-project cumulative effects | The residual (post-mitigation) environmental effects of the Project combining and interacting with the residual environmental effects of committed development(s) affecting the same Receptor. For example, cumulative construction traffic effects upon a residential dwelling from the Project and a proposed housing development. |
| Inter-tidal zone | The area where the sea/ocean meets the land between high and low tides. |
| Intra-project combined effects | The interaction and combination of different residual (post-mitigation) environmental effects of the Project affecting the same Receptor. For example, visual and noise effects during construction affecting the same residential dwelling. |
| Joint Strategic Needs Assessment (JSNA) | A process by which local authorities and health services assess the health, care and wellbeing needs of the community within Local Authority geographic areas. |
| Junction AGI | An AGI that connects a Spur Line to the Mainline Pipeline, which includes equipment to launch / receive spur line PIGs, with some also including the necessary equipment to launch / receive Mainline Pipeline PIGs |
| Key Reptile Site | Sites meeting specified criteria characterising the importance of the reptile population/s present. |

| Term | Definition |
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| Keystone habitat | Habitat of high intrinsic ecological value and of principal importance for the conservation of biodiversity. Keystone habitats are central to the framework of the Conservation Strategy. |
| Land Cover | The surface cover of the land usually expressed in terms of vegetation cover or lack of it. Related to, but not the same as, Land Use. |
| Landfall | The location on the Holderness coast for connection to the offshore pipeline transportation system where the transportation pipeline infrastructure transitions from the onshore to the marine environment. |
| Land Use | What land is used for, based on broad categories of functional land cover, such as urban and infrastructure use and the different types of agriculture and forestry. |
| Landscape | Landscape is about the relationship between people and place. It provides the setting for our day-to-day lives. The European Landscape Convention (ELC) defines landscape as "*an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors*". |
| Landscape and Visual Impact Assessment (LVIA) | A tool used to identify and assess the likely significant effect of change resulting from development both on the Landscape as an environmental resource in its own right and on people's views and Visual Amenity. |
| Landscape Character | A distinct, recognisable and consistent pattern of Elements in the Landscape that makes one Landscape different from another. |
| Landscape Character Area | These are unique geographical areas of a particular landscape character type. Landscape character areas take on the names of specific places. |
| Landscape Character Type | Distinct types of landscape which are generic in character in that they may occur in different parts of the country, but wherever they are they share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical land use and settlement pattern. |
| Lead Local Flood Authority (LLFA) | Lead in managing local flood risks (i.e. risks of flooding from surface water, groundwater and ordinary (smaller) watercourses), ensuring co-operation between the Risk Management Authorities in their area under the Flood and Water Management Act 2010. |
| Light Goods Vehicle | Cars and small vans less than 3.5 tonnes gross vehicle weight. |

| Term | Definition |
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| Likely Significant Effect | The significance of an environmental effect is typically a function of the 'value' or 'sensitivity' of the receptor and the 'magnitude' or 'scale' of the impact. Combining the environmental value of the resource or receptor with the magnitude of change produces a significance of effect category.<br>The definition of a significant effect for each environmental topic will be contained within their respective chapters of the Environmental Statement. |
| Limit of Deviation | These limits show the maximum area within which the Project could be installed. This flexibility is required in order to deal with unforeseen circumstances, such as ground conditions and local features such as archaeology. |
| Lindsey Oil Refinery | The existing oil refinery site east of North Killingholme<br>Not to be referred to as 'Lindsey' |
| Listed Building | Building or structure listed by the Secretary of State as being of '*special architectural or historic interest*'. |
| Local Development Plan (LDP) | The set of documents and plans that sets out the local authority's policies and proposals for the development and use of land in their area. |
| Local Nature Reserve (LNR) | A site designated by principal local authorities under Section 21 of the National Parks and Access to the Countryside Act 1949. |
| Local Planning Authority (LPA) | The local authority or council that is empowered by law to exercise statutory town planning functions for a particular area of the UK. |
| Local Wildlife Site (LWS) | Non-statutory sites selected against local selection criteria for their nature conservation value. |
| Macro-invertebrate | Invertebrate species large enough to see without a microscope and often with at least one aquatic life-stage. |
| Made Ground | Areas where the ground surface has been significantly modified by human activity such as embankments and spoil heaps, on the natural ground surface. |
| Mainline Pipeline | The main section of pipeline, running between Drax Power Station and the future pump station north of Easington, and which Spur Lines connect to. |
| Main River | A watercourse shown as such on the Flood Map for Planning and can include any structure or appliance for controlling or regulating the flow of water in, into or out of a main river. Main Rivers are usually larger streams and rivers, but also include smaller watercourses of strategic drainage importance. Main Rivers are under the |

| Term | Definition |
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| | jurisdiction of the Environment Agency who have powers to carry out flood defence works to Main Rivers. |
| Main Works Contractor | Appointed to design, plan, manage and monitor the construction phase of the Project and coordinate the various contractors associated with this phase. |
| Magnitude | A combination of the scale, extent and duration of an effect. |
| Marine Conservation Zone (MCZ) | A site designated under the Marine and Coastal Access Act (2009) to protect nationally important habitats and species. |
| Marine Licence | A licence granted under the Marine and Coastal Access Act 2009 by the Marine Management Organisation for applicable works and activities carried out in the marine environment |
| Marine Management Organisation (MMO) | A executive non-departmental public body created under the Marine and Coastal Access Act 2009 and is sponsored by the Department for Environment, Food and Rural Affairs |
| Maximum Sound Pressure Level or Maximum Noise Level $L_{AFmax}$ | Maximum sound pressure level occurring within a specified period, with a fast time weighting (0.125 second averaging time). |
| Mean High Water Springs (MHWS) | The highest level which spring tides reach on average over a period of time. |
| Mean Low Water Springs (MLWS) | The lowest level which spring tides reach on average over a period of time. |
| Microtunnelling | A trenchless method involving the construction of shafts either side of the asset to be crossed. A microtunnelling boring machine is then used to install a concrete microtunnel between the shafts, through which the pipeline is then installed. |
| Mineral Safeguarding Area | An area designated by Minerals Planning Authorities which covers known deposits of minerals which are desired to be kept safeguarded from unnecessary sterilisation by non-mineral development. |
| Mitigation Measures | Actions proposed to prevent, reduce and where possible, offset significant adverse effects arising from the whole or specific elements of the Project. |
| National Nature Reserve (NNR) | Land declared under the National Parks and Access to the Countryside Act 1949 or Wildlife and Countryside Act (1981) as amended. |

| Term | Definition |
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| National Planning Policy Framework (NPPF) | The document that sets out Government's planning policies for England and how these are expected to be applied. The NPPF was last revised on 20 July 2021. |
| National Policy Statement (NPS) | Overarching policy designated under the Planning Act 2008 (as amended) (PA2008) concerning the planning and consenting of Nationally Significant Infrastructure Projects (NSIPs) in the UK. |
| Nationally Significant Infrastructure Project (NSIP) | Projects which fall under one of the categories in Part 3 of the Planning Act 2008 (as amended) (PA2008). |
| Nationally Designated Site | Areas of land subject to protection through UK legislation, including Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR). |
| Natural Capital Value (NCV) | The value of that part of nature which directly or indirectly underpins benefits to people, including ecosystems, species, freshwater, soils, minerals, the air and oceans, as well as natural processes and functions. |
| Natural England | An executive, non-departmental public body acting as the government's adviser for the natural environment in England. Sponsored by the Department for Environment, Food and Rural Affairs |
| Net Gain | Measures which are over and above those implemented to reduce the effects arising from development activities. |
| Night Vision Aid (NVA) | Night vision, thermal imaging or infra-red cameras, used to assist with the visual identification of bat roosts during low light conditions |
| Nitrate Vulnerable Zone | Areas designated as being at risk from agricultural nitrate pollution. |
| Nitrogen Dioxide | Combustion processes emit a mixture of nitrogen oxides ($NO_x$) and primarily nitric oxide (NO) which is quickly oxidised in the atmosphere to nitrogen dioxide ($NO_2$). Nitrogen dioxide has a variety of environmental and health impacts. It is a respiratory irritant which may exacerbate asthma and possibly increase susceptibility to infections. |
| Non-designated heritage asset | A heritage asset which is recorded by the local planning authority on the Historic Environment Record (HER). These assets are protected by planning policy and can be deemed of equal value to designated assets thus earning equivalent protection. |
| Non-hazardous Waste | Waste that is not inert or hazardous. Includes rubbish or recycling that causes no harm to human or environmental health. |

| Term | Definition |
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| Non-Native Invasive Species (NNIS) | Species which have been introduced into areas outside their natural range through human actions and are posing a threat to native wildlife. |
| Non-road Mobile Machinery | Any mobile machine, item of transportable industrial equipment or vehicle (with or without bodywork) that is: not intended for carrying passenger or goods on the road and is installed with a combustion engine, either an internal spark ignition petrol engine or a compression ignition diesel engine (e.g., some items of construction equipment). |
| Northern Endurance Partnership | The Northern Endurance Partnership (NEP) was formed in 2020 as the carbon dioxide transportation and storage company which will deliver the onshore and offshore infrastructure needed to capture carbon from a range of emitters across Teesside and the Humber and transport to offshore storage in the Endurance store. NEP is a collaboration between BP, Equinor, National Grid, Shell and Total.<br><br>NEP is the public facing “brand” of Net Zero North Sea Storage Limited, the DCO applicant. |
| Occupational Hazard | A workplace condition that causes a risk to employee health. |
| Open Cut | A method of pipeline installation that requires opening up the surface of the ground with a linear trench to the required width and depth for installing a pipeline. It is typically utilised for open countryside or crossings where there are minimal obstacles, for example, narrow roads or tracks with a low volume of traffic. |
| Operational Stage | The stage after which the Project is handed over by the relevant construction contractors and approved for operation. It will remain in its Operational Stage until operations cease. |
| Order Limits | The outer limits for the Project upon which the DCO application is based upon. This includes the area for the pipeline route and any temporary working areas that would be required to install the pipeline, such as access routes, and working compounds. |
| Ordinary Watercourse | Any river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) and passage through which water flows that does not form part of a Main River. The Lead Local Flood Authority (LLFA) or Internal Drainage Board (IDB) where relevant, has powers for Ordinary |

| Term | Definition |
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| | Watercourses that are similar to those held by the Environment Agency for Main Rivers. |
| Orthophoto | A large, map-quality image with high detail and resolution made by combining many smaller images called orthophotos. These orthophotos are aerial photographs that have been corrected for lens distortion, camera tilt, perspective, and topographic relief. |
| Parameters | A limit or boundary which defines the scope of a particular process, activity or structure. |
| Particulate Matter | Airborne Particulate Matter includes a wide range of particle sizes and different chemical constituents. It consists of both primary components, which are emitted directly into the atmosphere, and secondary components, which are formed within the atmosphere as a result of chemical reactions. Of greatest concern to public health are the particles small enough to be inhaled into the deepest parts of the lung. Air Quality Objectives are in place for the protection of human health for PM10 and PM2.5 – particles of less than 10 and 2.5 micrometres in diameter, respectively. |
| Patch quality | An approach to ecological management focusing on the quality of discrete habitat patches which contributes to the maintenance of the structure, function and dynamics of the wider ecosystem. |
| Pathway | Route whereby a hazardous substance may come into contact with the receptor: examples include ingestion of contaminated soil and leaching of contaminants from soil into watercourses. |
| Peat Soils | Soils comprising predominantly partially decomposed organic material, usually black in colour and waterlogged. |
| Personal Protective Equipment (PPE) | Equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses. |
| Permanent Access Track | A new permanent track constructed to provide access to each of the Project's Above Ground Installations from the existing road network |
| Phase 1 Habitat Survey | An ecological survey technique that provides a standardised system to record vegetation and wildlife Habitat. It enables a basic assessment of habitat type and its potential importance for nature conservation. |
| Phillips 66 | The existing Phillips 66 facility, east of South Killingholme.<br>Not to be referred to as 'Phillips', 'P66', or 'Phillips66' |

| Term | Definition |
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| Pipeline Inspection Gauge (PIG) | A device used for internal inspection, cleaning and monitoring of a pipeline. |
| PIG Trap | A PIG trap is an above ground horizontally mounted pipework vessel installed at either end of a section of buried pipeline to allow a pipeline inspection gauge (PIG) to be inserted into the pipeline for the purposes of cleaning, monitoring and inspection. A PIG would be launched from a PIG trap at one end of the pipeline and retrieved from a PIG trap at the other end of the pipeline. |
| Pipe Trench | A method of pipeline installation that requires opening up the surface of the ground with a linear trench to the required width and depth for installing a pipeline. It is typically utilised for open countryside or crossings where there are minimal obstacles, for example, narrow roads or tracks with a low volume of traffic. |
| Planning Inspectorate (PINS) | The Government agency responsible for administering applications for development consent under the Planning Act 2008 (as amended) (PA2008) on behalf of the Secretary of State (SoS). |
| Potential Roost Feature (PRF) | A feature within a structure or tree that is suitable to be used by roosting bats. |
| Potential Significant Effect (See also Likely Significant Effect) | Evidence that an environmental effect assessment may have the potential to be significant |
| Preliminary Ecological Appraisal (PEA) | Preliminary ecological surveys have a range of purposes; one key use is to gather data on existing conditions, often with the intention of conducting a preliminary assessment of likely impacts of proposed developments or establishing the baseline for future monitoring. As a precursor to a proposed project, some evaluation is usually made within these appraisals of the ecological features present, as well as scoping for notable Species or Habitats, identification of potential constraints to the Project and recommendations for Mitigation Measures. |
| Preliminary Environmental Information Report (PEIR) | The Preliminary Environmental Information Report (PEIR) is the report prepared by the Applicant, containing Preliminary Environmental Information (PEI). |
| Primary Mitigation | Modifications to the location or design of the development made during the pre-application phase that are an inherent part of the project, and do not require additional action to be taken. |

| Term | Definition |
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| Preliminary Roost Assessment (PRA) | A detailed inspection of a structure/tree to look for features that bats could use for entry/exit and roosting and to search for signs of bats. The aim of this survey is to determine the actual or potential presence of bats and the need for further survey and/or mitigation. |
| Principal Aquifer | These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, Principal Aquifers are aquifers previously designated as major aquifers. |
| Priority Habitat Inventory | A spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 Habitats of Principal Importance (HPI). |
| Project | See Humber Carbon Capture Pipeline. |
| Protective Provisions | Measures included in the DCO to manage the interface between the Project and other assets such as utilities |
| Proximity Principle | Managing waste as near as possible to its place of production. |
| Pump Facility | A facility that would pressurise the carbon dioxide for onward transportation to the storage site.<br>Not to be referred to as a 'Pump Station' |
| Ramsar Site | A wetland site of international importance designated under the criteria of the Ramsar Convention on Wetlands for containing representative, rare or unique wetland types for their importance in conserving biological diversity. |
| Rating Level, $L_{Ar,Tr}$ | Specific sound level plus any adjustment for the characteristic features of the sound (impulsivity, tonality, intermittency) |
| Reception Pit | An excavated pit to receive the construction equipment used to cross under an obstruction or the pipeline. |
| Receptor | A component of the natural, created or built environment such as a human being, water, air, a building, or a plant that has the potential to be affected by the Project. |
| Recovery | Any operation, the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. |

| Term | Definition |
|---|---|
| Recycling | Any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. |
| Refugia | Artificial objects, primarily of corrugated metal or roofing felt, used in reptile surveys to increase the likelihood of discovering reptiles because they absorb and trap heat offering reptiles an excellent means to gain warmth, while also providing protection from predation and disturbance. |
| Registered Park and Garden | A site included on the Register of Historic Parks and Gardens in England. Registered parks and gardens are designated heritage assets and subject to the planning policies within the National Planning Policy Framework (NPPF). |
| Register of Commitments | The Register of Commitments identifies the design, construction and operational commitments included within the Technical Chapters of the Environmental Statement (ES) to address the potential environmental effects of the Project. |
| Risk | The likelihood of an impact occurring, combined with the effect or consequence(s) of the impact on a receptor if it does occur. |
| Risk Event | An identified, unplanned event, which is considered relevant to the Project and has the potential to be a Major Accident and/or Disaster subject to assessment of its potential to result in a significant adverse effect on an environmental receptor. |
| Rochdale Envelope | The Rochdale Envelope is an acknowledged way of dealing with an application comprising EIA (Environmental Impact Assessment) development, where details of a project have not been fully resolved by the time the application is submitted. The term is used to describe those elements of a scheme that have not yet been finalised, but yet can be accommodated within certain limits and parameters allowing the likely significant effects of a project to be presented in the Environmental Statement (ES) as a worst case. It also provides the opportunity to assess aspects of a development where the detailed design is to be developed post grant of a DCO and approved by the local planning authority under a Requirement. |
| Scheduled Monument | 'Scheduled monument' means any monument which is for the time being included in the schedule compiled and maintained by the Secretary of State for Digital, Culture, |

| Term | Definition |
|---|---|
| | Media, and Sport. This is a designated asset which is protected by the Ancient Monuments Act 1979. |
| Scoping | An exercise undertaken pursuant to the EIA Regulations, to determine the topics to be addressed within the Environmental Statement (ES). |
| Secondary Aquifer | These include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary Aquifers are subdivided into two types:<br>Secondary A – permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers;<br>Secondary B – predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.<br>The term 'Secondary Undifferentiated' is also used in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type. |
| Secondary Mitigation | Actions that will require further activity in order to achieve the anticipated outcome. These may be imposed as part of the planning consent, or through inclusion in the Environmental Statement (ES). |
| Secretary of State (SoS) | In case of the Project, the Secretary of State for the Department for Energy Security and Net Zero (DESNZ). |
| Setting | The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance, or may be neutral. |
| Severance | The extent to which members of communities or habitats are able (or not able) to move around their community and access services/facilities. |
| Significance | A measure of the importance or gravity of the effect defined by significance criteria specific to the environmental topic. |

| Term | Definition |
|---|---|
| Site of Importance for Nature Conservation (SINC) | Sites of Importance for Nature Conservation (SINC) are usually selected within a local authority area and support both locally and nationally threatened Habitats and Species that are priorities under the county or UK Biodiversity Action Plan (BAP). |
| Site of Special Scientific Interest (SSSI) | A site statutorily notified under the Wildlife and Countryside Act 1981 (as amended) as being of special nature conservation or geological interest. Site of Special Scientific Interest (SSSIs) include habitats, geological features and landforms. |
| Soil Carbon | The carbon held within a soil as a result of biological activity and decomposition of organic matter. |
| Source | Hazardous substance that has the potential to cause adverse impacts. |
| Source Protection Zone | They are zones which show the level of risk to the abstraction (groundwater) from contamination. This could be from any activity that might cause pollution in the area. For example, storing pollutants like petrol underground, soakaways from septic tanks to the ground. The closer the activity, the greater the risk. |
| Special Area of Conservation (SAC) | Land designated under the Conservation of Habitats and of Species Regulations 2017 (as amended). |
| Special Protection Area (SPA) | Protected areas for birds in the UK designated under the Conservation of Habitats and Species Regulations 2017 (as amended) |
| Species | A group of interbreeding organisms that seldom or never interbreed with individuals in other such groups, under natural conditions; most species are made up of subspecies or populations. |
| Specific Sound Level, $L_S$ | The equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval. |
| Specific Sound Source | Sound source being assessed. |
| Spur Line | A section of pipeline which runs between emitters and the mainline pipeline. |
| Statements of Common Ground | A Statement containing factual information pertaining to the Project that is agreed with Statutory Stakeholders. |
| Statutory Consultation | The Planning Act 2008 (as amended) (PA2008) requires an applicant to undertake public consultation in advance of submitting a Development Consent Order (DCO) application to the Secretary of State (SoS). Statutory consultation must occur with ‘statutory consultees’ and |

| Term | Definition |
|---|---|
| | the formal consultation period will normally last for 21 days. |
| Statutory Consultees | Planning law prescribes circumstances where the Secretary of State (SoS) is required to consult specified bodies prior to a decision being made on an application. Includes bodies such as: Environment Agency, Highways England, Historic England, Natural England, Parish Councils, among others. |
| Sterilised | Substantially constrain/prevent existing and potential future use and extraction of materials or minerals. |
| Study Area | Extent to which a particular survey or study applies. |
| Subsoil | The soil layer(s) below the topsoil where there is less root and invertebrate activity. Often clearly distinguishable from the topsoil due to its colour. |
| Subtidal | Areas comprising a mosaic of seabed habitats of rock, sand, mud, and coarse and mixed sediments, supporting a diverse array of organisms. |
| Superficial Geology | The youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 2.6 million years from the present. |
| Sustainable Urban Drainage (SuDs) | Sustainable drainage systems designed to manage stormwater locally (as close to its source as possible), to mimic natural drainage and encourage the infiltration, attenuation and passive treatment of surface water runoff. |
| Temporary Access Track | A track created for temporary use during construction to facilitate vehicle and pedestrian worker traffic |
| Temporary Works | Those parts of the works that allow or enable construction of the Project and which do not remain in place at the completion of the works proposed. |
| Temporary Vent Stack | A temporary item of vertical pipework which would be installed at an Above Ground Installation (AGI) to allow an isolated section of the pipework to be depressurised. |
| Tertiary Mitigation | Actions that would occur with or without input from the Environmental Impact Assessment (EIA) feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects. |

| Term | Definition |
|---|---|
| Topsoil | The upper soil layer which often contains higher levels of organic matter, root growth and invertebrate activity than the lower (subsoil) layers. |
| Townscape | The character and composition of the built environment including the buildings and the relationships between them, the different types of open urban space, including green spaces, and the relationship between buildings and open spaces. |
| Trackout | The transport of dust and dirt from the construction site onto the public road network. |
| Tree Preservation Order (TPO) | An order made by a Local Planning Authority to protect specific trees, groups of trees or woodlands in the interests of amenity. An Order prohibits certain tree works, damage and destruction of trees without the Local Planning Authority's written consent. |
| Trenchless crossing | The crossing by the pipeline of a manmade or natural feature such as watercourse, rail or road by using a construction technique that installs the pipeline beneath the feature without excavating a trench at the ground surface |
| Vantage Point | A position or standpoint from which something is viewed or considered. |
| Visual Amenity | Overall enjoyment of a particular area, surroundings or views in terms of people's activities - living, recreation, travelling through, visiting or working. |
| Visual Effect | An effect on specific views and on the general visual amenity experienced by people. |
| Visual Receptor | Individuals and/or defined groups of people who have the potential to be affected by the Project. |
| Waste | Any substance or object which the holder discards or intends to discard or is required to discard. |
| Waste Hierarchy | Sets out the priorities that must be applied when managing waste. |
| Water Framework Directive (WFD) | European directive which commits member states to achieve good qualitative status of all water bodies. |
| Water Body | A discrete body of water forming a physical Feature. |
| Wetlands | Areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres. |

| Term | Definition |
|---|---|
| Working Width | The temporary area within which pipeline construction activities would to take place. |
| Zero Carbon Humber (ZCH) | A consortium of leading energy and industrial companies and academic institutions with a shared vision to transform the Humber region into the UK's first net-zero carbon cluster by 2040, through low carbon hydrogen, carbon capture and carbon removal technology, enabled by shared regional pipelines for hydrogen and carbon emissions and the common offshore NEP infrastructure.<br>Zero Carbon Humber includes ABP, British Steel, Centrica Storage, Drax, Equinor, Mitsubishi Power, National Grid, px Group, SSE Thermal, Triton Power, Uniper and University of Sheffield Advanced Manufacturing Research Centre (AMRC). |
| Zone of Influence (ZOI) | The areas/resources that may be affected by the changes caused by activities associated with a project. |
| Zone of Theoretical Visibility (ZTV) | A map, digitally produced, showing areas of land within which, the Project is theoretically visible. |
| **Geographical Terms** | |
| Barrow-upon-Humber | Settlement west of the River Humber crossing.<br>To be written hyphenated, and not abbreviated to 'Barrow' |
| Croxton | Settlement south-west of Ulceby |
| Drax Village | The village of Drax, located east of Drax Power Station<br>Not to be shortened to 'Drax' |
| Drax Power Station | The existing biomass power station in Drax, North Yorkshire.<br>Not to be shortened to 'Drax'. |
| Easington | The coastal settlement in Holderness, East Riding of Yorkshire |
| East Halton | The settlement south of the River Humber crossing and north of North Killingholme. |
| East Riding of Yorkshire Council | Local Planning Authority |
| River Humber | The River Humber.<br>Not to be referred to as 'the Humber', 'Humber River, or 'the Humber Estuary' |
| River Humber Crossing | The crossing of the River Humber by the Project.<br>Not to be referred to as 'the Humber Crossing' or 'the Humber Tunnel' |
| Keadby | The settlement west of the River Trent. |

| Term | Definition |
|---|---|
| | Not to be referred to as ‘Keadby Power Station’ |
| North Killingholme | The settlement south of East Halton.<br>Not to be referred to as ‘Killingholme’ |
| North Lincolnshire Council | Local Planning Authority |
| North Yorkshire | Local Planning Authority |
| South Killingholme | The settlement east of Ulceby<br>Not to be referred to as ‘Killingholme’ |
| Salt End | The settlement east of Hull<br>Not to be stated as ‘Saltend’ |

# Acronyms

| Term | Definition |
|---|---|
| AADT | Annual Average Daily Traffic |
| AGI | Above Ground Installation |
| AGLV | Area of Great Landscape Value |
| AIL | Abnormal Indivisible Loads |
| ALARP | As Low As Reasonably Practicable |
| ALC | Agricultural Land Classification |
| AONB | Area of Outstanding Natural Beauty |
| AQAP | Air Quality Action Plan |
| AQMA | Air Quality Management Area |
| AQS | Air Quality Standards |
| ASR | Annual Status Report |
| ATC | Automatic Traffic Count |
| BAU | Business-as-Usual |
| BAT | Best Available Techniques |
| BGS | British Geological Society |
| BMV | Best and Most Versatile |
| BNG | Biodiversity Net Gain |
| BPM | Best Practicable Means |
| BS | British Standard |
| BVS | Block Valve Station |
| CCS | Carbon capture, storage |

| Term | Definition |
|---|---|
| CDOIF | The Chemical and Downstream Oil Industries Forum |
| CDM | Construction (Design and Management) Regulations |
| CEA | Cumulative Effects Assessment |
| CEcol | Chartered Ecologist |
| CEMP | Construction Environmental Management Plan |
| CEnv | Chartered Environmentalist |
| CEZ | Construction Exclusion Zone |
| CIEEM | Chartered Institute of Ecology and Environmental Management |
| CIFA | Chartered Institute for Archaeologists |
| CIWM | Chartered Institution of Wastes Management |
| CITiZAN | Coastal and Intertidal Zone Archaeological Network |
| CMLI | Chartered Member of the Landscape Institute |
| $CO_2$ | Carbon Dioxide |
| $CO_2e$ | Carbon Dioxide equivalent |
| CoCP | Code of Construction Practice |
| COMAH | Control of Major Accident Hazards |
| CP | Cathodic Protection |
| CRI | Climate Risk Indicators |
| CROW | Countryside and Rights of Way |
| CSCS | Construction Skills Certification Scheme |
| CTMP | Construction Traffic Management Plans |
| CQA | Construction Quality Assurance |
| DAS | Discretionary Advice Service |
| Db | Decibels |
| DCLG | Department for Communities and Local Government |
| DCO | Development Consent Order |
| DEFRA | Department for Environment, Food and Rural Affairs |
| DEMP | Decommissioning Environmental Management Plan |
| DESNZ | Department for Energy Security and Net Zero |
| DfT | Department for Transport |
| DLL | District Level License |
| DMRB | Design Manual for Roads and Bridges |
| DSM | Digital Surface Model |
| DTM | Digital Terrain Model |
| EAR | Environmental Assessment Report |

| Term | Definition |
|---|---|
| ECC | East Coast Cluster |
| EcIA | Ecological Impact Assessment |
| EEA | European Economic Area |
| EIA | Environmental Impact Assessment |
| ELC | European Landscape Convention |
| EMF | Electromagnetic Fields |
| EPUK | Environmental Protection UK |
| ERYBAP | East Riding of Yorkshire Biodiversity Action Plan |
| ERYC | East Riding of Yorkshire Council |
| ES | Environmental Statement |
| ESIA | Environmental and Social Impact Assessment |
| EU | European Union |
| EMF | Electric and Magnetic Fields |
| ENVIID | Environmental Impact Identification |
| ELC | European Landscape Convention |
| E&I | Electrical and Instrumentation unit |
| FCD | Field Capacity Day |
| FEED | Front End Engineering Design |
| FEH | Flood Estimation Handbook |
| FRA | Flood Risk Assessment |
| GCN | Great Crested Newt |
| GIS | Geographical Information Systems |
| GHG | Greenhouse Gas |
| GLVIA3 | Guidelines for Landscape and Visual Impact Assessment |
| GPDO | General Permitted Development Order |
| GPS | Global Positioning System |
| GWDTE | Groundwater Dependent Terrestrial Ecosystems |
| HAZID | Hazard Identification |
| HCCP | Humber Carbon Capture Pipeline |
| HDD | Horizontal Directional Drilling |
| HDV | Heavy-Duty Vehicle |
| HEA | Historic England Archives |
| HER | Historic Environment Records |
| HGV | Heavy Goods Vehicle |
| HIA | Health Impact Assessment |

| Term | Definition |
|---|---|
| HLCP | Humber Low Carbon Pipelines |
| HRA | Habitats Regulations Assessment |
| HSWA | Health and Safety at Work etc. Act |
| HVAC | Heating, Ventilation and Air conditioning Unit |
| HWG | Heritage Working Group |
| IACPC | Impact Assessment and Conservation Payment Certificate |
| IAQM | Institute of Air Quality Management |
| ICCI | In-Combination Climate Impact |
| ICOMOS | International Council on Monuments and Sites |
| IEFs | Important Ecological Features |
| IEMA | Institute of Environmental Management and Assessment |
| ILA | Important Landscape Areas |
| IJV | Independent Joint Venture |
| IMarEST | Member of the Institute of Marine Engineering, Science and Technology |
| IRZ | Impact Risk Zone |
| JNCC | Joint Nature Conservation Committee |
| JSNA | Joint Strategic Needs Assessment |
| kW | Kilo Watts |
| LAQM.TG | Local Air Quality Management Technical Guidance |
| LAT | Lowest Astronomical Tide |
| LCA | Landscape Character Areas |
| LCC | Lincolnshire County Council |
| LC:RM | Land Contamination: Risk Management |
| LGS | Local Geological Site |
| LLFA | Lead Local Flood Authorities |
| LONI | Letters of No Impediment |
| LNR | Local Nature Reserve |
| LPA | Local Planning Authority |
| LSE | Likely Significant Effects |
| LVIA | Landscape and Visual Impact Assessment |
| LWS | Local Wildlife Site |
| MA&D | Major Accidents and Disasters |
| MAGIC | Multi-Agency Geographic Information for the Countryside |
| MCAA | Marine and Coastal Act |

| Term | Definition |
|---|---|
| MCC | Manual Classified Count |
| MCIEEM | Member of the Chartered Institute of Ecology and Environmental Management |
| MCZ | Marine Conservation Zone |
| MHCLG | Ministry of Housing, Communities and Local Government |
| MHWS | Mean High Water Spring |
| MIEMA | Member of Institute of Environmental Management and Assessment |
| MIEnvSc | Member of the Institution of Environmental Sciences |
| MIOA | Member of the Institute of Acoustics |
| MLWS | Mean Low Water Spring |
| MMO | Marine Management Organisation |
| MMP | Materials Management Plan |
| MSA | Mineral Safeguarding Area |
| MW | Mega Watts |
| MWIA | Mental Wellbeing Impact Assessment |
| NERC | Natural Environment and Rural Communities |
| NEP | Northern Endurance Partnership |
| NHS | National Health Service |
| NCR | National Cycle Route |
| NCV | Natural Capital Value |
| NHLE | National Heritage List for England |
| NIA | Nature Improvement Area |
| NL | National Landscape |
| NLC | North Lincolnshire Council |
| NNIS | Non-Native Invasive Species |
| NNR | National Nature Reserve |
| $NO_2$ | Nitrogen Dioxide |
| Nox | Nitrous Oxides |
| NPS | National Policy Statements |
| NPPF | National Planning Policy Framework |
| NPPG | National Planning Practice Guidance |
| NRMM | Non-Road Mobile Machinery |
| NSIP | Nationally Significant Infrastructure Project |
| NSTA | North Sea Transition Authority |
| NZNSS | Net Zero North Sea Storage |

| Term | Definition |
|---|---|
| ODN | Ordnance Datum Newlyn |
| OHID | Office for Health Improvement and Disparities |
| OHMS | Outline Heritage Mitigation Strategy |
| ONS | Office of National Statistics |
| OS | Ordnance Survey |
| PAS | Publicly Available Specification |
| PEA | Preliminary Ecological Appraisal |
| PEIR | Preliminary Environmental Information Report |
| PHE | Public Health England |
| PINS | Planning Inspectorate |
| PIG | Pipeline Inspection Gauge |
| PM | Particulate Matter |
| PMP | Peat Management Plan |
| PPE | Personal Protective Equipment |
| PPG | Planning Practice Guidance |
| PPV | Peak Particle Velocity |
| PRoW | Public Rights of Way |
| PSR | Pipelines Safety Regulations |
| PSSR | Pressure Systems Safety Regulations |
| PTS | Permanent Threshold Shift |
| PWM | Precautionary Working Method |
| R2P2 | Reducing Risks, Protecting People |
| RAM | Reasonable Avoidance Measure |
| RCP | Representative Concentration Pathway |
| RIAA | Report to Inform Appropriate Assessment |
| RICS | Royal Institute of Chartered Surveyors |
| RIGS | Regionally Important Geological Sites |
| RSPB | Royal Society for the Protection of Birds |
| SAC | Special Area of Conservation |
| SEE-SMU | South-east England Seal Monitoring Unit |
| SFRA | Strategic Flood Risk Assessment |
| SHA | Statutory Harbour Authority |
| SLA | Special Landscape Areas |
| SMP | Soil Management Plan |
| SMPs | Shoreline Management Plans |

| Term | Definition |
|---|---|
| SNCI | Site of Nature Conservation Importance |
| SoCG | Statement of Common Ground |
| SoS | Secretary of State |
| SPA | Special Protection Area |
| SPD | Supplementary Planning Document |
| SRN | Strategic Road Network |
| SSSI | Site of Special Scientific Interest |
| STP | Staff Travel Plan |
| SuDS | Sustainable Urban Drainage Scheme |
| SWMP | Site Waste Management Plan |
| TA | Transport Assessment |
| TAG | Transport Appraisal Guidance |
| TAR | Transport Assessment Reports |
| TEMPro | Trip End Model Presentation Program |
| TBM | Tunnel Boring Machine |
| TTS | Temporary Threshold Shift |
| TWAO | Transport and Works Act Orders |
| TPO | Tree Preservation Orders |
| UAV | Unmanned aerial vehicle |
| UKCP18 | United Kingdom Climate Projections 2018 |
| UKHSA | UK Health Security Agency |
| UKOPA | United Kingdom Onshore Pipeline Operators' Association |
| UXO | Unexploded Ordnance |
| VP | Vantage Point |
| WFD | Water Framework Directive |
| WHO | World Health Organisation |
| WHIASU | Welsh Health Impact Assessment Support Unit |
| WLC | Whole Life Carbon |
| WLDC | West Lindsey District Council |
| WSIs | Written Schemes of Investigation |
| ZOI | Zone of Influence |
| ZTV | Zone of Theoretical Visibility |

# 1 Introduction

## 1.1 Introduction to the Project

1.1.1 The Humber Carbon Capture Pipeline (HCCP) (Project) is being developed by Net Zero North Sea Storage (NZNSS) Limited (the Applicant), which is the promoter entity for the Northern Endurance Partnership (NEP). NEP is an independent joint venture (IJV) with shareholders comprising bp, Equinor and TotalEnergies and was formed to develop the carbon dioxide transportation and storage infrastructure to serve a diverse range of industries in the Teesside and Humber regions.

1.1.2 HCCP comprises a proposed underground, onshore pipeline (with associated above ground facilities required for operation and maintenance) (the Project) that aims to transport carbon dioxide produced by industrial projects and power generating facilities in the Humber region to secure offshore storage under the North Sea. A more detailed description of the Project is provided in Chapter 3 – Description of the Project.

1.1.3 The Project forms part of the East Coast Cluster (ECC) and is crucial to achieving net zero targets in the Humber, the UK's most carbon-intensive industrial region. Further information on the background of the Project is provided in Section 2.

1.1.4 The pipeline would be built between Drax power station in North Yorkshire and the coast north of Easington in the East Riding of Yorkshire, via North Lincolnshire and slightly entering North East Lincolnshire (see Volume 2: Figure 1.1 – Project Location). The onshore pipeline would connect to an offshore pipeline to continue the transportation of the carbon dioxide to a saline aquifer under the North Sea (known as the Endurance Store). The Project is promoting the works required onshore and up to the Mean Low Water Springs (MLWS) in the intertidal zone at Easington. In the nearshore area, the onshore pipeline would connect to the offshore pipeline (a separately consented project - see Section 2 for further information).

## 1.2 Legislation and Policy Overview

1.2.1 The EIA will be undertaken in accordance with relevant legislation and policy.

1.2.2 The sections below outline the key applicable legislation and policy applicable to the EIA and Project overall.

1.2.3 Each technical chapter of this EIA Scoping Report details the legislation and policy applicable to the respective assessment at the point of writing this report. An update on applicable legislation and policy will be provided in the PEIR and this will include consideration of the revised National Planning Policy Framework

published on 12 December 2024 (Ref 1.1). The Environmental Statement will set out the legislation and policy upon which the assessments have been based.

## Requirement for a Development Consent Order

1.2.4 The Project is defined as a Nationally Significant Infrastructure Project (NSIP) as it meets the criteria of the Planning Act 2008 (the Planning Act), Section 14 (1)(g) and Section 21 (Ref 1.2).

1.2.5 As such, the Applicant will seek a Development Consent Order (DCO) from the Department of Energy Security and Net Zero (DESNZ) to construct and operate the Project.

## Requirement for an Environmental Impact Assessment

1.2.6 The term Environmental Impact Assessment (EIA) describes a process that must be followed for certain projects before they can be granted consent. The process is a means of drawing together, systematically, an assessment of a project's likely significant environmental effects. This helps to ensure that the anticipated effects and proposed mitigation for avoiding, preventing, reducing or, if possible, offsetting them are properly understood by stakeholders and the determining authority before granting consent.

1.2.7 The Project does not meet the full criteria of Schedule 1 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ('the EIA Regulations') (Ref 1.3) as although the pipeline would exceed 40 km, it would not exceed 800 millimetres in diameter (see Chapter 3 – Description of the Project).

1.2.8 Therefore, Schedule 2, paragraph 10 (k) of the EIA Regulations applies:

> *"10. Infrastructure projects*
>
> *(K) oil and gas pipeline installations and pipelines for the transport of carbon dioxide streams for the purposes of geological storage (unless included in Schedule 1 to these Regulations)"*

1.2.9 The Project has not been subject to an EIA Screening Request, an EIA is considered necessary as a consequence of the scale of the Project and the value and sensitivity of the existing environment, along the proposed route.

1.2.10 A Regulation 8(1)(b) (of the EIA Regulations) notification has been submitted to the Secretary of State along with this EIA Scoping Report and confirms that the Applicant intends to submit a DCO Application in Q4 2026.

## National Policy Statements

1.2.11 DESNZ published a number of National Policy Statements (NPS) in relation to energy infrastructure in January 2024 (Ref 1.4). The NPSs set out national policy

for energy infrastructure and set a framework for the Secretary of State's decisions on applications for such development.

1.2.12 The following NPSs are considered relevant considerations in assessing the Project:

- Overarching National Policy Statement for Energy (EN-1) (Ref 1.5), therefore Section 104 of the Planning Act 2008 (Ref 1.2) applies.
- National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Ref 1.6).

1.2.13 Section 3.5 of EN-1 discusses the need for new CCS infrastructure NSIPs, with paragraph 3.5.1 stating that 'There is an urgent need for new CCS infrastructure to support the transition to a net zero economy' (Ref 1.5).

1.2.14 EN-1 further states in paragraph 3.5.2 that CCS is critical to the UK's Net Zero Strategy, Industrial Decarbonisation Strategy and that the International Energy Agency states that CCS is needed in the clean energy transition (Ref 1.5).

1.2.15 Paragraph 3.5.8 of EN-1 makes a specific reference to pipelines, stating that 'To support the urgent need for new CCS infrastructure, CCS technologies, pipelines and storage infrastructure are considered to be Critical National Priority infrastructure' (Ref 1.5).

1.2.16 Section 4.9 sets out the assessment principles for CCS applications. Although most of the section is focussed on carbon capture plants, of relevance to the Project is paragraph 4.9.18, which recognises that the infrastructure associated with the three links of CCS (capture, transport and storage) may be brought forward as separate development applications (Ref 1.5).

1.2.17 Furthermore, paragraph 4.9.20 recognises that a range of consents from different bodies will be required for CCS infrastructure. The consents anticipated to be required for the Project are set out later in this Scoping Report. Paragraph 4.9.20 also reaffirms that onshore pipelines over 16.093 km are classified as an NSIP and require a DCO (Ref 1.5).

1.2.18 EN-4 states in paragraphs 1.6.5 -1.6.9 that the guidance it contains relates only to natural gas infrastructure, and that whilst it does not have effect for carbon capture and storage infrastructure, it may nonetheless contain information that is important and relevant to the Secretary of State's decisions on applications for carbon capture and storage infrastructure (Ref 1.6).

## 1.3 Purpose of this EIA Scoping Report

1.3.1 The purpose of this EIA Scoping Report is to ensure that the EIA is focused on the key impacts likely to give rise to significant environmental effects and to consult on the EIA approach and scope with statutory consultees.

1.3.2 As well as identifying elements to be considered in the EIA, this report also identifies elements that are not considered necessary to assess further and are proposed to be 'scoped-out'. This approach is in line with the general aim to undertake a proportionate EIA, as advocated by industry best practice and as set out in paragraph 5.10 of the Planning Inspectorate's (PINS) Advice Note Seven (Ref 1.7).

1.3.3 In accordance with Part 14 of the EIA Regulations, the Environmental Statement (ES) will be based upon the most recent EIA Scoping Opinion. However, the exact scope of the EIA will be influenced by the ongoing design evolution of the Project, baseline data collection (e.g., field surveys etc.) and consultation with stakeholders. Where further evidence justifies a change to the scope of the EIA, this will be explained in the ES along with confirmation of whether the change has been agreed with relevant consultees.

1.3.4 Table 1-1 sets out the information that Regulation 10(3) of the EIA Regulations states must be included within a request for an EIA Scoping Opinion and provides where this information can be found in this EIA Scoping Report:

*Table 1-1 – Information Required to Accompany a Request for an EIA Scoping Opinion*

| Information Required | Location within this EIA Scoping Report |
|---|---|
| A plan sufficient to identify the land | Volume 2: Figure 1.1 – Project Location |
| A description of the nature and purpose of the development, including its location and technical capacity | Chapter 3 – Description of the Project |
| An explanation of the likely significant effects | Chapter 5 to Chapter 20 |

1.3.5 PINS Advice Note Seven (Ref 1.7) sets out information that is suggested to be included in EIA Scoping Reports. Table 1-2 below provides where this information can be found in this report.

*Table 1-2 – Information Recommended to be Included in EIA Scoping Reports by PINS Advice Note Seven*

| Information Suggested in PINS Advice Note Seven | Location within this Report |
|---|---|
| An explanation of the approach to addressing uncertainty where it remains in relation to elements of the Proposed Development e.g., design parameters | Chapter 3 – Description of the Project |
| Referenced plans presented at an appropriate scale to convey clearly the information and all known features associated with the Proposed Development | Volume 2: Figure 3.1 – Key features of the Project |
| An outline of the reasonable alternatives considered and the reasons for selecting the preferred option | Chapter 4 – Environmental Impact Assessment Methodology |
| A summary table identifying each of the aspects and matters that are requested to be scoped out allowing for quick identification of issues | Chapter 21 |
| A detailed description of the aspects and matters proposed to be scoped out of further assessment with justification provided | Chapter 5 to Chapter 20 |
| Results of desktop and baseline studies where available and where relevant to the decision to scope in or out aspects or matters | Chapter 5 to Chapter 20 |
| 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 | Chapter 5 to Chapter 20 |
| Any avoidance or mitigation measures proposed, how they may be secured and the anticipated residual effects | Chapter 5 to Chapter 20 |
| References to any guidance and best practice to be relied upon | Chapter 5 to Chapter 20 |
| Evidence of agreements reached with consultation bodies | Chapter 5 to Chapter 20 |
| An outline of the structure of the proposed ES. | Chapter 4 – EIA Methodology |

1.3.6 Regulation 8 (1) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 requires the Applicant to do one of the following before carrying out statutory consultation under Section 42 of the Planning Act 2008:

> *"a) ask the Secretary of State to adopt a screening opinion in respect of the development to which the application relates; or*
>
> *b) notify the Secretary of State in writing that the person proposes to provide an environmental statement in respect of that development."*

1.3.7 It is considered that due to the Project's nature, size and location, it has the potential to have significant effects on the environment.

1.3.8 The Applicant has therefore concluded that the Project does require an Environmental Impact Assessment to be undertaken, and this EIA Scoping Report represents a notification to the Secretary of State, under Regulation 8(1)(b) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, that the Applicant will prepare and provide an Environmental Statement as part of the application for development consent for the Project.

## 1.4 Competence

1.4.1 In accordance with 14 (4) (a) of the EIA Regulations (Ref 1.4) the EIA will be undertaken by, and the ES prepared by, competent experts. A statement will be provided in the ES that outlines the relevant expertise and / or qualifications of such experts.

1.4.2 The Institute of Environmental Management & Assessment (IEMA) has awarded Arcadis the EIA Quality Mark in recognition of our commitment to excellence in EIA activities. We have continued to maintain this following annual examination in relation to our products, staff, innovation and promotion of EIA within the industry.

1.4.3 This EIA Scoping Report has also been prepared by competent experts and a summary of the relevant experience and / or qualifications for the EIA team is set out below:

*Table 1-3 – EIA Scoping Team Competence*

| Role | Summary of Competence |
|---|---|
| EIA Project Director | The Project Director is a Chartered Member of the Landscape Institute (CMLI) and a Member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). The Project Director has over 30 years' experience working in environmental planning and the consent, construction, operation and maintenance of major infrastructure. |
| EIA Project Lead | The EIA Lead is a Chartered Environmentalist (CEnv) and a Full Member of IEMA (MIEMA). The EIA Lead has over 25 years of experience in environmental planning. The EIA Lead has co-ordinated and managed numerous large-scale and complex EIAs in relation to road, rail, waste-water and energy infrastructure. |
| EIA Co-ordinator | The EIA Co-ordinator is a Registered Environmental Practitioner and Practitioner member of the IEMA. The EIA Co-ordinator has over 10 years' experience in environmental consultancy, during which time he has coordinated the EIAs of two NSIPs as well as multiple other EIAs across various other sectors. |
| EIA Deputy Co-ordinator | The EIA Deputy Co-ordinator is an Associate member of IEMA with four years' experience working in environmental consultancy and environmental planning. The EIA Deputy Co-ordinator has previous experience in environmental compliance and on-site environmental management alongside assisting in the coordination of EIAs and consents in the residential, rail, highways and energy sectors. |
| Agriculture and Soils Lead | The Agriculture and Soils Lead is a Soil and Environmental Scientist with over 30 years' technical and business management expertise. The Agriculture and Soils Lead provides technical delivery on soil, river restoration and geomorphological projects. His skills focus on the survey and understanding of soils and on the interaction of the physical and biological worlds. He has particular expertise in the creation, restoration and translocation of ecologically sensitive habitats and EIA in NSIPs. The Agriculture and Soils Lead is the Past President of the British Society of Soil Science and President-Elect of the International Union of Soil Sciences. He was made a Fellow of the Society in January 2015. |

| Role | Summary of Competence |
|---|---|
| Air Quality Lead | The Air Quality Lead is a Chartered Air Quality Specialist with over 19 years' experience in the environmental profession. She has worked on a variety of projects, ranging from NSIPs, to monitoring schemes, to mixed use developments of various scales. She has acted as air quality technical lead for numerous energy projects including Richborough Connection Project and Feeder 9 Gas Pipeline Project, and is currently leading the South East Anglia Link, North Humber to High Marnham, Lime Down Solar Park, Green Hill Solar Farm, Vyrnwy Frankton and Towy Usk projects. |
| Ecology and Biodiversity Lead | The Ecology and Biodiversity Lead is a Chartered Ecologist (CEcol) and full member of CIEEM (MCIEEM). He has over 17 years continuous experience in environmental consulting and has developed considerable experience with development-related ecological, environmental and sustainability work; he is fully conversant with current wildlife legislation, planning law and best practice guidelines.<br>The Ecology and Biodiversity lead has managed many large-scale projects and budgets from conception through to completion and has a strong proven track record of delivery in the public and private sectors, devising pragmatic solutions to ecological issues that fit to each site and its locality. |
| Climate change, Adaptation and Resilience Lead | The Climate Change, Adaptation and Resilience Lead is a climate risk and adaptation specialist with over 20 years' experience in environmental consulting. She leads the Climate Adaptation Service Line within the Sustainability Advisory Team at Arcadis and is a Chartered Environmentalist (CEnv) and Full Member of the Institution of Environmental Sciences (MIEnvSc). Her experience includes climate risk assessment, vulnerability assessment, stakeholder consultation, facilitation, and technical analysis of the impacts, risks, opportunities, and relevant adaptation options to climate change. Over the last eight years, she has led the climate resilience assessments and ES chapters for over 20 EIA / Environmental and Social Impact Assessments (ESIAs) / DCOs. |
| Ground Conditions and Hydrogeology Lead | The Ground Conditions and Hydrogeology Lead is a Chartered Scientist, Chartered Environmentalist, with over 18 years' of experience ranging from EIA, desk studies, ground investigation design and |

| Role | Summary of Competence |
|---|---|
| | management, contaminated land assessments, materials management plans, investigating and identification of ground engineering constraints and ground abnormals, remediation design and verification for a range of projects and regeneration schemes for both private and public sector clients.<br>Her experience in EIA includes major infrastructure projects (power, rail, road, utilities), flood alleviation schemes, regeneration schemes and new developments. She will coordinate and work directly with the hydrogeology team to deliver this project. |
| Landscape and Visual Lead | The Landscape and Visual Lead is a Chartered Landscape Architect with over 20 years' experience leading Landscape and Visual Impact Assessment (LVIA) teams on major linear energy and key infrastructure projects in sensitive environments. This includes new towns, railways and NSIPs for overhead electricity transmission lines.<br>He has a strong belief in the importance of good placemaking and meaningful stakeholder engagement, and is also an experienced landscape expert witness, having provided evidence on behalf of both public and private sector clients at planning inquiries, hearing and examinations in public. |
| Cultural Heritage Lead | The Cultural Heritage Lead is an Associate of the Chartered Institute for Archaeologists (CIFA). He has over 7 years of heritage consultancy experience, contributing to numerous heritage assessments on NSIPs as well as local authority planning applications (both EIA and non-EIA) across a variety of sectors. |
| Noise and Vibration Lead | The Noise and Vibration Lead is a Full Member of the Institute of Acoustics (MIOA) with over 15 years' professional experience in sound, noise and vibration. He has acted as technical lead across a wide range of development types, which has comprised work in the United Kingdom and overseas. As a result of this experience, he has an extensive knowledge of the relevant technical standards, guidance and legislation.<br>The Noise and Vibration Lead has worked on several NSIPs and has also provided expert witness |

| Role | Summary of Competence |
|---|---|
| | services on behalf of the promoter at a Planning Inspectorate examination. In addition to NSIP developments, his experience includes the submission of numerous technical assessments and ES chapters for both EIA / ESIA developments.<br>He also has a detailed knowledge of noise prediction modelling software and has undertaken computational modelling for many projects, which typically accounts for both the construction and operational phases of a development. |
| Socio-economics, Human Health and Wellbeing Lead | The Socio-economics, Human Health and Well-Being Lead has over 25 years' experience in undertaking a variety of assessments focused on socio-economics, community, health and equalities in support of planning applications, as part of Environmental Impact Assessments and as standalone reports. Experienced in assessments to support DCOs, including as Expert Witness for Health and Wellbeing during Examination. BA (Hons) Geography, MSc City and Regional Planning, Member of the Royal Town Planning Institute. |
| Traffic and Transport Lead | The Traffic and Transport Lead is a chartered member of the Chartered Institute of Logistics and Transport and has over 20 years' experience within transport planning, engineering, road safety and environmental assessment. She has a proven track record of delivering Traffic and Transport technical EIA chapters and supporting documents for NSIPs, predominately for energy related projects such as Norwich to Tilbury and Western Gas EIA Screening for National Grid. She works closely with multi-discipline teams to successfully deliver major infrastructure schemes under DCO and prepares EIA PEIR, Scoping and Environmental Statements, Outline Traffic Management Plans, transport assessments, and mitigation measures. She has detailed knowledge of relevant technical standards, guidance and legislation and has extensive experience of engaging with stakeholders. The Traffic and Transport lead also has experience as an Expert Witness at DCO hearings |

| Role | Summary of Competence |
|---|---|
| Materials (including minerals) and Waste Lead | The Materials and Waste Lead has over 18 years of consultancy experience, is a Chartered member of the Chartered Institution of Wastes Management (CIWM) and Fellow of the Geological Society. The Materials and Waste Lead is a technical specialist with extensive experience of waste management processes, environmental management, legislation, regulation, construction quality assurance (CQA), site supervision, environmental permit applications and variations. The materials and waste lead has worked on a number of EIAs across Nationally Significant Infrastructure Projects (NSIP) and other sectors both as a technical specialist undertaking materials, waste and mineral assessments and as an EIA Coordinator. |
| Water Resources, Flood Risk and Land Drainage Lead | The Water Resources Lead is a Chartered member of the Institute of Water and Environmental Management and has worked in water environment consultancy for more than 20 years, specialising in hydrology and flood risk. She has technically led on several NSIPs and has also provided expert witness services on behalf of the promoter at Planning Inspectorate examinations. She has detailed knowledge of relevant technical standards, guidance and legislation and has extensive experience of engaging with stakeholders. |
| Major Accidents and Disasters | The Major Accidents and Disasters assessment is led by the EIA Coordination team and their competence is noted above at the top of this table. |
| Coastal and Intertidal Impacts Lead | The Coastal and Intertidal Impacts Lead has over 23 years' experience and is a Member of the Institute of Marine Engineering, Science and Technology (IMarEST). He is experienced in marine environmental survey and consulting for EIA projects. He specialises in the undertaking of marine ecology surveys, and the subsequent analysis and reporting of marine survey data. His relevant project experience includes, Eastern Link HVDC, East Coast HVDC, Mersey Tidal Power Project, HT-1 Aberdeen Offshore Hydrogen Project and Corrib Offshore Gas Development. |
| Cumulative Effects | The Cumulative Effects assessment is led by the EIA Coordination team and their competence is noted above at the top of this table. |

## 1.5 References


- Ref 1.1 – HM Government. Department for Levelling Up, Housing and Communities. National Planning Policy Framework. 12 December 2024. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2
- Ref 1.2 – HM Government (2008). The Planning Act 2008. Available at: https://www.legislation.gov.uk/ukpga/2008/29/contents
- Ref 1.3 – HM Government (2017). The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/572/contents
- Ref 1.4 – HM Government, Planning Inspectorate. National Policy Statements. Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-national-policy-statements
- Ref 1.5 – HM Government, Department for Energy Security and Net Zero. Overarching National Policy Statement for energy (EN-1). Available at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1
- Ref 1.6 – HM Government, Department for Energy Security and Net Zero. 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
- Ref 1.7 – Planning Inspectorate. 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

# 2 Project Background and Context

## 2.1 Introduction

2.1.1 This chapter provides a summary of the background to the Project and its wider geographical and policy context.

## 2.2 East Coast Cluster

2.2.1 The UK Government have set legally binding net-zero greenhouse gas emissions targets. These include an amendment to the Climate Change Act 2008 to commit the UK to achieving net-zero by 2050 (Ref 2.1).

2.2.2 The East Coast Cluster (ECC), which serves the industrial powerhouse regions of Teesside and the Humber, has been selected as one of the first two carbon capture and storage (CCS) clusters to be taken forward by the UK Government. It includes a diverse mix of projects, including industrial carbon capture, low-carbon hydrogen production, negative emissions power, and power with carbon capture. These technologies are essential for the UK to meet its net zero targets; both regions would also benefit from an influx of green jobs, skills development and supply chain benefits.

2.2.3 Net Zero North Sea Storage Limited via its Northern Endurance Partnership (NEP) would be the carbon dioxide transportation and storage infrastructure provider for the ECC.

2.2.4 The NEP is an independent joint venture (IJV) with shareholders made up of bp, Equinor and TotalEnergies and was formed to develop the carbon dioxide transportation and storage infrastructure to serve a diverse range of industries in the Teesside and Humber regions.

2.2.5 The Project is an important part of NEP's end-to-end carbon dioxide transportation and storage infrastructure network, which enables the ECC.

2.2.6 The objective of the Project is to deliver a new onshore pipeline network to transport captured carbon dioxide from industrial facilities in the Humber region to the coast near Easington.

2.2.7 The Project would have an interface with the offshore pipeline (to be consented separately) that would deliver the continuation of the carbon dioxide transportation pipeline to secure subsea storage. The offshore pipeline, infrastructure and storage are all subject to separate applications for consent / licence under the respective offshore oil and gas regulations. A separate application has been made for part of the NEP offshore infrastructure and this was supported by the Offshore Environmental Statement (Ref 2.2). This Offshore

Environmental Statement included the assessment of the potential environmental impacts of the offshore Humber pipeline. It is anticipated that a separate application to consent the offshore Humber pipeline transportation infrastructure will follow in due course.

2.2.8 National Grid Ventures was previously part of the NEP and promoted the Humber Low Carbon Pipelines (HLCP) project, which proposed developing hydrogen and carbon dioxide pipelines between Drax in North Yorkshire to the coast north of Easington in East Riding of Yorkshire, with associated above ground installations. The HLCP project undertook EIA Scoping in April 2022 and Statutory Consultation in October 2022. The HLCP project is no longer progressing, and National Grid Ventures has since left the NEP. The Project is different to HLCP, notably as only carbon dioxide would be transported, however there are some similarities in the route. The Project has taken into account feedback that was previously received by National Grid during the consultations on the HLCP project. As set out in Chapter 1 – Introduction, the Applicant is the promoter entity for NEP for the Project and is taking forward the HCCP Project.

2.2.9 Further information on the East Coast Cluster can be found on the project's website (Ref 2.3).

## 2.3 Carbon Capture and Storage

2.3.1 Carbon capture and storage (CCS) is a process which removes carbon dioxide emissions from industrial processes and power generation and transports them to secure storage areas.

2.3.2 Several industrial sites in the Humber region are developing plans to capture their carbon emissions and we anticipate other carbon capture projects are likely to come forward in the near future.

2.3.3 The Humber Carbon Capture Pipeline is an essential part of carbon capture and storage in the Humber region and would provide the required onshore captured carbon dioxide transportation infrastructure. The carbon dioxide would be stored in geological formations under the North Sea (the Endurance Store).

2.3.4 The offshore transportation infrastructure and storage facility are subject to a different consenting process.

## 2.4 Project Location

2.4.1 The Project is located in eastern England, within the Yorkshire and the Humber region. The nearest major city is Hull (approximately 2km northwest of the draft Order Limits). The River Humber runs predominantly to the north of, and is

crossed by, the draft Order Limits. The Project location is shown in Volume 2: Figure 1.1 – Project Location.

2.4.2 The draft Order Limits cross the following four Local Authority areas (from west to east):

- North Yorkshire.
- East Riding of Yorkshire.
- North Lincolnshire.
- North East Lincolnshire.

2.4.3 The Project area is mostly rural and predominantly comprises low-lying agricultural fields. The main settlements nearby are towns and villages, with some small clusters or individual properties located throughout the Project area.

2.4.4 The draft Order Limits are designed to enable a connection to the consented carbon capture project at Drax as well as to provide connections to the Keadby, Croxton, Killingholme and Salt End areas, to link to carbon capture projects that were shortlisted by the Department for Energy Security and Net Zero (DESNZ) in the cluster sequencing process in August 2022 (Ref 2.4). We expect DESNZ to set out a selection process in the near future. The draft Order Limits also enable a connection to other potential future carbon capture or CCS transportation projects near Immingham.

## 2.5 Overview of the Project

2.5.1 The Project would comprise the following key components, with further detail provided in Chapter 3 – Description of the Project:

- An onshore, underground pipeline up to 66 cm in diameter that would transport dense-phase carbon dioxide from Carbon Capture Projects to a ‘landfall’ area between the Pump Facility (described below) and the Mean Low Water Springs (MLWS) at the coast near Easington.
- A cathodic protection system to protect the buried pipeline from external corrosion.
- Pipeline marker posts to indicate the presence of the buried pipeline;
  - Up to 13 facilities (referred to as Above Ground Installations (AGIs)) located along the pipeline that will contain equipment necessary for the routine operation and maintenance of the pipeline
  - A facility near Easington by the Holderness coast that would contain a permanently staffed control room and equipment necessary for the onward transportation of carbon dioxide through the marine environment once the project is operational (referred to as the Pump Facility).

  - An underground power cable from the Pump Facility to an existing substation at Salt End.
- A buried fibre optic cable that would run alongside the onshore pipeline to provide telecommunications, control links between the AGIs and Pump Facility as well as leak detection along the pipeline route.

## 2.6 References


- Ref 2.1 - UK Government (2024). Climate Change Act 2008. [online] Legislation.gov.uk. Available at: https://www.legislation.gov.uk/ukpga/2008/27/contents
- Ref 2.2 – Northern Endurance Partnership. Northern Endurance Partnership Development. Available at: https://www.gov.uk/government/publications/northern-endurance-partnership-development
- Ref 2.3 – East Coast Cluster. Website. Available at: https://eastcoastcluster.co.uk
- Ref 2.4 – UK Government (2022). Cluster sequencing Phase-2: shortlisted projects (power CCUS, hydrogen and ICC), August 2022. [online] Legislation.go.uk. Available at: https://www.gov.uk/government/publications/cluster-sequencing-phase-2-eligible-projects-power-ccus-hydrogen-and-icc/cluster-sequencing-phase-2-shortlisted-projects-power-ccus-hydrogen-and-icc-august-2022

# 3 Description of the Project

## 3.1 The Draft Order Limits

3.1.1 The draft Order Limits (shown in Volume 2: Figure 1.1 – Project Location) run between a recently consented carbon capture project at Drax Power Station in North Yorkshire and the coast north of Easington in East Riding of Yorkshire.

3.1.2 The draft Order Limits presented in this report represent the maximum extent of all temporary and permanent works required by the Project, so far as is defined at the current design stage. The draft Order Limits include:

- The area required for installing the pipeline, AGIs and Pump Facility.
- The area required for constructing permanent access tracks to the AGIs and Pump Facility.
- Temporary working areas, including potential locations for temporary construction compounds and access tracks (where tracks are proposed to use private land);
- Existing public roads which may require modification such as surfacing works, widening and / or the creation of passing places.
- A fibre optic cable running the length of the proposed pipeline.
- Areas to allow for utility connections for the AGIs and Pump Facility, including a power cable to connect the Pump Facility to an existing substation near Salt End.
- Areas currently identified as potential for mitigation, including:
  - Where changes to land drainage are anticipated to mitigate the effects on surface water both temporarily during construction and permanently.
  - Where landscape planting may be proposed to mitigate visual impacts of AGIs and the Pump Facility.
  - Where habitat creation and / or improvement has currently been identified to provide Biodiversity Net Gain for the project.

3.1.3 At this early design stage, the draft Order Limits are typically a minimum of 300m wide with some areas, such as near Drax, being wider. This allows for design development and accommodates optionality at this stage. The draft Order Limits will be refined as the design matures and will take into account stakeholder feedback and the findings of environmental surveys and assessments. An update of the draft Order Limits will be provided in the Preliminary Environmental Information Report (PEIR).

3.1.4 The draft Order Limits have been designed to enable a connection to the consented carbon project at Drax as well as provide connections to the Keadby, Croxton, Killingholme, and Salt End areas to link to carbon capture projects that

were shortlisted by the Department for Energy Security and Net Zero (DESNZ) in the cluster sequencing process in August 2022 (Ref 2.3).

3.1.5 At the eastern extent, the draft Order Limits extend as far as the Mean Low Water Springs north of Easington. This area would serve as the interface between the Project and the offshore carbon dioxide transportation pipeline and infrastructure, which are to be progressed as a separate application, and it is anticipated would extend up to the Mean High-Water Springs to facilitate the interface.

3.1.6 The draft Order Limits have been developed following extensive engineering, environmental and safety considerations, including:

- Providing a feasible route to connect to carbon capture projects in the Humber region.
- Public, construction and operational safety.
- Planning, environmental and land use constraints.
- Engineering, constructability and cost.

3.1.7 The draft Order Limits also consider consultation feedback that was previously received in relation to the Humber Low Carbon Pipelines (HLCP) project in 2022 (as discussed in Section 2.2) where relevant. Relevant feedback includes comments regarding assessment methodology, and the sensitivity and value of environmental receptors common to both projects. This feedback has been considered as relevant background to inform the design development of the Project, given aspects of similarity between the type of infrastructure proposed and some common route areas. However, as HLCP was a different project, the Applicant will be undertaking thorough engagement with all stakeholders to gather feedback on the Project which will be used to help shape the design, the EIA and the DCO application.

3.1.8 Private residential dwellings have been excluded from the draft Order Limits. This exclusion results in the appearance of small ‘cut-outs’ of the draft Order Limits, as can be seen in Volume 2: Figure 1.1 – Project Location.

3.1.9 For reporting purposes, the Project has been divided into three geographic sections numbered 1 to 3. The key features of the Project are shown in Volume 2: Figure 3.1 – Key features of the Project, and the details of each section are described below.

## Section 1

3.1.10 Section 1 extends from Drax Power Station in the west to the River Trent. The draft Order Limits cross through three Local Authorities in this Section, commencing from the northern extent in North Yorkshire, crossing into East Riding of Yorkshire and then entering North Lincolnshire.

3.1.11 From the west, the draft Order Limits begin to the north-east of the existing Drax Power Station. The draft Order Limits continue east and include the area south of Long Drax. The draft Order Limits also include an area east of the River Ouse, south of Barmby on the Marsh, as the current design is exploring options to include a short section of the route in this area. Two access tracks are included in the area north of the River Ouse; Station Lane leading to Gateland Field Lane and Holycroft Lane to provide options for temporary access.

3.1.12 The draft Order Limits then continue south passing to the east of Drax Village, crossing the A645.

3.1.13 Continuing south, the draft Order Limits pass west of Rawcliffe and under the Wakefield and Goole railway line, motorways (M62, M18) and the River Don. The existing roads of Mill Lane, Wheels Lane and Ings Lane may require minor upgrade works (as discussed in 3.1.2) to support temporary access during construction.

3.1.14 South of Rawcliffe Bridge, the draft Order Limits continue east and cross the Sheffield to Hull railway line where they then continue through the agricultural area known as 'Goole Fields'. An existing access track is included in the draft Order Limits from Thorne Road, south of Rawcliffe Bridge, which would provide temporary access during construction as well as permanent access to an AGI during operation. Further east, several more existing tracks are included in the draft Order Limits to provide options for temporary access during construction.

3.1.15 South of Swinefleet, the draft Order Limits continue east. A section of the route (hereafter referred to as a spur line) branches away from the main pipeline and runs southeast, crossing the A161 between Crowle and Eastoft, to provide a connection to a consented carbon capture project in Keadby. This section of the route is hereafter referred to as the Keadby Spur Line. Meanwhile, the main section of the draft Order Limits continues eastwards through agricultural fields, also crossing the A161 north of Eastoft to the crossing of the River Trent between Adlingfleet and Garthorpe and crosses the A161.

### Section 2

3.1.16 Section 2 is situated predominantly within North Lincolnshire, however there is a small area of the draft Order Limits which extend into North East Lincolnshire at the south-eastern extent of Section 2.

3.1.17 From the crossing of the River Trent, the draft Order Limits commence eastwards between Walcot and Burton upon Stather, avoiding the area known as Alkborough Flats, a Local Wildlife Site. Two existing roads: West Halton Lane and Walcot Road are included as they may require modification to support construction traffic. The draft Order Limits pass south of Coleby, north of Winterton, cross the A1077 and continue in an eastward direction, passing to the

south of South Ferriby where they cross New River Ancholme. An existing track from Sluice Road is included in the draft Order Limits to provide temporary access during construction.

3.1.18 Continuing eastwards, the draft Order Limits cross the A15. An existing access track from the B1218, near the A15 crossing, is included in the draft Order Limits to provide temporary access during construction. An area east of Bonby is included in the draft Order Limits as a potential location for a temporary construction compound. The corridor then crosses the B1206, where it then diverges. A spur line continues to the south, passing to the west of Thornton Curtis, Wootton and Ulceby to allow connection to carbon capture projects near Croxton (hereafter referred to as the Croxton Spur Line). The main extent of the draft Order Limits continue east, crossing the A1077, Barton Line railway and passing south of Goxhill and Southend.

3.1.19 West of East Halton, the draft Order Limits diverge. A spur line runs south to include a temporary construction compound west of South Kilingholme and allows connection to carbon capture projects in the North Killingholme and South Killingholme area (hereafter referred to as the Killingholme Spur Line), of which the southern extent crosses into North East Lincolnshire. It continues across the A1077 and A160 between South Killingholme and Immingham. The draft Order Limits continue north to the River Humber, east of Goxhill.

3.1.20 An area of the existing port of Killingholme is included in the draft Order Limits as a potential location to site a construction compound. Several existing roads are also included in the draft Order Limits as options are being considered for construction traffic routes.

3.1.21 The draft Order Limits then cross the River Humber.

## Section 3

3.1.22 Section 3 is situated within the East Riding of Yorkshire.

3.1.23 The draft Order Limits continue from the River Humber's north bank.

3.1.24 The corridor immediately diverges, with a spur line running north between Paull and Thorngumbald to allow for connection to carbon capture projects near Salt End (hereafter referred to as the Salt End Spur Line). The draft Order Limits extend into the Salt End Chemicals Park to the Salt End South Substation (see Section 3.4 for further details).

3.1.25 The draft Order Limits continue east running south of Thorngumbald, Keyingham and Ottringham. South of Thorngumbald, the draft Order Limits factor in two corridors to capture areas potentially required to support temporary works associated with crossing the River Humber (see Section 3.5 for further details). The draft Order Limits then crosses the A1033 between Patrington and

Winestead and continues further east to the Holderness coast north of Easington. The draft Order Limits continue to the Mean Low Water Springs and include an area which may be required to create a temporary access route to the beach to facilitate construction works (discussed further in Section 3.5).

3.1.26 Offshore works beyond the extent of the draft Order Limits are assessed in the NEP offshore Environmental Statement (Ref 2.2). An assessment of the potential cumulative effects of the offshore works will be considered in the Cumulative Assessment to be presented in the PEIR and ES.

## 3.2 The Proposed Design of the Pipeline

3.2.1 The pipeline would be built out of carbon steel and adhere to the standards and requirements of British Standard PD 8010-1 Pipeline Systems – Steel Pipelines on Land (Ref 3.1) and ISO 13623 - Petroleum and natural gas industries — Pipeline transportation systems (Ref 3.2) / DNV-ST-F101 – Submarine pipeline systems (Ref 3.3) for the section of pipeline seaward of the Pump Facility. The design life for the pipeline is 25 years, however the Endurance store has capacity to securely store carbon dioxide far beyond this period.

3.2.2 The pipeline would be approximately 66cm in diameter. The pipeline required for the spur lines to carbon capture projects would be up to approximately 30 cm in diameter.

3.2.3 The pipeline would be underground throughout the extent of the Project, at approximately 1.2 m below the surface. Only small sections of the pipeline within the boundary of some AGIs would be above ground, to allow for operational maintenance access and monitoring (discussed further in Section 3.3 below).

3.2.4 The pipeline is designed to transport up to 17 million tonnes of carbon dioxide per year. The pipeline would transport carbon dioxide from carbon capture projects in dense phase (a highly compressed fluid that demonstrates properties of both liquid and gas).

## 3.3 Above Ground Installations

3.3.1 The above ground installations (AGIs) are facilities required to operate and maintain the pipeline.

3.3.2 The AGIs would be located at strategic locations along the pipeline, relating to proximity to carbon capture projects and intervals along the pipeline length. The proposed locations of the AGIs are shown in Volume 2: Figure 3.1 – Key features of the Project and are discussed below.

3.3.3 Three types of AGIs are proposed:

- **Inlet AGIs** – would serve as the connection point from the carbon capture projects to the pipeline. These facilities would contain equipment for remote monitoring of the pipeline system and would also contain equipment to launch / receive a Pipeline Inspection Gauge (PIG) which is used to internally clean, gauge and inspect the pipeline.
- **Junction AGI** – would connect a spur line to the main pipeline. These facilities would contain equipment to launch / receive a PIG for inspection of the spur line. Some Junction AGIs would also contain the necessary equipment to launch / receive PIGS on the main pipeline.
- **Block Valve Stations AGI** – would allow the isolation and monitoring of the pipeline. These would include buried pipeline valves and a small section of above ground pipework. In addition, a Block Valve Station would include an electrical and instrumentation unit.

3.3.4 All AGIs would be operated remotely. Inspection and maintenance visits would be required during operation (discussed further in Section 3.6).

3.3.5 The size and arrangement of each AGI would be dependent upon its location and the function it serves.

3.3.6 All types of AGIs would have the following features and characteristics in common:

- Security fencing (up to approximately 3 m high) and access points denoting the perimeter of the facility, to ensure no unauthorised access.
- A permanent access track from the existing road network to allow vehicular access for security and maintenance visits. Where practicable, existing access tracks would be used. Some may require upgrading, such as widening or levelling. For other locations, new access tracks may be constructed and would typically be of a stone aggregate surfacing, or concrete for short access tracks.
- Vehicle parking and turning provision adjacent to or within the AGI facility.
- Pedestrian access points for security and maintenance personnel, including emergency exit points.
- An electrical and instrumentation (E&I) unit that would house the necessary equipment for distributing power to the AGI facility.
- Security and safety lighting, to ensure sufficient lighting for any maintenance or security visits during hours of darkness, and to operate should there be a security breach or emergency. The lighting design is currently in development; however, it is anticipated that lighting would only operate during the aforementioned events and would not operate permanently.

- Associated infrastructure, such as pipework and valves, instrumentation and sensors and electrical transformers.
- A single, small heating, ventilation and air conditioning (HVAC) unit would be required to maintain suitable operating temperature and conditions within the E&I unit. The HVAC systems would be of a typical arrangement similar to what is used for offices or apartments i.e. an indoor blower and an external wall-mounted condenser and pump which would operate continuously. It is anticipated that the HVAC system at each AGI would have a power rating of approximately 3kW and a noise emission rating of approximately 50dbA.
- A telecommunications connection to the dedicated fibre optic cable which would run along the pipeline.
- A power supply taken from nearby existing electricity distribution infrastructure. Supply to each facility would be via a buried cable or overhead line.
- The ground within the AGIs would be surfaced with a combination of concrete surfacing for areas required to support equipment and access, with the remaining area surfaced with crushed aggregate material to provide permeability for surface water.
- A landscape planting scheme associated with each AGI to integrate the facility suitably into its surrounding landscape and contribute towards biodiversity net gain (discussed further in Chapter 7: Ecology and Biodiversity).
- An arrangement for managing surface water runoff which will following the sustainable urban drainage scheme (SuDS) hierarchy.

3.3.7 Table 3-1 below describes the characteristics of each AGI.

*Table 3-1 – Description of the Proposed AGIs*

| AGI Name | AGI Type | Approx. Footprint (metres) | Figure Number (Volume 2) | Description of Location |
|---|---|---|---|---|
| **Section 1** | | | | |
| Drax AGI | Inlet AGI | 110m x 80m | Figure 3.1 – Key features of the Project, page 1 | The Drax AGI is located within North Yorkshire, in the Long Drax Parish area.<br>The location of the proposed AGI is approximately 120m north of the northern boundary of the existing Drax Power Station. Access would be gained via a proposed approximately 300m permanent access track from New Road, which runs parallel to the eastern boundary of Drax Power Station.<br>The Drax AGI is proposed to be sited in an agricultural field. Immediately to the south and west are existing woodlands. To the north is the ordinary watercourse Carr Dike.<br>The proposed Drax AGI location is not within an environmentally designated site. The Drax Priory Scheduled Monument is approximately 420m north. The nearest residential property is Drax Abbey Farm approximately 450m to the north-east. |
| Rawcliffe Bridge AGI | BVS | 80m x 70m | Figure 3.1 – Key features of the Project, page 2 | Rawcliffe Bridge BVS is located within East Riding of Yorkshire, in the Rawcliffe Parish area.<br>The proposed location is approximately 1.2km south-east of the Rawcliffe Bridge village. The proposed location is within an area of |

| AGI Name | AGI Type | Approx. Footprint (metres) | Figure Number (Volume 2) | Description of Location |
|---|---|---|---|---|
| | | | | open agricultural fields. Access would be via using and / or upgrading an existing access track off Thorne Road.<br>The proposed Rawcliffe Bridge BVS is not within an environmentally designated site. The nearest residential property is approximately 750m north-west. |
| Eastoft AGI | Junction | 115m x 140m | Figure 3.1 – Key features of the Project, page 3 | The proposed Eastoft AGI is located within East Riding of Yorkshire, in the Twin Rivers Parish area.<br>The location of the proposed AGI is approximately 2.3km north-west of the village of Eastoft, within an agricultural field surrounded by similar land uses. Approximately 450m east is an existing wind farm.<br>The Eastoft AGI would be accessed via the creation of an access track from Quay Lane.<br>The proposed Eastoft AGI is not within an environmentally designated site. The nearest residential property is approximately 250m east. |
| Keadby AGI | Inlet AGI | 100m x 90m | Figure 3.1 – Key features of the Project, page 4 | The proposed Keadby AGI is located within North Lincolnshire, in the Keadby with Althorpe Parish area.<br>The proposed location is within an agricultural field, bounded to the north by Eastoft Moors Drain Ordinary Watercourse and an existing access track associated with an existing wind farm to the south. The infrastructure associated with the existing Keadby Power Station is approximately 340m south-east. The site of the proposed Keadby 3 |

| AGI Name | AGI Type | Approx. Footprint (metres) | Figure Number (Volume 2) | Description of Location |
|---|---|---|---|---|
| | | | | Power Station (subject to a separate DCO application by a different developer) is adjacent to the south of the proposed AGI location.<br>Access would be gained by using and / or upgrading the existing track from Chapel Lane which is associated with the existing wind farm.<br>The proposed Keadby AGI is not within an environmentally designated site. The nearest residential property is approximately 860m north-east. |
| **Section 2** | | | | |
| Winterton AGI | BVS | 80m x 70m | Figure 3.1 – Key features of the Project, page 6 | The proposed Winterton AGI is located in North Lincolnshire, in the Winteringham Parish area.<br>The location and the surrounding area are agricultural fields. Access would be via a proposed permanent track from the minor road off the junction of Earlsgate Road and Mere Lane Street.<br>The proposed Winterton AGI is not within an environmentally designated site. The nearest residential property is approximately 500m south. |
| Barrow AGI | Junction | 100m x 90m | Figure 3.1 – Key features of the Project, page 6 | The proposed Barrow AGI is located in North Lincolnshire, in the Barrow upon Humber Parish area.<br>The location and the surrounding area are agricultural fields. Access would be via a new access point off the B1206. |

| AGI Name | AGI Type | Approx. Footprint (metres) | Figure Number (Volume 2) | Description of Location |
|---|---|---|---|---|
| | | | | The proposed Barrow AGI is not within an environmentally designated site. The nearest residential property is approximately 550m west. |
| Croxton AGI | Inlet AGI | 100m x 90m | Figure 3.1 – Key features of the Project, page 9 | The proposed Croxton AGI is located in North Lincolnshire, in the Croxton Parish area.<br>The location is within an agricultural field. The B1211 road is adjacent to the south, beyond which is the existing Melton Ross quarry. Access would be via a new access point off the B1211.<br>The proposed Croxton AGI is not within an environmentally designated site. The Yarborough Camp Scheduled Monument is approximately 500m north-west. The nearest residential property is approximately 500m east. |
| East Halton AGI | Junction | 115m x 140m | Figure 3.1 – Key features of the Project, page 11 | The proposed East Halton AGI is located in North Lincolnshire, in the East Halton Parish area.<br>The location and the surrounding area are agricultural fields. Access would be via a new permanent access track from College Road.<br>The proposed East Halton AGI is not within an environmentally designated site. The Thornton Abbey Scheduled Monument is located approximately 230m south. The nearest residential property is approximately 250m south-west. |
| Killingholme AGI | Inlet AGI | 100m x 90m | Figure 3.1 – Key features | The proposed Killingholme AGI is located in North Lincolnshire, in the South Killingholme Parish area. |

| AGI Name | AGI Type | Approx. Footprint (metres) | Figure Number (Volume 2) | Description of Location |
|---|---|---|---|---|
| | | | of the Project, page 11 | The location is within an agricultural field. To the east lies Eastfield Road, beyond which is the existing Lindsey Oil Refinery. Access would be gained via Church Lane, which lies adjacent to the south.<br>The proposed Killingholme AGI is not within an environmentally designated site. The Manor Farm moated site Scheduled Monument is located approximately 350m north-west. The Church of Saint Denys Grade I Listed Building is located 400m west. The nearest residential property is approximately 180m west. |
| Immingham AGI | Junction | 115m x 140m | Figure 3.1 – Key features of the Project, page 11 | The proposed Immingham AGI is located in north-east Lincolnshire, in the Habrough Parish area.<br>The location is within an agricultural field. To the east is Mayflower Woods, and beyond this to the north is the southern extent of the Humber Refinery. The proposed permanent access track is still in development, however options existing to create a new track from Baptist Chapel Lane, Faulding Lane or Killingholme Road.<br>The proposed Immingham AGI is not within an environmentally designated site. The nearest residential property is approximately 250m west. |
| Thorngumbald AGI | Junction | 115m x 140m | Figure 3.1 – Key features of the Project, page 12 | The proposed Thorngumbald AGI is located in East Riding of Yorkshire, in the Paull Parish area.<br>The location is within an agricultural field. To the east is Newlands Lane, from which a new permanent access track would be |

| AGI Name | AGI Type | Approx. Footprint (metres) | Figure Number (Volume 2) | Description of Location |
|---|---|---|---|---|
| | | | | constructed. The proposed Thorngumbald AGI is not within an environmentally designated site. The nearest residential property is approximately 300m south-east. |
| Salt End AGI | Inlet AGI | 100m x 90m | Figure 3.1 – Key features of the Project, page 12 | The proposed Paull AGI is located in East Riding of Yorkshire, in the Paull Parish area.<br>The location is within an agricultural field; however the surrounding area is subject to a consented outline planning application by a third-party developer for a mixed-use and industrial development known as Humber International Enterprise Park. To the north is Hedon Haven Main River, beyond which is the existing Salt End Chemicals Park. The River Humber is further to the west.<br>Access would be gained via a new permanent track from Main Street.<br>The proposed Paull AGI is not within an environmentally designated site. The Humber Estuary Ramsar, Special Protection Area (SPA), Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) is approximately 30m to the west and north. The nearest residential property is approximately 350m south-east. |
| Patrington AGI | BVS | 80m x 70m | Figure 3.1 – Key features of the Project, page 14 | The proposed Patrington AGI is located in East Riding of Yorkshire, in the Welwick Parish area.<br>The location is within an agricultural field, which is common with the surrounding area.<br>Access would be gained via an access point from Wakefield Lane. |

| AGI Name | AGI Type | Approx. Footprint (metres) | Figure Number (Volume 2) | Description of Location |
|---|---|---|---|---|
| | | | | The proposed Patrington AGI is not within an environmentally designated site. The nearest residential property is approximately 320m east. |

## 3.4 The Proposed Pump Facility

3.4.1 A facility (referred to as a Pump Facility) is proposed north of Easington in the East Riding of Yorkshire (see Volume 2: Figure 3.1 – Key features of the Project).

3.4.2 The Pump Facility would increase the pressure of the carbon dioxide to enable onward transportation to the offshore subsea storage site.

3.4.3 The Pump Facility would be located near to the proposed landfall point – where the onshore and offshore pipeline consents would interact. The Greater Wash SPA and Dimlington Cliff SSSI are approximately 330 m east (see Chapter 7: Ecology and Biodiversity for further information).

3.4.4 The Pump Facility would be permanently staffed by approximately four people. Occasionally, there may be a need for approximately 19 additional people to temporarily work at the Pump Facility to support key operation and maintenance tasks. This would include activities such as meter calibrations, instrument and electrical routines, grounds maintenance, rigging and lifting of plant, fabric maintenance and major pump overhaul. Such key operation and maintenance tasks would be scheduled to maximise efficiency, such as potentially being undertaken simultaneously, wherever practicable.

3.4.5 It is anticipated that the power supply for the Pump Facility would be via a connection to the existing Salt End South Substation, north of the existing Salt End Power Station within the Salt End Chemicals Park, as this is the closest substation to the Pump Facility with sufficient capacity. The connection is anticipated to comprise a buried cable. The draft Order Limits extend beyond the Salt End AGI to provide a corridor through Salt End Chemicals Park to allow for the power cable to be installed in this area. From the Salt End AGI to the Pump Facility at Easington, the cable would be buried and run parallel to the pipeline, within the draft Order Limits. The separation distance between the pipeline and the power cable is not yet known but will be designed to ensure that the two assets do not interfere with one another.

3.4.6 The Pump Facility would comprise the following features and characteristics:

- Connect to Warmer Lane via a permanent access track.
- Perimeter security fencing (up to approximately 3 m high) with secure vehicle and pedestrian access points.
- A single-story administration building and control room (approximately 5 m high roof line).
- A workshop (approximately 8 m roof line).
- Welfare building.
- Provision for vehicle parking and turning within the Pump Facility.
- Launch / receiver equipment for PIGs.

- Up to five pump electrically driven units each rated 3.75 MW (four would be operational normally, one on standby). The pump units would be approximately 2.7 m high and would be contained within a structure to attenuate the noise emissions. The pump units would also have local vents, to support maintenance activities and unplanned emergency events (see Section 3.7 for further information).
- One diesel generator which is anticipated to be used as back-up power for communications and instrumentation only (i.e. would not operate routinely), should there be issues with receiving electricity from the grid network.
- Lighting which would operate during low-light conditions to allow the on-site workers to undertake their tasks safely and would operate during any security or emergency situations.
- HVAC systems.
- Electrical and instrumentation units which would house the necessary equipment for distributing power to the Pump Facility.
- Associated infrastructure, such as pipework and valves, instrumentation and sensors and electrical transformers.
- The Project's dedicated fibre optic cable that would run the length of the pipeline route and connect to the AGIs would terminate at the Pump Facility control room.
- A landscape planting scheme to integrate the facility suitably into its surrounding landscape and provide biodiversity.
- An arrangement for managing surface water runoff which will follow the sustainable urban drainage scheme (SuDS) hierarchy.

3.4.7 It is anticipated that a short section of an existing wooden-pole over-head electricity distribution line and a section of an existing field drain would require diverting to accommodate the Pump Facility, north of Easington. The diversions would be designed to be as close to their original location as practicable whilst minimising potential adverse impacts.

## 3.5 Other assets

### Cathodic Protection System

3.5.1 A cathodic protection system (CP System) would be installed, associated with the buried pipeline.

3.5.2 The purpose of the CP System would be to protect the pipeline from external corrosion once it is buried and operating.

3.5.3 The design of the CP System is still in progress; however, it is anticipated that an Impressed Current Cathodic Protection system would be used. This would primarily consist of:

- A cabinet containing a transformer rectifier and an anode ground bed, which are anticipated to be located within each AGI and the Pump Facility.
- Test posts located at typically accessible locations at intervals along the pipeline (such as at field boundaries, where access is convenient), to support the monitoring of the CP system once operational.

### Pipeline Marker Posts

3.5.4 Marker posts would be installed at regular intervals along the pipeline to provide a visual indication of its presence once reinstatement is completed and the pipeline is buried and operating.

3.5.5 The pipeline marker posts would typically be installed at field boundaries and / or adjacent to roads, watercourses or other crossings to ensure they are clearly visible and minimise disruption to land uses.

3.5.6 The pipeline market posts would also display information relating to the pipeline, including service description and emergency contact details.

## 3.6 Method of Construction

### Pre-Construction Activities

3.6.1 Ahead of construction, the pipeline route would be surveyed and marked / ‘pegged’ out in consultation with the landowners / occupiers. This would denote the precise alignment, particularly in relation to field boundaries and environmentally sensitive sites. Wherever practicable, existing gaps in hedgerows and between mature trees would be used.

3.6.2 The location and detail of existing land drainage systems would be established, based on information from landowner liaison, drainage surveys and intrusive investigation. Where necessary, and subject to agreement with the landowner / occupier, new field drains would be installed to:

- Enable the landowner / occupier's current drainage system outside of the construction working area to continue working throughout the construction period.
- Replace existing drains damaged within the construction working area;
- Help prevent damage to the soil structure.
- Aid / accelerate soil structural recovery following completion of the construction activity.
- Ensure the site work areas are kept as dry as practically possible.

3.6.3 The design of these drainage schemes will be agreed with the landowners / occupiers. A record of the land drainage locations, including records of connections to existing drains, would be produced. Surveys and engagement with

landowners would be undertaken prior to construction to understand and document the status and condition of any existing drainage systems in place, prior to construction works commencing.

3.6.4 Engineering surveys would also be carried out, including surveys to locate existing services, topographical surveys, geotechnical surveys to establish ground conditions using trial pits, boreholes and cone penetration tests.

3.6.5 Where necessary, utility diversions would be undertaken prior to construction works commencing, such as the over-head electricity distribution line near the Pump Facility.

3.6.6 Where required, bio-security measures would be implemented through liaison with the Department for Environment, Food and Rural Affairs (Defra's) Animal Health and Veterinary Laboratories Agency.

## Temporary Construction Compounds

3.6.7 Temporary construction compounds would be required to support the construction works. Compounds would be used for the storage of construction materials (including pipe), equipment as well as site office facilities. The compounds would be established prior to commencing pipeline construction works.

3.6.8 11 locations for temporary construction compounds are proposed and are shown in Volume 2: Figure 3.1 – Key features of the Project. This includes a 'Search area for temporary construction compound' at the port of Killingholme, whereby discussions are ongoing with landowners and operators in this area to identify and agree upon whether an area of existing hardstanding can be used as a temporary construction compound.

3.6.9 The size and arrangement of each temporary construction compound would vary, depending on the extent and type of construction work it would serve. However, each temporary construction compound would typically include the following features / characteristics:

- Perimeter security fencing (i.e. Heras-style or equivalent).
- A temporary access point and / or track from the existing road network. This is anticipated to involve a combination of using existing suitable tracks (and potentially upgrading) or constructing new tracks which would typically be of crushed aggregate.
- Areas of temporary surface within the temporary construction compound. This may include compacted gravel, wooden bog-matts, reinforced rubber or aluminium track panels or asphalt. The material chosen would be dependent upon ground conditions and other variables and would be determined via engagement with landowner/s.

- Security and safety features such as temporary lighting. Lighting would be designed, positioned, and directed to reduce the intrusion into adjacent properties and habitats used in shifts at the lowest luminosity necessary for safe delivery of each task.
- Installation of temporary drainage solutions, where necessary.
- Vehicle access and parking area.
- Office and welfare facilities.
- Materials and waste storage and handling areas.

3.6.10 Where temporary construction compounds interact and / or temporary access tracks interact with existing landowner accesses or Public Rights of Way, temporary measures would be put in place, such as diversions, to accommodate the continued use of these routes.

3.6.11 The temporary construction compounds are anticipated to be required for the duration of the construction phase (discussed further later in this section).

3.6.12 In addition to the temporary construction compounds shown in Volume 2: Figure 3.1 – Key features of the Project, further compounds would likely be required to serve specific works, such as the construction of AGIs or where major pipeline crossings are proposed. These temporary construction compounds would typically be smaller and required for a shorter duration than those currently identified. The River Humber crossing may require temporary construction compounds for a longer duration due to the complexity of the works

3.6.13 Depending on the ground conditions and levels of each temporary compound area, some topsoil stripping and profiling of the ground may be required to establish a safe and effective temporary working area.

3.6.14 Following the completion of the construction works, all temporary construction compounds would be disassembled, and the ground conditions restored to their former use.

3.6.15 Details of the temporary construction compounds will be further defined and presented in the Preliminary Environmental Information Report (PEIR).

## Pipeline Construction

### Overview

3.6.16 Construction of the pipeline would involve methods and a sequence of activities that are typical for the industry and are used for the construction of other onshore, cross-country pipelines, such as natural gas.

3.6.17 The pipeline would be buried. The minimum depth from the top of the pipe to the ground surface (i.e., pipeline cover) would be a minimum of 1.2m. This may be deeper in some areas. Additional cover may be required to avoid existing buried

utilities, to provide additional separation from surface level features (watercourses, roads, tracks, etc.) or where trenchless construction techniques are used (discussed further below).

3.6.18 The sequence of activities and the various construction methods that are anticipated to be used are further discussed below.

**Preparation of the Construction Working Width**

3.6.19 Pipeline construction activity would typically be undertaken within a demarcated strip of land, known as the construction working width, which is anticipated to typically be 40 m.

3.6.20 To establish the construction working width, the area would be cleared of vegetation and topsoil stripped. Where possible, established trees would be avoided. The width of topsoil to be stripped would generally correspond to the areas that will be most affected by construction activity (e.g., pipe trench, pipe string fabrication area, the temporary running track and subsoil storage stacking area). Topsoil would be stripped and stored carefully to one side of the working width in such a way that it is not mixed with subsoil or trafficked over by vehicles or construction plant (further information is discussed in Chapter 5 – Agriculture and Soils).

3.6.21 In general, access would be restricted to the demarcated working width and vehicles would use the temporary running track. Access would be gained to and from the public highway at road crossings and / or at other agreed points of access.

**Pipeline Construction Method**

3.6.22 Due to the majority of the land within the draft Order Limits being situated in a predominantly flat, open agricultural setting, the majority of the pipeline would be constructed using ‘open-cut trench’ method.

3.6.23 Open-cut method would be used for agricultural land, buried service crossings, minor roads / tracks, minor and / or non-sensitive watercourses. This construction method would involve the following steps:

**Pipeline Stringing and Welding**

3.6.24 Lengths of pipe (typically around 12-18 m long) would be delivered to the construction working width from the temporary construction compounds, unloaded and located along the pipeline route (referred to as ‘stringing’).

3.6.25 Sections of pipe may then be bent on site using a cold bending machine to accommodate horizontal and vertical changes in the required direction of the pipeline and / or to follow the profile of the ground.

3.6.26 The ends of the pipe are prepared, inspected, aligned and then clamped in place for welding using a suitable welding technique. All welds are then inspected using suitable non-destructive testing techniques.

3.6.27 Any uncoated parts of the pipe (e.g., over pipeline girth welds) are then coated to prevent corrosion.

**Trench Excavation and Pipeline Installation**

3.6.28 The trenches within which the pipeline would be installed would be excavated either via trenching machines or mechanical excavators (referred to as 'open cut' excavation).

3.6.29 The material excavated from the trenches would typically be stored adjacent to the trench. This is on the opposite side of the working width from the topsoil to prevent the mixing of subsoil and topsoil, which could hinder reinstatement.

3.6.30 The excavated depth would be variable but would normally result in a minimum reinstated pipeline cover of 1.2m (measured from the top of the pipe to ground level). Excavated depths may be deeper and can be influenced by multiple factors, such as topography or the requirement of the pipeline to cross an existing buried asset or surface feature.

3.6.31 In areas where angular rocks or sharp stones are encountered, the pipe may need to be bedded on sand or similar material to prevent damage to the pipe and external coating.

3.6.32 Dewatering of the pipeline trenches may be required in some areas to stabilise the ground during construction.

3.6.33 Some crossings of minor watercourses, B-roads and minor roads / tracks would involve open-cut trenching. For watercourse crossings including minor rivers, ditches, field drains and streams, this would involve either temporarily diverting the watercourse or maintaining flow via water pumps or flume pipes to bypass the construction working area. Relevant stakeholders and regulatory bodies would be engaged, as appropriate, during the design and construction phases. Excavated material would be stored where it would not impact the watercourse. For open-cut crossings of roads and / or tracks, traffic would be managed either via temporary diversion or via traffic management systems to implement a contraflow (or other similar traffic controlling measures). For open-cut crossings, works would be timed to avoid, as far as practicable, respective sensitive times / seasons. Reinstatement would also be undertaken, and conditions reinstated as soon as is practicable. Crossing of major features such as main rivers, trunk roads and railways are discussed in the 'Trenchless Crossing' section below.

3.6.34 Following trench excavation, the welded pipeline sections (called strings) would be carefully lowered into the trench in a continuous operation using specialist pipe laying equipment (i.e., ‘sideboom’ vehicle) or equivalent plant.

**Trench Backfilling**

3.6.35 The pipeline trenches would then be backfilled, where possible with the material taken from the trenches in the reverse order in which it was excavated preserving the original soil sequence. Where excavated material is not suitable to be placed in direct contact with pipe (i.e., immediately surrounding the pipe), screened, prior to placement, to ensure the preservation of pipeline coating. In certain situations, where backfill material is particularly unsuitable (e.g., high rock content), imported backfill would be used.

3.6.36 The backfill materials would be consolidated in layers by tamping or rolling to ensure consolidation comparable with the adjacent subsoil. Any excess material may be spread within the working width.

3.6.37 Where necessary, outfall drains would be re-connected across the trench as part of the backfill operation.

3.6.38 The pipe trenches would be left open for the minimum length of time as is practicable.

3.6.39 Where necessary, additional post-construction drainage would be installed within the construction working width to ensure that the integrity of the drainage infrastructure affected by construction is adequately restored. Detailed drainage designs would have regard to soil type, existing drainage systems and land levels.

**Trenchless Crossings**

3.6.40 Where the pipeline is required to cross complex and / or sensitive existing features, such as major roads, railways, main rivers and environmentally sensitive areas, a ‘trenchless’ construction method would be used.

3.6.41 There are multiple different types of trenchless construction techniques. However, all technique types would involve excavating and installing the pipeline below an existing feature, without excavating or disturbing the ground surface as with the open-cut method.

3.6.42 The following types of trenchless construction methods may be used:

- **Auger Boring** – a common method for short trenchless crossings on pipeline projects. This technique involves excavating a ‘pit’ at either side of the crossing, which may be supported by sheet piles or other forms of the excavation stabilization. An auger would be placed in one pit (launch pit) and used to bore horizontally beneath the feature to be crossed and end at the

other pit (reception pit). Sections of pipe would then be pushed through from the launch pit to the reception pit using equipment that would thrust against the reception pit wall. Alternatively, pipe sections would be simultaneously pushed as the auger advances along the crossing length

- **Microtunnel** – Entry and exit pits are excavated either side of the feature to be crossed. A boring machine is inserted into the entry pit and creates a tunnel to the exit pit. The pipeline is then inserted into the entry pit in sections and welded together as they are pushed through the tunnel
- **Horizontal Directional Drill** – a site is established at either side of the feature to be crossed. The drill rig would be situated on the launch site, typically referred to as 'drill-side'. Stringing – which involves a section of pipeline (equal to the length of the crossing) - would be fabricated at the reception site. The reception site is typically referred to as 'pipe-side'. From the drill-side, a series of rods would be driven through the earth to form a 'pilot' hole. As the rods progress through the earth, extra rods would be added until the drill head emerges at the pipe-side. A reamer (with larger diameter) is then attached, and the rods are pulled back. Drilling fluid, such as bentonite, is used to provide lubrication during drilling. The drilling fluid also assists with the stabilisation of the drilled hole. The process of reaming continues until the hole is large enough to accommodate the pipeline. The welded pipeline string would then be pulled back into the drilled hole from the pipe-side.

**River Humber Crossing**

3.6.43 Due to the crossing length of the River Humber, the following two trenchless crossing methods are currently being considered. Both options would cross a minimum of 10m below the true bed of the river:

- **Tunnel** – a tunnelling technique may be used. This would involve a tunnel boring machine (TBM) excavating a tunnel below the River Humber from a launch area to a reception shaft. The reception shaft would be on the west side of the River Humber. The tunnel would have an inner diameter of approximately 3.65 m. The excavated bore would be approx. 4.4 m in diameter. Concrete segments would be installed as the TBM progresses and would be grouted into position. The material arising from the excavation works would be evaluated on-site to determine suitability for use as backfill material. It is likely that an on-site treatment facility would be required to process the material arisings. Any surplus material that cannot be used onsite or locally would be transported offsite for suitable disposal.
- **Horizontal Directional Drill** – this would follow the steps described in the previous section. The design and draft Order Limits currently consider the option of 'stringing' the pipeline on either side of the River Humber.

3.6.44 The feasibility of these crossing techniques for the River Humber are currently being explored, and an update will be reported in the PEIR, and both will be assessed within the Environmental Statement (ES).

3.6.45 Upon completion of the trenchless crossing works, all land used for temporary working areas and pits would be restored, regardless of the technique used.

3.6.46 A preliminary schedule of where a trenchless crossing is proposed is provided in Table 3-2 below and the locations are indicated on Volume 2: Figure 3.1 – Key Features of the Project. The use of trenchless methods at any additional locations will be informed by further engineering studies, the findings of environmental surveys and assessments and engagement with stakeholders. An updated list of proposed trenchless crossings will be provided in the PEIR.

*Table 3-2 – Proposed Trenchless Crossings*

| Trenchless Crossing No. | Route Section | Type of Feature Crossed | Name of Feature Crossed |
|---|---|---|---|
| 1 | 1 | Watercourse | River Ouse |
| 2 | | Watercourse | River Ouse |
| 3 | | Road | A645 |
| 4 | | Watercourse | River Aire |
| 5 | | Railway | Wakefield and Goole Line |
| 6 | | Road | A614 |
| 7 | | Road | M62 |
| 8 | | Road | M62 |
| 9 | | Watercourse | Aire and Calder Navigation |
| 10 | | Watercourse | Dutch River |
| 11 | | Road | M18 |
| 12 | | Railway | Sheffield to Hull Line |
| 13 | | Road | A161 |
| 14 | | Watercourse | River Trent |
| 15 | 2 | Watercourse | Halton Drain |
| 16 | | Road | A1077 |
| 17 | | Watercourse | New River Ancholme |

| Trenchless Crossing No. | Route Section | Type of Feature Crossed | Name of Feature Crossed |
|---|---|---|---|
| 18 | | Road | A15 |
| 19 | | Road | A1077 |
| 20 | | Railway | Barton Line |
| 21 | | Watercourse | East Halton Beck |
| 22 | | Watercourse | East Halton Beck |
| 23 | | Railway | Brocklesby and Immingham Branch |
| 24 | | Watercourse | River Humber |
| 25 | 3 | Watercourse | Winestead Drain |
| 26 | | Watercourse | Winestead Drain |
| 27 | | Road | A1033 – Winestead Lane |
| 28 | | Road | A1033 – Hollym Road |
| 29 | | Road | A161 |
| 30 | | Road | A180 |

3.6.47 To provide flexibility for the construction contractors and to ensure that the EIA accounts for likely significant effects, it is proposed that the reasonable worst-case limits of deviation and parameters of each of the trenchless crossing methods are considered where a trenchless crossing is proposed. The exception to this is the River Humber crossing, as only the tunnel and HDD trenchless crossing methods are considered at this location. As stated above, the EIA will consider both tunnel and HDD trenchless methods for the River Humber crossing.

**Fibre Optic Cable**

3.6.48 Typically, the fibre optic cable would be installed parallel to the pipeline in the trench. Minimum separation from the pipeline would be maintained. It may be necessary to install sections of the fibre optic cable in a separate trench. In this case, a separate trench would be excavated, using a trenching machine. This trench would be within the same construction working width as the pipeline.

3.6.49 At trenchless crossing locations, the fibre optic cable would be installed simultaneously with the pipeline (e.g., strapped to pipe) or installed in a

designated duct / conduit. The duct would be installed separately using a trenchless method and would be within the same working width as the pipeline.

**Landfall**

3.6.50 Eastwards from the Pump Facility, there would be a short section of 'open cut' pipeline installation through an agricultural field to the point at which the offshore pipeline construction works and onshore pipeline construction works interface (the landfall area). The landfall area is the area between the Pump Facility and the extent of the draft Order Limits at the MLWS.

3.6.51 The seabed sediment in the area is known to be highly mobile and the cliffs are known to be subject of active coastal regression and associated seabed lowering. The cliffs are indicated to be retreating at around 1.5 m to 3.0 m/year. The clay seabed at the beach and nearshore is lowering at a rate of between 0.03 m and 0.21 m/year (Ref 2.2). Therefore, the construction methods would ensure that the pipeline is buried below the predicted cliff line and seabed profile throughout its design life (25 years). The DCO will only seek consent for works required up to the Mean Low Water Springs. Works seaward beyond this extent, through the marine environment, are described in the offshore Environmental Statement (Ref 2.2) and will be subject to a separate consent but will comprise part of the cumulative effects assessment in the EIA for this Project.

3.6.52 The pipeline would be installed beneath Dimlington Cliffs via one of the following trenchless methods.

**Horizontal-Directional Drill**

3.6.53 The HDD would pass beneath the cliffs and foreshore and exit at an area approximately 8m below the Lowest Astronomical Tide (LAT) point, beyond the MLWS limit of the Project and therefore the exit point is part of the separate application for the offshore pipeline but shall comprise part of the cumulative effects assessment within the EIA for this Project. Therefore, the works from the launch pit to the MLWS limit of the DCO would involve below ground boring.

3.6.54 This method includes a requirement for the top of the pipeline tunnel to be at a depth of at least 6m below the seabed to protect the pipeline from seabed erosional forces and long-term seabed lowering.

**Direct Pipe**

3.6.55 A launch pit would be created onshore, land side of the Dimlington Cliffs, and the pipe would be thrusted beneath the cliffs to a reception pit where a jack-up barge would retrieve the boring machine and pipeline at approximately 4 m below LAT, beyond the MLWS limit of the DCO.

3.6.56 Therefore, the works from the launch pit to the MLWS limit of the DCO would involve below ground boring.

### Microtunnel

3.6.57 The microtunnel boring machine would be launched from within a shaft at the landfall point and would pass beneath the cliffs. The exit point would be approximately at the MLWS point at a pre-cut trench that is maintained to keep it free of silt and sand accumulations.

3.6.58 This method includes an option of temporarily installing a sheet pile cofferdam reception pit for the microtunnel method, which would be located on the foreshore approximately between the Mean High-Water Springs (MHWS) and MLWS, which would allow for recovery of the microtunnel machine from the foreshore. The cofferdam would be approximately 140 m x 3 m with (larger pit, working platform and walls at the end) and installed via one or more conventional pile driving rigs (hydraulic vibratory hammer mounted on a tracked crawler vehicle) as tides permit. Pre-auguring of the ground over the full pile depth may be required due to the presence of clay and would be undertaken using a continuous flight auger rig. Following the piling works, the area inside of the working platform would be built up to approximately +4 m Ordnance Datum Newlyn (ODN) by re-using sands and gravels excavated for the cofferdam.

3.6.59 The pipeline tunnel would be at a depth of approximately 5.7 m below the seabed to the top of casing, to ensure sufficient coverage over the pipeline design life.

3.6.60 After the pipeline has been installed, it would be buried using the excavated material and the beach would be reinstated to the pre-construction condition as far as reasonably practicable.

3.6.61 The microtunnel with cofferdam option would involve creating a temporary access track through the cliffs, east of Dimlington Gas Terminal and north of where the existing coastal defences begin, to allow the vehicles and machinery associated with installing the cofferdam to access the intertidal area. This temporary access would be taken from Dimlington Road and involve creating a temporary access track to the cliff. Excavators would then be used to move material and create an access track through the cliff area, at a suitable width and gradient to allow the necessary vehicles to gain safe access. Geotextile and suitable capping material may be required, dependant on the gradient and the vehicles that would use the access.

3.6.62 The won material would be temporarily stored onshore at a suitable distance from the cliff edge for subsequent reinstatement. It is anticipated that it would take approximately six months between the start of construction and the final reinstatement for this access track. All other landfall methods described above would not require this access track to be created as the landfall works would be served from the sea and therefore would not require works in the intertidal area.

### Pre-Commissioning & Hydrostatic Testing

3.6.63 Following construction, the pipelines would be internally cleaned, gauged, flooded and hydrostatically tested to prove their integrity in accordance with the relevant specifications. Water for cleaning and testing may be sourced from rivers, groundwater, mains water supply or internal drainage board watercourses, with any abstraction subject to regulatory approval. During abstraction, water treatment chemicals would be added to the pre-commissioning water to prevent corrosion and biological growth inside the pipeline, subject to the necessary chemical permits.

3.6.64 Following hydrostatic testing, the pipeline would be de-watered, and water disposed of. Water disposal location and water quality monitoring requirements would be subject to agreement with the regulatory authorities.

3.6.65 The volume of water used for hydrostatic testing would depend on the final Project design and pre-commissioning strategy. However, it is anticipated at this stage that it would not exceed 30,000 $m^3$.

3.6.66 Following pipeline de-watering (after hydrostatic testing), the pipeline would be dried to a pre-specified dew point. This may be achieved by either blowing dry nitrogen or air through the pipeline or vacuum drying. For both drying methods, 'drying spreads' (compressors etc.) would be located at the AGIs or at designated locations along the pipeline route. In addition, subject to the relevant chemical permit, corrosion inhibitor chemicals may be applied to the inside of the pipeline.

### Pipeline Reinstatement

3.6.67 Following the completion of the pipeline construction works, temporary working areas would be reinstated and all construction materials removed.

3.6.68 Excavated soil would be reinstatement. This would include appropriate ripping of subsoil prior to topsoil placement if compaction has occurred. Topsoil would then be spread in such a way as to ensure that it does not become compacted.

3.6.69 Following soil reinstatement, restoration would commence. This would include reseeding of pastureland and reinstatement of field boundaries (e.g., replacement of hedgerow and installation of fences). Watercourse banks and ditches would also be appropriately restored.

3.6.70 Areas of open-cut road crossings would also be instated in accordance with the relevant standards and in engagement with the respective Local Highways Department.

## Construction of Above Ground Installations

3.6.71 Construction of the AGIs is anticipated to involve the following sequence of activities:

- Mobilisation, site preparation, establishment of temporary working areas, temporary access and laydown areas.
- Construction of an access road (where required) and / or upgrading of an existing access way.
- Installation of below ground works, such as concrete foundations, bases and plinths, below ground pipework and equipment, drainage, ducting, earthing system etc.
- Installation of above ground assets, including above ground pipework and equipment, electrical, instrumentation and telecommunication cabling, buildings and kiosks, corrosion protection arrangements utility apparatus etc.
- Installation of pipeline, mechanical instrumentation and electrical equipment.
- Connection to utilities / services (e.g., electrical, telecommunications etc).
- Construction of surface water drainage system (where required).
- Provision of site finishes, vehicular access and turning areas, pedestrian access surfacing, installation of fencing, placement of site finishes such as gravel, provision of landscaping and planting as required etc.
- Testing, conducting pre-commissioning activities and commissioning.
- Demobilisation and reinstatement of temporary works areas.

## Pump Facility

3.6.72 Construction of the pump facility would follow the same basic principles as described for the AGIs above.

3.6.73 The site would first be prepared and, if necessary, the ground would be levelled via grading and / or excavation. This would be followed by piling and excavation for the main foundations of some of the larger elements of the pump facility. Lightly loaded structures would be founded on shallow raft foundations.

3.6.74 Following ground and civil works, the installation of plant such as the pump compressor units, pipework, utilities, and stack and construction of units such as the administration building, and electrical and instrumentation unit would commence. Building erection and plant installation would likely take place as concurrent activities, although larger plant would likely be installed upon the foundations first with ancillary pipeline and connections installed after.

3.6.75 The main plant components for the Pump Facility are likely to be partially constructed off-site. Due to the early stage of design, equipment specifications and sizes are not yet known. However, it is anticipated that approximately 12

abnormal loads may be required to deliver the main assets to be contained at the Pump Facility, such as the pumps.

3.6.76 The final stages of construction of the Pump Facility would involve similar activities to the AGIs: installing utilities connections; construction of surface water drainage system; site finishes and surrounding landscaping; testing and commissioning and lastly demobilisation of construction plant and reinstatement of temporary working areas.

### Construction Programme

3.6.77 Construction works are anticipated to commence in 2028 and conclude in 2032.

3.6.78 Standard construction working hours would be Monday-Saturday 07:00 to 19:00.

3.6.79 Travel to and from the relevant part of the site is likely to happen an hour either side of these hours. There may be an infrequent need for Sunday or Bank Holiday working. This would be discussed and agreed in advance with the relevant Local Planning Authority and would be contained from 07.00 to 17.00 hrs.

3.6.80 Twenty-four-hour working would be required to align with critical work activities such as tunnelling, boring, testing or works associated with offshore interfaces. For the purposes of the EIA to assess the worst-case scenario, it is assumed that 24-hour working could be required at all trenchless crossing locations.

3.6.81 The timing of construction works would take account of environmental and social sensitivities, as identified as being necessary as an output of the EIA and stakeholder engagement.

3.6.82 Further detail on the anticipated construction phasing and programme will be provided in the PEIR and ES.

## 3.7 Operation and Maintenance

### Pipeline

3.7.1 Operation of the Project is anticipated to commence in 2032.

3.7.2 The pipeline will be designed, constructed, operated and maintained in accordance with relevant industry codes of practice, standards and recommended practice (Ref 3.1).

3.7.3 The pipeline would transport carbon dioxide constantly, under normal operating conditions, and would be continuously remotely monitored via equipment installed in the AGIs.

3.7.4 Pipeline leak detection technology would be installed as part of the pipeline infrastructure and is designed for the early warning and remote identification of any loss of containment. Leak detectors will also be installed at each AGI.

3.7.5 Additional monitoring of the pipeline would be undertaken via aerial surveys (i.e. visual inspection via helicopter or unmanned aerial vehicle (UAV)) or via a non-intrusive visual walkover survey. This would be undertaken infrequently and primarily used to check for any unauthorised activity or similar disturbance to the land surrounding the pipeline.

3.7.6 The Development Consent Order (DCO) will seek to protect the pipeline by restrictions placed on the land over and immediately around it, in a corridor along the pipeline alignment with an anticipated width of up to 24.4 m. The restrictions will either be included in the lease for the pipeline or imposed as restrictive covenants for the benefit of the subsoil land interest within which the pipeline is situated. These restrictions will include preventing activities which could damage the pipeline such as constructing over it or planting deep-rooted trees over it. The DCO will also apply for rights to take access and carry out works of inspection and maintenance of the pipeline will also be taken over the same corridor. These rights will be in the form of an easement or acquisition of rights and would not extend over private dwellings or gardens.

### Above Ground Installations

3.7.7 The AGIs, would be operated remotely. However, the design would include provisions for the facilities to be operated locally for maintenance purposes or in the case of any unforeseen operating events.

3.7.8 The pipelines and associated AGIs would also be regularly maintained to ensure their continued reliability using trained and competent personnel and all work would be strictly controlled.

3.7.9 Once construction is complete and prior to commencing operation, the pipeline would be inspected and cleaned using a Pipeline Inspection Gauge (PIG). An initial survey would be undertaken following commencement of operations to establish baseline data on pipeline conditions. This operation would be repeated as part of an operational maintenance procedure. The frequency of pigging during operation would be determined based on a risk-based approach, depending on pipeline conditions, prior inspection data and risk assessments. At this stage, it is anticipated that pigging would be undertaken approximately every five years. This process may involve venting small volumes of carbon dioxide at the Inlet AGIs, Junction AGIs and the Pump Facility, as there would be carbon dioxide within the pipework associated with the PIG launcher / receiver equipment. Further information on the planned operational maintenance requirements will be provided in the PEIR and ES.

3.7.10 In addition, there may be a requirement for emergency venting at AGIs via a mobile mounted stack. This would only be required in unplanned, emergency scenarios where there is a need to vent components of the transportation system.

3.7.11 During operation, a small HVAC system associated with the E&I kiosk would operate continuously to ensure that the electrical equipment within the kiosk remains at the appropriate operating temperature. The AGIs are not anticipated to result in any other noise or vibration emissions during operation, as there are no routine noise or vibration-generating processes or equipment (i.e. large mechanical moving parts or generators etc).

3.7.12 It is anticipated that personnel would occasionally pay on-site visits to AGIs to undertake a security check and inspection. This would be infrequent (i.e. a visit approximately once per month). Further details will be provided in the PEIR and ES.

### Pump Facility

3.7.13 The Pump Facility would be operated by an anticipated maximum of four on-site staff during routine operations.

3.7.14 The main operational plant would be the pump units, of which four would normally be in operation with one further unit on standby and would only operate should there be unforeseen operating issues.

3.7.15 The Pump Facility would have local venting facilities to support maintenance activities, and relieving systems may be provided for unplanned emergency events (e.g., overpressure of the pipeline or failure of a pump unit during operation). In such instances, processes would be put in place whereby the safety valves would operate and the flow would be vented until further procedural steps are completed (i.e., the carbon capture projects reduce / stop the flow of carbon dioxide into the pipeline and / or the back-up pump unit is brought into operation). Therefore, venting would not be used as part of routine operations.

3.7.16 The Pump Facility may also require infrequent on-site visits by additional staff for maintenance.

## 3.8 Decommissioning

3.8.1 Through robust design and operating maintenance regime the pipeline, AGIs and Pump Facility are anticipated to remain operational for the design life (i.e., 25 years) of the asset and potentially longer.

3.8.2 When the pipeline reaches the end of its design life, it would be decommissioned safely. Decommissioning would consider all the relevant environmental legislation and technology available at the time and the methods which would result in the

least potential environmental impacts. Any necessary licences and permits would be acquired.

3.8.3 Once safely decommissioned, it is anticipated that the pipeline would be left in-situ and permanently removed from service. Sections of the pipeline may be filled with grout, where appropriate. The measures and method of decommissioning would be in accordance with the relevant regulations, requirements and best-practice measures applicable at the point in time of decommissioning phase.

3.8.4 The AGIs and Pump Facility would be safely dismantled. All equipment would be removed and the land returned to its former use.

## 3.9 References


- Ref 3.1 – British Standards Institution. PD 8010-1:2015+A1:2016 - Pipeline systems - Steel pipelines on land. Code of practice. 2015. Available at: https://knowledge.bsigroup.com/products/pipeline-systems-steel-pipelines-on-land-code-of-practice?version=standard&tab=overview
- Ref 3.2 – International Standard. ISO 13623:2017 – Petroleum and natural gas industries – Pipeline transportation systems. Available at: https://www.iso.org/standard/61251.html
- Ref 3.3 – DNV. DNV-ST-F101 Submarine pipeline systems. Edition 2021-08-Amended 2021-12. Available at: https://www.dnv.com/energy/standards-guidelines/dnv-st-f101-submarine-pipeline-systems/

# 4 Environmental Impact Assessment Methodology

## 4.1 Introduction

4.1.1 This chapter sets out the overall approach to the Environmental Impact Assessment (EIA) for the Project. The assessment methodology for each environmental topic is provided within Chapters 5 - 20 of this report. The approach to the EIA has been informed by best practice guidance, as set out within Planning Inspectorate (PINS) Advice Notes.

## 4.2 Assessment Parameters

4.2.1 PINS Advice Note Nine: Using the 'Rochdale Envelope' (Ref 4.1) guides the degree of flexibility that may be considered appropriate within an application for development consent under the Planning Act 2008. The advice note acknowledges that there may be parameters of a scheme's design that are not yet fixed and, therefore, it may be necessary for the EIA to assess reasonable worst-case parameters to ensure that the likely significant environmental effects are assessed.

4.2.2 The design of the Project will continue to be progressed and there will be a need to continue refining the design up to the detailed design stage, requiring a certain level of flexibility to be maintained within the draft DCO.

4.2.3 Therefore, in line with PINS Advice Note Nine (Using the Rochdale Envelope) (Ref 4.1), a parameter-based approach (the 'Rochdale Envelope' approach) will be adopted, where relevant, to define the envelopes within which the construction and operation of the Project would be undertaken.

4.2.4 The Environmental Statement (ES) will provide clear parameters against which the EIA has been undertaken. This is likely to include clearly defined limits of deviation where flexibility is required for the design. These parameters will be defined within the Application drawings and the draft DCO. The parameters approach presents the maximum extent within which the Project may be constructed and / or operated. Where such parameters are proposed in the draft DCO, the EIA will assess the maximum parameter to ensure a 'worst case' assessment of the Project.

## 4.3 Consultation and engagement

4.3.1 As part of the EIA, technical engagement will be undertaken with a range of statutory and non-statutory consultees. Engagement will be undertaken to discuss a range of matters including assessment and survey methodology and findings and requesting baseline data. It is anticipated at this stage that consultees will include at minimum the following:

- North Yorkshire County Council.
- North Lincolnshire Council.
- East Riding of Yorkshire Council.
- North East Lincolnshire Council.
- Hull City Council and Lincolnshire County Council (as adjoining authorities).
- Natural England.
- Environment Agency.
- Historic England.
- National Highways.
- Marine Management Organisation.
- Internal Drainage Boards.
- Network Rail.
- Canal and River Trust.
- Lincolnshire and Yorkshire Wildlife Trusts.
- Royal Society for the Protection of Birds (RSPB).

4.3.2 The Project team may also engage with other organisations, such as the local electricity Distribution Network Operator regarding technical matters.

4.3.3 Technical engagement has already commenced with some consultees to introduce the Project, seek baseline data and agree on the scope of the technical assessments.

4.3.4 As engagement with consultees continues throughout the EIA process, matters that have been agreed upon will be detailed within the respective topic chapters of the Environmental Statement. Statements of Common Grounds (SoCGs) will also be prepared with relevant stakeholders to detail the discussions that have taken place and set out the matters that have been agreed upon. Draft SoCGs will be shared with the respective stakeholders, as appropriate, during the EIA process and will be updated, as appropriate, to ensure the stakeholders agree with the matters contained within. These will be used, as appropriate / if required to produce lists of Principal Areas of Disagreement Summary Statements at a later date. The documents produced would align with PINS guidance at the time of submission.

4.3.5 Non-statutory Consultation was undertaken between July and August 2024. This consisted of a brochure and an interactive map-viewer being made available online via the project webpage (www.nephccp.co.uk) and printed versions of the brochure, banners and a series of maps made available at several deposit locations throughout the route of the Project. Engagement sessions consisted of 10 in-person consultation events as well as one online event. The feedback received from the non-statutory consultation has informed the scope of the assessments and design of the Project presented in this report.

4.3.6 Statutory Consultation is anticipated to take place in Q2 2025 and will be supported by a Preliminary Environmental Information Report (PEIR), which will be developed to aid consultees in making an informed view of the likely significant effects of the Project.

## 4.4 Defining the Study Area

4.4.1 The Study Area for each environmental topic and the method upon which this has been defined, is detailed in Chapters 5 – 20.

## 4.5 Establishing Baseline Conditions

4.5.1 Likely significant environmental effects will be described in the ES in relation to the extent of changes to the existing baseline environment due to the construction, operation and / or decommissioning of the Project.

4.5.2 The baseline environment is a description of the existing environmental characteristics and conditions within the respective assessment's Study Area at the time of the assessment.

4.5.3 Baseline conditions will be established by:

- Site visits and surveys.
- Data from third party sources.
- Desk based studies.
- Computational modelling.

4.5.4 The baseline conditions used in the ES will vary depending on the timing of surveys or the date at which data sources have been produced / assessed. The age of data used to inform the EIA will be clearly stated in the ES and will be valid, for the purposes of informing an EIA, in accordance with relevant industry guidance and / or best practice. Older data obtained from previous surveys and / or third parties may be used to supplement the baseline data used for the EIA. Baseline data which is deemed to be confidential, such as that relating to protected species, will be provided in separate confidential appendices to the ES

and may be redacted for publicly published documents, due to the sensitivity of such species records.

4.5.5 Where there are limitations in the baseline data used, such as if land access has not been possible, this will be clearly stated in the ES.

## 4.6 Establishing Future Baseline Conditions

4.6.1 The ES will include a description of the future baseline which is the anticipated evolution of the baseline conditions without implementation of the Project, based on available information and knowledge.

## 4.7 Approach to Mitigation

4.7.1 The following three types of mitigation will be identified and proposed in the ES, in accordance with IEMA's guidance (Ref 4.2):

- **Primary Mitigation** – modifications to the location or design made during the pre-application phase that are an inherent part of the Project.
- **Secondary Mitigation** – commitments made by the Applicant that will require further activity to achieve the anticipated outcome. The effectiveness of such measures will be assessed within the ES and the commitment to delivering the mitigation measure will be secured by the Development Consent Order (DCO) (or other suitable mechanism).
- **Tertiary Mitigation** – actions that would occur with or without input from the EIA. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are standard practices used to manage commonly occurring environmental effects. These measures are treated as an inherent part of the Project and, where appropriate, will be set out in the management plans that will accompany the ES, such as the draft Construction Environmental Management Plan (CEMP).

4.7.2 The primary mitigation measures will be outlined in the description of the Project chapter in the ES, and secondary and tertiary mitigation will be presented within the ES chapter for each environmental topic and draft CEMP where appropriate. The assessment of potential likely significant environmental effects will take primary and tertiary mitigation into account.

4.7.3 Following the assessment of the impacts of the Project, any further mitigation measures (secondary mitigation) will be outlined within the technical chapters. These mitigation measures will further reduce any adverse effects or enhance beneficial effects. The assessment of residual effects will take the secondary mitigation into account.

4.7.4 A Register of Commitments will document all mitigation to ensure suitable identification and monitoring of the mitigation commitments beyond the submission of the DCO. This will include mitigation presented in this EIA Scoping Report that is relied on to scope out issues from subsequent stages of the EIA. A draft Register of Commitments is appended to this report (Volume 3: Appendix F).

**Construction Environmental Management Plan**

4.7.5 The DCO application will be supported by a draft CEMP, which will set out the environmental mitigation measures identified in the ES along with good practice industry measures required during construction planning and execution.

4.7.6 The draft DCO will contain a requirement for the construction contractor/s to develop a CEMP to secure the relevant mitigation items contained within the draft Register of Commitments. The CEMP would be based upon the draft CEMP submitted with the DCO application and would be the means of controlling the construction works and set out monitoring requirements, to ensure that the potential adverse effect of the construction works on people and the natural environment are reduced insofar as reasonably practicable. It would provide a detailed description of the actions required during construction and identify the responsible party.

4.7.7 The EIA will consider the CEMP as the method by which the actions and commitments contained within are secured, via the DCO.

**Decommissioning Environmental Management Plan**

4.7.8 The draft DCO will include a requirement for a Decommissioning Environmental Management Plan (DEMP) to be prepared at the appropriate time, prior to the Project entering its end-of-life and decommissioning phase.

4.7.9 The DEMP will set out the appropriate measures necessary to control the predicted environmental effects and monitoring requirements of potential impacts and mitigation measures relevant to the decommissioning phase of the Project. The measures to be contained within the DEMP will be determined based on the baseline environmental conditions at the time of the decommissioning phase and the detailed decommissioning methods, with consideration and reference to the predicted decommissioning effects to be reported in the ES. The measures that would be contained within the DEMP would be in-line with relevant legislation, guidance and best practice applicable at the time of the decommissioning phase.

4.7.10 The EIA will consider the DEMP as the method by which the actions and commitments contained within are secured, via the DCO.

**Monitoring**

4.7.11 The EIA Regulations require, where appropriate, the monitoring of potential significant adverse effects. Where monitoring arrangements are proposed as part of the mitigation set out, this will be detailed within each of the topic chapters of the ES and detailed within the draft Register of Commitments, secured by requirements in the draft DCO, and the results of any monitoring will be shared with the relevant organisations as appropriate.

## 4.8 Assessment of Likely Significant Effects

4.8.1 The ES will report on the likely significant environmental effects for the construction, operational (including maintenance) and decommissioning phases of the Project and will report an estimate, by type and quantity, of expected residues and emissions.

4.8.2 The significance of likely effects will be determined in accordance with each topic's industry guidance, where relevant. This will include consideration of the following points, in accordance with IEMA (Ref 4.4):

- Likelihood of occurrence.
- Geographical extent.
- Adherence of the proposals to legislation, planning and marine policy.
- Adherence of the proposals to international, national and local standards.
- Sensitivity of the receiving environment or other receptor.
- Value of the affected resource.
- Whether the effect is temporary or permanent (to be defined within the ES).
- Whether the effect is short, medium, or long-term in duration (to be defined within the ES).
- Inter-relationship between effects (both cumulatively and in terms of potential effect interactions).
- The outputs of stakeholder and public engagement.

4.8.3 The methodology for assessing the significance of an effect will vary between environmental topics and is detailed within Chapters 5 – 20 of this report. In principle, the process will be based on assessing the environmental sensitivity (or value / importance) of a receptor and the magnitude of change from baseline conditions.

4.8.4 Where topic-specific guidance requires that specific criteria or scales for determining significance are to be used, this is stated in Chapters 5 – 20 of this report and will be outlined in the relevant topic ES chapter. In the absence of topic-specific guidance, the matrix in Table 4-1 will be used. This is based upon professional judgement, common industry best practice and the approach taken

by recent similar DCO projects. The significance of each effect will be assessed against the magnitude of change and the sensitivity (or value / importance) of the receptor or receiving environment using the matrix in Table 4-1.

*Table 4-1 – Matrix for Determining the Significance of Effect*

| | | Magnitude of Change | | | |
|---|---|---|---|---|---|
| | | Very Low | Low | Medium | High |
| Sensitivity of Receptor | High | Negligible / Minor | Moderate | Major | Major |
| | Medium | Negligible | Minor | Moderate | Major |
| | Low | Negligible | Negligible | Minor | Moderate |
| | Very low | Negligible | Negligible | Minor | Negligible / Minor |

4.8.5 When a range has been included in Table 4-1, professional judgment will be used to define the significance.

4.8.6 Tables that summarise the likely significant effects will be provided within each topic chapter of the ES. These tables will outline sensitive receptors, mitigation measures and residual effects. A distinction will be made between direct and indirect; short, medium and long-term; permanent and temporary; and adverse and beneficial effects.

4.8.7 Residual effects that are considered 'Major' or Moderate (subject to the application of professional judgment) will be considered as 'significant effects' for the purposes of the EIA. This will be based upon professional judgement and common industry best practice that has been used on recent similar DCO projects).

4.8.8 An overall summary chapter will be provided in the ES that will summarise the predicted significant effects across all topic chapters.

## 4.9 Consideration of Alternatives

4.9.1 Regulation 14(2)(d) of the EIA Regulations 2017 states that an ES should include:

> "a description of the reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment".

4.9.2 As part of the iterative design process, the Project will continue to evolve to take account of issues including environmental, health and safety and engineering constraints and opportunities. This will be recorded within the PEIR and ES as primary mitigation.

4.9.3 The assessment of alternatives in the PEIR and ES will report the key alternative route options and infrastructure locations / designs. It will also consider the construction strategy, traffic options and best available techniques (BAT).

4.9.4 The assessment of alternatives will also consider the design development and the consideration of alternative pipeline routes undertaken by the HLCP project, as this provides context and some relevance to the design now being progressed by the Project.

4.9.5 The main reason/s for selecting the chosen options will be provided, including a comparison of environmental effects.

4.9.6 The ES will also consider the 'do nothing' scenario, i.e. the missed opportunities or avoidance of likely significant environmental benefits of the Project.

## 4.10 Assessment of Transboundary Impacts

4.10.1 Regulation 32 of the EIA Regulations 2017 (Ref 1.2) sets out the procedural duties required where the Secretary of State deems that an NSIP is likely to have significant effects on the environment in a European Economic Area (EEA) State; or where an EEA State deems that its environment is likely to be significantly affected by an NSIP. Further guidance is provided in PINS Advice Note Twelve (Ref 1.3).

4.10.2 Given the geographic scope (i.e. that it is an onshore pipeline contained within a single region of England) and nature (i.e. that it is a buried underground pipeline) of the Project, it is not considered that significant effects on the environment to an EAA state are likely. The nearest EAA State is the Netherlands, approximately 320 km east, across the North Sea.

4.10.3 As such, it is proposed to scope out the assessment of transboundary impacts from the EIA.

## 4.11 Assessment of Heat, Light, Radiation and Magnetic Fields

4.11.1 Schedule 4 of the EIA Regulations requires a consideration of the likely significant effects of the Project resulting from the emission of heat, light, radiation and electric and magnetic fields (EMFs).

4.11.2 The pipeline would be buried below ground and the carbon steel wall of the pipe would contain transported carbon dioxide contents. It is therefore considered unlikely that there would be potential significant effects to receptors above the ground surface. The potential for heat from the pipeline to impact soil receptors is considered in Chapter 5 – Agriculture and Soils. No other potential significant heat effects have been identified. Therefore, aside from consideration of potential heat impacts in Chater 5 – Agriculture and Soils, it is proposed to scope-out a specific heat assessment from the EIA.

4.11.3 The use of lighting in the Project design is anticipated to be limited; lights at the AGIs is anticipated at this stage to only operate for maintenance visits during times of darkness or security reasons. Lighting at the Pump Facility would operate during low light conditions, however there are no light-sensitive receptors nearby the Pump Facility and the nearby area already experiences artificial light from the existing gas terminals to the south. Potential impacts will be considered in terms of effects on ecology and landscape and visual impact.

4.11.4 No significant sources of radiation are anticipated and as such it is proposed to scope this topic out of the EIA.

4.11.5 Exposure to EMFs has the potential to cause harm to human health, including general health implications such as headaches, anxiety and fatigue. Whilst there are no statutory regulations in the UK that limit the exposure of the general public to power-frequency EMFs, responsibility for implementing appropriate measures for the protection of the public lies with the Applicant.

4.11.6 The power connections for the AGIs would be either by buried cables or connections to nearby existing overhead line electrical distribution infrastructure. For buried connections, it is considered that by virtue of their buried nature and that the cables would comprise of industry-standard casing and composition, significant effects are unlikely. Likewise, significant EMF effects are also considered unlikely for any connections to exiting overhead line infrastructure due to the AGIs (by virtue of the design philosophy) being located away from human receptors and that the connections would be local to the AGIs, connecting to existing infrastructure and engagement with respective statutory undertaker on the design will be undertaken. The design of the power connections will seek to maintain as much distance from human receptors as is practicable. The design,

construction and operation of the power connections would also be in accordance with relevant industry standards and guidance. As such, the Project is not considered likely to result in significant EMF effects and therefore this matter is scoped-out of the EIA.

## 4.12 Structure of the Environmental Statement

4.12.1 The structure of the ES will be informed by the Scoping Opinion, however as a preliminary guide, based on the individual topics discussed in this Scoping Report it is anticipated that the ES will be structured as follows.

- Volume 1 – Non-Technical Summary.
- Volume 2 – Main Text.
  - Chapter 1 – Introduction.
  - Chapter 2 – Description of the Project.
  - Chapter 3 – Consideration of Alternatives.
  - Chapter 4 – EIA Methodology.
  - Chapter 5 – Agriculture and Soils.
  - Chapter 6 – Air Quality.
  - Chapter 7 – Ecology and Biodiversity.
  - Chapter 8 – Climate Change, Adaptation and Resilience.
  - Chapter 9 – Ground Conditions and Hydrogeology.
  - Chapter 10 – Landscape and Visual.
  - Chapter 11 – Cultural Heritage.
  - Chapter 12 – Noise and Vibration.
  - Chapter 13 – Socio-economics.
  - Chapter 14 – Human Health and Wellbeing.
  - Chapter 15 – Traffic and Transport.
  - Chapter 16 – Waste, Minerals and Materials.
  - Chapter 17 – Water Resources, Flood Risk and Land Drainage.
  - Chapter 18 – Major Accidents and Disasters.
  - Chapter 19 – Coastal and Intertidal Impacts.
  - Chapter 20 – Cumulative and In-Combination Effects.
  - Chapter 21 – Summary.
- Volume 3 – Supporting Technical Appendices.
- Volume 4 – Figures and Plans.

## 4.13 Additional Assessments

4.13.1 The following additional assessments will be undertaken for the Project, due to their respective regulatory requirements. Although the documents for the

additional assessments will not directly form part of the ES, they will be submitted as part of the application and will be relied upon and referred to within the ES.

## Biodiversity Net Gain Assessment

4.13.2 For information regarding the Biodiversity Net Gain assessment, please refer to Chapter 7 – Ecology and Biodiversity.

## Habitats Regulations Assessment

4.13.3 The overarching aim of the Habitats Regulations Assessment (HRA) is to determine, in view of a site's conservation objectives and qualifying interests, whether a plan, either in isolation and / or in-combination with other plans or projects, could lead to adverse effects on the integrity of an International Site.

4.13.4 Given the proximity of the Project to several International Sites (such as the Humber Estuary Special Area of Conservation and Special Protection Area), a HRA will be prepared. This will provide the consenting authority with sufficient information to decide whether the Project will lead to Likely Significant Effects (LSE) on International Sites. Where LSE are identified, a detailed assessment will be provided to assess whether the proposals could result in adverse effects on the integrity of relevant international sites. Whilst the over-arching objectives of EIA and HRA are similar, their scope, level of detail and terminology vary. As such, these processes will be undertaken separately. However, the scope presented within this EIA Scoping Report has been developed to ensure that the needs of these processes have been considered to ensure a coordinated assessment.

## Water Framework Directive

4.13.5 The Water Framework Directive (WFD) Screening Report will screen for both the potential construction and operational impacts of the Project upon the relevant WFD quality elements for several surface waterbodies, a transitional waterbody, a coastal waterbody and objectives of the Humber River Basin Management Plan, and groundwater resources. This includes identifying likely risks to biodiversity, the biological, physico-chemical and hydromorphological quality of watercourses and groundwater quality and quantity, and the likely ability of good-practice methods to manage risks associated with pollutants typically experienced during construction and during the operational phase. The WFD Screening Report will determine the need for a full WFD assessment. If required, the scope for a WFD assessment will be discussed with the Environment Agency.

### Flood Risk Assessment

4.13.6 A Flood Risk Assessment (FRA) will be prepared to support the EIA in accordance with EN-1 (Ref 1.4) and the National Planning Policy Framework (NPPF) (Ref 4.3). The FRA will assess the potential implications of the Project on flood risk to people and property elsewhere, as well as assessing the potential risk of flooding to the Project.

4.13.7 A strategic approach to the potential impacts and sensitive receptors along the route will be undertaken due to the scale of the Project. However, a more detailed assessment will be undertaken if required at specific locations of the proposals (e.g., AGIs) depending on the expected level of flood risk and potential receptors.

## 4.14 References


- Ref 4.1 - The Planning Inspectorate (2018) Advice Note Nine: Rochdale Envelope. Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-andadvice/advice-notes/advice-note-nine-rochdale-envelope/ (Accessed: 24 January 2022).
- Ref 4.2 - Institute of Environmental Management and Assessment (IEMA) (2015). Environmental Impact Assessment Guide to Delivering Quality Development.
- Ref 4.3 – Ministry of Housing, Communities and Local Government, and Department for Levelling Up, Housing and Communities. National Planning Policy Framework. 2023. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

# 5 Agriculture and Soils

## 5.1 Introduction

5.1.1 This chapter outlines the proposed approach for assessing the potential likely significant effects on agriculture and soils from the construction, operation and decommissioning of the Project. The effects on agriculture and soils may arise from land being taken out of agricultural production and the disturbance to soils, either through direct stripping of the soil resource to enable construction works to take place or through other soil handling activities.

5.1.2 This chapter of the Scoping Report describes the methodology to be used within the agriculture and soils assessment for EIA of the Project. It describes the datasets to be used to inform the assessment, the baseline conditions, the potential likely significant effects to be considered within the assessment and how those effects will be assessed. This chapter should be read in conjunction and considered alongside the following chapters:

- Chapter 6: Air Quality (in relation to dust control).
- Chapter 7: Ecology and Biodiversity (in relation to the soils required to support habitat creation).
- Chapter 9: Ground Conditions and Hydrogeology (in relation to pollution control).
- Chapter 13: Socio-Economics (in relation to potential impacts on the rural economy).
- Chapter 14: Human Health and Wellbeing.
- Chapter 16: Waste and Materials (in relation to waste management).

## 5.2 Legislation, Policy and Guidance

5.2.1 The assessment to inform the PEIR and ES will be undertaken in accordance with, and with reference to, the following legislation, policy and guidance.

### Legislation

5.2.2 The Agricultural Land (Removal of Surface Soil) Act (1953) (Ref 5.1) is "*An Act to make it an offence to remove surface soil from land in certain circumstances; and for purposes connected therewith*".

5.2.3 The Environmental Act 2021 (Ref 5.2) is "*An Act to make provision about targets, plans and policies for improving the natural environment; for statements and reports about environmental protection; for the Office for Environmental Protection; about waste and resource efficiency; about air quality; for the recall of products that fail to meet environmental standards; about water; about nature and*

*biodiversity; for conservation covenants; about the regulation of chemicals; and for connected purposes*".

## Policy

### National Policy

#### National Policy Statements

5.2.4 As detailed in Chapter 1: Introduction, National Policy Statements (NPSs) set out the primary policy tests against which the application for a DCO for the Project would be considered. The NPSs relevant to agriculture and soils are Overarching National Policy Statement for Energy (EN-1) (Ref 5.3) and National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Ref 5.4).

5.2.5 Table 5-1 lists the relevant sections of the NPSs to agriculture and soils and sets out the considerations of the relevant national policies in the assessment of agriculture and soils.

*Table 5-1 – Relevant National Policy Statements and Assessment Considerations*

| National Policy Statement | NPS Section | How it will be Considered |
|---|---|---|
| EN-1 | 5.11.12 "*Applicants should seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification) and preferably use land in areas of poorer quality (grades 3b, 4 and 5).*" | The extent of Best and Most Versatile (BMV) land will be determined through soil and Agricultural Land Classification (ALC) surveys. Where practicable, land of lower quality will be used in preference to that of higher quality. |
| EN-1 | 5.11.34 "*The Secretary of State should ensure that applicants do not site their scheme on the best and most versatile agricultural land without justification. Where schemes are to be sited on best and most versatile agricultural land the Secretary of State should take into account the economic and other benefits of that land. Where development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality*." | The extent of BMV land will be determined through soil and ALC surveys. Where practicable, land of lower quality will be used in preference to that of higher quality. |
| EN-1 | 5.11.13-5.11.15 "Applicants should also identify any effects and seek to minimise impacts on soil health and protect and improve soil quality taking into account any mitigation measures proposed.<br>*Applicants are encouraged to develop and implement a Soil Management Plan which could help minimise potential land contamination. The sustainable reuse of soils needs to be carefully considered in line with good practice guidance* | The impact on soil loss, function and quality will be assessed within ES, informed through soil and ALC surveys.<br>An outline Soil Management Plan (SMP) will be submitted in support of the DCO application and will be further developed in line with industry good practice and the evolution of the design during DCO, post consent and preconstruction. |

| National Policy Statement | NPS Section | How it will be Considered |
|---|---|---|
| | *where large quantities of soils are surplus to requirements or are affected by contamination.*<br><br>*Developments should contribute to and enhance the natural and local environment by preventing new and existing developments from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability."* | |
| EN-4 | Paragraph 2.21.42 "*New pipelines will be installed in a variety of geological conditions. It will be important for applicants to understand the soil types and the nature of the underlying strata, as well as the organic content of different soils*." | The soil and ALC surveys will investigate and characterise soil properties to understand soil types. The information on soil types will be fed into the SMP. Where organic or peaty soils are identified, relevant soil management measures will be incorporated into the SMP. Where peat is identified via soil and ALC surveys, an additional peat survey may be necessary, and a Peat Management Plan (PMP) may be developed. |
| EN-4 | 2.22.11- 2.22.13 "Mitigation measures to minimise any adverse effects on soil and geology should include measures to ensure that residual impacts on the surface are minor.<br><br>*Mitigation measures should include appropriate treatment of soil (in particular topsoil and soil with* | An outline SMP will be submitted to support the DCO application and will be further developed in line with industry good practice and the evolution of the design during DCO, post consent and preconstruction. Where organic or |

| National Policy Statement | NPS Section | How it will be Considered |
|---|---|---|
| | *high organic content) during site construction and other infrastructure activity (and appropriate soil storage and reinstatement in line with the principles and practices outlined in the Code of Practice for the Sustainable Management of Soils on Construction Sites (Ref 5.5) and the Agricultural Land Classification (Ref 5.6) which provides guidelines on soil handling and restoration criteria and land quality.*<br><br>*Applicants are encouraged to develop and implement a Soil Resources and Management Plan which could help to use and manage soils sustainably and minimise adverse impacts on soil health and potential land contamination…"* | peaty soils are identified, relevant soil management measures will be incorporated into the SMP. Where peat is identified via soil and ALC surveys, an additional peat survey may be necessary, and a PMP may be developed. |

### National Planning Policy Framework

5.2.6 Table 5-2 lists the relevant sections of the National Planning Policy Framework (NPPF) (Ref 5.7)[1] in relation to agricultural land and soils and sets out the considerations of the relevant national policies in the assessment of agricultural land and soils.

[1] This EIA Scoping Report makes reference to the December 2023 update of the NPPF. The PEIR will provide an update of applicable legislation and policy, which will include consideration of the December 2024 NPPF update (or any subsequent update).

*Table 5-2 – National Planning Policy Framework and Assessment Considerations*

| NPPF Section | Policy Context | How it will be Considered |
|---|---|---|
| Paragraph 180 | *"Planning policies and decisions should contribute to and enhance the natural and local environment by: 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); (b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;….. e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans. "* | The extent of BMV land will be determined through soil and ALC surveys. Where practicable, land of lower quality will be used in preference to that of higher quality.<br>The impact on soil loss, function and quality will be assessed within ES, informed through soil and ALC surveys.<br>An outline SMP will be submitted in support of the DCO application and will be further developed in line with industry good practice and the evolution of the design during DCO, post consent and preconstruction. |
| Footnote 62 of Paragraph 181 | *"Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality. The availability of agricultural land used for food production should be considered, alongside the other* | Where practicable, land of lower quality will be used in preference to that of higher quality according to the outcome of the ALC survey. |

| NPPF Section | Policy Context | How it will be Considered |
| --- | --- | --- |
| | *policies in this Framework, when deciding what sites are most appropriate for development."* | |

### Local Planning Policy

5.2.7 The Project lies within the jurisdictions of North Yorkshire, East Riding of Yorkshire, North Lincolnshire and North East Lincolnshire. A summary of the relevant local planning policy which is relevant to the study of agriculture and soils matters and will inform the assessment in the ES is provided in Table 5-3.

*Table 5-3 – Relevant Local Policy Statements and Assessment Considerations*

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| Selby Local Plan (Revised Publication 2024) (Ref 5.8). | Policy SG4 - Development in the Countryside (Strategic Policy) | *"The Council will seek to ensure that the former Selby district area remains a special place to live by supporting development which protects and enhances the intrinsic character and beauty of the countryside, recognising the important role it plays in the local economy, for the health and well-being of local residents and as a biodiversity resource…*<br><br>*Best and Most Versatile Agricultural Land*<br><br>*A. The best and most versatile agricultural land will be protected by; 1. Avoiding the irreversible loss of the best and most versatile agricultural land (Grade 1 to 3a) where possible; and 2. Avoiding the irreversible loss of Grade 1 agricultural land unless there are exceptional circumstances where the benefits of the proposal significantly outweigh the loss of land…."* | The extent of BMV land will be determined through soil and ALC surveys. Where practicable, land of lower quality will be used in preference to that of higher quality. |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| East Riding Local Plan Strategy Document 2012-2029 (Ref 5.9) | Policy S4: Supporting development in Villages and the Countryside | *"Policy S4: Supporting development in Villages and the Countryside*<br><br>*A. Outside of the settlements listed in Policy S3, development will be supported to help maintain the vibrancy of Villages (listed in Appendix B) and the Countryside where it:*<br><br>*1. Is of an appropriate scale to its location taking into account the need to support sustainable patterns of development;*<br><br>*2. Encourages the re-use of previously developed land where appropriate; and*<br><br>*3. Does not involve a significant loss of best and most versatile agricultural land."* | The extent of BMV land will be determined through soil and ALC surveys. Where practicable, land of lower quality will be used in preference to that of higher quality. |
| | Policy EC5: Supporting the energy sector | *"Proposals for the development of the energy sector, excluding wind energy but including the other types of development listed in Table 7, will be supported where any significant adverse impacts are addressed satisfactorily and the residual harm is outweighed by the wider benefits of the proposal. Developments and their* | An outline SMP will be submitted in support of the DCO application and will be further developed in line with industry good practice and the evolution of the design during DCO, post consent and preconstruction. Where peat is identified via soil and ALC surveys, an additional peat survey may be necessary, and a PMP may be developed. |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| | | *associated infrastructure should be acceptable in terms of:..*<br><br>*3. The effects of development on:…*<br><br>*vii. the land, including land stability, contamination and soil resources."* | |
| North Lincolnshire Local Development Framework Core Strategy (Ref 5.10) | Paragraph 4.28 | *"The Local Development Framework will achieve this by providing a policy framework that supports the reduction in the consumption of non-renewable resources. This includes fossil fuels, land, soil and minerals. As part of this it will be important to ensure that the use of suitable previously developed land is maximised, where possible. The framework will also support measures to minimise pollution and improve air, soil and water quality, and ensure that adequate infrastructure is available to serve new development. It will also promote the use of renewable energy and more energy efficient developments."* | The extent of BMV land will be determined through soil and ALC surveys. Where practicable, land of lower quality will be used in preference to that of higher quality.<br><br>An outline SMP will be submitted in support of the DCO application and will be further developed in line with industry good practice and the evolution of the design during DCO, post consent and preconstruction. |
| North East Lincolnshire Local | Policy 5 Development boundaries | *"Development boundaries are identified on the Policies Map. All development proposals located within or outside of the* | The extent of BMV land will be determined through soil and ALC surveys. Where practicable, land of lower quality |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| Plan 2013 to 2032 (Ref 5.11) | | *defined boundaries will be considered with regard to suitability and sustainability, having regard to:…*<br><br>*G. the quality of agricultural land;"* | will be used in preference to that of higher quality. |
| | Policy 31 Renewable and low carbon infrastructure | *"2. Proposals for renewable and low carbon energy generating systems will be supported where any significant adverse impacts are satisfactorily* ***minimised,*** *and the residual harm is outweighed by the public benefits of the proposal. Developments and their associated infrastructure will be assessed on their merits and subject to the following impact considerations, taking account of individual and cumulative effects:*<br><br>*H. the land, including land stability, contamination, soils resources and loss of agricultural land."* | The extent of BMV land will be determined through soil and ALC surveys. Where practicable, land of lower quality will be used in preference to that of higher quality.<br><br>An outline SMP will be submitted in support of the DCO application and will be further developed in line with industry good practice and the evolution of the design during DCO, post consent and preconstruction. |

### Guidance

5.2.8 The agriculture and soils assessment will be carried out in accordance with the following good practice and guidance documents:

- Safeguarding our Soils. A strategy for England (Ref 5.12) outlines the Government's approach to soil protection. The strategy is in line the NPSs, NPPF, and local policies on soil protection. The assessment on soils will follow this strategy, along with relevant national and local policies.
- Guide to assessing development proposals on agricultural land (Ref 5.13) from Natural England provides guidance on assessing agricultural land, including BMV land, and sets out the requirement for consultation with Natural England.
- A New Perspective on Land and Soil in Environmental Impact Assessment (Ref 5.14) provides methodologies and criteria to assess agricultural land and soils.
- Construction Code of Practice for the Sustainable Re-use of Soils on Construction Sites (Ref 5.15) provides guidelines for soil mitigation measures in construction.
- Design Manual for Roads and Bridges (DMRB) LA112: Population and human health (Ref 5.16) provides a methodology and criteria for assessing the sensitivity of and magnitude of impact on agricultural land holding.
- Working with Soil Guidance Note on Benefitting from Soil Management in Development and Construction (Ref 5.17) provides a guidance note to help promote the protection of soils and their important functions they support within the planning system and the development of individual sites.

## 5.3 Proposed Assessment Methodology

### Baseline Information Collection

5.3.1 This section sets out the baseline data that will be relied upon to produce a detailed assessment of baseline conditions that will be contained within the PEIR and ES.

5.3.2 The baseline information collection will be informed by desk-based study and surveys.

5.3.3 The sources for desk-based information collection are as follows:

- Aerial imagery to establish land use (Ref 5.18).
- National Soil Map of England and Wales (Ref 5.19).
- Agricultural Land Classification maps: Agricultural Land Classification – Provisional (England) and Post 1988 Agricultural Land Classification (England) (Ref 5.20).

- Likelihood of Best and Most Versatile Agricultural Land - Strategic scale maps (Ref 5.21).
- Agri-environmental and woodland / forestry schemes (Ref 5.20).

5.3.4 A summary of the baseline data collected to date has been provided in Section 5.8 for the Existing Baseline Conditions, which were desk-based study and used for this Scoping Report.

5.3.5 A detailed ALC and soil survey will be conducted in accordance with agriculture land classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land (Ref 5.22) and the Soil Survey Handbook (Ref 5.23), to provide detailed baseline information for design and assessment of the impact on agricultural land quality and soils from the Project. This will also enable the development of mitigation measures and an outline SMP.

5.3.6 A survey will be conducted to collect information from agricultural land holdings to assess the impact on farming activities / farm businesses.

## Assessment Method

5.3.7 IEMA Guidance, 'A New Perspective on Land and Soil in Environmental Impact Assessment' (Ref 5.14), will be used to assess the impacts on the receptors of soil and agricultural land (BMV).

5.3.8 DMRB LA112 (Ref 5.16) will be used to assess the impact on agricultural land holdings.

5.3.9 Table 5-4 to Table 5-10 set out the criteria which will be used to determine the sensitivity, the magnitude of impact and the effects on agricultural land, soils and agricultural land holdings.

## Value / Sensitivity

*Table 5-4 – Criteria for Sensitivity of Agricultural Land and Soils*

| Receptor Sensitivity | Soil Resource and Function |
|---|---|
| Very High | • Biomass production: ALC Grades 1 & 2.<br>• Ecological habitat, soil biodiversity and platform for landscape: soils supporting protected features within a European site (e.g., SAC, SPA, Ramsar [2]); Peat soils; soils supporting a National Park, or Ancient Woodland.<br>• Soil carbon: peat soils.<br>• Soils with potential for ecological / landscape restoration.<br>• Soil hydrology: Very important catchment pathway for water flows and flood risk management.<br>• Archaeology, Cultural Heritage, Community Benefits and Geodiversity: Scheduled Ancient Monuments and adjacent areas; World Heritage and European designated sites; soils with known archaeological interest; soils supporting community / recreational / educational access to land covered by National Park designation.<br>• Source of materials: important surface mineral reserves that would be sterilised (i.e., without future access). |
| High | • Biomass production: ALC Grade 3a.<br>• Ecological habitat, soil biodiversity and platform for landscape: soils supporting protected features within a UK designated site (e.g., United Nations Educational, Scientific and Cultural Organisation Geoparks, SSSI or Area of Outstanding Natural Beauty (AONB), Special Landscape Areas (SLAs) and Geological Conservation Review sites); Native Forest and woodland soils; Unaltered soils supporting seminatural vegetation.<br>• Soil carbon: organo-mineral soils (e.g., peaty soils).<br>• Soil hydrology: important catchment pathway for water flows and flood risk management. |

[2] SAC- Special Areas of Conservation. SPA - Special Protection Areas. Ramsar is a wetland site designated of international importance especially as Waterfowl Habitat under the Ramsar Convention

| Receptor Sensitivity | Soil Resource and Function |
|---|---|
| | • Archaeology, Cultural Heritage, Community Benefits and Geodiversity: Soils with probable but as yet unproven (prior to being revealed by construction) archaeological interest; historic parks and gardens; Regionally Important Geological Site (RIGS); Soils supporting community / recreational / educational access to RIGS and AONBs.<br>• Source of materials: Surface mineral reserves that would be sterilised (i.e., without future access). |
| Medium | • Biomass production: ALC Grade 3b.<br>• Ecological habitat, soil biodiversity and platform for landscape: Soils supporting protected or valued features within non-statutory designated sites (e.g., LNRs[3], Local Geological Sites (LGSs), Sites of Nature Conservation Importance (SNCIs), SLAs[4]; Non-Native Forest and woodland soils.<br>• Soil carbon: Mineral soils.<br>• Soil hydrology: Important minor catchment pathway for water flows and flood risk management.<br>• Archaeology, Cultural Heritage, Community Benefits and Geodiversity: Soils with possible but as yet unproven (prior to being revealed by construction) archaeological interest; Soils supporting community / recreational / educational access to land.<br>• Source of materials: Surface mineral reserves that would remain accessible for extraction. |
| Low | • Biomass production: ALC Grade 4 and 5.<br>• Ecological habitat, soil biodiversity and platform for landscape: Soils supporting valued features within non designated notable or priority habitats / landscapes.<br>• Agricultural soils.<br>• Soil carbon: Mineral soils.<br>• Soil hydrology: Pathway for local water flows and flood risk management. |

[3] LNRs - Local Nature Recovery Strategies.
[4] SLAs-Special Landscape Areas.

| Receptor Sensitivity | Soil Resource and Function |
|---|---|
| | • Archaeology, Cultural Heritage, Community Benefits and Geodiversity: Soils supporting no notable cultural heritage, geodiversity nor community benefits; Soils supporting limited community / recreational / educational access to land.<br>• Source of materials: Surface mineral reserves that would remain accessible for extraction. |
| Negligible | • As for low sensitivity, but with only indirect, tenuous, and unproven links between sources of impact and soil functions. |

*Table 5-5 – Criteria for Sensitivity of Soil Handling*

| Sensitivity of Topsoil and Subsoil | Soil Texture, Field Capacity Days (FCDs) and Wetness Class |
|---|---|
| High sensitivity (low resilience to structural damage) | • 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 FCD are 150 or greater.<br>• Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where the FCDs are 225 or greater.<br>• All soils in wetness class (WCV or WCVI). |
| Medium sensitivity (medium resilience to structural damage) | • 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.<br>• Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where FCDs are fewer than 225.<br>• Sands, loamy sands, sandy loams and sandy silt loams where the FCDs are 225 or greater or are in wetness classes WCIII and WCIV. |

| Sensitivity of Topsoil and Subsoil | Soil Texture, Field Capacity Days (FCDs) and Wetness Class |
|---|---|
| Low sensitivity (high resilience to structural damage) | • 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 wetness classes WCI to WCII. |

*Table 5-6 – Criteria for Sensitivity of Agricultural Land Holding*

| Receptor Sensitivity | Description |
|---|---|
| Very high | • Areas of land in which the enterprise is wholly reliant on the spatial relationship of land to key agricultural infrastructure.<br>• Access between land and key agricultural infrastructure is required on a frequent basis (daily). |
| High | • Areas of land in which the enterprise is dependent on the spatial relationship of land to key agricultural infrastructure.<br>• Access between land and key agricultural infrastructure is required on a frequent basis (weekly). |
| Medium | • Areas of land in which the enterprise is partially dependent on the spatial relationship of land to key agricultural infrastructure.<br>• Access between land and key agricultural infrastructure is required on a reasonably frequent basis (monthly). |
| Low | • Agricultural land holdings.<br>• Areas of land which the enterprise is not dependent on the spatial relationship of land to key agricultural infrastructure.<br>• Access between land and key agricultural infrastructure is required on an infrequent basis (monthly or less frequent). |

| Receptor Sensitivity | Description |
|---|---|
| Negligible | • Areas of land which are infrequently used on a non-commercial basis. |

## Impact Magnitude

*Table 5-7 – Criteria for Magnitude of Impact on Agricultural Land and Soils*

| Magnitude of Impact (Change) | Description of Impacts Restricting Proposed Land Use |
|---|---|
| Major | • 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 20ha or loss of soil-related features set out in Table 5-4, as advised by other topic specialists in EIA team (including effects from 'Temporary Developments*')<br>or<br>• Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of more than 20ha or gain in soil-related features set out in Table 5-4, as advised by other topic specialists in EIA team (including effects from 'temporary developments'*). |
| Moderate | • Permanent, irreversible loss of one or more soil functions or soil volumes, over an area of between 5 and 20ha or loss of soil-related features set out in Table 5-4, as advised by other topic specialists in EIA team (including effects from 'Temporary Developments'*)<br>or<br>• 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 set out in Table 5-4, as advised by other topic specialists in EIA team. |

| Magnitude of Impact (Change) | Description of Impacts Restricting Proposed Land Use |
|---|---|
| Minor | • Permanent, irreversible loss over 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 set out in Table 5-4 above, as advised by other topic specialists in EIA team<br>or<br>• Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of less than 5ha 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 features set out in Table 5-4, as advised by other topic specialists in EIA team. |
| Negligible | • No discernible loss or reduction or improvement of soil functions or soil volumes that restrict current or proposed land use. |

* Temporary developments can result in a permanent impact if resulting disturbance or land use change causes permanent damage to soils.

*Table 5-8 – Criteria for Magnitude of Impact of Agricultural Land Holding*

| Magnitude of Impact (Change) | Description of Impacts Restricting Proposed Land Use on Private Property and Housing, Community Land and Assets, Development Land and Businesses and Agricultural Land Holdings |
|---|---|
| Major | • Loss of resource and / or quality and integrity of resource; severe damage to key characteristics, features or elements. e.g., direct acquisition and demolition of buildings and direct development of land to accommodate highway assets.<br>• Introduction (adverse) or removal (beneficial) of complete severance with no / full accessibility provision. |

| Magnitude of Impact (Change) | Description of Impacts Restricting Proposed Land Use on Private Property and Housing, Community Land and Assets, Development Land and Businesses and Agricultural Land Holdings |
|---|---|
| Moderate | • Partial loss of / damage to key characteristics, features or elements, e.g., partial removal or substantial amendment to access or acquisition of land compromising viability of property, businesses, community assets or agricultural holdings; and / or<br>• Introduction (adverse) or removal (beneficial) of severe severance with limited / moderate accessibility provision. |
| Minor | • A discernible change in attributes, quality, or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements, e.g., amendment to access or acquisition of land resulting in changes to operating conditions that do not compromise overall viability of property, businesses, community assets or agricultural holdings; and / or<br>• Introduction (adverse) or removal (beneficial) of severance with adequate accessibility provision. |
| Negligible | • Very minor loss or detrimental alteration to one or more characteristics, features, or elements. e.g., acquisition of non-operational land or buildings not directly affecting the viability of property, businesses, community assets or agricultural holdings; and / or<br>• Very minor introduction (adverse) or removal (beneficial) of severance with ample accessibility provision. |
| No Change | • No loss or alteration of characteristics, features, elements or accessibility; no observable impact in either direction. |

## Significance of Effect

*Table 5-9 – Significance Matrix*

| Nature of Receptor (Sensitivity / Value / Importance) | Nature of Impact (Magnitude / Probability / Reversibility) | | | | |
|---|---|---|---|---|---|
| | **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 | 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 5-10 – Significance Categories*

| Significance Category | Description |
|---|---|
| Very Large | Effects at this level are material in the decision-making progress |
| Large | Effects at this level are likely to be material in the decision-making progress |

| Significance Category | Description |
|---|---|
| Moderate | Effects at this level can be considered to be material in the decision-making process |
| Slight | Effects at this level are not material in the decision-making process |
| Neutral | No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error |

## 5.4 Limitations and Assumptions

5.4.1 An initial appraisal on agricultural land and soils which has been used to inform this Scoping Report was based on desk-based coarse-scale information, e.g., Provisional ALC Map, Likelihood of Best and Most Versatile (BMV) Agricultural Land and National Soil Map of England and Wales (strategic scale maps). As stated in Section 5.5, detailed ALC and soil surveys will be conducted to provide detailed data on agricultural land quality (including BMV) and soils to inform the PEIR and the ES.

5.4.2 The initial appraisal on agricultural land holdings was also based on desk-based publicly available information. As stated in Section 5.3.6, a survey will be conducted to collect detailed information on agricultural land holdings for a more detailed assessment to inform the PEIR and the ES.

## 5.5 Stakeholder Engagement

5.5.1 Engagement has been undertaken with Natural England, North Yorkshire Council, North East Lincolnshire Council, East Riding of Yorkshire Council and North Lincolnshire Council as summarised in Table 5-11 below. Engagement shall continue as appropriate throughout the environmental impact assessment process.

*Table 5-11 – Stakeholder Engagement*

| Organisation and Date | Summary of Engagement | Consideration within Scoping Report |
|---|---|---|
| Natural England<br><br>(Consulted via email on November 13th, 2024 and feedback received on November 22nd, 2024) | Natural England welcomes the intent to undertake an ALC and soil resource survey within the draft DCO boundary. This ALC and soil resource survey should extend to the full Study Area where detailed existing ALC information is not available. | Soil and ALC surveys are proposed to be conducted in areas where land and soils would be directly disturbed by the Project within the draft Order Limits. The Study Area for agriculture and soils is defined as the portions of the draft Order Limits where land and soils are directly disturbed by the Project. |
| | A soil resource survey may require some limited extra data collection, for example for soil pH and nutrient analysis, to inform the most suitable habitat the soils can support in habitat creation areas. | Discussions have been held with the ecology and landscape disciplines with regard to soil information required to support habitat creation and landscaping. Soil information, including a soil nutrients survey and advice, will be provided by agriculture and soils discipline in support of habitat creation, change to land use and landscape design |
| | The project corridor is currently 300m therefore Natural England advise that the ALC survey density of one auger boring per hectare should be applied to assist with further design and minimizing the impact on agricultural land and soils. | The proposed soil and ALC survey in paragraph 5.5.5 will be undertaken in accordance with agriculture land classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land (Ref 5.22) and the Soil Survey Handbook (Ref 5.23), meeting the requirement of one auger boring per hectare. |

| Organisation and Date | Summary of Engagement | Consideration within Scoping Report |
|---|---|---|
| | Where peat soils are identified, a peat survey should be undertaken to determine the depth and condition of the peat. | Based on a desk-study from National Soil Map (Ref 20) and Peaty Soils Location (England) from Natural England (Ref 25), no peat is identified within the draft Order Limits. However, if peat is identified through the soil / ALC or ground investigation, a peat survey would be undertaken to characterise peat and inform the development of a PMP. |
| | Natural England agree with the scoped in potential effects, however, should also consider the potential permanent loss of BMV agricultural land as a result of the damage to the soil resource during construction, causing a downgrading of the ALC grade.<br>Due to the scale of the development, consideration of the sustainable management of the soil resource should be included in the ES and inform site layout and master-planning, including making best use of the soil resource. | Full assessment of the impacts on the receptors of agricultural land including BMV land and soils will be set out in the ES. The assessment on soils will include the loss of soil volume, soil functions and damage to soil structure from soil handling.<br>Site-won soils would be reused either in situ or ex situ to protect soil resource. |
| | Natural England agree the outcome of the ALC survey should inform soil management.<br>We advise the applicant to prepare a SMP and a PMP. | An outline SMP will be produced and appended in the ES and will be further developed in accordance with industry good practice and the evolution of the design during DCO, post consent and preconstruction. |

| Organisation and Date | Summary of Engagement | Consideration within Scoping Report |
|---|---|---|
| | | A PMP would be prepared if any peat is identified during the surveys and ground investigations. |
| North East Lincolnshire Council (Scoping Technical Engagement document has been shared with the Council) | | |
| North Yorkshire Council (Scoping Technical Engagement document has been shared with the Council) | | |
| East Riding of Yorkshire Council (Scoping Technical Engagement document has been shared with the Council) | | |
| North Lincolnshire Council (Scoping Technical Engagement document has been shared with the Council) | | |

## 5.6 Study Area

5.6.1 The Study Area for agriculture and soils comprises the area which would be directly affected by the Project (through disturbance to agricultural land and soils or the temporary covering of the soils; disturbance or severance to farm activities), i.e. the land within the draft Order Limits, as shown in Volume 2: Figure 1.1.

5.6.2 The defined Study Area for the receptors of agricultural land and soils would be the land within the draft Order Limits where the agricultural land and soils would be disturbed from the Project. This would predominantly be the Construction Working Width, access tracks and construction compounds as stated in section 3.6 in Chapter 3: Description of the Project.

5.6.3 The defined Study Area for the receptor of agricultural land holding would be farms within the draft Order Limits where farming activities would be disrupted or severed from the Project.

## 5.7 Receptors

5.7.1 Three receptors were identified to have potential likely effects on agriculture and soils and are as follows:

- Agricultural land including Best and Most Versatile (BMV) land.
- Soils (including peat).
- Agricultural land holdings.

## 5.8 Existing Baseline Conditions

### Land Use

5.8.1 Satellite imagery indicates that the majority of agricultural land within the draft Order Limits is in arable use and with small areas of grassland (with the potential to be used for grazing pasture).

### Agricultural Land Quality and ALC Grades

5.8.2 The majority of the agricultural land within the draft Order Limits falls under ALC Grades 1 and 2 as indicated by the Provisional ALC Map and Likelihood of BMV Agricultural Land with a some being mapped as ALC Grade 3 and small areas as ALC Grade 4.

5.8.3 MAGIC (Ref 5.20) shows that detailed previous ALC surveys were conducted in small areas (less than 30ha) within the draft Order Limits around Drax, Winterton and Ferriby Sluice.

5.8.4 ALC surveys on approximately 17% (180ha) of the pipeline of the Project were conducted by other parties and the collection of the survey data is in under way.

## Soils

5.8.5 The National Soil Map of England and Wales (Ref 5.19) shows that the following twenty-two Soil Associations are mapped as being present within the draft Order Limits, listed from the west (Drax) to the east (Easington) of the draft Order Limits:

- Foggathorpe 2 is dominated by slowly permeable clayey and fine loamy over clayey stoneless soils on glaciolacustrine clay.
- Romney consists of calcareous, coarse silty soils formed in marine alluvium.
- Blackwood dominated by deep permeable sandy and coarse loamy soils in glaciofluvial drift.
- Fladbury 3 are stoneless clayey, fine silty and fine loamy soils affected by groundwater.
- Newport 1 consists mainly of well drained medium sandy soils formed in glaciofluvial and river terrace deposits and, in a few places, stoneless, aeolian sand.
- Blacktoft is dominated by calcareous fine silty soils in marine alluvium.
- Aberford is Shallow, locally brashy well drained calcareous fine loamy soils over limestone. Some deeper calcareous soils in colluvium.
- Banbury is well drained brashy fine and coarse loamy ferruginous soils over ironstone. Some deep fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.
- Wallasea 1 is deep stoneless non-calcareous and calcareous clayey soils. Soils locally have humose or peaty surface horizons. Groundwater controlled by ditches and pumps. Flat land. Slight risk of flooding.
- Aswarby is shallow permeable calcareous fine loamy soils over limestone, some affected by groundwater. Some slowly permeable seasonally waterlogged clayey soils.
- Kexby consists mainly of very permeable fine sandy stoneless soils in aeolian sand over clay at a depth of 2 to 3m.
- Burlingham 2 is dominated by fine loamy soils with slowly permeable subsoils formed in chalky till.
- Landbeach consists mainly of permeable calcareous and non-calcareous loamy soils which are affected by groundwater and overlie chalky glaciofluvial and river terrace drift.
- Andover 1 is shallow well drained calcareous silty soils over chalk on slopes and crests. Deep calcareous and non-calcareous fine silty soils in valley bottoms. Striped soil patterns locally.

- Swaffham prior is well drained calcareous coarse and fine loamy soils over chalk rubble. Some similar shallow soils. Deep non-calcareous loamy soils in places. Striped and polygonal soil patterns locally. Slight risk of water erosion.
- Hunstanton is dominated by well drained fine and coarse loamy, often reddish soils in loamy till.
- Wick 1 is deep well drained coarse loamy and sandy soils locally over gravel. Some similar soils affected by groundwater. Slight risk of water erosion.
- Newchurch 2 is deep stoneless mainly calcareous clayey soils. Groundwater controlled by ditches and pumps. Flat land. Risk of flooding in places.
- Holderness consists mainly of slowly permeable fine loamy and moderately permeable coarse loamy soils on chalky till and glaciofluvial drift.
- Bishampton 1 consists of deep, occasionally waterlogged, slowly permeable, fine loamy soils and well drained coarse and fine loamy soils, in glaciofluvial, glaciolacustrine, and river terrace drift.
- Wallasea 2 consists of deep stoneless clayey soils. Calcareous in places. Some deep calcareous silty soils. Flat land often with low ridges giving a complex soil pattern. Groundwater controlled by ditches and pumps.
- Flint is reddish fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some similar fine loamy soils and some slowly permeable seasonally waterlogged fine loamy over clayey soils.

## Future Baseline Conditions

### Soils, Agricultural Land Quality, ALC Grades and Land Use

5.8.6 The future baseline relates to known or foreseeable changes to the current baseline in the future which will be assessed as part of the Project in the PEIR and the ES.

5.8.7 Climate change is known to impact soil conditions and agriculture through more extreme seasonal variations, such as wetter, stormier winters and drier summers. However, it is considered that the future baseline information, including soil type (and its main properties), agricultural land quality (ALC grades) and land use, will remain consistent with the existing baseline information described within the Project timeframe.

5.8.8 Future changes to land management practices and business approaches by landowners or managers may occur irrespective of whether the Project goes ahead; however, these changes are currently unknown and cannot be assessed.

5.8.9 Other projects overlapped with the draft Order Limits may have effects on future baseline. The information of other projects will be collected and its effects to the current baseline in the future will be assessed in the PEIR and the ES.

## 5.9 Design, Mitigation and Enhancement Measures

5.9.1 It is envisaged that embedded mitigation measures would be included in the Project design to consider using poorer quality over better quality land if practicable, when determining permanent land take.

5.9.2 Additional possible mitigation measures identified at this early Scoping stage are summarised below. The temporary nature of many construction activities and the subsequent reinstatement of the land is likely to result in the avoidance of long-term impacts on agricultural land and soil. Any measures adopted would be dependent on the outcome of the PEIR / ES assessment. A range of measures that could be adopted to achieve this are as follows:

- The sustainable re-use of the soil resource would be undertaken in line with the Construction Code of Practice for the Sustainable Use of Soil on Construction Sites.
- An outline SMP would be developed and a detailed SMP would be required to be in place prior to any soil handling operations commencing. The SMP would include information on the soil resources present and on the handling methods and measures which would be implemented, including (but are not limited to):
  - Development of a detailed SMP by the Principal Contractor, which would include detail on existing soil information, proposed storage locations and management measures.
  - Ensuring soils are stripped and handled in the driest condition possible.
  - Ensuring topsoil and subsoil resources are stripped and stockpiled separately.
  - Good stockpile maintenance.
  - Confining vehicle movements to defined routes until all the soil resource has been stripped.
  - Ensuring the physical condition of the replaced soil profile is sufficient for the post construction use.

5.9.3 Industry standard measures would be put in place at construction compounds along the route to control pollution, including from fuel or chemical stores, silt-laden runoff or dust as detailed in the following: Chapter 6: Air Quality, Chapter 9: Ground Conditions and Hydrogeology and Chapter 16: Waste and Materials.

5.9.4 Toolbox talks will be used to inform all those working on the site of the requirements for soil handling and minimisation of disturbance to agricultural activities to minimise potential impacts on the remainder of the landholding and on neighbouring landholdings during the construction phase. Details of the proposed toolbox talks will be presented in the SMP.

5.9.5 Biosecurity control and measures contained in relevant industry best practice guidance on the control and removal of invasive weed species will be implemented where appropriate.

5.9.6 Consultation with the landowners would be undertaken to reduce the impacts on the farm businesses, as far as practicable, especially during the construction phase. This will include agreement of assurances and obligations that the Applicant would accept upon entering the land.

## 5.10 Description of Potential Likely Significant Effects

5.10.1 This section sets out the potential likely significant effects of the Project on agricultural land, soils and agricultural land holdings. It assumes that the relevant embedded measures and good practice measures currently proposed in Section 5.10 to be set out within the CEMP are in place before assessing the effects.

### Construction

5.10.2 During construction there would be potential temporary and permanent loss of agricultural land (including BMV) from agricultural productivity where land is required for construction activities and permanent infrastructure. The nature of the development (i.e. predominantly below-ground) would result in primarily short-term and temporary impacts for the construction, except where there would be permanent loss of land for Above Ground Installation (AGIs) and the Pump Facility.

5.10.3 The proposal for up to 13 AGIs would potentially result in the permanent loss of up to 12.9 ha of provisionally mapped Grades 1 and 2 land. Construction would require the temporary loss of up to approximately 440 ha of agricultural land, the majority of which could comprise BMV land.

5.10.4 Within the construction footprint there is the potential for disturbance to soils due to their excavation, stripping, stockpiling and reinstatement. These activities have the potential to damage the soil physical characteristics (e.g., causing soil compaction) and result in changes to the biological functioning and associated chemistry. These changes have the potential to impact on the ecosystem services that the soils provide.

5.10.5 The agricultural land holdings within the draft Order Limits are predominantly arable farms. The construction would inevitably disrupt farming activities, e.g., through severance, although temporary access would be considered in the design and provided during construction.

### Operation

5.10.6 There would be no effect expected on agricultural land from the Project during operation as temporary land take during construction would have been returned

to agriculture and landowners / tenants, and permanent land take for AGIs and the Pump Facility would be taken out of agricultural use during the construction phase.

5.10.7 During operation, soil temperatures around the pipeline may be increased as a result of higher fluid temperatures within the pipeline. This may have potential effects on soils (in terms of root growth, soil water balance). As such, soil temperature is scoped in.

5.10.8 There may be some potential minimal disturbance to soils and agricultural land holding during operation as a result of maintenance and repair activities, but these are likely to be limited in scale and temporary. It is proposed that the operational phase is scoped out.

### Decommissioning

5.10.9 During decommissioning there would be temporary loss of agricultural land (including BMV) from agricultural productivity where land is required for decommissioning activities, this would lead to large scale of disturbance to BMV. The decommissioning of AGIs and the Pump Facility would lead to the land taken previously returned to its former use, including to agriculture; this would potentially result in beneficial effect.

5.10.10 Within the construction footprint required for decommissioning there would be a potential for the disturbance to soils due to their excavation, stripping, stockpiling and reinstatement. These activities have the potential to damage the soil physical characteristics (e.g., causing soil compaction) and result in changes to the biological functioning and associated chemistry. These changes have the potential to impact on the ecosystem services the soils provide.

5.10.11 The decommissioning work would inevitably disrupt farming activities e.g., through severance although temporary access would be considered in the design and provided during decommissioning.

## 5.11 Summary of the Proposed Scope of Assessment

5.11.1 The matters scoped in or out of further assessment for Agriculture and Soils are outlined in Table 5-12.

*Table 5-12 – Matters Scoped In or Out of Further Assessment*

| Receptor | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| Agricultural land | Construction | ✓ | | Potential loss of ALC Grade 1 and 2 land from AGIs and large scale of disturbance to BMV land. | Natural England, advice from consultation feedback on BMV land. |
| | Operation | | ✓ | No effect would be expected on agricultural land during operation as temporary land take during construction would have been returned to agriculture and permanent land take for AGIs would be out of agricultural use. | |
| | Decommissioning | ✓ | | The decommissioning of AGIs would potentially lead to the land taken previously return to agriculture, this would potentially result in a beneficial effect. | |
| Soils | Construction | ✓ | | Large scale of disturbance to soils and clayed soils. | Natural England, advice from consultation |
| | Operation | | ✓ (disturbance) | Minimal disturbance to soils from potential maintenance work is expected as work would be limited to existing hardstanding. | |

| Receptor | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| | | ✓ (temperature) | | The soil temperatures above the pipeline may be increased due to higher fluid temperatures within the pipeline. This may have potential likely effects on soils. | feedback on soils. |
| | Decommissioning | ✓ | | Due to large scale of disturbance to soils and clayed soils through decommissioning activities. | |
| Agricultural land holdings | Construction | ✓ | | The construction activity would inevitably disrupt farming activities e.g., severance although temporary access would be considered in the design and provided during construction. | No consultation feedback received to date. |
| | Operation | | ✓ | Minimal disturbance to agricultural land holding from potential maintenance work expected during the operational phase. | |
| | Decommissioning | ✓ | | The decommissioning activity would inevitably disrupt farming activities e.g., severance although temporary access would be considered in the design and provided during construction. | |

## 5.12 References


- Ref 5.1 – The Agricultural Land (Removal of Surface Soil) Act (1953).
- Ref 5.2 – Environmental Act 2021.
- Ref 5.3 – Department for Energy Security & Net Zero (November 2023). National Policy Statement for Energy (EN-1).
- Ref 5.4 – Department for Energy Security & Net Zero (November 2023). National Policy Statement for Natural Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4).
- Ref 5.5 – Department for Environment, Food and Rural Affairs (2009). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.
- Ref 5.6 – Ministry of Agriculture Fisheries and Food (1998). Agriculture land classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land.
- Ref 5.7 – Ministry of Housing, Communities and Local Government (MHCLG) (December 2023). National Planning Policy Framework (NPPF).
- Ref 5.8 – North Yorkshire Council (2024). Selby Local Plan, Revised Publication 2024.
- Ref 5.9 – East Riding of Yorkshire Council (March 2023). East Riding Local Plan Strategy Document 2012-2019.
- Ref 5.10 – North Lincolnshire Council (June 2011). North Lincolnshire Local Development Framework Core Strategy.
- Ref 5.11 – North East Lincolnshire Council (2018). Local Plan 2013 to 2032 (Adopted 2018).
- Ref 5.12 – Defra (2009). Safeguarding our Soils. A strategy for England.
- Ref 5.13 – Natural England (2021). Guide to assessing development proposals on agricultural land- GOV-UK, https://www.gov.uk/government/publications/agricultural-land-assess-proposals-for-development/guide-to-assessing-development-proposals-on-agricultural-land.
- Ref 5.14 – IEMA (2022) A New Perspective on Land and Soil in Environmental Impact Assessment.
- Ref 5.15 – Defra (2009). Construction Code of Practice for the Sustainable Re-use of Soils on Construction Sites.
- Ref 5.16 – National Highways (2020). Design Manual for Roads and Bridges (DMRB) LA112: Population and human health.
- Ref 5.17 – British Society of Soil Science (2022). Working with Soil Guidance Note on Benefitting from Soil Management in Development and Construction.
- Ref 5.18 – Google LLC (2024). Google Earth Pro 7.3.6.9796.

- Ref 5.19 – Cranfield University (2024). National Soil Map of England and Wales – NATMAP.
- Ref 5.20 – Department for Environment, Food and Rural Affairs (2024). Magic Map Application.
- Ref 5.21 – Natural England (2017). Likelihood of Best and Most Versatile (BMV) Agricultural Land - Strategic scale maps.
- Ref 5.22 – Ministry of Agriculture Fisheries and Food (1998). Agriculture land classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land.
- Ref 5.23 – Hodgson, J. M (ed). (2022). The Soil Survey Handbook. Soil Survey Technical Monograph No.5, Cranfield.

# 6 Air Quality

## 6.1 Introduction

6.1.1 This chapter presents how the air quality assessment will consider the potentially significant effects on air quality receptors that may arise from the construction / commissioning, operation, maintenance and decommissioning of the Project. This chapter of the Scoping Report describes the methodology to be used within the air quality assessment, the datasets to be used to inform the assessment, the baseline conditions, the potential likely significant effects to be considered within the assessment, and how those effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

6.1.2 This chapter should be read in conjunction with:

- Chapter 7: Ecology and Biodiversity – for further details of designated sites referred to in this chapter.
- Chapter 8: Climate Change, Adaptation and Resilience – for further details of the potential climate impacts from the Project.
- Chapter 14: Human Health and Wellbeing – considers air quality to inform the assessment of human health and wellbeing.
- Chapter 15: Traffic and Transport – for further information on construction vehicles and information used to inform scoping of traffic emissions.

6.1.3 This chapter is supported by the following figures:

- Figure 6.1: Air Quality Constraints.

## 6.2 Legislation, policy and guidance

6.2.1 The assessment to be undertaken to inform the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) will as appropriate be undertaken in accordance with, and / or with regard to, the following legislation, policy and guidance.

### Legislation

6.2.2 The assessment will be undertaken in accordance with, and with reference to, the following legislation:

- Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe (European Union (EU), 2008) (Ref 6.1). This sets legally binding limits for concentrations of specific air pollutants. It merges, consolidates and replaces the majority of previous EU air quality legislation, and incorporates the Fourth Daughter Directive. Whilst the UK has now left the EU, the Air Quality Standards Regulations 2010 (as amended) (HMSO, 2010) (Ref 6.2) which implement the Directive still apply in UK legislation as ‘retained EU law’.

- The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 (HMSO, 2019) (Ref 6.3). These regulations amend the Air Quality Standards Regulations 2010 to reflect the UK's departure from the EU.
- Air Quality (England) Regulations 2000/2002. The Air Quality (England) Regulations 2000 (HMSO, 2000) (Ref 6.4) and the Air Quality (England) (Amendment) Regulations 2002 (HMSO, 2002) (Ref 6.5) set national air quality objective levels for local authorities to meet in England.
- Part IV of the Environment Act 2021 (HMSO, 2021) (Ref 6.6). The Environment Act 2021 requires the UK Government to produce a national Air Quality Strategy (AQS), which contains standards, objectives and measures for improving ambient air quality. Where the air quality standards are not being met, a local authority is required to designate an Air Quality Management Area (AQMA).
- Environmental Protection Act 1990 (HMSO, 1990) (Ref 6.7). Part III of the Environmental Protection Act 1990 provides legislation around statutory nuisance, which applies to dust.
- The Environmental Targets (Fine Particulate Matter) England Regulations 2023 (HMSO, 2023) (Ref 6.8) sets targets for particulate matter less than 2.5µm in diameter.
- The Non-Road Mobile Machinery (NRMM) (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018 (HMSO, 2018) (Ref 6.9) set out gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for NRMM.

## Policy

### National Planning Policy

#### National Policy Statements

6.2.3 As detailed in Chapter 1 - Introduction, National Policy Statements (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Project would be considered. The two relevant NPSs are Overarching National Policy Statement for Energy (EN-1) (Department for Energy Security & Net Zero, 2023) (Ref 6.10) and National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Department for Energy Security & Net Zero, 2023) (Ref 6.11).

6.2.4 Table 6-1 sets out how the NPSs are relevant to the air quality assessment.

*Table 6-1 – Relevant Sections of the Relevant National Policy Statements*

| National Policy Statement | NPS Section | How it will be Considered |
|---|---|---|
| EN-1 | 5.2.1 (part) *"Infrastructure development can have adverse effects on air quality. The construction, operation and decommissioning phases can involve emissions to air which could lead to adverse impacts on health, on protected species and habitats, or on the wider countryside and species."* | The air quality assessment will consider the effects and resulting impacts associated with the construction / commissioning, operation and decommissioning phases as set out in Section 6.3. |
| EN-1 | 5.2.3 *"For many air pollutants there is not a threshold below which there is no health impact so it is important that energy infrastructure schemes consider not just how a scheme may impact statutory air quality limits, objectives or targets but also measures to mitigate all emissions in order to minimise human exposure to air pollution, especially for those who are more susceptible to the impacts of poor air quality."* | The air quality assessment will consider whether the Project is likely to lead to a breach of the air quality thresholds. Mitigation measures will be proposed where required. |
| EN-1 | 5.2.4 [part] "*A particular effect of air emissions from some energy infrastructure may be eutrophication, which is the excessive enrichment of nutrients in the environment. Eutrophication from air pollution results mainly from emissions of NOx and ammonia*." | The air quality assessment will consider air emissions from the Project and their effect on human and ecological receptors, as detailed in Section 6.3. |
| EN-1 | 5.2.5 [part] "*Emissions from combustion plants are generally released through exhaust stacks. Design of exhaust stacks, particularly height, is the primary driver for the delivery of optimal dispersion of emissions and is often determined by statutory requirements. The optimal stack height is dependent upon the local* | The air quality assessment will include an assessment of combustion plant and NRMM emissions, where applicable. |

| National Policy Statement | NPS Section | How it will be Considered |
|---|---|---|
| | *terrain and meteorological conditions, in combination with the emission characteristics of the plant."* | |
| EN-1 | 5.2.8 *"Where the project is likely to have adverse effects on air quality the applicant should undertake an assessment of the impacts of the proposed project as part of the ES."* | Screening of relevant data will be undertaken to determine where the Project is likely to have adverse impacts on air quality, the effects of which, will be assessed as part of the air quality assessment. |
| EN-1 | 5.2.9 "*The ES should describe*:<br>• Existing air quality concentrations and the relative change in air quality from existing levels.<br>• Any significant air quality effects, mitigation action taken and any residual effects, distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project.<br>• The predicted absolute emissions, concentration change and absolute concentrations as a result of the proposed project, after mitigation methods have been applied.<br>• Any potential eutrophication impacts." | Should screening of traffic data for any of the project stages indicate detailed assessment is required, then dispersion modelling will be undertaken as part of the air quality assessment to determine the change in pollutant concentrations as a result of the Project at relevant human and ecological receptor locations. |
| EN-1 | 5.2.10 *"Applicants should consider the Environment Targets (Fine Particulate Matter) (England) Regulations 2022 and associated Defra guidance."* | All the relevant legislation and guidance will be considered in the air quality assessment. |

| National Policy Statement | NPS Section | How it will be Considered |
|---|---|---|
| EN-1 | 5.2.13 [part] *"The Secretary of State should consider whether mitigation measures are needed both for operational and construction emissions over and above any which may form part of the project application. A construction management plan may help codify mitigation at this stage."* | Mitigation measures will be proposed in the air quality assessment, where required. |
| EN-1 | 5.7.5 *"The applicant should assess the potential for insect infestation and emissions of odour, dust, steam, smoke, and artificial light to have a detrimental impact on amenity, as part of the ES."* | An air quality assessment will be undertaken to determine where the Project is likely to have adverse impacts on air quality. Mitigation measures will be proposed where required. |

### National Planning Policy Framework

6.2.5 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities & Local Government, 2023) (Ref 6.12)[5] sets out the Government's core policies and principles with respect to land use planning, including air quality. Paragraph 192 of the NPPF states:

> *"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."*

6.2.6 The National Planning Practice Guidance (NPPG) (Ministry of Housing, Communities and Local Government, 2019) (Ref 6.13) includes guidance relating to: planning and air quality; the role of Local Plans with regard to air quality; when air quality is likely to be relevant to a planning decision; what should be included within an air quality assessment and how impacts on air quality can be mitigated.

6.2.7 The assessment follows the guidance which contains recommendations when undertaking an air quality assessment for the purpose of applying NPPF policy.

### Local Planning Policy

6.2.8 The Project lies within the jurisdictions of North Yorkshire, East Riding of Yorkshire, North Lincolnshire and North East Lincolnshire. A summary of the relevant local planning policy which is relevant to a study of air quality matters will inform the air quality assessment in the ES is provided in Table 6-2.

[5] This EIA Scoping Report makes reference to the December 2023 update of the NPPF. The PEIR will provide an update of applicable legislation and policy, which will include consideration of the December 2024 NPPF update (or any subsequent update).

*Table 6-2 – Relevant Local Planning Policies*

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| Selby District Council Local Plan (Selby District Council, 2022) (Ref 6.14) | Policy NE7: Air Quality | *"Development will not be supported where it;*<br>*1. Results in further significant air quality deterioration, or the need to declare further Air Quality Management Areas (AQMAs); and*<br>*2. Results in any increase in the number of people exposed to poor air quality; and*<br>*3. Conflicts with elements of an Authority Air Quality Action Plan (AQAP).*<br>*Developments will only be permitted if the impact on air quality is acceptable and mechanisms are in place to mitigate adverse impacts and prevent further exposure to poor air quality. This will help to protect human health.*<br>*Mitigation measures should ensure consistency with the Council's Air Quality Action Plan and the Habitats Regulation Assessment where impacts are related to the diversity of ecosystems, and where impacts are traffic related, the North Yorkshire Local Transport Plan."* | The air quality assessment will consider air quality impacts associated with the Project, and measures to mitigate any impacts will be proposed, where required.<br>Mitigation measures will be proposed where necessary to ensure that the overall air quality impacts of the Proposed Project are not significant and will be consistent with all relevant Council plans and assessments. |
| East Riding Local Plan (East Riding of Yorkshire | Policy ENV6: Managing environmental hazards | *"Environmental hazards, such as flood risk, coastal change, groundwater pollution and other forms of pollution, will be managed to ensure that development does not result in unacceptable* | Mitigation measures will be proposed where necessary to ensure that the overall air |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| Council, 2016) (Ref 6.15) | | *consequences to its users, the wider community, and the environment."* | quality impacts of the Project are not significant. |
| North Lincolnshire Local Development Framework Core Strategy (North Lincolnshire Council, 2011) (Ref 6.16) | Spatial Objective 7: Efficient Use and Management of Resources | *"To ensure the efficient use of resources, minimising pollution, maintaining and improving air and employing sustainable building practices in new development."* | The air quality assessment will consider air quality impacts associated with the Project, and measures to mitigate any impacts will be proposed, where required. |
| (Withdrawn) North Lincolnshire Local Plan (2020 – 2038) (North Lincolnshire Council, 2021) (Ref 6.17) | Policy DM3: Environmental Protection | *"The Council will seek to ensure that proposals for new development will not have an unacceptable negative impact on air quality and will not further exacerbate air quality in the Scunthorpe Town AQMA or contribute to air pollution in areas which may result in a new AQMA. Applicants will be required to provide an air quality impact assessment to demonstrate this.*<br>*The Council will seek to ensure that where a sensitive use is being proposed in an area of* | Air quality impacts will be assessed at sensitive receptors within the air quality study area, where required. Appropriate mitigation measures will be proposed where necessary. |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| | | *known poor air quality, the applicant will be required to provide an air quality impact assessment to demonstrate the development will not result in adverse effects on human health and local amenity."* | |
| North East Lincolnshire Local Plan 2013 to 2032 (North East Lincolnshire Council) (Ref 6.18) | Policy 31: Renewable and low carbon infrastructure | *"Proposals for renewable and low carbon energy generating systems will be supported where any significant adverse impacts are satisfactorily minimised, and the residual harm is outweighed by the public benefits of the proposal. Developments and their associated infrastructure will be assessed on their merits and subject to the following impact considerations, taking account of individual and cumulative effects: local amenity, including noise, air quality, traffic, vibration, dust and visual impact."* | Air quality impacts will be assessed at sensitive receptors within the air quality Study Area, where required. Appropriate mitigation measures will be proposed where necessary. |

### Guidance

6.2.9 The air quality assessment will be carried out in accordance with the following good practice and guidance documents:

- The Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024) (Ref 6.19) (hereafter referred to as the 'IAQM construction dust guidance') – provides a mechanism for the assessor to consider both the magnitude of emissions and sensitivity of an area in order to define the level of risk of dust soiling, human health impacts and impacts on ecological sites during the construction phase. Defining the construction dust risk levels allows appropriate mitigation measures to be adopted.
- The Environmental Protection UK (EPUK) and IAQM Guidance on Land Use Planning and Development Control: Planning for Air Quality (EPUK & IAQM, 2017) (Ref 6.20) (hereafter referred to as the 'EPUK and IAQM development control guidance') – applicable in assessing the effect of changes in exposure of members of the public resulting from developments such as the Project. It provides guidance on how to decide whether an air quality assessment is required, how to undertake a suitable assessment of operational impacts and whether these are to be considered significant or not, and how to identify whether additional mitigation is required.
- Department for Environment, Food and Rural Affairs (Defra) Local Air Quality Management Technical Guidance (LAQM.TG (22)) (Defra, 2022) (Ref 6.21) – provides best practice principles for the technical assessment of local air quality including the use of monitoring data, selection of receptors and verification procedure. It also provides guidance for the application of Defra tools and resources used for the technical assessment of air quality.
- The IAQM Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (Ref 6.22) (hereafter referred to as IAQM ecological guidance) provides guidance on assessing the potential impacts of air quality on designated nature conservation sites.
- National Highways DMRB LA105 Air Quality (National Highways, 2019) (Ref 6.23) – provides guidance on the assessment of vehicle emissions.

## 6.3 Proposed Assessment Methodology

### Dust Emissions Assessment

6.3.1 During the construction / commissioning and decommissioning phases, there is the potential for fugitive dust emissions to occur as a result of construction / commissioning and decommissioning activities. These will be assessed in accordance with the methodology outlined in the IAQM construction dust guidance (Ref 6.19).

**Value / Sensitivity**

6.3.2 The sensitivity of the area to dust impacts, can be defined as low, medium or high sensitivity, in accordance with the IAQM construction dust guidance (Ref 6.19).

6.3.3 The influencing factors to define receptor sensitivity to dust impacts are as follows:

- **High** – where human receptors are expected to be present continuously for extended periods of time and where a high level of amenity is expected e.g., residential properties, hospitals, schools and care homes. Internationally or nationally designated ecological sites where the designated features may be affected by dust soiling, or where there is a particular dust sensitive species.
- **Medium** – where human receptors wouldn't reasonably be expected to be present continuously or regularly for extended periods and where a reasonable level of amenity is expected which could be diminished by dust soiling e.g., parks and places of work. Nationally designated ecological sites with dust sensitive features.
- **Low** – where enjoyment of amenity would not reasonably be expected and exposure would be for limited periods e.g., footpaths, shopping streets and car parks. Locally designated ecological sites where the features may be affected by dust.

**Impact Magnitude**

6.3.4 The scale and nature of the works determines the magnitude of dust arising as small, medium or large.

6.3.5 The relevant criteria to define the potential magnitude of dust emissions includes the following factors:

- **Small** – demolition volume under 12,000 $m^3$ less than 6m above ground level, total site area less than 18,000 $m^2$, soil type with large grain size, formation of bunds less than 3 m in height, total construction building volume less than 12,000 $m^3$, construction material with low potential for dust release, less than 20 outward Heavy-Duty Vehicle (HDV) trips per day, unpaved road length less than 50 m.
- **Medium** – demolition volume between 12,000 $m^3$ and 75,000 $m^3$ at 6 m to 12 m above ground level, total site area between 18,000 $m^2$ and 110,000 $m^2$, moderately dusty soil type, formation of bunds between 3 m and 6 m, potentially dusty construction material, total building volume between 12,000 $m^3$ and 75,000 $m^3$, 20 to 50 outward HDV trips per day, unpaved road length 50 m to 100 m.
- **Large** – on-site crushing and screening demolition, demolition volume greater than 75,000 $m^3$ at greater than 12 m above ground level, total site area greater than 110,000 $m^2$, potentially dusty soil type, more than 10 heavy earth moving vehicles active at any one time, formation of bunds greater than

6m in height, total building volume greater than 75,000 $m^2$, on site concrete batching, sandblasting, more than 50 outward HDV trips per day, unpaved road length greater than 100 m.

**Significance of Effect**

6.3.6 The IAQM construction dust guidance (Ref 6.19) categorises the unmitigated risk of dust impacts on human health and amenity (rather than ascribe a significance of effect) as a means of identifying the level of dust emissions mitigation required to ensure that residual effects are 'not significant'. A higher dust risk rating requires more stringent mitigation measures in order to limit residual effects.

## Vehicle Emissions Assessment

6.3.7 During the construction / commissioning and decommissioning phases, there will be emissions from vehicles. The EPUK & IAQM development control guidance (Ref 6.20) details its own indicative criteria that, if met, highlight the need for further assessment, rather than necessarily defining the boundaries of a Study Area. The screening criteria for vehicle emissions assessment are as follows:

- A change in Light Duty Vehicle (LDV) flows of >100 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA, or >500 AADT elsewhere.
- A change in Heavy Duty Vehicle (HDV) flows of >25 AADT within or adjacent to an AQMA, or >100 AADT elsewhere.
- Where a road is realigned by 5 m or more and is within an AQMA.
- Where a junction is added or removed close to existing receptors.

6.3.8 Assessment of vehicle emissions will be undertaken should the screening of traffic data meet the criteria set out by EPUK and IAQM development control guidance (Ref 6.20). If these criteria are not exceeded, then the guidance considers air quality impacts associated with a project in terms of traffic emissions to be negligible and no further assessment is required.

6.3.9 During the operational and maintenance phase, the Project will be manned by a limited number of operatives across the site, with additional infrequent trips associated with maintenance / inspections or repairs when required. Vehicle trips are therefore likely to be well below the EPUK and IAQM Development Control screening criteria (Ref 6.20) and will likely be scoped out of further assessment. However, this will be confirmed at ES stage once further information regarding vehicle trip rates during the operational and maintenance phase is available.

**Value / Sensitivity**

6.3.10 Should screening of the relevant data indicate that any of the EPUK and IAQM screening criteria are met, then potential impacts at sensitive receptor locations would be assessed by calculating the change in nitrogen dioxide ($NO_2$), nitrogen oxides (NOx) and particulate matter concentrations as a result of the Project.

6.3.11 LAQM.TG (22) (Ref 6.21) defines a sensitive receptor as a location representative of human (or ecological) exposure to a pollutant, over a time period relevant to the objective that is being assessed against, where the AQS objectives are considered to apply, as detailed in Table 6-3.

*Table 6-3 – Examples of where the Air Quality Standards (AQS) Objectives Apply*

| Averaging Period | Objectives should apply at: | Objectives should not apply at: |
|---|---|---|
| Annual mean | All locations where members of the public might be regularly exposed.<br>Building façades of residential properties, schools, hospitals, care homes etc. | Building façades of offices or other places of work where members of the public do not have regular access.<br>Hotels, unless people live there as their permanent residence.<br>Gardens of residential properties.<br>Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short-term. |
| 24-hour mean | All locations where the annual mean objective would apply, together with hotels and gardens of residential properties. | Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short-term. |
| 1-hour mean | All locations where the annual mean and 24-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets).<br>Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more.<br>Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer. | Kerbside sites where the public would not be expected to have regular access. |

### Impact Magnitude

6.3.12 Detailed dispersion modelling would be undertaken using the Atmospheric Dispersion Modelling System (ADMS) model to predict pollutant concentrations at worst case receptor locations within 200m of affected vehicle routes (i.e. those routes which exceed the EPUK and IAQM criteria). The magnitude of change would be calculated, and total concentrations compared against relevant AQS objectives / critical values.

### Significance of Effect

6.3.13 The significance of effects would be assessed in accordance with the EPUK and IAQM development control guidance (Ref 6.20) and is dependent upon the percentage change in concentration between the 'without and with development' scenarios, relative to the relevant AQS Objectives, as presented in Table 6-4.

*Table 6-4 – EPUK and IAQM Impact Descriptors for Individual Receptors*

| Long-term Average Concentration at Receptor in Assessment Year | Percentage Change in Concentration Relative to Air Quality Assessment Level (AQAL)* | | | |
|---|---|---|---|---|
| | 1 | 2-5 | 6-10 | >10 |
| 75% or less of AQAL | Negligible | Negligible | Slight | Moderate |
| 76 – 94% of AQAL | Negligible | Slight | Moderate | Moderate |
| 95 – 102% of AQAL | Slight | Moderate | Moderate | Substantial |
| 103 – 109% of AQAL | Moderate | Moderate | Substantial | Substantial |
| 110% or more of AQAL | Moderate | Substantial | Substantial | Substantial |

** AQAL may be an air quality objective or EU limit or target value*

6.3.14 The EPUK & IAQM guidance (Ref 6.20) notes that the impact descriptors in Table 6-4 are for individual receptors only and the overall significance of effect should be determined using professional judgement, taking into the degree of impact and factors such as:

- The existing and future air quality in the absence of the development.
- The extent of current and future population's exposure to the impact.

- The influence and validity of any assumptions adopted when undertaking the prediction of impacts.

## Non-Road Mobile Machinery (NRMM) Emissions

6.3.15 The assessment of construction / commissioning and decommissioning phase NRMM emissions will be based on the IAQM and EPUK Development Control guidance (Ref 6.20), LAQM.TG22 (Ref 6.21) and professional judgement.

**Value / Sensitivity**

6.3.16 All air quality receptors are treated equally, with sensitivity being identified as locations representative of exposure to the averaging periods of relevant air quality objectives. LAQM.TG (22) (Ref 6.21) defines a sensitive receptor as a location representative of human (or ecological) exposure to a pollutant, over a time period relevant to the objective that is being assessed against, where the Air Quality Strategy objectives are considered to apply, as detailed in Table 6-4.

**Impact Magnitude**

6.3.17 If required, detailed dispersion modelling will be undertaken using ADMS to predict pollutant concentrations at worst case receptor locations. The magnitude of change will be calculated, and total concentrations compared against the relevant AQS objectives / critical values.

**Significance of Effect**

6.3.18 The significance of NRMM emissions effects will be assessed in accordance with the EPUK and IAQM Development Control guidance (Ref 6.21) where the overall significance of the Project in terms of NRMM emissions are then determined using professional judgement, taking into account factors such as the baseline and future air quality in the absence of the Project, the number of receptors affected and the influence and validity of any assumptions adopted when undertaking the assessment.

6.3.19 Significance of NRMM emissions effects for ecological receptors will be assessed in accordance with the Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (Ref 6.22). The guidance states that "*the 1% threshold has become widely used throughout the air quality assessment profession to define a reasonable quantum of long-term pollution which is not likely to be discernible from fluctuations in background / measurements*". As such, if the long-term Process Contribution (PC) is less than 1% of the critical level (30 µg/m$^3$), then the effect of NRMM emissions is considered to be not significant. Where the 1% threshold is exceeded, this does not necessarily mean that a significant effect is caused, it requires further assessment work to evidence a conclusion as to whether the change in air quality is likely to cause a significant effect on the ecological receptor.

### Back-Up Generator Emissions

6.3.20 A back-up diesel generator is proposed at the Pump Facility during the operational phase. This will be assessed following the methodology outlined for the assessment of NRMM emissions.

## 6.4 Limitations and Assumptions

6.4.1 The following assumptions and limitations have been identified:

- It is assumed that all construction activities other than construction traffic will take place within the draft Order Limits.
- It is assumed that venting activities will release small amounts of carbon dioxide only. This is considered to be a climate issue, rather than air quality and is therefore scoped out.
- There is limited detail on construction / commissioning, operational and decommissioning phase traffic routes and flows available at this stage. It is assumed that operational traffic will not meet the EPUK & IAQM screening criteria and is therefore scoped out. However, once traffic data is available, these will be screened against the criteria to determine whether detailed assessment is required.

## 6.5 Stakeholder Engagement

6.5.1 Engagement will be undertaken with relevant local authorities to agree the proposed methodology and approach for the air quality assessment. These local authorities include North Yorkshire Council, East Riding of Yorkshire Council, North Lincolnshire Council and North East Lincolnshire Council.

6.5.2 Engagement will be undertaken with the relevant local authorities and Natural England as summarised in Table 6-5 below. Engagement shall continue as appropriate throughout the environmental impact assessment process. There has not been any stakeholder engagement to date. However, moving forward engagement will be undertaken as described in Table 6-5.

*Table 6-5 – Summary of Proposed Engagement*

| Organisation and Date | Summary of Engagement |
|---|---|
| North Yorkshire Council | Scoping Opinion to be reviewed and any air quality specific comments will be addressed and discussed with the local authority where necessary. |

| Organisation and Date | Summary of Engagement |
|---|---|
| East Riding of Yorkshire Council | Scoping Opinion to be reviewed and any air quality specific comments will be addressed and discussed with the local authority where necessary. |
| North Lincolnshire Council | Scoping Opinion to be reviewed and any air quality specific comments will be addressed and discussed with the local authority where necessary. |
| North East Lincolnshire Council | Scoping Opinion to be reviewed and any air quality specific comments will be addressed and discussed with the local authority where necessary. |
| Natural England | Scoping Opinion to be reviewed and any air quality specific comments will be addressed and discussed where necessary. |

## 6.6 Study Area

### Construction Dust Assessment

6.6.1 In accordance with the IAQM construction dust guidance (Ref 6.19), the Study Area for the construction dust assessment is:

- 250 m from the Order Limits for human receptors and up to 50 m for ecological receptors.
- 50 m from the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

6.6.2 At this stage, construction activities are assumed to take place anywhere within the draft Order Limits, therefore as a worst-case approach, the construction dust Study Area will include an area up to 250 m from the edge of the draft Order Limits. The construction phase Study Area also includes the first 50m of any road up to 250m from the Project site entrance(s) used by the Project construction vehicles.

### Vehicle Emissions Assessment

6.6.3 The number of vehicles associated with the construction / commissioning, operation and decommissioning phases of the Project is not yet known. Should the criteria be exceeded, the Study Area would comprise an area within 200m of the roads which exceed the criteria in accordance with the DMRB LA105 Air Quality (Ref 6.23). This will be confirmed upon receipt and screening of the traffic data.

### NRMM Emissions Assessment

6.6.4 No specific guidance exists on the definition for a Study Area for NRMM point sources due to the large variation in the area of potential impact from different types of sources. For the purposes of this assessment identification of any receptors within 200 m of the construction compounds (where the majority of NRMM emissions are likely to occur) is considered appropriate given the size and temporary nature of the operations. Beyond this distance, it is judged that the effect of any emissions on local air quality would not be significant.

### Back-Up Generator Emissions Assessment

6.6.5 As with NRMM, no specific guidance exists on the definition for a Study Area for generators. For the purposes of this assessment a Study Area of up to 200 m radius from the Pump Facility is considered appropriate. Beyond this distance it is judged that the effect of any emissions on local air quality would not be significant.

## 6.7 Receptors

6.7.1 Construction dust impacts may affect human and ecological receptors. The IAQM construction dust guidance (Ref 6.19) defines a human receptor as:

> *"[…] any location where a person or property may experience the adverse effects of airborne dust or dust soiling, or exposure to PM over a time period relevant to the air quality objectives, as defined in the Government's technical guidance for Local Air Quality Management. In terms of annoyance effects, this will most commonly relate to dwellings but may also refer to other premises such as buildings housing cultural heritage collections (e.g., museums and galleries), vehicle showrooms, food manufacturers, electronics manufacturers, amenity areas and horticultural operations (e.g., salad or soft-fruit production)."*

6.7.2 An ecological receptor is defined as:

> *"[…] any sensitive habitat affected by dust soiling. This includes the direct impacts on vegetation or aquatic ecosystems of dust deposition, and the indirect impacts on fauna (e.g., on foraging habitats)."*

6.7.3 High sensitivity human receptors, including residential properties and schools, have been identified within 250 m of the draft Order Limits.

6.7.4 The following designated ecological sites within 250 m of the draft Order Limits have been identified:

- Humber Estuary Special Protection Area (SPA), Special Area of Conservation (SAC), Site of Special Scientific Interest (SSSI) and Ramsar.
- Greater Wash SPA.
- Eskamhorn Meadows SSSI.
- North Killingholme Haven Pits SSSI.
- South Ferriby Chalk Pit SSSI.
- Dimlington Cliff SSSI.
- Phoenix Parkway Local Nature Reserve (LNR).
- Phoenix LNR.
- Humberhead Levels Nature Improvement Area.
- Holderness Inshore – Marine Conservation Zone (MCZ).

6.7.5 Further details regarding the designated ecological sites, as well as non-designated sites in the vicinity of the Project are presented in Chapter 7: Ecology and Biodiversity.

6.7.6 Additional receptors may be identified within the vehicle emissions assessment Study Area if the EPUK and IAQM screening criteria (Ref 6.20) are met. Additional receptors may also be identified within the NRMM emissions and back-up generator emissions Study Areas once the site layout has been confirmed.

## 6.8 Current Baseline

6.8.1 The known or predicted current and future baseline environment will be informed by the following data sources:

- Defra UK Air website (Defra, 2024) (Ref 6.24) - to establish predicted background concentrations for $NO_2$, NOx, particulate matter less than 10 microns in diameter ($PM_{10}$) and $PM_{2.5}$.
- North Yorkshire Council 2023 Air Quality Annual Status Report, Locality report for former District of Selby (North Yorkshire Council, 2023) (Ref 6.25).
- East Riding of Yorkshire Council 2024 Air Quality Annual Status Report (East Riding of Yorkshire Council, 2024) (Ref 6.26).
- North Lincolnshire Council 2023 Air Quality Annual Status Report (North Lincolnshire Council, 2023) (Ref 6.27).
- North East Lincolnshire Council 2024 Air Quality Annual Status Report (North East Lincolnshire Council, 2024) (Ref 6.28).
- MAGIC website (Defra, 2024) (Ref 6.29) – to identify sensitive ecological sites within the air quality Study Area.
- Air Pollution Information System (Centre for Ecology and Hydrology, 2024) (Ref 6.30) – for ecological site relevant critical loads for nitrogen deposition rates.

6.8.2 As required by the Environment Act (2021) (Ref 6.6), the local authorities covering the anticipated air quality Study Areas (as described in Section 6.6: Study Area) have undertaken review and assessment of air quality within their area of jurisdiction. This process has identified the following AQMAs:

- North Yorkshire has declared eight AQMAs. The closest AQMA to the Project is AQMA No.1 in Selby which was declared for exceedance of the annual mean $NO_2$ AQS objective. This AQMA encompasses a section of New Street and a number of properties flanking the road between Selby Abbey and the junction with Ousegate. This AQMA is approximately 6km north-west of the Project draft Order Limits.
- North Lincolnshire Council has declared one AQMA in Scunthorpe Town which was declared for exceedance of the 24-hour mean $PM_{10}$ AQS objective. This AQMA encompasses the integrated steelworks site and a number of properties to the east of Scunthorpe. This AQMA is approximately 3km south of the Project draft Order Limits

6.8.3 East Riding of Yorkshire Council and North East Lincolnshire Council currently do not have any declared AQMAs. Grimsby AQMA, declared by North East Lincolnshire Council for exceedance of the annual mean $NO_2$ AQS objective was revoked in May 2024.

6.8.4 Local authority monitoring data is reported in each local authority's Annual Status Report (ASR). The most recently reported air quality data for North Yorkshire Council (Ref 6.25) and North Lincolnshire Council (Ref 6.27) is for 2023 and the most recently reported air quality data for East Riding of Yorkshire Council (Ref 6.26) and North East Lincolnshire Council (Ref 6.28) is for 2024. No exceedances of the AQS objectives for $NO_2$ or $PM_{10}$ were reported in 2023 or 2024.

6.8.5 The Project is located across several grid squares. Data for these grid squares were downloaded from the Defra UK-Air website (Ref 6.24), and the pollutant concentrations predicted for 2024 are shown in Table 6-6. Consistent with the local authority monitoring data, the background pollution maps suggest that existing air quality is likely to be within air quality objectives across the Project locations.

*Table 6-6 – Defra 2024 Annual Mean Background NOx, $NO_2$, $PM_{10}$ and $PM_{2.5}$ Concentrations for the Project*

| Pollutant | 2024 Background Pollutant Concentrations (µg/m$^3$) | | |
|---|---|---|---|
| | **Maximum** | **Average** | **Minimum** |
| NOx | 25.1 | 8.8 | 6.5 |
| $NO_2$ | 17.7 | 6.9 | 5.1 |
| $PM_{10}$ | 16.1 | 13.1 | 7.9 |

| Pollutant | 2024 Background Pollutant Concentrations (µg/m$^3$) | | |
|---|---|---|---|
| | Maximum | Average | Minimum |
| $PM_{2.5}$ | 7.7 | 5.9 | 4.5 |

### Future Baseline

6.8.6 Background pollutant concentrations are predicted to decrease in future years, as evidenced by trends observed from local authority monitoring data and future predicted Defra background map concentrations.

6.8.7 Traffic emissions are likely to contribute to baseline air quality concentrations in the vicinity of the Project. Whilst vehicle numbers are likely to increase, emissions (per vehicle) are predicted to decrease over time due to new technology, increasingly stringent emission regulations and cleaner fuel formulations.

6.8.8 Consented developments in the surrounding area may increase traffic flows in the vicinity of the Project. This may result in an increase in local air quality concentrations.

6.8.9 In addition, construction of any consented developments may result in a temporary increase in particulate concentrations as a result of fugitive dust emissions during construction works.

## 6.9 Design, Mitigation and Enhancement Measures

6.9.1 At the scoping stage it is currently assumed that measures relevant to the control and management of impacts that could affect the air quality assessment would be adopted through a plan such as a Construction Environmental Management Plan (CEMP). Measures required to mitigate any air quality impacts will be proposed in the PEIR and / or ES. Based on the risk assessment, these measures may include:

- Site layout will consider the location of sensitive receptors to minimise nuisance where practicable.
- Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so.
- Materials and equipment will not be moved or handled unnecessarily. When loading and unloading materials from vehicles, including cable drums and excavated materials, drop heights will be limited.
- Wheel washing will be assessed and where required will be provided at each main compound access point on to the highway. An adequate supply of water will be made available at these locations. Road sweepers will be

deployed on public roads where necessary to prevent excessive dust or mud deposits.

- Earthworks and stockpiled soils will be protected (to avoid dust generation) by covering, seeding or using water suppression where appropriate.
- Avoidance of bonfires and burning of waste material.
- The contractor(s) shall undertake regular site inspections to check conformance to the Management Plans.

6.9.2 Additional measures relating to air quality could include the re-routing of construction vehicle traffic to avoid sensitive receptors should a significant air quality impact be predicted.

6.9.3 The requirement for these measures, and any additional appropriate mitigation measures, will be confirmed through the air quality assessment and will be proposed in the PEIR and / or ES.

## 6.10 Description of Potential Likely Significant Effects

6.10.1 The air quality assessment will consider the construction, operation and decommissioning phases of the Project. Details of each of these stages are set out in Chapter 3: Description of the Project.

6.10.2 The proposed scope of the air quality assessment is set out below and has been determined using the approach described in Chapter 4: Environmental Impact Assessment Methodology.

6.10.3 The potential for the Project to result in the likely significant effects identified in Table 6-6 and Table 6-7 takes into account the embedded and control and management measures described in Section 6.9: Design, mitigation and enhancement measures.

### Construction

6.10.4 The Project has the potential to include the following pollution sources during construction:

- Fugitive dust emissions associated with demolition, earthworks, construction and track-out (the transport of dust and dirt from the Project construction site onto the public road network).
- Emissions from NRMM.
- Construction vehicle emissions associated with the movement of materials and waste to and from the Project site by construction vehicles.

6.10.5 Table 6-7 identifies the potential impacts that could result from the sources identified during construction of the Project.

6.10.6 Where Table 6-7 identifies the potential for an impact to result in a significant effect, it is considered further to identify whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on receptors identified within the Study Area. Where Table 6-7 identifies no potential for an impact to result in a significant effect, that impact is proposed to be scoped out.

*Table 6-7 – Impact Pathways with Receptors During Construction*

| Impact | Receptor | Potential for Significant Effects | Proposed to be Scoped In / Out |
|---|---|---|---|
| Dust deposition and health impacts from elevated $PM_{10}$ concentrations. | Sensitive ecological and human receptors within 250m of the construction boundary and within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the Project site entrance(s). | Yes – There is the potential for significant effects in the absence of site-specific mitigation measures. | Scoped in |
| Increase in local air pollutant concentrations and nitrogen deposition rates from NRMM. | Sensitive ecological and human receptors within 200m of construction areas where NRMM are likely to be present. | No - Due to the temporary and transient nature of their use, significant effects of NRMM emissions are considered unlikely with incorporation of best practice measures and compliance with NRMM standards. This assumption will however be reviewed once further detail on the quantity and type of NRMM is available. | Scoped in |
| Increase in local air pollutant concentrations and nitrogen deposition rates from vehicle emissions. | Sensitive ecological and human receptors within 200m of roads that may be affected by the Project | Yes – should screening of construction traffic flows show vehicle trips exceed the EPUK & IAQM criteria. | Scoped in |

## Operation

6.10.7 The Project has the potential to include the following sources during the operation phase:

- Operational phase vehicle emissions.
- Back-up generator emissions.

6.10.8 Table 6-8 identifies the potential impacts that could result from the sources identified during operation of the Project.

6.10.9 Where Table 6-8 identifies the potential for an impact to result in a significant effect, it is considered further to identify whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on receptors identified within the Study Area. Where Table 6-8 identifies no potential for an impact to result in a significant effect, that impact is proposed to be scoped out.

*Table 6-8 – Impact Pathways with Receptors During Operation*

| Impact | Receptor | Potential for Significant Effects | Proposed to be Scoped In / Out |
|---|---|---|---|
| Increase in local air pollutant concentrations and nitrogen deposition rates from vehicle emissions. | Sensitive ecological and human receptors within 200m of roads that may be affected by the Project. | No – it is not anticipated that operational vehicle trips will exceed the EPUK & IAQM criteria. It is anticipated that repair and routine maintenance activities would be limited to a few times a year, and there would be only a small number of operational staff at the Pump Facility. However, this will be clarified once traffic data for the operational phase is finalised. | Scoped out, but traffic flows to be revisited once finalised. |
| Increase in local air pollutant concentrations and nitrogen deposition rates from back-up generator emissions. | Sensitive ecological and human receptors within 200m of the Pump Facility. | No – it is not anticipated that effects will be significant. However, this will be clarified once further details of the back-up generator are available. | Scoped in. |

## Decommissioning

6.10.10 The Project has the potential to include the same pollution sources as the construction phase. Table 6-9 identifies the potential impacts that could result from the sources identified during decommissioning of the Project.

6.10.11 Where Table 6-9 identifies the potential for an impact to result in a significant effect, it is considered further to identify whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on receptors identified within the Study Area. Where Table 6.9 identifies no potential for an impact to result in a significant effect, that impact is proposed to be scoped out.

*Table 6-9 – Impact Pathways with Receptors During Decommissioning*

| Impact | Receptor | Potential for Significant Effects | Proposed to be Scoped In / Out |
|---|---|---|---|
| Dust deposition and health impacts from elevated PM10 concentrations. | Sensitive ecological and human receptors within 250m of the construction boundary and within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the Project site entrance(s). | Yes – There is the potential for significant effects in the absence of site-specific mitigation measures. | Scoped in |
| Increase in local air pollutant concentrations and nitrogen deposition rates from NRMM. | Sensitive ecological and human receptors within 200m of construction areas where NRMM are likely to be present. | No - Due to the temporary and transient nature of their use, significant effects of NRMM emissions are considered unlikely with incorporation of best practice measures and compliance with NRMM standards. This assumption will however be reviewed once further detail on the quantity and type of NRMM is available. | Scoped in |
| Increase in local air pollutant concentrations and nitrogen deposition rates from vehicle emissions. | Sensitive ecological and human receptors within 200m of roads that may be affected by the Project | Yes – should screening of construction traffic flows show vehicle trips exceed the EPUK & IAQM criteria. | Scoped in |

## 6.11 Summary of the Proposed Scope of Assessment

6.11.1 The matters scoped in or out of further assessment for Air Quality are as follows outlined in Table 6-10.

*Table 6-10 – Matters Scoped In or Out of Further Assessment*

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| Fugitive dust emissions | Construction and Decommissioning | ✓ | | Construction and decommissioning works have the potential to generate dust.<br>Potential dust emission effects on receptors include:<br>• Annoyance due to dust soiling.<br>• Harm to ecological receptors.<br>• The risk of health effects due to a significant increase in exposure to $PM_{10}$. | To be confirmed following stakeholder engagement. |
| Emissions from Non-Road Mobile Machinery (NRMM) | Construction and Decommissioning | ✓ | | NRMM emissions have the potential to increase local air pollutant concentrations and nitrogen deposition rates. | To be confirmed following stakeholder engagement. |
| Vehicle emissions | Construction and Decommissioning | ✓ | | Vehicle emissions have the potential to increase local air pollutant concentrations and nitrogen deposition rates. This matter will be assessed if screening of construction traffic flows show vehicle trips exceed the EPUK and IAQM criteria. | To be confirmed following stakeholder engagement. |
| Vehicle emissions | Operation | | ✓ | Traffic trip generation anticipated to be less than EPUK and IAQM guidance criteria.<br>Impact considered to be negligible. | To be confirmed following |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| | | | | | stakeholder engagement. |
| Back-up generator emissions | Operation | ✓ | | Generator emissions have the potential to increase local air pollutant concentrations and nitrogen deposition rates. | To be confirmed following stakeholder engagement. |
| Venting | Operation | | ✓ | Venting activities will release small amounts of carbon dioxide. This is considered as a greenhouse gas and climate issue (see Chapter 8: Climate Change, adaptation and resilience) and is therefore scoped out of the air quality assessment. | N/A - this is covered in Chapter 8: Climate Change, adaptation and resilience. |

## 6.12 References


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# 7 Ecology and Biodiversity

## 7.1 Introduction

7.1.1 This chapter presents the proposed approach for assessing the likely significant effects on ecology and biodiversity from the construction, operation and decommissioning of the Project. It considers all possible terrestrial and freshwater Important Ecological Features (IEFs) within the Study Area (see Section 7.6 for definition) which includes: designated sites, ancient woodland, habitats, and flora and fauna (protected, notable and non-native invasive), and identifies those receptors and impacts that can be scoped out of the Environmental Impact Assessment (EIA). It does not include information relating to intertidal and marine ecology which is detailed within Chapter 19: Coastal and Intertidal Impacts.

7.1.2 This chapter should be read in conjunction with:

- Chapter 5: Soils and Agriculture.
- Chapter 6: Air Quality.
- Chapter 8: Climate Change, Adaptation and Resilience.
- Chapter 10: Landscape and Visual.
- Chapter 12: Noise and Vibration.
- Chapter 15: Traffic and Transport.
- Chapter 18: Major Accidents and Disasters.
- Chapter 19: Coastal and Intertidal Impacts.

## 7.2 Legislation, Policy and Guidance

7.2.1 The assessment to be undertaken to inform the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) will as appropriate be in accordance with and / or with regard to the following legislation, policy and guidance.

### Legislation

7.2.2 The potential effects of the Project will be considered in the context of the following relevant legislation:

- The Environment Act 2021 (Ref 7.1).
- The Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 7.2).
- Wildlife and Countryside Act 1981 (as amended) (Ref 7.3).
- Countryside and Rights of Way (CROW) Act 2000; (Ref 7.4).
- Natural Environment and Rural Communities (NERC) Act 2006 (Ref 7.5).
- The Hedgerows Regulations 1997 (Ref 7.6).
- Protection of Badgers Act 1992 (Ref 7.7).

- Marine and Coastal Access Act (MCAA) 2009 (Ref 7.8).
- The Invasive Species (Enforcement and Permitting) Order 2019 (Ref 7.9).
- Salmon and Freshwater Fisheries Act 1975 (as amended) (Ref 7.10).

## Policy

### National Planning Policy

#### National Policy Statements

7.2.3 As detailed in Chapter 1: Introduction, National Policy Statements (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Project would be considered. The two relevant NPSs are Overarching National Policy Statement for Energy (EN-1) (Ref 7.11) and National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Ref 7.12). Table 7-1 sets out how the NPSs are relevant to the ecology and biodiversity assessment.

*Table 7-1 – Relevant Sections of the Relevant National Policy Statements*

| NPS | NPS Section | How it will be Considered |
|---|---|---|
| EN -1 | Section 4 details the assessment principles and includes a sub-section on Environmental and Biodiversity Net Gain (4.7) emphasising that Projects should not only avoid, mitigate and compensate harms (following the mitigation hierarchy) but also consider whether there are opportunities for enhancements, embedding such opportunities into a nature inclusive design. | As specified within Section 7.9, the Applicant is committed to adopting a sustainable approach to development by pro-actively taking measures to ensure that the Project leaves the environment in a better condition than it was before development. The Project design has to date and will continue to follow the principles of the mitigation hierarchy – preference will be given first to avoiding impacts, then reducing remaining effects before applying targeted mitigation where required, which will be developed as part of the design process and will be informed by the ongoing assessment. Where residual effects remain, compensation will be provided. |
| EN -1 | Section 5 relates to biodiversity (and geological) conservation, setting out the government's aims (paragraph 5.4.2) and specifying the following expectations concerning the conservation of biodiversity and EIA:<br>• The ES should clearly and proportionately set out the potential effects including those on designated sites, protected species and habitats, other species identified as being of principal importance, and where EIA is not required (5.4.17 and 5.4.18) and include appropriate avoidance, mitigation, compensation and enhancement measures as an integral part of the proposed development (5.4.32 and 5.4.35). | Section 7.3 describes the process used by the Project to identify ecological features and determine which qualify as IEFs (important ecological features) and are thus considered for assessment. The Project will encourage a symbiotic relationship between design and ecological survey / assessment, whereby survey / assessment information will influence design (in line with the mitigation hierarchy) and effective design will aim to minimise impacts, driving proportionate survey and reporting.<br>Section 7.8 sets out the baseline data that will be relied upon during the assessment, and Section 7.9 sets out the Project's approach to approach to design, mitigation, compensation and |

| NPS | NPS Section | How it will be Considered |
|---|---|---|
| | • Show how the project has taken advantage of opportunities to conserve and enhance biodiversity conservation interests (5.4.19) including consideration of wider ecosystem services and benefits of natural capital (5.4.20), and the delivery of significant benefits and enhancements beyond Biodiversity Net Gain (BNG), which result in wider environmental gains (5.4.21 and 5.4.34).<br>• The consideration of mobile / migratory species movement and their potential to interact with infrastructure (5.4.22).<br>• Paragraphs 5.4.25 to 5.4.31 relate to Habitats Regulations, emphasising the need to work closely with, and seek advice from, Statutory Nature Conservation Bodies as early as possible in the design process in order to agree on a compensation plan (where required) and avoid introducing uncertainty to the consenting process.<br>• The inclusion of measures to mitigate fully the direct and indirect effects of development on ancient woodland, ancient and veteran trees or other irreplaceable habitats during both construction and operational phases (5.4.32). | enhancement. The Project is committed to delivering BNG and is also focused on strategic habitat enhancement and creation, aiming to identify and implement opportunities to support healthy well-functioning ecosystems and establish coherent ecological networks in line with EN-1 (Paragraph 5.4.2).<br>Table 7-6 outlines the matters scoped in or out of further assessment which includes the need for the assessment to be supported by Habitats Regulations Assessment (HRA).<br>Section 7.3 sets out the framework for undertaking ecological survey and assessment for the range of ecological features associated with the Project (that have been identified at this stage). |

| NPS | NPS Section | How it will be Considered |
|---|---|---|
| | • The production and implementation of a Biodiversity Management Strategy as part of their development proposals (5.4.36). | |
| EN-4 | Paragraphs 2.21.23 to 2.21.33 relate to impacts associated with biodiversity and conclude that long term impacts for pipelines are likely to be limited, as once operational the main infrastructure is usually buried. These paragraphs also specify the need for proposals to reinstate the pipeline route as close to its original state as possible and take into account any requirements for agreements with the landowner to access areas for aftercare and management work.<br>Paragraphs 2.22.6 to 2.22.8 relate to mitigation associated with biodiversity and state that mitigation measures to protect ecology could include reducing the working width required for the installation of the pipeline and that consideration should be given to the feasibility of using horizontal directional drilling under ancient woodland or thrust bore under protected trees or hedgerows. | Section 7.9 details the Project's approach to design, mitigation, compensation and enhancement. This includes the commitment to reinstate habitats to equal or better condition and additional 'embedded mitigation' measures which will be developed as part of the PEIR and ES to include those specified within EN-4. |

**National Planning Policy Framework**

- The National Planning Policy Framework (NPPF) 2023 (Ref 7.13)[6].

**National Policy**

- A Green Future: Our 25 Year Plan to Improve the Environment (Ref 7.14).
- UK Post-2010 Biodiversity Framework: Revised Implementation Plan (2018–2020) (Ref 7.15).
- Nationally Significant Infrastructure: action plan for reforms to the planning process (2023) (Ref 7.23).

**Local Planning Policy**

7.2.4 The Project lies within the jurisdictions of North Yorkshire, East Riding of Yorkshire, North Lincolnshire and North East Lincolnshire. A summary of the relevant local planning policy which is relevant to ecology and biodiversity is provided in Table 7-2.

[6] This EIA Scoping Report makes reference to the December 2023 update of the NPPF. The PEIR will provide an update of applicable legislation and policy, which will include consideration of the December 2024 NPPF update (or any subsequent update).

*Table 7-2 – Relevant Local Planning Policies*

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| Selby District Council Local Plan (2022) (Ref 7.16) | Policy NE1 - Protecting Designated Sites and Species (Strategic Policy) | This policy relates to the protection of irreplaceable habitats; internationally protected habitats, and species of principle importance; the Lower Derwent Valley Special Protection Area / Ramsar; Nationally Protected habitats and species; and Locally Important Protected Sites and species. | Section 7.3 describes the process used by the Project to identify ecological features and determine which qualify as IEFs and are thus considered for assessment.<br>Section 7.8 sets out the baseline data that will be relied upon during the assessment, and Section 7.9 sets out the Project's approach to design, mitigation and enhancement (with regard to biodiversity).<br>Table 7-6 outlines the matters scoped in or out of further assessment which includes the need for the assessment to be supported by HRA.<br>Where impacts to such features cannot be avoided, a justification will be provided and a mitigation / compensation package developed in line with the requirements of policy NE1. |
| | Policy NE3 - Biodiversity Net Gain (Strategic Policy) | This policy specifies the need for all "eligible development proposals to provide delivery of at least a 10% net gain in biodiversity". | As specified within Section 7.9 the Project is committed to the delivery of BNG in line with the forthcoming Government guidance / legislation for NSIPs. |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| | Policy NE5 - Protecting and Enhancing Rivers and Waterbodies (Strategic Policy) | Of relevance to this chapter is the specification within this policy to "*Safeguard and improve the environmental quality and ecological value*" of waterbodies. | Section 7.9 sets out the Project's approach to design, mitigation and enhancement (with regard to biodiversity). Measures to protect and enhance wetland habitats will be further developed within the PEIR and ES. |
| | Policy NE6 - Protecting and Enhancing Trees, Woodland and Hedgerows | This policy relates to the protection of trees, woodland and hedgerows. It specifies that proposals should promote and enhance rural and urban tree coverage in line with the most recent strategies relating to trees, woodland and hedgerows (e.g., White Rose Forest Partnership Scheme and Conservation Area Appraisals) and that there will be a presumption against development that results in the loss or deterioration of ancient woodland and or maturely aged, ancient or veteran trees and hedgerows. | Section 7.9 sets out the Project's approach to design, mitigation and enhancement (with regard to biodiversity) including the steps taken during the development of the draft Order Limits to avoid ancient woodland. Measures to protect and enhance woodland, trees and hedgerows will be further developed within the PEIR and ES. |
| East Riding Local Plan 2012 | Policy ENV4: Conserving and enhancing biodiversity | This policy relates to the protection of; International Sites; National Sites; and | Section 7.3 describes the process used by the Project to identify ecological features and |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| - 2029 (2016) (Ref 7.17). | and geodiversity | Local Sites, or habitats or species supported by Local Sites.<br>The policy also specifies that development proposals should "further the aims of the East Riding of Yorkshire Biodiversity Action Plan, designated Nature Improvement Areas (NIAs) and other landscape scale biodiversity initiatives", "conserve, restore, enhance or recreate biodiversity interests" and "safeguard, enhance, create and connect habitat networks". | determine which qualify as IEFs and are thus considered for assessment.<br>Section 7.8 sets out the baseline data that will be relied upon during the assessment, and Section 7.9 sets out the Project's approach to design, mitigation and enhancement (with regard to biodiversity).<br>Where impacts to such features cannot be avoided, a justification will be provided and a mitigation / compensation package developed in line with the requirements of policy ENV4. |
| | Policy ENV5: Strengthening green infrastructure | This policy specifies that development proposals should "*incorporate existing and / or new green infrastructure features within their design*" and seek opportunities to enhance such features. | Section 7.8 sets out the baseline data that will be relied upon during the assessment, and Section 7.9 sets out the Project's approach to design, mitigation and enhancement with regard to biodiversity. The Project is committed to strategic habitat enhancement and creation, aiming to identify and implement opportunities to strengthen green infrastructure in line with this policy. |
| North Lincolnshire Local | CS16: North Lincolnshire's landscape, | Of relevance to this chapter, this policy specifies the need for the protection of | Section 7.9 sets out the Project's approach to design, mitigation and enhancement (with regard to biodiversity). Measures to protect and |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| Development Framework: Core Strategy 2011 (Ref 7.18). | greenspace and waterscape | trees and hedgerows to be specified where appropriate. | enhance woodland, trees and hedgerows will be further developed within the PEIR and ES. |
| | CS17: Biodiversity | This policy relates to the safeguard of national and international protected sites; European and nationally important habitats and species; local wildlife sites and corridors, links and stepping stones between areas of natural green space; and features of biological interest.<br>It also specifies that development should seek to produce a net gain in biodiversity and supports wildlife enhancements that contribute to the habitat restoration targets set out in the North Lincolnshire's Nature Map and biodiversity action plans. | Section 7.3 describes the process used by the Project to identify ecological features and determine which qualify as IEFs and are thus considered for assessment.<br>Section 7.8 sets out the baseline data that will be relied upon during the assessment, and Section 7.9 sets out the Project's approach to design, mitigation and enhancement (with regard to biodiversity) which includes the commitment to deliver BNG. |
| North East Lincolnshire Local Plan 2013 to 2032 (Ref 7.19). | Policy 9: Habitat Mitigation – South Humber Bank | This policy requires that development proposals on greenfield land within the South Humber Bank area make financial contributions towards the provision and management of the identified mitigation sites based on a proportional approach relating to the development site area. | Table 7-6 outlines the matters scoped in or out of further assessment which includes the need for the assessment to be supported by HRA. The development of this HRA will ensure alignment with this policy. |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| | Policy 41: Biodiversity and Geodiversity | Of relevance to this chapter, this policy specified the need to protect manage and enhance international, national and local sites of biological and conservation importance, minimise the loss of biodiversity features and retain, protect, restore and enhance features of biodiversity value. | Section 7.3 describes the process used by the Project to identify ecological features and determine which qualify as IEFs and are thus considered for assessment.<br>Section 7.8 sets out the baseline data that will be relied upon during the assessment, and Section 7.9 sets out the Project's approach to design, mitigation and enhancement (with regard to biodiversity). |
| | Policy 42: Landscape | "Retain and protect trees and hedgerows which offer value for amenity, biodiversity and landscape". | Section 7.9 sets out the Project's approach to design, mitigation and enhancement (with regard to biodiversity). Measures to protect and enhance woodland, trees and hedgerows will be further developed within the PEIR and ES. |
| The Selby Biodiversity Action Plan (2004) (Ref 7.20). | N/A | An individual action plan has been prepared for each of the following:<br>• Habitats - woodland, lowland wood pasture and parkland, ancient and / or species rich hedgerows, arable farmland, grazing marsh, unimproved grassland, lowland heathland, fens, reedbed, lakes and ponds, canals, | Section 7.9 sets out the Project's approach to design, mitigation and enhancement (with regard to biodiversity). Measures to protect and enhance IEF's and will be further developed within the PEIR and ES. |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| | | rivers, streams and ditches and towns and villages.<br>• Species - otter, water vole, great crested newt, tansy beetle, dingy skipper, pillwort, cylindrical whorl snail, *Agabus uliginosus* (an aquatic beetle), bats, bumble bees, clearwing moths and rare moths. | |
| Lincolnshire Biodiversity Action Plan (2006) (Ref 7.21). | N/A | An individual action plan has been prepared for each of the following:<br>• Habitats: coastal sand dunes, saline lagoons, saltmarsh, arable field margins, calcareous grassland, grazing marsh, hedgerow and hedgerow trees, meadows and pasture, road verges, heathland and peatland, chalk streams, fens, swamps and wet reedbeds, ponds, lakes and reservoirs, rivers, canals and drains, springs and flushes, ancient semi-natural woodland, wet woodland, churchyards and cemeteries, gardens and allotments and parks and open spaces. | Section 7.9 sets out the Project's approach to design, mitigation and enhancement (with regard to biodiversity). Measures to protect and enhance IEF's and will be further developed within the PEIR and ES. |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| | | • Species: natterjack toad, farmland birds, bats, brown hare, greater water-parsnip, river mussel species, white-clawed crayfish, bittern, water vole, otter, great crested newt and urban birds. | |
| East Riding of Yorkshire Biodiversity Action Plan Strategy (2010) (Ref 7.22). | N/A | Twenty priority landscape scale biodiversity areas have been identified, of which six are Strategic Biodiversity Priority Landscape Targets identified as being important in Yorkshire and fourteen are local Biodiversity Priority Areas. | Section 7.9 sets out the Project's approach to design, mitigation and enhancement (with regard to biodiversity). Measures to protect and enhance IEF's and will be further developed within the PEIR and ES. |

### Guidance

7.2.5 The assessment methodology has drawn upon the guidance provided by the Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Ref 7.24) (herein referred to as the 'CIEEM guidelines'). This guidance represents the current best practice for assessing the ecological impact of development projects.

## 7.3 Proposed Assessment Methodology

### Value / Sensitivity

7.3.1 The CIEEM guidelines (2018) (Ref 7.24) state the ecological features should be considered within a 'defined geographical context' (i.e. spatial scale) and recommends the following frame of reference:

- International and European.
- National.
- Regional.
- Metropolitan, County, vice-county or other Local Authority-wide area.
- River Basin District.
- Estuarine system / coastal cell.
- Local.

7.3.2 Assigning importance to ecological features is based on professional judgement informed by available guidance and information and (where necessary) expert advice.

7.3.3 Those ecological features of sufficient value to be considered in decision-making (i.e. those considered to be of 'Local' importance or above), and which it is considered could experience significant effects as a result of the Project (i.e. effects that could adversely affect the integrity of the habitat or the favourable conservation status of a species' population), will be classified an IEF and thus will be considered in the Ecological Impact Assessment (EcIA) as outlined in the CIEEM Guidelines (Ref 7.24). Other ecological features (i.e. those which are of less than 'local' importance will be scoped out, and not subject to any further assessment within the EcIA.

7.3.4 In accordance with the CIEEM guidelines, where there is the potential for a breach of legislation in relation to protected species (regardless of their importance), those species are also considered an IEF.

7.3.5 Following the identification and valuation of the IEF, it is necessary to investigate potential impacts on those features to understand how they might be affected by the Project.

## Impact Magnitude

7.3.6 The EcIA will be based on a description of the anticipated activities associated with the Project, the impacts that are predicted as a result of these activities and the area over which such effects might be experienced by different IEFs.

7.3.7 When describing ecological impacts and effects, reference will be made to the following characteristics:

- Positive or negative.
- Extent.
- Magnitude.
- Duration (assessed for the purposes of ecology and biodiversity effects as either 'short-term' (up to 1 year), 'medium-term' (1-10 years) or 'long-term' (greater than 10 years)).
- Frequency and timing.
- Reversibility.

## Significance of Effect

7.3.8 The assessment of likely significant environmental effects as a result of the Project will consider the construction, operational and decommissioning phases. The assessment of likely significant effects on IEFs will be made using:

- Consideration of best practice / guidance and recent research.
- Professional judgement.
- Baseline information and the Project activities.
- Feedback and comments raised through stakeholder consultation.
- Quantification of potential effects.
- Identification of appropriate mitigation measures.

7.3.9 The significance of an effect on an IEF will be determined following an analysis of the factors that characterise the effect. The CIEEM guidelines (Ref 7.24) define significant effects as those that:

> "*…either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general... In broad terms, significant effects encompass impacts on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).*"

7.3.10 Significant effects, as defined by the CIEEM guidelines (Ref 7.24), are determined by assessing any deviation in baseline conditions of an IEF that may occur as a result of individual and cumulative impacts during the construction, operational and decommissioning phases of the Project.

7.3.11 Significance will be determined on the basis of a likely effect on the integrity or favourable conservation status of a feature, at a given geographic scale. The geographical scale at which an effect is significant can vary from the geographical importance of the ecological feature being assessed and in accordance with the CIEEM guidelines (Ref 7.24), this will be a function of the assessment.

## Desk Study

*7.3.12* Table 7-3 summarises the various sources of information utilised for the desk study and the information to be obtained.

*Table 7-3 – Sources of Information*

| Source | Information Obtained | Date Received / Accessed |
|---|---|---|
| APEM aerial imagery (Ref 7.25) | Digital surface model (DSM) tiles, digital terrain model (DTM) tiles, Ortho-mosaic tiles and tree crown mapping were provided for the draft Order Limits. Imagery at a resolution of 3 cm Ground Sampling Distance was captured using fixed-wing aircraft.<br>Ground control data will also be collected in 2025 to achieve accurate outputs. Imagery will be processed, colour-balanced and ortho-rectified using the ground control to produce the DSM, DTM and ortho-mosaics. The ortho-mosaics will then be analysed, and individual tree crowns digitised with the terrain models used to measure tree height. | Ongoing |
| Google Earth (Ref 7.26) | Review of freely available aerial photography will allow: habitats within the Study Area to be assessed in a wider (landscape-scale) context; assessment and identification of potential ephemeral ecological features that may not be evident on the ground during the field survey (e.g., ephemeral ponds); identification of potential wildlife corridors or barriers to animal movements (e.g., road networks, built development and major watercourses); and a review of changes to habitats over time so that an assessment of reliability / longevity can be made. | Ongoing |
| Multi-agency geographic information for the countryside (MAGIC) (Ref 7.27) | The location of statutory designated sites for nature conservation, Priority Habitats, Ancient Woodland, granted derogation licence applications, Great Crested Newt (GCN) survey licence returns, GCN pond survey results, the Living England Habitat Map, Open Mosaic Habitat, and the National Habitat Network Maps.<br>As some ecological features are not always apparent on aerial photographs, relevant Ordnance Survey mapping was studied to identify ponds, issues and / or drains. | Ongoing |

| Source | Information Obtained | Date Received / Accessed |
|---|---|---|
| Lincolnshire Environmental Records Centre (LERC) (Ref 7.28) and North & East Yorkshire Ecological Data Centre (NEYEDC) (Ref 7.29) | The location of non-statutory designated sites for nature conservation and records of protected, notable, and invasive species within 2 km of the draft Order Limits. NB: any records older than 20 years were omitted from the results unless specified for that species / species group. | October and November 2024 respectively |
| British Trust for Ornithology (BTO) (Ref 7.30 & Ref 7.31) | 2007-2011 and 2017-2021 data collected from BTO BirdTrack and Breeding Bird Surveys, confirming species presence within a 1 km, 2 km, 10 km, 20 km or 50 km grid square depending on species rarity and survey type.<br>BTO also provided Wetland Bird Survey (WeBS) data for 2011 / 2012 low tide counts of the Humber Estuary and 2015 – 2020 core tide counts of all sites within 5 km of the draft Order Limits. | November 2024 |
| National Infrastructure Planning (Ref 7.23) | Information and documents relating to other NSIPs within / close to the draft Order Limits e.g., ES for Drax Re-Power. | Ongoing |
| National Water Vole Database and Mapping Project (Ref 7.32) | Location of water vole (*Arvicola amphibius*) and American mink records (2009 – 2018) and information on trends in water vole populations at a regional and national level. | TBC |
| Environment Agency (Ref 7.33) | Results of Environment Agency freshwater river macroinvertebrate surveys for locations within the Study Area. | TBC |
| Selby District Council, East Riding of Yorkshire, | Locations of trees with Tree Preservation Orders (TPOs). | TBC |

| Source | Information Obtained | Date Received / Accessed |
|---|---|---|
| North Lincolnshire Council and West Lindsey District Council | | |
| Woodland Trust (Ref 7.34) | Locations of ancient and veteran trees. | TBC |
| East Yorkshire Barn Owl Conservation Group (Ref 7.35) | Locations of barn owl records within East Yorkshire. | Ongoing |

## Field Survey and Assessment

7.3.13 A summary of the proposed survey and assessment programme for Ecology and Biodiversity is provided in Table 7-4. This will be developed further within the PEIR and ES as a greater understanding of the range of ecological features (habitats, species and ecosystems, including ecosystem function and processes) associated with the Project is achieved through survey, assessment or through engagement / agreement with the relevant stakeholder.

*Table 7-4 – Summary of Survey and Assessment Requirements for DCO*

| Species / Assessment | Survey and / or Assessment Required |
|---|---|
| Biodiversity Net Gain | The Environment Act 2021 will mandate for NSIPs to achieve BNG and is expected to come into force in November 2025, with a requirement to achieve a minimum 10% uplift in biodiversity value. However, the relevant sections of the Environment Act 2021 (Section 99 and Schedule 15) have not yet come into force, and there is currently no secondary legislation to implement them, nor are there any guidelines or a metric specifically designed for NSIPs.<br>A Biodiversity Enhancement Strategy report will be produced to include BNG commitments (in line with Government guidance / legislation for NSIPs) which will be an appendix to the EcIA. |
| Preliminary Ecological Appraisal (PEA) | A field survey will be undertaken to classify and map habitats following the UKHab classification. The survey will provide information on the habitats within the survey area and identify actual or potential presence of legally protected and / or otherwise notable species / habitats. Dominant flora will be noted, and target notes will be included, highlighting the presence of any non-native invasive species (NNIS), habitats suitable to support protected flora / fauna and areas where further surveys are recommended.<br>Results will be presented within an Ecological Appraisal report which will be an appendix to the EcIA. |
| Phase 2 Botanical Surveys | Hedgerow surveys will be undertaken in support of the EcIA. The need for further Phase 2 botanical survey will be confirmed during finalisation of the PEA. Specific botanical surveys may (for example) be required to assess habitat quality in detail, and may include, but not be limited to: National Vegetation Classification (NVC) survey, veteran tree assessment and habitat condition assessment. Survey methodologies will follow published good practice guidance, including but not limited to Rodwell (2006) (Ref 7.36) for NVC survey and Defra (2007) (Ref 7.37) for hedgerow survey.<br>Such surveys are likely to be required where the PEA has identified a perceived / potential impact from the Project on the following:<br>• Statutory and non-statutory designated wildlife sites where botanical features (habitats or plants) are designated features. |

| Species / Assessment | Survey and / or Assessment Required |
|---|---|
| | • Priority Habitats recognised on the Priority Habitat Inventory (Ref 7.38) or identified during the PEA.<br>• Extensive wetland areas.<br>• Other habitats considered to be particularly high quality / value examples of their type or likely to contain uncommon plant species.<br>Results will be presented within an Ecological Appraisal report which will be an appendix to the EcIA. |
| Invertebrates | Survey programme and effort will be determined following a detailed desk-based study and habitat suitability assessment. Where it is considered that invertebrate surveys are required (terrestrial or aquatic), then the appropriate methods (including timing and number of survey visits) relevant to the taxa and / or habitats under consideration will be adopted, following guidance published by Drake *et al.* (2007) (Ref 7.39). For terrestrial surveys, these methods could for example, include sweep netting, pitfall trapping, suction sampling and hand searches.<br>Where surveys are required, the survey boundary will include an adequate and habitat / species specific zone of influence.<br>Results will be presented within an Invertebrate report which will be an appendix to the EcIA. |
| Fish | Survey programme and effort are to be confirmed following discussion with local Environment Agency teams, and following the PEA, a detailed desk-based study and habitat suitability assessment. Where required, surveys are generally recommended to be undertaken from June to September depending on the target species. Where present, specific surveys may be required during spawning periods for salmonids (mid-November to the end of January) and bullhead (*Cottus gobio*) (February to June).<br>Results will be presented within a Fish report which will be an appendix to the EcIA. |
| Reptiles | The survey programme and effort will be determined following a detailed desk-based study and habitat suitability assessment. If required, it is proposed that surveys be conducted in accordance with the Herpetofauna Groups of Britain |

| Species / Assessment | Survey and / or Assessment Required |
|---|---|
| | and Ireland advisory notes (1998) (Ref 7.40), Froglife (1999 and 2015) (Ref 7.41 and Ref 7.42) and Natural England Reptile Mitigation Guidelines (2011) (Ref 7.43).<br>Results of the habitat suitability assessment will be presented within a Reptile report which will be an appendix to the EcIA. |
| Great crested newts and common amphibians | No survey or assessment is proposed. District Level Licensing (DLL) approach is being taken forward for GCN.<br>DLL is a type of strategic derogation licence for GCN granted in certain areas at a Local Authority or wider scale with the aim of improved conservation outcomes for GCN. Where a DLL scheme is in place, developers can make a financial contribution to strategic, off-site habitat compensation instead of applying for a separate derogation licence or carrying out individual detailed surveys.<br>There are three risk zones under the Natural England district level licensing scheme:<br>• Red zones have great crested newt populations of regional, national or international importance – developers cannot use district level licensing in these zones.<br>• Amber zones have great crested newt populations, habitats and dispersal routes – developers can use district level licensing in these zones.<br>• Green zones have fewer areas with great crested newts – developers can use district level licensing in these zones.<br>DLL is currently available in North Lincolnshire and Yorkshire (excluding Calderdale, City of Bradford and Kirklees). It is proposed that the DLL approach to GCN conservation is taken forward for the Project in its entirety. There are no red zones within the draft Order Limits.<br>Once the proposed route has been finalised, an application will be made to Natural England under the DLL scheme which will include the results of the desk study undertaken during the PEA. |

| Species / Assessment | Survey and / or Assessment Required |
|---|---|
| | By demonstrating that a DLL scheme for GCN will be used, GCN can be scoped out of detailed assessment in the EcIA. This is because, the DLL approach includes strategic area assessment, the identification of risk zones and strategic opportunity area maps, and a mechanism to ensure adequate compensation is provided.<br>The outcome of this assessment is documented within the Impact Assessment and Conservation Payment Certificate (IACPC) which will be appended to the EcIA to identify what the impacts associated with the Project equate too (in terms of compensatory ponds that will be created by Natural England within strategic locations) and confirm that, as a minimum, the impact to GCN associated with the Project is unlikely to be significant.<br>Confirmation of approach will be presented within the Ecological Appraisal report which will be an appendix to the EcIA. |
| Birds | Passage and wintering:<br>Surveys are ongoing (methodology agreed with Natural England in August 2024). A study / survey area has been established which is defined as the area that meets the following criteria:<br>• Within the draft Order Limits.<br>• Within 4 km Impact Risk Zone of the Humber estuary SPA / Ramsar site.<br>• Suitable habitat for wintering SPA / Ramsar birds (i.e. open agricultural land).<br>The survey includes a total of 41 Vantage Point (VP) positions, conducted for 3 hours, twice per month between August and mid-May inclusive. The locations of these were selected from an assessment of aerial imagery and further assessed for suitability during the surveys to ensure full coverage. To ensure surveys cover a mixture of tide states, one of the two monthly surveys at each VP extends from 1.5 hours before high tide to 1.5 hours after high tide. Surveys are undertaken in good visibility and record species, sex, number, location and flight direction of the birds.<br>VP survey methodology has been adapted from Scottish Natural Heritage guidance (Ref 7.44). This guidance pertains to the assessment of the effects of wind farms on birds; however, for this Project, it is being used to focus on bird movements between the Humber Estuary and River Trent crossing locations and the surrounding terrestrial habitats.<br>Breeding: |

| Species / Assessment | Survey and / or Assessment Required |
|---|---|
| | Survey programme and effort will be determined following a detailed desk-based study and habitat suitability assessment. Results will be presented within an Ornithological report which will be an appendix to the EcIA. Relevant bird survey results will also be presented within the Project HRA. |
| Badger (*Meles meles*) | The badger survey will comprise a systematic walkover to obtain records of the following field signs:<br>• Setts.<br>• Badger hair.<br>• Mammal / badger pathways.<br>• Foraging signs.<br>• Latrines.<br>• Footprints.<br>• Bedding material.<br>• Evidence of rabbit (Oryctolagus cuniculus) and fox (Vulpes vulpes).<br>Identified setts will be mapped on a Global Positioning System (GPS) and categorised following Harris *et al*. (1998) (Ref 7.45) as 'main', 'annex', 'subsidiary' or 'outlier'. These will be classified as 'active', 'partially active', or 'disused'. The number of sett entrances will be noted alongside the direction of each entrance hole. Where necessary, further badger surveys will be undertaken to confirm if there are additional setts within the territory.<br>Badger surveys can be undertaken at any time of the year but, where possible, survey will be undertaken in winter or early spring (to minimise survey limitations from dense vegetation typically associated with summer months).<br>Results will be presented within a confidential Badger report which will be used to inform licencing. |
| Bats | Roosts: During the PEA, trees, woodland blocks and structures with potential roost features (PRFs) will be highlighted. Those with PRFs which cannot be avoided by the Project will subsequently receive further bat surveys in line with the Bat Conservation Trusts Good Practice Guidelines (2023) (Ref 7.46). |

| Species / Assessment | Survey and / or Assessment Required |
|---|---|
| | Activity: Survey programme and effort will be determined following a detailed desk-based study and habitat suitability assessment.<br>Results will be presented within a Bat report which will be an appendix to the EcIA. If required, roost survey results will also be presented within a draft bat derogation licence. |
| Otter (*Lutra lutra*) | Otter surveys will be undertaken in accordance with Chanin (2013) (Ref 7.47) and taking account of best practice guidance (Chanin, 2003; Chanin 2005 and Liles, 2003) (Ref 7.48, Ref 7.49 & Ref 7.50) and CIEEM competencies for undertaking otter surveys (Ref 7.51). The survey programme and effort will be determined following a detailed desk-based study and habitat suitability assessment. A walkover of each site selected for survey will be conducted, and a decision taken on the need for subsequent detailed otter survey. This assessment should include consideration of each site against the following criteria:<br>• Proximity to the land required for construction of the Project.<br>• Presence of significant barriers to dispersal and movement through the territory.<br>• Habitats present and suitability for use by otter (including terrestrial habitats).<br>• Adjoining land use.<br>• Level of disturbance.<br>• Features of watercourse / water body (estimated depth, level of flow, width of channel).<br>• Connectivity with other areas of suitable or sub-optimal habitat.<br>• Pollution.<br>Watercourse and waterbody banks which have been identified as having the potential to support otter and will potentially be affected by the Project will be surveyed for evidence, within a 200 m buffer of construction (where access allows). This will also include riparian habitats such as reedbeds. Otter evidence includes footprints, spraints, anal jelly, feeding remains, slides, resting sites and breeding holts. |

| Species / Assessment | Survey and / or Assessment Required |
|---|---|
| | Woodland, scrub and derelict man-made features within 200 m of construction and 100 m of a watercourse or waterbody, which has been identified as having the potential to support otter, will also be surveyed for potential otter breeding (natal) holts.<br>Otter surveys can be undertaken at any time of year.<br>Results will be presented within an Otter report which will be an appendix to the EcIA. |
| Water Vole | Survey programme and effort are to be confirmed following a detailed desk-based study and habitat suitability assessment.<br>The survey methodology will follow the Water Vole Mitigation Handbook (2016) (Ref 7.52). Two survey visits will be undertaken at each selected site to collect evidence of water vole presence, including latrines, burrows, runs, footprints, feeding remains and stashes, droppings and sightings. Additional information on the habitat will be collected during the first water vole survey, including water flow direction, bank substrate, existing disturbance, bank vegetation type and structure and adjoining land use.<br>Once survey data has been obtained, the relative population size in each stretch of watercourse or surveyed habitat will be calculated using the methods in the Water Vole Mitigation Handbook (2016) (Ref 7.52).<br>The two survey visits will be undertaken at each selected site spaced at least two months apart, with one survey between mid-April and the end of June, and the other between July and September. Surveys will avoid heavy rainfall or periods immediately thereafter.<br>Survey results will be used to inform a derogation licence application to Natural England (where appropriate), with a method statement outlining the steps that would be taken to minimise impacts during construction and to improve the conservation status of water vole in the locality upon Project completion.<br>Results will be presented within a Water Vole report which will be an appendix to the EcIA. |

## 7.4 Stakeholder Engagement

7.4.1 Non-statutory Consultation was undertaken between July and August 2024. The feedback received from the non-statutory consultation has informed the scope of the assessments and design of the Project presented in this report. Statutory Consultation is anticipated to take place in Q2 2025 and will be supported by a PEIR, which will be developed to aid consultees in making an informed view of the likely significant effects of the Project.

7.4.2 Stakeholder engagement is an ongoing process. It will be undertaken with relevant statutory bodies, nature conservation organisations and local authorities to agree on: the scope and methods for ecology surveys, matters that can be scoped out of further assessment, and the approach to biodiversity enhancement. Engagement and technical consultation will continue throughout the EIA process. A summary of engagement to date is provided in Table 7-5.

*Table 7-5 – Summary of Engagement*

| Consultee & Date | Summary of Engagement |
|---|---|
| Natural England<br>17 October 2024 and 24 October 2024 | Introduction to the proposed Project approach to EcIA and net gain delivery, and to discuss the broad approach to survey for each of the identified IEFs. In summary for IEF's where impacts can be confidently predicted (using a more detailed desk study and habitat assessment) and where a mitigation / compensation package can be provided that provides a greater benefit (that what would normally be expected had surveys been undertaken), it is proposed that detailed surveys can be largely avoided for EcIA.<br><br>Feedback included:<br><br>• With regard to licencing, Natural England's preference is that letters of no impediment (LONI) are obtained for all species where a licence is likely. If the Project requires a LONI, then this should be informed by survey data.<br>• Further information would be required to allow Natural England to comment on the proposed survey approaches. |
| Environment Agency<br>20 August 2024 | Summary of written response to Public Consultation stage of the Project:<br>• Highlighted the need to address the protection and enhancement of biodiversity around watercourse corridors.<br>• Highlighted the need to identify designated sites, protected habitats and species affected by the Project, including from any access routes and permanent or temporary compounds, and any mitigation and compensation requirements.<br>• Noted the desire to see consideration of the requirements of BNG and for the Project to consider the relevant Local Nature Recovery Strategies, the Water Framework Directive mitigation measures and the River Basin Management Plan when identifying options for BNG. |

| Consultee & Date | Summary of Engagement |
|---|---|
| Lincolnshire Wildlife Trust<br>20 August 2024 | Summary of written response to Public Consultation stage of the Project:<br>• Identification of the ecological impacts of the Project, both in terms of direct impacts on habitats and species within the trenching corridor, and the developments wider sphere of disturbance.<br>• Identification of direct impacts on functionally linked land utilised by conservation features of, and designated habitats within, the statutory designated sites associated with the Humber.<br>• Raised concerns regarding the overspill of this development beyond the boundaries of the South Humber Gateway Industrial land allocation, and the precedent this corridor would set for wider encroachment and further industrialisation in this locality.<br>• Raised concerns regarding the cumulative impacts of the current intensive programme of development in the Immingham region, with multiple NSIPs and TCPA developments in progress, and specific concerns over the level of in-combination and cumulative impacts.<br>• Registered as an interested party for inclusion in any expert ecology groups or conservation working groups in relation to the Project. |
| North Lincolnshire Council<br>30 July 2024<br>19 August 2024 | Summary of written response to Public Consultation stage of the Project:<br>• The assessment must include ecological, landscape and visual impacts.<br>• A Habitats Regulations Assessment (HRA).<br>• Potential impacts on terrestrial SSSIs in North Lincolnshire to be included in a CEMP.<br>• Appropriate impact avoidance, mitigation measures and enhancements in relation to non-statutory designated sites, protected and priority species and priority habitats.<br>• Keadby Ash Tip is of national importance for invertebrates, lowland dry acid grassland and open mosaic habitats of previously developed land. It is particularly important that impacts on these features are avoided, if possible, or mitigated as necessary.<br>• Various areas of priority habitat are likely to be encountered along the route i.e. Local Wildlife Sites. Impacts on priority habitat should avoided where possible. |

| Consultee & Date | Summary of Engagement |
|---|---|
| | • Detailed surveys need to be carried out for notable plants / habitats, Invertebrates, Reptiles, Birds (wintering, passage and breeding), Badger, Bats, Otter, Water vole, and any other protected / notable species detected within the survey area.<br>• The Project footprint and impact area have importance for a variety of protected and priority species and habitats.<br>• The decision maker will need to record evidence that the proposal meets the "3 tests[7]" of European Protected Species licensing.<br>• DLL for GCN.<br>• Appropriate measures to deal with any invasive non-native species that are encountered.<br>The requirement for BNG was also raised but only in reference to it applying to Nationally Significant Infrastructure Projects from November 2025.<br>A general comment was also made in relation to most of the habitats affected likely being arable and grazed pasture (modified grassland) fields bordered by ditches and / or hedgerows, and that it should be noted that it is relatively easy for a hedgerow to be "important" in North Lincolnshire due to the reduced criteria thresholds and the potential to count additional features. |
| Natural England<br>9 August 2024 | Meeting with Natural England regarding the proposed survey methodology for passage and wintering birds.<br>Overall Natural England confirmed they were happy with the chosen methodology as the proposed scope covered such an extensive area that the results, coupled with the specified desk study, should provide a clear picture of functionally linked land across the area. |

[7] (1) The activity must be for a certain purpose (for example, for scientific research or in the public interest); (2) There must be no satisfactory alternative that will cause less harm to the species; (3) The activity must not harm the long-term conservation status of the species.

| Consultee & Date | Summary of Engagement |
|---|---|
| Forestry Commission<br>July / August 2024 | Summary of written response to Public Consultation stage of the Project:<br>• Any proposals in proximity to ancient woodland should have a buffer zone of at least 15m from the boundary of the woodland to avoid root damage, and where assessment shows other impacts are likely to extend beyond this distance, for example the effects of air pollution from increased traffic, the proposal is likely to require a larger buffer zone.<br>• In relation to the presence of non-ancient woodland, the Project should ensure that existing trees are retained wherever possible in line with paragraph 131 of the NPPF. |
| RSPB<br>July / August 2024 | Highlighted concerns relating to the potential impact on the RSPB Island Farm site. |
| Hull Eco Park Ltd<br>July / August 2024 | Highlighted that the proposed pipeline route impacts on an ecological mitigation zone that is essential for a large-scale development in the area which has planning permission. The ecological mitigation land is part of Thorn Marsh Farm, Thorn Marsh, Burstwick (HU12 9JT). |
| Various member/s of the public<br>July / August 2024 | Summary of concerns raised (and thus highlight the need for the Project to consider) during the Non-statutory Public Consultation stage of the Project from various members of the public:<br>• The proposed pipeline around South Killingholme goes through Mayflower Woods which is a nature reserve with lots of wildlife including birds, squirrels, deer, badgers and bog habitat.<br>• Mature trees growing on the corner of the A1077 proposed construction compound area.<br>• Impacts around Paull as it has wealth of important features - ecologically and historically.<br>• Impacts on Crowle Moors SSSI.<br>• Impacts to the River Trent between Alkborough Flats and Burton upon Stather which is an SSSI and queried whether a trenchless method will be used to cross this site.<br>• Mature trees will be disturbed during construction and not replanted. |

| Consultee & Date | Summary of Engagement |
| --- | --- |
| | • The pipeline route and habitats in those areas including areas of permanent grassland, a woodland strip at the top of the escarpment above the River Trent and mature hedgerows which are managed under Environmental Stewardship and new ones which were planted as part of the mitigation for other developments. Also concerned about the amount of carbon that will be released by removing trees and highlighted that a lot of the land in this area is used by pink footed geese as well as waders, including curlew, lapwing and golden plover during the winter. |

## 7.5 Study Area

7.5.1 CIEEM (Ref 7.24) require the assessment to be focused on 'Zones of Influence' (ZoI) - the area over which changes arising from construction, operation and decommissioning could lead to ecologically significant effects.

7.5.2 The ZoI varies between different IEFs and was determined through professional judgement of perceived impact pathways, best practice guidelines and consultation with stakeholders. The ZoI for any IEF may be refined as more information becomes available regarding the potential ecological effects of the Project and through consideration of presence, distribution and abundance. For the purpose of this EIA Scoping Report, a precautionary ZoI has been identified for each IEF and is shown in Table 7-6 and on Figures 7.1 - 7.3 (Volume 2: Part 2).

*Table 7-6 – Zones of Influence*

| Important Ecological Feature | Zone of Influence |
|---|---|
| Internationally designated nature conservation sites e.g., Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar sites. | 2km buffer around the draft Order Limits, extending to 10km for sites designated for bats and wintering / passage birds. |
| Nationally designated nature conservation sites e.g., National Nature Reserve (NNR), Site of Special Scientific Interest (SSSI) and Local Nature Reserve (LNR) and Local Nature Reserve (LNR) and Marine Conservation Zones (MCZ). | 2km buffer around the draft Order Limits, extending to 5km for sites designated for bats and wintering / passage birds |
| Non-statutory designated nature conservation sites. | 2km buffer around the draft Order Limits. |
| Priority habitats (including ancient woodland), protected, notable and NNIS. | 2km buffer around the draft Order Limits. |
| Arboricultural features (Tree Preservation Orders (TPOs) and veteran trees). | 50m buffer around the draft Order Limits. |

## 7.6 Receptors

7.6.1 The assessment will include the following identified IEFs as detailed within Section 7.8:

- Statutory and Non-Statutory Designated Sites.
- Arboricultural Features.
- Habitats (including Priority habitats) and Ancient Woodland.
- Protected, notable and NNIS of flora (including fungi).
- Aquatic invertebrates.
- Terrestrial invertebrates.
- Freshwater fish.
- Reptiles.
- Amphibians.
- Badger.
- Birds (passage, wintering and breeding).
- Bats (roosting and activity).
- Dormouse (Muscardinus avellanarius).
- Otter.
- Water vole; and
- Other notable mammals.

## 7.7 Limitations and Assumptions

7.7.1 The following limitations and assumptions have been identified at this stage:

- The EcIA will be based on the predicted ecological conditions (future baseline) at the time of construction, operation and decommissioning.
- The available desk study information and survey data collected are sufficiently robust for informing the EcIA with requirements for species-specific surveys determined by completion of the PEA and confirmation of the Project design.
- Baseline surveys will be implemented as per the methodologies set out in Table 7-4 unless otherwise agreed with relevant stakeholders.
- In the event that health and safety or land access restrictions prevent a full ecological baseline assessment, a precautionary principle will be applied to the assessment of ecological features. The precautionary principle will assume a ‘reasonable worst-case’ scenario informed by professional experience and knowledge, desk-based information and available field-based evidence for any ecological feature unable to be fully surveyed. Utilising this approach will ensure that appropriate recommendations and / or mitigation are provided even though these may not be required.

- The baseline surveys will only identify habitats present at the Site at the time of survey. Additionally, where the species investigated are mobile, they can move into and out of areas over time. For these reasons a precautionary approach will be taken in the prediction of impacts. Where there is any doubt, except where specifically noted, a species will be assumed present, and an impact will be given the higher level of significance.

## 7.8 Baseline Conditions

7.8.1 This section sets out the baseline data that will be relied upon to produce a detailed assessment of baseline conditions that will be contained within the PEIR and ES. The data sources that have / will inform the ecological baseline within the Study Area are detailed in Table 7-3.

7.8.2 Passage and wintering bird surveys commenced in August 2024 and will continue until mid-May 2025; final results / data sets are therefore not available.

7.8.3 No further field surveys have been undertaken at this stage. However, Table 7-4 provides a summary of the proposed survey and assessment programme that will underpin EcIA. Results from these ecological surveys (once completed) will provide a robust baseline for the PEIR and ES. This will include the production of a PEA which will include a more detailed assessment of the baseline information summarised below.

### Statutory and Non–Statutory Designated Sites

7.8.4 A total of 29 statutory and 95 non-statutory designated sites were identified within the ZoI. These sites are summarised in Volume 3: Appendix A, B and C and shown in Figures 7.1 and 7.2 (Volume 2, Part 2).

7.8.5 The statutory and non-statutory sites can be categorised into the following IEFs:

- Humber Estuary - the draft Order Limits extend across this IEF, which is designated as a SAC, SPA, Ramsar site and SSSI. These sites include marine components and have a shared boundary within the Draft Order Limits. This IEF also includes North Killingholme Haven Pits SSSI, Dawson City Claypits Nature Reserve, East Marsh Local Wildlife Site (LWS), Halton Marsh Clay Pits LWS, Killingholme Haven Pits Nature Reserve, Fort Paull Humber Grassland Candidate LWS and Paull Holme Strays Nature Reserve. Features include coastal and wetland habitats, vascular plants, invertebrates, fish, and passage, breeding and non-breeding birds.
- Holderness Coast – the draft Order Limits terminate at the Holderness Coast, extending into the sea to Mean Low Water Springs. This IEF includes the intertidal and marine components of the Holderness Coast, sections of which are designated as the Greater Wash SPA (marine), Holderness Inshore MCZ and Dimlington Cliff SSSI (albeit this is designated for geological features).

Features include habitats, invertebrates (crustaceans, molluscs), algae, sponges and other fauna including fish, and passage, breeding and non-breeding birds.

- River Derwent - situated upstream and outside of the draft Order Limits (approx. 0.5km north) but dependent on the Humber Estuary (which is crossed by the Project). Designated a SAC and SSSI, the IEF also includes the Lower Derwent Valley SPA and Ramsar site. Features include habitats such as standing and running water, wetlands and grasslands, aquatic plants and a diverse range of fauna including invertebrates, fish, otter and passage, breeding and non-breeding birds.
- Other statutory designated sites shown on Figure 7.1 (Volume 2, Part 2): Ferriby Chalk Pit SSSI, Eskamhorn Meadows SSSI, Eastoft Meadow SSSI, Crowle Borrow Pits SSSI, Sugar Mills Ponds SSSI, Hatfield Chase Ditches SSSI, The Lagoons SSSI, Humberhead Peatlands NNR, Thorne Moor SAC, Thorne and Hatfield Moors SPA, Thorne, Crowle and Goole Moors SSSI, and Kirmington Pits SSSI, Kelsey Hill Gravel Pits SSSI; and
- Other non-statutory designated sites shown on Figure 7.2 (Volume 2, Part 2): Oak Hill LWS, Stainforth and Keadby Canal Corridor LWS, Keadby Wet Grassland LWS, Three Rivers LWS, Hatfield Waste Drain, Folly Drain North LWS, River Torne LWS, South Engine Drain, Belton LWS, Gunness Common LWS, Abbot's Lodge Grassland LWS, South Cloister Covert LWS, Hollym Carrs LWS, Weldon's Plantation LWS, Enholmes Plantations LWS, White Hall Plantation LWS, Asselby Island LWS, Meadow Area 4 LWS, Goxhill Meadows LWS, Alder Wood LWS, Burnham Manor Quarry LWS, Ulceby Vale Quarry LWS, Bonby Road Verge LWS, Sandhills Quarry LWS, Burton upon Stather Brick Pit LWS, Alkborough Flats LWS, Burton Wood LWS, Normanby Park LWS, Normanby Park Community Woodland LWS, Big Hole LWS, East Halton Dismantled Railway LWS, Rosper Road Pool LWS, Homestead Park Pond LWS, Scrub Lane East Field LWS, Houlton’s Covert LWS, Swinster Lane Field LWS, East View Meadow LWS, East Marsh LWS, Dawson City Claypits LWS, Thealby Gullet LWS, Crowle Moor LWS and Rawcliffe LWS.

## Arboricultural Features

7.8.6 A total of seven TPOs have been identified within 50m of the draft Order Limits. These features are shown in Figure 7.3 (Volume 2, Part 2).

## Habitats (including Priority habitats) and Ancient Woodland

7.8.7 There are five areas of ancient woodland within the Study Area, but none within the draft Order Limits. These sites are detailed in Volume 3, Appendix C and shown in Figure 7.3 (Volume 2, Part 2).

7.8.8 Several recognised areas of priority habitats (hedgerows, deciduous woodland, coastal and floodplain grazing marsh, coastal saltmarsh, lowland fens, lowland calcareous grassland, good quality semi-improved grassland, lowland dry acid grassland, open mosaic habitat, traditional orchard, saline lagoons, maritime cliff and slope, mudflats and reedbeds) are present within the draft Order Limits and wider search area. These areas are shown on Figure 7.3 (Volume 2, Part 2).

7.8.9 The habitats within the draft Order Limits are predominantly arable and grazed pasture fields bordered by hedgerows or ditches. The draft Order Limits crosses several watercourses, most notably the River Humber and its associated estuarine habitats, also the River Ouse, River Trent and the River Aire (see Chapter 17: Water resources, flood risk and land drainage). Small blocks of woodland occur infrequently throughout the draft Order Limits.

7.8.10 A field survey (comprising a UKHab survey and habitat condition assessments) is scheduled to take place in 2025 (see Table 7-4).

### Protected, Notable and Non-Native Invasive Species

7.8.11 Baseline data relating to protected, notable and NNIS is yet to be reviewed in detail. However, Table 7-7 summarises what has been determined to date. Table 7-4 provides a summary of the proposed survey and assessment programme that will take place in advance of EcIA.

*Table 7-7 – Protected, Notable and NNIS Baseline Conditions*

| Ecological Feature | Summary |
|---|---|
| Protected, notable and NNIS of flora (including fungi) | The desk study returned records of several notable / protected species of plant, including two that are protected under the Wildlife and Countryside Act 1981 (as amended); Bluebell (*Hyacinthoides non-scripta*) and Greater Yellow-Rattle (*Rhinanthus angustifolius*). Several species of orchid have been recorded within Keadby Ash Tip and Grass Vetchling (*Lathyrus nissolia*), which is listed as 'rare' within North Lincolnshire has been recorded along a field boundary in East Halton.<br>The habitats within the draft Order Limits are largely unsuitable for notable flora as they comprise intensive agricultural land that is species-poor and structurally deficient. Nevertheless, distinct habitat patches and intermittent pockets of semi-natural vegetation are sporadically distributed across the draft Order Limits, and it is anticipated that protected and notable flora (including fungi) will be relatively localised and restricted to such places.<br>The desk study returned records of multiple NNIS of flora, as listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). These included terrestrial plants such as Japanese Knotweed (*Reynoutria japonica*), Giant Hogweed (*Heracleum mantegazzianum*) and Rhododendron (*Rhododendron ponticum*) and aquatic plants including New Zealand Pigmyweed (*Crassula helmsii*) and Nuttall's Waterweed (*Elodea nuttallii*). |
| Aquatic invertebrates including White-clawed Crayfish (*Austropotamobius pallipes*) | Watercourses of varying sizes bisect the draft Order Limits within a predominantly rural area. The majority of these watercourses are small agricultural ditches and / or drains with limited suitability to support aquatic invertebrate species of conservation concern or an important assemblage of freshwater aquatic invertebrates. There are, however, a smaller number of larger drains, canals and main rivers which could support these.<br>The desk study information highlighted the presence of 16 notable species of freshwater aquatic invertebrates. In addition, the Humber Estuary SSSI which is crossed by the Project is noted for its aquatic invertebrate assemblage. |

| Ecological Feature | Summary |
|---|---|
| | There were very few records of most of the species identified in the desk study and considering that aquatic invertebrates are typically under-recorded, it is difficult to estimate the full extent of their distribution. However, as most species have specific habitat requirements, and habitat suitability and connectivity within the draft Order Limits are variable, populations of notable species are considered to be relatively localised.<br>The draft Order Limits and its ZoI are perceived to be outside the current natural range for white-clawed crayfish (Ref 7.53 and Ref 7.54). The EA (pers. comms.) reported the finding of a single individual in 2022 situated approximately 1.7km west (upstream) of the draft Order Limits although this is currently considered an anomaly. |
| Terrestrial invertebrates | The habitats within the draft Order Limits are largely unsuitable for terrestrial invertebrates as they comprise intensive agricultural land that is species-poor and structurally deficient. Nevertheless, distinct habitat patches and intermittent pockets of suitable habitat are sporadically distributed across the draft Order Limits including Open Mosaic Habitat, and woodland / grassland mosaics. The desk study information obtained highlighted the presence of 63 species of notable terrestrial invertebrates within the Study Area. Of these, 5 species with accurate grid reference locations (six figure or better) were recorded within the draft Order Limits: small heath (*Coenonympha pamphilus*); sea aster mining bee (*Colletes halophilus*); *Enochrus bicolor*; *Enochrus halophilus*; and *Scarodytes halensis*.<br>As terrestrial invertebrates are typically under-recorded and most are highly mobile, it is difficult to estimate the full extent of their distribution, but given their general habitat requirements, populations of all species are considered to be relatively localised. |
| Freshwater fish | The following IEFs include statutory designated sites noted for fish presence:<br>• Humber Estuary - Migration route for sea and river lamprey (*Petromyzon marinus* and *Lampetra fluviatilis* respectively). |

- Holderness Coast - Noted for the presence of European eel (*Anguilla anguilla*), dab (*Limanda limanda*) and wrasse (*Labrus sp*.)
- River Derwent - Noted for its diversity of fish species, which includes river lamprey, sea lamprey, bullhead, bleak (*Alburnus alburnus*), ruffe (*Gymnocephalus cernuus*) and burbot (*Lota lota*).

The draft Order Limits are bisected by watercourses of varying sizes within a predominantly rural area. The majority of these watercourses are small agricultural ditches and / or drains with limited suitability to support fish. There are also a smaller number of larger drains, canals and main rivers:

- European eel: potentially occur within a high number of watercourses crossed by the draft Order Limits.
- Spined loach (*Cobitis taenia*): restricted to the River Ancholme (and connected watercourses), the River Aire, the River Trent and the Humber Estuary.
- Bullhead: unlikely to occur within any of the watercourses within the Study Area due to sub-optimal habitat suitability and lack of connectivity to known records of the species.
- River lamprey and sea lamprey: likely to occur within the Humber Estuary, River Ouse, River Trent and accessible tributaries.
- Salmonids (Atlantic salmon *Salmo salar* and brown / sea trout *Salmo trutta*): likely to occur within the Humber Estuary, River Ouse, River Trent, River Aire, Aire and Calder Navigation and the Dutch River.
- Smelt (*Osmerus eperlanus*): likely to occur within the Humber Estuary (and lower freshwater / brackish reaches of connected watercourses), River Ouse and River Trent.
- Other commercially important species (herring *Clupea harengus*, Atlantic cod *Gadus morhua*, whiting *Merlangius merlangus*, plaice *Pleuronectes platessa*, common sole *Solea solea* and dab): restricted to the Humber Estuary. Plaice has also been recorded within East Halton Beck (Skitter Beck), which is crossed by the draft Order Limits.

| Ecological Feature | Summary |
|---|---|
| Reptiles | • Low numbers of viviparous lizard (*Zootoca vivipara*) are potentially present with a patchy distribution across suitable habitats<br>• Only one record of slow worm (*Anguis fragilis*) was identified within 2km of the draft Order Limits.<br>• Low numbers of grass snake (*Natrix helvetica*) are potentially present intermittently across suitable habitats and particularly within the many ditch networks crossed by the Project.<br>• Adder (*Vipera berus*) appears to be restricted to Thorne, Crowle and Goole Moors SSSI and surrounding areas. There was also one record (from 2002) within the Oak Hill LWS, and the species may also be present around this location. |
| Amphibians, including great crested newts (Triturus cristatus) | The desk study returned over 200 records of great crested newt (GCN) within the search area, as well as records for common toad (*Bufo bufo*), common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*); this included records for all species within the draft Order Limits. GCN are known to be widespread throughout the region (Ref 7.55) and there are a high number of ponds within 500m of the draft Order Limits. |
| Birds (passage, wintering and breeding) | Passage and wintering bird surveys are ongoing; however, large areas of the draft Order Limits are known to support passage and wintering birds associated with the Humber Estuary IEF. It is anticipated that the range of habitats within the Project boundary will provide suitable habitat to support a variety of nesting birds; particularly those associated within farmland habitat. |
| Badger | Badgers are widespread and common within the draft Order Limits and potentially present within all suitable habitats. There are over 50 known setts within the draft Order Limits or within 30m of the draft Order Limits; many of these may be impacted by the Project. |
| Bats (roosting and activity) | The draft Order Limits and surrounding landscape support a wide diversity of roosting bats (nine species); however, over 50% of these records are attributable to pipistrelle bats (predominantly common |

| Ecological Feature | Summary |
|---|---|
| | pipistrelle Pipistrellus pipistrellus) and brown long-eared bat (Plecotus auritus) records make up approximately (17%); all other species were recorded only in single figures. |
| Dormouse | The draft Order Limits and its ZoI are perceived to be outside the current natural range for dormouse (Ref 7.53 and Ref 7.54 and there is no publicly available information to indicate there are any nearby release sites for dormice. |
| Otter | Otters are widespread and are likely to use all suitable habitats within the draft Order Limits for foraging and / or dispersal, although holts and lying up sites are only likely to be present within larger riparian corridors.<br>The draft Order Limits are bisected by watercourses of varying sizes within a predominantly rural area. Based on the desk study information and incidental observations, otters are widely distributed within the large riparian corridors crossed by the Project with multiple records near Drax Power Station, adjacent to the River Ouse, and along the Dutch River, the River Trent, Skegger Beck and the Humber Estuary. Outside of large riparian corridors, there are few records which are not well connected to suitable watercourses within the draft Order Limits.<br>The majority of watercourses within the draft Order Limits are small agricultural ditches and / or drains with banks which are regularly managed and therefore support little or no habitat cover. Some of these were also ephemeral, too small to support significant fish prey and / or isolated from other more suitable habitats. |
| Water vole | Riparian habitats within the draft Order Limits comprise a network of drainage ditches along the margins of agricultural land in addition to canals, streams and larger watercourses, all of which are suitable for water voles. Agricultural drainage ditches provide suitable habitat for foraging and burrowing whilst larger watercourses provide connectivity across the area.<br>Based on the desk study information, water vole distribution appears to be widely spread across the Study Area. In terms of areas where the greatest number of records exist, there are multiple water vole |

| Ecological Feature | Summary |
|---|---|
| | records around Drax, the greatest accumulation of records in the area north and east of Scunthorpe including from Eastoft to West Butterwick and a further group of records immediately to the east and west of the River Humber. There are further scattered, unconnected water vole records throughout the entirety of the remainder of the scheme. It is important to note that any gaps in records may be due to a lack of development and therefore survey taking place in an area rather than the absence of water vole. |
| Other notable mammals | Records of brown hare (*Lepus europaeus*) and hedgehog (*Erinaceus europaeus*) are widespread across the draft Order Limits.<br>The data search returned few records of harvest mouse (*Micromys minutus*), spread across the draft Order Limits, but situated within or adjacent to statutory or non-statutory designated sites.<br>No other records of notable mammal records were identified within the search area. |

### Future Baseline

7.8.12 The future baseline conditions are not necessarily the same as those that exist at the current time; they are the conditions that would exist in the future in the absence of the Project.

7.8.13 The current land use of the draft Order Limits is predominantly agricultural, and it is unlikely that any change to ecological conditions would occur unless agricultural practices (or other current land management regimes) cease. Therefore, in the event the Project does not proceed, it is considered likely that habitats within the draft Order Limits would remain similar to those of the current baseline and it is reasonable to assume that if current conditions are maintained, species abundance and distribution are unlikely to change significantly. However, due to climate change, it is possible that in the medium to long term, the range of some species may be altered.

7.8.14 Any potentially relevant changes to the baseline would be reviewed during the EIA process and, should any likely instances be identified, the implications will be considered on a case-by-case basis within the EIA.

7.8.15 The assessment will include an outline of the likely evolution of the existing baseline without the development of the Project, based on available information on future plans (such as committed developments that will be delivered prior to the commencement of construction) and knowledge of the historic land uses. The future baseline scenario will be clearly set out and described within the ES which will also include an assessment of cumulative effects (also see Chapter 20: Cumulative).

## 7.9 Design, Mitigation and Enhancement Measures

7.9.1 The Project design has to date and will continue to follow the principles of the mitigation hierarchy – preference will be given first to avoiding impacts, then reducing remaining effects before applying targeted mitigation where required, which will be developed as part of the design process and will be informed by the ongoing assessment. Where residual effects remain, compensation will be provided.

7.9.2 Mitigation measures are undertaken as a response to anticipated adverse effects and can be described as:

- **Primary Mitigation** – modifications to the location or design made during the pre-application phase that are an inherent part of the Project.
- **Secondary Mitigation** – commitments made by the Applicant that will require further activity to achieve the anticipated outcome. The effectiveness of such measures will be assessed within the ES and the commitment to

delivering the mitigation measure will be secured by the DCO (or other suitable mechanism).

- **Tertiary Mitigation** – actions that would occur with or without input from the EIA. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are standard practices used to manage commonly occurring environmental effects. These measures are treated as an inherent part of the Project and, where appropriate, will be set out in the management plans that will accompany the ES, such as the draft Construction Environmental Management Plan (CEMP).

## Primary Mitigation

7.9.3 Primary mitigation measures associated with the Project include consideration of ecological features to inform the selection and appraisal of Project options, and the methods used during construction. The draft Order Limits were developed through this process and its route has been carefully chosen to avoid sensitive IEF's (such as, for example, the avoidance of ancient woodland) and to target open agricultural habitats.

7.9.4 The direct impacts of the Project include the clearance of habitats for construction (e.g., reduction of habitat size and fragmentation). In the first instance, impact avoidance measures have been (and will continue to be) employed throughout the design of the Project. This has included avoidance of statutory and non-statutory designated sites, priority habitats, woodlands and water features. This will be developed further through field surveys, micro-siting the route and / or using trenchless techniques in some circumstances to avoid / minimise losses of higher quality habitat. Primary mitigation measures have already been adopted to avoid direct impacts on the following IEFs: River Ouse, River Aire, Aire and Calder Navigation, Dutch River, River Trent, Halton Drain, East Halton Beck, River Humber and Winestead Drain.

7.9.5 With regard to linear features that cannot be avoided, the focus will be on minimising the construction footprint within these areas by crossing them perpendicular to the feature (as far as possible), targeting existing gaps in vegetation and avoiding mature trees and meanders / wider areas.

## Secondary Mitigation

7.9.6 Specific secondary mitigation measures will be developed as part of the PEIR and finalised within the ES following survey / assessment and further design amendments. It will include specific / strategic habitat provision (which will be detailed within a Biodiversity Enhancement Strategy) and any measures necessary to satisfy HRA, Natural England derogation licences and Environment Agency permits.

7.9.7 In line with EN-1, the Applicant is committed to adopting a sustainable approach to development by proactively taking measures to conserve conservation interests and to ensure that the Project leaves the environment in a better condition than it was before development, i.e. delivering a biodiversity enhancement when compared with the baseline assessment. Biodiversity enhancement measures are those that are over and above the measures which would be implemented to reduce the effects arising from development (i.e. requirements for avoidance, mitigation and compensation).

7.9.8 A Biodiversity Enhancement Strategy will be prepared to detail the Project commitments with regard to habitat enhancement and creation including BNG (in line with the forthcoming Government guidance / legislation for NSIPs). The Biodiversity Enhancement Strategy will be appended to the EcIA and will aim to identify and implement opportunities for strategic habitat enhancement / creation to improve patch quality and habitat connectivity. This will be achieved through reinstating habitats identified as IEFs to a condition of ecological value equal to or above the baseline.

7.9.9 With regard to derogation licences, the Natural England DLL scheme is proposed. DLL is a type of strategic mitigation licence for GCN granted in certain areas at a Local Authority or wider scale with the aim of improving conservation outcomes for GCN. The Project will therefore contribute (via a conservation payment) towards district level conservation targets for great crested newts (that will also benefit other amphibians). Derogation licences may also be required for badger, bats, otter and water vole.

### Tertiary Mitigation

7.9.10 At this stage, the baseline conditions are not fully understood, and thus tertiary mitigation has not yet been developed. However, mitigation, compensation and enhancement measures are likely to be required in relation to relevant policies, the legal protection afforded to certain species and to ensure that NNIS are not spread as a result of the Project. Full details of all tertiary or essential mitigation measures, along with the mechanism for delivery, will be provided within the ES.

7.9.11 Species and habitat specific mitigation and the requirement for pre-construction surveys and / or monitoring will be developed during the production of the PEIR and finalised within the ES. If there is a likelihood of adverse effects on protected species, the Project would only proceed under a licence granted by Natural England. Where certain IEFs have been identified or where there is potential for them, and impacts cannot be avoided during construction, Reasonable Avoidance Measures and / or Precautionary Working Methods may also be developed and implemented under supervision by an Ecological Clerk of Works.

7.9.12 Construction and de-commissioning impacts would be designed out / minimised as far as possible through, for example, minimising land-take / habitat loss and

locating access tracks / haul roads and site compound / material storage areas outside of ecologically sensitive sites / habitats (such as statutory and non-statutory designated sites and priority habitats). Clearly demarcated, dedicated access routes would be provided during construction / de-commissioning and any areas required for temporary works would be reinstated on completion.

7.9.13 The Ecology and Biodiversity assessment will rely on commitments 1 and 2 (relevant to various environmental topics) outlined in the draft Register of Commitments in Volume 3: Appendix F which include the development of a CEMP and Decommissioning Environmental Management Plan (DEMP) using best environmental practice techniques with the following measures where reasonably practicable:

- Measures taken to prevent the spread of NNIS.
- Measures taken to prevent dust and other emissions from construction.
- Measures taken to prevent sediment run-off and silt dispersal into watercourses.
- Appropriate measures for the storage of chemicals and fuels.
- Measures taken to prevent entrapment of animals within construction excavations.
- The control of noise and vibration to the minimum necessary; and
- The sensitive use of lighting.

## 7.10 Description of Potential Likely Significant Effects

7.10.1 As a largely below-ground development (excluding AGIs and the Pump Facility), the Project will result in predominantly short-term and temporary impacts during construction. As such the majority of IEFs will only be subject to potential effects during construction. Operational effects are considered to be limited to AGI locations and the Pump Facility only and are considered unlikely to be significant. However, at the time of writing, lighting, noise and vibration disturbances upon IEFs from the AGI's and the Pump Facility have not been quantified and have therefore been scoped in for further assessment.

### Construction

7.10.2 The potential impacts as a result of construction activities are:

- Direct habitat loss and potential damage, degradation and / or fragmentation of habitats during site clearance and excavation.
- Potential killing / injury of protected species.
- Acoustic, visual and vibration disturbance, particularly during piling and tunnelling activities.
- Disturbance from temporary lighting.

- Pollution impacts caused by (for example) plant emissions, dust, sediment run-off, water abstraction, silt dispersal, break-out during trenchless construction methods, and chemical or fuel spills affecting terrestrial, aquatic, intertidal and marine habitats and species.
- The spread of NNIS within and beyond the draft Order Limits.

### Operation

7.10.3 As the pipeline will be below ground, operational impacts are restricted to the areas around the AGI locations and the Pump Facility (including access roads) and will include increased lighting, noise, and small amounts of carbon dioxide emissions from venting.

### Decommissioning

7.10.4 Decommissioning activities will be restricted to AGI locations and the Pump Facility; the pipeline will remain in-situ. Potential impacts as a result of decommissioning include:

- Pollution impacts caused by (for example) plant emissions, dust, sediment run-off, chemical or fuel spills affecting terrestrial and aquatic habitats and species.
- Disturbance through increased lighting (including temporary lights for construction compounds).

## 7.11 Summary of the Proposed Scope of Assessment

7.11.1 The matters scoped in or out of further assessment for Biodiversity are outlined in Table 7-8, which should be read in conjunction with the tables in Appendix A and B showing more details of the designated sites (including distances from the draft Order Limits) and arboricultural features. Figures 7.1 – 7.3 also show the locations of the designated sites, priority habitats and TPOs.

*Table 7-8 – Matters Scoped In or Out of Further Assessment*

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| Holderness Coast IEF | Construction, Operation and Decommissioning | ✓ | | The Holderness Coast IEF includes the Greater Wash SPA (marine), Holderness Inshore MCZ and Dimlington Cliff SSSI (albeit this is designated for geological features).<br>This IEF partially falls within the draft Order Limits and has been scoped in due to the potential for direct impacts (e.g., loss / damage to habitat during the landfall works) and / or indirect impacts (e.g., pollution events) during construction and decommissioning.<br>The Pump Facility will be located in close proximity to the SPA. This IEF is therefore scoped in due to the potential for operational lighting and noise impacts from the Pump Facility to negatively affect bird features for which the SPA is designated. | To be agreed as part of EIA Scoping |
| Humber Estuary and River Derwent IEF's | Construction and Decommissioning | ✓ | | The Humber Estuary IEF includes the Humber Estuary SAC, SPA, Ramsar site and SSSI, and North Killingholme Haven Pits SSSI, Dawson City Claypits Nature Reserve, East Marsh Local Wildlife Site (LWS), Halton Marsh Clay Pits LWS, Killingholme Haven Pits Nature Reserve, Fort Paull Humber Grassland Candidate LWS and Paull Holme Strays Nature Reserve.<br>The Humber Estuary is crossed by the draft Order Limits and has been scoped in due to the potential for direct impacts (e.g., loss of habitat) and / or indirect impacts (e.g., | North Lincolnshire Council (30 July 2024 and 19 August 2024) and Lincolnshire Wildlife Trust (20 |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| | | | | pollution events) during construction and decommissioning. A trenchless technique will be used to cross the Humber Estuary (see Chapter 3: Description of the Project), avoiding many potential impacts to the IEF; however, entry / exit points are not known at this stage but will, by virtue of their purpose, be in proximity to the Humber Estuary.<br>The River Derwent IEF includes the River Derwent SAC and SSSI and the Lower Derwent Valley SPA and Ramsar site.<br>Although the River Derwent is situated upstream of the Project, it is scoped in because any pollution events during construction or decommissioning affecting the Rivers Ouse or Humber could impact migratory fish species which the SAC and SSSI are designated for (e.g., river lamprey, bleak, ruffe and burbot).<br>Further, some of the proposed AGI locations are hydrologically connected to these IEF's which could also be impacted by pollution events during decommissioning (dismantling of AGIs and activities to return land to another use/s). | August 2024). |
| | Operation | ✓ | | There are no perceivable pathways to impact these IEF's or its associated statutory and non-statutory designated sites during operation as only the Pump Facility (including the access road) will be in constant use for monitoring purposes and this is situated over 3 km away. The AGIs will | To be agreed as part of EIA Scoping. |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| | | | | be occasionally visited for use of equipment necessary for routine operation and maintenance of the pipeline but most are a distance from these IEFs. This IEF is therefore scoped out for assessment of impacts during operation. | |
| Other Statutory Designated Sites scoped into construction:<br>SSSI's: Eastoft Meadow; Eskamhorn Meadows; and South Ferriby Chalk Pit.<br>Thorne and Hatfield Moors SPA | Construction | ✓ | | Eskamhorn Meadows SSSI and South Ferriby Chalk Pit SSSI are situated immediately adjacent to the draft Order Limits and Eastoft Meadow SSSI is located approximately 0.3 km west of the draft Order Limits. Scoped in because these sites could incur indirect and direct impacts such as habitat loss / damage and pollution impact during construction.<br>Thorne and Hatfield Moors SPA, designated for its breeding nightjar (*Caprimulgus europaeus*) population is 0.8 km south of the draft Order Limits. Nightjars are a predominantly heathland species and the habitats within the draft Order Limits are largely sub-optimal for this species (i.e. open agricultural land) and are unlikely to represent land that is 'Functionally Linked' to the SPA. However, nightjar foraging habitat can include hedgerows, scrub, grassland, ditches and ponds and therefore this site is scoped in so that further assessment can be made of habitat suitability within the draft Order Limits in proximity of this site. | North Lincolnshire Council - 30 July 2024 and 19 August 2024. |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| | Decommissioning and Operation | | ✓ | Scoped out because these sites are all situated over 3km away from the AGIs / Pump Facility and associated access roads. There are no perceivable pathways to impact these IEF's or its associated statutory and non-statutory designated sites. | To be agreed as part of EIA Scoping. |
| Remaining Statutory Designated Sites (see full list in Volume 3: Appendix A) | Construction, Operation and Decommissioning | | ✓ | Thorne Moor SAC, Humberhead Peatlands NNR (designated for raised bog habitat), Thorne, Crowle and Goole Moors SSSI (the designating features of this site being almost exclusively associated with the sites mire habitat), Hatfield Chase Ditches SSSI and Crowle Borrow Pits SSSI are located upstream of the draft Order Limits (between 1 and 2.5km away). Scoped out because the Project is not anticipated to impact upstream hydrology at this distance and is therefore unlikely to impact the conservation objectives and designating features of these sites.<br>All other statutory designated sites (Sugar Mills Ponds LNR and The Lagoons SSSI) are scoped out because they lack perceivable impact pathways such as hydrological connectivity and are located more than 300m from the draft Order Limits. It is considered that any effects on these statutory designated sites as a result of a potential pollution event are unlikely to be significant given the distance pollutants would need to travel to reach the sites. | To be agreed as part of EIA Scoping. |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| Other Non-Statutory Designated Sites scoped into construction (see full list in Volume 3: Appendix B) | Construction and Decommissioning | ✓ | | Several non-statutory designated sites are either situated within or hydrologically connected to the draft Order Limits, creating a potential impact pathway. These designated sites are scoped in for further assessment because they could be impacted (e.g., loss of habitat) or indirectly (e.g., pollution events) during construction and / or decommissioning (dismantling of AGIs and activities to return land to another use/s). | North Lincolnshire Council - 30 July 2024 and 19 August 2024. |
| | Operation | | ✓ | Scoped out because there are no perceivable pathways to impact any of these non-statutory designated sites during operation. | To be agreed as part of EIA Scoping. |
| Remaining Non-Statutory Designated Sites (see full list in Volume 3: Appendix B) | Construction, Operation and Decommissioning | | ✓ | All remaining sites are situated over 200m away from the draft Order Limits (See Figure 7.2); non-statutory designated sites that lack perceivable impact pathways such as hydrological connectivity to the draft Order Limits have been scoped out of further assessment. See full list in Volume 3: Appendix B. | To be agreed as part of EIA Scoping. |
| Arboricultural features (TPOs and veteran | Construction | ✓ | | TPOs are present within the draft Order Limits and veteran trees may be present within / close to construction activities. It is intended that established trees would be avoided where possible i.e. fenced off and worked around | To be agreed as part of EIA Scoping. |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| trees) (see Volume 3: Appendix C) | | | | (see Chapter 3: Description of the Project) although this is not yet confirmed. Scoped in because the potential exists for direct physical impacts (e.g., direct loss of habitat) and indirect impacts on arboricultural features during construction and this feature is therefore scoped in on a precautionary basis. | |
| | Operation and Decommissioning | | ✓ | Scoped out because there are no perceivable pathways to impact arboricultural features during operation and decommissioning. | To be agreed as part of EIA Scoping. |
| Ancient woodland | Construction, Operation and Decommissioning | | ✓ | Scoped out because areas of recognised ancient woodland are located at least 0.7km beyond the draft Order Limits with no hydrological connectivity. Indirect effects (e.g., pollution from dust / machinery emissions during construction and decommissioning) are unlikely to be significant at this distance. | Forestry Commission July / August 2024. |
| Priority Habitats | Construction and Decommissioning | ✓ | | Scoped in because the Project (including AGI locations and the Pump Facility) will pass through and in close proximity to Priority Habitats, e.g., sections of hedgerow will require removal to facilitate an open cut method of pipeline installation and as part of the landfall works at Easington a microtunnel and coffer-dam method might be used which would entail creating an access route through the cliff, impacting areas of maritime cliff and slope. The potential | To be agreed as part of EIA Scoping. |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| | | | | therefore exists for direct physical impacts during construction (e.g., direct loss of habitat) and indirect impacts (e.g., pollution events) during construction and decommissioning and Priority Habitats. | |
| | Operation | | ✓ | Scoped out because there are no perceivable pathways to impact Priority Habitats during operation. | To be agreed as part of EIA Scoping. |
| Invertebrates (excluding White-clawed crayfish) | Construction, Operation and Decommissioning | ✓ | | The Project extends through a largely agricultural landscape which is considered unsuitable for large invertebrate populations, protected species or notable assemblages. The Project will seek to avoid any areas / habitats of high value for invertebrates although this is not yet confirmed. Aquatic and terrestrial invertebrates are therefore scoped in due to the potential for direct impacts during construction (e.g., habitat loss / fragmentation) and indirect impacts (e.g., as a result of pollution events) during construction and decommissioning. Nocturnal species may also be adversely affected by operational lighting at AGI locations and temporary lighting required during construction and decommissioning. | To be agreed as part of EIA Scoping. |
| White-clawed crayfish | Construction, Operation and Decommissioning | | ✓ | The Project is situated outside the known natural range of white-clawed crayfish and there are no conclusive records of the species in any watercourses with perceivable | To be agreed as |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| | | | | pathways to the draft Order Limits. White-clawed crayfish are scoped out of further assessment. | part of EIA Scoping. |
| Freshwater fish | Construction | ✓ | | The Project crosses several watercourses (see Chapter 3: Description of the Project). It is anticipated that Main Rivers will be crossed using trenchless techniques while crossings of minor watercourses will typically use open cut techniques (see Chapter 3: Description of the Project). However, the exact nature and location of watercourse crossings are unknown at the current time. Scoped in because there is a risk of direct impacts at open-cut locations (during construction) as a result of, for example, dewatering. Indirect impacts and disturbance due to increased pollution events may also be experienced at trenchless crossings. | To be agreed as part of EIA Scoping. |
| | Operation and Decommissioning | | ✓ | Scoped out because there are no perceivable pathways to impact fish during operation or decommissioning. | To be agreed as part of EIA Scoping. |
| Reptiles | Construction | ✓ | | Widespread presence and large populations of reptiles are thought to be unlikely due to the unsuitable nature of the majority of the habitats (predominately structurally poor agricultural fields) within the draft Order Limits. However, scoped in because reptile species may be present within areas of suitable habitat effected during construction. | To be agreed as part of EIA Scoping. |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| | Operation and Decommissioning | | ✓ | Scoped out because there are no perceivable pathways to impact reptiles during operation and decommissioning. | To be agreed as part of EIA Scoping. |
| Breeding birds | Construction | ✓ | | Scoped in because it is anticipated that a range of habitats within the draft Order Limits will be suitable to support nesting birds, particularly those associated with farmland. | To be agreed as part of EIA Scoping. |
| | Operation and Decommissioning | | ✓ | Scoped out because there are no perceivable pathways to impact breeding birds during operation and decommissioning. | To be agreed as part of EIA Scoping. |
| Wintering / passage birds | Construction, Operation and Decommissioning | ✓ | | The Project crosses beneath the River Humber in an area which is designated as a SPA and Ramsar site and extends into the Greater Wash SPA. Wintering / passage birds are a designating feature of all of these sites. Scoped in because construction and decommissioning in close proximity to these areas and within suitable habitats in the wider landscape has the potential to result in impacts on wintering / passage bird populations as a result of, for example, habitat loss (construction phase only), increased noise and visual disturbance. | Agreed with Natural England – 9 August 2024. |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| | | | | Operational lighting and noise impacts from the Pump Facility could negatively affect passage / wintering birds within the nearby Greater Wash SPA. | |
| Badger | Construction, Operation and Decommissioning | ✓ | | Based on the habitats present and rural location of the Project, it is anticipated that badgers are widespread throughout the draft Order Limits. Scoped in because they may be impacted during construction through, for example, loss of / damage to / disturbance of setts. | To be agreed as part of EIA Scoping. |
| Bats | Construction, Operation and Decommissioning | ✓ | | Given the rural location of the Project and wider landscape connectivity, bats are anticipated to forage / commute within the draft Order Limits and may roost in trees and cliff face within the draft Order Limits. Scoped in due to risk of direct impacts during construction (e.g., habitat loss / fragmentation).<br>Bats may also be impacted by operational lighting and any temporary lighting required during construction and decommissioning. | To be agreed as part of EIA Scoping. |
| Otter | Construction, Operation and Decommissioning | ✓ | | The Project crosses several watercourses (see Chapter 3: Description of the Project) and otters are likely to be widespread throughout the draft Order Limits and wider landscape. It is anticipated that Main Rivers will be crossed using trenchless techniques while crossings of minor watercourses will typically use open cut techniques (see Chapter 3: Description of the Project). However, the exact | To be agreed as part of EIA Scoping. |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| | | | | nature and location of watercourse crossings are unknown at the current time. Scoped in because there is a risk of direct impacts during construction as a result of, for example, loss / damage to holts / couches during construction at open-cut locations. Indirect disturbance due to increased noise and vibration and / or pollution events (impacting prey availability) may also be experienced at trenchless crossings, AGI locations and the Pump Facility during decommissioning. Otters may also be impacted by operational lighting and any temporary lighting required during construction and decommissioning. | |
| Water vole | Construction and Decommissioning | ✓ | | The Project crosses several watercourses (see Chapter 3: Description of the Project) and water voles are known to be widespread throughout the draft Order Limits. It is anticipated that Main Rivers will be crossed using trenchless techniques while crossings of minor watercourses will typically use open cut techniques (see Chapter 3: Description of the Project). However, the exact nature and location of watercourse crossings are unknown at the current time. Scoped in because there is a risk of direct impacts during construction at open-cut locations as a result of, for example, loss / damage to burrows. Indirect disturbance due to increased noise and vibration and / or pollution events may also be experienced at trenchless | To be agreed as part of EIA Scoping. |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| | | | | crossings, AGI locations and the Pump Facility during decommissioning. | |
| | Operation | | ✓ | Scoped out because there are no perceivable pathways to impact water voles during operation. | To be agreed as part of EIA Scoping. |
| Amphibians (excluding GCN) | Construction, Operation and Decommissioning | ✓ | | Scoped in because amphibians may be negatively affected by direct impacts during construction (e.g., habitat loss / fragmentation) and indirect impacts (e.g., as a result of pollution events) during construction and decommissioning. During operation, lighting at AGI locations may affect the dispersal of amphibians at night. | To be agreed as part of EIA Scoping. |
| GCN | Construction, Operation and Decommissioning | | ✓ | GCN are widespread throughout the region and therefore licensing and mitigation will be required to minimise impacts to this species. This will be implemented via a DLL scheme and will be documented within an IACPC, prepared by Natural England. When the Project enters into the DLL scheme, Natural England will undertake an impact assessment and determine the likelihood of significant effect on GCN. This approach includes strategic area assessment and a mechanism to ensure adequate compensation is provided and by obtaining an IACPC (or equivalent), GCN can therefore be scoped out of further assessment. | To be agreed as part of EIA Scoping. |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| Dormouse | Construction, Operation and Decommissioning | | ✓ | Scoped out because the Project is situated outside the natural range of the dormouse and this species is considered to be absent from the Study Area. | To be agreed as part of EIA Scoping. |
| Other notable mammals (brown hare, hedgehog, and harvest mouse) | Construction, Operation and Decommissioning | ✓ | | Scoped in because negative impacts to these species could occur during construction as a result of habitat removal / fragmentation. In addition, nocturnal species may also be impacted by operational lighting and any temporary lighting required during construction and decommissioning. | To be agreed as part of EIA Scoping. |
| NNIS | Construction | ✓ | | Scoped in because, given the extent of the draft Order Limits and the numerous watercourses it contains, there is potential for terrestrial and aquatic NNIS to be present. | To be agreed as part of EIA Scoping. |
| | Operation and Decommissioning | | ✓ | Scoped out because there are no perceivable pathways to impact NNIS during operation and decommissioning. | To be agreed as part of EIA Scoping. |

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# 8 Climate Change, Adaptation and Resilience

## 8.1 Introduction

8.1.1 This chapter addresses the proposed scope of the Environmental Impact Assessment (EIA) with respect to climate change, adaptation and resilience. This assessment will be carried out in line with the EIA Regulations (Ref 8.1) which require:

> *"A description of the likely significant effects of the development on the environment resulting from; the impact of the Project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the Project to climate change".*

8.1.2 The scope of assessment for climate change therefore considers:

- In Part 1 – Greenhouse Gas Emissions: The potential effects of the Project on climate change, with measures to reduce direct and indirect emissions of greenhouse gas (GHG) emissions; and
- In Part 2 – Climate Resilience and Adaptation: The resilience of the Project to the effects of climate change, with consideration given to measures included in the Project to improve resilience and adapt to climate change (referred to as 'climate resilience' and 'climate adaptation'). Because climate change impacts could interact with a range of environmental and social topics, in-combination climate change impact effect (ICCI) is also to be assessed.

8.1.3 As the scope considers two separate aspects of climate change, the chapter structure differs from other topic chapters. Each subtopic has its own scoping subsection: Section 8.2 assesses the impact of the Project on the climate, in terms of GHG emissions; Section 8.3 assesses the impacts of a changing climate on the Project and its ability to adapt to this. This chapter should be read in conjunction with:

- Chapter 6: Air Quality.
- Chapter 7: Ecology and Biodiversity.
- Chapter 14: Human Health and Wellbeing.
- Chapter 15: Traffic and Transport.
- Chapter 17: Water Resources, Flood Risk and Land Drainage.
- Chapter 19: Coastal and Intertidal Impacts.

# Part 1 – Greenhouse Gas Emissions

8.1.4 This section addresses the proposed scope of the EIA with respect to GHG emissions. It sets the scope for the assessment of the impacts of the pipeline on the climate, in terms of GHG emissions, during the construction, operational and decommissioning phases.

## 8.2 Legislation, Policy and Guidance

8.2.1 The assessment to be undertaken to inform the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) will as appropriate be in accordance with, and / or with regard to, the following legislation, policy and guidance.

### Legislation

8.2.2 The assessment will be undertaken in accordance with, and with reference to, the following legislation:

- Paris Agreement (United Nations, 2015) (Ref 8.2). This is a global climate accord designed to restrict the rise in global temperatures to well below 2° Celsius, and to pursue efforts to limit to 1.5° Celsius above pre-industrial levels. This international treaty aims to meet the climate targets first introduced in the 1997 Kyoto Protocol. The ES will record and report the GHG emissions arising from the Project, reporting how this impacts the local authority's projection towards Paris Agreement commitments. This will take into account mitigation measures to reduce emissions.
- The Climate Change Act 2008 Order 2019 (UK Government, 2019) (Ref 8.3). The amended Climate Change Act establishes a framework for the UK to achieve its long-term objective of reducing GHG emissions by 100% from a 1990 baseline by 2050. This is facilitated through interim targets set by the UK Carbon Budgets. The series of sequential carbon budgets, with each budget providing a five-year statutory cap on total GHG emissions, are in place to meet the UK's emission reduction commitments. We are currently in the period of the fourth carbon budget for 2023-2027, which is 1,950 $MtCO_2e$. The fifth carbon budget was set at 1,725 $MtCO_2e$, covering the period of 2028 to 2032. The sixth carbon budget is the most recently published, which sets limits of 965 $MtCO_2e$ between 2033 to 2037. These carbon budgets will form the future baseline for the Project to assess significance of impacts against.

## Policy

### National Policy Statements

8.2.3 As detailed in Chapter 1, Introduction, National Policy Statements (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Project would be considered. The two relevant NPSs are Overarching National Policy Statement for Energy (EN-1) (Department for Energy Security & Net Zero, 2023) (Ref 8.5) and National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Department for Energy Security & Net Zero, 2023) (Ref 8.6).

8.2.4 Table 8-1 sets out how the NPSs are relevant to the Greenhouse Gas emissions assessment.

*Table 8-1 – Relevant Sections of the Relevant National Policy Statements*

| NPS | NPS Section | How it will be Considered |
|---|---|---|
| EN-1 | Section 5.3 Greenhouse Gas emissions: "*All proposals for energy infrastructure projects should include a GHG assessment as part of their ES. This should include: A whole life GHG assessment showing construction, operational and decommissioning GHG impacts, including impacts from change of land use*". | The GHG assessment will be undertaken considering the Whole Life Carbon (WLC) of the assessment as applicable. This will include the embodied carbon from the construction phase and carbon associated with the energy consumed during the operational phase. |
| EN-1 | The ES should also include "*An explanation of the steps that have been taken to drive down the climate change impacts at each of those stages".* | Embedded mitigation measures will be assessed as part of the GHG assessment. This will be considered in the assessment of significance. The GHG assessment will be used to inform further reduction measures to ensure emissions are minimised as far as possible. |
| EN-1 | The ES should also include "*How reduction in energy demand and consumption during operation has been prioritised in comparison with other measures… and how operational emissions have been reduced as much as possible through the application of best available techniques for that type of technology."* | Emissions arising from operational energy demand will be assessed as part of the WLC assessment, with any mitigation considered. |
| EN-4 | Section 2.9.24 "*The ES should include an assessment of the effects of gas emissions on greenhouse gas emissions".* Gas emissions refer to the need or flare or vent gas. | The process of cleaning and inspecting the pipeline will be completed periodically, a process which may involve venting small volumes of carbon dioxide. This will be assessed within the operational phase of the GHG assessment. |

### National Planning Policy Framework

8.2.5 The National Planning Policy Framework (NPPF) (Ministry of Housing, communities and local government, 2023) (Ref 8.7)[8] sets out government planning policy for England and describes ways in which the challenge of climate change can be met. Chapter 14 of the NPPF highlights that planning plays a key role in meeting the challenge of climate change. The Policy also includes the requirements for local authorities to adopt proactive strategies to mitigate and adapt to climate change in line with the provisions and objectives of the Climate Change Act 2008 and co-operate with other authorities to deliver strategic priorities which include climate change.

8.2.6 Mitigation of GHG emissions will be assessed within this chapter to determine the significance of the emissions produced throughout the whole life of the Project.

### Local Policy

8.2.7 The Project lies within the jurisdictions of North Yorkshire, East Riding of Yorkshire, North Lincolnshire and North East Lincolnshire. A summary of the relevant local planning policy which is relevant to a study of GHG emissions will inform the GHG emissions assessment in the Environmental Statement (ES) is provided in Table 8-2.

[8] This EIA Scoping Report makes reference to the December 2023 update of the NPPF. The PEIR will provide an update of applicable legislation and policy, which will include consideration of the December 2024 NPPF update (or any subsequent update).

*Table 8-2 – Relevant Local Planning Policies*

| Local Plan | Policy Context | How it will be Considered |
|---|---|---|
| Yorkshire & Humber Climate Action Plan (2024) (Ref 8.8) | The plan contains a regional target of reduction to net zero by 2038 from the baseline year of 2000. Carbon capture and storage through planting trees or new carbon capture and storage technologies is considered however, the Plan stresses that the first option has to be to minimise emissions. | The Project will report emissions arising from the Project and mitigation measures implemented to reduce this impact. |
| The Humber Vision 2030 (Ref 8.9) | The Humber Vision 2030 is a joint strategy set out by partners from the public, private, and educational sectors to decarbonise the Humber Industrial Cluster. The policy seeks to set out a pathway for investing in net zero technologies and raise Humber's profile as a global net zero leader. | This assessment will be undertaken to ensure that the Humber Carbon Capture Pipeline, one of the key infrastructure investments included within the Vision, will be constructed and operated in line with these commitments. |
| East Riding of Yorkshire Climate Change Strategy 2022-2030 (2022) (Ref 8.10) | The Climate Change Strategy 2022-2030 sets out how the East Riding of Yorkshire will achieve short term decarbonisation targets. | The assessment undertaken for this Project will ensure that the Project is aligned with the policies and targets set out by the East Riding of Yorkshire Council. |
| North Yorkshire Council Climate Change Strategy | The Climate Change Strategy 2023-2030 sets out how North Yorkshire Council will respond to the climate emergency in the short-term. The Strategy sets out how the Council will reduce GHGs, improve resilience, and support biodiversity. | The assessment undertaken for this Project will ensure that the Project is aligned with the policies and targets set out by North Yorkshire Council. |

| Local Plan | Policy Context | How it will be Considered |
|---|---|---|
| 2023-2030 (2023) (Ref 8.11) | | |
| A Green Future: Our Strategy (North Lincolnshire) (Ref 8.12) | North Lincolnshire Council's Strategy is based on four key themes:<br>• Net Zero and Sustainable Energy.<br>• Resources, Waste and Water Management.<br>• Our Natural Environment: People and Place.<br>• A Shared Responsibility and A Shared Vision.<br>The aims included within each of these themes include targets to invest in carbon capture and sequestration, improve biodiversity and manage habitats, and introduce mitigation measures to reduce flood risk. | The assessment undertaken for this Project will ensure that the Project is aligned with the policies and targets set out by North Lincolnshire Council. |
| Local Plan 2013 to 2032, North East Lincolnshire (Ref 8.13) | The local plan Strategic Objective 2 (SO2) addresses Climate Change, promoting development that minimises natural resource and energy use, reduces waste and encourages recycling, promotes opportunities for sustainable transport use and incorporates sustainable construction practices.<br>• **Policy 31 Renewable and Low carbon infrastructure:** Promotes development that supports renewable and low carbon energy sources.<br>• **Policy 32 Energy and low carbon living:** States that applications for major development should include | The assessment undertaken for this Project will ensure that the Project is aligned with the policies and targets set out by North East Lincolnshire Council. |

| Local Plan | Policy Context | How it will be Considered |
|---|---|---|
| | information to demonstrate how appropriate design and construction practices have been considered and incorporated the use of materials, both in terms of embodied carbon and energy efficiency. | |

## Guidance

8.2.8 The GHG emissions assessment will be carried out in accordance with the following good practice and guidance documents:

- Assessing Greenhouse Gas Emissions and Evaluating their Significance (IEMA, 2022) (Ref 8.14). The IEMA Guide for 'Assessing Greenhouse Gas Emissions and Evaluating their Significance' was republished in 2022 to assist with GHG emissions assessments, mitigation and reporting in statutory and non-statutory Environmental Impact Assessment (EIA). This guidance has informed the methodology of this assessment.
- The Green Construction Board Publicly Available Specification 2080:2023 Carbon Management in Infrastructure – PAS 2080:2023 (BSI, 2023) (Ref 8.15). The first publicly available specification in the world that specifically addressed managing carbon in buildings and infrastructure. The purpose of the PAS 2080:2023 specification is to:
  - Provide governance and leadership.
  - Quantify GHG emissions.
  - Integrate emissions management into infrastructure delivery processes.
  - Provide targets, baselines, and monitoring methods.
  - Assist with reporting and managing information.
  - Spread responsibility across the asset value chain (designers, constructors, suppliers, managers).
  - Encourage continuing improvement.
- PAS 2080:2023 provides a common framework for all infrastructure sectors and value chain members on how to manage whole life carbon when delivering infrastructure assets and programmes of work. PAS 2080:2023 promotes reduced carbon, reduced cost infrastructure delivery, more collaborative ways of working and a culture of challenge in the infrastructure value chain through which innovation can be fostered. It includes requirements for all value chain members to show the right leadership and to establish effective governance systems for reducing whole life carbon through the use of a detailed carbon management process. All value chain members can claim conformity to the PAS 2080:2023 by demonstrating that the requirements in the PAS 2080:2023 that are relevant to them have been met.
- Whole Life Carbon Assessment for the Built Environment (2023) (Ref 8.16). The Whole Life Carbon Assessment for the Built Environment (2023) standard document was developed by the Royal Institute of Chartered Surveyors (RICS). The standard sets out the technical methodology for assessing the carbon impacts from buildings and infrastructure assets

throughout their life cycle. It is designed to enhance the quality, comparability, and accuracy of data used and derived from whole life carbon assessments and provides best practice guidance for calculating and reporting carbon emissions.

## 8.3 Proposed Assessment Methodology

### Value / Sensitivity

8.3.1 The consequences of a changing climate have the potential to lead to significant environmental effects on all topics in the EIA Directive. GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit. Therefore, any GHG emissions or reductions from a project might be considered to be significant. The significance of the Project's emissions will be considered over its lifetime, including the steps taken to reduce emissions through mitigation.

8.3.2 As GHG emissions are not defined by geographical boundaries, the global atmosphere is the key receptor of the GHG emissions assessment. All global cumulative GHG sources are relevant to the effect on climate change, and this should be taken into account in defining the receptor (the atmospheric concentration of GHGs) as being of 'high' sensitivity to further emissions.

8.3.3 To meet the 2050 carbon reduction target and interim budgets, action is required to reduce GHG emissions from all sectors. The assessment will consider whether and how the Project will contribute to the achievement of these targets. The Project will be assessed in consideration of the UK Carbon Budgets, keeping on track towards net zero by 2050 with at least a 78% reduction by 2035 (Ref 8.4). It also considers the local GHG emission targets, as set within the Climate Change Plan.

### Impact Magnitude

8.3.4 The impact of increased GHG emissions from the Project will be considered in conjunction with the embedded mitigation measures, to assess whether it contributes to reducing GHG emissions relative to the baseline consistent with a trajectory towards net zero by 2050. In GHG accounting, it is considered good practice to contextualise emissions against pre-determined carbon budgets.

8.3.5 The magnitude of emissions will be considered in the context of the sector emissions, local authorities carbon budgets, the UK national carbon budgets and net zero trajectory and policies. RICS Whole Life Carbon methodology, in line with PAS 2080 guidance, allows emissions representing less than 1% of total project emissions to be excluded from reporting. Therefore, it is considered that

emissions equating to <1% of carbon budgets are considered negligible. A scale is then applied to further emissions, as listed in Table 8-3.

8.3.6 The magnitude of impact will be considered as the change experienced from the current baseline conditions to the future conditions with the Project implemented. The magnitude to the receptor has been considered on a scale of high, medium, small or negligible. As no agreed significance criteria is available for evaluating GHG emissions in EIA, the magnitude of change is determined by establishing the percentage change relative to the baseline GHG emissions from the local area.

*Table 8-3 – Magnitude of Impact*

| Magnitude of impact (Change) | | Description |
|---|---|---|
| High | Adverse | A large increase in GHG emissions (>10%) relative to baseline emissions and / or future carbon budgets |
| | Beneficial | A large decrease in GHG emissions (>10%) relative to baseline emissions and / or future carbon budgets |
| Medium | Adverse | A medium increase in GHG emissions (5% − 10%) relative baseline emissions and / or future carbon budgets |
| | Beneficial | A medium decrease in GHG emissions (5% − 10%) relative baseline emissions and / or future carbon budgets |
| Low | Adverse | A small increase in GHG emissions (1% − 5%) relative to baseline emissions and / or future carbon budgets |
| | Beneficial | A small decrease in GHG emissions (1% − 5%) relative to baseline emissions and / or future carbon budgets |
| Negligible | Adverse | A negligible increase in GHG emissions (<1%) relative to baseline emissions and / or future carbon budgets |
| | Beneficial | A negligible decrease in GHG emissions (<1%) relative to baseline emissions and / or future carbon budgets |

8.3.7 The magnitude of GHG emissions emitted as a result of the Project will be quantified by assessing the activities associated with construction, operation and decommissioning. Activity data and emission factors will be used where appropriate, including the material specifications, energy demand and transportation.

8.3.8 The GHG assessment will be consistent with the principles set out in PAS 2080:2023 Carbon Management in Infrastructure (Ref 8.15) and will be reported in the form of the 'carbon footprint' - reported in tonnes of carbon dioxide equivalent ($tCO_2e$).

## Significance of Effect

8.3.9 The assessment of significance is based on professional judgement, consultation and is derived from receptor value and magnitude of impacts.

8.3.10 The significance of effects would be assessed by comparing the estimated GHG emissions arising from the Project with the future baseline and the associated reduction targets. Mitigation measures shall be considered when determining the magnitude of emissions. Mitigation measures will encompass all actions committed to for the reduction of GHG emissions.

8.3.11 To meet the 2050 carbon reduction target and interim budgets, action is required to reduce GHG emissions from all sectors. The ES for the Project must therefore consider whether and how it will contribute to the achievement of these targets. The Project will be assessed in consideration of the UK Carbon Budgets, keeping on track towards net zero by 2050 with at least a 78% reduction by 2035 (Ref 8.4). It shall also consider the local GHG emission targets of Yorkshire and Humber reaching net zero by 2038 (Ref 8.9).

8.3.12 When evaluating significance, all new GHG emissions contribute to a negative environmental impact. However, the significance of the Project should be based on its net impact over its lifespan. Where GHG emissions cannot be avoided through mitigation measures implemented, efforts to reduce the residual emissions will aim to be made throughout the lifetime of the Project. Where GHG emissions remain significant, but cannot be further reduced, approaches to compensate the Project's remaining emissions will aim to be considered through carbon offsets and removals.

8.3.13 The significance, therefore, is determined by the Project's contribution to reducing GHG emissions relative to the baseline consistent with a trajectory towards net zero by 2038.

8.3.14 Table 8-4 outlines the measure of significance, which will be based on professional judgement of the baseline compared to the Project in reference to the UK Carbon Budgets and Yorkshire and Humber GHG targets.

*Table 8-4 – Significance Criteria*

| Measure of Impact | Description |
|---|---|
| Major adverse | The Project's GHG impacts are not mitigated or are only compliant with do-minimum 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. |
| 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. |
| 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. |
| 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. |
| 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. |

8.3.15 The receptor's sensitivity to further emissions will be high because of the severe consequences of global climate change and the cumulative contributions of all GHG emission sources.

## 8.4 Limitations and Assumptions

8.4.1 Uncertainty can arise from the quality of data provided to quantify emissions arising from the Project, study boundaries and period of assessment, and cannot be completely eliminated from a study. It's understood that as design stages progress, so too does the accuracy of the GHG emissions assessment, as data can be provided at a higher level. At early design stages, assumptions and industry average information may be required, providing uncertainty in the results. The assessment of GHG emissions will be as accurate as possible based on the data available at the time of the assessment.

8.4.2 Where information is not available, assumptions based on professional judgment will be made. These assumptions will be consistent with those made by other topics for their assessments presented within the ES using industry guidance which is, where feasible, relevant to the scale of the Project.

8.4.3 The most up to date data sources at the time of the assessment will be used. The assessment is limited by the quality of data, for example where projections of UK Grid decarbonisation will be used. Inclusions and exclusions will be explicit during the ES process.

## 8.5 Stakeholder Engagement

8.5.1 Pre-scoping engagement with planning officers at North East Lincolnshire Council, North Lincolnshire Council, East Riding of Yorkshire Council and North Yorkshire Council has been undertaken. Based on a high-level review, the approach to assessing GHG emissions was considered reasonable.

8.5.2 North Lincolnshire Council requested that the GHG emissions assessment considered the impact of loss of land, both temporary and permanent, from carbon sequestration. Carbon sequestration is a key part of the local plan for this region. Land use and land use change is scoped into the assessment of GHG emissions.

8.5.3 Stakeholder engagement provides useful information and supports the goals of the GHG emissions assessment. Consultation will be undertaken with relevant stakeholders and issues raised will be noted, and where relevant, addressed. Relevant stakeholders include:

- North Lincolnshire Council.
- North East Lincolnshire Council.

- East Riding of Yorkshire Council.
- North Yorkshire Council.

## 8.6 Study Area

8.6.1 The study areas applied for the GHG assessment are not spatial study areas, rather parameters around what the assessment will consider.

8.6.2 The construction phase of the assessment will consider emissions associated with construction-related activities, material resources and waste and their associated transport. Therefore, the Study Area will comprise the draft Order Limits and the geographical area covered by the transport of waste, material resources and construction workers to and from the Project.

8.6.3 The assessment of GHG emissions during the operational phase of the Project will consider maintenance, repair, refurbishment and any operational energy required over the lifespan of the development of 25 years.

8.6.4 The Project is a key part of the wider East Coast Cluster, which is decarbonising through carbon capture technology. The purpose of this Project is to enable the capture of carbon through the construction and operation of the pipeline; however, the activity of carbon capture is not within the scope of the works. Therefore, the benefits of the carbon capture will not be assessed within the scope of this assessment.

8.6.5 The assessment of GHG emissions during the decommissioning phase of the Project will consider emissions associated with decommissioning-related activities, material resources, and waste and their associated transport. Therefore, the Study Area will comprise the draft Order Limits and the geographical area covered by the transport of waste, material resources, and decommissioning workers to and from the Project.

## 8.7 Receptors

8.7.1 As GHG emissions are not defined by geographical boundaries, the global atmosphere is the key receptor of the GHG emissions assessment. GHG emissions have a global effect rather than directly affecting any specific local receptor to which a level of sensitivity can be assigned. All global cumulative GHG sources are relevant to the effect on climate change, and this has been taken into account in defining the receptor (the atmospheric concentration of GHGs) as being of ‘high’ sensitivity to further emissions.

## 8.8 Baseline Conditions

8.8.1 The current baseline represents existing GHG emissions prior to the construction and operation of the Project. The baseline is considered a reference point for Business as Usual against which the Project can be measured. This can take the form of a GHG emissions assessment within the Study Area but without the development occurring, or GHG emissions arising from an alternative design. The current baseline GHG emissions will be collected for both the Humber Region and the UK. The data will be collected from relevant regional information sources such as the Yorkshire and Humber Climate Commission.

### Future Baseline

8.8.2 Greenhouse emissions are expected to decrease in future years due to legislation and policy, including the UK Carbon Budgets. The future baseline describes the reasonably foreseeable business-as-usual (BAU) conditions that are anticipated in the future without implementation of the Project. This will be used to compare the emissions arising over the lifespan of the Project, in order to determine significance.

8.8.3 The UK carbon budgets are effectively a future baseline of national GHG emissions necessary to achieve net zero. The Climate Change Act 2008 sets a 100% carbon reduction target (net zero) by 2050 (Ref 8.3). It is the duty of the Secretary of State to set for each succeeding period of five years (beginning with the period 2008 − 2012) an amount for the net UK carbon account (the 'carbon budget') and to ensure the net quantity of emissions does not exceed the carbon budget. For this reason, it is reasonable to use these targets as an indicator of likely future baseline GHG emissions.

8.8.4 The UK's Sixth Carbon Budget was implemented in April 2021, enshrining in law a new target to reduce GHG emissions by at least 78% by 2035 (Ref 8.4).

*Table 8-5 – UK Carbon Budgets to 2037*

| Carbon Budget Period | UK ($tCO_2e$) |
|---|---|
| 2023-2027 | 1,950,000,000 |
| 2028-2032 | 1,725,000,000 |
| 2033-2037 | 965,000,000 |

8.8.5 Regional carbon budgets and reduction targets will be considered in the future baseline, including the Humber and North Yorkshire targets of reduction to net zero by 2038. This provides interim targets of:

- 68% by 2025.
- 84% by 2030.
- 92% by 2035.
- 100% by 2038.

## 8.9 Design, Mitigation and Enhancement Measures

8.9.1 Mitigation will be managed through the use of the Construction Environmental Management Plan (CEMP), which will detail management of GHG emissions and application of mitigation measures during construction.

8.9.2 Secondary mitigation are any measures intended to reduce embodied carbon during construction and operation, such as using low carbon materials, lean structural design, and energy efficiency measures. This will be explored further as the design develops.

8.9.3 No secondary mitigation measures for GHG emissions have been identified at this stage. Through the application of the IEMA GHG assessment Guidance (Ref 8.14) the Project is committed to reducing GHG emissions from the activities by implementing the following hierarchy for GHG emissions, in line with PAS 2080:

- Avoid and / or prevent – measures that maximise potential for reusing and / or refurbishing existing assets.
- Reduce – measures that apply low carbon solutions, including technologies, materials and products, to minimise resource consumption.
- Remediate –measures to further reduce carbon through on or offsite offsetting or sequestration.

## 8.10 Description of Potential Likely Significant Effects

### Construction

8.10.1 The construction phase of the Project would have the potential to increase GHG emissions due to:

- Embodied carbon from the extraction and manufacturing of construction materials, such as the pipeline steel, AGI concrete surfacing and materials associated with the Pump Facility.
- Emissions from construction plant and equipment onsite, including temporary construction compounds.

- Emissions arising from land use change as a result of the temporary and permanent construction activities.
- Emissions from water consumption and disposal.
- Exhaust emissions from construction phase road traffic and from construction material transport.

### Operation

8.10.2 Operational energy is anticipated to be a considerable contributor to the whole life carbon of the Project. During the operational phase, potential impacts on the environment arising from GHG emissions would include:

- Above Ground Installation (AGI) and Pump Facility energy usage, primarily electricity and water use.
- Venting during commissioning and maintenance.
- Fugitive emissions release from the Pump Facility pump seals.

8.10.3 Venting will need to be carried out periodically as part of the maintenance process, though the frequency of venting is yet to be determined. Venting will be carried out at specific locations associated with the launch and reception of the Pipeline Inspection Gauge (PIG); see section 3.6 Operation and Maintenance for more detail.

8.10.4 It should be noted that Easington will have a permanent vent, but venting at this location would only occur during unplanned emergency events. Therefore, venting at Easington will be scoped out of this assessment.

8.10.5 The benefits of carbon capture and storage will be assessed as part of the Projects operational emissions.

### Decommissioning

8.10.6 The pipeline would be decommissioned and left in situ while the AGIs and Pump Facility would be safely dismantled, and all equipment removed. It is anticipated potential impacts on the environment arising from GHG emissions, would include exhaust emissions from decommissioning road traffic, decommissioning plant and equipment and waste processing and disposal.

## 8.11 Summary of the Proposed Scope of Assessment

*Table 8-6 – Summary of the Proposed Scope of Assessment*

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| Greenhouse gas emissions | Pre-Construction Demolition | | ✓ | It is not anticipated that there is any requirement for demolition of existing structures. | To be agreed as part of the EIA Scoping process |
| | Construction | ✓ | | Products and materials used for the development, their transport to site and the fuel and energy consumption of plant and equipment used during construction would generate significant GHG emissions. Land use and land use change will alter the ability to sequester carbon as a result of construction. | |
| | Operation | ✓ | | The Project is likely to require a significant amount of energy for AGIs and the Pump Facility, resulting in GHG emissions. | |
| | Decommissioning | ✓ | | The AGIs and Pump Facility would be removed after their proposed design life which will result in GHG emissions. | |

# Part 2 – Climate Resilience and Adaptation

## 8.12 Legislation, Policy and Guidance

### Legislation

8.12.1 The assessment will be undertaken in accordance with, and with reference to, the following legislation:

- The Paris Agreement (2015) (Ref 8.2). The Paris Agreement, adopted in 2015, is a global framework aimed at combating climate change through both mitigation and adaptation strategies. It seeks to limit global warming to well below 2°C above pre-industrial levels, while pursuing efforts to keep it below 1.5°C. The Agreement requires countries to set nationally determined contributions (NDCs) to implement sustainable practices and innovations. For adaptation, it emphasises enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change. Countries are encouraged to develop national adaptation plans, share knowledge and best practices, and provide financial support to vulnerable nations to help them cope with climate impacts. The Agreement underpins the UK Climate Change Act and many other climate-related policies, legislation and guidance, and as such will be used to inform the ES chapter. Mitigation measures will be recommended based on their ability to enhance the Project's adaptive capacity, and to strengthen its resilience and reduce its vulnerability to climate change.
- Climate Change Act 2008 (2019 Amendment) (Ref 8.3). The Climate Change Act was passed in 2008 and is the primary legislation underpinning climate action in the UK. It provides a framework for climate change mitigation and adaptation in the lead up to the UK's Net Zero 2050 target. The Act requires that an assessment be undertaken of risks associated with current and predicted climate impacts, including mitigation objectives and a programme on how to achieve them. As such, this assessment will be undertaken to understand the climate-related risks and potential impacts that the Project may encounter.

### Policy

#### National Planning Policy

#### National Policy Statements

8.12.2 As detailed in Chapter 1: Introduction, National Policy Statements (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Project would be considered. The two relevant NPSs are

Overarching National Policy Statement for Energy (EN-1) (Department for Energy Security & Net Zero, 2023) (Ref 8.5) and National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Department for Energy Security & Net Zero, 2023) (Ref 8.6).

8.12.3 Table 8-7 sets out how the NPS are relevant to the climate resilience and adaptation assessment.

*Table 8-7 – Relevant Sections of the Relevant National Policy Statements*

| NPS | NPS Section | How it will be Considered |
|---|---|---|
| EN-1 | *4.10.8 "New energy infrastructure will typically need to remain operational over many decades, in the face of a changing climate. Consequently, applicants must consider the direct (e.g., site flooding, limited water availability, storms, heatwave and wildfire threats to infrastructure and operations) and indirect (e.g., access roads or other critical dependencies impacted by flooding, storms, heatwaves or wildfires) impacts of climate change when planning the location, design, build, operation and, where appropriate, decommissioning of new energy infrastructure."* | This assessment will consider the direct and indirect impacts of climate change on The Project. |
| EN-1 | *"4.10.9 The ES should set out how the proposal will take account of the projected impacts of climate change, using government guidance and industry standard benchmarks such as the Climate Change Allowances for Flood Risk Assessments, Climate Impacts Tool, and British Standards for climate change adaptation, in accordance with the EIA Regulations."* | This assessment will use high quality climate change projections sourced for the UK Climate Projections 2018 (UKCP18) across multiple emissions scenarios, including high-emissions scenarios. The assessment will utilise industry standard guidance (such as IEMA Environmental Impact Assessment Guide to Climate Change Resilience and Adaptation (Ref 8.17)). The assessment will propose mitigation measures where required. |
| EN-1 | *4.10.10 "Applicants should assess the impacts on and from their proposed energy project across a range of climate change scenarios, in line with appropriate expert advice and guidance available at the time."* | This assessment will use high quality climate change projections sourced for the UK Climate Projections 2018 (UKCP18) across multiple |

| NPS | NPS Section | How it will be Considered |
|---|---|---|
| | | emissions scenarios, including high-emissions scenarios. |
| EN-1 | *4.10.11 "Applicants should demonstrate that proposals have a high level of climate resilience built-in from the outset and should also demonstrate how proposals can be adapted over their predicted lifetimes to remain resilient to a credible maximum climate change scenario. These results should be considered alongside relevant research which is based on the climate change projections."* | This assessment will use high quality climate change projections sourced for the UKCP18 across multiple emissions scenarios, including high-emissions scenarios. |
| EN-4 | *2.3.4 "As climate change is likely to increase risks to some of this infrastructure, from flooding or rising sea levels for example, applicants should in particular set out how the proposal would be resilient to:*<br>• Increased risk of flooding.<br>• Effects of rising sea levels and increased risk of storm surge.<br>• Higher temperatures.<br>• Increased risk of earth movement, coastal erosion, or subsidence from increased risk of flooding and drought.<br>• Any other increased risks identified in the applicant's assessment." | The assessment will set out how the Project is resilient to these potential climate risks. |
| EN-4 | *2.3.5 "The resilience of the project to climate change should be assessed in the Environmental Statement (ES) accompanying an* | The assessment will assess the resilience of the project to climate change. |

| NPS | NPS Section | How it will be Considered |
|---|---|---|
| | *application. For example, future increased risk of flooding should be covered in the flood risk assessment."* | |

### National Planning Policy Framework (2023)

8.12.4 The National Planning Policy Framework (NPPF), last amended in 2023[9], sets out planning policy for England and how to address the risks associated with climate change. The NPPF highlights how planning can play a key role in mitigating the impacts of climate change. It includes requirements for Local Authorities to adopt proactive climate change mitigation and adaptation strategies in line with the objectives of the Climate Change Act 2008. The NPPF also requires that Local Authorities cooperate with other entities to deliver strategic priorities, including climate targets.

8.12.5 The NPPF also states that Local Authorities should:

- Adopt proactive strategies to mitigate and adapt to climate change, including flood risk, coastal change, and water supply and demand considerations.
- Limit inappropriate development in areas with elevated flood risk, and, where development is necessary, take all actions possible to develop safety without increasing flood risk elsewhere.
- Support energy efficiency improvements to existing buildings and adhere to net zero building standards.
- Help to increase the use and supply of renewable and low-carbon energy.
- This assessment will be undertaken to ensure that this Project adheres to the requirements set out by the NPPF.

### Local Planning Policy

8.12.6 The Project lies within the jurisdictions of North Yorkshire, East Riding of Yorkshire, North Lincolnshire and North East Lincolnshire. A summary of the relevant local planning policy which is relevant to a study of climate resilience and adaptation matters and will inform the climate resilience and adaptation assessment in the Environmental Statement (ES) is provided in Table 8-8.

[9] This EIA Scoping Report makes reference to the December 2023 update of the NPPF. The PEIR will provide an update of applicable legislation and policy, which will include consideration of the December 2024 NPPF update (or any subsequent update).

*Table 8-8 – Relevant Local Planning Policies*

| Local Plan | Policy Context | How it will be Considered |
|---|---|---|
| Yorkshire & Humber Climate Action Plan (2021) (Ref 8.8) | The Yorkshire & Humber Climate Action Plan consists of a regional target to achieve Net Zero by 2038. The Humber Carbon Capture Pipeline will aid in achieving these targets.<br>The Plan also sets out how the region will build climate resilience, including:<br>• Developing better climate risk communications.<br>• Encouraging the wider adoption of climate adaptation plans.<br>• Promote resilience in health, wellbeing, and community benefits.<br>• Promote resilience in land use, food and farming.<br>• Promote nature-based solutions and blue-green resilience infrastructure.<br>• Promote climate resilience in business and industry; and<br>• Align all infrastructure sectors to deliver a regional systems approach. | This assessment will be undertaken to ensure that this Project is being undertaken in line with the Plan. |
| The Humber Vision 2030 (Ref 8.9) | The Humber Vision 2030 is a joint strategy set out by partners from the public, private, and educational sectors to decarbonise the Humber Industrial Cluster. The policy seeks to set out a pathway for investing in net | This assessment will be undertaken to ensure that the Humber Carbon Capture Pipeline, one of the key infrastructure investments included within the Vision, will |

| Local Plan | Policy Context | How it will be Considered |
|---|---|---|
| | zero technologies and raise Humber's profile as a global net zero leader. | remain operational and resilient throughout its proposed lifetime. |
| East Riding of Yorkshire Climate Change Strategy 2022-2030 (2022) (Ref 8.10) | The Climate Change Strategy 2022-2030 sets out how the East Riding of Yorkshire will achieve short term decarbonisation and climate resilience targets. It includes details of the current climate-related risks facing the area, including flooding, coastal change, and heatwaves, and how the East Riding needs to adapt in order to reduce the potential impacts. | The assessment undertaken for this Project will consider the risks and opportunities identified within the Strategy to ensure that the Project is aligned with the policies and targets set out by the East Riding of Yorkshire Council and other relevant local authorities. |
| North Yorkshire Council Climate Change Strategy 2023-2030 (2023) (Ref 8.11) | The Climate Change Strategy 2023-2030 sets out how North Yorkshire Council will respond to the climate emergency in the short-term. The Strategy sets out how the Council will reduce GHGs, improve resilience, and support biodiversity. It sets out the most urgent risks facing North Yorkshire, including habitat loss, soil degradation, disruption of power supplies, and impacts to human health and wellbeing, as a result of climate change. | The assessment undertaken for this Project will consider the risks and opportunities identified within the Strategy to ensure that the Project is aligned with the policies and targets set out by North Yorkshire Council and other relevant local authorities. |
| A Green Future: Our Strategy (North Lincolnshire) (Ref 8.12) | The North Lincolnshire Council's Strategy is based on four key themes:<br>• Net Zero and Sustainable Energy.<br>• Resources, Waste and Water Management.<br>• Our Natural Environment: People and Place.<br>• A Shared Responsibility and A Shared Vision. | The assessment undertaken for this Project will consider the risks and opportunities identified within the Strategy to ensure that the Project is aligned with the policies and targets set out by North Lincolnshire Council and other relevant local authorities. |

| Local Plan | Policy Context | How it will be Considered |
|---|---|---|
| | The aims included within each of these themes include targets to invest in carbon capture and sequestration, improving biodiversity and manage habitats, and introduce mitigation measures to reduce flood risk. | |
| Local Plan 2013 to 2032, North East Lincolnshire (Ref 8.13) | Strategic Objective 2 (SO2) Climate Change addresses the causes and effects of climate change including responding to increasing flood risk. The objective recognises the increased stress on habitats and species that climate change causes.<br>Policy 22 of the local plan highlights that good design in new developments includes the need to achieve climate change resilience.<br>Policy 33: Flood risk highlights the risk of change in frequency, pattern and severity of flooding in the region. Flood risk management is critical to protecting people and property from flooding. It is particularly important in the Borough as much of the urban area is within the high flood risk zone, including large parts of Grimsby, Cleethorpes and Immingham. This policy requires an assessment of any development through its lifespan and that mitigation is considered and incorporated where possible. | The assessment undertaken for this Project will consider the risks and opportunities identified within the Strategy to ensure that the Project is aligned with the policies and targets set out by North East Lincolnshire Council and other relevant local authorities. |

### Guidance

8.12.7 The Climate Resilience and Adaptation assessment will be carried out in accordance with the following guidance documents:

- Environmental Impact Assessment Guide to Climate Change Resilience and Adaptation (IEMA, 2020) (Ref 8.17) - The IEMA Guidance on Climate Change Resilience and Adaptation emphasises integrating climate change considerations into project designs, requiring clear documentation of how these factors and extreme weather conditions are addressed. It mandates a detailed future climate characterisation, urging developers to adopt a single, coherent climate scenario. Insignificant risks can be acknowledged if supported by robust evidence. The guidance also stresses ensuring the Project's resilience to climate impacts, with key issues for residential developments including uncomfortable high temperatures, increased flooding risk from extreme precipitation, and higher dust pollution from drier conditions. This assessment will be undertaken in line with the methodology set out in the Guide, and mitigation measures will be recommended to ensure that the Project is resilient to any identified climate risks.

## 8.13 Proposed Assessment Methodology

### Value / Sensitivity

8.13.1 The assessment of the resilience of the Project to the impacts of climate change during construction, operation, and decommissioning will be conducted in line with IEMA's Environmental Impact Guide to: Climate Change Resilience and Adaptation (Ref 8.17), and professional expertise and judgement. The significance of the effects on the Project will be determined using the methodology set out below.

8.13.2 Following the identification of receptors, their sensitivity (defined by IEMA as "*the degree of response of a receiver to a change and a function of its capacity to accommodate and recover from a change if it is affected*") (Ref 8.17) will be determined using the criteria set out in Table 8-9.

*Table 8-9 – Sensitivity Definitions*

| Sensitivity | Description |
|---|---|
| High sensitivity | The receptor is directly dependent on the existing climate conditions to continue to operate now and in the future or may only tolerate minimal change in climate conditions. |

| Sensitivity | Description |
|---|---|
| Medium sensitivity | The receptor is dependent on the current climate conditions to an extent but can continue to function under a range of conditions and will tolerate some change. |
| Low sensitivity | The current and future climate conditions have limited effect on the receptor. |
| Negligible | The current and future climate conditions have no effect on the receptor. |

8.13.3 The possible impacts associated with climate change on the Project and receptors will then be identified. Based on the sensitivity of the receptor the likelihood and consequences of the effects will then be assessed qualitatively using the information set out in Table 8-10 and Table 8-11.

8.13.4 The likelihood of the effect will be assessed using the trends identified in the climate projections obtained from the Met Office (UKCP18). This assessment will consider future climate conditions under one or two emissions scenarios. The likelihood, given as the probability of the effect occurring over the lifetime of the Project, will be determined based on the criteria outlined in Table 8-10. The consideration of the effects likelihood ensures the climate projections are taken into account within the assessment and alignment with IEMA guidance (Ref 8.17).

*Table 8-10 – Likelihood Definitions*

| Likelihood | Description |
|---|---|
| Very low | The event may occur once during the lifetime of the Project. |
| Low | The event occurs during the lifetime of the Project e.g., once in 25 years. |
| Medium | The event occurs limited times during the lifetime of the proposed scheme e.g., approximately once every 10 years. |
| High | The event occurs several times during the lifetime of the proposed scheme, e.g., approximately once every five years. |
| Very high | The event occurs multiple times during the lifetime of the proposed scheme, e.g., approximately annually. |

8.13.5 For the assessment of ICCI, receptors relevant to the location and scale of the project and their likely effects, identified through the EIA, will be collated and then evaluated on whether their vulnerability / susceptibility changes with the future climatic baseline identified.

## Impact Magnitude

8.13.6 The magnitude of the impact will be assessed using the categories defined in Table 8-11. The assessment of likelihood and magnitude will take existing design controls and embedded mitigation into account, as identified through engagement with the design teams.

8.13.7 It should be noted that the IEMA guidance uses ‘consequence’ in the place of ‘magnitude’. To align with the wider report, this assessment has used magnitude as a means of measuring the severity of the potential impacts. However, the assessment is aligned with IEMA, and as such uses the definitions of consequence to measure magnitude.

8.13.8 Within the assessment of ICCI, the magnitude of effects identified by other topics will be evaluated to consider whether the probability and consequence of these effects will change under the climate projections.

*Table 8-11 – Magnitude Definitions*

| Measure of Magnitude | Description |
|---|---|
| Negligible | Little to no consequence on the construction or operation of the Project. |
| Minor adverse | Localised disruption causing minor interruption to operations or services (e.g., less than one day) but no permanent or long-lasting effect on the Project. Minimal financial, reputational, environmental or health and safety losses. |
| Moderate adverse | Some localised damage to infrastructure causing temporary interruption to operations or services (less than a week) and requiring repair. Moderate financial, reputational, environmental or health and safety losses. |
| Large adverse | Damage to infrastructure is extensive causing major interruption to operations and services (more than a week) and requiring major repairs or replacement of infrastructure. Major financial, reputational, environmental or health and safety losses. |

| Measure of Magnitude | Description |
|---|---|
| Very large adverse | Permanent damage leading to complete loss of operations on the site for an extended period of time and requiring replacement of infrastructure across the majority of the site. Extreme financial, reputational and environmental losses extending beyond the limits of the site. Severe health effects and / or fatalities. |

## Significance of effect

8.13.9 The likelihood and magnitude will be applied to the matrix provided in Table 8-12 to determine the overall significance of each effect on receptors.

*Table 8-12 – Likelihood Magnitude matrix for determining significance*

| Likelihood | | Magnitude | | | | |
|---|---|---|---|---|---|---|
| | | **Negligible** | **Minor adverse** | **Moderate adverse** | **Large adverse** | **Very large adverse** |
| | **Very low** | Not significant | Not significant | Not significant | Not significant | Not significant |
| | **Low** | Not significant | Not significant | Not significant | Significant | Significant |
| | **Medium** | Not significant | Not significant | Significant | Significant | Significant |
| | **High** | Not significant | Significant | Significant | Significant | Significant |
| | **Very high** | Not significant | Significant | Significant | Significant | Significant |

8.13.10 To determine the significance of ICCI, significance criteria developed by the relevant environmental topics and outlined in the ES will be applied to the evaluation of the receptors' sensitivity and the magnitude of the effect. This will determine whether future climatic conditions change the significance of the effect, or it remains the same as outlined in other environmental topics.

## 8.14 Limitations and Assumptions

8.14.1 This climate assessment will use UKCP18 data to assess how climate-related risks will change throughout the Project's lifecycle. UKCP18 is a series of tools and data designed for climate change risk assessments. UKCP18 is a global leader in climate science, providing high-resolution spatially coherent future climate projections for the UK and the rest of the globe. However, these projections are reliant on a series of assumptions based on previous climate observations, numerical modelling, and the latest policy developments, and as such are subject to inaccuracies.

8.14.2 The assessment presumes stability in the existing regulatory and policy frameworks, recognising that any future changes could affect timelines, costs, and feasibility.

## 8.15 Stakeholder Engagement

8.15.1 Pre-scoping engagement with planning officers at North East Lincolnshire Council, North Lincolnshire Council, East Riding of Yorkshire Council and North Yorkshire Council has been undertaken. Based on a high-level review, the approach to assessing Climate Resilience and Adaptation was considered reasonable.

8.15.2 Stakeholder engagement provides useful information and supports the goals of the climate resilience assessment. Consultation will be undertaken with relevant stakeholders and issues raised will be noted, and where relevant, addressed. Relevant stakeholders include:

- North Lincolnshire Council.
- North East Lincolnshire Council.
- East Riding of Yorkshire Council.
- North Yorkshire Council.

## 8.16 Study Area

8.16.1 The climate resilience and adaptation assessment will consider the impact of the climate on the Project as the receptor. The Study Area for each phase of the Project is set out below:

- Construction phase – the Project's construction footprint.
- Operational phase – the AGIs, access roads and Pump Facility only. As the pipeline is buried underground, it is not considered vulnerable to the climate during the operational phase.
- Decommissioning – the AGIs and Pump Facility.

8.16.2 The Study Area of the ICCI assessment will be defined by the zone of influence for each of the environmental disciplines included within the assessment. The construction phase will be scoped out of the ICCI assessment as the other environmental disciplines have taken current weather conditions into account, minimising the potential in-combination impacts during the construction period given that the construction period is only 5 years. The operational and decommissioning phases are within scope as effects identified during these periods in other environmental topics could be exacerbated by the impacts of climate change.

8.16.3 It should be noted that, though the pipeline has been scoped out of the operational phase assessment as it is buried underground and not considered vulnerable to climate during this phase, all assets will be included within the ICCI. Climate change alone is unlikely to affect the pipeline but may compound other hazards, and as such will be assessed as potential in-combination impacts and mirror the approach of other environmental topics.

## 8.17 Receptors

8.17.1 The receptors which may be vulnerable to the effects of climate change will be identified. These may include:

- Buildings and infrastructure receptors (including AGIs and Pump Facility).
- Human health receptors (e.g., construction, maintenance, or decommissioning workers).
- Environmental receptors (e.g., habitats and species).

## 8.18 Baseline Conditions

### Current Baseline

8.18.1 The Project is located in the Met Office profile of Eastern England where much of the area is below 60 metres in altitude (Ref 8.20). Within this profile lies the Hull (Kingston-Upon-Hull) climate station, the closest climate station to the Project. Data from the Hull climate station (53.7492, -0.3471) has been used here as a representation for the Project (Ref 8.21).

8.18.2 The table presents average climate parameters recorded at Hull. Based on data from 1981 to 2010, the table includes annual averages for maximum and minimum temperatures, days with air frost, sunshine hours, rainfall totals, and days with significant rainfall. These metrics provide a comprehensive overview of the typical weather conditions near the Project, essential for assessing local climate patterns and informing decisions related to planning and development.

*Table 8-13 – Average climate parameters recorded at Hull, 1981-2010 (Ref 8.22)*

| Parameter | Annual Overview |
|---|---|
| Maximum Temperature (°C) | Average annual maximum temperature is 14.03°C, with the highest monthly average in July (21.64°C) and the lowest in January (7.33°C). |
| Minimum Temperature (°C) | Average annual minimum temperature is 6.69°C, with the highest monthly average in July (12.73°C) and the lowest in February (1.77°C). |
| Days of Air Frost (days) | There are 32.53 days of air frost annually, mostly occurring from November to March. |
| Sunshine (hours) | The total annual sunshine is 1512.85 hours, with the sunniest month being May (195.42 hours) and the least sunny month being December (50.52 hours). |
| Rainfall (mm) | Annual rainfall totals 679.89 mm, with the highest monthly rainfall in November (62.89 mm) and the lowest in February (44.10 mm). |
| Days of Rainfall ≥1 mm (days) | There are 122.93 days of rainfall annually, with the rainiest months being November (12.26 days) and January (11.80 days). |

## Future Baseline

8.18.3 Current climate baseline conditions for the assessment on climate resilience and ICCI are considered based on observational climate data for 1981-2010. Climate projection data relative to this baseline will inform the future baseline conditions. The time periods used for the future baseline will depend on the programme of works for the Project. The construction phase is expected to take place from 2028 to 2032 followed by the operational phase spanning 2032 to 2057. Accordingly, future baseline timeframes will be selected to encompass both phases. Time periods chosen will also consider the programme of works for the decommissioning phase once further details on its timescale are known.

8.18.4 The UK Climate Projections 2018 (UKCP18) (Ref 8.18) provides the most current projections of climate change for the UK, offering data on various climate variables until the end of the twenty-first century. These projections, informed by the Climate Risk Indicators (CRI) developed by Nigel Arnell et al. as part of the UK Climate Resilience Programme (Ref 8.19), allow for a comprehensive

assessment of climate-related indicators. The assessment focuses on the Representative Concentration Pathway (RCP) 8.5 scenario, a high emissions pathway combining high population, moderate technological advancements, and energy intensity improvements. Projections are presented for the counties of East Riding of Yorkshire and North Lincolnshire for the periods 2031-2060 and 2061-2090, compared to a baseline of 1981-2010, crucial for understanding climate conditions during the operational lifespan of key components of the Project.

*Table 8-14 – Projected Baseline for the Project Location Based on RCP 8.5 (Ref 8.19)*

| Modelled Baseline | | Projected Anomaly from Baseline | |
|---|---|---|---|
| **Variable** | **Unit** | **RCP 8.5** | |
| | | **2031-2060** | **2061-2090** |
| Maximum Summer Temperature | °C Change | 1.97 | 4.04 |
| Minimum Winter Temperature | | 1.35 | 2.63 |
| Summer Rainfall | % Change | -8.54 | -22.60 |
| Winter Rainfall | | 6.74 | 14.84 |

8.18.5 The projected climate change under the RCP 8.5 scenario indicates shifts in temperature and rainfall patterns. There is an expected rise in maximum summer temperatures, leading to potential heatwaves, and milder winters are anticipated due to increasing minimum winter temperatures. A notable reduction in summer rainfall points to a higher likelihood of drought conditions, while increased winter rainfall suggests a greater risk of winter flooding.

## 8.19 Design, Mitigation and Enhancement Measures

8.19.1 No secondary mitigation measures for climate adaptation have been identified at this stage. Mitigation measures identified in Chapters such as Chapter 7: Ecology and Biodiversity, Chapter 17: Water Resources, Flood Risk and Land Drainage, and Chapter 19: Coastal and Intertidal Impacts, may provide secondary climate adaptation benefits, and therefore will be included when considering residual climate risk.

8.19.2 The development of mitigation measures will follow IEMA guidance (Ref 8.17) and consider:

- Favouring flexible mitigation options, in an adaptive management approach, over unmodifiable options.
- Allowing safety margins in mitigation designs to ensure resilience to climate change.
- Delaying project elements with high risk or uncertainty until the associated risk is likely to be less.
- Identifying the responsible persons for delivering the mitigation measure, such as the designer, contractor or developer.
- The mitigation hierarchy (avoid, prevent, minimise, enhance, compensate).

8.19.3 The identification of mitigation measures will involve the collaboration between the Climate Change Adaptation and Resilience Coordinator, the design teams and the environmental topics leads.

## 8.20 Description of Potential Likely Significant Effects

8.20.1 The information presented in Table 8-15 summarises potential likely significant effects to the Project during the construction, operation, and decommissioning phases.

*Table 8-15 – Potential Climate Risks to the Project during the Construction, Operation and Decommissioning Phases*

| Climate Hazard | Possible Receptors | Construction Phase Effects | Operation Phase Effects | Decommissioning Phase Effects |
|---|---|---|---|---|
| Heatwaves / increase in summer maximum temperatures | • Buildings and infrastructure receptors.<br>• Human health receptors. | Extreme temperatures may lead to poor or unsafe working conditions causing damage to the health, wellbeing and productivity of construction workers (e.g., heatstroke, dehydration).<br><br>Heatwaves may cause physical damage to construction equipment and machinery (e.g., expansion of pipework), and may cause reduced efficiency of construction equipment and machinery due to overheating. | The increased demand for cooling to maintain optimal temperatures will escalate operational costs and place strain on HVAC systems.<br><br>Risk to human health and wellbeing of workers.<br><br>Increases in temperature and increased humidity levels has the potential to cause overheating of machinery and in the AGIs and lead to an increased need for maintenance of the AGIs. | Extreme temperature events may cause risk to human health and wellbeing of decommissioning workers.<br><br>Increases in temperature and increased humidity levels have the potential to cause overheating of machinery and lead to loss of working hours. |

| Climate Hazard | Possible Receptors | Construction Phase Effects | Operation Phase Effects | Decommissioning Phase Effects |
|---|---|---|---|---|
| Increase in winter precipitation | • Buildings and infrastructure receptors.<br>Human health receptors. | Flooding caused by increasing winter precipitation may lead to unsafe working conditions, posing risks to the health, safety, and productivity of construction workers (e.g., slips, trips, and falls, exposure to contaminated water).<br>Flooding can cause significant damage to construction equipment, such as water ingress into heavy plant and switchgear.<br>Additionally, there may be interruptions to power supply and damage to communications infrastructure, causing delays and increased costs in the construction process. Emergency access for construction engineers | High winter precipitation poses a significant risk of flooding, particularly in areas prone to heavy rainfall. Excessive precipitation can overwhelm drainage systems, leading to water ingress and potential flooding within facilities. This scenario can cause power outages and fluctuations. Flooding may cause damage to AGIs.<br>Flooding also poses risks to employees, affecting their safety and the continuity of operations. Moreover, water exposure can damage sensitive technology components, electrical wiring, and infrastructure. | High winter precipitation poses a significant risk of flooding, particularly in areas prone to heavy rainfall. Excessive precipitation can overwhelm drainage systems, leading to water ingress and potential flooding within decommissioning compounds. This scenario can cause power outages and fluctuations. Flooding may cause damage to the decommissioning plant and machinery.<br>Flooding also poses risks to staff involved with decommissioning activities, affecting their safety and the continuity of operations. Moreover, water exposure can damage sensitive technology components, |

| Climate Hazard | Possible Receptors | Construction Phase Effects | Operation Phase Effects | Decommissioning Phase Effects |
|---|---|---|---|---|
| | | could also be delayed or blocked, complicating repair and recovery efforts. | Increases in precipitation rates could lead to premature deterioration rates for joints, bearings, surfaces and external fabric of buildings. | electrical wiring, and infrastructure.<br>Increases in precipitation rates could lead to site roads becoming impassable through flooding. |
| Storms | • Buildings and infrastructure receptors.<br>Human health receptors. | Storms may lead to unsafe working conditions, posing risks to the health, safety, and productivity of construction workers (e.g., high winds causing falling debris, lightning strikes).<br>Storms can cause significant damage to construction equipment, such as physical damage to scaffolding and machinery, and interruptions to power supply systems. | During the operational phase, storms resulting from intensified weather patterns pose significant challenges for facilities. Strong winds and heavy precipitation associated with storms can lead to structural damage, including roof leaks and exterior damage to buildings. These conditions may also cause power outages due to downed electrical lines or damage to utility infrastructure. | During the decommissioning phase, storms resulting from intensified weather patterns pose significant challenges for facilities. These conditions may cause power outages due to downed electrical lines or damage to utility infrastructure.<br>Storms can also impact employee safety, requiring stringent safety protocols and emergency response plans. Moreover, the potential for lightning strikes poses additional risks to sensitive technology and electrical systems. |

| Climate Hazard | Possible Receptors | Construction Phase Effects | Operation Phase Effects | Decommissioning Phase Effects |
|---|---|---|---|---|
| | | | Storms can also impact employee safety, requiring stringent safety protocols and emergency response plans. Moreover, the potential for lightning strikes poses additional risks to sensitive technology and electrical systems. | |
| Sea level rise | • Buildings and infrastructure receptors.<br>• Human health receptors.<br>• Environmental receptors. | Sea level rise may lead to unsafe working conditions, posing risks to the health, safety, and productivity of construction workers (e.g., working in flooded areas, unstable ground conditions). It can cause significant damage to construction equipment, such as the erosion of foundations, scour damage to structures, and subsidence. It may also | Higher sea levels increase the risk of coastal flooding, potentially inundating low-lying areas and compromising infrastructure. This scenario can lead to saltwater intrusion, which poses corrosion risks to electrical systems, networking equipment, and structural components. It may also | Higher sea levels increase the risk of coastal flooding, potentially inundating low-lying areas and compromising infrastructure. This scenario can lead to saltwater intrusion, which poses corrosion risks to electrical systems, networking equipment, and structural components. Flooding may cause disruption to decommissioning activities. |

| Climate Hazard | Possible Receptors | Construction Phase Effects | Operation Phase Effects | Decommissioning Phase Effects |
|---|---|---|---|---|
| | | affect the stability of the cliffs at the landfall location through increased erosion. Saltwater intrusion can damage materials and compromise the integrity of buildings and infrastructure. | affect the stability of the cliffs at the landfall location through increased erosion. | It may also affect the stability of the cliffs at the landfall location through increased erosion. |
| Drought | • Buildings and infrastructure receptors.<br>• Human health receptors.<br>• Environmental receptors. | Drought conditions lead to reduced water availability, soil moisture depletion, and increased risks of wildfires.<br>Droughts may lead to adverse working conditions for construction workers, affecting their health, safety, and productivity (e.g., heat stress, dust-related respiratory issues).<br>Construction activities reliant on water, such as Horizontal Directional Drilling (HDD) concrete mixing and dust suppression, may face | Drought conditions can cause ground / soil movement. An increase in extreme temperature and a decrease in summer precipitation has the potential to lead to increased risk of ground movement and instability, affecting AGIs and other facilities, including buildings, structures and drainage systems. | Drought conditions can cause ground / soil movement. An increase in extreme temperature and a decrease in summer precipitation has the potential to lead to an increased risk of ground movement and instability, affecting decommissioning compounds. |

| Climate Hazard | Possible Receptors | Construction Phase Effects | Operation Phase Effects | Decommissioning Phase Effects |
|---|---|---|---|---|
| | | constraints due to water scarcity. The dry conditions can also cause ground subsidence and soil shrinkage, potentially compromising the stability of foundations and infrastructure. | | |
| Wildfires | • Buildings and infrastructure receptors.<br>• Human health receptors.<br>• Environmental receptors. | Wildfires pose serious risks to construction projects, including immediate threats to the safety of workers and surrounding communities and ecosystems. Construction sites near wooded or grassy areas are particularly vulnerable, facing potential evacuation orders and disruptions to operations. The intense heat and flames can cause direct damage to construction materials, equipment, and | Wildfires can cause extensive damage to infrastructure and disrupt power supply lines, leading to potential outages. Smoke and ash from wildfires can infiltrate buildings, affecting air quality and potentially damaging sensitive equipment. | Wildfires can cause extensive damage to infrastructure and disrupt power supply lines, leading to potential outages, leading to a loss of working hours. |

| Climate Hazard | Possible Receptors | Construction Phase Effects | Operation Phase Effects | Decommissioning Phase Effects |
|---|---|---|---|---|
| | | infrastructure, leading to delays and increased costs.<br>Furthermore, smoke from wildfires can impact air quality, posing health risks to workers and residents or wildlife in the vicinity. Poor air quality may necessitate the suspension of outdoor construction activities, affecting productivity and worker safety. | | |

## 8.21 Summary of the Proposed Scope of Assessment

8.21.1 At this stage we are considering all receptors and all climate hazards for the project stages that are scoped in, as set out in Table 8-16 below. These will be assessed in consultation with design teams to understand planned mitigation measures and how they will address climate hazards.

*Table 8-16 – Summary of the Proposed Scope of Assessment*

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| Climate Change Resilience | Construction | ✓ | | Climate change may create different climatic conditions, such as more frequent heatwaves and other extreme weather events, requiring additional mitigation during the construction period. | To be agreed as part of EIA Scoping |
| | Operation | ✓ | | Climate change may pose significant risks to the Project, such as overwhelming drainage during heavy rainfall events. | |
| | Decommissioning | ✓ | | Climate change may create different climatic conditions such as more frequent heatwaves, and other extreme weather events requiring additional mitigation during the decommissioning period. | |
| In-Combination Climate Change Impact Assessment | Construction | | ✓ | Other environmental topics have taken current weather conditions into account, minimising the potential in-combination impacts during the construction period given that the construction period is only 5 years. | |
| | Operation | ✓ | | A high-level review would be appropriate to determine if any effects identified during the operational period could be exacerbated by the impacts of climate change. | |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | Agreed With |
|---|---|---|---|---|---|
| | Decommissioning | ✓ | | A high-level review would be appropriate to determine if any effects identified during the decommissioning period could be exacerbated by the impacts of climate change. | |

## 8.22 References


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# 9 Ground Conditions and Hydrogeology

## 9.1 Introduction

9.1.1 This chapter outlines the proposed scope and methodology for assessing the potential impacts of the Project on ground conditions and hydrogeology.

9.1.2 Preliminary baseline information is presented and the potential likely significant effects that may arise from the Project are outlined.

9.1.3 The effects of the Project on the agricultural quality of soils are considered in Chapter 5: Agriculture and Soils, the effects on mining and minerals are considered in Chapter 16: Waste and Materials, and the effects on coastal integration are considered in Chapter 19: Coastal and Intertidal Impacts.

## 9.2 Legislation, Policy and Guidance

9.2.1 The assessment to be undertaken to inform the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) will be undertaken in accordance with, and with reference to, the following legislation, policy and guidance.

### Legislation

9.2.2 The assessment will be undertaken in accordance with, and with reference to, the following legislation:

- The Water Framework Directive (2000/60/EC) (Ref 9.1). This sets legally binding limits for concentrations of specific water pollutants.
- The Groundwater Directive (2006/118/EC) (Ref 9.2). Provides measures to assess groundwater quality and identify and reverse significant and sustained upward trends and for the definition of starting points for trend reversal.
- The Priority Substances Directive (2008/105/EC) (Ref 9.3). Provides Environmental Quality Standards for the concentrations of specific chemical in bodies of surface water.
- Environmental Protection Act, 1990 (Ref 9.4). Part IIA provides legislation around contaminated land.
- The Environment Act, 2021 (Ref 9.5). Allows the Secretary of State to set objective and regulations with regard to the chemical status of surface water or groundwater.
- The Contaminated Land (England) Regulations, 2006 SI 1380 (Ref 9.6). These regulations specify what land contamination comprises, and the service of remediation notices.

- Groundwater (England and Wales) Regulations, 2009 SI 2902 (Ref 9.7). These regulations define hazardous and non-hazardous pollutions, outline permitting of discharges to groundwater and regulate inputs of pollutants to groundwater.
- Environmental Damage (Prevention and Remediation) (England) Regulations, 2015 SI 810 (Ref 9.8). These regulations define environmental damage and concern the prevention of and remediation of environmental damage.
- The Water Act 2003 (as amended 2014) (Ref 9.9). This act concerns groundwater abstraction.
- The Water Resources Act 1991 (as amended) (Ref 9.10). This act concerns water resource management, water abstraction, and water pollution offences.
- The Land Drainage Act 1991 (as amended) (Ref 9.11). This act concerns drainage works and duties with respect to the environment with regards to land drainage.
- The Environmental Permitting (England and Wales) Regulations 2016 SI 1154 (Ref 9.12). These regulations pertain to the application, granting and transfer of environmental permits.
- The Water Environment (Water Framework Directive) Regulations 2017 SI 407 (Ref 9.13). These regulations concern environmental objectives related to rivers and waterbodies.

## Policy

### National Planning Policy

#### National Policy Statements

9.2.3 As detailed in Chapter 1: Introduction, National Policy Statements (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Project would be considered. The two relevant NPSs are Overarching National Policy Statement for Energy (EN-1) (Ref 9.14) and National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Ref 9.15).

*Table 9-1 – Relevant Sections of the Relevant National Policy Statements*

| National Policy Statement | NPS Section | How it will be Considered |
|---|---|---|
| EN-1 | 5.4.1 (part) "Geological conservation relates to the sites that are designated for their geology and / or their geomorphological importance." | Ground Conditions and Hydrogeological assessment will consider the effects and resulting impacts associated with the construction / commissioning, operation and decommissioning phases on the Geological Sites of Special Scientific Interest and Regionally Important Sites identified in Section 9.8.5. |
| EN-1 | 5.4.35 (part) *"Applicants should include appropriate avoidance, mitigation, compensation and enhancement measures as an integral part of the proposed development."* | Ground Conditions and Hydrogeological assessment will consider the potential need for avoidance, mitigation, and enhancement. |
| EN-1 | 5.11.17 *"Applicants should ensure that a site is suitable for its proposed use, taking account of ground conditions and any risks arising from land instability and contamination."* | Ground Conditions and Hydrogeological assessment will consider risks from contamination as outlined in Section 9.3. |
| EN-1 | 5.16.3 *"Where the project is likely to have effects on the water environment, the applicant should undertake an assessment of the existing status of, and impacts of the proposed project on, water quality, water resources and physical characteristics of the water environment, and how this might change due to the impact of climate* | Ground Conditions and Hydrogeological assessment will consider the effects and resulting impacts associated with the construction / commissioning, operation and decommissioning as outlined in Section 9.3. |

| National Policy Statement | NPS Section | How it will be Considered |
|---|---|---|
| | *change on rainfall patterns and consequently water availability across the water environment, as part of the ES or equivalent (see Section 4.3 and 4.10).”* | |
| EN-4 | 2.21.40 “*Where the project is likely to have effects on water resources or water quality, for example impacts on groundwater recharge or on existing surface water or groundwater abstraction points, or on associated ecological receptors, the applicant should provide an assessment of the impacts in line with Section 5.16 of EN-1 as part of the ES.”* | Ground Conditions and Hydrogeological assessment will consider the effects and resulting impacts associated with the construction / commissioning, operation and decommissioning as outlined in Section 9.3. |
| EN-4 | 2.21.49 “*When considering any application where the pipeline goes under a designated area of geological or geomorphological interest, the applicant should submit details of alternative routes, which either bypass the designated area or reduce the length of pipeline through the designated area to the minimum possible, and the reasons why they were discounted.”* | Avoidance of designated areas of geological interest is outlined in Section 9.9.1. |

### National Planning Policy Framework

9.2.4 National Planning Policy Framework (2023) (Ref 9.16)[10] sets out the Government's core policies and principles with respect to land use planning.

- Paragraph 180 of the National Planning Policy Framework states "Planning policies and decisions should contribute to and enhance the natural and local environment by: 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); (b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans".

### Local Planning Policy

9.2.5 The Project lies within the jurisdictions of North Yorkshire, East Riding of Yorkshire, North Lincolnshire and North East Lincolnshire. A summary of the relevant local planning policy which is relevant to a study of ground conditions and hydrogeology matters and will inform the assessment in the ES is provided in Table 9-2.

[10] This EIA Scoping Report makes reference to the December 2023 update of the NPPF. The PEIR will provide an update of applicable legislation and policy, which will include consideration of the December 2024 NPPF update (or any subsequent update).

*Table 9-2 – Relevant Local Planning Policies*

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| North Lincolnshire Council Local Plan (2003) (Ref 9.17). | Section DS7 | "In the case of proposals for development on land known or strongly suspected as being contaminated, applicants will be required to demonstrate that the level of contamination can be overcome by remedial measures or improvements. Permission will only be granted on contaminated sites where a detailed site survey has been submitted, and a suitable scheme of remedial measures has been agreed to overcome any existing contamination. Conditions will be imposed and / or a planning obligation entered into to secure the implementation of such a scheme at the appropriate time in the development process and to otherwise restrict and control the development." | Ground Conditions and Hydrogeological assessment will consider impacts quality impacts associated with the Project, and measures to mitigate any impacts will be proposed, where required.<br>Mitigation measures will be proposed where necessary to ensure that the overall ground conditions and hydrogeological impacts of the |
| East Riding Local Plan (2016) (Ref 9.18) | Policy ENV6 | "Environmental hazards, such as flood risk, coastal change, groundwater pollution and other forms of pollution, will be managed to ensure that development does not result in unacceptable consequences to its users, the wider community, and the environment. Policy ENV6 applies to all types of environmental hazard, which incorporates both existing hazards and / or any hazard that may be caused or exacerbated as a result of new development. This includes flood risk, coastal change, contaminated land, unstable land, hazardous installations, water pollution, and pollution generated by light, noise, dust, smell, vibration, fumes, smoke, soot, ash or grit. Many hazards are controlled through relevant statutory controls | |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| | | and procedures, and consultation with relevant bodies, such as the Health and Safety Executive (HSE) or the Environment Agency. Where a proposal is likely to generate or be affected by an environmental hazard, for example it is located close to a wastewater treatment works where odour could occur, early discussions should take place with the relevant bodies / departments as early as possible in the development process, preferably at pre-application stage." | Project are not significant and will be consistent with all relevant Council plans and assessments. |
| Selby District Council Local Plan (2022) (Ref 9.19) | Policy NE8 | "Development which could present noise pollution, light pollution, groundwater pollution, contamination of land or water and other environmental pollution or unstable land will not be permitted unless satisfactory remedial or preventative measures are incorporated. This will be considered an integral element of the scheme. Measures should be carried out before the use of the site commences and sufficient consideration provided to both human and environmental receptors of any potential impact. Planning applications must be accompanied by the appropriate assessments in line with the Council's Validation Checklist." | |

### Guidance

9.2.6 Ground conditions and hydrogeology assessment will be carried out in accordance with the following good practice and guidance documents:

- The Design Manual for Roads and Bridges (DMRB) LA 109 Geology and Soils (geology) (Ref 9.20) – Provides guidance on scoping, design, assessment and mitigation of impacts on geology, soils; and
- LA 113 Road Drainage and the Water Environment (groundwater) (Ref 9.21) will be relied upon for the ground conditions and hydrogeology assessment – Provides guidance on scoping, design, assessment and mitigation of impacts on hydrogeology.

## 9.3 Proposed Assessment Methodology

### Baseline Information Collection

9.3.1 An initial high level baseline data collection has been undertaken to provide an overview of the draft Order Limits ground conditions and hydrogeology context.

9.3.2 Utilising baseline information detailed in Section 9.8.2299, a combination of qualitative and quantitative risk assessment will be undertaken to assess the potential effects of the existing ground conditions on the Project, as well as the potential effects of the Project on ground conditions and hydrogeology.

9.3.3 In relation to ground contamination, the risk assessment will be based on the source-pathway-receptor methodology outlined in Land Contamination: Risk Management (LC:RM) (Ref 9.22). For there to be an identifiable risk, not only must there be contaminants present (source) there must also be a receptor and a viable pathway which allows the source to impact on the receptor.

9.3.4 The overall assessment methodology is summarised in Chapter 4: Environmental Impact Assessment Methodology. However, the assessment of the significance of the potential effects on ground conditions and hydrogeology will be based on guidance in the Design Manual for Roads and Bridges (DMRB) LA 109 Geology and Soils (geology) (Ref 9.20) and LA 113 Road Drainage and the Water Environment (groundwater) (Ref 9.21). There is no specific guidance in relation to carbon dioxide transportation schemes for assessing ground conditions and hydrogeology, therefore, DMRB has been used as it is considered to be the most appropriate methodology for the Project because it is designed for assessing effects on linear schemes (including ‘point’ features), albeit road schemes. It is also a well-established and tested methodology, familiar to the statutory consultees. A proposed sensitivity of receptors framework and significance in the context of DMRB assessment are presented below in Table 9-3.

## Value / Sensitivity

9.3.5 The following Sensitivity Matrix in Table 9-3 has been adapted from DMRB LA 109 Geology and Soils (Ref 9.20). It takes into account the geological and hydrogeological significance as well as land uses.

*Table 9-3 – Sensitivity Matrix*

| Sensitivity | Geology | Hydrogeology |
|---|---|---|
| High | Very rare / rare or nationally important sites. High sensitivity land use such as residential / public open spaces use. | Groundwater that is used for human consumption, and / or is within geological units that display a high level of water storage and may support water supply and / or river base flow on a strategic scale. Includes all Principal Aquifers and Source Protection Zones (SPZ). |
| Medium | Regionally important sites, medium sensitive uses such as commercial or industrial uses. | Groundwater that is not currently used for human consumption, but which is within Secondary Aquifers that display generally good chemical quality (e.g., WFD Good chemical status) and / or groundwater quantities. Groundwater that is currently used for agricultural purposes (e.g., field irrigation). |
| Low | Local interested geology sites. Low sensitivity land use such as highway and rail. | Groundwater that is not currently used for human consumption and is within Secondary Aquifers that display poor chemical quality (i.e. WFD Poor chemical status) and groundwater quantities. Groundwater that is abstracted for low sensitivity industrial purposes (e.g., cooling water). |
| Negligible | Very low important geology site. Undeveloped surplus land with | Groundwater that does not contribute meaningfully towards river base flow and is not used, and does not have a potential to be used, for drinking water supply. |

| Sensitivity | Geology | Hydrogeology |
|---|---|---|
| | no sensitive land use. | |

## Impact Magnitude

9.3.6 The magnitude of an impact considers the scale of the predicted change to the baseline condition taking into account its duration (i.e. the magnitude may be moderated by the impacts being temporary rather than permanent, short term rather than long term). Definitions for effect impact magnitude are described as in Table 4-1 in Chapter 4: Environmental Impact Assessment Methodology. It is unlikely that any effects on ground conditions and hydrogeology will be beneficial, so the examples of magnitude all relate to adverse effects.

*Table 9-4 – Magnitude Matrix*

| Magnitude | Geology | Hydrogeology |
|---|---|---|
| High | Permanent loss of geological feature / designation. Significant contamination exceeding assessment criteria impacting land use. | Release of Priority Hazardous Substances or substances regulated under 'The Water Framework Directive (Standards and Classification) Directions (England and Wales) (2015)' of the 'Water Supply (Water Quality) Regulations (2000)' at concentrations that may present a direct / imminent risk to abstractions. Physical or chemical effects on an aquifer (i.e. changes in groundwater levels, flows or quality) that substantively restrict its viability as an abstractable resource and / or its WFD status. |
| Medium | Partial loss of geological feature / designation. Contamination levels marginally exceeding assessment criteria and control / mitigation required. | Release of Priority Hazardous Substances or substances regulated under 'The Water Framework Directive (Standards and Classification) Directions (England and Wales) (2015)' of the 'Water Supply (Water Quality) Regulations (2000)' at concentrations that exceed regulatory compliance criteria and may lead to substantial localised degradation in groundwater quality, but not present a direct / imminent risk to abstractions. Physical or chemical effects on an aquifer (i.e. changes in groundwater levels, flows or quality) that limit its effectiveness as a resource and may affect its status. |
| Low | Minor change in geological feature / designation. Contamination below assessment criteria and control / mitigation not required. | Release of Priority Hazardous Substances or substances regulated under 'The Water Framework Directive (Standards and Classification) Directions (England and Wales) (2015)' of the 'Water Supply (Water Quality) Regulations (2000)' at concentrations that may lead to minor localised degradation in groundwater quality but have no significant potential to present a risk to abstractions. Reduction of |

| Magnitude | Geology | Hydrogeology |
|---|---|---|
| | | groundwater levels / quantities or changes in groundwater flows, but with little effect on the use or status of the groundwater resource. |
| Negligible | Very minor loss or detrimental alteration to 1 or more characteristics / features or elements of the geological feature / designation. Contamination levels substantially below assessment criteria and no control / mitigation required | No / minimal measurable effect on groundwater levels, quantities, flows or chemical quality, or on the use or status of a groundwater resource. |

### Significance of Effect

9.3.7 The significance of environmental effect is typically a function of the sensitivity of a receptor and the magnitude of an impact. An indicative matrix for the determination of significance is provided in Table 4-1 in Chapter 4: Environmental Impact Assessment Methodology.

## 9.4 Limitations and Assumptions

9.4.1 To ensure transparency within the EIA process, the following limitations and assumptions have been identified for the initial assessment which has been undertaken for the purposes of the ground conditions and hydrogeology assessment within this Scoping Report:

- The initial assessment is based on freely available data, and reasonable endeavours have been made to ensure that the data is accurate and up to date, however the accuracy of third-party information cannot be confirmed.
- Site walkovers have not been carried out, and as such location specific information is not available and will not be commented upon in this report.

## 9.5 Stakeholder Engagement

9.5.1 Engagement will be undertaken with the relevant local authorities as summarised in Table 9-5 below.

*Table 9-5 – Summary of Proposed Engagement*

| Organisation and Date | Summary of Engagement | Consideration within Scoping Report |
|---|---|---|
| North Yorkshire Council | Scoping Opinion to be reviewed and any Ground Condition and Hydrogeology specific comments will be addressed and discussed with the local authority where necessary. | Engagement to take place following Scoping Opinion. |
| East Riding of Yorkshire Council | Scoping Opinion to be reviewed and any Ground Condition and Hydrogeology specific comments will be addressed and discussed with the local authority where necessary. | Engagement to take place following Scoping Opinion. |
| North Lincolnshire Council | Scoping Opinion to be reviewed and any Ground Condition and Hydrogeology specific comments will be addressed and discussed with the local authority where necessary. | Engagement to take place following Scoping Opinion. |
| North East Lincolnshire Council | Scoping Opinion to be reviewed and any Ground Condition and Hydrogeology specific comments will be addressed and discussed with the local authority where necessary. | Engagement to take place following Scoping Opinion. |

## 9.6 Study Area

9.6.1 The Study Area for the ground conditions assessment is 250m either side of the draft Order Limits for ground conditions, as this is considered sufficient to include all relevant potential contamination sources and receivers. Interaction between the Project and receptors, or sources, of contamination beyond 250m generally would not occur as a result of the ground conditions present in and around the Project.

9.6.2 The Study Area for the hydrogeological conditions assessment is 500m either side of the draft Order Limits as this is considered sufficient to include all relevant potential interactions.

## 9.7 Receptors

9.7.1 The following sensitive receptors are anticipated:

- Human Health
  - Users within draft Order Limits – maintenance staff working upon AGIs and at the Pump Facility.
  - Users within draft Order Limits – land users e.g., farmers, walkers.
  - Outside draft Order Limits- neighbours.
  - Construction workers.
- Regionally Important Geological Sites (RIGS) or Local Geological Sites
  - RIGS and Local Geological Sites will be identified within the PEIR and EA.
- Hydrogeology
  - Underlying aquifers (Principal, Secondary A & B and undifferentiated) – controlled waters.
- Hydrology
  - Surface water features (for example the tidal River Trent and Humber Estuary) – controlled waters.
- Infrastructure
  - Development infrastructure – ground conditions may impact the newly built infrastructure, assets and structures (above and below ground).

## 9.8 Baseline Conditions

9.8.1 This section sets out the baseline data that will be relied upon to produce a detailed assessment of baseline conditions that will be contained within the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES).

9.8.2 Available information sources that will be used to establish the baseline conditions include but are not limited to:

- Satellite imagery and mapping.
- MAGIC.gov.uk (DEFRA) (Ref 9.23).
- British Geological Survey Online Viewer (Geo-Index) (Ref 9.24).
- Zetica UXO Risk Maps (Ref 9.25).
- The Coal Authority Interactive Map Viewer (Ref 9.26).
- UKradon (UK Health Security Agency) (Ref 9.27).
- Records held by local authorities of water abstractions and Private Drinking Water supplies, where provided.

9.8.3 The following sections provide a summary of the baseline ground conditions within the Study Area.

### Geology

9.8.4 Published geological maps and the GIS data sourced from the British Geological Survey (BGS) (Ref 9.24); indicate that the following geologies within the Study Area:

- **Superficial deposits**: Breighton Sand Formation, Warp, Hemingbrough Glaciolacustrine Formation, Alluvium, Head, Till, Glaciofluvial Deposits, Blown Sand, Lacustrine Deposits, Peat, Clay with Flints, Beach and Tidal Flat Deposits.
- **Bedrock geology**: Sherwood Sandstone Group, Mercia Mudstone Group, Penarth Group, Scunthorpe Mudstone Formation, Frodingham Ironstone Member, Charmouth Mudstone Formation, Marlstone Rock Formation, Whitby Mudstone Formation, Grantham Formation, Raventhorpe Beds, Scawby Limestone, Kirkton Cemenstone Beds, Hibaldstow Limestone Formation, Thorncroft Sand Member, Rutland Formation, Cornbrash Formation, Kellaways Formation, Oxford Clay Formation, West Walton Formation, Ampthill Clay Formation, Kimmeridge Clay Formation, Feriby Chalk Formation, Welton Chalk Formation, Burnham Chalk Formation and Flamborough Chalk Formation.

### Geological Sites of Special Scientific Interest and Regionally Important Sites

9.8.5 A preliminary review of Defra's MAGIC (Ref 9.23) mapping portal identifies one Geological SSSI which falls within the Study Area. The Dimlington Cliff SSSI is situated at the landfall location at Easington. Information regarding Regionally Important Geological Sites (RIGS) or Local Geological Sites is not currently available but will be included in the PEIR and ES.

### Mining and Shallow Extraction

9.8.6 The Coal Authority Interactive Map Viewer (Ref 9.26) shows two sections of the Study Area fall within Coal Mining Reporting Areas; this includes the western extent of the Study Area between Drax and Eastoft and then a stretch of the Study Area crossing the Humber. Shallow extraction, quarries and chalk mining will be reviewed within the PEIR and ES.

## Hydrogeology

### Aquifer Classification (Bedrock)

9.8.7 Maps on Defra's 'MAGIC' (Ref 9.23) mapping portal indicates that the bedrock aquifers underlying the Study Area from Drax to Goole, the areas surrounding Winterton and from Horkstow to Easington are Principal Aquifers. Bedrock within the section of Study Area between Goole and Winterton is classified as Secondary A, Secondary B and Secondary Undifferentiated aquifers.

### Aquifer Classification (Superficial Deposits)

9.8.8 Maps indicate the deposits within the Study Area located west of the River Humber are generally classified as Secondary A aquifers where present. East of the River Humber the superficial deposits are typically classified as Secondary (Undifferentiated) aquifers. In practice this distinction has little bearing on the assessment.

### Source Protection Zones

9.8.9 SPZ identified on Defra's 'MAGIC' (Ref 9.23) mapping portal indicate that SPZs 1, 2 and 3 are present along Study Area. It is recognised however that all abstractions that are used for potable purposes benefit from a SPZ and as such the published zones available on Defra's 'MAGIC' (Ref 9.23) mapping portal may only be a subset of that which exist within, or close to the Project. Where necessary default SPZs will be generated to inform the risk assessment process.

### Safeguarding Zones

9.8.10 Impacts to Safeguarding Zones identified on Defra's 'MAGIC' (Ref 9.23) mapping portal will be considered. It is considered that the scheme is unlikely to represent catchment scale risks.

### Water Framework Directive Groundwater Bodies

9.8.11 Ten Water Framework Directive (WFD) groundwater bodies have been identified within the Study Area (Ref 9.28). These are listed in Table 9-6.

*Table 9-6 – Groundwater Bodies*

| Groundwater Body ID | Name | Comments |
|---|---|---|
| GB40401G702400 | Wharfe & Lower Ouse Sherwood Sandstone | |
| GB40401G700900 | Aire & Don Sherwood Sandstone | |
| GB40402G992200 | Idle Torne – Secondary Mudrocks | |
| GB40402G303200 | Lower Trench Erewash – Secondary Combined | |
| GB40401G444600 | Grimsby Ancholme Louth Limestone Unit | |
| GB40401G401500 | Grimsby Ancholme Louth Chalk Unit | |
| GB40401G700700 | Hull & East Riding Chalk | |
| GB40402G445800 | Grimsby Ancholme Frodingham Ironstone Unit | Not directly in draft Order Limits but within 500m buffer |
| GB40401G700600 | Derwent Sherwood Sandstone | Not directly in draft Order Limits but within 500m buffer |
| GB40402G990200 | East Riding Mercia Mudstone | Not directly in draft Order Limits but within 500m buffer |

9.8.12 Groundwater Dependent Terrestrial Ecosystems (GWDTEs) identified using UK Government Data: 'Groundwater Dependent Terrestrial Ecosystems (England Only)' (Ref 9.28). The only currently identified GWDTE site is the Humber Estuary SSSI / SPA.

9.8.13 The following Designated Sites identified using Natural England data (Ref 9.29) have been identified within the Study Area.

- Humber Estuary Special Protection Area (SPA), Special Area of Conservation (SAC), Site of Special Scientific Interest (SSSI) and Ramsar.
- Greater Wash SPA.
- Eskamhorn Meadows SSSI.
- North Killingholme Haven Pits SSSI.
- South Ferriby Chalk Pit SSSI.
- Dimlington Cliff SSSI.
- Phoenix Parkway Local Nature Reserve (LNR).
- Phoenix LNR.
- Humberhead Levels Nature Improvement Area.
- Holderness Inshore – Marine Conservation Zone (MCZ).

**Abstraction Data**

9.8.14 The Environment Agency will be contacted in relation to abstraction data for licensed abstraction for surface water and groundwater within the Study Area. Data sets for extant licences and for deregulated licences will be requested.

**Private Water Supplies**

9.8.15 Local authorities will be contacted for information from the Private Water Supplies Registers. In addition, a review of historical Ordnance Survey Mapping and British Geological Survey (BGS) records will be carried out to identify potential wells springs or boreholes.

9.8.16 Data derived from the EA, Local Authorities, BGS and historical mapping will be used to compile a register of boreholes, wells and springs. Entries will be cleaned to remove duplicate records. Features deemed to be most vulnerable to the Project will be visited as part of the baseline survey to record location, depth, construction (where obtainable) and use.

**Construction Dewatering**

9.8.17 Assessment of construction dewatering risks, impacts and permitting implications will be addressed. There are two main dewatering scenarios. The largest dewatering requirement will be associated with the trenchless crossing launch and retrieval pits on either side of the River Humber. The risks associated with these will be addressed. Temporary dewatering may also be required anywhere

along the route where trench depth or trenchless crossing launch and receiving pits exceeds groundwater or where other excavations are created. Associated impacts will be assessed.

**Other Additional Hydrogeological Classification and Features.**

9.8.18 Nitrate vulnerable zones, Drinking Water Protected Areas and water courses are all present within the Study Area and will be appropriately assessed. Where open trenches are proposed for watercourse crossings, the reinstatement of riverbed will be considered to prevent reinstated crossings acting as pathways for bed leakage in sections of streams that would otherwise be considered perched.

## Potentially Contaminative Land Uses

9.8.19 A preliminary review of satellite imagery shows the Study Area is predominantly located in agricultural land. Local existing and historic potentially contaminative land uses identified including:

- Power Stations.
- Landfills.
- Sewage Works.
- Chemical Works.
- Oil Refinery.
- Tanks.
- Railway.
- Agricultural Land.

**Landfills**

9.8.20 A preliminary review of historic landfill sites within the Study Area identified 9 historic landfills. Winterton South Landfill is the only Environment Agency Permitted Waste Site Authorised Landfill identified within the draft Order Limits.

**Ground Gas**

9.8.21 Potential sources of ground gas (methane and carbon dioxide) will be identified and may include the natural strata and Made Ground (various current and historical land uses, landfills, backfilled sand and chalk pits).

**Radon**

9.8.22 Preliminary review of published radon data from UK Health and Security Agency (Ref 9.27) indicates that the majority of the Study Area has a maximum radon potential of 1%. However, a section of the draft Order Limits between Walcot and Horkstow has a maximum radon potential of between 10-30%.

### Unexploded Ordnance

9.8.23 Preliminary review of online Zetica Unexploded Ordnance (UXO) risk mapping (Ref 9.25) shows 'Low Risk' (15 bombs per 1,000 acres or less) for the majority of the Study Area. Areas of 'Moderate Risk' are located around the River Humber crossing, the connection at Salt End and at South Killingholme.

### Future Baseline

9.8.24 It is considered that with respect to geology and hydrogeology future baseline conditions are unlikely to be substantively different from those assessed with reference to current baseline.

9.8.25 Existing potential contaminative sources, some of which are identified in Section 9.8.19, are not anticipated to change significantly and as such the ground conditions are not likely to change.

9.8.26 Consented development in brownfield / urban areas is likely to result in localised remediation and improvement in land quality.

9.8.27 Changes to regional groundwater levels as a consequence of either climate change, sea level rise or anthropogenic influences in the future are unlikely to be significant to assessment. The main interaction with groundwater is likely to be the Humber and Trent Crossings where the scheme will be subwater table and no permanent dewatering is required.

9.8.28 Changes to groundwater quality in a future baseline scenario are unlikely to be significant to the assessment. Any improvements to aquifer quality secured through WFD will not be jeopardised by the presence of the scheme.

9.8.29 In summary it is considered that the 'future with development scenario' will be no different from the 'future baseline without development scenario' for hydrogeological receptors.

## 9.9 Design, Mitigation and Enhancement Measures

9.9.1 During the optioneering process and in future designs, the Project will, where possible, avoid important geological features or resources, and sources of contamination, through careful routeing and site selection.

9.9.2 The main mitigation measure to prevent adverse effects on soils, ground conditions and hydrogeology, during all phases of the development of the Project will be to ensure good site practice and management and adherence to a Construction Environmental Management Plan (CEMP). A draft CEMP will be submitted with the Development Consent Order (DCO) application and the CEMP will be secured through a requirement in the draft DCO.

9.9.3 Desk study work may identify areas of soil and / or groundwater contamination and there may be a requirement to undertake ground investigation and risk assessment of potential contaminant linkages. Control / mitigation / remediation / re-routeing measures will be considered where appropriate.

9.9.4 If necessary, a remediation strategy will be prepared and agreed with the regulatory authorities (including relevant local authorities and the EA).

9.9.5 A more detailed hydrogeological assessment will be undertaken where trenchless techniques or dewatering is required in high sensitivity groundwater environments or where dewatering is required to facilitate open cut installation. Where dewatering is required, a dewatering scheme will be developed prior to construction to demonstrate that there is an effective strategy to manage water arising from the operations and, where required, sufficient proposals to treat the water prior to controlled discharge. Any such assessment will consider the effects of any drawdown or impacts on nearby abstractions, controlled waters or water resources.

9.9.6 For open cut watercourse crossings an assessment of risks to riverbeds will be carried out in order to ensure appropriate reinstatement to prevent the crossing acting as a preferential leakage zone.

9.9.7 The ground conditions and hydrogeology assessment will rely on the commitments 1, 3, 4 and 5 outlined in the draft Register of Commitments in Volume 3: Appendix F.

## 9.10 Description of Potential Likely Significant Effects

9.10.1 The following summarises potential likely significant effects identified based on the current preliminary review. The most sensitive receptors are considered to be, controlled waters, human health and ground conditions.

### Construction

9.10.2 Potential significant effects may include some of the following, the impacts of which will be addressed by the design, mitigation and enhancement measures outlined in Section 9.9:

- Pollution of ground and / or groundwater from accidental chemical spillages and leaks from plant, machinery and chemicals and other contaminants stored on site due to construction activities.
- Changes in the upper levels of the underlying superficial geology structure and reduction of quality due to compaction or erosion during stockpiling due to construction activities.

- Compaction of the upper levels of the underlying superficial geology and degradation of soil quality due to construction vehicle movements causing compaction and potential waterlogging.
- Reduction in flow to groundwater supported sites, abstractions and surface water bodies and changes to hydrology locally due to the requirement for dewatering due to construction activities.
- Reduction in quality or levels of groundwater supporting sites protected under European and UK habitat legislation, such as a RAMSAR Site or a SSSI due to dewatering due to construction activities.
- Geologically important sites could be compromised due to disturbance of ground conditions caused by construction activities.
- Construction workers, groundwater and geology including the inter tidal zone could be compromised due to disturbance of potentially contaminated soils, sediments and waters caused by construction activities.
- Human health and controlled waters compromised due to importation of contaminated aggregates during construction activities.
- Sensitive groundwater and surface water receptors at risk from drilling fluids or other fluids used during construction activities where pathways are created such as excavations and drilling.
- Gas migration within coal measures during directional drilling.
- Construction activities may alter prevailing conditions within active and historic landfills, causing leachate and / or gas migration.
- Construction activities revolving around the use of backfill, obtaining arisings, temporary stockpiles could have impacts on human health and controlled waters.

### Operation

9.10.3 During operation if appropriate mitigation is not implemented the following effects are identified at this stage:

- The introduction of pathways to allow the migration of contamination, gas, leachate that would impact upon human health, controlled waters and property.
- Aggressive ground conditions (e.g., elevated sulphide bearing strata) and impacts on buried structures / foundations and the pipeline.
- Alterations to groundwater flow potentially affecting third parties and / or habitats.
- Leakage from watercourses from alterations to riverbed properties.

## Decommissioning

9.10.4 The pipeline will be left in-situ and therefore the decommissioning will include the removal of the AGIs and the Pump Facility only. Refer to Paragraph 9.10.2 for a list of the potential likely significant effects identified at this Scoping stage.

## 9.11 Summary of the Proposed Scope of Assessment

*Table 9-7 – Summary of Scope*

| Matter | Project Stage | Scoped In | Scoped Out | Justification | To be Agreed with Regulators as part of the Scoping Process |
|---|---|---|---|---|---|
| Geology | Construction | ✓ | | Potential for effects on geological receptors and for effects on the Project (development infrastructure) from land contamination. | Regulators (Environment Agency and Local Authorities Contaminated Land / Environmental Health Officers) |
| | Operation | ✓ | | Potential for effects on geological receptors and for effects on the Project (development infrastructure) from land contamination. | Regulators (as above) |
| | Decommissioning | ✓ | | Potential for effects on geological receptors | Regulators (as above) |
| Hydrogeology | Construction | ✓ | | Potential for effects on hydrogeological receptors and for effects on the Project (development infrastructure) from land contamination. | Regulators (as above) |
| | Operation | ✓ | | Potential for effects on hydrogeological receptors and for effects on the Project | Regulators (as above) |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | To be Agreed with Regulators as part of the Scoping Process |
|---|---|---|---|---|---|
| | | | | (development infrastructure) from land contamination. | |
| | Decommissioning | ✓ | | Potential for effects on hydrogeological receptors. | Regulators (as above) |

## 9.12 References


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- Ref 9.3 – ‘The Priority Substances Directive - 2008/105/EC’. Accessed: Oct. 17, 2024. [Online]. Available: https://eur-lex.europa.eu/eli/dir/2008/105/oj
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# 10 Landscape and Visual

## 10.1 Introduction

10.1.1 This chapter sets out the approach that will be undertaken to identify potential significant landscape and visual effects which may arise from the Project during its construction, operational and decommissioning phases. It sets out the methodology which will be used to undertake the Landscape and Visual Impact Assessment (LVIA) for the Project, including published guidance to be referenced, the extent of the Study Area considered, the significance criteria to be used and any limitations or assumptions that will inform the assessment.

10.1.2 There are interrelationships between the potential effects on landscape and visual receptors and other environmental topics. Therefore, this chapter of the Scoping Report should be read alongside the following chapters:

- Chapter 7: Ecology and Biodiversity.
- Chapter 11: Cultural Heritage.
- Chapter 13: Socio-Economics.
- Chapter 14: Human Health and Wellbeing.

## 10.2 Legislation, Policy and Guidance

10.2.1 The assessment to be undertaken to inform the Preliminary Environmental Information Report (PEIR) and Environmental Statement will be undertaken in accordance with, and with reference to, the following legislation, policy and guidance.

### Legislation

**European Landscape Convention**

10.2.2 Created by the Council of Europe, the European Landscape Convention (ELC) (Ref 10.1) is the first international convention to focus specifically on landscape. The convention promotes landscape protection, management and planning.

10.2.3 This European co-operation on landscape issues was signed by the UK Government in February 2006 and became binding from March 2007. One of its defining principles is that it applies to all landscapes, including ordinary or even degraded landscapes, as well as those that are afforded formal protection.

10.2.4 The ELC defines landscape as an area: ‘perceived by people, whose character is the result of the action and interaction of natural and / or human factors’. This definition reflects the idea that landscapes ‘evolve through time, as a result of being acted upon by natural forces and human beings. It also underlines that a

landscape forms a whole, whose natural and cultural components are taken together, not separately.'

10.2.5 In other words, particular combinations of natural and or human factors, such as: geology, hydrology, landform, soils, vegetation, ecology, land use, field patterns, historic or cultural features / associations, and human settlement, and the interaction between these elements consistently across an area or zone, create character and in turn give an area a sense of place.

10.2.6 The explanatory note also highlights the purpose of the ELC in relation to the role of local planning authorities, which applies to all authorities within England. It states that: *"The general purpose of the Convention is to encourage public authorities to adopt policies and measures at local, regional, national and international level for protecting, managing and planning landscapes throughout Europe so as to maintain and improve landscape quality and bring the public, institutions and local and regional authorities to recognise the value and importance of landscape and to take part in related public decisions".*

## Policy

### National Policy

10.2.7 Section 1.2: Legislation, and Policy Overview of this Scoping Report sets out the overarching policies relevant to the Project including the National Policy Statement (NPS) for Energy EN-1 (Ref 10.2) and NPS for Natural Gas Supply Infrastructure and Gas and Oil Pipelines EN-4 (Ref 10.3).

10.2.8 Table 10-1 sets out the requirements of both NPSs that are relevant to the LVIA and how these have been considered within this chapter and will be considered within the ES.

*Table 10-1 – National Planning Policy relevant to the LVIA*

| Policy Reference | Policy Context | How it will be Considered |
|---|---|---|
| **Overarching National Policy Statement for Energy (EN-1) 2024 (Ref 10.2)** | | |
| Section 5.10 Landscape and Visual | Landscape & Visual – general matters.<br><br>5.10.6 "*Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate."* | The Project will: be designed sensitively, given the likely siting, operational and other relevant constraints; aim to minimise harm to landscape character and visual amenity; and provide reasonable mitigation where possible and appropriate.<br><br>Landscape and visual matters will be considered at all stages of the Project's siting and design. This will allow demonstration of "*how negative effects have been minimised and how opportunities for creating possible benefits and / or enhancements have been recognised and / or incorporated into the design, delivery and operation of the"* Project.<br><br>The visual assessment of the Project will include consideration of effects during construction (noting that these are temporary) and operation (including maintenance), and, if necessary, effects arising from possible light pollution. |

| Policy Reference | Policy Context | How it will be Considered |
|---|---|---|
| | | Consideration would also be had for the effects upon 'landscape components' during construction (noting that these are temporary) and operation (including maintenance) of the Project. |
| | Designated landscapes<br><br>5.10.7 "*National Parks, the Broads and AONBs have been confirmed by the government as having the highest status of protection in relation to landscape and natural beauty. Each of these designated areas has specific statutory purposes. Projects should be designed sensitively given the various siting, operational, and other relevant constraints.*"<br><br>5.10.8 "*The duty to seek to further the purposes of nationally designated landscapes also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. In these locations, projects should be designed sensitively given the various siting, operational, and other relevant constraints. The Secretary of State should be satisfied that measures which seek to further the purposes of the designation are sufficient, appropriate and proportionate to the type and scale of the development.*" | There are no National Parks or National Landscapes (NL) (previously Areas of Outstanding Natural Beauty) within the Study Area (see paragraph 10.7.1). Additionally, the Project is not considered to be within the setting of any such designation - the nearest being the Lincolnshire Wolds NL, over 9km to the south of the draft Order Limits. As such consideration of the effect of the Project on National Parks and NLs are scoped out of the LVIA. |

| Policy Reference | Policy Context | How it will be Considered |
|---|---|---|
| | 5.10.12 "*Outside nationally designated areas, there are local landscapes that may be highly valued locally. Where a local development document in England or a local development plan in Wales has policies based on landscape or waterscape character assessment, these should be paid particular attention. However, locally valued landscapes should not be used in themselves to refuse consent, as this may unduly restrict acceptable development.*" | The value of all landscapes through the LVIA's Study Area will be established as part of the consideration of the sensitivity of landscape receptors. This process will take into account the presence of any local landscape designation.<br><br>The LVIA will also have regard for local authorities' development plan documents which have policies based on landscape character assessments. |
| | 5.10.16. "*The applicant should carry out a landscape and visual impact assessment and report it in the ES, including cumulative effects (see Section 4.3). Several guides have been produced to assist in addressing landscape issues.*" | A LVIA (including a cumulative assessment) will be prepared as part of the ES. The guidance documents that will inform this are set out in paragraph 10.2.12. |
| | 5.10.17 "*The landscape and visual assessment should include reference to any landscape character assessment and associated studies as a means of assessing landscape impacts relevant to the proposed project. The applicant's assessment should also take account of any relevant policies based on these assessments in local development* | This Scoping Report has been prepared with consideration for landscape character assessments at national, regional and local levels.<br><br>Further consideration of the most relevant aspects of these (and their associated studies), as a |

| Policy Reference | Policy Context | How it will be Considered |
|---|---|---|
| | *documents in England and local development plans in Wales."* | means of assessing landscape impacts of the Project, will be carried out within the LVIA.<br><br>The LVIA will have regard for local authorities' development plan documents which have policies based on landscape character assessments. |
| Section 5.11 Land Use, Including Open Space, Green Infrastructure, and Green Belt | Users of Publicly accessible areas and paths<br><br>5.11.30 "*Public Rights of way, National Trails, and other rights of access to land are important recreational facilities for example for walkers, cyclists and horse riders. The Secretary of State should expect applicants to take appropriate mitigation measures to address adverse effects on coastal access, National Trails, other rights of way and open access land and, where appropriate, to consider what opportunities there may be to improve or create new access. In considering revisions to an existing right of way, consideration should be given to the use, character, attractiveness, and convenience of the right of way."* | The consideration of the visual effects of the Project upon users of public rights of way (PRoW), National Trails, public open space, open access land and promoted routes will take into consideration the current character and attractiveness of such routes and areas. |

| Policy Reference | Policy Context | How it will be Considered |
|---|---|---|
| **National Policy Statement for Natural Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) 2023 (Ref 10.3)** | | |
| Section 2 | Landscape & Visual Impact<br><br>Para. 2.21.24 to 2.21.26 states that "Additional considerations apply during the construction of a pipeline (which, without mitigation, can affect both landscape, visual amenity and ecology). These comprise the effects upon specific landscape elements within and adjacent to the pipeline route, such as grasslands, field boundaries (hedgerows, hedge banks, drystone walls, fences), trees, woodlands, and watercourses. There will also be temporary visual and landscape impacts caused by the need to access the working corridor and to remove flora and soil" | The LVIA will consider the potential impacts of the Project's construction and operation upon landscape elements, such as grassland, field boundaries, trees, woodlands and watercourses. The inclusion of proposals to mitigate such impacts will also be considered as part of the LVIA's involvement with the iterative design process and, where necessary, included within the Project. |
| | Para 2.21.31 "*The application should also include proposals for reinstatement of the pipeline route as close to its original state as possible and take into account any requirements for agreements with the landowner to access areas for aftercare and management work. This is particularly important in designated landscapes."* | The iterative design process, that the LVIA would be part of, will consider the restoration of the pipeline route as close to its original state post-construction as possible. This will take into account the necessary maintenance access and / or easements over the pipeline which may restrict full restoration. |

### Regional and Local Planning Policy

10.2.9 The Project lies within the jurisdictions of North Yorkshire, East Riding of Yorkshire, North Lincolnshire and North East Lincolnshire. North Yorkshire Council was established in April 2023 and consolidated 7 district and borough councils with the former North Yorkshire County Council. Although North Yorkshire Council is now the overarching planning authority, the Selby Local Plan remains in effect for planning and development purposes.

10.2.10 A summary of the relevant local planning policy for these authorities which is relevant to a study of Landscape and Visual matters will inform the assessment in the Environmental Statement (ES) is provided in Table 10-2.

*Table 10-2 – Local Planning Policy Relevant to the LVIA*

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| North Yorkshire Council (Selby District Core Strategy Local Plan (2013)) (Ref 10.4) | SP18 Protecting and Enhancing the Environment | Those elements of this policy relevant to LVIA include safeguarding landscape character and protecting distinctive landscapes and open spaces. | The LVIA will identify the key landscape characteristics, distinctive landscapes, and open spaces within the Study Area, and will provide preliminary mitigation recommendations to help integrate the operational elements of the Project into the surrounding landscape. Particular consideration will be given to protecting more sensitive landscapes and areas with high visual amenity value. |
| | SP19: Design Quality | This policy emphasises that developments, such as the Project, should seek to enhance an area's identity, integrate landscaping within their design, and make efficient use of land without compromising local distinctiveness, character, or form. | The LVIA will identify the key landscape characteristics of the Study Area and provide preliminary mitigation recommendations to integrate the design of operational elements (such as AGIs and Pump Facility) into the surrounding landscape setting. |
| Emerging Selby Local Plan (Revised publication | SG9 Design (Strategic Policy | Development should, where appropriate, respond to its location, reflect important views and landscapes and reinforce the distinctiveness and character of the local area by having regard to the existing form, | The LVIA will assess how the proposed development responds to its location by evaluating its relationship with views, landscape features, and landscape character. It will consider how the |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| 2024) (Ref 10.5) | | scale, density, layout), building materials and detailing. | development's form, scale, density, and layout align with the existing landscape context and settlement pattern. Where necessary, the LVIA will provide preliminary recommendations to enhance the integration of the development into its setting and minimize potential visual impacts. Recommendations will be provided on the layout, colour and materials proposed. |
| | NE4 Protecting and Enhancing Landscape Character (Strategic Policy) | Developments must promote high-quality designs that enhance the distinctive local landscape and adhere to guidelines in the latest Selby Landscape Character Assessment and Sensitivity Study. | The LVIA will evaluate the proposed development's design in the context of promoting high-quality, landscape-sensitive outcomes that enhance the distinctive character of the local area. It will assess the development's alignment with the guidelines and recommendations outlined in the latest *Selby* Landscape *Character Assessment and Sensitivity Study,* ensuring that the design respects the identified sensitivities, key characteristics, and capacity of the landscape. Where necessary, the LVIA will provide recommendations to refine the design, |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| | | | ensuring it contributes positively to the local landscape character and maintains the visual quality of the area. |
| | IC7 Public Rights of Way' | Where development may impact on a PRoW, satisfactory and alternative routes are to be provided, it goes on to state that where appropriate and viable PRoW should be enhanced making routes more attractive to users. | The LVIA will assess the potential impacts of the development on users of Public Rights of Way (PRoW) within the Study Area, including any changes to the visual experience for users. |
| | 'NE6 Protecting and Enhancing Trees, Woodland and Hedgerows | Appropriate replacement planting scheme agreed in writing with the LPA is to be provided where trees or hedgerows are to be removed or felled. | Chapter 7: Ecology and Biodiversity will identify any woodland, trees or hedgerows that may need to be removed or felled as part of the Project. The LVIA will assess the potential impacts on landscape character and visual amenity of any potential loss / replacement. |
| East Riding Local Plan (adopted April 2016) (Ref 10.6) | ENV1: Integrating high quality design | Development should contribute to safeguarding and respecting the diverse character and appearance of the area through design, layout, construction and use. Design should contribute to a sense of place have regard to the specific | The LVIA will assess how the Project contributes to safeguarding and respecting the character and appearance of the Study Area. It will consider the operational and construction activities in relation to the surrounding landscape, ensuring that the |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| | | characteristics of the wider context and character. | Project aligns with and complements the specific characteristics of the wider context. The LVIA will also consider how the design contributes to a sense of place by reflecting the unique features, patterns, and visual qualities of the local area. Where necessary, preliminary recommendations will be made to enhance the development's integration into the landscape and reinforce the distinctiveness of the site within its setting. |
| | ENV2: Promoting high quality landscape | Development proposals to be sensitively integrated into the landscape through retaining significant hedgerows and trees, with replacements required if removal is necessary, maintaining and enhancing woodland character where appropriate, preserving wetland and water features and protecting views of valued landscapes like flood meadows, grasslands, and coastlines. The policy references the East Riding Landscape Character Assessment as providing a description of existing local landscape character. | The LVIA will assess the integration of the proposed development into the landscape, with a focus on retaining important hedgerows and trees wherever possible. If removal is required preliminary recommendations on appropriate replacement species to maintain continuity of landscape features will be made. The East Riding Landscape Character Assessment will be referenced to ensure the development aligns with the identified local landscape character and sensitivities, guiding the design and mitigation measures |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| | | | to ensure the Project is well-integrated into its landscape setting. |
| North Lincolnshire Local Development Framework (adopted 2011) (Ref 10.7) | CS5: 'Delivering Quality Design in North Lincolnshire' | Development should be well designed and appropriate for their context and contribute to creating a sense of place. It goes on to state that design which is inappropriate to the local area or fails to maximise opportunities for improving the character and quality of the area would not be acceptable. Appropriate landscaping and planting which enhances biodiversity or geological features whilst contributing to the creation of a network of linked greenspaces across the area should be incorporated into development proposals. | The LVIA will consider how the Project's design proposals align with local characteristics. Working with Project Ecologists, the LVIA will consider the incorporation of appropriate landscaping and planting that enhances biodiversity features through BNG. The LVIA will identify provisional mitigation measures to reduce potential adverse impacts on landscape or visual receptors. |
| | CS16: North Lincolnshire's Landscape, Greenspace and Waterscape | Development on or adjacent to strategic and locally important spaces would not be permitted where it would result in unacceptable conflict with the function (s) or characteristic of the area. Where appropriate proposals would be required to improve the quality and quantity of accessible landscape, greenspace and | The LVIA will consider the potential impacts of the Project on strategic and locally important landscapes, ensuring that it does not result in unacceptable conflict with the characteristics of these areas. Where appropriate, the assessment will include preliminary mitigation recommendations to ensure that the development contributes positively to the surrounding environment |

| Local Plan | Policy Reference | Policy Context | How it will be Considered |
|---|---|---|---|
| | | waterscape and protect trees, hedgerows and historic landscapes. | and does not diminish the value of locally important areas.<br>Note there are not considered to be any strategically important landscapes within the Study Area. |
| North East Lincolnshire Local Plan (adopted 2018) (Ref 10.8) | 42: Landscape | Developments should: use the District's Landscape Character Assessment to understand the landscape context and type within which the Project is located, and the relevant landscape guidelines and management strategies to be applied. It seeks preparation of proportionate landscape appraisals and accompanying landscape design schemes. | The LVIA will consider the Project in relation to the District's Landscape Character Assessment to understand the landscape context and type within which it is located. It will review the relevant landscape guidelines and management strategies to ensure that design proposals are aligned with the recommendations provided within the District's LCA. The LVIA will be based on a proportionate approach and will be accompanied by landscape plans showing provisional mitigation. |

### Other Local Plans within the LVIA Study Area

10.2.11 The LVIA Study Area additionally crosses into the administrative areas of the City of Hull and West Lindsey. Consequently, the policies of those authorities' current development plans considered relevant to the LVIA are set out below:

- West Lindsey District: Central Lincolnshire Local Plan (adopted 2023) (Ref 10.9) - Policy S62: Area of Outstanding Natural Beauty and Areas of Great Landscape Value, Policy S5: Development in the Countryside and Policy S66: Trees, Woodland and Hedgerows.
- Hull City Council: Hull Local Plan (adopted 2017) (Ref 10.10) – Policy 15 Local Distinctiveness.

### Guidance

10.2.12 Relevant guidance, specific to landscape and visual matters that has informed this Scoping Report, and which would inform the LVIA within the ES, comprises:

- Landscape Institute & Institute of Environmental Management and Assessment (2013) Guidelines for Landscape and Visual Impact Assessment,3rd Edition, (GLVIA3) (Ref 10.11).
- Landscape Institute (2013) GLVIA3 Statement of Clarification 1/13; (Ref 10.12).
- Landscape Institute (2014) Statement of Clarification 1/14 28-01-14 (Ref 10.12).
- Landscape Institute (2014) Statement of Clarification 2/14 28-01-14 (Ref 10.12).
- Natural England (2014). An Approach to Landscape Character Assessment (Ref 10.13).
- Landscape Institute (2019) Technical Guidance Note 06/19: Visual Representation of Development Proposals; (Ref 10.14).
- Landscape Institute (2019) Technical Guidance Note 02/19 Residential Visual Amenity Assessment (Ref 10.15).
- Landscape Institute (2021) Technical Guidance Note 02-21: Assessing Landscape Value Outside National Designations (Ref 10.16).
- Landscape Institute (2024) Technical Guidance Note LITGN-2024-01: Notes and Clarifications on Aspects of GLVIA3 (Ref 10.12).

## 10.3 Proposed Assessment Methodology

### General Methodology and Association with other Topics

10.3.1 This section sets out an overview of the proposed LVIA methodology at this time. Aspects of this methodology would potentially be developed further and / or

refined as the LVIA baseline study is progressed and as engagement with stakeholders occurs.

10.3.2 The methodology for undertaking the LVIA will be based on principles set out in GLVIA3 and its related guidance documents listed in 10.2.. These not only establish good practice guidance for LVIA's but also comply with the requirements of EN-1 and EN-4.

10.3.3 GLVIA3 advocates that the assessment should be proportionate to the scale and nature of the proposals and should focus on the 'likely' significant effects, rather than every conceivable effect – an approach that aligns with the requirements of the EIA Regulations 2017. This approach provides an opportunity to scope out particular receptors, where it can be demonstrated that significant effects would be very unlikely to arise. The ultimate aim being to present more concise and meaningful assessments.

10.3.4 The assessment methodology involves a combination of quantitative and qualitative considerations and the application of professional judgement within a structured assessment framework. As set out in GLVIA3:

> "*…Whilst there is some scope for quantitative measurement of some relatively objective matters, …much of the assessment must rely on qualitative judgement, for example what effect the introduction of a new development or land use change may have on visual amenity, or about the significance of change in the character of the landscape and whether it is positive or negative*" (Paragraph 2.23).
>
> "*In all cases there is a need for judgements that are made to be reasonable and based on clear and transparent methods so that the reasoning applied at different stages can be traced and examined by others.*" (Paragraph 2.24).

10.3.5 Where relevant, the LVIA will consider any inter-relationship of baseline information and impacts from the Project between different EIA topics, for example:

- The baseline information collected for Chapter 7: Ecology and Biodiversity will be used to better understand the contribution biodiversity-related designations or protected areas (such as Sites of Special Scientific Interest, Tree Preservation Orders, and Ancient Woodland) located within the LVIA Study Area make to the landscape's conservation interest. These in turn will inform judgments upon the 'value' (and subsequently, therefore, the 'sensitivity) of landscape character receptors.
- The baseline information collected for the biodiversity assessment (Chapter 7), notably the Ortho-mosaic tiles and tree crown mapping will also include information upon the location, type, extent and height of key areas of existing trees, woodland and hedgerow that may be impacted by the Project. This will inform considerations upon the rarity and / or representativeness of such

components within the landscape. These in turn will inform judgments upon the 'value' (and subsequently, therefore, the 'sensitivity) of landscape character receptors, and the planning of potential mitigation proposals.

- The baseline information collected for Chapter 11: Cultural Heritage will be used within the LVIA to better understand the contribution heritage designations (such as the Registered Parks & Gardens of Historic Interest and built Conservation Areas) and heritage assets make to the conservation interest and cultural associations of the landscape and to visual amenity within the LVIA Study Area. This includes becoming aware of 'designed' or 'recorded' views, where they are publicly accessible. This will inform judgments upon the 'value' (and subsequently, therefore, the 'sensitivity) of landscape character and visual amenity receptors.
- The baseline information collected for Chapter 13: Socio-economics will be used to better understand the presence of publicly accessible recreational resources within the LVIA Study Area, and (where information is available) how well they are frequented by users.

10.3.6 As such, and to avoid duplication of effects across the Environmental Statement (ES) the LVIA will not assess the impacts of the Project upon:

- Any biodiversity designations or protected areas, such as Sites of Special Scientific Interest, Tree Preservation Orders, and Ancient Woodland – as these will be addressed in Chapter 7: Ecology and Biodiversity.
- Any heritage-related designations including Registered Parks & Gardens of Historic Interest and built Conservation Areas – as these are considered to be more heritage-related than landscape-related, and so will be addressed in Chapter 11: Cultural Heritage (the LVIA would, instead, as recommended by GLVIA3, assess, where necessary, the effects upon the visual amenity of users of these only).
- Any recreational resource (such as country parks, campsites and National Trust properties) – as these would be addressed in Chapter 13: Socio-Economics (the LVIA would, instead, as recommended by GLVIA3, assess, where necessary, the effects upon the visual amenity of users of these only).

10.3.7 The effects on landscape character, landscape features and elements and visual amenity will be assessed for the following scenarios:

- Construction Phase – LVIA will consider the worst-case situation whereby construction activity is at its peak.
- Year 1 - a winter's day in the first year that the Project becomes fully operational, reflecting the maximum visibility / worst case scenario.
- Year 15 – a summer's day in the 15th year after the Project becomes fully operational, reflecting the presence of leaves on deciduous woody vegetation

and the likely maximum mitigation from proposed planting (where implemented).

- Decommissioning Phase - This will assess a situation whereby the proposed areas of Above Ground Infrastructure (AGI) and the proposed Pump Facility at Easington are removed, but the pipeline will remain in-situ, and the landscape is returned to its former use.

## Zone of Theoretical Visibility

10.3.8 Zone of Theoretical Visibility (ZTV) maps, which will illustrate the theoretical visibility of the Project during the operational phase will be produced to inform the assessment. Initial ZTVs will be generated in Geographic Information System software using Ordnance Survey's Terrain 5 Digital Terrain Model without the screening effects of buildings and vegetation included in them (which in reality are likely to preclude visibility of the Project from certain areas in the LVIA Study Area). These 'bare earth' ZTVs will provide the very 'worst-case' scenario, and the largest geographical area from which the Project may be visible.

10.3.9 Following this, Ordnance Survey digital mapping layers containing inventories of known woodlands and buildings would be added and their locations extruded to average heights, so that a more accurate digital surface model can be created, and a 'screening features' ZTV can be analysed.

10.3.10 The 'bare earth' and 'screening features' ZTVs will be updated as the assessment progresses and the design of the Project evolves.

## Field Surveys

10.3.11 As the ZTVs will only illustrate the theoretical visibility of the Project, fieldwork will be undertaken to ground-truth their findings and understand the existing screening properties of non-mapped elements of the landscape in order to confirm locations from where the different elements of the Project would actually be visible.

10.3.12 The fieldwork will also provide the opportunity to ground-truth the desk-based landscape character research undertaken and gain a better understanding and appreciation of the condition and value of the already established local landscape character areas / types found within LVIA Study Area, as set out in paragraph 10.8.3. The fieldwork would be undertaken during summer and winter months to fully understand the range of general visibility through the landscape. Photography will be collected during the summer and winter fieldwork to illustrate the existing landscape and visual baseline. This will be used in the Preliminary Environmental Information Report (PEIR) and ES to aid readers' understanding of current conditions.

10.3.13 Visits would also be undertaken at night to understand the degree of existing lighting across the LVIA Study Area, so that the impact of new lighting can be considered in the assessment. Given, however, that the Project's lighting will generally be confined to temporary installations during construction, very infrequent lighting associated with emergency situations during its operational phase, and lighting in areas that are already characterised extensive existing illumination, the collection of night-time photography is not considered necessary.

## Representative Viewpoints

10.3.14 More technical visual site surveys would be undertaken at agreed representative viewpoints. These viewpoints will be selected to represent the different types of receptors likely to be impacted by the Project and will be informed by the ZTV analysis, previous site visits, desk-based research on the location and distribution of community and recreation receptors and following engagement with stakeholders, including the LPAs.

10.3.15 The viewpoints will be representative of views experienced by visual receptors at either:

- Singular destinations (such a public open spaces, visitor destinations).
- Points along a particular line of movement (e.g., along a PRoW, footway through a settlement, waterway or towpath).

10.3.16 In both instances the exact locations of the representative viewpoints selected will be the most notable / and or general worst-case views towards the Project.

10.3.17 Whilst the representative viewpoints will be used to help describe the likely changes to landscape character and visual amenity brought about by the Project, and therefore inform the assessment of resultant effects, the LVIA will not assess the impact on receptors precisely just at these locations only, but instead, it will take into consideration the wider character area covered by it, and the overall dynamic and kinetic visual experience of a visual receptor.

10.3.18 The selection of representative viewpoints would be agreed with the relevant local stakeholder listed in Section 10.5.

10.3.19 The photographs collected from each 'representative viewpoint' location would conform with the Landscape Institute's 'Technical Guidance Note 06/19: Visual Representation of Development Proposals' (Ref 10.14).

## Visualisations

10.3.20 The collection of viewpoint photography from the selected representative viewpoints will also assist in the creation of LVIA-related visualisations (i.e. wireframes and photomontages). For this reason, where practical, all viewpoint

photography would be captured in both winter months (when trees are not in leaf - i.e., a worst-case scenario) and summer months.

10.3.21 Visualisations would be used to consider and illustrate changes to views during the operation of the Project and would be prepared in accordance with the Landscape Institute's 'Technical Guidance Note 06/19: Visual Representation of Development Proposals' (Ref 10.14).

10.3.22 Type 1 visualisations (annotated photo-panoramas) would be used for all viewpoints, and Type 3 visualisations (photowires) used for the views to AGIs and the Pump Facility where the sensitivity of identified receptors and the context, scale and proximity of the Project warrant it.

10.3.23 The Type 3 visualisations would show the AGIs / Pump Facility overlain upon the collected winter photography at year 1 following the Project's completion (i.e. the worst-case scenario), and then upon the summer photography 15 years following this when any potential landscape mitigation (such as planting) would be expected to be established.

## Sensitivity

### Landscape Receptor Sensitivity

10.3.24 The sensitivity of landscape receptors (defined as high, medium or low – or intermediate levels between these) reported on within the LVIA would be determined by the consideration of their 'susceptibility' and 'value' see Table 10-3, and informed professional judgement. An explanation of the level of sensitivity given to each receptor would be set out in the LVIA so that it is clear how each judgement has been made.

*Table 10-3 – Indicative Sensitivity of Landscape Receptors*

**Sensitivity of Landscape Receptors**

| | Higher | | Lower |
|---|---|---|---|
| Susceptibility | Attributes that make up the character of the landscape receptor offer very limited opportunities for the accommodation of change brought about by the construction, operation and decommissioning of such infrastructure | → | Attributes that make up the character of the landscape receptor are resilient to change brought about by the construction, operation and decommissioning of such infrastructure. |

| | | | |
|---|---|---|---|
| | without key characteristics being fundamentally altered, leading to a different landscape character. | | |
| Value | Landscape receptors with high scenic quality, high conservation interest, recreational value, important cultural associations, and high degree of rarity.<br>Landscapes designated at an international level (e.g., World Heritage Sites) or national level (e.g., National Parks). | → | Landscape receptors of poor condition and / or poor intactness, with limited aesthetic qualities.<br>Areas that are not formally designated |

10.3.25 It should be noted that whilst landscape designations at an international or national level are likely to be accorded the highest value rating, it does not necessarily follow that they also have a high susceptibility to all types of change, and conversely, undesignated landscapes may have high susceptibility to change (see GLVIA3, Para 5.46 & 6.47, Page 90).

**Visual Sensitivity**

10.3.26 The sensitivity of visual receptors (defined as high, medium or low – or intermediate levels between these) within the LVIA would also be determined by the consideration of their 'susceptibility' and 'value' - see Table 10-4, and informed professional judgement. An explanation of the level of sensitivity given to each receptor would be set out in the LVIA so that it is clear how each judgement has been made.

10.3.27 The susceptibility of visual receptors to changes to their views / visual amenity is a function of the occupation or activity of people experiencing the view and the extent to which their attention is focused on views (GLVIA 3, para 6.32).

10.3.28 The value attached to receptors' views or visual amenity, as defined in GLVIA3 (Para. 6.37, Page 114), is determined with reference to:

- Planning designations, which are specific to views.
- Whether a view or visual amenity is recorded as important in relation to designated landscapes (such as views specifically mentioned in the special qualities of a National Park).
- Whether a view or visual amenity is recorded as important in relation to heritage assets (such as designed views recorded in citations of gardens and designed landscapes or views recorded as of importance in Conservation Area Appraisals).
- The value attached to views by visitors, for example through appearances in guidebooks or on tourist maps, provision of facilities for their enjoyment and references to them in literature and art.

10.3.29 As such, a designated viewpoint or scenic route advertised on maps and in tourist information, or a viewpoint which is a significant destination in its own right, is likely to indicate a view of higher value. High value views may also be recognised in relation to the special qualities of a designated landscape or heritage asset, or it may be a view familiar from photographs or paintings.

10.3.30 Views experienced from viewpoints or routes not recognised formally or advertised in tourist information, or which are not provided with interpretation or, in some cases, formal access, are likely to be of lower value.

*Table 10-4 – Indicative Criteria for Determining Visual Sensitivity*

## Sensitivity of Visual Receptors

| | Higher | | Lower |
|---|---|---|---|
| Susceptibility | Viewers whose attention or interest is focused on their surroundings, including settlements / people engaged in outdoor recreation / visitors to heritage assets or other attractions where views of the surrounding area are an important contributor. | → | People whose attention is not focused on their surroundings (and where their visual setting is not important to their quality of life) such as people engaged in most outdoor sports / people at their place of work / upon main transport routes. |
| Value | Views may be recorded in management plans, guidebooks, and / or are likely to be experienced by large numbers of people. Views may be associated with internationally or nationally designated landscapes; designed views recorded in citations for gardens and designed landscapes etc. | → | Views which are not documented or protected. Views which are more incidental, and less likely to be associated with somewhere people travel to or stop at, or which may be experienced by smaller numbers of people. |

### Magnitude

10.3.31 GLVIA3 paragraphs 5.48 and 6.38 set out that the magnitude of the change (sometimes referred to as the nature of impact) that is likely to occur to a receptor is determined by considering the following factors:

- Size / scale of the change.
- Geographical extent of the change.
- Duration.
- Reversibility of the change.

10.3.32 The considerations of the size / scale of changes, their geographical extent and duration and reversibility will be considered together using informed professional judgement to derive an overall magnitude of predicted change for each receptor, guided by the indicative criteria set out in Table 10-5 and Table 10-6.

10.3.33 The magnitude of both landscape and visual change is described as large, medium-large, medium, medium-small, small, negligible or no change. The rationale in support of the assessment will be set out for each receptor so that it is clear how each judgement has been made.

*Table 10-5 – Indicative Magnitude of Landscape Change*

**Magnitude of Landscape change**

| | Largest | | Smallest |
|---|---|---|---|
| Size / Scale | Extensive loss of landscape features and / or elements, and / or change in, or loss of key landscape characteristics, and / or creation of new key landscape characteristics. | → | Limited loss of landscape features and / or elements, and / or change in or loss of some secondary landscape characteristics. |
| Geographic Extent | Change in landscape features and / or character extending considerably beyond the immediate site and potentially impacting multiple landscape character types / areas. | → | Change in landscape features and / or character extending contained within or local to the immediate site and impacting only a small part of the landscape character area / type. |
| Duration | Changes experienced for a period of around five years or more. | → | Changes experienced for a shorter period of up to five years. |
| Reversibility | Change to features, elements or character which cannot be undone or are only partly reversible after a long period. | → | A temporary landscape change which is largely reversible following the completion of construction or decommissioning of the development. |

*Table 10-6 – Indicative Magnitude of Visual Change*

**Magnitude of Landscape change**

| | Largest | | Smallest |
|---|---|---|---|
| Size / Scale | Loss or addition of features in a receptor's visual experience that substantially change its composition and / or give rise to a strong contrast to the existing components in terms of form, scale, mass, line, height and / or colour. The changes occupy a large proportion of receptors' views and are visible for the majority of the duration of their visual experience. | → | Loss or addition of features in a receptor's visual experience that almost imperceptibly change its composition and / or give rise to only a very weak contrast to the existing components in terms of form, scale, mass, line, height and / or colour. The changes occupy a very small proportion of receptors' views and are visible for the very short periods of their visual experience. |
| Geographic Extent | Changes occur in the most noticeable angle / aspect of the receptors' views, are in close proximity and occur across a substantial extent of the visible area. | → | Changes occur in the least noticeable angle / aspect of the receptors' views, are in the far distance and occur across a very small extent of the visible area. |
| Duration | Visual change experienced over around five years or more. | → | Visual changes experienced for a shorter period of up to five years. |
| Reversibility | A permanent visual change which is not reversible or only partially reversible following decommissioning of the Project. | → | A temporary visual change which is largely reversible following the completion of construction or decommissioning of the Project. |

### Significance

10.3.34 Judgements of sensitivity and magnitude are then combined to develop an informed assessment of the overall significance of effect both individually and cumulatively (when considered in combination with other consented or proposed developments) upon a receptor. Levels of landscape or visual effect would be categorised as major, moderate, minor or negligible / no effect (with potentially intermediate ratings, such as 'moderate / minor', being applied where required).

10.3.35 Effects that are 'Major', 'Major / Moderate' or 'Moderate / Major' are considered 'significant' insofar that:

- Landscape assessment: the Project creates a fundamental and irreversible alteration to a receptor's overall landscape character and / or key landscape characteristics (after taking into account the embedded design, mitigation and enhancement measures). This could include small but critical changes to very highly sensitive landscapes but could also include comprehensive changes to areas with more limited landscape sensitivity.
- Visual assessment: the Project becomes the defining element in a visual receptors' experience, considering the particular aspects of their 'sensitivity' (after taking into account the embedded design, mitigation and enhancement measures). This could include small but critical changes to the amenity of very highly sensitive visual receptors but could also include comprehensive changes to that experienced by visual receptors with more limited sensitivity.

10.3.36 Where the significance of the effect is considered to be 'moderate' reasoned professional judgement is used to determine whether or not this is 'significant'.

10.3.37 The nature of effects would be described as positive (beneficial), neutral or negative (adverse).

10.3.38 In line with GLVIA3, the development of an assessment of the overall significance of effect does not follow a rigid matrix approach, where it is defined simply by the level of sensitivity combined with the magnitude of change. This is because the significance of landscape and the visual effects is not always the same for similar receptors. It is instead guided by the principles set out in Plate 10.1 and the example descriptions / definitions detailed in Table 10-7 and Table 10-8.

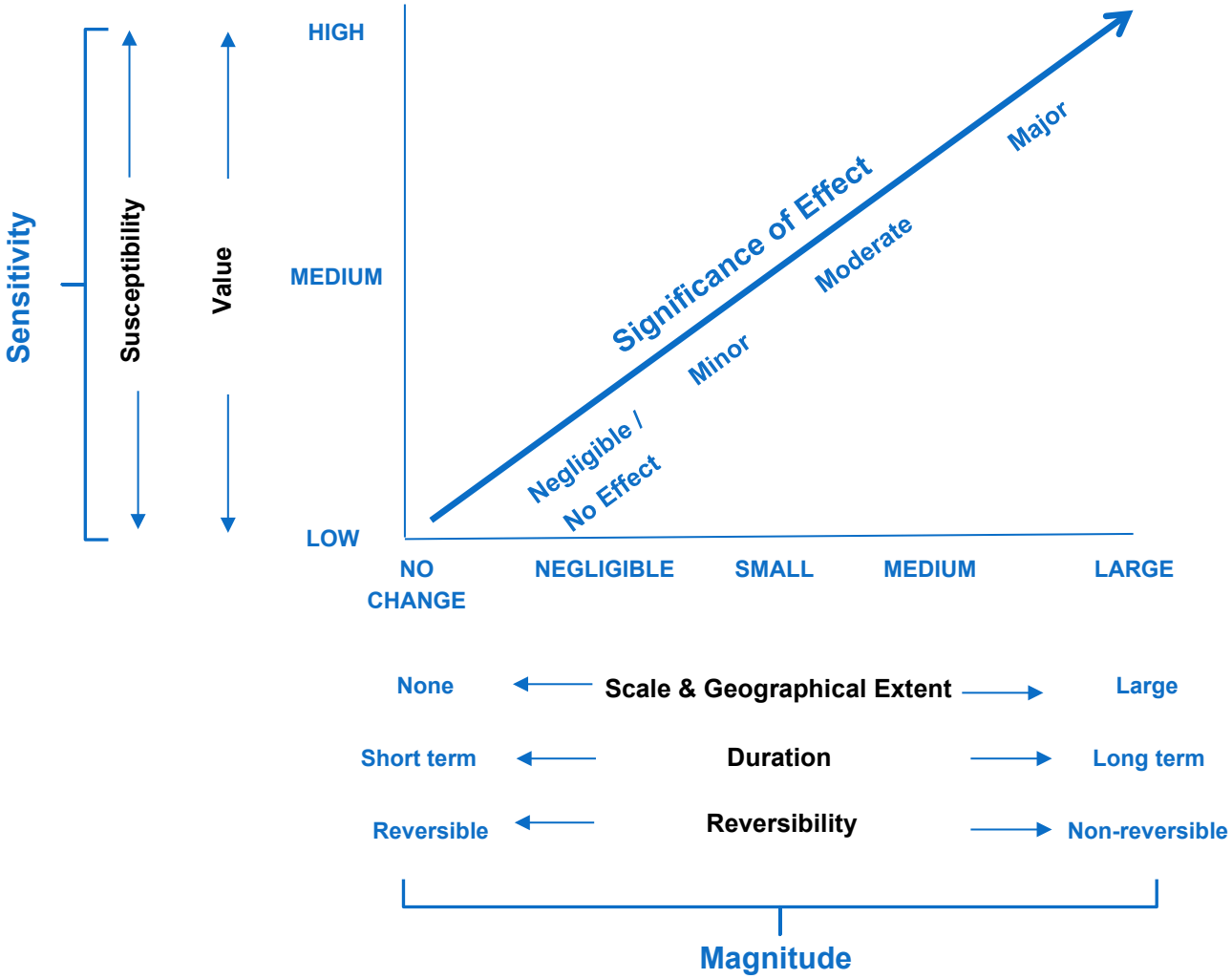


*Plate 10-1 – Judging Levels of Effect – Landscape and Visual*

10.3.39 The final decision on the significance of the effect ultimately relies on professional judgement and experience which, in the assessment, is informed by recognised guidance and supported through qualitative text to draw out the important issues, describe the effects and explain the underlying rationale.

*Table 10-7 – Indicative Levels of Significance – Landscape Effects*

| Significance of effect | Description / Definition |
|---|---|
| Major | The Project would result in an obvious change in landscape features and character and is likely to impact a landscape with a moderate or high susceptibility to that type of change. This level of effect may also occur when a medium scale of effect acts on a nationally valued landscape. The effect is likely to be long-term and impact a relatively large area. |
| Moderate | The Project would result in a noticeable change in landscape characteristics and character and is likely to affect a landscape with a moderate susceptibility to that type of change.<br>This level of effect may also occur when a smaller scale of effect acts on a more widely valued landscape, or a larger scale of effect acting on a landscape valued at a more local level.<br>This level of effect may also occur when a large scale of effect occurs over a relatively short period or over a small area. |
| Minor | The Project would result in a small change in landscape characteristics and character over a long-term duration.<br>This level of effect may also occur when a larger scale of effect is of short-term duration or confined to the site. |
| Negligible / No Effect | The Project would result in a barely perceptible or no change in landscape characteristics / character. |

*Table 10-8 – Indicative Levels of Significance – Visual Effects*

| Significance of effect | Description / Definition |
|---|---|
| Major | The Project would result in an obvious change in visual amenity and is likely to impact a receptor with a moderate or high susceptibility to that type of change.<br>This level of effect may also occur when a medium scale of effect acts on a nationally valued view and / or a high susceptibility receptor.<br>The effect is likely to be long-term and impact a relatively large area or relatively large number of people. |
| Moderate | The Project would result in a noticeable change in visual amenity and is likely to impact a receptor with a moderate susceptibility to that type of change and / or locally valued view.<br>This level of effect may also occur when a smaller scale of change acts on a higher susceptibility receptor or impacts a large number of people, or a larger scale of effect acting on a lower susceptibility receptor or impacting fewer people.<br>This level of effect may also occur when a large scale of effect occurs over a relatively short period or over a small area / impact few people |
| Minor | The Project would result in a small change in visual amenity over a long-term duration and is likely to impact a smaller geographic extent and / or fewer people.<br>This level of effect may also occur when a larger scale of effect is of short-term duration or is confined in its geographical extent. |
| Negligible / No Effect | The Project would result in a barely perceptible or no change in views or visual amenity. |

### Effects of Lighting

10.3.40 Consideration of the effects resulting from the Project's proposed lighting upon landscape and visual receptors during construction, operation and decommissioning will be undertaken.

10.3.41 On the basis that the Project's lighting will generally be confined to temporary installations during construction, very infrequent occurrences during emergency situations (during its operational phase), and lighting in areas that are already characterised extensive existing illumination, the assessment will take the form of a qualitative assessment (as opposed to a quantitative assessment that collects data on the existing lighting levels and also determines the Project's proposed lighting levels, both measured in Lux).

## 10.4 Limitations and Assumptions

10.4.1 The following limitations and assumptions will apply to the LVIA process:

- ZTVs will be prepared for the AGIs and the Pump Facility to help identify landscape and visual receptors to these elements of the Project. The preparation of ZTVs is not considered necessary for the underground pipeline route given the reinstatement of the landscape following completion of the construction phase.
- Assessment, site work and photography will be undertaken from publicly accessible locations only - such as the public highway, public open spaces, publicly accessible recreational areas / visitor locations and PRoWs.
- Our awareness of woodland, trees and hedgerows that may be affected by the Project will predominantly rely upon the baseline information collected for Chapter 7: Ecology and Biodiversity. This includes Ortho-mosaic tiles and tree crown mapping which will detail the type, extent and height of such habitat. A more detailed Arboriculture Impact Assessment will be carried during the pre-construction phase of the Project.
- Where distances are given in the LVIA, these will be approximate (rounded to the nearest 10 m) between the nearest part of the Project and the nearest part of the receptor in question, unless explicitly stated otherwise. Distances to residential properties will be given to the dwelling itself and not the boundary of any associated garden or residential community open space.

## 10.5 Stakeholder Engagement

10.5.1 Engagement on the broad principle of the Project was undertaken with local planning authorities through the non-statutory consultation. No landscape and visual-specific technical engagement, however, has been undertaken at this stage to inform the scoping process.

10.5.2 Engagement will be undertaken with the relevant local authorities, and other organisations, as summarised in Table 10-9 below, and shall continue as appropriate throughout the environmental impact assessment process.

*Table 10-9 – Stakeholder Engagement*

| Organisation and date | Summary of engagement |
|---|---|
| East Riding of Yorkshire Council - Spring 2025 | Agree the location of viewpoints within administrative boundary |
| North Lincolnshire Council - Spring 2025 | Agree the location of viewpoints within administrative boundary |
| North East Lincolnshire - Spring 2025 | Agree the location of viewpoints within administrative boundary |
| North Yorkshire County Council - Spring 2025 | Agree the location of viewpoints within administrative boundary |
| Canal & River Trust - Spring 2025 | Agree the location of viewpoints with regards to effects upon the visual amenity of recreational users of the Aire and Calder Navigation, the Stainforth & Keadby Canal, and the River Ouse |

## 10.6 Study Area

10.6.1 A provisional LVIA Study Area is set out on Volume 2: Figure 10.1. It has been determined using our familiarity with the landscape surrounding the Project, our professional judgement and our experience of other similar schemes in this locality. It takes into consideration the expected form and scale of the construction, operation and decommissioning activities of the Project, the nature of the receiving landscape, and our awareness of likely landscape character and visual amenity receptors that may experience significant effects as a result of it.

10.6.2 The Study Area extends as offsets from the current draft Order Limits. The offsets depend upon nature of the activity and height of the temporary and permanent elements that constitute the Project – as set out in paragraphs 10.6.10 to 10.6.14 below.

10.6.3 As set out in Chapter 3 of this Scoping Report, the current draft Order Limits have been developed with consideration for environmental constraints. This includes siting away development away from designated areas, settlements and private dwellings and utilising previously developed land and existing access tracks, where possible.

10.6.4 The current draft Order Limits have, however, been set intentionally wide to allow for further design development, and some evolving optionality, regarding: the alignment of the pipeline route, the positioning of temporary construction accesses and compounds, and the positioning of the permanent AGIs and Pump Facility and accesses to these. The design development and optioneering will take into consideration possible landscape and visual effects using the 'zone of theoretical visibility' (ZTV) analysis and the LVIA authors' developing understanding of the provisional Study Area, in order to avoid and / or minimise such effects.

10.6.5 Subsequently, it is expected that the draft Order Limits will contract as the design matures. Accordingly, the LVIA Study Area is also expected to contract, as its outer boundary is offset from that of the draft Order Limits – as set out in paragraphs 10.6.10 to 10.6.14.

10.6.6 The LVIA Study Area would also be amended as awareness of any potential significant cumulative landscape and visual effects emerging from the construction, operation and decommissioning of the Project in combination with other relevant proposed developments in the area.

## Pipeline

10.6.7 As the pipeline aspect of the Project contains no permanent above ground elements (outside of the AGIs and Pump Facility) it will only be its construction activities that will inform the extent of the LVIA Study Area for the pipeline.

10.6.8 It is currently expected that those elements of the pipeline construction that are relevant to a LVIA comprise: construction plant / vehicle movements and parking, spoil stockpiling (not exceeding approximately 3 m in height), construction compound office and welfare cabins (not exceeding approximately 3m in height) and security fencing (not exceeding approximately 2.5 m in height).

10.6.9 Given the relatively small scale of these elements, their temporary nature, and the short duration of their existence, the LVIA Study Area around the draft Order Limits for the pipeline will extend to 1 km.

## Above Ground Infrastructure

10.6.10 It is currently anticipated that the maximum height of the permanent structures and equipment that would form the majority of the Project's AGIs would not exceed 3m which is the approximate height of high security fencing (surrounding the 'inlet', 'junction' and 'block valve' stations and pipeline monitoring units within them). As such, it is anticipated that the AGIs may be perceptible from up to 2-3km away.

10.6.11 Beyond 1.5 km, however, such structures would form very small vertical components in views, and the build-up of intervening layers of landform, vegetation and buildings would markedly reduce their degree of visibility to the point that they would form relatively indistinct constituents of people's overall visual experience.

10.6.12 As such, beyond 1.5 km the AGIs are considered unlikely to bring about any significant effects upon landscape and visual receptors, and so the LVIA Study Area around the draft Order Limits of these elements and their associated construction zones will be set at this distance.

### Pump Facility

10.6.13 It is currently anticipated that the Pump Facility would contain $CO_2$ pump units (approximately 2.7 m high) contained within a single structure; single storey control room, administration and welfare buildings; a workshop with a roof ridge of approximately 8 m; and 3 m high security fencing. Consequently, the LVIA Study Area around the draft Order Limits for this facility will extend to 2.5 km.

### Humber Crossing

10.6.14 The exact trenchless construction method and duration for the Humber crossing is not yet confirmed i.e. tunnelling or horizontal directional drilling. Therefore, the extent of the LVIA Study Area around the draft Order Limits for this is provisionally set at 2.0 km to cover a worst-case scenario where tall construction machinery is needed on either side of the Humber estuary.

### Cumulative Assessment

10.6.15 The extent of the LVIA Study Area may also need to adapt when those schemes that are to be included within the cumulative LVIA are known.

## 10.7 Receptors

### Landscape Designations & Associated Areas

#### National Designations and Associated Areas

10.7.1 There are no National Parks or National Landscapes (previously Areas of Outstanding Natural Beauty) within the Study Area. The nearest being the Lincolnshire Wolds National Landscape (NL) which is over 9 km to the south of the draft Order Limits.

10.7.2 In 2020 North Lincolnshire Council submitted a request to Natural England for the extension of Lincolnshire Wolds (NL). This was supported by a report intitled 'Information to support the request to vary the northern boundary of the Lincolnshire Wolds' (Ref 10.17). The document confirms that the 'evaluation area'

(in which the NL could extend) stretches from Kirton-in-Lindsey on the southern border of North Lincolnshire to the banks of the Humber estuary in the north, and from the River Trent in the west to East Halton in the east. Despite appearing to be no current timetable for the extension's consideration by Natural England, North Lincolnshire Council included reference to the extension in their emerging (and now withdrawn) Local Plan.

10.7.3 The potential future Yorkshire Wolds NL (currently being consulted upon by Natural England) would be over 21 km to the north-east of the Project.

10.7.4 The Spurn Heritage Coast lies outside of the LVIA Study Area approximately 2.77 km from the nearest point of the Project (the Pump Facility at Easington).

**Local Designations and Associated Areas**

10.7.5 Policies to safeguard 'Important Landscape Areas' have been defined in the current East Riding of Yorkshire Local Plan 2012-2029 (adopted 2016) (Ref 10.6), the emerging East Riding Local Plan Update 2020-2039 (published 2021) (Ref 10.18) and the emerging Selby Local Plan, 2024 (Ref 10.5).

10.7.6 Two 'Important Landscape Areas' (ILA) lie within the LVIA Study Area:

- *The River Derwent Corridor and Lower Derwent Valley ILA* (within both the East Riding Local Plan and Selby Local Plan areas).
- *Goole Moors* (part of the *Thorne, Crowle and Goole Moors ILA* within the East Riding Local Plan area).

10.7.7 The 'special qualities' / 'key attributes' of these are set out in the Selby Local Landscape Designation Review report, 2019 (Ref 10.19), and East Riding of Yorkshire Important Landscape Areas Boundary Refinement report, 2013 (Ref 10.20) Policies to safeguard 'Areas of Great Landscape Value' (AGLV) have been defined in the current Central Lincolnshire Local Plan (adopted 2023) (Ref 10.8).

10.7.8 The LVIA Study Area borders the northernmost point of the 'Great Limber and the Chalk Wolds Estates' AGLV (which lies approximately 1 km from the draft Order Limits surrounding a section of proposed pipeline).

## Landscape and Seascape

10.7.9 The receptors used in the landscape and seascape character assessment will be the:

- Study Area's valued characteristics (which will be determined through consideration of the existing published landscape and seascape character assessments set out in Section 10.8, and fieldwork).
- Individual elements that contribute to the character of the landscape and seascape such as structural vegetation (i.e. areas of trees, woodland,

hedgerows and scrub), farmland and boundary features, insofar as direct impact upon them by the Project may affect the character of the landscape seascape.

10.7.10 Impacts upon the physical make-up, constituent parts and habitat of such individual elements will be carried out as part of ecological, arboricultural and hedgerow surveys - as outlined in Chapter 7: Ecology & Biodiversity of this Scoping Report.

## Visual Amenity

10.7.11 The identification of receptors who may experience impacts to their views and / or visual amenity as a result of the Project would initially be informed by ZTV mapping (as outlined in paragraph 10.3.8) - which would indicate the areas from which the Project is theoretically visible. Fieldwork would then be undertaken to ground truth the findings of the ZTVs and therefore more accurately identify visual receptors for scoping into the LVIA. Those likely visual receptor groups are summarised below:

**Residential Communities**

10.7.12 The Project has the potential to impact on the views and visual amenity of some residential communities which comprise of

- Settlements.
- Individual properties.

Recreational Receptors

10.7.13 The Project has the potential to impact on the views and visual amenity of people within the LVIA Study Area visiting and / or taking part in recreational activities which involve or depend upon appreciation of views of the surrounding landscape. This includes:

- Users of promoted Yorkshire Wolds Way National Trail and long distance paths (such as the Viking Way and the Trans Pennine Trail).
- Users of PRoWs, and locally known walks (such as the Alkborough Trail along the Trent Cliff).
- Users of National Cycle Routes (NCRs).
- Users of waterways and the paths alongside them (such as the Humber estuary, River Aire, River Ouse, and River Trent, and the Aire and Calder Navigation and Stainforth and Keadby Canal).
- Visitors to known attractions (such as Thornton Abbey and the Registered Park and Garden of Brocklesby Park – albeit the impact upon the setting of such heritage assets will be carried out as part of the heritage-related surveys - as outlined in Chapter 11: Cultural Heritage).

- Visitors to the scenic Barton Railway Line (between Barton upon Humber – Cleethorpes) (Ref 10.22).
- People travelling by train along the railway lines heading south from Goole.
- People travelling by motorised vehicle along local roads.
- Users of publicly accessible open space including:
  - Open access land defined in the CROW Act 2000 (such as Cow Lane, Ousefleet Cow Gaits and Whitgift Cow Gaits).
  - Beaches and foreshore (such as Easington Beach).
  - Visitors to well-known and promoted viewpoints (such as at Paull).
- People at their place of work.

## 10.8 Baseline Conditions

10.8.1 This section sets out the baseline data that will be collected and analysed as part of our understanding of the Project's landscape and visual context.

### Base Mapping

10.8.2 The following source of mapping information will inform the identification of landscape and visual receptors for use in the LVIA:

- 1:25,000 and 1:50,000 Ordnance Survey mapping (to help gain an understanding of the topography, and landscape and settlement patterns across the Study Area).
- Ordnance Survey terrain data, and LiDAR digital terrain and surface models (for the preparation of ZTV and potential LVIA-related visualisations of the Project).
- Orthographic 3d Aerial photography commissioned for the Project (to help gain an understanding of the form, type, extent and maturity of the vegetation through the draft Order Limits).
- Open-source GIS data (for the accurate location of designations and associated areas, plus recreational areas where visual receptors may experience views to the Project from).
- Existing mapping, such as CPRE's (formerly the 'The Campaign to Protect Rural England') England's Light Pollution and Dark Skies Map (Ref 10.23) to understand the existing general levels of lighting within the LVIA Study Area.

### Landscape (and Seascape) Character Data

10.8.3 The published Landscape Character Assessments and Seascape Character Assessments that would inform the identification of landscape character receptors for use in the LVIA are:

**National Character Area Profiles (Ref 10.24)**

- NCA 39 Humberhead Levels.
- NCA 41 Humber Estuary.
- NCA 45 Northern Lincolnshire Edge with Coversands.
- NCA 44 Central Lincolnshire Vale.
- NCA 43 Lincolnshire Wolds.
- NCA 42 Lincolnshire Coast and Marshes.
- NCA 40 Holderness.

**Regional Landscape / Seascape Character Studies**

- The 'Holderness Coastal Waters' and the 'Humber Waters' character areas contained in the 'East Inshore and East Offshore Marine Plan Area - Seascape Character Area Assessment' (Ref 10.25).

**Local Landscape Character Assessments and Associated Studies**

- North Yorkshire and York Landscape Characterisation Project (2012), published by North Yorkshire County Council (Ref 10.26).
- North East Lincolnshire Landscape Character Assessment, Sensitivity and Capacity Study (2015), published by North East Lincolnshire Council (Ref 10.27).
- East Riding of Yorkshire Landscape Character Assessment (2018), published by East Riding of Yorkshire (Ref 10.28).
- North Lincolnshire Landscape Character Assessment and Guidelines (2018), published by North Lincolnshire Council (Ref 10.29).
- Selby Landscape Character Assessment (2019), published by Selby District Council (Ref 10.30).
- Selby Landscape Sensitivity Study (2019), published by Selby District Council (Ref 10.31).
- Selby Local Landscape Designation Review report, 2019 (Ref 10.19).
- East Riding of Yorkshire Important Landscape Areas Boundary Refinement report, 2013 (Ref 10.20).
- The potential Lincolnshire Wolds NL extension report (Ref 10.17).

## Fieldwork

10.8.4 In addition to the desk study described above, our understanding of baseline conditions will be informed by fieldwork. Visits to the LVIA Study Area will take place in winter and summer months, in day and evening times in order to gain a full understanding of the different conditions currently experienced by visual receptors.

## Future Baseline

10.8.5 The baseline that will be described in the LVIA will predominantly be that which presently exists in the Study Area. It is acknowledged, however, that given the length of time which would elapse before the Project's construction begins (2028), it becomes operational (2032), and it's associated the landscape mitigation is reasonably considered to have established (2047), the baseline conditions may change irrespective of the Project occurring. The 'future baseline', therefore, relates to known or anticipated changes to the current baseline

10.8.6 The LVIA's 'future baseline' will be the starting point when making judgements upon the degree by which landscape character and / or visual amenity may have changed as a result of the Project.

10.8.7 During the time period of the Project's planned construction, operation and decommissioning it is anticipated that most of the existing features that constitute the surrounding landscape of the LVIA Study Area would remain and the current predominantly agricultural land use would continue to exist.

10.8.8 Ash (Fraxinus excelsior) trees within the LVIA Study Area are likely to be impacted by ash dieback. This is a disease of ash trees caused by a fungus called Hymenoscyphus fraxineus (H. fraxineus; formerly called Chalara fraxinea). The disease causes leaf loss and crown dieback in impacted trees and is usually fatal. Mapping by the Forestry Commission confirms the presence of ash dieback in the Humber estuary area. The future baseline therefore assumes that there would be loss of ash trees in the long term across the LVIA Study Area, but that other tree species would occupy gaps created in the long term, and eventually levels of vegetation would remain similar to existing.

10.8.9 In contrast to the expected loss of ash trees, some positive landscape changes are also anticipated. These relate to agri-environment and woody species planting schemes which will continue to enhance the landscape. These include the measures associated with emerging Environmental Land Management schemes which are replacing the European Union's Common Agricultural Policy in England.

10.8.10 Consideration of the future baseline is also related to third-party consented development proposals which are not yet present in the landscape but are expected to be constructed, which may affect the landscape character or result in changes to visual amenity and views. These will be considered in the cumulative effects assessment chapter in the ES and are provisionally discussed in Chapter 20: Cumulative Effects of this Scoping Report.

10.8.11 The landscape and visual cumulative assessment will include those developments that are similar in nature, scale and form to the Project, such as

those associated with energy generation and transmission, large industrial / commercial buildings (i.e. with a footprint of over 1,500 $m^2$), linear infrastructure (e.g., roads and railways), or large residential schemes (i.e. over 25no. units).

## 10.9 Design, Mitigation and Enhancement Measures

10.9.1 As set out in Chapter 3 of this Scoping Report, the development of the current draft Order Limits has sought to limit the potential impacts of the Project upon landscape and visual receptors. This includes siting the Project away from designated areas, settlements and private dwellings, and utilising previously developed land and existing access tracks, where possible.

10.9.2 Through the iterative process of the Project's future planning and development there would be, where practicable, consideration of further ways to avoid, reduce and / or ameliorate any remaining landscape and visual impacts, including those described below. Any mitigation will be dependent on the outcome of the assessment at the PEIR and ES stage.

### Construction and Decommissioning

10.9.3 A range of standard good practice construction and decommissioning phase mitigation measures for the Project would be adopted. These include but are not limited to:

- Appointment of an Environmental Manager(s) / Environmental Clerk of Works for the duration of the construction and decommissioning phases.
- Undertaking of a landscape pre-condition survey to ensure appropriate reinstatement is undertaken.
- Retention of vegetation and replacement of removed vegetation where practicable.
- Application of tree protection measures in accordance with British Standard BS5837:2012.
- Restriction upon the height of spoil stockpiling, construction / decommissioning compound office and welfare cabins and security fencing.
- Use of hoarding where visibly intense construction / decommissioning activity occurs for long durations close to sensitive receptors.
- Use of construction lighting with, where possible, the lowest luminosity necessary to safely perform each task. Lighting to be positioned and directed to minimise glare and light spill towards sensitive visual receptors (in particular residential communities) and to minimise skyglow (particularly in respect of landscape character where dark skies may be a characteristic).
- Reinstatement and / or restoration of temporarily used land following construction / decommissioning – acknowledging that that there may be

limitations in some areas of the Project to what vegetative reinstatement can occur over the top of the pipeline.

## Operation

10.9.4 During the evolution of the Project's design, consideration will be taken of local design policies, design codes and guides as well as guidance in the National Design Guide and National Model Design Code.

10.9.5 A 'Landscape Mitigation Strategy' will be prepared for submission alongside the ES. This strategy will be detailed on plans for each AGI and for the Pump Facility and will be accompanied by a supporting report. The landscape mitigation strategy will include the following:

- Species mixes for woodland, tree belt, hedgerow and scrub planting and grass seeding for the:
  - Reinstatement of land affected by the construction of the Project.
  - Landscape and visual mitigation of above ground infrastructure.
- Principles regarding the implementation (including the timing of planting / seeding, plant stock sizes, planting densities and protection), and establishment of such vegetation.
- Design principles relating to the materials, colour and finish of visibly notable built elements of the Project that would ensure suitable integration into their landscape and visual setting.
- An outline Landscape and Ecological Management Plan to demonstrate the requirements for the management and maintenance of the planted / seeded areas for the first 15 years following their implementation.

10.9.6 The landscape mitigation plans would be produced alongside other environmental disciplines such as ecology and heritage, so that the elements of onsite Biodiversity Net Gain (BNG), mitigation of impacts occurring within the visual setting of heritage assets, and protection of retained trees are suitably integrated.

10.9.7 The landscape mitigation proposals will be proportionate to the scale of the development and would have regard for, and contribute to, the area's wider landscape character, local amenity. In addition, they would support the improvement of green infrastructure as set out in national and local policy.

10.9.8 During the operation phase, lighting at AGIs will only be used in low-light conditions when maintenance must be performed outside of daylight hours (such as with an emergency or security breach).

10.9.9 Lighting at the Pump Facility at Easington will also only be used in low-light conditions but will be required more regularly as the unit would be permanently

staffed (by approximately four people) and lighting is needed to allow them to access the site and undertake maintenance tasks safely.

10.9.10 All lighting will be designed to be the lowest luminosity necessary to safely perform such maintenance tasks and positioned and directed to minimise glare and light spill towards sensitive visual receptors (in particular residential communities) and minimise skyglow (particularly in respect of landscape character where dark skies may be a characteristic).

## 10.10 Description of Potential Likely Significant Effects

10.10.1 The likely effects arising of the Project during the construction, operation and decommissioning are discussed below.

### Construction

10.10.2 The construction of the Project has the potential to bring about effects to the individual elements that contribute to the character of the landscape, as well as to the Study Area's valued characteristics and the visual amenity of people within it.

10.10.3 Such effects (most of which would be temporary, short-term and reversible) are likely to arise from the:

- Movement and activity of construction traffic and plant.
- The presence of temporary construction roads, fencing, compound areas, car parking, storage areas and structures.
- Loss of vegetation as a result of site clearance for construction.
- Temporary excavations and stockpiling of excavated materials resulting in on-site changes to landform.
- Temporary lighting, associated with the construction of the Humber crossing which is expected to be carried out for 24 hours a day.

10.10.4 Consideration of the effect of lighting during the construction phase of the pipeline, AGIs and Pump Facility is proposed to be scoped out of the LVIA as these would not be 24-hour working and therefore, the use of lighting would be temporary, minimal and could be suitably controlled through the mitigation described in paragraphs 10.9.8 to 10.9.10.

10.10.5 Receptors upon which significant effects during construction may occur, and which are therefore scoped into of the assessment are:

- The 'special qualities' / 'key attributes' of the River Derwent Corridor ILA, the Lower Derwent Valley ILA and the Thorne, Crowle and Goole Moors ILA.
- The LVIA Study Area's valued landscape and seascape characteristics.
- Individual elements that contribute to the character of the landscape and seascape.

- Residential communities:
  - Settlements.
  - Individual properties.
- Recreational Receptors:
  - Users of the Viking Way and the Trans Pennine Trail promoted long distance paths.
  - Users of PRoWs, and locally known walks (such as the Alkborough Trail along the Trent Cliff).
  - Users of NCRs east of Barmby on the Marsh (NCR 65), and south of Barton-upon-Humber (NCR 1).
  - Users of waterways and the paths alongside them (such as the Humber estuary, River Aire, River Ouse, and River Trent, and the Aire and Calder Navigation and Stainforth and Keadby Canal).
  - Visitors to Thornton Abbey.
  - Visitors to the scenic Barton Railway Line.
  - Users of publicly accessible open space including:
    - Open access land defined in the CROW Act 2000 (such as Cow Lane, Ousefleet Cow Gaits and Whitgift Cow Gaits).
    - Beaches and foreshore (such as Easington Beach).
  - Visitors to well-known and promoted viewpoints (such as at Paull).

10.10.6 Receptors upon which significant effects during construction are not expected to occur, and which are therefore scoped out of the assessment are:

- The special qualities and ‘key characteristics’ of the potential future Yorkshire Wolds NL as it would be over 21 km to the north-east of the Project.
- The special qualities and ‘key characteristics’ of the Lincolnshire Wolds NL as it is 9 km to the south of the Project.
- The potential ‘special qualities’ of the potential Lincolnshire Wolds NL extension’s ‘evaluation area’, as there is no current timetable for the extension’s consideration by Natural England, and North Lincolnshire Council have withdrawn the Local Plan that included reference to it.
- Spurn Heritage Coast: as there is no recognised setting to this defined area, and as it sits outside of the proposed 2.5 km LVIA Study Area for the Pump Facility.
- The ‘special qualities’ / ‘key attributes’ of the ‘Great Limber and the Chalk Wolds Estates’ AGLV: given that layers of existing intervening mature wooded vegetation occupy the approximate 1 km between it and the draft Order Limits that surround a section of proposed pipeline, which prevent intervisibility.

- Visual receptors that are located wholly outside the ZTV and LVIA Study Area, as they are highly unlikely to have clear views of the Project.
- Recreational Receptors:
  - Users of the Yorkshire Wolds Way National Trail, as the path is located at its closest point approximately 5.5 km from the draft Order Limits on the north bank of the Humber estuary.
  - Visitors to the Registered Park and Garden of Brocklesby Park, as the Park lies approximately 2.8 km from the nearest permanent above ground element of part of the Project – the Croxton AGI, and approximately 2.25km from the temporary construction works for this – so outside of the proposed 1.5 km LVIA Study Area for AGIs.
- People travelling by motorised vehicle, due to the speed of travel, and the fact that there are no known promoted driving routes through the LVIA Study Area.
- People travelling by train along the railway lines heading south from Goole, due to the speed of travel, and the fact that the railway lines that cross the LVIA Study Area do so where only pipelines are planned; and
- People at their place of work. This receptor group is generally considered to have low sensitivity as the surrounding landscape is of limited importance and / or not the focus of their activities.

### Operation

10.10.7 The operation of the Project has the potential to bring about effects to the individual elements that contribute to the character of the landscape, as well as to the Study Area's valued characteristics and the visual amenity of people within it.

10.10.8 Such effects are likely to arise from the:

- The temporary continuing lack of vegetation removed during the construction phase, prior to the establishment and maturing of mitigation planting.
- Permanent loss of vegetation, where necessary maintenance access and / or easements over the pipeline restrict re-planting.
- Introduction of proposed AGI's and the Pump Facility (including the access roads to them).
- Occasional movement of maintenance vehicles to, from and within the AGIs (likely to be infrequent and a small number of vehicles).
- Movement of operational workers' vehicles to from and within the Pump Facility.
- The introduction of lighting of the Pump Facility at night for the safe access and activity of overnight operational workers.

10.10.9 Effects to landscape and visual receptors are not expected to occur as a result of the operation of the pipeline given that it would be wholly underground and therefore not visible. Once the pipelines have been laid, the disturbed / affected area will be reinstated to its previous state. The occurrences where the gaps in existing groups of trees, woodland and hedgerow, created during its construction period remain for the initial period of the Project's operation would be temporary, prior to the establishment and maturing of mitigation planting, so no significant effects are anticipated

10.10.10 Consideration of the effect of lighting during the operation of the pipeline and AGIs is proposed to be scoped out as these would not require attendance by overnight operational staff, and because the use of the infrequent lighting at them would be minimal and could be suitably controlled through the mitigation described in paragraphs 10.9.8 to 10.9.10.

10.10.11 Receptors upon which significant effects during operation may occur, and which are therefore scoped into the assessment are, those scoped into the construction phase and within 1.5 km of an AGI and 2.5 km of the Pump Facility.

10.10.12 Receptors upon which significant effects during operation are not expected to occur, and which are therefore scoped out of the assessment are, those scoped out of the construction phase plus receptors which are only affected by the pipeline (i.e. which lie beyond 1.5 km of an AGI and 2.5 km from the Pump Facility).

## Decommissioning

10.10.13 The decommissioning of the Project has the potential to bring about effects to the individual elements that contribute to the character of the landscape, as well as to the Study Area's valued characteristics and the visual amenity of people within it. The pipeline will be left in situ during the decommissioning stage and those elements with the potential effects limited to the AGIs and Pump Facility.

10.10.14 Such effects (most of which would be temporary, short-term and reversible) are likely to arise from the:

- Movement and activity of construction traffic and plant.
- The presence of temporary construction roads, fencing, compound areas, car parking, storage areas and structures.
- Temporary excavations and stockpiling of excavated materials resulting in on-site changes to landform.

10.10.15 Consideration of the effect of lighting during the decommissioning phase of the Project is proposed to be scoped out of the LVIA as there would not be 24-hour working and therefore, the use of lighting would be temporary, minimal and could

be suitably controlled through the mitigation described in paragraphs 10.9.8 to 10.9.10.

10.10.16 Receptors upon which significant effects during decommissioning may occur, and which are therefore scoped into the assessment, are the same as those scoped into the operational phase (i.e. within 1.5 km of an AGI and 2.5 km of the Pump Facility).

10.10.17 Receptors upon which significant effects during operation are not expected to occur, and which are therefore scoped out of the assessment, are the same as those scoped out of the operational phase (i.e. receptors which lie beyond 1.5km of an AGI and 2.5 km from the Pump Facility).

## 10.11 Summary of the Proposed Scope of Assessment

*Table 10-10 – Summary of the Proposed Scope of Assessment - Landscape Designations and Associated Areas*

| Matter | Project stage | Scoped in | Scoped out | Justification |
|---|---|---|---|---|
| Effects upon the special qualities of the Lincolnshire Wolds NL, and the special qualities of potential Yorkshire Wolds NL. | Construction, Operation and Decommissioning | | ✓ | The intervening distances (9km and 21km, respectively) between the designated areas and the Project. |
| Effects on the potential Lincolnshire Wolds NL extension within North Lincolnshire. | Construction, Operation and Decommissioning | | ✓ | No timetable for the consideration of the area's potential designation, and Local Plan promoting it has been withdrawn. |
| Effects on the River Derwent Corridor ILA, Lower Derwent Valley ILA & Goole Moors ILA within the Study Area surrounding the pipeline alone. | Construction and Decommissioning | ✓ | | The defined areas lie within the LVIA Study Area. |
| | Operation | | ✓ | Once the pipelines have been laid, the disturbed / affected area will be reinstated to its previous state, so no significant effects are anticipated. |
| Effects on the River Derwent Corridor ILA, Lower Derwent Valley ILA & Goole Moors ILA within the Study Area surrounding the AGIs. | Construction, Operation and Decommissioning | ✓ | | The defined area lies within the LVIA Study Area. |

| Matter | Project stage | Scoped in | Scoped out | Justification |
|---|---|---|---|---|
| Effects on the special qualities / key attributes of the 'Great Limber and the Chalk Wolds Estates' AGLV. | Construction, Operation and Decommissioning | | ✓ | The AGLV lies 1km from the draft Order Limits surrounding a section of proposed pipeline. Given this distance, and layers of intervening vegetation between them, significant effects are not anticipated to occur. |
| Effects upon the special character of the Spurn Heritage Coast. | Construction, Operation and Decommissioning | | ✓ | The nearest point of the Project (the Pump Facility) lies approx. 2.77km from the designation (outside)LVIA Study Area. There is no recognised setting to this designation. |

*Table 10-11 – Summary of the Proposed Scope of Assessment – Landscape Character & Individual Elements*

| Matter | Project stage | Scoped in | Scoped out | Justification |
|---|---|---|---|---|
| Effects on the valued landscape and seascape characteristics within the Study Area surrounding the AGIs and Pump Facility. | Construction & Decommissioning and Operation | | | Valued landscape and seascape characteristics occur within the LVIA Study Areas and are likely to continue to be impacted by the presence of the Project through all phases. |
| Effects on the valued landscape and seascape characteristics within the Study | Construction and Decommissioning | ✓ | | Valued landscape and seascape characteristics occur within the LVIA Study Areas. |

| Matter | Project stage | Scoped in | Scoped out | Justification |
|---|---|---|---|---|
| Area surrounding the pipeline and Humber crossing construction areas alone. | Operation | | ✓ | Once the pipeline and Humber crossing have been laid, and the disturbed / affected areas reinstated to their previous state, no significant effects to valued landscape and seascape characteristics are anticipated. |
| Effects on individual elements that contribute to the character of the landscape and seascape within the Study Area surrounding the pipeline, Humber crossing, AGIs and Pump Facility. | Construction and Decommissioning | ✓ | | Individual elements within the Study Area and are likely to be impacted during construction and decommissioning. |
| | Operation | | ✓ | Individual elements that contribute to the character of the landscape and seascape are not likely to be impacted once the Project is constructed and operational. |

*Table 10-12 – Summary of the Proposed Scope of Assessment – Visual Amenity*

| Matter | Project stage | Scoped in | Scoped out | Justification |
|---|---|---|---|---|
| Effects on the visual receptors wholly outside of the ZTV. | Construction, Operation and Decommissioning | | ✓ | Highly unlikely to have clear views of the Project. |
| Effects on visual receptors beyond: a 1km offset from the pipeline, a 1.5km radius around AGIs, 2km around the Humber crossing areas and 2.5km around the Pump Facility. | Construction, Operation and Decommissioning | | ✓ | Upon initial desk top review, the LVIA Study Area is appropriate to the type of Project. It is unlikely that receptors beyond 1.5km (or 5km for the Pump Facility) would experience significant effects and are therefore scoped out. |
| Effects on the residential communities and recreational receptors (listed in section 10.10) within the LVIA Study Areas arising from the AGIs and Pump Facility. | Construction, Operation and Decommissioning | ✓ | | Some residential communities and recreational receptors within the LVIA Study Area, and with views to the AGIs and Pump Facility, are likely to be impacted by the presence of the Project through all phases. |
| Effects on residential communities and recreational receptors (listed in section 10.10) within the Study Areas arising from the pipeline and Humber crossing. | Construction | ✓ | | Once the pipeline and Humber crossing have been laid, and the disturbed / affected areas reinstated to their previous state, no significant effects to visual amenity are anticipated. |
| | Operation | | ✓ | |

| Matter | Project stage | Scoped in | Scoped out | Justification |
|---|---|---|---|---|
| Effects on users of the Yorkshire Wolds National Trail. | Construction, Operation and Decommissioning | | ✓ | The path is located at its closest point approximately 5.5km from the draft Order Limits on the north bank of the Humber, outside of the LVIA Study Area. |
| Effects on users of the Trans Pennine Trail long distance path. | Construction, Operation and Decommissioning | | ✓ | The Trail is located at its nearest point to the Project approximately 900m from the site of a proposed AGI. |
| Effects on users of the Viking Way long distance path. | Construction and decommissioning | ✓ | | The Viking Way crosses through the draft Order Limits, but only where the pipeline would be constructed. |
| | Operation | | ✓ | |
| Effects on users of National Cycle Routes 1 and 65. | Construction Operation, and Decommissioning | ✓ | | Some of the NCRs are located within 1.5km of proposed AGIs. |
| Effects on visitors to the Registered Park and Garden of Brocklesby Park. | Construction Operation, and Decommissioning | | ✓ | The Park lies approximately 2.8km from the nearest permanent above ground element of part of the Project – the Croxton AGI, and approximately 2.25km from the temporary construction works for this, outside of the LVIA Study Area. |

| Matter | Project stage | Scoped in | Scoped out | Justification |
|---|---|---|---|---|
| People travelling by train along the railway lines heading south from Goole. | Construction Operation, and Decommissioning | | ✓ | Due to the speed of travel, and the fact that the railway lines that cross the LVIA Study Area do so where only pipelines are planned. |
| People at their place of work | Construction Operation, and Decommissioning | | ✓ | This receptor group is generally considered to have low sensitivity as the surrounding landscape is of limited importance and / or not the focus of their activities |

*Table 10-13 – Summary of the Proposed Scope of Assessment – Lighting Effects*

| Matter | Project stage | Scoped in | Scoped out | Justification |
|---|---|---|---|---|
| The effects of lighting at the pipeline, AGIs and Pump Facility upon landscape, seascape and visual receptors. | Construction and decommissioning | | ✓ | Construction and decommissioning activity would take place in daylight hours predominantly and therefore the use of lighting would be temporary, minimal and could be suitably controlled through mitigation such that significant effects are not anticipated. |
| The effects of lighting at the Humber crossing upon landscape, seascape and visual receptors. | Construction | ✓ | | Construction of the Humber crossing would require 24-hour activity |
| | Operation & Decommissioning | | ✓ | decommissioning activity would take place in daylight hours predominantly and therefore the use of lighting would be temporary, minimal and could be suitably controlled through mitigation such that significant effects are not anticipated. |
| The impact of lighting at the pipelines and AGIs. | Operation | | ✓ | The pipeline and AGIs would only require operational lighting at very infrequent occurrences during emergency situations. |
| Effects of operational lighting at the proposed Pump Facility. | Operation | ✓ | | The impact of lighting at the Pump Facility has the potential to create effects on the |

| Matter | Project stage | Scoped in | Scoped out | Justification |
|---|---|---|---|---|
| | | | | visual amenity of receptors during the operational phase. |

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# 11 Cultural Heritage

## 11.1 Introduction

11.1.1 This chapter outlines the proposed approach for assessing the likely significant effects on cultural heritage from the construction, operation and decommissioning of the Project. It sets out the proposed methodology for the cultural heritage assessment and identifies those receptors and impacts that can be scoped out of the Environmental Impact Assessment (EIA). The cultural heritage receptors to be assessed comprise terrestrial archaeology (including buried archaeology), built heritage, historic landscapes and archaeology within the intertidal zone.

11.1.2 Where relevant, the cultural heritage assessment will consider any inter-relationship of baseline information and impacts from the Project between different EIA topics, including:

- Chapter 10: Landscape and Visual and the production of a Zone of Theoretical Visibility (ZTV) to inform the Study Area at AGI locations.
- Chapter 9: Ground Conditions and Hydrogeology to understand the potential impacts of changes in hydrology to the survival of buried archaeological remains.
- Chapter 12: Noise and Vibration and Chapter 15: Traffic and Transport where the assessments may be relied upon to understand changes in the setting of heritage assets.

## 11.2 Legislation, Policy and Guidance

11.2.1 The assessment to be undertaken to inform the Preliminary Environmental Information (PEIR) and Environmental Statement (ES) will as appropriate be undertaken in accordance with, and / or with regard to the following legislation, policy and guidance.

### Legislation

11.2.2 The potential effects of the Project will be considered in the context of the relevant legislation:

- Ancient Monuments and Archaeological Areas Act 1979 (Ref 11.1) defines 'scheduled monuments' (sites that warrant protection) and makes damage to scheduled monuments a criminal offence.
- Planning (Listed buildings and Conservation Areas) Act 1990 (Ref 11.2) provides specific protection for buildings and areas of special architectural or historic interest.

## Policy

### National Planning Policy

#### National Policy Statements

11.2.3 As detailed in Chapter 1, Introduction, National Policy Statements (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Project would be considered. Table 11-1 sets out how the NPSs are relevant to the cultural heritage assessment.

11.2.4 The following policies are relevant to the cultural heritage assessment:

- Department for Energy Security and Net Zero (2024). Overarching National Policy Statement for energy (EN-1) (Ref. 11.3).
- Department for Energy Security and Net Zero (2024). Overarching National Policy Statement for Natural Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Ref 11.4).

*Table 11-1 – Relevant Sections of the Relevant National Policy Statements*

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-1 | 5.9.1 "*The construction, operation and decommissioning of energy infrastructure has the potential to result in adverse impacts on the historic environment above, at and below the surface of the ground.*" | The cultural heritage assessment will consider the effects and resulting impacts associated with the construction and operation phases as set out in Section 11.10 and 11.11. Effects from the decommissioning of the Project have been scoped out. |
| EN-1 | 5.9.3 "*Those elements of the historic environment that hold value to this and future generations because of their historic, archaeological, architectural or artistic interest are called 'heritage assets'. Heritage assets may be buildings, monuments, sites, places, areas or landscapes, or any combination of these. The sum of the heritage interests that a heritage asset holds is referred to as its significance. Significance derives not only from a heritage asset's physical presence, but also from its setting*." | The cultural heritage assessment will assess the significance of potentially affected assets, as outlined in Section 11.3. The significance of the asset including the contribution made by setting, will be referred to as value within the PEIR and ES Chapter. |
| EN-1 | 5.9.5 (part) "*There are heritage assets that are not currently designated, but which have been demonstrated to be of equivalent significance to designated heritage assets of the highest significance*."<br>And | The cultural heritage assessment will use the criteria outlined in Section 11.3 to determine the significance / value of heritage assets. However, professional judgement will be used to identify where assets sit outside of that criteria and will be subject to the same legislation as designated assets. |

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| | 5.9.6 "*Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to Scheduled Monuments or Protected Wreck Sites should be considered subject to the policies for designated heritage assets. The absence of designation for such heritage assets does not indicate lower significance or necessarily imply that it is not of national importance*." | |
| EN-1 | 5.9.7 "*The Secretary of State should also consider the impacts on other non-designated heritage assets (as identified either through the development plan making process by plan-making bodies, including 'local listing', or through the application, examination and decision-making process*)" | The cultural heritage assessment will present a gazetteer of non-designated heritage assets (both known and those identified during the course of the assessment). The potential for impacts to these assets will be assessed as part of the ongoing assessment process. |
| EN-1 | 5.9.9 "*The applicant should undertake an assessment of any likely significant heritage impacts of the proposed development as part of the EIA and describe these along with how the mitigation hierarchy has been applied in the ES*." | The assessment of likely significant heritage impacts will be presented within both the PEIR and ES chapters for cultural heritage. |
| EN-1 | 5.9.10 "*As part of the ES the applicant should provide a description of the significance of the heritage assets affected by the proposed development, including any* | The relevant HER and National Heritage List for England datasets have been sourced as a starting point for the cultural heritage assessment. The significance of |

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| | *contribution made by their setting. The level of detail should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum, the applicant should have consulted the relevant Historic Environment Record (or, where the development is in English or Welsh waters, Historic England or Cadw) and assessed the heritage assets themselves using expertise where necessary according to the proposed development's impact*." | the assets affected by the Project will be undertaken as per the methodology outlined in Section 11.3 |
| EN-1 | 5.9.11 "*Where a site on which development is proposed includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk-based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation. Where proposed development will affect the setting of a heritage asset, accurate representative visualisations may be necessary to explain the impact.*" | The desk-based assessment element will form part of the baseline data gathering for the assessment. A programme of both non-intrusive and intrusive field evaluation is planned to accompany the desk-based assessment. Where visual elements are likely to create significant changes to the setting of heritage assets, input will be sought from the Landscape and Visual team. |
| EN-1 | 5.9.12 "*The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage assets affected can be* | The assessment of impacts to heritage assets will be informed by the technical assessments of other relevant EIA teams e.g., noise and vibration. |

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| | *adequately understood from the application and supporting documents. Studies will be required on those heritage assets affected by noise, vibration, light and indirect impacts, the extent and detail of these studies will be proportionate to the significance of the heritage asset affected.*" | |

### National Planning Policy Framework

11.2.5 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities & Local Government, 2023) (Ref 11.5)[11] sets out the Government's core policies and principles with respect to land use planning, including cultural heritage. Paragraph 200 of the NPPF states:

*"In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation*."

### Local Planning Policy

11.2.6 The Project lies within the jurisdictions of North Yorkshire, East Riding of Yorkshire, North Lincolnshire and North East Lincolnshire. A summary of the relevant local planning policy which is relevant to a study of cultural heritage matters will inform the cultural heritage assessment in the ES is provided in Table 11-2.

[11] This EIA Scoping Report makes reference to the December 2023 update of the NPPF. The PEIR will provide an update of applicable legislation and policy, which will include consideration of the December 2024 NPPF update (or any subsequent update).

*Table 11-2 – Relevant Local Planning Policies*

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| Selby District Core Strategy Local Plan (2013) (Ref. 11.6) | SP18 Protecting and Enhancing the Environment | *"Safeguarding and, where possible, enhancing the historic and natural environment including the landscape character and setting of areas of acknowledged importance.*<br><br>*Conserving those historic assets which contribute most to the distinct character of the District and realising the potential contribution that they can make towards economic regeneration, tourism, education and quality of life."* | The setting of assets potentially affected by the Project will be assessed to understand the contribution that setting makes to the significance / value of the asset. |
| Selby District Local Plan (2005) (Ref. 11.7); | ENV16 | *"Development proposals affecting historic parks or gardens will only be permitted where the appearance, setting, character or amenity of an historic park or garden would not be harmed."* | Historic parks and gardens, and any potential impact to them, will be included as part of the ongoing assessment work. |
| Selby District Local Plan (2005) (Ref. 11.7); | ENV22 | *"Development will not be permitted where it would have a detrimental effect on the character, fabric or setting of a listed building."* | The setting of assets potentially affected by the Project will be assessed to understand the contribution that setting makes to |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | | the significance / value of the asset. |
| Selby District Local Plan (2005) (Ref. 11.7); | ENV25 | *"Development within or affecting a conservation area will be permitted provided the proposal would preserve or enhance the character or appearance of the conservation area…"* | Conservation Areas and any potential impact to them, will be assessed as part of the ongoing assessment work. |
| Selby District Local Plan (2005) (Ref. 11.7); | ENV27 | *"Where scheduled monuments or other nationally important archaeological sites or their settings are affected by proposed development, there will be a presumption in favour of their physical preservation. In exceptional circumstances where the need for the development is clearly demonstrated, development will only be permitted where archaeological remains are preserved in situ through sympathetic layout or design of the development."* | Designated sites were avoided as part of the principles applied to early design phases. Where the Project may cause impact through changes in the setting of an asset, a programme of appropriate mitigation will be devised. |
| Selby District Local Plan (2005) (Ref. 11.7); | ENV28 | *"(A) Where development proposals affect sites of known or possible archaeological interest, the District Council will require an archaeological* | An archaeological assessment will form part of the baseline reporting for the cultural heritage assessment. Where it is feasible |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | *assessment/evaluation to be submitted as part of the planning application.*<br><br>*(B) Where development affecting archaeological remains is acceptable in principle, the Council will require that archaeological remains are preserved in situ through careful design and layout of new development.*<br><br>*(C) Where preservation in situ is not justified, the Council will require that arrangements are made by the developer to ensure that adequate time and resources are available to allow archaeological investigation and recording by a competent archaeological organisation prior to or during development."* | to leave archaeological remains in situ, this will be the preferred form of mitigation otherwise an appropriate form of recording will be recommended as mitigation. |
| North Lincolnshire Local Development Framework Core Strategy (2011) (Ref. 11.8); | CS6: Historic Environment | *"The council will seek to protect, conserve and enhance North Lincolnshire's historic environment, as well as the character and setting of areas of acknowledged importance including historic buildings, conservation areas, listed buildings (both statutory* | An archaeological assessment will form part of the baseline reporting for the cultural heritage assessment. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | *and locally listed), registered parks and gardens, scheduled ancient monuments and archaeological remains.*<br><br>*All new development must respect and enhance the local character and distinctiveness of the area in which it would be situated, particularly in areas with high heritage value.*<br><br>*Development proposals should provide archaeological assessments where appropriate."* | |
| East Riding Local Plan 2012-2029 Strategy Document (2016) (Ref. 11.9); | Policy ENV3: Valuing our heritage | *(relevant sections)*<br><br>*"B. The significance, views, setting, character, appearance and context of heritage assets, both designated and non-designated, should be conserved, especially the key features that contribute to the East Riding's distinctive historic character including:*<br><br>*1. Those elements that contribute to the special interest of Conservation Areas, including the landscape setting, open spaces, key views and vistas, and* | The assessment will assess the significance of those assets noted to contribute to the character of East Riding, and any potential impact from the Project. An archaeological assessment will form part of the baseline reporting for the cultural heritage assessment. Where it is feasible to leave archaeological remains in situ, this will be the preferred form of mitigation. Other appropriate mitigation measures |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | *important unlisted buildings identified as contributing to the significance of each Conservation Area in its appraisal;*<br><br>*2. Listed Buildings and their settings;*<br><br>*3. Historic Parks and Gardens and key views in and out of these landscapes;*<br><br>*4. The dominance of the church towers and spires as one of the defining features of the landscape, such as those of Holderness and the Wolds;*<br><br>*5. Heritage assets associated with the East Yorkshire coast and the foreshore of the Humber Estuary;*<br><br>*7. The historic cores of medieval settlements, and, where they survive, former medieval open field systems with ridge and furrow cultivation patterns;*<br><br>*9. Those parts of the nationally important wetlands where waterlogged archaeological deposits survive.*<br><br>*C. Development that is likely to cause harm to the significance of a heritage asset will only be granted permission* | will be proposed where necessary. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | *where the public benefits of the proposal outweigh the potential harm. Proposals which would preserve or better reveal the significance of the asset should be treated favourably.*<br><br>*D. Where development affecting archaeological sites is acceptable in principle, the Council will seek to ensure mitigation of damage through preservation of the remains in situ as a preferred solution. When in situ preservation is not justified, the developer will be required to make adequate provision for excavation and recording before or during development"* | |
| Central Lincolnshire Local Plan (2023) (Ref. 11.10); | Policy S57: The Historic Environment | *"Development proposals should protect, conserve and seek opportunities to enhance the historic environment of Central Lincolnshire.*<br><br>*In instances where a development proposal would affect the significance of a heritage asset (whether designated or non-designated), including any contribution made by its setting, the* | |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | *applicant will be required to undertake and provide the following, in a manner proportionate to the asset's significance:*<br><br>*a) describe and assess the significance of the asset, including its setting, to determine its architectural, historical or archaeological interest; and*<br><br>*b) identify the impact of the proposed works on the significance and special character of the asset, including its setting; and*<br><br>*c) provide a clear justification for the works, especially if these would harm the significance of the asset, including its setting, so that the harm can be weighed against public benefits.*<br><br>*Where a non-designated heritage asset is affected by development proposals, there will be a presumption in favour of its retention, though regard will be had to the scale of any harm or loss and the significance of the heritage asset. Any special features which contribute to an* | |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | *asset's significance should be retained and reinstated, where possible.*<br><br>*Development proposals that affect the setting of a Listed Building will, in principle, be supported where they make a positive contribution to, or better reveal the significance of the Listed Building.*<br><br>*Significant weight will be given to the protection and enhancement of Conservation Areas. Development within, affecting the setting of, or affecting views into or out of, a Conservation Area should conserve, or where appropriate enhance, features that contribute positively to the area's special character, appearance and setting, including as identified in any adopted Conservation Area appraisal.*<br><br>*Development affecting archaeological remains, whether known or potential, designated or undesignated, should take every practical and reasonable step* | |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | *to protect and, where possible, enhance their significance.*<br><br>*Planning applications for such development should be accompanied by an appropriate and proportionate assessment to understand the potential for and significance of remains, and the impact of development upon them.*<br><br>*If initial assessment does not provide sufficient information, developers will be required to undertake field evaluation in advance of determination of the application. This may include a range of techniques for both intrusive and non-intrusive evaluation, as appropriate to the site.*<br><br>*Wherever possible and appropriate, mitigation strategies should ensure the preservation of archaeological remains in-situ. Where this is either not possible or not desirable, provision must be made for preservation by record according to an agreed written scheme of investigation submitted by the* | |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | *developer and approved by the planning authority.*<br><br>*Any work undertaken as part of the planning process must be appropriately archived in a way agreed with the local planning authority"* | |
| Northeast Lincolnshire Local Plan 2013-2032 (Adopted 2018) (Ref 11.11) | Policy 39: Conserving and enhancing the historic environment | (relevant parts)<br><br>*"Proposals for development will be permitted where they would sustain the cultural distinctiveness and significance of North East Lincolnshire's historic urban, rural and coastal environment by protecting, preserving and, where appropriate, enhancing the character, appearance, significance and historic value of designated and non-designated heritage assets and their settings.*<br><br>*4. Where a development proposal would affect the significance of a heritage asset (whether designated or non-designated), including any contribution made to its setting, it should be informed by proportionate historic environment assessments and evaluations (such as* | The assessment for cultural heritage will be informed by desk-based assessments and both non-intrusive and intrusive field evaluation. Where assets may be affected by the Project, the significance of the asset will be described along with the potential for impact and the resulting significance of effect.<br><br>Appropriate mitigation measures will be proposed where necessary. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | *heritage impact assessments, desk based appraisals, field evaluation and historic building reports) that:*<br><br>*A. identify all heritage assets likely to be affected by the proposal;*<br><br>*B. explain the nature and degree of any effect on elements that contribute to their significance and demonstrating how, in order of preference, any harm will be avoided, minimised or mitigated;*<br><br>*C. provide a clear explanation and justification for the proposal in order for the harm to be weighed against public benefits"* | |

### Guidance

11.2.7 The following guidance has been drawn upon to inform the assessment methodology:

- Standard and guidance for historic environment desk-based assessment (2020) Chartered Institute for Archaeologists (CIfA) (Ref 11.12).
- CIFA; IEMA; IHBC (2021) Principles of Cultural Heritage Impact Assessment in the UK (Ref. 11.13).
- Historic England (2017). The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition) (Ref 11.14).
- ICOMOS (2011). Guidance on Heritage Impact Assessments for Cultural World Heritage Properties. (Ref 11.15).

11.2.8 The relevant and appropriate guidance and best practice will be used for all non-intrusive and intrusive archaeological surveys undertaken as part of the assessment. Specific guidance will be detailed within the individual written schemes of investigation (WSIs).

## 11.3 Proposed Assessment Methodology

### Value / Sensitivity

11.3.1 The assessment of cultural heritage receptors comprises assessing the value / sensitivity of a heritage asset, understanding the magnitude of impact (change in the baseline conditions) it would experience because of the Project and the resulting significance of effect, determined by comparing the value and impact.

11.3.2 The value of a heritage asset (referred to as heritage significance by Historic England) is often guided by its designated status and derives from the asset's ability to demonstrate historic, archaeological, architectural or artistic interest, as defined in NPPF (Ref 11.5). Each identified heritage asset can be broadly assigned a value in accordance with the criteria set out in Table 11-3. However, using professional judgement and the feedback from stakeholders, assets may also be assessed on an individual basis, where this is appropriate and proportionate. It is important to note that non-designated assets may hold demonstrable significance equivalent to that of a designated asset.

11.3.3 The contribution of setting to the significance of a heritage asset will also be considered as part of the assessment of value, as per 'The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition)' (Ref. 11.14).

*Table 11-3 – Criteria for Determining the Value of Heritage Assets*

| Value | Criteria for HCCP |
|---|---|
| Very High | World Heritage Sites (including nominated sites) inscribed for their cultural heritage importance.<br>Assets that can contribute significantly to acknowledged international research objectives.<br>Assets of acknowledged international importance. |
| High | Scheduled Monuments (including proposed sites).<br>Grade I and II* Listed Buildings.<br>Grade I and II* Registered Parks and Gardens.<br>Registered Battlefields.<br>Protected Wrecks.<br>Conservation Areas containing buildings of predominantly high value.<br>Non-designated assets of the quality and importance to be designated.<br>Assets that can contribute significantly to acknowledged national research objectives. |
| Medium | Grade II listed buildings<br>Grade II Registered Parks and Gardens<br>Conservation Areas containing buildings of predominantly medium value.<br>Assets that contribute to regional research objectives and / or have exceptional quality in their fabric or historical associations. |
| Low | Locally listed buildings, or those of equivalent quality in their fabric or historical associations.<br>Assets of local importance.<br>Assets compromised by poor preservation and / or poor survival of contextual associations.<br>Assets of limited value, but with potential to contribute to local research objectives. |
| Negligible | Assets with very little or no surviving archaeological / historical interest |

| Value | Criteria for HCCP |
|---|---|
| | Buildings of no architectural or historical note; buildings of an intrusive character |
| Unknown | The importance of the resource has not been ascertained / is inaccessible |

## Impact Magnitude

11.3.4 Drawing on the guidance from the International Council on Monuments and Sites (ICOMOS) on 'Heritage Impact Assessments for Cultural World Heritage Properties' (Ref. 11.15) and 'Principles of Cultural Heritage Impact in the UK' (Ref. 11.13) the following terminology in Table 11-4 will be applied to describe the magnitude of impact.

*Table 11-4 – Criteria for Quantifying the Magnitude of Impact to Heritage Assets*

| Magnitude of impact | Criteria |
|---|---|
| High | Change to most or all key archaeological materials, such that the resource is totally altered.<br>Comprehensive changes to setting of archaeology or built heritage.<br>Change to key historic building elements, such that the resource is totally altered. |
| Medium | Changes to many key archaeological materials, such that the resource is clearly modified.<br>Considerable changes to setting that affect the character of the asset.<br>Change to many key historic building elements, such that the resource is significantly modified.<br>Changes to the setting of an historic building, such that it is significantly modified. |
| Low | Changes to key archaeological materials, such that the asset is slightly altered.<br>Slight changes to setting.<br>Change to key historic building elements, such that the asset is slightly different.<br>Change to setting of an historic building, such that it is noticeably changed. |

| Magnitude of impact | Criteria |
|---|---|
| Negligible | Very minor changes to archaeological materials, or setting<br>Slight changes to historic building elements or setting that hardly affect it. |
| No change | No change |

## Significance of Effect

11.3.5 The significance of effect will be assessed against the value of the heritage asset and the magnitude of impact it would experience as a result of the Project. The significance will be expressed as major, moderate, minor, negligible or neutral and can be adverse or beneficial. The matrix for reporting of significance of effect is shown in Table 11-5, adapted from 'Heritage Impact Assessments for Cultural World Heritage Properties' (Ref 11.15).

11.3.6 The matrix (Table 11-5) will be used as a check to ensure that judgements on value, magnitude of impact and significance of effect are balanced, but in all cases professional judgement will be used and the value and impact judgements will be revisited if the significance of effect is unreasonable. In EIA terms a significant effect is a moderate or major effect.

*Table 11-5 – Significance of Effects Matrix*

| | | Value of Heritage Asset | | | | |
|---|---|---|---|---|---|---|
| | | Very High | High | Medium | Low | Negligible |
| Magnitude of Impact | High | Major | Major | Major to moderate | Moderate to Minor | Minor |
| | Medium | Major to Moderate | Major to Moderate | Moderate | Minor | Negligible |
| | Low | Major to Moderate | Moderate to Minor | Minor | Negligible | Negligible |
| | Negligible | Minor | Minor | Negligible | Negligible | Neutral |
| | No Change | Neutral | Neutral | Neutral | Neutral | Neutral |

## 11.4 Limitations and Assumptions

11.4.1 The assessment will be compiled primarily using heritage asset data compiled from third party sources (e.g., Historic Environment Records (HERs)). The results of the assessment will in part be dependent on the accuracy of the data received, with some survey work planned to ground truth, where appropriate, the accuracy of data.

11.4.2 The archaeological record can contain evidence of varying reliability. Antiquarian excavations (excavations carried out prior to the establishment of modern scientific methods) were conducted to standards that differ from modern investigations. The results of these investigations can no longer be verified where the remains no longer exist.

11.4.3 Due to the nature of archaeological remains, their identification and assessment necessarily requires an element of assumption. In particular, the nature, extent, survival and even the precise location of buried archaeological remains are often uncertain, as the majority of such sites have never been subject to archaeological investigations to modern standards.

## 11.5 Stakeholder Engagement

11.5.1 A period of non-statutory consultation was undertaken in Summer 2024, the results of which are currently being processed, responses specific to the Historic Environment Chapter have been included in Table 11-6 below. Engagement has also since been undertaken with the relevant local authorities as summarised in Table 11-6 below. Engagement shall continue as appropriate throughout the environmental impact assessment process. To facilitate stakeholder engagement a Heritage Working Group (HWG) has been established. Engagement will continue throughout the EIA process with the HWG in order to ensure a consistent approach to methodology, and timely dissemination of Project information as well as informal shares of the results of the non-intrusive and intrusive survey programme planned to be undertaken. The meeting programme for the HWG is yet to be confirmed although it is likely that meetings may become more frequent once meaningful results of survey are available. It is acknowledged that individual discussions will be more appropriate when issues arise affecting the historic environment in a single local authority area.

11.5.2 There has not been any engagement to date with the Conservation Officer for North Yorkshire as it was not possible for them to attend the HWG meeting. However, moving forward engagement with the Conservation Officer for North Yorkshire will be undertaken.

*Table 11-6 – Stakeholder Engagement*

| Organisation and Date | Summary of Engagement | Consideration within Scoping Report |
|---|---|---|
| Historic England- 6/6/24 | Discussion to introduce the Project, the Project team and discuss the structure of engagement as the Project develops. | The approach to engagement going forward. |
| North Lincolnshire Council Historic Environment Officer – 5/08/24 | Non-statutory pre-application consultation was undertaken. The Historic Environment Officer at North Lincolnshire Council provided detailed advice on the required content of a Historic Environment assessment for the application. | The advice was considered when drafting the Scoping Report and many of the points were incorporated in to the methodology for assessment. |
| Historic England – 4/11/24 | Attended the HWG inception meeting. Summary of Project was presented, along with the proposed methodology to be included in this Scoping Chapter.<br>In addition, the use of field surveys to inform the baseline assessment was discussed and the general concept agreed. | The approach to assessment discussed in the meeting is that outlined within this chapter. |
| North Lincolnshire Council Historic Environment Officer and Conservation Officer – 4/11/24 | Attended the HWG inception meeting. Summary of Project was presented, along with the proposed methodology to be included in this Scoping Report.<br>In addition, the use of field surveys to inform the baseline assessment was discussed and the general concept agreed. | The approach to assessment discussed in the meeting is that outlined within this chapter. |
| East Riding of Yorkshire Council Development Management Archaeologist and | Attended the HWG inception meeting. Summary of Project was presented, along with the proposed methodology to be included in this Scoping Report.<br>In addition, the use of field surveys to inform the baseline assessment was discussed and the general concept agreed. | The approach to assessment discussed in the meeting is that outlined within this chapter. |

| Organisation and Date | Summary of Engagement | Consideration within Scoping Report |
|---|---|---|
| Conservation Officer – 4/11/24 | | |
| North Yorkshire County Council Principal Archaeologist – 4/11/24 | Attended the HWG inception meeting. Summary of Project was presented, along with the proposed methodology to be included in this Scoping Chapter.<br>In addition, the use of field surveys to inform the baseline assessment was discussed and the general concept agreed. | The approach to assessment discussed in the meeting is that outlined within this chapter. |
| North East Lincolnshire Heritage Officer- 16/12/24 | Contact details provided by the local authority following HWG inception meeting. Email introduction sent, summarising the Project and proposed approach to assessment. | The approach to assessment outlined in the email is that outlined within this chapter. |

## 11.6 Study Area

11.6.1 The assessment will use a 500m Study Area from the draft Order Limits of the Project for both designated and non-designated heritage assets. This is based on professional judgement and an understanding of the likely impacts of the Project and the sensitivity of the heritage resource. The Study Area will provide adequate information to understand the archaeological potential of the Project, while also providing wider historical context for the scheme. Given the nature of the construction activity, and the operational element largely being underground, the Study Area is considered sufficient to encompass the area within which any significant effects, through changes in the setting of an asset, may arise.

11.6.2 The Study Area may be extended beyond 500m at the locations of above ground infrastructure (AGIs) and the Pump Facility with additional assets potentially included. Any requirement for extending the Study Area will be informed through the results of a ZTV.

11.6.3 Other assets outside the 500m Study Area may yet be scoped in, for example where they have a functional relationship with assets within the Study Area that may be impacted by the Project. The requirement for this will be informed by the data gathering and baseline assessment and any such assets will be covered in both the subsequent PEIR and ES chapters.

11.6.4 The draft Order Limits and 500m Study Area are shown on Volume 2: Figure 11.1.

## 11.7 Receptors

11.7.1 The cultural heritage assessment for the DCO will cover both designated heritage assets from the National Heritage List for England; as well as non-designated heritage assets, gathered from data from the respective HERs and identified during the course of desk-based, non-intrusive or intrusive fieldwork assessment.

11.7.2 For the purposes of information within this Scoping Report, the designated data is outlined below. Within the 500m Study Area heritage assets dating from the Prehistoric to the Modern period are noted and comprise of:

- 137 Listed Buildings, of which 10 are Grade I, 12 are Grade II* and 115 are Grade II.
- 23 Scheduled Monuments.
- 6 Conservation Areas.

11.7.3 There are no World Heritage sites, Registered Battlefields or Protected Wrecks within the draft Order Limits or 500 m Study Area.

11.7.4 Designated heritage assets illustrate a number of broad typologies within the landscape, including:

- Prehistoric (Neolithic to Bronze Age) burial practices in the form of barrows and mortuary enclosures.
- Iron Age to Roman-British settlement activity, including high status Roman villa sites.
- Early Medieval settlement activity.
- Medieval settlement activity including moated sites and religious houses.
- Post Medieval settlement activity, typified in the landscape by dispersed villages centred around churches, the broadly rural setting emphasised by the number of farmsteads within the data.
- Modern military activities, primarily focused along the Humber estuary for defence.

11.7.5 It is anticipated that the HER data will illustrate similar typologies of heritage assets across the landscape.

11.7.6 All designated heritage assets within the 500 m Study Area are shown on Volume 2: Figure 11.1.

## 11.8 Baseline Conditions

11.8.1 The gathering of data to inform baseline conditions is ongoing. The following data sources will be used to collate information on the known and potential cultural heritage baseline and inform the cultural heritage assessment:

- Historic Environment Record (HER) data for known archaeological sites, monuments, find spots and event.
- Data from the Historic England Archives (HEA) for known cultural heritage assets within the intertidal zone only.
- Archaeological reports (grey literature) on archaeological interventions within the route corridors and above ground installation (AGI) locations, including the Rapid Coastal Zone Assessment (Yorkshire and Lincolnshire).
- Published archaeological journals and monographs, local history books and pamphlets, including local history websites as appropriate.
- Historic maps, including Ordnance Survey (OS), estate maps, enclosure maps, tithe maps and military plans, all available scales of OS maps will be utilised.
- Available aerial photographs, including a Project commissioned Unmanned Aerial Vehicle (UAV) / drone aerial survey.
- LiDAR data.
- Data sets of designations from Historic England's National Heritage List for England (NHLE), including conservation area data.

- Data from the Coastal and Intertidal Zone Archaeological Network (CITiZAN);
- OceanWise wrecks and obstructions database and data held within wrecksite.eu.
- Targeted walkover survey. Survey areas will be scoped based on records of designated and non-designated heritage assets, analysis of the aerial imagery provided by the Project commissioned UAV / drone aerial survey, presence of existing infrastructure, buildings or dense vegetation and previous archaeological investigation. The purpose of the walkover is to assess the survival of known assets within the draft Order Limits, identify previously unrecorded earthworks and increase understanding of the historic environment conditions for the baseline. Agreement of the methodology for Scoping of the Walkover will be sought with the HWG.
- Setting assessments will be undertaken during site visits for designated heritage assets (scheduled monuments, listed buildings, and conservation areas) located within the 500m Study Area and additional designated or non-designated built heritage assets located within the Zone of Theoretical Visibility (ZTV) established for the AGIs and Pump Facility.

11.8.2 A programme of specialist non-intrusive and intrusive archaeological fieldwork is also being targeted at relevant scheme areas to better understand the archaeological potential of the draft Order Limits. Specific methodologies for these surveys will be provided to the HWG for agreement. The results of the surveys will be fed into the assessment to allow for a more comprehensive assessment of the significance of effects and allow for design adjustments, where appropriate and feasible.

## Future Baseline

11.8.3 The landscape within which the Project is situated contains a variety of energy and power generation infrastructure. The future baseline of the area is likely to be further impacted by schemes of this nature. Such schemes are likely to result in the truncation or total loss of buried archaeological assets. Similarly, they could also alter the setting of assets within the area.

11.8.4 The continued use of the landscape for agricultural practices, is likely to result in the gradual truncation of any underlying buried archaeology as assets become ‘ploughed out’. Any archaeological features existing at sufficient depths, or below alluvial and warp deposits, are anticipated to remain in much the same condition as they currently exist.

## 11.9 Design, Mitigation and Enhancement Measures

11.9.1 The design and optioneering work undertaken to date has sought to avoid all designated assets in order to avoid physical impacts and to minimise any impacts through changes in the setting of assets. The Draft Register of Commitments also includes the mitigation commitment to avoid physical impacts to all listed buildings.

11.9.2 Mitigation measures will be further developed as part of the design process and will be informed by the ongoing assessment. This may include design adjustments taken in response to the results of archaeological fieldwork. Where practicable, temporary infrastructure will employ no-dig techniques in order to preserve in-situ any known or potential buried archaeology.

11.9.3 An appropriate mitigation strategy will aim to reduce or offset any significant adverse effects that are identified to the heritage assets. This is likely to take the form of an Outline Heritage Mitigation Strategy (OHMS) submitted with the DCO setting out the nature and extent of further archaeological works prior to and during construction work. Any measures identified within this strategy will be undertaken in accordance with standards and guidance from Historic England (Ref 11.14) and CIfA (Ref. 11.12). All mitigations proposed will be proportionate to the significance of the effect identified (using the methodology discussed in Section 11.3 and as summarised by Table 11-5) and the sensitivity of the asset affected (Table 11-3). The OHMS will be developed based on the results of assessment undertaken and discussed with the HWG.

11.9.4 The potential for enhancement measures will be developed as an iterative process when the impacts and effects from the Project are understood.

## 11.10 Description of Potential Likely Significant Effects

### Construction

11.10.1 During construction significant effects to cultural heritage are likely to arise through:

- Construction activities requiring ground disturbance such as preliminary ground works, topsoil removal, trench excavation, boring for trenchless installation, diversion of existing utilities, establishment of lay down areas and temporary works compounds, the construction of access roads and AGIs. Ground disturbance has the potential to impact on known or potential heritage assets and paleoenvironmental deposits. Any impacts would be permanent and irreversible, potentially resulting in significant effects.
- Changes in the setting of heritage assets that adversely affect their significance, due to the increased presence of machinery / dust / lighting or noise or alterations to the landscape because of the establishment of

temporary access tracks / haul roads, the movement of vehicles / equipment and established storage / compound areas. Although these may result in significant effects, they are likely to be temporary and reversible.

### Operation

11.10.2 There is the potential for significant effects during operation arising through the changes in setting of heritage assets in proximity to the AGI and Pump Facility locations. Impacts could result from a change in the landscape around the relevant asset reducing the contribution of the setting to the asset's value, visual intrusion altering key views, or from perceptible changes in noise and lighting.

11.10.3 No significant effects are anticipated on below-ground archaeology during operation as all impacts would have occurred during the construction phase. However, consideration of potential impacts to below-ground archaeology caused by a change in hydrology will be considered. The assessment of hydrological changes will be informed by the assessment in Chapter 9: Ground conditions and hydrogeology.

### Decommissioning

11.10.4 Decommissioning is unlikely to cause significant effects to the cultural heritage resource. As the pipeline will be left in situ, there will be no further impact to archaeology as any impacts, removal or truncation, would have happened during the construction phase.

11.10.5 Although the works required to decommission the AGIs may introduce temporary impacts through changes in the setting of an asset (due to light noise, movement of machinery etc.) these impacts will be temporary in nature in the process of returning the location to pre-construction / baseline conditions.

## 11.11 Summary of the Proposed Scope of Assessment

*Table 11-7 – Summary of the Proposed Scope of Assessment*

| Matter | Project stage | Scoped In | Scoped Out | Justification | Agreed with |
|---|---|---|---|---|---|
| Physical impacts to terrestrial archaeology and paleoenvironmental deposits | Construction and Operation | ✓ | | There is known archaeology present within the draft Order Limits and the potential for additional previously unrecorded buried archaeology and earthworks from all periods.<br>The assessment will assess the significance of effect of physical impacts to archaeology and deposits which are anticipated to be mostly isolated to the construction phase. However, physical impacts that may occur through permanent changes to hydrology will also be considered for the operational phase. | To be discussed with the HWG |
| Historic landscape character | Construction and Operation | ✓ | | No significant effects to historic landscapes are anticipated, as much of the landscape will be returned to baseline conditions following construction. However, due to the potential for the loss of elements of the historic landscape (hedgerows, field boundaries, areas of ridge and furrow) the matter will be scoped in at this stage. | To be discussed with the HWG |

| Matter | Project stage | Scoped In | Scoped Out | Justification | Agreed with |
|---|---|---|---|---|---|
| Intertidal and marine archaeology at the Humber Estuary | Construction and Operation | | ✓ | The Project will include a trenchless crossing of the Humber Estuary. The locations of the entry and exit points of the trenchless crossing will be a sufficient distance from the banks of the Humber Estuary to avoid impact to the riverbanks and archaeology that may be present at low or high tide. Therefore, it is proposed to scope out assessment of impacts to intertidal and marine archaeology in this location. Where design changes affect this assumption, this will be scoped back in. | To be discussed with the HWG |
| Marine archaeology at Easington | Construction and Operation | | ✓ | Consent is only sought to the Mean Low Water Springs (MLWS) mark, near Easington, with any associated works beyond this point in the marine environment assessed via the NEP offshore application (see Chapter 3 – Project Description). The marine element will be considered as part of the cumulative assessment in the ES. | To be discussed with the HWG |
| Physical impacts to built heritage | Construction and Operation | | ✓ | The Project has sought to exclude built structures from the draft Order Limits and therefore there will be no physical impact to built heritage. Should impacts be unavoidable, for example where survey reveals previously unrecorded built structures | To be discussed with the HWG |

| Matter | Project stage | Scoped In | Scoped Out | Justification | Agreed with |
|---|---|---|---|---|---|
| | | | | within the draft Order Limits, this will be scoped back in. | |
| All assets – impacts through changes in the setting of assets, where that setting contributes to their value | Construction and Operation | ✓ | | Impacts that would arise due to changes in the setting of an asset that affect their value will be assessed. This will be for those assets within 500m of the draft Order Limits with the potential for that Study Area to be extended around AGIs and the Pump Facility based on the results of a ZTV. | To be discussed with the HWG |
| All assets | Decommissioning | | ✓ | Decommissioning is unlikely to result in significant effects to the cultural heritage resource. There will be no further physical impacts beyond those experienced during construction and any impacts that arise during the decommissioning of AGIs and Pump Facility will be temporary during the process of returning the site to pre-commencement / baseline conditions. | To be discussed with the HWG |

## 11.12 References


- Ref. 11.1 – Ancient Monuments and Archaeological Areas Act 1979
- Ref. 11.2 – Planning (Listed buildings and Conservation Areas) Act 1990
- Ref. 11.3 – Department for Energy Security and Net Zero (2024). *Overarching National Policy Statement for energy (EN-1)* Available at: Overarching National Policy Statement for energy (EN-1) - GOV.UK (accessed 8 October 2024)
- Ref 11.4 – Department for Energy Security and Net Zero (2024). Overarching National Policy Statement for Natural Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)
- Ref. 11.5 – Ministry of Housing, Communities & Local Government (2023) *National Planning Policy Framework* Available at: National Planning Policy Framework - Guidance - GOV.UK (www.gov.uk) (accessed 8 October 2024)
- Ref. 11.6 – Selby District Council (2013) *Selby District Core Strategy Local Plan* Available at: https://www.selby.gov.uk/selby-district-core-strategy-local-plan
- Ref. 11.7 Selby District Council (2005) *Selby District Local Plan* Available at: https://www.selby.gov.uk/selby-district-local-plan-sdlp-2005 (accessed 8 October 2024)
- Ref. 11.8 – North Lincolnshire Council (2011) *North Lincolnshire Local Development Framework Core Strategy* Available at: Planning policy - Local Development Framework - North Lincolnshire Council (northlincs.gov.uk) (accessed 8 October 2024)
- Ref. 11.9 – East Riding of Yorkshire Council (2016) *East Riding Local Plan 2012-2029 Strategy Document* Available at: Strategy Document - Adoption (eastriding.org.uk) (accessed 8 October 2024)
- Ref. 11.10 – North Kesteven District Council, City of Lincoln Council, West Lindsay
- District Council, Lincolnshire County Council (2023) *Central Lincolnshire Local Plan* Available at: Local Plan for adoption Approved by Committee.pdf (n-kesteven.gov.uk) (accessed 8 October 2024)
- Ref 11.11 – North East Lincolnshire Council (2018) *Planning for Growth, Local Plan 2013 to 2032* Available at: https://www.nelincs.gov.uk/assets/uploads/2018/05/20180518-AdoptedLocalPlan2018-WEB.pdf (accessed 31 October 2024)
- Ref. 11.12 – Standard and guidance for historic environment desk-based assessment (2020) Chartered Institute for Archaeologists (CIfA)
- Ref. 11.13 – CIFA; IEMA; IHBC(2021) Principles of Cultural Heritage Impact Assessment in the UK.

- Ref. 11.14 – Historic England (2017) The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition)
- Ref. 11.15 – ICOMOS (2011). *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties*. Paris, France: International Council on Monuments and Sites.

# 12 Noise and Vibration

## 12.1 Introduction

12.1.1 This chapter outlines the proposed approach for assessing the likely significant effects of noise and vibration from the construction, operation and decommissioning of the Project. This chapter describes the methodology to be used for the noise and vibration assessment, the baseline conditions, the potential likely significant effects to be considered, and how those effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

12.1.2 This chapter should be read in conjunction and considered alongside the following chapters:

- Chapter 7: Ecology and Biodiversity.
- Chapter 14: Human Health and Wellbeing.
- Chapter 15: Traffic and Transport.

## 12.2 Legislation, policy and guidance

12.2.1 The assessment to be undertaken to inform the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) will be undertaken in accordance with and / or with regard to the following legislation, policy and guidance.

### Legislation

- The Control of Pollution Act (Ref 12.1); and
- The Environmental Protection Act (Ref 12.2).

### Policy

#### National Policy Statements

12.2.2 As detailed in Chapter 1, National Policy Statements (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Project would be considered. The two relevant NPSs are:

- Overarching National Policy Statement for Energy, 2024 (EN-1) (Ref 12.3).
- National Policy Statement for Natural Gas Supply Infrastructure and Gas and Oil Pipelines, 2024 (EN-4) (Ref 12.4).

12.2.3 Table 12-1 sets out how the NPS are relevant to the noise and vibration assessment.

*Table 12-1 – Relevant Sections of the Relevant National Policy Statements*

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-1 | Section 5.12 of EN-1 provides generic impacts relating to noise and vibration. It also defines the elements that should be included in the applicant's noise and vibration assessment where impacts are likely to arise, as defined below:<br>• A description of the noise generating aspects of the development.<br>• Identification of noise sensitive receptors and noise sensitive areas that may be affected.<br>• The characteristics of the existing noise environment.<br>• A prediction of how the noise environment will change with the Project.<br>• An assessment of the effect of predicted changes in the noise environment on any noise-sensitive receptors.<br>• If likely to cause disturbance, an assessment of the effect of underwater or subterranean noise.<br>• Measures to be employed in mitigating the effects of noise.<br>It stipulates the requirements for a project to demonstrate good acoustic design. It also provides guidance on the Secretary of State decision making process. | The noise and vibration assessment will follow the procedures outlined in EN-1. |

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-4 | Section 2 of EN-4 provides the primary basis for decisions by the Secretary of State on applications it receives for gas supply infrastructure and gas and oil pipelines. The document provides a high-level overview of key considerations and what needs to form part of an applicant's noise and vibration assessment for proposed schemes, which is split out for different components, including gas reception facilities and gas / oil pipelines.<br>EN-4 references the guidance provided in Section 5.12 of EN-1 (Ref 12.3) in terms of generic noise and vibration considerations, the items to be included within the applicant's assessment, and the Secretary of State's decision-making process. | The noise and vibration assessment will follow the procedures outlined in EN-4. |

## National Planning Policy

12.2.4 The noise and vibration assessment will be carried out in accordance with the following national planning policy documents:

- National Planning Policy Framework, 2023 (Ref 12.5)[12], which sets out the Government's planning policies for England and how these are expected to be applied. The document includes statements relating to noise and the requirement to take it into account during the planning process.
- Noise Policy Statement for England, 2010 (Ref 12.6), which sets out the long-term vision of Government noise policy: to promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.

## Local Planning Policy

12.2.5 The Project lies within the jurisdictions of North Yorkshire, East Riding of Yorkshire, North Lincolnshire and North East Lincolnshire. A summary of the local planning policy that are relevant to noise and vibration is provided in Table 12-2.

[12] This EIA Scoping Report makes reference to the December 2023 update of the NPPF. The PEIR will provide an update of applicable legislation and policy, which will include consideration of the December 2024 NPPF update (or any subsequent update).

*Table 12-2 – Relevant Local Planning Policies*

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| East Riding of Yorkshire Council Local Plan, 2016 (Ref. 12.7) | Policy ENV6: Managing environmental hazards | "Environmental hazards, such as flood risk, coastal change, groundwater pollution and other forms of pollution, will be managed to ensure that development does not result in unacceptable consequences to its users, the wider community, and the environment." | The assessment will consider noise and vibration impacts associated with the Project, and measures to mitigate any impacts will be proposed, where required. |
| Selby District Council Local Plan, 2024 (Ref. 12.8) | Policy SG10: Low Carbon and Renewable Energy (Strategic Policy) | "A. Proposals for low-carbon and renewable-energy storage and generation (including hydrogen transportation networks) will be supported where:<br>1. Planning impacts of the development and associated infrastructure, both individually and cumulatively, are, or can be made, acceptable;<br>2. Appropriate weight, consideration and mitigation has been given to the following where applicable:<br>vi. Living conditions and amenity including due to noise, odour, dust, vibration, visual intrusion, shadowing or flicker." | The assessment will consider noise and vibration impacts associated with the Project, and measures to mitigate any impacts will be proposed, where required. |
| Selby District Council Local Plan, | Policy NE8 - Pollution and Contaminated Land | "A. Development which could present noise pollution, light pollution, groundwater pollution, contamination of land or water and other environmental pollution or unstable land will not be permitted unless satisfactory remedial or preventative | The assessment will consider noise and vibration impacts associated with the Project, and measures to |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| 2024 (Ref. 12.8) | | measures are incorporated. This will be considered an integral element of the scheme. Measures should be carried out before the use of the site commences and sufficient consideration provided to both human and environmental receptors of any potential impact. Planning applications must be accompanied by the appropriate assessments in line with the Council's Validation Checklist.” | mitigate any impacts will be proposed, where required. |
| North East Lincolnshire Local Plan 2013 to 2032 (Ref. 12.9) | Policy 31: Renewable and low carbon infrastructure | “Proposals for renewable and low carbon energy generating systems will be supported where any significant adverse impacts are satisfactorily minimised and the residual harm is outweighed by the public benefits of the proposal. Developments and their associated infrastructure will be assessed on their merits and subject to the following impact considerations, taking account of individual and cumulative effects:<br>B. local amenity, including noise, air quality, traffic, vibration, dust and visual impact.” | The assessment will consider noise and vibration impacts associated with the Project, and measures to mitigate any impacts will be proposed, where required. |

### Guidance

12.2.6 The noise and vibration assessment will be carried out in accordance with the following guidance documents:

- BS 4142:2014+A1:2019 - Methods for Rating and Assessing Industrial and Commercial Sound (Ref 12.10).
- BS 5228-1:2009+A1:2014 - Code of Practice for Noise and Vibration Control on Construction and Open Sites – Noise (Ref 12.11).
- BS 5228-2:2009+A1:2014 - Code of Practice for Noise and Vibration Control on Construction and Open Sites – Vibration (Ref 12.12).
- BS 7445-1:2003 - Guide to Quantities and Procedures (Ref 12.13).
- BS EN 60942:2018 - Electroacoustics – Sound Calibrators (Ref 12.14).
- BS EN 61672-1:2013 - Electroacoustics – Sound Level Meters (Ref 12.15).
- Calculation of Road Traffic Noise Memorandum, 1988 (Ref 12.16).
- Canal & River Trust, Code of Practice for Works Affecting the Canal & River Trust (2022) (Ref 12.17).
- Design Manual for Roads and Bridges, LA 111 Noise and Vibration (2020) (Ref 12.18).
- Institute of Environmental Management & Assessment (IEMA), Guidelines for Environmental Impact Assessment (Ref 12.19).
- IGEM/TD/1 Edition 6 - Steel Pipelines for High Pressure Gas Transmission (2024) (Ref 12.20).
- ISO 9613-2:2024 – Acoustics. Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure level outdoors (Ref 12.21).
- Planning Practice Guidance – Noise (2019) (Ref 12.22).
- PD 8010-1:2015+A1:2016 Pipeline Systems – Part 1: Steel Pipelines on Land – Code of Practice (Ref 12.23).
- World Health Organisation, Guidelines for Community Noise (Ref 12.24).
- World Health Organisation, Night Noise Guidelines for Europe (Ref 12.25).

## 12.3 Proposed Assessment Methodology

### Value / Sensitivity

12.3.1 Receptor sensitivity will be categorised for a range of receptor types, with the categorisation informed by guidance contained in the following documents:

- DMRB document Ref. LA 111 ‘Noise and Vibration’ (Ref 12.18); and
- IEMA document ‘Guidelines for Environmental Noise Impact Assessment’ (Ref 12.19).

12.3.2 Table 12-3 presents the proposed receptor sensitivity categorisation for the Project.

*Table 12-3 – Receptor Sensitivity*

| Receptor Sensitivity | Type of Receptor |
|---|---|
| High | Residential properties, educational establishments, hospitals, places of worship, hotels, children's nurseries, nursing homes, international / national or statutory designated sites |
| Medium | Commercial premises including offices, halls, public municipal areas, bars and restaurants |
| Low | Industrial premises |
| Negligible | All other areas, such as those used primarily for agricultural purposes |

## Impact Magnitude

12.3.3 For the construction and decommissioning phases of the Project, the assessment methodology set out in BS 5228-1:2009+A1:2014 (Ref 12.11) will be used. The prediction method considers the noise emission level of the proposed plant items, the separation distance between the source and the receiver and the effect of the intervening topography, ground conditions and structures.

12.3.4 The construction and decommissioning assessments will assume the use of standard construction techniques commensurate with the type of works being undertaken. The final techniques, plant selection and programme are expected to be determined by the appointed contractor, in consultation with relevant authorities prior to the commencement of construction and decommissioning works.

12.3.5 The significance criteria for the construction and decommissioning phase noise levels will be derived from Annex E of BS 5228-1:2009+A1:2014 (Ref 12.11). It is intended that construction activities will be assessed against the lower bound cut-off value in Annex E of BS 5228-1:2009+A1:2014 (Ref 12.11) and therefore would not require baseline measurement data to be collected along the length of the draft Order Limits to derive the criteria.

12.3.6 Where deemed necessary, construction induced vibration levels will be predicted using the empirical formula contained in BS 5228-2:2009+A1:2014 (Ref 12.12). The vibration levels will be assessed against the peak particle velocity threshold levels within the standard for humans and buildings. The significance criteria for the construction and decommissioning phase vibration levels will be derived from Annex B of BS 5228-2:2009+A1:2014 (Ref 12.12).

12.3.7 Operational phase noise levels generated by the Pump Facility will be assessed in accordance with the methodology set out in BS 4142:2014+A1:2019 (Ref 12.10). The significance criteria for the operational phase assessment will be derived from BS 4142:2014+A1:2019 (Ref 12.10) and through consultation with the local authority.

12.3.8 To inform the operational phase assessment for the Pump Facility, the noise emissions at surrounding sensitive receptors will be calculated using a noise prediction model. Modelling will be undertaken using nationally recognised modelling software (SoundPLAN or equivalent) which implements widely accepted modelling algorithms, including ISO 9613-2:2024 (Ref 12.21) that will be used in this instance.

12.3.9 A low frequency noise assessment will be undertaken if the spectral noise data for the plant / equipment installations associated with the Pump Facility will contain significant levels of low frequency content.

12.3.10 Based on experience of similar developments, it has been assumed that the PIG trap and block valve AGIs will not generate significant levels of noise during normal operation and therefore will not be considered as part of the operational phase assessment.

12.3.11 Significant ground borne vibration resulting from the operation of the AGIs is not anticipated due to use of appropriate vibration isolation. On this basis, it will not be considered as part of the operational phase assessment.

12.3.12 The influence of traffic flow fluctuations on the public highway will be calculated using the methodology set out in the Calculation of Road Traffic Noise publication (Ref 12.16). The predicted variance in road traffic noise levels will be assessed using the short-term criteria provided in the Design Manual for Roads and Bridges document ref. ‘LA 111 - Noise and Vibration’ (Ref 12.18). The traffic noise assessment will consider the construction phase of the Project and also the operational phase for the Pump Facility only. All other AGIs will not be permanently manned during the operational phase and therefore significant traffic flows would not occur.

12.3.13 The noise assessment will include consideration of potential cumulative effects as a result of the Project in combination with other committed developments. The scope of projects to be considered in the cumulative assessment will be agreed with the relevant local planning authorities.

### Significance of Effects

12.3.14 The overall significance of an effect will be determined by combining the sensitivity of the receptor and magnitude (as presented in Table 12-4). The assessment of significance relies on best practice and the relevant published standards and guidance documents as defined in Section 12.2.

12.3.15 The significance of an effect is reported as either 'significant' or 'not significant' under the terms of the EIA Regulations. Where impact significance is assessed as 'Negligible' or 'Minor,' the overall effect is not significant. Where the impact significance is assessed as 'Moderate' or 'Major,' the overall effect is significant.

*Table 12-4 – Determining Significance of Effects*

| Magnitude | Sensitivity of Receptor / Receiving Environment to Change | | | |
|---|---|---|---|---|
| | High | Medium | Low | Negligible |
| High | Major | Moderate | Minor | Negligible |
| Medium | Moderate | Minor | Negligible | Negligible |
| Low | Minor | Negligible | Negligible | Negligible |
| Negligible | Negligibl | Negligible | Negligible | Negligible |

## 12.4 Limitations and Assumptions

12.4.1 The following limitations and assumptions are noted in respect of the noise and vibration assessment:

- The Scoping Report chapter is based on data available at the time of writing.
- The specific locations of construction phase activities that may require works to be undertaken outside of the core daytime hours has not been finalised at the time of writing.
- The selection of trenchless crossing techniques including the Humber crossing has not been finalised at the time of writing. This will be informed by the engineering design, statutory consultation and engagement with stakeholders.
- Details of noise emitting plant / equipment associated with the Pump Facility have not been defined at this stage.

- During the decommissioning phase of the Project, it is assumed that the resultant noise levels will be broadly similar to the construction phase, albeit localised to the AGIs and Pump Facility on the basis that the buried pipelines would remain in situ.

## 12.5 Stakeholder Engagement

12.5.1 No pre-scoping stakeholder engagement has been undertaken. To inform the PEIR and ES chapter, the Environmental Health department at the relevant local authorities will be consulted as appropriate regarding the noise and vibration assessment. Other stakeholders may also be consulted where necessary including the Canal and River Trust, Natural England and key landowners.

## 12.6 Study Area

12.6.1 The Study Area for the construction phase assessment will consider noise and vibration sensitive receptors that are located within 300 m of the draft Order Limits. This has been determined based on the guidance set out in BS 5228-1:2009+A1:2014 (Ref 12.11), BS 5228-2:2009+A1:2014 (Ref 12.12) and other related guidance documents, including DMRB document ref. 'LA 111 - Noise and Vibration' (Ref 12.18).

12.6.2 The Study Area for the decommissioning phase assessment will consider noise and vibration sensitive receptors that are located within 300 m of the proposed AGIs and Pump Facility. This is on the basis that the buried pipeline would remain in situ.

12.6.3 For certain construction activities such as trenchless crossings, there is a potential requirement for works to be undertaken on a 24-hour basis. To account for the more stringent threshold criteria during the night as derived from BS 5228-1:2009+A1:2014 (Ref 12.11), the Study Area for the night-time construction phase assessment will be extended to consider sensitive receptors that are located within 600 m of the night-time works. At distances in excess of 600 m, the construction noise levels would typically be below the lowest threshold levels for the night-time period as derived from BS 5228-1:2009+A1:2014 (Ref 12.11).

12.6.4 For the assessment of operational phase noise levels, the Study Area will extend out to the nearest or most exposed noise sensitive receptors surrounding the Pump Facility at Easington.

## 12.7 Receptors

12.7.1 The assessment will account for sensitive receptors within the Study Area which have the potential to be adversely affected by a variation in the noise and vibration level resulting from the Project.

12.7.2 Typical examples of receptors sensitive to noise and vibration include dwellings, hospitals, healthcare facilities, education facilities, community facilities and international and national or statutorily designated sites.

## 12.8 Baseline Conditions

### Desktop Study

12.8.1 The majority of the draft Order Limits area is located within a rural setting, typically comprising agricultural land use. The acoustic environment will vary significantly along the draft Order Limits depending on proximity to prominent noise sources; these sources include agricultural activities, road and rail infrastructure, industrial facilities, commercial premises / activities, wind turbines, an airport and the North Sea.

12.8.2 Due to the nature of the Project, the draft Order Limits flank substantial industrial facilities in several areas. In these areas, noise emissions from the existing facilities have the potential to be prominent at the nearest surrounding receptors.

12.8.3 Included within the draft Order Limits are several major transport infrastructure routes including the M18 and M62 motorways. At locations where the route crosses or is in close proximity to motorways, trunk roads, rail lines and runways, noise from road, rail and air traffic would typically dominate the acoustic environment, particularly during the daytime.

12.8.4 A number of Site of Special Scientific Interest (SSSI) are located within or close to the Proposed Order Limits. These include:

- Crowle and Goole Moors SSSI.
- Crowle Borrow Pits SSSI.
- Dimlington Cliff SSSI.
- Eastoft Meadow SSSI.
- Eskamhorn Meadows SSSI.
- Hatfield Chase Ditches SSSI.
- Humber Estuary SSSI.
- Kelsey Hill Gravel Pits SSSI.
- Kirmington Pits SSSI.
- North Killingholme Haven Pits SSSI.

- River Derwent SSSI.
- South Ferriby Chalk Pit SSSI.
- Sugar Mills Ponds SSSI.
- The Lagoons SSSI.

## Baseline Survey

12.8.5 A baseline noise survey was undertaken in June 2022 to establish the prevailing acoustic environment at noise sensitive receptors situated in the vicinity of the proposed Pump Facility associated with the Project. The noise survey for the Pump Facility was heavily influenced by natural sounds and is therefore unlikely to have changed significantly, as there has been no significant developments within the intervening period that could serve to alter the acoustic environment. On the basis that the 2022 survey locations adequately represent the noise sensitive receptors surrounding the proposed Pump Facility, it is considered that the existing noise survey data could be used to inform the assessment. However, this will be subject to further consultation with the local authority.

12.8.6 The baseline survey comprised unattended noise monitoring at five locations, which accounted for the surrounding noise sensitive receptors in the vicinity of the Pump Facility site. The measurement locations are summarised in Table 12-5.

*Table 12-5 – Baseline Measurement Locations*

| Ref. | Approximate measurement location | Description |
|---|---|---|
| P1 | 538124E, 421490N | Spring Farm Bungalow to the north-west of the Pump Facility |
| P2 | 537970E, 420970N | Southfield Farm to the west of the Pump Facility |
| P3 | 538277E, 419448N | Sunnybank to the south of the Pump Facility |
| P4 | 539311E, 419479N | Two Hoots to the south of the Pump Facility |
| P5 | 539598E, 420901N | Coastal path to the east of the Pump Facility |

12.8.7 The results of the baseline noise survey will be used to inform the operational phase noise impact assessment for the Pump Facility, in accordance with the methodology set out in BS 4142:2014+A1:2019 (Ref 12.10).

### Future Baseline

12.8.8 Baseline and future baseline conditions within the Project Study Area have been established via the following sources:

- Aerial photography and mapping.
- Department for Environment, Food and Rural Affairs (Defra) Round 4 strategic noise mapping (Ref 12.26).
- A baseline noise survey in the vicinity of the proposed Pump Facility.

12.8.9 On the basis that the majority of the draft Order Limits are located within a rural setting, typically comprising agricultural land use, there is generally not expected to be significant changes to the baseline conditions in the future.

12.8.10 In instances where the draft Order Limits are located close to transport infrastructure, such as roads and rail lines, there is potential for growth in the traffic flows in the future baseline scenario. In the absence of significant alterations to the wider road or rail network, the variation in traffic flows would be expected to be incremental and therefore unlikely to give rise to perceptible changes in the acoustic environment.

12.8.11 Where the draft Order Limits are located close to prominent industrial and power generating facilities including carbon capture projects, there is potential that the noise levels generated by these facilities may change as a result of any new development. These changes are not expected to alter the acoustic environment significantly for the surrounding sensitive receptors, as this would be controlled via the planning / permitting processes, as applicable.

## 12.9 Design, Mitigation and Enhancement Measures

12.9.1 Best practicable means (BPM) will be adopted during the construction and decommissioning phases to control noise and vibration emissions from the proposed works and minimise the likelihood of disturbance. The control measures to be adopted will be defined in the Construction Environmental Management Plan (CEMP) and may include the following:

- Use of low noise / vibration techniques.
- Appropriate routing of haul roads.
- Use of temporary barriers / enclosures.
- Control of working hours to minimise disturbance.
- Community liaison and communication.
- A well-defined complaints procedure.
- Pre-agreed monitoring strategy in the event of complaints being received.

12.9.2 Mitigation measures required during the operational phase of the Project will be subject to the outcome of the BS 4142:2014+A1:2019 (Ref 12.10) assessment. Where required, a range of potential mitigation measures will be considered to control the noise levels.

## 12.10 Description of Potential Likely Significant Effects

### Construction

12.10.1 The Project has the potential to result in construction phase noise and vibration impacts, as a result of the following activities.

*Table 12-6 – Construction Phase Activities*

| Work phase | Construction activity |
|---|---|
| Pipeline | Setting out and erection of temporary fencing |
| | Haul road construction |
| | Topsoil strip and site preparation |
| | Open trench excavations |
| | Trenchless crossings (including Humber and River Trent crossing) |
| | Pipeline fabrication |
| | Pipeline installation |
| | Backfilling / Reinstatement |
| | Hydrotesting and pipeline cleaning |
| AGIs and Pump Facility | Setting out and erection of temporary fencing |
| | Site preparation and earthworks |
| | Building and equipment substructure works |
| | Erection of buildings / structures |
| | Equipment installation works |
| | Hardstanding and access roads |
| Compounds | Use of temporary construction compounds |
| Traffic | Vehicle movements on internal haul roads |
| | Construction traffic on the public highway |

## Operation

12.10.2 The operation of the proposed Pump Facility has the potential to result in noise impacts at the surrounding sensitive receptors. This is due to the introduction of various items of noise emitting plant and equipment that would be located at / above ground level.

12.10.3 With the exception of the Pump Facility, the other AGI sites are not expected to generate noise emissions that would give rise to noise impacts at offsite receptors.

12.10.4 Operational phase road traffic flows associated with the Pump Facility have the potential to result in noise impacts at roadside receptors. All other AGIs will not be permanently manned during the operational phase.

## Decommissioning

12.10.5 During the decommissioning phase of the Project, the works would be localised to the AGIs and Pump Facility, as buried pipeline would remain in place. The resultant noise and vibration levels are expected to be broadly similar to the construction phase.

12.10.6 The decommissioning works at the AGI sites and Pump Facility are expected to comprise of:

- Removal of plant and equipment.
- Controlled demolition of buildings.
- Breaking up and removal of external hardstanding.
- Reinstatement of subsoil and topsoil and re-seeding.
- Decommissioning traffic on the public highway.

## 12.11 Summary of the Proposed Scope of Assessment

*Table 12-7 – Summary of Proposed Scope of Assessment*

| Matter | Project stage | Scoped in | Scoped out | Justification | Agreed with |
|---|---|---|---|---|---|
| Human receptors | Construction | ✓ | | Potential for significant adverse effects resulting from the construction of the pipeline, AGIs and Pump Facility due to proximity of receptors. | To be agreed as part of EIA Scoping |
| Human receptors | Construction phase – traffic flows | ✓ | | Potential for significant adverse effects as a result of increased traffic flows on the public highway. | To be agreed as part of EIA Scoping |
| Human receptors | Operational phase - Pump Facility | ✓ | | Potential for significant adverse effects due to proposed noise emitting plant and equipment installations at the Pump Facility. | To be agreed as part of EIA Scoping |
| Human receptors | Operational phase – Traffic flows (Pump Facility) | ✓ | | Pump Facility will be manned, therefore operational phase traffic flows may give rise to significant adverse effects. | To be agreed as part of EIA Scoping |
| Human receptors | Decommissioning phase - AGIs and Pump Facility | ✓ | | Potential for significant adverse effects, similar to those generated during | To be agreed as part of EIA Scoping |

| Matter | Project stage | Scoped in | Scoped out | Justification | Agreed with |
|---|---|---|---|---|---|
| | | | | construction of the AGIs and Pump Facility. | |
| Human receptors | Operational phase – Traffic flows (excluding Pump Facility) | | ✓ | The AGIs will not be manned, therefore operational phase traffic flows associated with the AGIs will not give rise to significant adverse effects. | To be agreed as part of EIA Scoping |
| Human receptors | Operational phase – buried pipelines | | ✓ | Buried pipelines will not generate significant noise levels. | To be agreed as part of EIA Scoping |
| Human receptors | Operational phase – AGIs | | ✓ | AGIs are not expected to generate significant levels of noise. | To be agreed as part of EIA Scoping |
| Human receptors | Operational phase – Vibration | | ✓ | Significant ground borne vibration resulting from the AGIs is not anticipated due to use of appropriate vibration isolation. | To be agreed as part of EIA Scoping |
| Human receptors | Decommissioning phase – Pipelines | | ✓ | Pipelines will remain buried; therefore, no decommissioning noise levels will be generated. | To be agreed as part of EIA Scoping |

## 12.12 References


- Ref 12.1 – Secretary of State (1974) The Control of Pollution Act. Available at: https://www.legislation.gov.uk/ukpga/1974/40 (Accessed: October 2024).
- Ref 12.2 – Secretary of State (1990) The Environmental Pollution Act. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents (Accessed: October 2024).
- Ref 12.3 – Department for Energy Security & Net Zero (2024) Overarching National Policy Statement for Energy (EN-1). Available at: https://assets.publishing.service.gov.uk/media/65bbfbdc709fe1000f637052/overarching-nps-for-energy-en1.pdf (Accessed: October 2024).
- Ref 12.4 – Department for Energy Security & Net Zero (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 (Accessed: October 2024).
- Ref 12.5 – Ministry of Housing, Communities & Local Government (2023) National Planning Policy Framework. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2 (Accessed: October 2024).
- Ref 12.6 – Department for Environment, Food and Rural Affairs (2010) Noise Policy Statement for England. Available at: https://www.gov.uk/government/publications/noise-policy-statement-for-england (Accessed: October 2024).
- Ref 12.7 – East Riding of Yorkshire Council (2016) East Riding Local Plan 2012 – 2029 Strategy Document. Available at: https://www.eastriding.gov.uk/planning-permission-and-building-control/planning-policy-and-the-local-plan/east-riding-local-plan/ (Accessed: October 2024).
- Ref 12.8 – North Yorkshire Council (2024) Selby Local Plan. Available at: https://edemocracy.northyorks.gov.uk/documents/s28009/Appendix%201%20Revised%20Publication%20Local%20Plan%20Consultation%20Document.pdf (Accessed: October 2024).
- Ref 12.9 – North East Lincolnshire Council. (2018) North East Lincolnshire Local Plan 2013 to 2032 (adopted 2018). Available at: https://www.nelincs.gov.uk/assets/uploads/2018/05/20180518-AdoptedLocalPlan2018-WEB.pdf (Accessed: October 2024).
- Ref 12.10 – British Standards Institution (2019) British Standard 4142:2014+A1:2019, Methods for rating and assessing industrial and commercial sound. London: British Standard Institution.

- Ref 12.11 – British Standards Institution (2014) British Standard 5228-1:2009+A1:2014, Code of practice for noise and vibration control on construction and open sites (Part 1: Noise). London: British Standard Institution.
- Ref 12.12 – British Standards Institution (2014) British Standard 5228-2:2009+A1:2014, Code of practice for noise and vibration control on construction and open sites (Part 2: Vibration). London: British Standard Institution.
- Ref 12.13 – British Standards Institution (2003) British Standard 7445:2003, Description and measurement of environmental noise (Part 1: Guide to quantities and procedures). London: British Standard Institution.
- Ref 12.14 – British Standards Institution (2018) British Standard EN 60942:2018, Electroacoustics – Sound calibrators. London: British Standard Institution.
- Ref 12.15 – British Standards Institution (2013) British Standard EN 61672-1:2013, Electroacoustics - Sound level meters (Part 1: Specifications). London: British Standard Institution.
- Ref 12.16 – Department of Transport (1988) Calculation of Road Traffic Noise. Surrey: Her Majesty's Stationary Office.
- Ref 12.17 – Canal & River Trust (2022) Code of Practice for Works Affecting the Canal & River Trust. Available at: https://canalrivertrust.org.uk/business-and-trade/undertaking-works-on-our-property-and-our-code-of-practice (Accessed: October 2024).
- Ref 12.18 – National Highways (2020) Design Manual for Roads and Bridges, LA 111 Noise and Vibration. Available at: https://www.standardsforhighways.co.uk/dmrb/search/cc8cfcf7-c235-4052-8d32-d5398796b364 (Accessed: October 2024).
- Ref 12.19 – Institute of Environmental Management & Assessment (2014) Guidelines for Environmental Impact Assessment. Institute of Environmental Management & Assessment.
- Ref 12.20 – Institution of Gas Engineers & Managers (2024). IGEM/TD/1 Edition 6, Steel pipelines for high pressure gas transmission. Derbyshire: The Institution of Gas Engineers and Managers.
- Ref 12.21 – International Organization for Standardization (2024) ISO 9613-2:2024: Acoustics. Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure level outdoors. Geneva, Switzerland: International Organization for Standardization.
- Ref 12.22 – Ministry of Housing, Communities and Local Government. 2019. Planning Practice Guidance – Noise. Available at: https://www.gov.uk/guidance/noise--2 (Accessed: October 2024).

- Ref 12.23 – British Standards Institution (2016). Published Document 8010-1:2015+A1:2016, Pipeline systems – Part 1: Steel pipelines on land – Code of practice. London: British Standard Institution.
- Ref 12.24 – World Health Organization (1999) Guidelines for community noise. Geneva, Switzerland: World Health Organization.
- Ref 12.25 – World Health Organisation (2009) Night Noise Guidelines for Europe. Geneva, Switzerland: World Health Organization.
- Ref 12.26 – Department for Environment Food and Rural Affairs (2022). Strategic noise mapping. Available at: https://www.gov.uk/government/publications/strategic-noise-mapping-2022 (Accessed: October 2024).

# 13 Socio-economics

## 13.1 Introduction

13.1.1 This chapter addresses the proposed scope of the Environmental Impact Assessment (EIA) with respect to socio-economics i.e., the effect on the lives and circumstances of people, their families and their community as a consequence of the Project's impact on the local economy, society and culture. It includes a summary of the currently available baseline data and the proposed approach to the assessment of possible construction, operational and decommissioning impacts. Matters that are to be scoped in and out of the assessment are identified.

13.1.2 The socio-economic issues that will be considered as part of the assessment include:

- Private property: potential impacts from land take and / or changes in access.
- Community assets: potential impacts from land take, changes in access, and/or amenity (disturbance) effects which could affect use by local residents.
- Recreation assets: potential impacts from land take, changes in access, and/or amenity (disturbance) effects on areas used for recreational activities.
- Tourism: potential impacts on the use of tourism accommodation for temporary workforce and the associated visitor response. Potential impacts on tourism businesses from land take, changes in access and / or amenity.
- Local economy and employment effects: direct, indirect and induced employment generation.
- Local economic expenditure and supply chain effects.

13.1.3 This socio-economic assessment draws on the outcomes of other EIA topics. This chapter should be read in conjunction with:

- Chapter 6: Air Quality.
- Chapter 10: Landscape and Visual.
- Chapter 12: Noise and Vibration.
- Chapter 15: Traffic and Transport.

13.1.4 Effects on agricultural businesses are considered within Chapter 5: Agriculture and Soils. Future land use allocations are considered within Chapter 20: Cumulative Effects. Health effects on the local community, including vulnerable groups outlined within the Equality Act 2010, are considered within Chapter 14: Human Health & Wellbeing.

## 13.2 Legislation, Policy and Guidance

13.2.1 The assessment to be undertaken to inform the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) will be undertaken in accordance with, and with reference to, the following legislation, policy and guidance.

### Legislation

13.2.2 The assessment will be undertaken in accordance with relevant legislation, together with national, regional and local plans and policies. Relevant legislation that will be considered in the scope of effects on socio-economics include:

- The Countryside and Rights of Way Act 2000 (CROW Act) (Ref 13.1): This Act contains measures to improve public access to open countryside and reform and improve right of way in England and Wales.
- National Parks and Access to the Countryside Act 1949 (Ref 13.2): This Act provides detail on the creation, maintenance and improvement of public paths and for securing access to open country.

13.2.3 Both pieces of legislation inform the recreation assessment which assesses the impact on communities who use public rights of way (PROW), greenspace and common land for recreational activity.

### Policy

**National Planning Policy**

**National Policy Statements**

13.2.4 As detailed in Chapter 1, Introduction, National Policy Statements (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Project would be considered.

13.2.5 Table 13-1 sets out how the NPSs are relevant to the socio-economic assessment (Ref 13.3).

*Table 13-1 – Relevant Sections of the Relevant National Policy Statements*

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-1 | 5.13.3 "*The applicant is strongly encouraged to engage with relevant local authorities during early stages of project development so that the applicant can gain a better understanding of local or regional issues and opportunities*." | The socio-economic assessment will consider the consultation received through stakeholder engagement, details of which are set out in Section 13.5. |
| EN-1 | 5.13.4 (part) "*The applicant's assessment should consider all relevant socio-economic impacts, which may include: the creation of jobs and training opportunities*." | The socio-economic assessment will consider whether the Project is likely to generate job or training opportunities. |
| EN-1 | 5.13.4 (part) "*The applicant's assessment should consider all relevant socio-economic impacts, which may include: any indirect beneficial impacts for the region hosting the infrastructure, in particular in relation to use of local support services and supply chains*." | The socio-economic assessment will consider the impact of local expenditure from temporary and permanent workforce on the supply chain (and local suppliers). |
| EN-1 | 5.13.4 (part) "*The applicant's assessment should consider all relevant socio-economic impacts, which may include: effects (positive and negative) on tourism and other users of the area impacted*." | The socio-economic assessment will consider the potential impacts on tourism. |
| EN-1 | 5.13.4 (part) "*The applicant's assessment should consider all relevant socio-economic impacts, which may include: the impact of a changing influx of workers during the* | The socio-economic assessment will consider the potential impacts of temporary workforce on local tourism accommodation provision. |

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| | *different construction, operation and decommissioning phases of the energy infrastructure*." | |
| EN-1 | 5.13.5 "*Applicants should describe the existing socio-economic conditions in the areas surrounding the proposed development and should also refer to how the development's socio-economic impacts correlate with local planning policies*." | A detailed baseline and legislation and policy review will be undertaken as part of the socio-economic assessment. |

### National Planning Policy Framework

13.2.6 The National Planning Policy Framework (Ministry of Housing, Communities and Local Government (MHCLG), 2023) (Ref 13.4)[13] and associated Planning Practice Guidance (Ref 13.5) considers the importance of socio-economic effects in terms of planning to achieve healthy, inclusive and safe places.

### Local Planning Policy

13.2.7 Local policies of relevance to the socio-economics assessment are outlined in Table 13-2.

[13] This EIA Scoping Report makes reference to the December 2023 update of the NPPF. The PEIR will provide an update of applicable legislation and policy, which will include consideration of the December 2024 NPPF update (or any subsequent update).

*Table 13-2 – Local Planning Policy*

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| Selby District Council Core Strategy Local Plan (Selby District Council, 2013) (Ref 13.6). | SP13 Economic Growth | Promoting Economic Prosperity | The socio-economic assessment will consider whether the Project is likely to generate jobs and / or training opportunities. |
| Selby District Council Revised Pre-Submission Publication Local Plan (2024) (Ref 13.7). | IC2 Protection of Existing Community Facilities<br>IC3 Protection and Creation of New Open Space, Sport and Recreation Provision<br>IC7 Public Rights of Way | Providing the right infrastructure to support local communities | The socio-economic assessment will consider the potential impact on community facilities, PRoW, open space, sport and recreational assets.<br>Mitigation measures will be proposed where necessary to ensure that the overall socio-economic impacts of the Project are not significant. |
| North Lincolnshire Local Development Framework Core Strategy (North Lincolnshire Council, 2011) (Ref 13.8). | CS23: Sport, Recreation and Open Space | Providing the right infrastructure to support local communities | The socio-economic assessment will consider the potential impact on sport, recreation and open space.<br>Mitigation measures will be proposed where necessary to ensure that the overall socio-economic impacts of the Project are not significant. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| Local Plan North East Lincolnshire 'Planning for Growth' 2013 to 2032 (Ref 13.9). | SO3 Economy | Access to jobs and raising skills | The socio-economic assessment will consider whether the Project is likely to generate jobs and / or training opportunities. |
| East Riding Local Plan 2012-2029 Strategy Document (East Riding of Yorkshire Council, 2016) (Ref 13.10). | C2 Supporting community services and facilities<br>C3 Providing public open space for leisure and recreation | Providing the right infrastructure to support local communities | The socio-economic assessment will consider the potential impact on community facilities and open space.<br>Mitigation measures will be proposed where necessary to ensure that the overall socio-economic impacts of the Project are not significant. |
| Central Lincolnshire Local Plan (North Kesteven District Council, 2023) (Ref 13.11). | S50 Community Facilities<br>S51 Creation of New Open Space, Sports and Leisure Facilities | Providing the right infrastructure to support local communities | The socio-economic assessment will consider the potential impact on community facilities, open space, sports and leisure facilities.<br>Mitigation measures will be proposed where necessary to ensure that the overall socio-economic impacts of the Project are not significant. |

### Guidance

13.2.8 There is no published or specific guidance for assessing socio-economic effects as part of an EIA. However, the assessment presented in the ES will be informed by the principles set out in the Additionality Guide Fourth Edition (Homes and Communities Agency, 2014) (Ref 13.12). The Additionality Guide provides guidance on assessing the additional impact or the additionality of an intervention and will inform the employment assessment.

## 13.3 Proposed Assessment Methodology

### Value / Sensitivity

13.3.1 The value / sensitivity of receptors will be assessed using the approach set out in Table 13-3. Note that for socio-economics, there is no objective standard to apply and as such professional judgement is required.

*Table 13-3 – Approach to Determining Sensitivity*

| Value (sensitivity) of receptor / resource | Description |
|---|---|
| High | The receptor has little ability to absorb change without fundamentally altering its present character, is of high environmental value, or is of international or national importance. In a socio-economic context this may relate for example to a shortfall or constrained supply of appropriate labour or skills when compared to the regional and national averages, to areas of low educational attainment. For community assets this may relate to facilities that are in regular (daily) use by members of the community. For PRoW, high sensitivity would relate to national trails or routes likely to be used for both commuting and recreation that record frequent (daily) use and typically connect communities with employment land uses and other services. Little / no potential for substitution. |
| Moderate | The receptor has moderate capacity to absorb change without significantly altering its present character, has some environmental value, or is of regional importance. In a socio-economic context, this may relate to skills and capacity shortages, for example. For community assets this may relate to facilities that are in weekly use by members of the community. For PRoW this may relate to regional trails and routes (e.g., promoted circular walks) likely to be used for recreation and to a lesser extent commuting, that record frequent (daily) use. Limited potential for substitution. |
| Low | The receptor is tolerant of change without detriment to its character, is of low environmental value or is of low or local importance. In a socio-economic context, this may relate to a limited supply of labour and skills, for example. For community assets this may relate to infrequent use. For PRoW this may relate to routes close to communities which are used for informal recreational purposes (e.g., dog walking), but for which alternative routes can be taken. |
| Negligible | The receptor has capacity for change or is of little environmental value. In a socio-economic context, this may relate to the area having a readily available workforce, no skills shortages. For community assets this |

| Value (sensitivity) of receptor / resource | Description |
|---|---|
| | may relate to facilities that are rarely used. For PRoW, these may be routes which have fallen into disuse through past severance, or which are scarcely used because they do not currently offer a meaningful route for either utility or recreational purposes. |

### Impact magnitude

13.3.2 The impact magnitude represents the scale or extent of a change from baseline conditions. Given the variety of the socio-economic considerations, it is not appropriate to create definitive magnitude criteria for each assessment area, rather the effects are based on setting the change in the context of the baseline and using professional judgement as required. Impact magnitude will be assessed by giving consideration to the following factors where relevant:

- The geographic extent of the impact.
- The duration and reversibility of the impact.
- The capacity of the receptor to absorb or adjust to the impact.

13.3.3 Impact magnitude is described as negligible, low, medium or high.

### Significance of effect

13.3.4 Table 4-1 in Chapter 4: Environmental Impact Assessment Methodology outlines how the significance of effect will be assessed by considering the sensitivity of a receptor and the magnitude of the impact. Significance of effect can be considered beneficial (positive), adverse (negative) or neutral. Significance of effect is ranked as Negligible, Minor, Moderate or Major. For the purpose of this assessment, major and moderate effects are considered to be 'significant.' Minor and negligible effects are considered to be 'not significant.'

## 13.4 Limitations and Assumptions

13.4.1 The following assumptions and limitations are relevant to this chapter:

- The socio-economic assessment assumes that the potential impacts expected during the construction phase are likely, given the future baseline (Section 13.8), to be similar in nature to those expected during the decommissioning phase.
- An estimation of employment generation during the construction, operation and decommissioning phases will be provided. The employment assessment will be based on these estimations.
- Permanent land take is assumed to be a construction effect as this is the point at which the land take impact occurs albeit it will continue through to the operational phase of the Project.
- No surveys have been undertaken to date. A site visit to ground truth baseline receptors along the Project would be limited given the scale and location of the route, however receptors will be verified wherever possible.
- A beach survey may be required in order to more accurately understand usage levels at Easington beach, the stretch of coastline at the Project's

landfall location. It is assumed that this will be integrated into an existing site visit of the area.

## 13.5 Stakeholder Engagement

13.5.1 Broader engagement with the Local Authorities has been undertaken to inform the EIA Scoping Report. This has included discussions on land use allocations for employment and housing. As these are potential future developments, this engagement feeds into Chapter 20: Cumulative Effects.

13.5.2 Stakeholder engagement with the Local Authorities is being undertaken on a regular basis by our Stakeholder Engagement team. This engagement shall continue as appropriate throughout the environmental impact assessment process. Feedback from these consultations that pertain specifically to the socio-economic assessment will be considered within the assessment where relevant.

13.5.3 Further engagement will be undertaken where potential impacts are anticipated on sensitive assets, where we may need to discuss appropriate mitigation measures with landowners or business owners.

13.5.4 Finally, feedback in relation to the scope of assessment will be gathered following consultation on this Scoping Report and upon receiving the Scoping Opinion.

## 13.6 Study Area

13.6.1 Defining the spatial scope for a socio-economic assessment can be complex given the wide range of receptors and the different ways they might be affected. In the absence of standard methodology and guidance, the Study Area for the socio-economics assessment has been defined using professional judgement and best practice from similar linear projects. The spatial scope comprises two study areas which are intended to capture the range of socio-economic effects that may occur during construction and operation.

13.6.2 The local Study Area is a 500 m buffer around the draft Order Limits which is considered sufficient to capture impacts on land take, access and amenity.

13.6.3 Potential effects on the local economy, local labour force and supply chain are assessed within a wider Study Area which will comprise the Yorkshire and the Humber region.

## 13.7 Receptors

13.7.1 Within the local Study Area, receptors that will be included in the assessment are:

- Private property (residential and local businesses).

- Community assets – this is a diverse grouping and can vary depending on community and location. Broadly, we have defined community assets to include schools, healthcare facilities, places of worship, community centres, libraries, village shops / Post Offices, care homes.
- Recreation assets – this includes the use of National Cycle Routes, Public Rights of Way (PRoW) / bridleways and cycle routes, parks and public gardens, greenspace / open space, long distance walking routes and national cycle network for recreational activity.
- Tourism assets – this includes visitors to tourist attractions (museums, stately homes), tourism businesses and accommodation providers and tourism activities such as horse riding, clay shooting ranges / paint balling / golf courses.

13.7.2 Within the wider Study Area, receptors that will be included in the assessment are:

- Local labour force.
- Local economy.
- Tourism economy – nationally significant tourist attractions including the Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB).

## 13.8 Baseline Conditions

13.8.1 This section sets out the baseline data that will be relied upon to produce a detailed assessment of baseline conditions that will be contained within the PEIR and ES. The following data sources will be used to identify baseline conditions:

- Population: demographic data will be analysed for both local and wider Study Areas, including age profile and population change. Datasets will include Census 2021 data (Office for National Statistics (ONS)) (Ref 13.13).
- Local economy and employment: economic activity and inactivity, unemployment rates and employment by sector will be analysed via the Nomis website (ONS Official Labour Market Statistics service); levels of deprivation will be analysed using the Indices of Multiple Deprivation 2019 (MHCLG, 2019) (Ref 13.14). Local authority economic assessments / strategies will be reviewed to identify strategic priorities.
- Community and recreation infrastructure: these will be identified from local authority evidence base studies such as infrastructure delivery plans, open space assessments together with aerial mapping and imagery.
- Tourism: information on relevant tourism assets will be developed from a variety of sources including evidence base studies and tourism strategies, as well available data relating to the volume and value of tourism from websites such as Visit Britain and Visit Yorkshire.

### Future Baseline

13.8.2 Establishing the future baseline demonstrates how the socio-economic landscape may look when the Project is decommissioned at the end of its 25-year design life. The anticipated future baseline for socio-economics has been determined using sources including regional and Local Authority level population forecasts, housing and employment growth projections using relevant Office for National Statistics (ONS) datasets.

13.8.3 Overall, the population of the region and the four local authority areas where the Project is located are expected to increase over the next 20 years. Yorkshire and the Humber's total population is expected to increase by nearly 300,000 from 5.6 m to almost 5.9 m (5.1%) by 2043 (Ref 13.13). The population change across the Wider Study Area is outlined in Table 13-4.

*Table 13-4 – Wider Study Area Population Projections 2043*

| Local Authority | 2024 | 2043 | Change |
|---|---|---|---|
| East Riding of Yorkshire | 347,327 | 360,081 | +4% |
| North East Lincolnshire | 159,951 | 158,816 | -1% |
| North Lincolnshire | 174,881 | 178,335 | +2% |
| North Yorkshire | 627,317 | 651,803 | +4% |

13.8.4 As a result of this population increase, the demand for housing is expected to grow along with demand for local community amenities and services such as schools and healthcare facilities. Jobs to support a growing population may be required and given the general age of the population is likely to place pressure on the economically active to support society.

## 13.9 Design, Mitigation and Enhancement Measures

13.9.1 At the scoping stage it is currently assumed that measures relevant to the control and management of impacts that could affect the socio-economics assessment would be adopted through a plan such as a Construction Environmental Management Plan (CEMP). Measures required to mitigate any socio-economics impacts will be proposed in the PEIR and / or ES. These measures would be likely to include:

- Ensuring contractors act considerately in relation to local residents.
- Appropriate fencing, signage and safety precautions.
- Measures associated with the design of construction compounds. Where practical, construction compounds would be located to avoid or minimise environmental and community impacts, provide the best access for personnel

and deliveries in relation to major structures and worksites, and meet other construction requirements for the Project.

- Where PRoW or cycle routes may be disrupted by construction of the Project, temporary diversions will be put in place together with appropriate signage as necessary. If this is not possible discussions will occur with stakeholders to agree the most appropriate approach.

13.9.2 A Decommissioning Environmental Management Plan (DEMP) will be implemented during the decommissioning phase. This will identify and mitigate the potential impacts of decommissioning activities which could harm sensitive receptors.

## 13.10 Description of Potential Likely Significant Effects

### Construction

13.10.1 The potential likely socio-economic effects expected during construction are as follows:

- Private property: impacts arising from temporary or permanent land-take and changes to access and associated with the Project. For example, land take from a private garden of a residential property temporarily during construction.
- Community assets: impacts relating to temporary or permanent land take and changes in access / severance and amenity (disturbance and nuisance cause by two or more environmental impacts e.g., visual, noise, traffic and air quality) of social infrastructure as a result of the Project. For example, a change to access and use of a National Cycle Route crossing the draft Order Limits that requires a temporary diversion during construction.
- Recreation assets: impacts relating to temporary or permanent land take and changes in access / severance and amenity of recreational assets such as PRoW and other routes used by the community as a result of the Project. For example, amenity effects on a beach or at a nature reserve from a combination of noise and visual disturbance during construction.
- Tourism: given that a high proportion of the construction workforce is anticipated to come from outside the local area, there would likely be a requirement for temporary living accommodation within reasonable commuting distance of the Project such as rented housing, hotels, guest houses, bed and breakfast establishments / lodgings and official caravan parks. This would also likely generate expenditure on other local services, for example food and drink, petrol. Finally, impacts relating to temporary or permanent land take and changes in access / severance and amenity to tourism assets.

- Local economy and employment effects: The creation of direct employment, as well as indirect and induced employment opportunities. Like other major utility and infrastructure projects, there is expected to be a high level of construction employment. The labour force required for construction would consist of a mix of highly specialised workers, semi-skilled staff and others. These personnel include welders and plant operators, inspectors and supervisors, and management staff. Although a large percentage of the staff employed by the Main Works Contractor/s and Applicant would be drawn from the permanent staff of those organisations, it is normal practice on such projects that some local staff and site labour may be required which may be engaged on a subcontract basis to local firms. In addition to direct local employment described above, there may also be a small element of indirect employment (within daily commuting distance of the Project). This could involve local firms providing services (i.e. haulage, fencing, landscaping etc.), goods and materials (other than specialised steel line pipe and fittings) and local service staff (e.g., cleaning, security, catering, administrative) for the construction phase.
- Local economic expenditure and supply chain effects: this would predominantly be through the procurement of local services / materials (e.g., some construction materials, fencing products etc.), expenditure of employees' salaries within the local economy (i.e. food and drink etc.) and the potential engagement of subcontracts to local suppliers.

### Operation

13.10.2 There is the potential for permanent diversions or closures of PRoW during Operation which could present a change in access for users and impact the use of PRoW for recreational activity. The Landscape and Visual and Air Quality assessments have not scoped out potential impacts from operation of the pump facilities. Therefore, there is the potential for amenity (disturbance) impacts on recreational assets, predominantly walking routes, near the pump facilities.

### Decommissioning

13.10.3 The pipeline would be left in situ therefore there would be no decommissioning effects from that aspect of the Project. However, the AGIs and Pump Facility would be decommissioned and removed, those decommissioning effects are likely to be similar to those experienced during construction.

## 13.11 Summary of the Proposed Scope of Assessment

13.11.1 The proposed scope of assessment, including matters scoped in or out, is summarised in Table 13-5.

*Table 13-5 – Matters Scoped In or Out of the Assessment*

| Matter | Project stage | Scoped in | Scoped out | Justification | Agreed with |
|---|---|---|---|---|---|
| Private Property | Construction and Decommissioning | ✓ | | Potential impacts on areas of private property due to temporary or permanent land-take and changes in access required for the Project. | To be agreed as part of EIA Scoping |
| | Operation | | ✓ | Scoped Out. No impact on private property is expected during operation. Permanent land take or severance is considered under construction. | To be agreed as part of EIA Scoping |
| Community Assets | Construction and Decommissioning | ✓ | | Potential impacts on individual community assets due to temporary or permanent land-take and changes in access required for the Project. Potential impacts on amenity. | To be agreed as part of EIA Scoping |
| | Operation | | ✓ | Scoped Out. No amenity impact on community assets is expected during operation. Permanent land take or severance is considered under construction. | To be agreed as part of EIA Scoping |
| Recreation Assets | Construction, Operation and Decommissioning | ✓ | | Potential impacts on recreation assets such as PRoW as a result of closures / diversions and / or temporary or permanent land take. Potential amenity impact on users of walking routes near pump facilities. | To be agreed as part of EIA Scoping |

| Matter | Project stage | Scoped in | Scoped out | Justification | Agreed with |
|---|---|---|---|---|---|
| Tourism | Construction and Decommissioning | ✓ | | Temporary use of visitor accommodation by members of the construction workforce – impacts on number of available bedspaces. Impacts on land take, access and amenity relating to tourism assets. Potential for impact on wider tourism economy. | To be agreed as part of EIA Scoping |
| Tourism | Operation | | ✓ | Scoped Out. No impact expected on access and amenity of tourism assets as most of the Project is underground. Temporary worker accommodation not required during operation. | To be agreed as part of EIA Scoping |
| Local economy and employment | Construction and Decommissioning | ✓ | | Potential for temporary direct, indirect and induced job creation. | To be agreed as part of EIA Scoping |
| Local economy and employment | Operation | | ✓ | Scoped Out. As detailed in Chapter 3 Description of the Project, the Pump Facility would be operated by an anticipated maximum of four on-site staff during routine operations. Therefore, no significant effects are expected on the local labour market from employment generation. | To be agreed as part of EIA Scoping |
| Local economic expenditure and supply | Construction and Decommissioning | ✓ | | Potential for supply chain benefits and expenditure associated with construction workforce. | To be agreed as |

| Matter | Project stage | Scoped in | Scoped out | Justification | Agreed with |
|---|---|---|---|---|---|
| chain effects | | | | | part of EIA Scoping |
| Local economic expenditure and supply chain effects | Operation | | ✓ | Scoped Out. No significant effects expected on the local economy from associated spending from employment generation, or supply chain expenditure. | To be agreed as part of EIA Scoping |

## 13.12 References


- Ref 13.1 – The Countryside and Rights of Way Act 2000 (CROW) (2000). Available at: Countryside and Rights of Way Act 2000 (legislation.gov.uk)
- Ref 13.2 – National Parks and Access to the Countryside Act 1949 (1949). Available at: National Parks and Access to the Countryside Act 1949 (legislation.gov.uk)
- Ref 13.3 – Department for Energy Security and Net Zero (2023). Overarching National Policy Statement for Energy (EN-1). Available at: EN-1 Overarching National Policy Statement for Energy (publishing.service.gov.uk)
- Ref 13.4 – Ministry of Housing, Communities & Local Government (2023). National Planning Policy Framework. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2
- Ref 13.5 – Ministry of Housing, Communities & Local Government (2023). Planning Practice Guidance: Healthy and Safe Communities. Available at: Healthy and safe communities - GOV.UK (www.gov.uk)
- Ref 13.6 – Selby District Council (2013). Core Strategy Local Plan. Archived at: Selby District Core Strategy Local Plan - DocsLib https://docslib.org/doc/8171293/selby-district-core-strategy-local-plan
- Ref 13.7 – Selby District Council (2024). Revised Pre-submission Publication Local Plan. Available at: https://selby-consult.objective.co.uk/kse/event/37850/section/6199445
- Ref 13.8 – North Lincolnshire Council (2011). Local Development Framework Core Strategy Adopted. Available at: Core Strategy 2010.indb (northlincs.gov.uk)
- Ref 13.9 – North East Lincolnshire Council (2018). Planning for Growth Local Plan 2013 to 2032. Available at: https://www.nelincs.gov.uk/planning-and-building-control/planning-policy/the-local-plan
- Ref 13.10 – East Riding of Yorkshire Council (2016). East Riding Local Plan. Available at: https://www.eastriding.gov.uk/planning-permission-and-building-control/planning-policy-and-the-local-plan/east-riding-local-plan
- Ref 13.11 – Central Lincolnshire (2023). Central Lincolnshire Local Plan, 2017. Available at: https://www.n-kesteven.gov.uk/sites/default/files/2023-04/Local%20Plan%20for%20adoption%20Approved%20by%20Committee.pdf
- Ref 13.12 – Homes and Communities Agency (2014). Additionality Guide Fourth Edition. Available at: HCA Policy Covers (publishing.service.gov.uk)
- Ref 13.13 – Population projections – local authorities: SNPP Z1 (2020). Available at:

https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/localauthoritiesinenglandz1

- Ref 13.14 – Ministry of Housing, Communities and Local Government (2019). English Indices of Deprivation 2019. Available at: English indices of deprivation 2019 - GOV.UK (www.gov.uk)

# 14 Human Health and Wellbeing

## 14.1 Introduction

14.1.1 This Chapter addresses the proposed scope of the Environmental Impact Assessment (EIA) with respect to Human Health and Wellbeing. It includes a summary of baseline data that will be collected and the proposed approach to the assessment of possible construction, operational and decommissioning effects. Matters that are to be scoped in and out of the assessment are identified.

14.1.2 The World Health Organisation (WHO) defines health as a 'state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity' (World Health Organisation, 1948) (Ref 14.1). The range of personal, social, economic and environmental factors that influence health status are known as health determinants and include the physical environment, income levels, employment, education, social support and housing. Key determinants of health can be categorised as follows:

- Pre-determined factors such as age, genetic make-up and gender are fixed and strongly influence a person's health status.
- Social and economic circumstances such as poverty, unemployment and other forms of social exclusion strongly influence health and improving them can significantly improve health.
- How the environment in which people live, work and play are provided and managed (for example air quality, aspects of the built environment) can either damage health or provide opportunities for health improvement.
- Lifestyle factors can have significant impacts on health.
- The accessibility of services such as the National Health Service (NHS); and
- Education, social services, transport and leisure facilities influence the health of the population.

14.1.3 This chapter should be read in conjunction with a number of other Chapters within this report, due to the reliance on their assessment and the subsequent potential effects on health and wellbeing:

- Chapter 6: Air Quality.
- Chapter 9: Ground conditions and Hydrogeology.
- Chapter 10: Landscape and Visual Amenity.
- Chapter 12: Noise and Vibration.
- Chapter 13: Socio-economics.
- Chapter 15: Traffic and Transport.
- Chapter 17: Water Resources, Flood Risk and Land Drainage.

14.1.4 This scope differs from the assessment of socio-economics, recreation and tourism which considers those receptors which have the potential to experience changes to accessibility, severance, provision of facilities and restriction of use.

14.1.5 There may be some receptor e.g., pedestrian routes, that may be discussed in both chapters but applying different metrics and assessment methodologies.

## 14.2 Legislation, Policy and Guidance

14.2.1 The assessment to be undertaken to inform the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) will be undertaken in accordance with, and with reference to, the following legislation, policy and guidance.

### Legislation

14.2.2 Relevant legislation includes:

- The Environment Act 2021 (Ref 14.2): this sets out a series of long-term targets which relate to the natural environment and people's enjoyment of the natural environment, under Part 1 Regulation 1. Targets for improving air quality, water quality, biodiversity and resource efficiency are required to be met.
- Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref 14.3): the Regulations require a number of topics to be assessed including human health. The assessment should include a description of the factors likely to be significantly affected by the development and a description of the likely significant effects.
- Equality Act 2010 protects people from discrimination in the workplace and in wider society. Protected characteristics comprise age, disability, gender reassignment, marriage and civil partnership, race (including colour, nationality, ethnic or national origin), religion or beliefs, sex, sexual orientation, pregnancy and maternity.

### Policy

#### National Planning Policy

#### National Policy Statements

14.2.3 As detailed in Chapter 1, Introduction, National Policy Statements (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Project would be considered. The two relevant NPSs are Overarching National Policy Statement for Energy (EN-1) (Ref 14.1) and National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Ref 14.2).

*Table 14-1 – NPS Relevance to Health and Wellbeing Chapter*

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-1 | 4.4.1 – 4.4.3 Access to energy is clearly beneficial to society and to our health as a whole. However, the construction of energy infrastructure and the production, distribution and use of energy may have negative impacts on some people's health.<br>The direct impacts on health may include<br>• Increased traffic.<br>• Air or water pollution.<br>• Dust, odour.<br>• Hazardous waste and substances.<br>• Noise.<br>• Exposure to radiation.<br>• Increases in pests<br>New energy infrastructure may also affect the composition and size of the local population, and in doing so have indirect health impacts, for example if it in some way affects access to key public services, transport, or the use of open space for recreation and physical activity. | The Health and Wellbeing assessment will consider these impacts associated with the construction, operation and decommissioning phases of the Project, drawing on the conclusions of the assessments of the relevant topics.<br>The Health and Wellbeing assessment will consider the conclusions of Chapter 13: Socio-economics, which will assess the composition of the local population, as well as the changes in access to recreational spaces and opportunities for physical activity.<br>The assessment will identify any potential adverse health impacts and identify measures to avoid or reduce any adverse effects. |

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-1 | 4.4.6 Opportunities should be taken to mitigate indirect impacts, by promoting local improvements to encourage health and wellbeing, this includes potential impacts on vulnerable groups within society and impacts on those with protected characteristics under the Equality Act 2010, i.e. those groups which may be differentially impacted by a development compared to wider society as a whole. | The Health and Wellbeing assessment will consider impacts to vulnerable groups as well as to the general population. |

### National Planning Policy Framework

14.2.4 The National Planning Policy Framework (Department for Levelling Up, Housing and Communities, 2023) (Ref 14.5)[14] supports the role of planning to achieve healthy, inclusive and safe places. Planning Practice Guidance (PPG) (Department for Levelling Up, Housing and Communities, 2023) (Ref 14.6) sets out the importance of considering planning and health together by creating healthy environments that support and encourage healthy lifestyles and by identifying and securing facilities for primary, secondary and tertiary care.

14.2.5 The overarching aim includes a social objective to support strong and healthy communities, with accessible services and open spaces. Section 14.9 specifies the objectives for promoting healthy and safe communities.

### Local Planning Policy

14.2.6 The Project lies within the jurisdictions of North Yorkshire, East Riding of Yorkshire, North Lincolnshire and North East Lincolnshire. A summary of the relevant local planning policy which is relevant to the study of health and wellbeing matters and will inform the assessment in the ES is provided in Table 14-2.

[14] This EIA Scoping Report makes reference to the December 2023 update of the NPPF. The PEIR will provide an update of applicable legislation and policy, which will include consideration of the December 2024 NPPF update (or any subsequent update).

*Table 14-2 – Local Plan Relevance to Health and Wellbeing*

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| Selby District Council Local Plan (Selby District Council, 2022) (Ref 14.7) and Selby District Council Revised Pre-Submission Publication Local Plan (2024) (Ref 14.8). | Local Plan Objectives and Vision<br>Policy SG4 - Development in the Countryside (Strategic Policy) | *The Council will seek to ensure that Selby District remains a special place to live by supporting development which protects and enhances the intrinsic character and beauty of the countryside, recognising the important role it plays in the local economy, for the health and well-being of local residents and as a biodiversity resource.* | The health and wellbeing assessment will take into account loss of landscape views and those effects on mental health of residents, as well as the potential for loss of opportunities for recreation and exercise. |
| | Policy SG9 - Design (Strategic Policy) | *"…B. Development should where appropriate seek to: Proposals for Major Development should be accompanied by a Health Impact Assessment Screening Checklist which will determine whether a full assessment is required;"* | The health and wellbeing assessment will align to health impact assessment principles. |
| North Lincolnshire Local Development Framework Core Strategy (North Lincolnshire Council, 2011) (Ref 14.9). | ST1 - Sustainable Development | *The Council will apply the principles of sustainable development through its planning policies and will have particular regard to: (a) ensuring social progress and equality of opportunity; (b) protecting the natural and built environment and the prudent use of natural resources, both locally* | The health and wellbeing assessment will assess the Project's effects on health and wellbeing to ensure that there will be no worsening health outcomes. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | *and globally; (c) maintaining economic growth and employment.* | |
| East Riding Local Plan 2012-2029 Strategy Document (East Riding of Yorkshire Council, 2016) (Ref 14.11). | Policy ENV1: Integrating high quality design | *"B Development will be supported where it achieves a high quality of design that optimises the potential of the site and contributes to a sense of place. This will be accomplished by: …*<br>*6. Having regard to healthy lifestyles; …*<br>*9. Promoting equality of safe access, movement and use;"* | The health and wellbeing assessment will recognise any potential negative effects on health and on the perception of safety and access. |
| North East Lincolnshire Local Plan 2013 to 2032 (Adopted 2018) (Ref 14.12) | SO5 Social and health inequality | *Narrow the gap in terms of social and health inequality by addressing issues of housing choice, providing accessible employment and training opportunities, promoting healthier lifestyles, providing healthcare and community facilities, improving educational attainment and cultural facilities; and establishing protecting and maintaining a network of accessible good quality open space, sport and recreation facilities.* | The health and wellbeing assessment will include an assessment of access to employment, education and healthcare facilities, as well as opportunities for recreation and exercise. |
| Lincolnshire Joint Health and Wellbeing Strategy (Lincolnshire County | Whole document | E*.g., Live well… Reduce inequalities by working to lower barriers to accessing services in areas of higher need.* | Mitigation for any potential physical and mental health effects will be identified |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| Council, 2024) (Ref 14.13). | | | through the health and wellbeing assessment, particularly for any areas experiencing a number of effects in combination. |
| North Yorkshire Joint Health and Wellbeing Strategy 2023-2030 (North Yorkshire Council, 2024) (Ref 14.14). | Whole document | E.g.,<br>*What we are going to do*<br>• Take opportunities to design environments that support healthy lives, including:<br>• Physical activity – getting people moving more, supported by the council's strategic leisure review with new operating model by 2027<br>• Active travel routes and improved public transport including to increase education, employment and leisure opportunities as well as access to services<br>• Improving indoor and outdoor air quality to reduce air pollution-related impacts | The strategy sets out the objectives for North Yorkshire; the health and wellbeing assessment will ensure that the Project does not harm progress in this strategy. |
| East Riding Joint Health and Wellbeing Strategy 2023-2028 (East Riding | PRIORITY OUTCOME 2 WORKING AGE | *We want to ensure that Working Age Adults:*<br>• Enjoy good mental health and emotional wellbeing. | |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| of Yorkshire Council, 2023) (Ref 14.15). | ADULTS REDUCE THEIR RISK OF ILL HEALTH | • Have the opportunity to develop their skills and study towards qualifications in order to lift their aspirations and help them seek out new opportunities.<br>• Feel involved in their community and are aware of the variety of groups and support mechanisms available to help with their own health and wellbeing, and others.<br>• Lead healthy lifestyles to help embed prevention and build resilience.<br>• Are aware of the wider determinants of health and are aware of the support on offer to assist in creating the best conditions for health. | |

## Guidance

14.2.7 The UK Government White Paper 'Healthy Lives, Healthy People' (Department of Health and Social Care, 2010) (Ref 14.16) provides a framework for tackling the wider social determinants of health, presenting the UK Government's commitment to protecting the population from serious health threats; helping people live longer, healthier and more fulfilling lives; and improving the health of the poorest, fastest.

14.2.8 The Marmot Review 'Fair Society, Healthy Lives' (Institute of Health Equity, 2010) (Ref 14.17) undertook a review into inequality and its relation to health. The Review contained policy recommendations to address the findings, including for the creation of healthy and sustainable communities, giving children the best start in life and ensuring a healthy standard of living for all. Health Equity in England: The Marmot Review 10 Years On (Institute of Health Equity, 2020) (Ref 14.18) built on the work of the original Marmot Review and examined why life expectancy has stalled in England and how health inequalities have grown in the previous decade.

14.2.9 Guidance relevant to undertaking a health and wellbeing assessment includes:

- Advice on the Content of Environmental Statements Accompanying an Application under the Nationally Significant Infrastructure Project (NSIP) Regime (Public Health England, 2021) (Ref 14.19) explains the required methodology for assessing impacts, alongside methodologies for defining potential significant effects and vulnerable groups.
- Health in Environmental Impact Assessment: A Primer for a Proportionate Approach (Institute of Environmental Management and Assessment (IEMA), 2017) (Ref 14.20) aims to guide EIA coverage of population and human health, focusing on proportionality and the opportunities and challenges presented.
- Effective Scoping of Human Health in Environmental Impact Assessment (IEMA, 2022) (Ref 14.21) explains when an EIA Chapter should be prepared and when a standalone Health Impact Assessment would be required. The expectation is that the EIA Report will include a chapter on human health where wider determinants of health not covered by other EIA technical topics have been scoped in; or where other EIA technical topics have been scoped in to assess likely and potentially significant effects to human receptors, community amenities or services and there are likely and potentially significant population health implications from such assessments. Additionally, the guidance outlines that *"where the EIA follows IEMA guidance, the health chapter will align to HIA principles, including considering wider determinants of health and health inequalities;".*

- Determining Significance for Human Health in Environmental Impact Assessment (IEMA, 2022) (Ref 14.22) promotes greater consistency in the assessment process, including how EIA health conclusions are reached, interpreted and used by all parties. This guidance explains how the magnitude of effect and sensitivity of receptors is applied to human health. Methodologies are set out and significance criteria established.
- The Mental Wellbeing Impact Assessment Toolkit (MWIA) (National MWIA Collaborative (England), 2011) (Ref 14.23) provides an evidence-based framework for assessing mental wellbeing. The MWIA screening toolkit is based around assessment against four 'protective factors' for mental wellbeing.
- Identification of vulnerable groups for inclusion in health and wellbeing assessments will be informed by guidance available from the Welsh Health Impact Assessment Support Unit (WHIASU, 2021) (Ref 14.24).

## 14.3 Proposed Assessment Methodology

### Value / Sensitivity

14.3.1 A qualitative assessment to determine sensitivity of receptors to change and the magnitude of potential changes will be used. This takes into the following factor for both health-related environmental change and for the assessment of impacts in relation to mental health and wellbeing. Factors include:

- How a health determinant might change as a result of the Project and whether this would be beneficial or adverse.
- Duration of change – temporary or permanent.
- Exposure to change (including identification of vulnerable populations).
- Intensity (magnitude or severity of the change in the health determinant).

14.3.2 Table 14-3 sets out how sensitivity of receptors will be determined.

*Table 14-3 – Approach to Determining Sensitivity of Receptors*

| Sensitivity level | Indicative criteria (judgement based on most relevant criteria, it is likely that in any given analysis, some criteria will span categories)<br>**The narrative explains that the sensitivity of the population within local authority areas is driven by:** |
|---|---|
| High | High levels of deprivation (including pockets of deprivation); existing wide inequalities between the most and least healthy; a community whose outlook is predominantly anxiety or concern; people who are prevented from undertaking daily activities; dependants; people with very poor health status; and / or people with a very low capacity to adapt. |
| Medium | Moderate levels of deprivation; existing widening inequalities between the most and least healthy; a community whose outlook is predominantly uncertainty with some concern; people who are highly limited from undertaking daily activities; people providing or requiring a lot of care; people with poor health status; and / or people with a limited capacity to adapt. |
| Low | Low levels of deprivation; existing narrowing inequalities between the most and least healthy; a community whose outlook is predominantly ambivalence with some concern; people who are slightly limited from undertaking daily activities; people providing or requiring some care; people with fair health status; and / or people with a high capacity to adapt. |
| Very Low | Very low levels of deprivation; existing narrow inequalities between the most and least healthy; a community whose outlook is predominantly support with some concern; people who are not limited from undertaking daily activities; people who are independent (not a carer or dependant); people with good health status; and / or people with a very high capacity to adapt. |

## Impact Magnitude

14.3.3 Health and wellbeing magnitude criteria are set out in Table 14-4.

*Table 14-4 – Health Magnitude Criteria*

| Magnitude of impact | Indicative criteria (judgement based on most relevant criteria, it is likely that in any given analysis, some criteria will span categories)<br>**The narrative explains that the magnitude of change as a result of the Project is driven by:** |
|---|---|
| High | High exposure or scale; long-term duration; continuous frequency; severity predominantly related to mortality or changes in morbidity (physical or mental health) for very severe illness / injury outcomes; majority of population affected; permanent change; substantial service quality implications. |
| Medium | Low exposure or medium scale; medium-term duration; frequent events; severity predominantly related to moderate changes in morbidity or major change in quality-of life; large minority of population affected; gradual reversal; small service quality implications. |
| Low | Very low exposure or small scale; short-term duration; occasional events; severity predominantly related to minor change in morbidity or moderate change in quality-of life; small minority of population affected; rapid reversal; slight service quality implications. |
| Negligible | Negligible exposure or scale; very short-term duration; one-off frequency; severity predominantly relates to a minor change in quality-of-life; very few people affected; immediate reversal once activity complete; no service quality implications. |

## Significance of effect

14.3.4 The general approach to identification of significant effects in EIA is shown in Table 14-5. This is followed in Table 14-6 by further detail relating to the reasoning behind determining levels of significance, with specific reference to health and wellbeing.

*Table 14-5 – Generic Identification of Significance of Effect in EIA*

| Magnitude | Sensitivity: High | Sensitivity: Medium | Sensitivity: Low | Sensitivity: Very Low |
|---|---|---|---|---|
| **High** | Major | Major / Moderate | Moderate / Minor | Minor / Negligible |
| **Medium** | Major / moderate | Moderate | Minor | Minor / Negligible |
| **Low** | Moderate / Minor | Minor | Minor | Negligible |
| **Negligible** | Minor /Negligible | Minor / negligible | Negligible | Negligible |

*Table 14-6 – Significance Conclusions and Reasoning Relating to Health and Wellbeing*

| Category / level | Indicative criteria (judgement based on most relevant criteria, it is likely that in any given analysis, some criteria will span categories) |
|---|---|
| Major (significant) | The narrative explains that this is significant for health and wellbeing because:<br>• Changes, due to the Project, have a substantial effect on the ability to deliver current health policy and / or the ability to narrow health inequalities, including as evidenced by referencing relevant policy and effect size (magnitude and sensitivity levels), and as informed by consultation themes emerging from stakeholders, particularly public health stakeholders, that show consensus on the importance of the effect.<br>• Change, due to the Project, could result in a regulatory threshold or statutory standard being crossed (if applicable).<br>• There is likely to be a substantial change in the health baseline of the population, including as evidenced by the effect size and scientific literature showing there is a causal relationship between changes that would result from the Project and changes to health outcomes.<br>In addition, health priorities for the relevant Study Area are of specific relevance to the determinant of health or population group affected by the Project. |
| Moderate (significant) | The narrative explains that this is significant for health and wellbeing because:<br>• Changes, due to the Project, have an influential effect on the ability to deliver current health policy and / or the ability to narrow health inequalities, including as evidenced by referencing relevant policy and effect size, and as informed by consultation themes among stakeholders, which may show mixed views.<br>• Change, due to the Project, could result in a regulatory threshold or statutory standard being approached (if applicable). |

| Category / level | Indicative criteria (judgement based on most relevant criteria, it is likely that in any given analysis, some criteria will span categories) |
|---|---|
| | • There is likely to be a small change in the health baseline of the population, including as evidenced by the effect size and scientific literature showing there is a clear relationship between changes that would result from the Project and changes to health outcomes.<br>In addition, health priorities for the relevant Study Area are of general relevance to the determinant of health or population group affected by the Project. |
| Minor (not significant) | The narrative explains that this is not significant for health and wellbeing because:<br>• Changes, due to the Project, have a marginal effect on the ability to deliver current health policy and / or the ability to narrow health inequalities, including as evidenced by effect size of limited policy influence and / or that no relevant consultation themes emerge among stakeholders.<br>• Change, due to the Project, would be well within a regulatory threshold or statutory standard (if applicable); but could result in a guideline being crossed (if applicable).<br>• There is likely to be a slight change in the health baseline of the population, including as evidenced by the effect size and / or scientific literature showing there is only a suggestive relationship between changes that would result from the Project and changes to health outcomes.<br>• In addition, health priorities for the relevant Study Area are of low relevance to the determinant of health or population group affected by the Project. |
| Negligible (not significant) | The narrative explains that this is not significant for health and wellbeing because<br>• Changes, due to the Project, are not related to the ability to deliver current health policy and / or the ability to narrow health inequalities, including as evidenced by effect size or lack of relevant policy, and as informed by the Project having no responses on this issue among stakeholders.<br>• Change, due to the Project, would not affect a regulatory threshold, statutory standard or guideline (if applicable). |

| Category / level | Indicative criteria (judgement based on most relevant criteria, it is likely that in any given analysis, some criteria will span categories) |
|---|---|
| | • There is likely to be a very limited change in the health baseline of the population, including as evidenced by the effect size and / or scientific literature showing there is an unsupported relationship between changes that would result from the Project and changes to health outcomes.<br>In addition, health priorities for the relevant Study Area are not relevant to the determinant of health or population group affected by the Project. |

## 14.4 Limitations and Assumptions

14.4.1 Health effects are considered at a population, rather than an individual level (Ref 14.22).

14.4.2 Ascertaining the level of exposure of a population to impacts on certain health determinants is based on professional judgement, taking into account the fact that there are inherent uncertainties in identifying how and where people may spend their time (for example in a location exposed to impacts) as opposed to other locations where other factors may be responsible for health changes.

14.4.3 The Human Health and Wellbeing Chapter is informed by other technical assessments (for example air quality, noise and vibration, socio-economics) and is therefore subject to the same limitations and assumptions affecting those assessments.

14.4.4 The scale and significance of impacts cannot always be quantified. It is common for human health and wellbeing assessments to address this through descriptive analysis of impacts and identification of the potential direction of effects.

## 14.5 Stakeholder Engagement

14.5.1 Engagement will be undertaken with the relevant local authorities as summarised in the table below. Engagement shall continue as appropriate throughout the environmental impact assessment process.

*Table 14-7 – Summary of Stakeholder Engagement*

| Organisation and date | Summary of engagement | Consideration within Scoping Report |
|---|---|---|
| North Yorkshire Council | Scoping Opinion to be reviewed and any health and wellbeing specific comments will be addressed and discussed with the local authority where necessary. | Engagement to take place following Scoping Opinion. |
| East Riding of Yorkshire Council | Scoping Opinion to be reviewed and any health and wellbeing specific comments will be addressed and discussed with the local authority where necessary. | Engagement to take place following Scoping Opinion. |
| North Lincolnshire Council | Scoping Opinion to be reviewed and any health and wellbeing specific comments will be addressed and discussed with the local authority where necessary. | Engagement to take place following Scoping Opinion. |
| North East Lincolnshire Council | Scoping Opinion to be reviewed and any health and wellbeing specific comments will be addressed and discussed with the local authority where necessary. | Engagement to take place following Scoping Opinion. |
| UK Health and Security Agency (UKHSA) | Feedback received has included reference to appropriate guidance documents (included within this Scoping Report chapter) and the importance of explaining likely impacts of the Project in such a way that is clear to local communities along the route. The feedback has also highlighted the need to clarify whether or not the Project impacts receptors as a result of potential sources of Electric and Magnetic Fields (EMFs). | The appropriate guidance documents have been included within this Scoping Report.<br>The Scoping Report clarifies potential for EMF effects.<br>Engagement and consultation going forward will be cognisant of communities in the messaging and ensure that information is clearly presented. |

14.5.2 Further feedback in relation to the Human Health and Wellbeing topic and the scope of assessment will be gathered following consultation on this Scoping Report.

## 14.6 Study Area

14.6.1 In the absence of standard methodology and guidance, the Study Area for the health and wellbeing assessment has been defined using professional judgement and experience of similar linear projects. Local authority boundaries have been used to define the widest extent of the Study Area.

14.6.2 Where the assessment of health-related environmental change relies on data from other topic chapters, the Study Area for that chapter will be referred to in the assessment (for example for Chapter 13: Socio-economics, a 500m Study Area has been used to assess the impacts on social infrastructure).

## 14.7 Receptors

14.7.1 Receptors include local residents within the identified Study Area. The human health and wellbeing assessment will also identify more vulnerable populations through consideration of information contained in WHIASU guidance (Ref 14.21). Vulnerable groups include those with protected characteristics as listed under the Equality Act (2010) and other groups that suffer discrimination or social disadvantage, alongside socio-economic position and income-related groups and geographic groups (i.e. those living in areas known to exhibit poor economic / health indicators and isolated / over-populated areas).

14.7.2 The WHIASU guidance provides a population group checklist, identifying groups considered to be more susceptible to poorer health and wellbeing outcomes, noting that groups identified as more sensitive to potential impacts will depend on the characteristics of the local population, the context and the nature of the proposal.

## 14.8 Baseline Conditions

14.8.1 Baseline data relating to health and well-being will be collected from the following publicly available sources, relating to both physical and mental health:

- Area profiles compiled by the Office for Health Improvement and Disparities (OHID) will be accessed to provide data relating to a range of health conditions, life expectancy and mortality rates. The Local Health website (OHID, 2021) (Ref 14.22) will be used to identify similar information at local

authority level and will focus on specific wards through which the route passes.
- Ministry of Housing, Communities and Local Government (MHCLG) Indices of Deprivation data (2019) (Ref 14.23).
- Relevant Joint Strategic Needs Assessment and Health and Wellbeing Strategies of individual local authorities through which the route passes will be reviewed to determine health needs and priorities at local authority level.
- Identification of social infrastructure (for example healthcare facilities) within a 500m Study Area of the route.

14.8.2 Further baseline information will be derived from other chapters within the EIA, including:

- Chapter 6: Air Quality.
- Chapter 8: Climate Change, Adaptation and Resilience.
- Chapter 9: Ground conditions and Hydrogeology.
- Chapter 10: Landscape and Visual Amenity.
- Chapter 12: Noise and Vibration.
- Chapter 13: Socio-economics.
- Chapter 15: Traffic and Transport.
- Chapter 17: Water Resources, Flood Risk and Land Drainage.

## Future Baseline

14.8.3 The future baseline relates to known or anticipated changes to the current baseline. For health and wellbeing, it is not expected to materially change across the duration of the Project. Data relating to future population change will be established using Office for National Statistics (ONS) datasets as set out in Chapter 13: Socio-Economics.

14.8.4 Following the 2008 financial crisis, public spending cuts have reduced the access to healthcare across England. The Covid-19 pandemic and subsequent cost of living crisis further impacted people's lives and wellbeing. Across the UK, health inequalities have increased, and the Study Area is no exception. Health and Wellbeing Strategies and Joint Strategic Needs Assessments prepared by local authorities across the Study Area aim to address health inequalities and improve the physical and mental health and resilience of the population.

14.8.5 Future baseline information relating to health-related environmental change is set out in the following chapters:

- Chapter 6: Air Quality.
- Chapter 8: Climate Change, Adaptation and Resilience.
- Chapter 9: Ground Conditions and Hydrogeology.
- Chapter 10: Landscape and Visual Amenity.
- Chapter 12: Noise and Vibration.
- Chapter 15: Traffic and Transport.
- Chapter 17: Water Resources, Flood Risk and Land Drainage.

## 14.9 Design, Mitigation and Enhancement Measures

14.9.1 The draft Order Limits have been located as far as practicable from large residential and urban areas and sensitive receptors (which includes residential receptors, schools, medical facilities and residential care homes).

14.9.2 As part of the Project design process, a number of embedded mitigation measures will be proposed to reduce the potential for impacts on health and wellbeing receptors. These measures will evolve over the development process as the EIA progresses and in response to consultation and will be fed iteratively into the assessment process. These measures typically include those that have been identified as good or standard practice and include actions that would be undertaken to meet existing legislation requirements.

## 14.10 Description of Potential Likely Significant Effects

### Construction

14.10.1 Potential significant effects on the health and wellbeing of sensitive receptors are likely to be limited to the construction phase only. Table 14-8 outlines the significant effects associated with the above impact pathways and sensitive receptors which have been scoped into the health and wellbeing assessment.

*Table 14-8 – Potential Likely Significant Effects During Construction*

| Impact | Receptor | Potential for significant effects |
|---|---|---|
| Impacts resulting from environmental change relating to the construction phase (for example as a result of air quality, noise, traffic or visual impacts, or from water or ground contamination). | Quality of life and associated physical and mental health of residents, workers and visitors | Adverse environmental effects have the potential to significantly worsen health outcomes, particularly for vulnerable populations. The assessment will draw on the conclusions from the relevant discipline chapters. |
| Potential temporary severance of Public Rights of Way (PRoW) and recreational routes as a result of construction activities. | Quality of life and associated physical and mental health of residents, workers and visitors. | Reduced access to the natural environment through loss of walking, cycling or recreational routes for residents and visitors has the potential to lead to worsened physical and mental health outcomes. |
| Possibility of temporary severance of access to community facilities and recreational attractions. | Quality of life and associated physical and mental health of residents, workers and visitors. | Reduced access to social infrastructure may result in isolation or local anxiety / concern and has the potential to impact physical and mental health outcomes if durations are extensive or unclear. |
| Employment and training benefits arising from the construction phase. | Wellbeing of the local population, including vulnerable groups located within more deprived communities. | Potential for beneficial effects on the health and wellbeing of the local population through employment and training prospects. The |

| | |
|---|---|
| | assessment will draw on the conclusions from Chapter 13: Socio-economics. |

## Operation

14.10.2 There are not likely to be any significant effects on the health and wellbeing of the local population during the operational phase of the Project. This is because the nature of the Project (i.e. a buried pipeline) is such that there are not likely to be significant effects arising from environmental change (e.g., air quality, noise, traffic, visual impacts), and any disruption to access to recreational routes, PRoW or community facilities would be reinstated following construction. Employment numbers arising from the operational phase are also likely to be limited. No effects are anticipated to arise in connection with Electric and Magnetic Fields (EMFs) as a result of operation of the Project.

## Decommissioning

14.10.3 The pipelines will have an operational life of at least 25 years. When the pipelines reach the end of their life, they will be decommissioned safely under a separate consent. The pipelines will be left in situ. The Above Ground Installations (AGIs) and Pump Facility will be dismantled, with all equipment removed, and the land returned to agricultural or other appropriate uses. Decommissioning will consider all relevant environmental legislation and technology available at the time.

14.10.4 Decommissioning activities have to potential to create similar impacts to construction due to the required vehicle movements and the removal of the AGIs and Pump Facility infrastructure, and is therefore scoped in. However, as the pipeline will be left in situ, and the construction corridor will not be required, resulting in only localised activities around the AGIs, effects resulting from access restrictions are not likely to occur.

*Table 14-9 – Potential Likely Significant Effects during the Decommissioning Phase*

| Impact | Receptor | Potential for significant effects |
|---|---|---|
| Impacts resulting from environmental change relating to the decommissioning phase (for example as a result of air quality, noise, traffic or visual impacts, or from water or ground contamination). | Quality of life and associated physical and mental health of residents, workers and visitors. | Adverse environmental effects have the potential to significantly worsen health outcomes, particularly for vulnerable populations. The assessment will draw on the conclusions from the relevant discipline chapters. |
| Employment and training benefits arising from the construction phase. | Wellbeing of the local population, including vulnerable groups located within more deprived communities. | Potential for beneficial effects on the health and wellbeing of the local population through employment and training prospects. The assessment will draw on the conclusions from Chapter 13: Socio-economics. |

## 14.11 Summary of the Proposed Scope of Assessment

14.11.1 The proposed scope of assessment, including matters scoped in or out, is summarised in Table 14-10.

*Table 14-10 – Matters Scoped In or Out of the Assessment*

| Matter | Project stage | Scoped in | Scoped out | Justification | Agreed with |
|---|---|---|---|---|---|
| Effects on physical and mental health and wellbeing | Construction | ✓ | | There is the potential for effects on the physical and mental health and wellbeing of the local population, including vulnerable groups, as a result of the construction of the Project. This includes through environmental change impacting quality of life, through changes in access to the natural environment or to community facilities, or construction employment. | Proposed scope not yet agreed with stakeholders |
| Effects on physical and mental health and wellbeing | Operation | | ✓ | | Proposed scope not yet agreed with stakeholders |
| Effects on physical and mental health and wellbeing | Decommissioning | ✓ | | There is the potential for effects on the physical and mental health and wellbeing of the local population, including vulnerable groups, as a result of the decommissioning of the Project. This includes through environmental change impacting quality of life, through | Proposed scope not yet agreed with stakeholders |

| Matter | Project stage | Scoped in | Scoped out | Justification | Agreed with |
|---|---|---|---|---|---|
| | | | | changes in access to the natural environment or to community facilities, or construction employment. | |

## 14.12 References


- Ref 14.1 World Health Organization (WHO) (1948). Preamble to the Constitution of WHO as adopted by the International Health Conference, New York, 19 June – 22 July 2946; signed on 22 July 1946 by the representatives of 61 States (Official Records of WHO, no.2 p100) and entered into force on 7 April 1948
- Ref 14.2 Environment Act 2021 (2021). Available at: Environment Act 2021 (legislation.gov.uk)
- Ref 14.3 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (2017). Available at: The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (legislation.gov.uk)
- Ref 14.4 Department for Energy Security and Net Zero (2023). Overarching National Policy Statement for Energy (EN-1). Available at: EN-1 Overarching National Policy Statement for Energy (publishing.service.gov.uk)
- Ref 14.5 Ministry of Housing, Communities & Local Government (2023). National Planning Policy Framework. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2
- Ref 14.6 Ministry of Housing, Communities & Local Government (2023). Planning Practice Guidance: Healthy and Safe Communities. Available at: Healthy and safe communities - GOV.UK (www.gov.uk)
- Ref 14.7 Selby District Council (2013). Local Plan. Available at: https://www.selby.gov.uk/selby-district-core-strategy-local-plan
- Ref 14. 8 Selby District Council (2024). Revised Pre-submission Publication Local Plan. Available at: https://selby-consult.objective.co.uk/kse/event/37850/section/6199445
- Ref 14.9 North Lincolnshire Council (2011). Local Development Framework Core Strategy Adopted. Available at: Core Strategy 2010.indb (northlincs.gov.uk)
- Ref 14.10 North Lincolnshire Council (2021). Emerging North Lincolnshire Local Plan, 2020-2038. Available at: https://m.northlincs.gov.uk/public/localplan/stage_4_doc/North Lincolnshire Local Plan - Final.pdf
- Ref 14.11 East Riding of Yorkshire Council (2016). East Riding Local Plan. Available at: https://www.eastriding.gov.uk/planning-permission-and-building-control/planning-policy-and-the-local-plan/east-riding-local-plan
- Ref 14.12 Central Lincolnshire (2023) Central Lincolnshire Local Plan, 2017. Available at: https://www.n-kesteven.gov.uk/sites/default/files/2023-

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- Ref 14.13 Lincolnshire County Council (2024) Joint Health and Wellbeing Strategy. Available at: Final_JHWS_Approved_20230312.pdf (lhih.org.uk)
- Ref 14.14 North Yorkshire Council (2024) Joint Health and Wellbeing Strategy 2023-2030. Available at: North Yorkshire Joint Health and Wellbeing Strategy 2023-2030.pdf
- Ref 14.15 East Riding of Yorkshire Council (2023) Joint Health and Wellbeing Strategy 2023-2028. Available at: Joint Health and Wellbeing Strategy 2023-2028.pdf (eastriding.org.uk)
- Ref 14.16 Department of Health (2010). Healthy Lives, Healthy People: Our strategy for public health in England. Available at: Healthy Lives, Healthy People: Our strategy for public health in England (publishing.service.gov.uk)
- Ref 14.17 Marmot, M., Allen, J., Goldblatt, P., Boyce, T., McNeish, D. and Grady, M. (2010). Fair Society, Healthy Lives: The Marmot Review: Strategic Review of Health Inequalities in England post-2010. London: The Marmot Review. Available at: Fair Society Healthy Lives full report (parliament.uk)
- Ref 14.18 Marmot, M., Allen, J., Boyce, T., Goldblatt, P. and Morrison, J. (2020). Health Equity in England: The Marmot Review 10 Years On. London: Institute of Health Equity. Available at: Health Equity in England: The Marmot Review 10 Years On - The Health Foundation
- Ref 14.19 Public Health England (2020). Advice on the content of Environmental Statements accompanying an application under the Nationally Significant Infrastructure Planning Regime.
- Ref 14.20 Institute of Environmental Management and Assessment (IEMA) (2017). Health in Environmental Impact Assessment – A Primer for a Proportionate Approach. Available at: (PDF) Health in Environmental Impact Assessment A Primer for a Proportionate Approach (researchgate.net)
- Ref 14.21 Institute of Environmental Management and Assessment (IEMA) (2022). Effective Scoping of Human Health in Environmental Impact Assessment. Available at: IEMA - Institute of Environmental Management and Assessment
- Ref 14.22 Institute of Environmental Management and Assessment (IEMA) (2022). Determining Significance For Human Health In Environmental Impact Assessment. Available at: IEMA - Institute of Environmental Management and Assessment
- Ref 14.23 Cooke, A., Friedli, L., Coggins, T., Edmonds, N., Michaelson, J., O'Hara, K., Snowden, L., Stansfield, J., Steuer, N., Scott-Samuel, A. (2011). Mental Wellbeing Impact Assessment Toolkit. 3rd ed., London: National MWIA Collaborative. Available at:

MentalWellbeingImpactAssessmentAtoolkitforwellbe-1.pdf (healthycampuses.ca)

- Ref 14.24 Wales Health Impact Assessment Support Unit (WHIASU) (2021). Health Impact Assessment – A Practical Guide. HIA_Tool_Kit_V2_WEB-1.pdf (phwwhocc.co.uk).

# 15 Traffic and Transport

## 15.1 Introduction

15.1.1 This chapter considers the Traffic and Transport impacts of the Project. It sets out the proposed methodology for the Traffic and Transport assessment and provides rationale behind scoping the operation and decommissioning phases out of the Environmental Impact Assessment (EIA).

15.1.2 It includes a summary of consultation undertaken to date, baseline data sources and the proposed methodology for the assessment of possible construction effects. Aspects that are to be scoped in and out of the assessment are identified.

15.1.3 This chapter should be read in conjunction with:

- Chapter 6: Air Quality – for further information on traffic emissions.
- Chapter 7: Ecology and Biodiversity – for further details of designated sites referred to in this chapter.
- Chapter 8: Climate Change, Adaptation and Resilience – for further details of the potential climate impacts from the Project.
- Chapter 12: Noise and Vibration – for the interrelation of traffic and noise.
- Chapter 14: Human Health and Wellbeing – considers air quality - to inform the assessment of human health and wellbeing.

## 15.2 Legislation, Policy and Guidance

15.2.1 The assessment to be undertaken to inform the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) will be undertaken in accordance with, and with reference to, the following legislation, policy and guidance.

### Legislation

15.2.2 The following legislation will be taken into consideration for the Traffic and Transport assessment.

15.2.3 The Transport Act 2000 (Ref 15.1) includes '*measures to create a more integrated transport system*' with the aim of improving local passenger transport services, alongside reducing congestion and pollution. This is exemplified by the requirement for local authorities to prepare, publish and review a local transport plan to achieve the outlined aims of this legislation. These plans will be taken into consideration in the assessment of traffic and transport.

15.2.4 The Highways Act 1980 (Ref 15.2) outlines the duties of the highway authorities, and the management and operation of the highway network. The legislation most

relevant to this traffic and transport chapter, include 'Improvement to Highway,' which is covered in Part V, and 'Environmental Impact Assessment,' which is covered in Part VA.

15.2.5 Due to the nature, scale and elements of the Project, it has been classified as a Nationally Significant Infrastructure Project (NSIP) within the Part 3 'Energy' chapter, under section 20 of the Planning Act 2008. The Planning Act 2008 (Ref 15.3) outlines the thresholds for NSIPs in the energy sector, empowering the Planning Inspectorate (PINS) to examine applications and make recommendations to the Secretary of State (SoS). The Applicant is therefore required to make an application to the Secretary of State for a DCO to authorise the Project.

15.2.6 The New Roads and Street Works Act (1991) (Ref 15.4) is an "*Act to amend the law relating to roads so as to enable new roads to be provided by new means; to make new provision with respect to street works.*" The objectives of the Act are:

- To ensure safety.
- To minimise inconvenience to people using a street.
- To protect the structure of the street and the apparatus in it

15.2.7 Operatives must be on site when work is in progress, in addition to a supervisor to monitor the streetworks. They must both be registered with Street Works Qualifications Register (SWQR).

15.2.8 It should be noted that regulations "*may make special provision in relation to street works in a street designated by the street authority as traffic-sensitive*."

## Policy

### National Planning Policy

#### National Policy Statements

15.2.9 The following national and local policy will be taken into consideration for the Traffic and Transport assessment:

- The Overarching National Policy Statement for Energy (EN-1) (Ref 15.5).
  - This outlines the necessity for a Transport Assessment (TA) if the Project is likely to have significant transport implications. EN-1 stipulates a methodology to be utilised for Traffic and Transport in section 15.14 which refer to the assessment and mitigation.

15.2.10 Table 15-1 sets out how the NPS are relevant to the traffic and transport assessment.

*Table 15-1 – Relevant Sections of the Relevant National Policy Statements*

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-1 | 5.14 - the document sets out information relating to traffic and transport impacts and the policy in respect of these impacts. This section acknowledges that the transportation of materials, goods and personnel to and from the development can impact the surrounding transport infrastructure, and in some instances the connecting transport networks. | If the Project is likely to significantly impact transport, the ES should be accompanied by a Transport Assessment using the DfT's Transport Appraisal Guidance (TAG) methodology. Consultation with National Highways and Local Highway Authorities will be undertaken on the need for a Transport Assessment and proposed mitigation following an initial assessment of the increase to baseline traffic and a result of the Project along the construction routes. |
| EN-1 | *5.14.14 – "The Secretary of State may attach requirements to a consent where there is likely to be substantial HGV traffic that:*<br>*Control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements.*<br>*Make sufficient provision for HGV parking, and associated high quality drive* | An Outline Construction Traffic Management Plan (CTMP) will be developed detailing the proposed approach to the construction, the approach to the delivery of construction vehicles / materials to and from the site and designated construction traffic routes and identifying likely mitigation measures to minimise disruption associated with HGV construction traffic. This will be discussed and agreed with National Highways and the Local Highway Authorities. |

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| | *facilities either on the site or at dedicated facilities elsewhere, to support driver welfare, avoid 'overspill' parking on public roads, prolonged queuing on approach roads and uncontrolled on-street HGV parking in normal operating conditions.*<br><br>*Ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers and the responsible police force."* | |

### National Planning Policy Framework 2023

15.2.11 The National Planning Policy Framework (NPPF) (Ref 15.7) sets out the Government's economic, environmental, and social planning polices for England[15]. Taken together, these policies articulate the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations.

15.2.12 The NPPF clearly promotes sustainable transport as the document highlights the following:

- Transport policies have an important role to play in facilitating sustainable development but also in contributing to wider sustainability and health objectives.
- The transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel.
- The Government recognises that different policies and measures will be required in different communities and opportunities to maximise sustainable transport solutions will vary from urban to rural areas.
- The environmental impacts of traffic and transport infrastructure can be identified, assessed, and considered. Therefore, encouragement should be given to solutions which support reductions in greenhouse gas emissions and reduce congestion.

15.2.13 Paragraph 115 of the NPPF indicates that a refusal of planning permission on transport grounds will only be defendable if there are severe impacts arising from the development. The NPPF states that plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people.

15.2.14 Considering development proposals, it should be ensured that:

- Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location.
- Safe and suitable access to the site can be achieved for all users.
- Any significant impacts of the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

[15] This EIA Scoping Report makes reference to the December 2023 update of the NPPF. The PEIR will provide an update of applicable legislation and policy, which will include consideration of the December 2024 NPPF update (or any subsequent update).

15.2.15 Paragraph 192 of the NPPF states that: "*Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management".* This policy shows that the need to manage all traffic is essential to protect the natural environment as much as reasonably possible

**Local Planning Policy**

15.2.16 The Project lies within the jurisdictions of North Yorkshire, East Riding of Yorkshire, North Lincolnshire and North East Lincolnshire. A summary of the relevant local planning policy which is relevant to a study of traffic and transport matters and will inform the traffic and transport assessment in the Environmental Statement (ES) is provided in Table 15-2.

*Table 15-2 – Relevant Local Planning Policies*

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| **Policy for Local Authorities crossed by the draft Order Limits** | | | |
| North East Lincolnshire Local Plan 2013 to 2032 (Ref 15.7); | Policy 31: Renewable and low carbon infrastructure | "*Proposals for renewable and low carbon energy generating systems will be supported where any significant adverse impacts are satisfactorily minimised and the residual harm is outweighed by the public benefits of the proposal. Developments and their associated infrastructure will be assessed on their merits and subject to the following impact considerations, taking account of individual and cumulative effects: local amenity, including noise, air quality, traffic, vibration, dust and visual impact.*" | The Traffic and Transport assessment ensure that potential adverse impacts of construction traffic, including HGVs, is minimised taking into consideration cumulative effects. Appropriate mitigation measures will be proposed where necessary. |
| East Riding of Yorkshire Local Transport Plan (2021-2039) (Ref 15.8) | | The six strategic objectives for this LTP are as follows:<br>• Improve the maintenance and management of the existing transport network.<br>• Support sustainable economic growth and regeneration. | It is anticipated that all construction HGV traffic would access the Project sites from the SRN. The proposed construction routes will aim to divert construction HGVs away from local communities and sensitive receptors where possible. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | • Reduce carbon emissions.<br>• Improve road safety.<br>• Support and encourage healthy lifestyles.<br>• Improve access to key services.<br>With regard to HGV route network, the LTP Strategy Network Management Plan states that:<br>"*The Council has a responsibility to direct HGV drivers along the most appropriate routes and reduce the risk of HGVs using unsuitable roads, which can result in safety, noise and vibration concerns for local residents. The Council has developed a preferred HGV route network which is clearly signed and is included on a freight Map of the East Riding*."<br>With regard to Abnormal Loads, the LTP Strategy Network Management Plan states that:<br>"*The Council has an established process in place to manage the movement of abnormal loads on the highway network.* | It is anticipated that the Project may require abnormal load deliveries to the site. Therefore, the Main Works Contractor will work with East Riding of Yorkshire to ensure adherence to the NMP and to develop relevant construction control measures regarding Abnormal Indivisible Loads which will be outlined within the outline CTMP. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | *This is advertised through a dedicated page on the Council's website. Hauliers are asked to contact the Council at least six weeks in advance of the proposed move with the details of their journey to allow officers to plan the most appropriate route and arrange for the movement of street furniture if required*." | |
| East Riding Local Plan (adopted April 2016) (Ref 15.9) | Policy EC4 | Enhancing sustainable transport specifies that development proposals should:<br>• Produce and agree a transport assessment and travel plan, where a significant transport impact is likely.<br>• Bring forward other necessary transport infrastructure to accommodate expected movement to and from the development.<br>"*Developments generating significant freight movement located along the East-West Multi-Modal Transport Corridor should capitalise on the opportunities for* | Alternative modes for freight are being considered to more sustainable modes such as rail and water. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | *transferring and transporting freight by means other than road*." | |
| | Policy EC5 | Supporting the energy sector stipulates that proposals for the development of the energy sector, including Carbon Capture and Storage (CCS), will be supported where any significant adverse impacts are addressed satisfactorily and the residual harm is outweighed by the wider benefits of the proposal. The policy indicates that developments and their associated infrastructure should be acceptable in terms of the effect of development on traffic transport, including the opportunity to use waterways and rail for transportation of materials and fuel, and the capacity of the road network to accommodate development. | The Traffic and Transport assessment considers the traffic generation of the Project during the construction and operational phases and how this will affect receptors located within the Study Area.<br><br>The assessment will detail the changes in traffic flows on road links along the proposed construction route to and from the Site; determine potential environmental effects associated with construction traffic generated by the Project, if any; and to ensure that appropriate construction control measures are identified in the outline CTMP.<br><br>Alternative modes for freight are being considered to more sustainable modes such as rail and water. |
| North Lincolnshire's | - | The long-term vision for transport in North Lincolnshire is: | The traffic and transport assessment will detail the changes in baseline traffic flows on |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| Third Local Transport Plan 2011-2026 (Ref 15.10) | | "*A well maintained transport system that supports sustainable communities within a safe and prosperous environment and which contributes to the wider environmental, economic and social wellbeing of the people who live and work in North Lincolnshire*."<br>Relevant to this assessment Local Transport Goals for North Lincolnshire include:<br>• Reduce transport related carbon dioxide emissions and protect and enhance the natural and built environment through sustainable transport solutions.<br>• Improve transport safety and security relating to death or injury from transport, to contribute towards safer and stronger communities.<br>• Provide equal opportunities through improvements in accessibility to key local hubs and services by sustainable modes of transport. | road and links along the proposed construction route to and from the Site; determine potential environmental effects associated with construction traffic generated by the Project, if any; and to ensure that appropriate construction control measures are identified in the outline CTMP to minimise any potential impact as much as possible. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| North Lincolnshire's Road safety measures in North Lincolnshire (Ref 15.11) | - | With regard to freight routes and HGV signing the policy indicates that:<br>• To reduce the number of heavy goods vehicles (HGVs) travelling along residential and other unsuitable roads, freight routes have been created in North Lincolnshire.<br>• Roads unsuitable for HGVs are signed with the restrictions. The council will put restrictions on roads that they consider to be unsuitable for HGVs; and<br>• Any load over 40 tonnes is classed as abnormal and the haulier must inform the police and receive permission to move it on the roads. | • Where possible the construction traffic will avoid travelling along residential roads and would use existing freight routes. However, where this is not possible, mitigation measures will be identified within the outline CTMP to reduce the impacts.<br>• Mitigation measures will be contained within the outline CTMP and will be discussed and agreed with National Highways and the Local Highway Authorities.<br>• Police will be informed, and permission will be sought after for any loads classified as abnormal. Abnormal loads will only travel to / from the Site once permissions have been granted. This will be identified in the outline CTMP. |
| Selby District Council Local Plan (2022) (Ref 15.12) | Policy IC6 – Sustainable Transport, Highway Safety | Policy states that where new developments are considered to have an adverse impact on the highway network contributions will be expected for both on and off-site mitigation as necessary; this | • Traffic and Transports impacts will be assessed within the Study Area. Appropriate mitigation measures will be proposed where necessary. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | and Parking (Strategic Policy) | may include requirements to provide sustainable Travel Plans | • The outline CTMP will identify likely mitigation measures to minimise disruption associated with construction traffic. The need for a construction Travel Plan will be discussed and agreed with National Highways and the Local Highway Authorities. |
| | Policy IC7 – Public Rights of Way | Policy stipulates that development which may have an impact on a public right of way network will only be supported where it can be demonstrated that:<br>• *"Satisfactory and alternative routes are provided, with adequate signage and the new access is of the same or better standard; and*<br>• *Where appropriate and viable, all reasonable opportunities for enhancement have been taken up."* | • The Traffic and Transport assessment will include the identification of mitigation measures contained within the Outline CTMP. Temporary traffic management for roads, Public Rights of Way and National Cycle Route will be proposed and may include temporary closures and diversion routes. Proposed mitigation measures will be discussed and agreed with National Highways and the Local Highway Authorities. |
| North Yorkshire Local transport plan (LPT4) | Objective 3d – Network Management | Objective includes commitments by North Yorkshire County Council to:<br>• Ensure that planned and unplanned activities on the highway network are | • The Traffic and Transport assessment will identify if there are disruptions / impacts on the network in line with IEMA guidance thresholds. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| 2016-2045 (Ref 15.13) | | managed to minimise congestion and disruption of traffic flows; and<br>• Keep traffic moving by aiming to minimise congestion and disruption on the highway network | • To minimise any potential impact from construction HGV traffic, mitigation measures will be identified within the outline CTMP. |
| North Yorkshire Abnormal loads and weight limits (Ref 15.14) | | Contains advice regarding Abnormal loads and weight limits includes advice on transporting abnormal loads on North Yorkshire roads and the steps that should be followed to notify the council.<br>Hauliers and crane operators must give a minimum of two days' notice to the highway authority and bridge owners before moving an abnormal load.<br>If any vehicle or vehicle combination has a gross weight greater than 80 tonnes, hauliers must give a minimum of five days' notice.<br>Annually, the haulier should provide a form of indemnity which indemnifies the Council in respect of any damage that is caused during any journey for which the Council have been notified. The haulier | • Notice and permissions required for the transportation of abnormal loads will be detailed within the outline CTMP, including the notification to the council of any damage caused during the journey. The outline CTMP will be discussed and agreed with National Highways, Local Highway Authorities and Transport Police. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | may then go ahead with the proposed movement unless contacted by the abnormal loads officer, who will suggest that an alternative route be taken and will be able to supply specific information about bridge height and weight restrictions. | |
| **Policy for Local Authorities only applicable for Construction Routes** | | | |
| Lincolnshire Local Transport plan (2022) (Ref 15.15) | Chapter 5: Implementation Plan | The plan is designed to cover the short-medium- and longer-term time horizons for transport and highways for the county.<br>The Plan's Freight Implementation Plans includes the following relevant policies:<br>• Encourage modal shift for freight from road to more sustainable modes such as rail and water freight by supporting new and improved infrastructure to address capacity issues<br>Encourage initiatives which support collaboration in the freight sector, enhancing efficiencies and reducing negative impacts. | The Project is in accordance with the LPT5. An outline CTMP will be developed to ensure that potential adverse impacts of construction traffic, including HGVs, is minimised. The proposed construction routes will aim to divert construction HGVs away from local communities and sensitive receptors where possible.<br>Alternative modes for freight are being considered to more sustainable modes such as rail and water. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| Lincolnshire Freight Strategy (2021) (Ref 15.16); | - | "*The strategy aims to ensure that freight is able to continue to support the people and economy of Lincolnshire by ensuring it is as safe, efficient and sustainable as it can be and helps achieve the objectives of the wider LTP.*<br>*The strategic objectives for improving freight are to support the Lincolnshire region to*:<br>• Support economic growth.<br>• Decarbonise and reduce the impact.<br>• of climate change0<br>• Promote thriving environments.<br>• Support safety, security and a healthy lifestyle.<br>• Promote high aspirations.<br>• Improve quality of life."<br>Key freight roads have been identified within the Strategy, which include the A1, A15, A16, A57, A52 and the A17. | An outline CTMP will be developed which will use the freight network where possible when considering construction routes to and from the Project and the Strategic Route Network. |
| Lincolnshire County | - | The key aim of the NMP is to deliver against the UK Government's priorities for | An outline CTMP will be developed to ensure that potential adverse impacts of |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| Council Network Management Plan (April 2018) (Ref 15.17) | | transport: 'tackling congestion and disruption on the highway network enabling the expeditious movement of traffic, delivering accessibility; offering improved transport choices and reliable journey times; better air quality and improved alternative transport.'<br>The NMP specifies that an abnormal load can potentially use any road provided the haulier complies with the law including weight limits. Some roads are more suitable and used more often such as A Class Roads. Before a haulier can move an abnormal load, they must notify the highway authority and dependant on the type of load (e.g., weight, length or width) they must also notify the Police. In addition, if the gross weight or axle weights exceed those specified on the C&U regulations, they must inform the Highway Authority and all bridge owners along the proposed route.<br>The plan states that Lincolnshire County Council works closely with freight and | construction traffic are minimised. The proposed construction routes will aim to divert construction HGVs away from local communities and sensitive receptors where possible. The outline CTMP will identify likely mitigation measures to minimise disruption associated with construction traffic. This will be discussed and agreed with National Highways and the Local Highway Authorities.<br>It is anticipated that the Project may require abnormal load deliveries to the site. Therefore, the Main Works Contractor will work with Lincolnshire County Council to ensure adherence to the NMP and to develop relevant construction control measures regarding Abnormal Indivisible Loads which will be outlined within the outline CTMP. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | other organisations to ensure the safe and expedient passage of abnormal loads within the County, as the need arises. | |

## Guidance

15.2.17 The following guidance will be taken into consideration for the Traffic and Transport assessment.

**Transport Evidence Bases in Plan Making and Decision Taking (Ref 15.18)**

15.2.18 This guidance is to help local planning authorities assess and reflect strategic transport needs in Local Plan making. The transport evidence base should identify the opportunities to encourage a modal shift towards sustainable transport usage. This will also enable transport impacts of developments to be assessed and in turn inform sustainable approaches. This guidance highlights the information required and what information needs to be considered when undertaking a transport assessment.

**Travel Plan Guidelines (Various dates) (Ref 15.19)**

15.2.19 This guidance provides support regarding Travel Plans, Transport Assessments, and Transport Statements relating to decision-making. This guidance outlines when these documents are required, in addition to what each of these should contain.

15.2.20 Travel Plans, Transport Assessments and Statements assess and mitigate the transportation impacts arising from development projects, and they promote sustainable development. They are all required for development which produce substantial traffic movements.

15.2.21 Assessments should be based on normal traffic flow and usage conditions, although it may be required to consider the implications of peak traffic flows. Any projections should use local traffic forecasts. The timeframe of the assessments should be agreed with the relevant local planning authorities in consultation with the relevant transport network operators and service providers.

**Water Preferred Policy: Guidelines for the Movement of Abnormal Indivisible Loads (2019) (Ref 15.20)**

15.2.22 This guidance outlined when to move abnormal load by water, and when it is permitted for it to be moved via road. The documents highlight that where it is practical, economic, and environmentally suitable to do so, abnormal loads should be moved by inland and / or coastal water to reduce the impact which would arise via load movement by roads. The Secretary of State for Transport authorises the movement by road for the following: over 150 tonnes gross vehicle weight; over 30 metres rigid length; or over 5 metres wide as these would cause significant traffic congestion and disruption, and in turn would require greater safety mitigation.

**The Design manual for Roads and Bridges (DMRB) LA 104 Environmental Assessment and Monitoring (2020) (Ref 15.21)**

15.2.23 This document outlines the requirements for environmental assessments of projects, which includes the reporting and monitoring of significant environmental effects. The assessment of environmental effects, reporting of assessments and monitoring of environmental effects, aligns with the requirements of the Directive 2011/92/EU as amended by 2014/52/EU 2014/52/EU.

15.2.24 The document covers environmental assessment methodology, including assigning value to receptors, magnitude of impact and significance of effect.

**Guidelines for the Environmental Assessment of Road Traffic, (Institute of Environmental Management and Assessment (IEMA), 2023) ('IEMA Guidelines') (Ref 15.22)**

15.2.25 The outlined guidelines are for the assessment of the environmental impact of road traffic associated with major new development. The objective is to provide the basis for a systematic, consistent and comprehensive coverage for the assessment of traffic impacts arising from development projects. This will enable potential problems and possible solutions to be identified at an early stage.

15.2.26 The environmental assessment process should run throughout the planning and design stages of the projects. A checklist is provided containing the environmental effects which includes traffic noise, disruptions, pedestrian and cyclist impacts, and accidents and safety.

## 15.3 Proposed Assessment Methodology

### Value / Sensitivity

15.3.1 Resources are the assets and facilities which may be affected by the Project such as the highway network. Receptors are the users or beneficiaries of those resources such as pedestrians, cyclists and drivers who travel within the Study Area. The relationship with the highway environment is examined to understand the sensitivity of those receptors to change along the highway network as a result of increased traffic volumes associated with the Project. Sensitive areas are defined by the presence of sensitive receptors, such as community centres, schools, equestrian facilities, and noting where there are inadequate user facilities e.g., narrow well-used footways along busy roads or collision black spots. Each highway link within the agreed Study Area is assigned a sensitivity value.

15.3.2 The significance of an environmental effect is a function of the value (sensitivity) of the receptor and the magnitude or scale of the impact (change). The DMRB LA

104 (Ref 15.21) provides advice on typical descriptors of environmental value, magnitude of change and significance of effects, and this has been used to develop appropriate sensitivity criteria.

15.3.3 The proposed sensitivity criteria developed using the DMRB LA 104 (Ref 15.21), IEMA guidance (Ref 15.22) and professional judgement is set out in Table 15-3. The sensitivity of a receptor is based on the relative importance of the receptor.

*Table 15-3 – Sensitivity of Receptors*

| Sensitivity | Description |
|---|---|
| High | Receptors of greatest sensitivity to traffic flows: hospitals, schools, colleges, nurseries, playgrounds, accident blackspots, retirement homes and urban / residential roads without footways that are used by pedestrians. |
| Medium | Traffic flow sensitive receptors, including congested junctions, shopping areas with roadside frontage, roads with narrow footways, un-segregated cycle ways, community centres, townhalls, parks and recreation facilities. |
| Low | Receptors with some sensitivity to traffic flows: places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision. |
| Negligible | Receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions. |

## Impact Magnitude

15.3.4 The expected traffic generated by the Project during construction will be quantified where appropriate and assessed against anticipated background traffic flows to outline the anticipated percentage increase in total vehicles and HGVs.

15.3.5 The methodology proposed for determining the magnitude of impact follows guidance set out by the DMRB LA 104 (Ref 15.21) together with professional judgement. The order of magnitude criteria is shown below in Table 15-4.

*Table 15-4 – Magnitude of Change (Impact) Categories*

| Sensitivity | Description |
|---|---|
| Major | Total loss or major alteration to key elements or features of the baseline conditions to the extent that post-scenario character or composition of baseline conditions will be fundamentally changed. |
| Moderate | Loss or alteration to one or more key elements or features of the baseline conditions to the extent that post-scenario character or composition of the baseline conditions will be materially changed. |
| Minor | Minor shift away from baseline conditions. Changes arising will be detectable but not material; the underlying character or composition of the baseline conditions will be similar to the pre-scenario situation. |
| Negligible | Very little change from baseline conditions. Change is barely distinguishable, approximating to a 'no change' situation. |

## Significance of Effect

15.3.6 Likely significant effects will be assessed using professional judgement considering the sensitivity (or value) of the receptor within the Study Area, and the magnitude of change (impact) likely to be caused by Project activities. These factors are combined to give an overall significance of effect.

15.3.7 The significance of transport effects will be determined by considering the identified impact magnitudes on the receptors affected by those impacts (taking account of their sensitivity) to determine the significance of effects. Moderate and major adverse / beneficial effects are assumed to represent significant effects.

15.3.8 The overall significance of effects will be based on professional judgement as to whether the magnitude and duration of impacts, when combined with the characteristics of the road network and the sensitivity of receptors would cause adverse effects.

15.3.9 The criteria described in Table 15-5 below will be used to assess the significance of effect.

*Table 15-5 – Significance of Effect*

| Impact | Assessment of Significance |
|---|---|
| Increase in traffic levels | The sensitivity of each road in the construction routes.<br>The IEMA Guidelines recommends applying the following broad rules, based on the percentage increase in total traffic and / or HGVs as a result of the Project along each road on the construction routes, as criteria to delimit the scale and extent of the environmental assessment:<br>• Rule 1: Include road links where total traffic or HGV flows will increase by more than 30%.<br>• Rule 2: Include road links through sensitive areas where total traffic or HGV flows will increase by more than 10%.<br>In accordance with the IEMA Guidelines, those links where these rules apply would be further assessed for effects (such as Driver and Public Transport Passenger Delay, Vulnerable Road Users Delay, Severance and Amenity, Accident and Road Safety and Parking and Loading).<br>Where Rule 1 and Rule 2 are above the significance thresholds, the following potential environmental effects on 'existing road users' would be considered and likely would need to be addressed. |
| Driver delay and public transport delay to passengers | Where there is a change in traffic flow of greater than 30%. Net traffic and / or HGV flows of 30%, 60% and 90% are considered minor, moderate and major changes in magnitude.<br>Changes to bus services / bus stops or taxi facilities for over four weeks in any 12-month period. |
| Pedestrian, Cyclist and Horse-Rider Delay, Severance and Amenity | Where there would be a temporary maximum increase in journey length along a road or other PRoW for pedestrians, cyclists or horse-riders for more than four weeks in any 12-month period.<br>Pedestrian severance occurs when there is difficulty experienced in crossing a heavily trafficked route. Changes in net traffic flows of 30%, 60% and 90% are considered to have a minor, moderate and major effects in severity respectively. |

| Impact | Assessment of Significance |
|---|---|
| | The pedestrian amenity threshold, as set out in the IEMA Guidelines to assess the significance of change, is where the traffic flow is doubled (increase over 100%) or where the HGV flows are over 30%, 60% and 90% (considered to have minor, moderate, and major effects respectively). Pedestrian amenity is defined as the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and footway width / separation from traffic; and<br>Where a temporary increase is forecast of more than 30% in lorries or total flow on a route intersecting a PRoW, bridleway or near an equestrian centre for more than four weeks in any 12-month period. |
| Fear and intimidation | Fear and intimidation occur through a combination of traffic flow, speed, HGV composition and its proximity to people or lack of protection caused by such factors as narrow pavements.<br>The assessment has been based on the sensitivity establish for the WCH Amenity and severance and a weighting system defined in the IEMA Guidelines Environmental Assessment of Traffic and Movement. This weighting system is based on the average hourly traffic flow, 18-hour heavy vehicle flow and average speed over an 18-hour day. |
| Accidents and road safety | Accidents and safety is assessed using personal injury accident data obtained from highways authority records. The IEMA Guidelines recommend that professional judgement would be needed to assess the effects. The following criteria would be used to assess the effects:<br>• Where junctions have had ten or more collisions in a three-year period; or<br>• Where links have recorded ten or more collisions per 100m lengths in a three-year period.<br>The collision data will be analysed along the full length of the links to identify patterns in accident locations in order to establish any areas of safety concerns. |

| Impact | Assessment of Significance |
| --- | --- |
| Parking and loading | Loss of more than four weeks in any 12-month period of one or more on street loading bay, five or more on street residential / business bay; five or more cycle / motorcycle spaces or 20 general parking spaces or equivalent length of unrestricted kerbside spaces. |

15.3.10 Table 15-6 provides a matrix of magnitude of impact against sensitivity of receptors to identify where significant effects are anticipated to occur.

*Table 15-6 – Significance of Effect Matrix*

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Major | Moderate | Minor | Negligible |
| High | Large | Large or Moderate | Slight or moderate | Slight |
| Medium | Large or Moderate | Moderate | Slight | Neutral or slight |
| Low | Slight or moderate | Slight | Slight | Neutral or slight |
| Negligible | Slight | Neutral or slight | Neutral or slight | Neutral |

## 15.4 Limitations and Assumptions

15.4.1 To ensure transparency within the EIA process, the following limitations and assumptions have been identified within the transport assessment undertaken for the purposes of this Scoping Report:

- The volume of construction traffic will be determined following additional design work. However, it is understood that the greatest construction traffic movements are likely to be associated with the creation of temporary construction compounds for the Humber Estuary crossing and where the Project makes landfall at Easington.
- Marine vessel traffic associated with the landfall installation would not be considered in this assessment and would be covered by the offshore pipeline consent. The marine vessel traffic will be factored into cumulative assessment if there are any needed.
- Optioneering regarding construction routes to reduce traffic impacts on localities are currently being undertaken. Therefore, construction routes have not been finalised or been taken forward for consultation.
- Traffic surveys and PRoW surveys may need to be undertaken. This will be dependent on a review of existing data, and consultation with Local Highway Authorities and PRoW Officers.

## 15.5 Stakeholder Engagement

15.5.1 Engagement has been undertaken with the relevant local highway authorities and National Highways to agree the assessment methodology and approach. A summary of engagement to date has been provided in Table 15-7. Engagement will continue throughout the EIA process.

15.5.2 Regular meetings with National Highways and local highway authorities will take place to discuss the proposed construction traffic routes, access, highway improvements and mitigation for the Project. Technical workshops with National Highways and the local highway authorities will also take place to discuss the TA and Outline Construction Traffic Management Plan (CTMP) as and when required.

*Table 15-7 – Summary of Engagement*

| Consultee | Date (method of engagement) | Summary of Engagement |
|---|---|---|
| National Highways | 22nd November 2024 (letter issued via email) | Initial communication sent containing a summary of background information of the Project.<br>Initial meeting has been arranged for 5th December 2024 which will include the approach to assessment / key issues for this Project. |
| North Yorkshire County Council | 15th November 2024 (letter issued via email) | Technical note was sent containing Project description, and Traffic and Transport methodology. Asked for comments once reviewed.<br>No comments provided to date. |
| East Riding Council | 15th November 2024 (letter issued via email) | Technical note was sent containing Project description, and Traffic and Transport methodology. Asked for comments once reviewed.<br>No comments provided to date. |
| Lincolnshire County Council | 15th November 2024 (letter issued via email) | Technical note was sent containing Project description, and Traffic and Transport methodology. Asked for comments once reviewed.<br>No comments provided to date. |
| North Lincolnshire Council | 15th November 2024 (letter issued via email) | Technical note was sent containing Project description, and Traffic and Transport methodology. Asked for comments once reviewed.<br>No comments provided to date. |
| North East Lincolnshire Council | 22nd November 2024 (letter issued via email) | Technical note was sent containing Project description, and Traffic and Transport methodology. This was shared with North East Lincolnshire Council to give them an opportunity to review. |

## 15.6 Study Area

15.6.1 The Study Area will focus on the highway network and will include vehicle construction routes to and from the Project, adjacent land use and sensitive receptors within 150 m of the draft Order Limits.

15.6.2 The Study Area comprises all roads that form the proposed construction routes from the Strategic Route Network (SRN) to the Site, and meets the following criteria based on the IEMA Guidelines (IEMA, 2023) (Ref 15.22):

- Roads where traffic flows are predicted to increase by more than 30% (or the number of Heavy Goods Vehicles (HGVs) is predicted to increase by more than 30%).
- Other specifically sensitive areas where traffic flows are predicted to have a net increase by 10% or more.
- Any highway link where there are significant changes in the composition of traffic, e.g., a large increase in the number of HGVs.
- Roads are likely to be significantly affected by temporary road restrictions and traffic management measures required to construct the Project.

15.6.3 Roads that are likely to form the proposed construction traffic routes to the Project include roads which include the primary and secondary network and their connection to the SRN. The existing road network is shown on Volume 2: Figure 14.1. Engagement will be undertaken with the local highway authorities.

15.6.4 Additionally, this appraisal will include those PRoWs which will be affected by the Project, and engagement with the relevant LPAs will be undertaken regarding any proposed mitigation measures proposed. This information will be outlined and assessed in the Traffic and Transport appraisal and consulted with the relevant LPAs.

## 15.7 Receptors

15.7.1 The assessment would address potential effects relating to impacts from construction traffic and consider the following broad receptor groups or categories:

- Motorised users such as drivers, private and commercial vehicle travellers, and bus users.
- Non-motorised users: pedestrians, cyclists, and horse-riders.
- Sensitive receptors such as schools, playgrounds, hospitals, tourist attractions, open spaces and recreational areas.

15.7.2 Potential sensitive receptors along proposed construction routes will be identified and potential effects on these receptors will be assessed as part of the EIA.

## 15.8 Baseline Conditions

15.8.1 This section sets out the baseline data that will be relied upon to produce a detailed assessment of baseline conditions that will be contained within the PEIR and ES.

15.8.2 The following information will be reviewed for the assessment of the baseline conditions to determine the constraints for Traffic and Transport across the Project.

### Traffic Flow Data

15.8.3 The Project will require a wide traffic survey scope due to the length of the pipelines and the associated Study Area. The Department for Transport (DfT) Road Traffic Statistics database will be reviewed and available data on the proposed construction vehicle routes up to the SRN. DfT traffic counts on the existing road network are shown in Volume 2: Figure 15.1.

15.8.4 The data will include annual surveys of Annual Average Daily Traffic (AADT) and vehicle classification including Heavy Goods Vehicles (HGVs). The AADT flows from the DfT counts will be converted into average weekday traffic flows and 12-hour flows (07:00-19:00 hrs) will be derived from the DfT traffic data by applying an appropriate factor. This will be based on a standard daily profile over 24-hour period from the DfT's online road traffic statistics Table TRA0307 (Ref 15.23).

15.8.5 Where required, additional traffic flow data will be collected using Automatic Traffic Counts (ATCs) and Manual Classified Count (MCC) surveys.

15.8.6 The vehicle flow data will be used to assess the increase in traffic generated by the Project under existing and future baseline scenarios. Future baseline flows will be estimated, taking into account anticipated traffic growth using an appropriate growth factor derived from Trip End Model Presentation Program (TEMPro).

### Collision Data

15.8.7 Three-year injury collision data will be obtained for roads that form the proposed construction traffic routes to the Project on the local highway network up to the SRN. A review of Stats 19 data will be undertaken to identify any collision cluster sites and to understand causation factors. Geographical Information Systems (GIS) software will be utilised to map these collisions. The analysis of collisions will help to identify key areas of concern, and where needed, help with the

development of potential mitigation measures relating to the increase in vehicle flow generated by the Project.

## Existing Highway Schemes

15.8.8 All existing highway schemes along proposed construction routes will be confirmed with National Highways and the relevant local highway authorities. Information regarding the duration of scheme construction programmes, temporary traffic management arrangements / phasing, available Construction Traffic Management Plan (CTMP) or Transport Assessment Reports (TAR), predicted operational traffic flows and any associated traffic modelling would be obtained where possible to understand baseline traffic conditions and reduce the impact on the highway network.

## Committed Highway Schemes

15.8.9 In addition to existing highway schemes, the timeline and details for all committed highways schemes along proposed construction routes will need to be confirmed by National Highways and the relevant local highway authorities to understand future baseline traffic conditions on roads along proposed construction routes.

## Cumulative Impact Assessment

15.8.10 With regards to cumulative effects from nearby committed developments, historical traffic data will be included in the assessment by using TEMPro growth factors. This would account for background traffic growth between the various traffic data survey dates and the traffic model years. The TEMPro database accounts for all background development in the Local Plan in the vicinity of the Study Area and covers all committed development schemes. As these schemes will be accounted for, no additional effects are anticipated. However, if there are any developments in the area which have been approved and are likely to coincide with the Project in terms of using the same construction routes and peak construction activity being assessed, these will be identified and may need to be assessed.

## Network and Junction Modelling

15.8.11 The need for network modelling of the proposed construction route to assess the impact of the Project will be agreed with National Highways and the local highway authorities to identify and mitigate issues concerning delay along affected routes and affected junctions. This information will contribute to the Transport Assessment.

## Potential Constraints and Restrictions

15.8.12 Site surveys may be required to allow for a visual inspection of any new roads identified throughout the development of the Project, that would form part of the proposed construction vehicle routes. These surveys would help confirm findings of background data and identifying any unknown constraints or opportunities.

15.8.13 Due to the early stage of design, equipment specifications and sizes are not yet known. However, it is anticipated that approximately 12 abnormal loads may be required to deliver the main assets to be contained at the Pump Facility, such as the pumps. Details of any existing carriageway width, height and weight restrictions for the movement of such vehicles will be discussed and agreed with National Highways and the relevant local highway authorities.

## Future Baseline

15.8.14 The assessment will examine a robust case in terms of Traffic and Transport effects, i.e. the peak period when the highest levels of construction traffic are expected to occur. It would be informed by a desk-based study, and discussions with the design team, particularly focusing on the anticipated construction traffic movements and proposed mitigation measures. Professional judgement will be applied to determine whether significant effects may arise which have not been identified using the assessment criteria.

15.8.15 The assessment of the potential effects of the Project would be undertaken for construction traffic. The assessment will include the identification of temporary traffic management, including road, Public Right of Way (PRoW) and National Cycle Route (NCR) closures and assumed diversionary routes. This information will be outlined and assessed in the Traffic and Transport appraisal and consulted with the relevant Local Planning Authorities (LPAs).

15.8.16 The assessment of construction traffic will take account of:

- Engineering estimates of the quantity of plant, equipment and materials to be brought on to site and excavated material removed from the Project.
- The assumed method of construction.
- Expected construction programme.

15.8.17 The appraisal of decommissioning phase effects will be undertaken for traffic movements associated with dismantling of the AGIs and the Pump Facility. The pipelines are expected to be left in-situ. The AGIs and Pump Facility will be dismantled, with all equipment removed, and the land returned to its former use.

## 15.9 Design, Mitigation and Enhancement Measures

15.9.1 Subject to the outcome of the traffic and transport assessment, mitigation measures for the construction phase would be provided and assessed as part of the Project. The extent of specific mitigation measures and their effectiveness will be discussed and agreed in advance with relevant stakeholders.

15.9.2 It is envisaged that the Main Works Contractor, through adopted mitigation measures, will aim to minimise disruption to existing motorised and vulnerable road users, local residents, businesses and other users of the surrounding local road network. Traffic management will be planned and assessed for all construction vehicle movements.

15.9.3 It is envisaged that a CTMP and construction Staff Travel Plan (STP) will be secured through a requirement in the Development Consent Order (DCO). The CTMP will be implemented by the Main Works Contractor to ensure that all traffic movements associated with the Project's construction works operate in a safe and compliant manner.

15.9.4 A Construction STP would be prepared by the Main Works Contractor with the aim of proactively managing trips to and from the site, to minimise local impacts by reducing the number of single occupancy vehicle trips and encouraging the uptake of sustainable modes of travel. As the design progresses, consideration will be given to moving materials, spoil and abnormal indivisible loads (AILs) by waterways and rail. If considered a viable option, the impact of this will be assessed in the EIA. Reference will be made to National Highways water preferred policy (Ref 15.20).

15.9.5 The Traffic and Transport assessment will rely on the commitments outlined in the draft Register of Commitments in Volume 3: Appendix F.

## 15.10 Description of Potential Likely Significant Effects

### Construction

15.10.1 The primary Traffic and Transportation effects associated with the Project will be as a direct result of an increase in traffic flows on the surrounding roads used by construction vehicles.

15.10.2 At the time of writing, the volume of construction traffic is not yet known. However, it is understood that the greatest number of construction traffic movements are likely to be associated with the creation of the temporary construction compounds for the River Humber crossing and where the Project makes landfall at the coast north of Easington. Increases in traffic flows will also

be associated with the installation of the carbon dioxide pipeline infrastructure, AGI sites, Pump Facility, access points and roads (including temporary haul route construction), access reinstatement, access route removal and construction employee vehicle movements.

15.10.3 The potential effects on receptors will be included in the assessment of construction traffic where the flows generated by the Project increase baseline traffic and HGV flows by 30% or 10% in specifically sensitive or non-sensitive areas respectively in accordance with the IEMA Guidelines (Ref 15.22).

15.10.4 Potential cumulative effects on the local highway network from this Project and all other committed developments will be assessed and taken account of when generating the predicted future baseline vehicle flows. Committed developments that would be considered would be confirmed with relevant local authorities.

## Operation

15.10.5 During normal operation of the Project, it is understood that the only traffic generated would be associated with infrequent (a few times a year) repair and routine maintenance and inspection activities and a small number of operational staff at the Pumping Facility. Therefore, movements are not anticipated to have a material effect on the transport network and receptors, and therefore, no further assessment will be required. Accordingly, the operational phase has been scoped out.

## Decommissioning

15.10.6 Through a robust design and operating maintenance regime the pipeline, AGIs and Pump Facility are anticipated to remain in place for a minimum of their 25-year design life; potentially longer as is practicable and required by the Project.

15.10.7 When the pipeline reaches the end of its 25-year design life, it would be decommissioned safely. Decommissioning would consider all the relevant environmental legislation and technology available at the time and the methods which would result in the least potential environmental impacts. Any necessary licences and permits would be acquired.

15.10.8 Once safely decommissioned, it is anticipated that the pipeline would be left in-situ and permanently removed from service. Sections of the pipeline may be filled with grout, where appropriate. The measures and method of decommissioning would be in accordance with the relevant regulations, requirements and best-practice measures applicable at the point in time of decommissioning phase.

15.10.9 The AGIs and Pump Facility would be safely dismantled. All equipment would be removed, and the land returned to its former use.

15.10.10 No decommissioning works will be carried out until the relevant planning authority has approved the scheme. The decommissioning traffic flows for the removal of the AGIs and Pump Facility are anticipated to be significantly less than those for the construction phase. Therefore, the vehicles flow associated with decommissioning are not expected to exceed the construction vehicle flows. Consequently, the worst-case scenario in terms of traffic impact will be considered within the construction phase assessment. For these reasons, decommissioning is not predicted to result in a significant increase in traffic flows, and therefore, no further assessment will be required. As such, the decommissioning phase has been scoped out.

## 15.11 Summary of the Proposed Scope of Assessment

15.11.1 The matters scoped in or out of further assessment for Traffic and Transport are outlined in Table 15-8 below.

*Table 15-8 – Matters Scoped In or Out of Further Assessment*

| Matter | Project stage | Scoped in | Scoped out | Justification | To be agreed with |
|---|---|---|---|---|---|
| Assessment of Traffic and Transport impacts | Construction | ✓ | | To assess potential increase in traffic flows against IEMA Rule 1 and Rule 2. | National Highways, Local Highway Authorities and PRoW Officers. |
| Assessment of Traffic and Transport impacts | Operation | | ✓ | Operational movements are not anticipated to have a material effect on the transport network and receptors and result in significant effects. | National Highways, Local Highway Authorities and PRoW Officers. |
| Assessment of Traffic and Transport impacts | Decommissioning | | ✓ | Decommissioning is not predicted to result in a significant increase in traffic flows and significant effects, as it is anticipated that the pipelines will be left in situ. | National Highways, Local Highway Authorities and PRoW Officers. |

## 15.12 References


- Ref 15.1 – Secretary of State (2000), Transport Act 2000. Available at: https://www.legislation.gov.uk/ukpga/2000/38/contents (Accessed 07 October 2024)
- Ref 15.2 – Secretary of State (1980), Highways Act 1980. Available at: https://www.legislation.gov.uk/ukpga/1980/66 (Accessed 07 October 2024)
- Ref 15.3 – Secretary of State (2000) Planning Act 2008. Available at: https://www.legislation.gov.uk/ukpga/2008/29/contents (Accessed 07 October 2024)
- Ref 15.4 – Secretary of State (1991) New Roads and Street Works Act 1991 Available at: https://www.legislation.gov.uk/ukpga/1991/22/contents (Accessed 05 December 2024)
- Ref 15.5 – Department of Energy and Climate Change (2024) Overarching National Policy Statement for Energy (EN-1). Available at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1/overarching-national-policy-statement-for-energy-en-1#generic-impacts (Accessed 07 October 2024)
- Ref 15.6 – Ministry of Housing, Communities & Local Government (2021) National Planning Policy Framework. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2 (Accessed 07 October 2024)
- Ref 15.7 – North East Lincolnshire Council. (2018). North East Lincolnshire Local Plan 2013 to 2032 (adopted 2018). Retrieved from https://www.nelincs.gov.uk/assets/uploads/2018/05/20180518-AdoptedLocalPlan2018-WEB.pdf (Accessed 07 October 2024)
- Ref 15.8 – East Riding of Yorkshire Council (2021) Local Transport Plan (2021-2039). Available at: https://www.eastriding.gov.uk/council/plans-and-policies/other-plans-and-policies-information/transport/local-transport-plan/ (Accessed 07 October 2024)
- Ref 15.9 – East Riding of Yorkshire Council (2016). East Riding Local Plan. Available at: https://www.eastriding.gov.uk/planning-permission-and-building-control/planning-policy-and-the-local-plan/east-riding-local-plan/ (Accessed 07 October 2024)
- Ref 15.10 – North Lincolnshire Council (2011) Local Transport Plan 2011-2026. Available at: https://www.northlincs.gov.uk/transport-and-streets/local-transport-plan-2011-2026/ (Accessed 07 October 2024)
- Ref 15.11 – North Lincolnshire Council, Road safety measures in North Lincolnshire https://www.northlincs.gov.uk/roads-paths-and-transport/road-safety-information/ (Accessed 07 October 2024)

- Ref 15.12 – Selby District Council. (2022). Selby District Council Local Plan, Publication Version, Consultation 2022. Available at: https://democracy.selby.gov.uk/documents/s16614/Appendix%201%20Publication%20Local%20Plan.pdf (Accessed 07 October 2024)
- Ref 15.13 – North Yorkshire Police, Abnormal loads and weight limits. Available at: https://www.northyorkshire.police.uk/tua/tell-us-about/avl/v2/what-is-abnormal-load/#:~:text=An%20'abnormal%20load'%20is%20a,for%20a%20single%20driving%20axle (Accessed 07 October 2024)
- Ref 15.14 – North Yorkshire County Council (2016), Local transport plan (LPT4), 2016-2045. Available at: https://www.northyorks.gov.uk/sites/default/files/fileroot/About%20the%20council/Strategies%2C%20plans%20and%20policies/63761%20LTP4%20full%20-%20accessible.pdf (Accessed: 24 January 2022).
- Ref 15.15 – Lincolnshire County Council (2022), Lincolnshire Local Transport Plan 5. Available at: https://www.lincolnshire.gov.uk/downloads/file/7200/local-transport-plan-5 (Accessed 07 October 2024)
- Ref 15.16 – Lincolnshire County Council (2021), Lincolnshire Freight Strategy. Available at: https://www.lincolnshire.gov.uk/downloads/file/7197/freight-strategy (Accessed 07 October 2024)
- Ref 15.17 – Lincolnshire County Council (2018) Lincolnshire County Council Network Management Plan, 2018. Available at: https://www.lincolnshire.gov.uk/downloads/file/1923/network-management-plan#:~:text=The%20Network%20Management%20Plan%20is,network%20and%20related%20highway%20services.&text=The%20Traffic%20Management%20Act%202004,will%20manage%20its%20highway%20network (Accessed 07 October 2024)
- Ref 15.18 – Department for Communities and Local Government (DCLG), March 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 (Accessed 07 October 2024)
- Ref 15.19 – Department for Transport (DfT) (Various Dates) Travel Plan, Transport Assessment and Statements Guidelines. Available at: https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements (Accessed 07 October 2024)
- Ref 15.20 – Water Preferred Policy (2019), Guidelines for the movement of abnormal indivisible loads Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/

attachment_data/file/799833/WPP_guidelines_2019_DfT_consultation_revision.pdf (Accessed 07 October 2024)

- Ref 15.21 – Standards for Highways (2020) The Design Manual for Roads and Bridges: LA 104 Environmental Assessment and Monitoring. Available at: https://standardsforhighways.co.uk/dmrb/search/0f6e0b6a-d08e-4673-8691-cab564d4a60a (Accessed 07 October 2024)
- Ref 15.22 – Institution of Environmental Management and Assessment (2023) Guidelines for the Environmental Assessment of Road Traffic. Cambridgeshire, March: Institution of Environmental Management and Assessment (Accessed 07 October 2024)
- Ref 15.23 – Department for Transport (2024) TRA0307: Traffic distribution on all roads by time of day and day of the week in Great Britain. Available at: https://www.gov.uk/government/statistical-data-sets/road-traffic-statistics-tra (Accessed 07 October 2024)

# 16 Waste and Materials

## 16.1 Introduction

16.1.1 This chapter outlines the proposed approach for assessing the likely significant effects on the consumption of material assets (including mineral resources) and generation and disposal of waste from the construction, operation and decommissioning of the Project. This chapter also contains a summary of the relevant engagement to date, baseline data sources and the proposed methodology for assessing material assets and waste. Materials and waste topic areas that can be scoped out of the Environmental Impact Assessment (EIA) are also identified.

## 16.2 Legislation, Policy and Guidance

16.2.1 The assessment to be undertaken to inform the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) will be in accordance with, and with reference to, the following legislation, policy and guidance.

### Legislation

16.2.2 No specific legislation will be relied upon for the materials and waste assessment.

### Policy

**National Planning Policy**

**National Policy Statements**

16.2.3 As detailed in Chapter 1: Introduction, National Policy Statements (NPS) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Project would be considered. The relevant NPS for this assessment is the Overarching National Policy Statement for Energy (EN-1) (Department for Energy Security & Net Zero, 2023) (Ref 16.1).

16.2.4 Table 16-1 sets out how NPS EN-1 is relevant to the materials and waste assessment.

*Table 16-1 – NPS Relevant to the Waste and Materials Assessment*

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-1 | • EN-1 notes that an applicant seeking consent for an energy infrastructure proposal should, as part of its assessment, consider the sustainable arrangements for managing any waste produced and assess the impact of the waste arising from the development proposal on the capacity of waste management facilities. | This will be considered during the materials and waste assessment contained within the ES. |

### Local Planning Policy

16.2.5 The Project lies within the jurisdictions of North Yorkshire, East Riding of Yorkshire, North Lincolnshire and North East Lincolnshire local authorities. The Project passes through minerals safeguarding areas for superficial sands and gravels, limestone, chalk, peat and brick clay in North Lincolnshire and minerals safeguarding areas for superficial sands and gravels in East Riding of Yorkshire. The following policies are relevant for the safeguarding of minerals and waste:

16.2.6 A summary of the local planning policy relevant to the materials and waste assessment is provided in Table 16-2.

*Table 16-2 – Summary of Local Planning Policy Relevant to the Materials and Waste Assessment*

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| North Yorkshire County Council Minerals and Waste Joint Plan 2015 – 2030 (adopted February 2022) (Ref 16.2) | S01 | *"Safeguarded surface mineral resources ensuring identified minerals are protected from other forms of non-mineral development."* | To be considered in the minerals impact assessment |
| | S02 | *"Developments proposed within safeguarded surface mineral resource areas where applications for development other than mineral extraction should include an assessment of the effect of the proposed development on the mineral resource beneath or adjacent to the site of the proposed development."* | To be considered in the minerals impact assessment |
| North Lincolnshire Council – Local Development Framework (adopted June 2011) (Ref 16.3) | Policy CS21 | *"Safeguarding of mineral resources from other development that would prejudice future mineral extraction."* | To be considered in the minerals impact assessment |
| East Riding of Yorkshire Council – Joint Minerals Local Plan (2019) (Ref 16.4) | AGG 10 | *"Safeguarding of Mineral Infrastructure and Facilities ensuring existing minerals infrastructure is safeguarded from non-minerals development"* | To be considered in the minerals impact assessment |
| North East Lincolnshire Council – New Local Plan | Policy 44 | *"Safeguarding minerals and related infrastructure ensuring identified mineral deposits of sand (including silica sand) and gravel are safeguarded and are not needlessly sterilised."* | To be considered in the minerals |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| 2013 – 2032 (adopted 2018) (Ref 16.5) | | | impact assessment |
| | Policy 48 | *"Safeguarding waste facilities and related infrastructure ensuring existing waste management facilities are protected from encroaching incompatible development"* | To be considered in the minerals impact assessment |

### Guidance

16.2.7 The following guidance document will be utilised to assess impacts from the Project from Materials (including minerals) and Waste:

- Institute of Environmental Management and Assessment (IEMA, 2020) Guide to Materials and Waste in Environmental Impact Assessment (Ref 16.6)

## 16.3 Proposed Assessment Methodology

16.3.1 A standard EIA methodology is set out in the Chapter 4: Environmental Impact Assessment Methodology. The IEMA guidance on Materials and Waste (Ref 16.6) will be used to assess potential impacts from the Project for Materials and Waste, using Method W1 (Void capacity). The assessment will be qualitative, in accordance with the IEMA guidance and identify the following:

- Type and volume of materials proposed for use during the Project.
- Potential percentage recycled content of materials used.
- Type and volume of waste to be generated.
- Details of proposed reuse, recovery, recycling or disposal of waste generated.

16.3.2 Likely effects will be evaluated against data for the regional and national materials markets, where information is available. The likely types and estimated quantities of material resources required (including site arisings generated) for the scoped in phases of the Project will be assessed against regional, and if required, national availability. The assessment will also consider the reuse of excavated material in the Project construction.

16.3.3 The likely types and estimated quantities of waste to be generated by the Project will be assessed and the impacts reviewed against regional (or national) void capacity.

### Value / Sensitivity

16.3.4 For the purposes of the assessment, IEMA Method W1 (void capacity) will be used when assessing the magnitude of waste. The outputs of comparing sensitivity against magnitude will be assessed against the significance of effects matrix provided within the IEMA Guide. Table 16-4 contains the criteria for assessing sensitivity of materials and waste, taken from the IEMA 2020 Guide (Ref 16.7).

*Table 16-3 – Materials and Waste Sensitivity Criteria Replicated from the IEMA 2020 Guide (Ref 16.7)*

| Sensitivity | Materials Criteria<br>Key materials required for the construction of the Project… | Inert and non-hazardous waste criteria<br>Landfill void capacity is expected to… | Hazardous waste criteria<br>Landfill void capacity is expected to… |
|---|---|---|---|
| Low | …are forecast (through trend analysis and other information) to be generally free from known issues regarding supply and stock;<br>and / or<br>…are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials. | ...reduce minimally: by <1% as a result of wastes forecast. | ..reduce minimally: by <0.1% as a result of wastes forecast. |
| Medium | …are forecast (through trend analysis and other information) to suffer from some potential issues regarding supply and stock;<br>And / or …are available comprising some sustainable features and benefits compared to industry standard materials. | ...reduce noticeably: by 1-5% as a result of wastes forecast. | ..reduce noticeably: by 0.1- 0.5% as a result of wastes forecast. |

| Sensitivity | Materials Criteria<br>Key materials required for the construction of the Project… | Inert and non-hazardous waste criteria<br>Landfill void capacity is expected to… | Hazardous waste criteria<br>Landfill void capacity is expected to… |
|---|---|---|---|
| High | …are forecast (through trend analysis and other information) to suffer from known issues regarding supply and stock;<br>and / or<br>…comprise little or no sustainable features and benefits compared to industry standard materials. | ...reduce considerably: by 6- 10% as a result of wastes forecast. | ...reduce considerably: by 0.5- 1% as a result of wastes forecast. |
| Very High | …are known to be insufficient in terms of production, supply and / or stock; and / or<br>…comprise no sustainable features and benefits compared to industry-standard materials. | ... 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. | ... reduce very considerably (by >1%); 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. |
| *Notes* | * Subject to supporting evidence, sustainable features and benefits could include, for example, materials or products that: comprise reused, secondary or recycled content (including excavated and other arisings); support the drive to a circular economy; or in some other way reduce lifetime environmental impacts. | | |

## Impact magnitude

16.3.5 Table 16-4 contains the materials and waste magnitude criteria (IEMA, 2020) (Ref 16.7).

*Table 16-4 – Materials and Waste Magnitude Criteria Replicated from the IEMA 2020 Guide (Ref 16.7)*

| Magnitude | Materials Criteria<br>Assessment of the Project is made by determining whether the consumption of… | Inert and non-hazardous waste criteria<br>Percentage depletion of remaining landfill void capacity | Hazardous waste criteria<br>The percentage depletion of remaining landfill void capacity |
|---|---|---|---|
| No change | ...no materials are required | Zero waste generation and disposal from the development. | Zero waste generation and disposal from development. |
| Negligible | ...no individual material type is equal to or greater than 1% by volume of the regional* baseline availability | Waste generated by the development will reduce regional* landfill void capacity baseline[$] by <1%. | Waste generated by the development will reduce national landfill void capacity baseline[$] by <0.1% |
| Minor | ...one or more materials is between 1-5% by volume of the regional* baseline availability; and / or<br>the development has the potential to adversely and substantially[#] impact access to one or more allocated mineral sites (in their entirety), placing their future use at risk. | Waste generated by the development will reduce regional* landfill void capacity baseline[$] by 1-5%. | Waste generated by the development will reduce national landfill void capacity baseline[$] by 0.1-0.5% |
| Moderate | ...one or more materials is between 6-10% by volume of the regional* baseline availability; and / or | Waste generated by the development will reduce regional* landfill void | Waste generated by the development will reduce national landfill void capacity baseline[$] by 0.5-1% |

| Magnitude | Materials Criteria<br>Assessment of the Project is made by determining whether the consumption of… | Inert and non-hazardous waste criteria<br>Percentage depletion of remaining landfill void capacity | Hazardous waste criteria<br>The percentage depletion of remaining landfill void capacity |
|---|---|---|---|
| | one allocated mineral site is substantially[#] sterilised by the development rendering it inaccessible for future use. | capacity baseline[$] by 6-10%. | |
| Major | …one or more materials is >10% by volume of the regional* baseline availability;<br>and / or<br>more than one allocated mineral site is substantially[#] sterilised by the development rendering it inaccessible for future use. | Waste generated by the development will reduce regional* landfill void capacity baseline[$] by >10%. | Waste generated by the development will reduce national landfill void capacity baseline[$] by >1% |
| Notes | * or where justified, national.<br># justified using professional judgement, based on the scale and nature of the allocated mineral site being assessed.<br>$ forecast as the worst-case scenario, during a defined Construction Phase. | | |

### Significance of effect

16.3.6 Table 4-1 in Chapter 4: Environmental Impact Assessment Methodology outlines how the significance of effect will be assessed by considering the sensitivity of a receptor and the magnitude of the impact. Significance of effect can be considered beneficial (positive), adverse (negative) or neutral. Significance of effect is ranked as Negligible, Minor, Moderate or Major. For the purpose of this assessment, major and moderate effects are considered to be 'significant.' Minor and negligible effects are considered to be 'not significant.'

## 16.4 Limitations and Assumptions

16.4.1 The following limitations and assumptions have been identified:

- The most recent publicly available data has been used to collate baseline information.
- Some waste facility operators may not release data for reasons of commercial confidentiality. The resulting data gaps may reduce the value of information that is publicly available.
- The environmental assessment of landfill void capacity will be based on information available at the time the full environmental assessment is undertaken.
- The general lag in years of publishing of materials and waste facility capacity has implications for assessments presenting the 'current picture.' Relevant assumptions and caveats may be made in the assessment.
- It is assumed that material excavated during construction will be reused on site, wherever practicable.
- There is no published or formalised methodology for assessing the impact upon waste treatment site capacity. Professional judgement has therefore been applied.

## 16.5 Stakeholder Engagement

16.5.1 No specific engagement has been undertaken with the relevant local authorities at the time of writing this Scoping Report, however engagement and technical consultation will continue throughout the environmental assessment process with the local authorities listed in Table 16-5.

*Table 16-5 – Stakeholder engagement to date*

| Organisation and date | Summary of engagement |
|---|---|
| North Yorkshire County Council | No engagement undertaken to date |
| North Lincolnshire Council | No engagement undertaken to date |
| East Riding of Yorkshire Council | No engagement undertaken to date |
| North East Lincolnshire Council | No engagement undertaken to date |

## 16.6 Study Area

16.6.1 The Study Areas that are applicable to the Project (as defined in IEMA's 2020 Guide to Materials and Waste in Environmental Impact Assessment (Ref 16.7), (herein referred to as the 'IEMA Guide') are:

- The Study Area - the extent of works within the draft Order Limits, including areas required for construction of the pipeline, above ground installations (AGIs), Pump Facility and temporary access during construction including site compounds, working platforms and other enabling activities.
- The Expansive Study Area extends to the availability of construction materials and the capacity of waste management facilities within the UK and the regions where the Project is located. The expansive Study Area encompasses the local authority areas of North Yorkshire County Council, East Riding of Yorkshire Council, North East Lincolnshire and North Lincolnshire Council.

## 16.7 Receptors

16.7.1 In relation to materials and waste, sensitive receptors relate to those resources or facilities that might be affected by the inappropriate and unsustainable management of materials and waste.

16.7.2 The sensitive receptors identified in this EIA Scoping Report are:

- Material resources – consumption impacts on their immediate and long-term availability, resulting in depletion of natural resources.
- Minerals Safeguarding Areas – to assess the impact on the Project on minerals safeguarding areas, to ensure mineral resources are not needlessly sterilised.

- Landfill void capacity – A finite resource. Reductions in regional and national infrastructure, resulting in unsustainable use or loss of resources and temporary or permanent degradation of the natural environment.
- The available capacity of waste treatment sites that may reuse, recover or recycle materials from the Project.

## 16.8 Baseline Conditions

16.8.1 This section sets out the baseline data that will be relied upon to produce a detailed assessment of baseline conditions to be contained within the PEIR and ES. It also includes a summary of relevant baseline data.

16.8.2 A baseline desk study has been undertaken utilising available data from publicly available sources to provide information on material resource availability, minerals safeguarding areas, and landfill and waste treatment sites capacity. The most up to date information has been utilised to collate data with the most recent year of data publication provided. Data sources used are listed in Section 16.12.

### Materials Currently Required

16.8.3 Land use within the draft Order Limits is predominantly agricultural, with some, commercial and industrial areas. Other assets include highways, rail, canals, and existing pipeline infrastructure, along with environmental attributes such as rivers and wooded and other heavily vegetated areas.

16.8.4 Materials required for current land uses are anticipated to comprise aggregate, concrete, steel, timber and asphalt for use in general maintenance and repair works. Although there is no data available at the time of writing, professional judgement has been used to ascertain that the consumption of materials for current land use is minimal in comparison to regional and national availability.

### Waste Currently Generated

16.8.5 Current arisings within the draft Order Limits are anticipated to be predominantly from earthworks and vegetation due to agricultural activities, and surplus materials from infrastructure repairs and maintenance. No specific data is available for waste or material arisings currently generated within the draft Order Limits. However, using professional judgment, the current generation within the draft Order Limits is presumed to be minimal, in the context of both waste treatment sites and regional landfill capacity.

16.8.6 Table 16-6 details the number of permitted waste recovery sites and waste management routes in Yorkshire and the Humber Region (Environment Agency Waste Data Interrogator, 2023) (Ref 16.9). The availability of waste recovery infrastructure regionally suggests that there is strong potential to divert arisings

from site during construction of the Project from landfill. Recovering excavated and waste arisings from the Project and diverting them from landfill has the potential to materially influence the findings of the assessment of impacts and effects from materials and waste.

*Table 16-6 – Permitted waste facilities in Yorkshire and Humber Region (2023)*

| Waste facility type | Number of permitted sites | Sites accepting waste in 2023 |
|---|---|---|
| Landfill | 67 | 35 |
| Land disposal | 37 | 16 |
| Incineration | 33 | 15 |
| Transfer | 340 | 235 |
| Treatment | 305 | 252 |
| Metal recovery | 333 | 128 |
| **Totals** | **1,115** | **681** |

16.8.7 Table 16-7 details the remaining landfill capacity within the Yorkshire and Humber region (Environment Agency Waste Data Interrogator, 2023) (Ref 16.8).

*Table 16-7 – Remaining landfill capacity in Yorkshire and the Humber (2023)*

| Landfill type | Capacity in 2023 (000,$m^3$) | Capacity in 2022 (000,$m^3$) | Change in capacity (000,$m^3$) |
|---|---|---|---|
| Hazardous Merchant | 466 | 476 | -10 |
| Hazardous Restricted | - | - | - |
| Non-Hazardous with SNRHW* | 1,243 | 1,243 | 0 |
| Non-Hazardous | 40,814 | 40,580 | +234 |
| Non-Hazardous Restricted | - | - | - |
| Inert | 24,866 | 24,928 | -62 |

| Landfill type | Capacity in 2023 (000,$m^3$) | Capacity in 2022 (000,$m^3$) | Change in capacity (000,$m^3$) |
|---|---|---|---|
| **Total** | **67,389** | **67,227** | **+162** |

**Stable Non-Reactive Hazardous Waste*

16.8.8 Baseline data indicates that in the absence of future provision, non-hazardous and total landfill capacity is likely to become an increasingly sensitive receptor throughout the duration of the construction phase and in operation.

### Future Baseline

16.8.9 In the absence of the Project, it is considered that the current land use within the draft Order Limits would remain predominantly agricultural. However, it should be noted that increased maintenance of nearby ageing infrastructure may be required.

16.8.10 Given the scale of the current infrastructure within the draft Order Limits, the consumption of materials, generation of waste and the recovery of site arisings is expected to remain minimal.

## 16.9 Design, Mitigation and Enhancement Measures

16.9.1 Mitigation measures for the construction and operation of the Project will be identified and adopted if required as the design of the Project develops and detailed in the Register of Environmental Commitments. This may include principles on the following:

- Sustainable resource management (including designing out waste) in the context of the Waste Hierarchy, which promotes prevention, reuse, recycling and recovery of waste before considering disposal.
- The Proximity Principle, where waste is ideally manged as close to the source of generation as is practicable.

16.9.2 Mitigation will be outlined within the Construction Environmental Management Plan (CEMP) which will incorporate the requirement for the Main Works Contractor to prepare and implement a Site Waste Management Plan (SWMP) and Materials Management Plan (MMP). Outline drafts of the CEMP, SWMP, MMP and the Register of Commitments will be provided with the ES. A draft Register of Commitments is provided in Volume 3: Appendix F.

## 16.10 Description of Potential Likely Significant Effects

### Construction

16.10.1 The majority of the materials to be used within the construction of the Project are anticipated to comprise metal and plastic piping, aggregates, concrete, and asphalt along with smaller quantities of electrical and instrumentation components and landscaping materials. Detailed volumes of construction material quantities or site arisings are not currently available at the time of writing; however, a high-level estimate of excavation arisings will be provided in the ES.

### Operation

16.10.2 Materials used and waste generated during operation are anticipated to be minimal and limited to the ongoing maintenance and repair of the AGIs and the Pumping Facility. Therefore, the operational phase is scoped out of further assessment.

### Decommissioning

16.10.3 Waste generated during decommissioning would be limited to the removal of AGI infrastructure and Pump Facility, comprising concrete, metal and asphalt. The pipeline infrastructure below ground will remain in situ once the Project has reached the end of its operational life. Any impacts during the decommissioning phase will be minimised through the implementation of a Decommissioning Environmental Management Plan (DEMP), to be submitted with the Development Consent Order (DCO). In addition, when the pipeline reaches the end of its life, it will be decommissioned safely under a separate consent.

## 16.11 Summary of the Proposed Scope of Assessment

16.11.1 Table 16-8 details the matters to be scoped in or out of further assessment. Once more detailed information becomes available, it may be possible to scope waste out of the future environmental assessment in agreement with the relevant stakeholders. If this is the case, the appropriate information will be provided in the ES and mitigation will be included in the relevant appendices.

*Table 16-8 – Matters Scoped In or Out of Further Assessment*

| Matter | Project stage | Scoped in | Scoped out | Justification | Agreed with |
|---|---|---|---|---|---|
| Materials (use of excavated arisings only) | Construction | ✓ | | Further information is required to assess the impacts of the Project on regional material resource availability, in the context of the generation of excavation arisings and reuse of excavated material on site (or potentially off site) during construction. | To be agreed as part of EIA Scoping |
| Materials (minerals assessment only) | Construction | ✓ | | An assessment is required specifically related to the minerals safeguarding areas that partially underlie the Project to ensure that mineral resources are not needlessly sterilised. | To be agreed as part of EIA Scoping |
| Materials (other materials) | Construction | | ✓ | Other materials (excluding excavated arisings and mineral resources) to be utilised for construction are not anticipated to impact on regional or national supplies. On that basis there will be no likely significant effects, other materials have been scoped out of further assessment. | To be agreed as part of EIA Scoping |
| Materials | Operation | | ✓ | Limited quantities of materials, limited to those required during routine maintenance and repair, are anticipated to be used during operation. This is not on a scale that will result in significant effects from the Project, therefore operational material use has been scoped out of further assessment. | To be agreed as part of EIA Scoping |

| Matter | Project stage | Scoped in | Scoped out | Justification | Agreed with |
|---|---|---|---|---|---|
| Materials | Decommissioning | | ✓ | Limited quantities of materials are anticipated to be used during decommissioning and not on a scale that will result in significant effects from the Project. Therefore, material use during decommissioning has been scoped out of further assessment. | To be agreed as part of EIA Scoping |
| Waste | Construction | ✓ | | Excavation arisings and reuse of materials on site may materially impact the surrounding waste infrastructure and landfill capacity (worst case scenario). | To be agreed as part of EIA Scoping |
| Waste | Operation | | ✓ | Limited quantities of waste are anticipated to be generated during operation and not on a scale that will result in significant effects from the Project. As such, operational waste has been scoped out of further assessment. | To be agreed as part of EIA Scoping |
| Waste | Decommissioning | | ✓ | Waste generation will be limited to removal of AGIs and the Pump Facility (e.g., concrete, metals, asphalts), the majority of which can be reused, recycled or recovered. The pipelines will be left in situ, and no waste will be generated from their decommissioning. A DEMP will be submitted with the DCO Application. | To be agreed as part of EIA Scoping |

## 16.12 References


- Ref 16.1 – The Overarching National Policy Statement for Energy (EN-1) (Department for Energy Security & Net Zero, January 2024)
- Ref 16.2 – North Yorkshire County Council Minerals and Waste Joint Plan 2015 – 2030 (adopted February 2022)
- Ref 16.3 – North Lincolnshire Council Local Development Framework (adopted June 2011)
- Ref 16.4 – East Riding of Yorkshire Joint Waste Local Plan (adopted 2004) and extension of saved policies (November 2007)
- Ref 16.5 – East Riding of Yorkshire Joint Minerals Local Plan
- Ref 16.6 – North East Lincolnshire Council – New Local Plan 2013 – 2032 (adopted 2018)
- Ref 16.7 – IEMA Guide to Materials and Waste in Environmental Impact Assessment
- Ref 16.8 – Waste Management 2023 in Yorkshire and the Humber Data Tables (Environment Agency, published May 2024)
- Ref 16.9 – 2023 Waste Data Interrogator – Wastes Removed (Environment Agency, published May 2024)
- Ref 16.10 – 2023 Waste Data Interrogator – Wastes Received, (Environment Agency, published May 2024)

# 17 Water Resources, Flood Risk and Land Drainage

## 17.1 Introduction

17.1.1 This chapter considers the impact of the Project on the surface water environment, predominantly concerning watercourses, land drains and waterbodies up to Mean High Water Springs (MHWS). It sets out the proposed methodology for the assessment and identifies those impacts that can be scoped out of the Environmental Impact Assessment (EIA). It considers all possible receptors within the Study Area including main rivers, ordinary watercourses, land drains and other surface waterbodies such as lakes. Other receptors considered include surface water discharges and abstractions, the floodplain, and people and properties at risk of flooding now and / or in the future. Mean Low Water Springs (MLWS) is addressed in Section 19.6 of Chapter 19: Coastal and Intertidal Impacts.

17.1.2 This chapter is intended to be read as part of the wider Scoping Report. Impacts on groundwater bodies and Groundwater Dependent Terrestrial Ecosystems (GWDTEs) are considered in Chapter 9: Ground Conditions and Hydrogeology. Reference should be made to Chapter 19: Coastal and Intertidal Impacts for impacts on coastal processes and the intertidal zone.

17.1.3 The following figures have been produced to support this chapter:

- Figure 17.1 – Surface Water Features and Study Area.
- Figure 17.2 – Flood Zones.
- Figure 17.3 – Risk of Flooding from Surface Water.

## 17.2 Legislation, Policy and Guidance

17.2.1 The assessment to be undertaken to inform the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) will be undertaken in accordance with, and with reference to, the following legislation, policy and guidance.

### Legislation

17.2.2 The assessment will be undertaken in accordance with, and with reference to, the following legislation:

- The Water Environment (Water Framework Directive (WFD)) (England and Wales) Regulations 2003 (Ref 17.1) implemented the WFD in England and Wales and were amended by the Floods and Water (Amendment etc.) (EU

Exit) Regulations 2019 (Ref 17.2). The 2019 Regulations, specifically Regulation 20, stipulate that the substance of the WFD regime that applied pre-EU Exit will continue to apply with only relatively minor amendments.

- Part 5 of the Environment Act 2021 (Ref 17.3), brings together measures to strengthen and update the existing regulatory and long-term planning framework for water, helping to reduce environmental risks, including to water quality and land drainage. It also strengthens the regulation of water and sewerage undertakers by the newly established Office for Environmental Protection.
- The Land Drainage Act 1991 (Ref 17.4) together with the Water Resources Act 1991 (Ref 17.5) allows the Environment Agency (EA) to prevent the obstruction of any main river through the construction of flow control structures, culverts or any other structure in a main river. Where culverting or other works have a potential to affect the flow regime on ordinary watercourses, consent is required from the Lead Local Flood Authority (LLFA) under the Flood and Water Management Act 2010 (Ref 17.6) which provides better, more comprehensive management of flood risk for people, homes and businesses.
- The Environmental Permitting Regulations (2016) which provides for ongoing supervision by regulators of activities which could harm the environment (Ref 17.7).
- The assessment will also be in accordance with the requirements of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref 17.8) and the Marine and Coastal Access Act 2009 (Ref 17.9).

## Policy

### National Planning Policy

#### National Policy Statements

17.2.3 As detailed in Chapter 1: Introduction, National Policy Statements (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Project would be considered. The two relevant NPSs are Overarching National Policy Statement for Energy EN-1 (Department for Energy Security and Net Zero (DESNZ), Ref 17.10) and National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines EN-4 (Ref 17.11).

17.2.4 Table 17-1 sets out how the NPSs are relevant to the water resources, flood risk and land drainage assessment.

*Table 17-1 – Relevant Sections of the NPSs*

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-1 | 5.8.13 states ‘’*A site specific flood risk assessment (FRA) should be provided for all energy projects in Flood Zones 2 and 3 in England… In Flood Zone 1 in England an assessment should accompany all proposals involving sites of 1 hectare or more; land which has been identified by the EA or NRW as having critical drainage problems; land identified as being at increased flood risk in future; land that may be subject to other sources of flooding (for example surface water); or where the EA or NRW, Lead Local Flood Authority, Internal Drainage Board or other body have indicated that there may be drainage problems*.’’ | An FRA will be prepared to support and inform the PEIR and ES. |
| EN-1 | 5.8.14 states ‘’ *FRAs should identify and assess the risks of all forms of flooding to and from the project and demonstrate how these flood risks will be management, taking climate change into account*.’’ | This will be addressed in the FRA that will be prepared for the PEIR and ES. |
| EN-1 | 5.8.15 – the minimum requirements for FRAs are set out in this paragraph, stating that FRAs should be ‘’*proportionate to the risk and appropriate to the scale, nature and location of the project and consider the risk of flooding arising from the project in addition to the risk of flooding to the project*.’’ | The FRA that will be prepared for the PEIR and ES will be produced in line with these requirements. |

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-1 | Where a project is likely to have effects on the water environment, an assessment of the impacts should be undertaken as part of an EIA. | A preliminary assessment of impacts will be undertaken as part of the PEIR, and the full assessment of impacts will be reported in the ES for the Project. |

17.2.5 EN-4 also advocates the approaches set out in EN-1.

### National Planning Policy Framework

17.2.6 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities & Local Government, 2023) (Ref 17.12)[16] and accompanying Flood Risk and Coastal Change and Water Quality and Supply Planning Practice Guidance (PPG) (Ref 17.13) set out the Government's core policies and principles with respect to land use planning, including water environment and flood risk management.

17.2.7 The requirements of the NPPF closely align with the requirements of the NPSs described in Table 17-1.

### Local Planning Policy

17.2.8 The Project lies within the jurisdictions of North Yorkshire, East Riding of Yorkshire, North Lincolnshire and North East Lincolnshire. A summary of the relevant local planning policy which is relevant to a study of water resources, flood risk and land drainage matters and will inform the assessment in the PEIR and Environmental Statement is provided in Table 17-2.

[16] This EIA Scoping Report makes reference to the December 2023 update of the NPPF. The PEIR will provide an update of applicable legislation and policy, which will include consideration of the December 2024 NPPF update (or any subsequent update).

*Table 17-2 – Relevant Local Planning Policies*

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| Central Lincolnshire Plan (2017) (Ref 17.14) | S21: Flood Risk and Water Resources | *"Flood Risk*<br>*All development proposals will be considered against the NPPF, including application of the sequential and, if necessary, the exception test.*<br>The policy lists six points that development proposals should demonstrate with respect to flood risk.<br>*Protecting the Water Environment*<br>*Development proposals that are likely to impact on surface or ground water should consider the requirements of the Water Framework Directive.*<br>The policy lists 14 points relevant to protecting the water environment.<br>*In order to allow access for the maintenance of watercourses, development proposals that include or abut a watercourse should ensure no building, structure or immovable landscaping feature is included that will impede access within 8m of a watercourse, or within 16m of a tidal watercourse. Conditions may be included where relevant to* | The FRA will be prepared in line with NPPF requirements and the points listed in the policy will be taken into account.<br>A WFD Assessment will be prepared to inform the ES and will consider the points in this policy.<br>Access to watercourses will be considered at a later stage once further detail on the Project proposals is available. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | *ensure this access is maintained in perpetuity and may seek to ensure responsibility for maintenance of the watercourse including land ownership details up to and of the watercourse is clear and included in maintenance arrangements for future occupants."* | |
| East Riding Local Plan (2016) (Ref 17.15) | S2: Addressing climate change | *"The Local Plan and development decisions will support a reduction in greenhouse gas emissions and adaptation to the expected impacts of climate change*."<br>The Local Plan includes a table stating how this policy will be delivered. Relevant to this chapter, this covers promoting efficient use of water resources, building-in climate change resilience and flood management. | Climate change will be considered as part of the assessment and the latest guidance on climate change allowances will be incorporated into the FRA. |
| | ENV6: Managing environmental hazards | *"Environmental hazards, such as flood risk, coastal change, groundwater pollution and other forms of pollution, will be managed to ensure that development does not result in unacceptable consequences to its users, the wider community, and the environment."* | This policy will be considered as part of the FRA that will be prepared. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | The policy sets out how the council will proactively manage flood risk. | |
| North Lincolnshire Local Development Framework Core Strategy (2011) (Ref 17.16) | CS18: Sustainable Resource Use and Climate Change | *"This policy aims to reduce the causes of climate change, and move North Lincolnshire towards a more resource efficient future."*<br>The policy covers the following matters relevant to this chapter: water resources, SuDS, climate change and protecting and improving water quality. | A preliminary assessment of the Project's effects on water resources, flood risk and land drainage impacts will be undertaken as part of the PEIR and the full assessment of impacts will be reported in the ES for the Project.<br>Climate change will be considered as part of the assessment and the latest guidance on climate change allowances will be incorporated into the FRA and the Project's design.<br>SuDS suitable to local conditions will be used to manage surface water runoff from the Project where required. |
| | CS19: Flood Risk | This policy sets out the council's requirements with respect to flood risk.<br>*"The council will support development proposals that avoid areas of current or future flood risk, and which do not increase the risk of flooding elsewhere. This will involve a risk based sequential approach to determine the suitability of land for development that uses the principle of locating development, where possible, on land that has a lower flood risk, and relates land use to its vulnerability to flood."* | |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | The policy also states Sustainable Drainage (SuDS) should be incorporated wherever practicable. | |
| Selby District Council Local Plan (2022) (Ref 17.18). | SG11 – Flood Risk | This policy lists requirements that need to be demonstrated with respect to managing, being resilient to and adapting to flood risk. It also refers to the Sequential and Exception Tests (as in the NPPF). The policy also states when a site-specific FRA is required in line with the NPPF and PPG. | This policy will be considered as part of the FRA. |
| | IC4 – Water Supply, Wastewater Treatment and Drainage Infrastructure | *"The Council will work with statutory water infrastructure providers, prospective developers and key stakeholders to identify where strategic solutions to water supply, wastewater treatment and drainage related infrastructure investment may be required or where phasing is necessary to ensure there is sufficient headroom within existing facilities in order to support the strategic aims and expectations of this Plan*." | A preliminary assessment of the effects of the Project on water resources, flood risk and land drainage will be undertaken as part of the PEIR and the full assessment of impacts will be reported in the ES for the Project.<br>The assessment will address mitigation measures incorporated into the Project proposals. |
| | NE5 – Protecting and | This policy covers requirements with respect to the WFD and the objectives set out in the Humber River Basin Management Plan (RBMP). The | A WFD Assessment will be prepared to inform the ES, in accordance with PINS guidance. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | Enhancing Rivers and Waterbodies | requirements are in line with those set out in PINS WFD guidance. | |

### Guidance

17.2.9 Several standards and non-statutory guidelines, which provide details of assessment methodologies and mitigation techniques, will also be referenced to inform the assessment, including:

- Planning Inspectorate guidance on WFD (Ref 17.19).
- Humber 2100+ the Humber Flood Risk Management Strategy (published reports and emerging updates) (Ref 17.20).
- East Riding of Yorkshire Council Flamborough Head to Gibraltar Point Shoreline Management Plan (Ref 17.21).
- Construction Industry Research and Information Association (CIRIA) publications (various dates) (Ref 17.22).
- Guidance for Pollution Prevention Series (Ref 17.23).
- Design Manual for Roads and Bridges (DMRB) LA113 Road Drainage and the Water Environment (Ref 17.24).
- Sustainable Drainage Systems (SuDS) Guidance from Lincolnshire County Council (Ref 17.25), North Yorkshire County Council (Ref 17.26) and East Riding of Yorkshire Council (Ref 17.27).
- Action level guidance for dredged material, Cefas (Ref 17.28).

## 17.3 Proposed Assessment Methodology

17.3.1 The overarching approach to the EIA is described in Chapter 4: EIA methodology whilst the proposed assessment methodology described below relates specifically to the Water Resources, Flood Risk and Land Drainage assessment.

17.3.2 The assessment methodology is drawn from LA113 of the DMRB (Ref 17.24). Whilst primarily intended for use in assessing the effects of highways projects on the water environment, the methodology is widely accepted as suitable for assessing the effects of other types of linear infrastructure projects on water environment receptors. The method promotes assessment that is proportionate to the scale and nature of the proposals and that considers the sensitivity of the local water environment to change. The PEIR and ES will present a detailed assessment in accordance with this guidance.

17.3.3 The assessment presented in the PEIR, and the ES will be informed by an FRA and a WFD Assessment which will be prepared in parallel to the impact assessment.

17.3.4 The FRA of the Project will be produced in accordance with the NPPF (Ref 17.12), as well as with reference to the CIRIA guidance (Ref 17.22) and local flood risk management guidelines published by the LLFAs. The FRA will consider

flood risk from fluvial, coastal, surface water and groundwater sources during both construction and operation. It will also include details of the measures proposed to adhere to local drainage and flood risk planning policies. Where above ground infrastructure (AGI) is proposed, the FRA will consider flood risk over the lifetime of these assets, incorporating allowance for climate change in accordance with published guidance (Ref 17.29). The assessment will be reported in accordance with the hydrological catchments that the Project crosses through.

17.3.5 The WFD Assessment will be prepared following Planning Inspectorate guidance (Ref 17.19) and Environment Agency guidelines for estuarine and coastal waters (Ref 17.30). The effects of the Project on the Humber River Basin Management Plan (Ref 17.31) and the waterbodies therein will be described, and the assessment will set out how the Project design has been developed to align with the requirements of the Directive. A qualitative approach is proposed, and the assessment will identify how the Project design will avoid waterbody deterioration, as well as provide any other mitigation necessary. The assessment will be reported in accordance with the WFD Operational Catchments that the Project crosses.

## Value / Sensitivity

17.3.6 The criteria for determining value, or 'sensitivity', will be based on the criteria in Table 3.70 of LA113. LA113 does not however provide a prescriptive assessment methodology for hydromorphology. Therefore, the criteria for determining value with respect to hydromorphology will be informed by published literature, namely the 'Guidebook of Applied Fluvial Geomorphology' (Ref 17.32) and the 'River Hydromorphology Assessment Technique Training Manual' (Ref 17.33). Criteria for hydromorphology will consider extent of watercourse modification and variation of flow types, for example.

## Impact Magnitude

17.3.7 The criteria in Table 3.71 of LA113 will be used to determine the magnitude of impact (change). Similarly, to defining value / sensitivity, there is little guidance on the classification of the potential magnitude of hydromorphological impacts in LA113. Therefore, criteria for assessing this will be informed by the previously referenced published literature.

## Significance of Effect

17.3.8 In line with LA113 methodology, the significance of an effect will be derived by comparing the value / sensitivity of a receptor with the impact magnitude.

17.3.9 Significance will be derived using the matrix set out in Chapter 4: EIA methodology. Likely significance effects, in the context of the EIA Regulations, are effects of moderate or greater significance.

## 17.4 Limitations and Assumptions

17.4.1 To ensure transparency within the EIA process, the following limitations and assumptions have been identified to inform the assessment undertaken for water resources, flood risk and land drainage in this Scoping Report:

- It is assumed there is sufficient data from the Environment Agency, LLFAs and Internal Drainage Boards (IDBs) to inform a site-specific FRA and that no new flood risk models will need to be developed.
- It is assumed there is sufficient data from the Environment Agency to define the current condition and standards of protection provided by existing flood defences, and that no baseline condition surveys will be required.
- No water quality sampling and analysis is proposed as it is considered that sufficient baseline data is available to generally characterise the water quality of surface water receptors.
- The water demands of the Project are currently being considered and a water supply strategy would be developed to inform the ES assessment.
- No surveys have been undertaken to date. Any survey requirements will be agreed with key stakeholders and any data collected would be used to inform the PEIR and ES.

17.4.2 Limitations and assumptions relating to coastal process and the intertidal zone are addressed in Chapter 19: Coastal and Intertidal Impacts.

## 17.5 Stakeholder Engagement

17.5.1 Engagement has been undertaken with the Environment Agency, all relevant LLFAs and IDBs to agree the scope of the assessment, as noted in Table 17-3 below.

17.5.2 In addition, this engagement has and will continue to facilitate baseline data collection. Technical engagement and consultation will continue through the EIA process. A summary of engagement to date has been provided in Table 17-3.

*Table 17-3 – Summary of Engagement*

| Organisation and date | Summary of Engagement |
|---|---|
| Environment Agency 9 October 2024 (Meeting) | Meeting to introduce the Project and discuss the scope of the water resources, flood risk and land drainage assessments, including the flood risk assessment and water supply strategy. |
| Environment Agency 15 November 2024 (Written technical notes describing proposed FRA and land drainage assessment scope and methodologies) | The Environment Agency provided feedback (2/12/2024) that they accept the approach to the FRA and that they agree with the matters scoped in or out of further assessment. They also advised the following points:<br>• Alternatives should be found to open cut methods at main river crossings and thrust boreing using shafts would be less environmentally damaging.<br>• The pipeline should be at least 1m below the existing bed level of main rivers<br>• “There must be no land raising as part of reinstatement” of the pipeline trenches and “any loss of floodplain will need to be compensated for, level for level”.<br>• The FRA will need to cover temporary works.<br>• Above ground infrastructure needed to operate during a flood event will need to be above the 1 in 100 year event with a freeboard of 400-600mm whilst the appropriate climate change epoch should be used for the 75 year development lifetime. |

| Organisation and date | Summary of Engagement |
|---|---|
| | • The FRA will need to cover any river crossings that may be needed for other structures. These would need to be designed to accommodate the 1 in 100 year flood level plus 300-600m freeboard and accounting for climate change in line with the latest guidance. The Project would be classified as essential infrastructure so the higher central climate change allowance should be used with the upper end as a sensitivity test.<br>• "Any pipeline crossings on Main River and or works within 8m will require a flood risk activity permit from the National Permitting Service. Temporary works such as over pumping to work in the dry will need a permit too." |
| LLFAs: North Yorkshire Council, East Riding of Yorkshire Council, North Lincolnshire Council, North East Lincolnshire Council<br><br>15 November 2024 (Written technical notes describing proposed FRA and land drainage assessment scope and methodologies) | North Lincolnshire Council provided feedback (27/11/2024) that the approach to the FRA is sensible and appropriate. No other feedback has been received to date. |
| IDBs: South Holderness, Ancholme, Isle of Axholme, Reedness and Swinefleet, Goole Field District, Dempster, Thorntree, Black Drain, Rawcliffe, Selby Area<br><br>27 November 2024 (Meeting) | Discussion centred on Project interactions with Board drains and the designs of watercourse crossings. In general, the preference for trenchless crossings was stated, whilst it was agreed that designs should be considered on a watercourse-by-watercourse basis, considering site specific conditions and constraints. |

| Organisation and date | Summary of Engagement |
| --- | --- |
| IDB: North East Lindsey<br>11 December 2024 (Meeting) | Discussion centred on Project interactions with Board drains and the potential for these watercourses to supply water for construction of the trenchless crossing of the proposed pipeline beneath the River Humber. |

## 17.6 Study Area

17.6.1 The Study Area for the EIA is proposed to include all land within the draft Order Limits and in addition a buffer of 500 m from this boundary. The assessment will consider terrestrial waterbodies up to MHWS notably at landfall, where the Project interacts with the offshore carbon dioxide transportation and storage infrastructure. This is considered an appropriate Study Area based on the nature of Project construction and operation (and decommissioning) activities and technical knowledge of similar schemes. The Study Area is illustrated in Volume 2: Figure 17-1.

17.6.2 The FRA that will be prepared to inform the EIA will include for a larger Study Area where necessary, to ensure any potential flood risk impacts of the Project are considered at a local catchment scale. The WFD Assessment will be prepared for a Zone of Influence that will be agreed with the Environment Agency.

17.6.3 The Study Areas for assessing effects on geology and groundwater are described in Chapter 9: Ground Conditions and Hydrogeology. Study Areas for coastal processes and the intertidal zone are addressed in Chapter 19: Coastal and Intertidal Impacts.

## 17.7 Receptors

17.7.1 Key water environment receptors are the main rivers and ordinary watercourses that would be crossed by the Project, illustrated in Figure 17-1. Key main rivers include the Humber Estuary, tidal River Trent and River Aire. The Humber Estuary is tidally dominated within the Study Area. These features have several attributes that could be affected, including their water quality, flow conveyance and hydromorphology. Watercourses may also support existing water interests such as abstractions providing water supplies, receiving discharges and transporting and diluting waste waters.

17.7.2 Floodplains are another important receptor, in addition to existing flood defence assets. The floodplains and areas benefiting from flood defence assets are illustrated in Volume 2: Figure 17-2. The draft Order Limits cross large extents of fluvial and coastal floodplain (initially defined by the extents of EA Flood Zones 2 and 3a), with numerous existing infrastructures and built development within these zones that must not be put at increased flood risk by Project activities.

17.7.3 Sites designated for their nature conservation interest, where surface waters play a key role in sustaining the designated interest features, are also important receptors. Assessment of effects on such sites will be undertaken in collaboration

with ecology and groundwater specialists. GWDTEs will be addressed in Chapter 9: Ground Conditions and Hydrogeology.

17.7.4 The draft Order Limits cross the intertidal zone north of Easington. The landfall is located on a rapidly eroding coastline, retreating on average at a rate of 1-2 m per year. The underlying geology is of chalk overlain by a glacial till of soft boulder clay that can be rapidly eroded when saturated. It is this material that makes up much of the cliffs above Mean High Water Springs (MHWS). In addition to the easily eroding coastal geology, the strong prevailing wind and wave regime of the North Sea are from the northeast creating a strong littoral sediment transport along the Holderness Coast that rapidly moves material southwards. The intertidal area at landfall is located within the Yorkshire South WFD Coastal waterbody and as such impacts on this water body as a consequence of the landfall installation works are considered in Chapter 19: Coastal and Intertidal Impacts.

## 17.8 Baseline Conditions

17.8.1 This section sets out the baseline data that will be relied upon to produce a detailed assessment of baseline conditions that will be contained within the PEIR and ES. A summary of baseline conditions is provided below.

17.8.2 Baseline data to characterise the water environment within the Study Area will be collected from a desk study, with reference to published data sources including the following:

- Environment Agency Flood Map for Planning (Ref 17.34).
- Environment Agency long-term flood risk mapping (including flood risk from surface water and reservoirs) (Ref 17.35).
- Environment Agency Recorded Flood Outlines (Ref 17.36).
- Environment Agency Main River map (Ref 17.37).
- Environment Agency Spatial Flood Defences dataset (Ref 17.38).
- Association of Drainage Authorities IDB map (Ref 17.39).
- Environment Agency Catchment Data Explorer (Ref 17.40).
- Humber RBMP (Ref 17.31).
- Environment Agency Water Quality Archive (Ref 17.41).
- Defra Magic Map (Ref 17.42).
- LiDAR data.
- Aerial Imagery.
- Historical mapping of watercourses (Ref 17.43).
- Flood Estimation Handbook (FEH) Web Service (Ref 17.44).
- Strategic Flood Risk Assessments (SFRAs) (Ref 17.45).

- East Riding of Yorkshire Coastal Explorer map (Ref 17.46).

17.8.3 The desk study will be supplemented by datasets collected in consultation with the Environment Agency, LLFAs and IDBs. This will include:

- Consented discharges to surface waters and licensed abstractions from surface waters.
- Deregulated surface water abstractions (private water supplies).
- Information on historical flood events.
- Information on historical shoreline positions and beach level profiles for the vicinity of the Easington landfall.
- Modelled flood water level and flood extent data for the watercourses within the Study Area.

17.8.4 The desk study will also identify any relevant Environment Agency capital works within the Study Area.

17.8.5 Field notes and photographs of water features, collected during ecological walkovers and surveys will also be referenced.

17.8.6 Baseline data collection will be undertaken on a risk basis, focusing on collecting data for receptors where source-pathway linkages are identified. For example, watercourses that are intended to be crossed by open cut techniques and locations accommodating AGIs. For watercourse receptors (where applicable) and the intertidal zone (described in Chapter 19 Coastal and Intertidal Impacts), WFD status data (Ref 17.40) will be collected to characterise existing qualities and status objectives, as well as any measures identified to achieve these measures, as recorded in the Humber RBMP.

17.8.7 Existing surface water interests (abstractions and discharges) will be identified with reference to data provided by the Environment Agency. Areas of fluvial / coastal floodplain will be described using Environment Agency flood model data and existing flood defence assets will be identified with reference to asset records and the Flamborough Head to Gibraltar Point Shoreline Management Plan. Other sources of flood risk, such as from surface water and groundwater, will be characterised in consultation with the LLFAs and IDBs and with reference to relevant SFRAs and other published sources.

17.8.8 Baseline collection on sediment transport, coastal water quality (in particular turbidity) and coastal morphology will be undertaken. This will be carried out by means of a desk study assessing historical shoreline position data for the coastline around the landfall as a means of modelling the degree of coastal erosion. Data would be sourced from both the Environment Agency and East Riding of Yorkshire Council.

17.8.9 The below text provides a high-level summary of some of the available baseline data for the Study Area.

17.8.10 Baseline data shows that the draft Order Limits crosses 12 main rivers, numerous tributaries of these rivers (classified as ordinary watercourses) and the Humber Estuary. As noted in Section 17.7, the Humber is tidally dominated within the Study Area. The catchments of the watercourses in the Study Area vary from small, rural catchments to larger catchments covering urban areas such as Leeds, Hull and Doncaster. With regard to their physical form, many of the watercourses have been subject to modifications including for the purposes of flood defence and land drainage.

17.8.11 There are canals and numerous ponds within the Study Area.

17.8.12 The WFD surface waterbodies in the Study Area share a chemical status of fail, have varying ecological status and a range of reasons for not achieving good status. Water quality in the Study Area is impacted by several factors including agriculture, sewer discharges and industrial emissions.

17.8.13 The Flood Map for Planning shows that there are multiple areas of Flood Zone 2 (medium risk, up to a 1 in 1000 (0.1%) annual flood risk from rivers and the sea) and Flood Zone 3 (high risk, equivalent to an annual flood risk from rivers of 1 in 100 (1%) or greater; or an annual flood risk from the sea of 1 in 200 (0.5%) or greater) throughout the Study Area. Parts of the floodplain are shown to be in areas benefitting from flood defences. The risk of flooding from surface water within the Study Area is shown in Volume 2: Figure 17.3.

## Future Baseline

17.8.14 The future baseline relates to known or anticipated changes to the current baseline in the future which should be assessed as part of the Project in the ES.

17.8.15 With regard to flood risk and land drainage, future baseline conditions would be forecast, drawing on current best practice guidelines (Ref 17.29) taking into account the likely impacts of climate change on rainfall intensities and where applicable peak river flows and sea level rise. These future conditions would be considered to factor climate change resilience into the Project design, for example, at any AGIs situated in the floodplain.

17.8.16 The implementation of future cycles of WFD management plans driving future improvements in the ecological and chemical quality of waterbodies would also be considered when assigning value to hydrology and land drainage resources and receptors.

17.8.17 The effects of known future development that shares the same hydrological catchments as the Study Area would also be considered, in terms of the potential for these developments to impact on the status of water receptors.

17.8.18 Future baseline conditions relating to coastal processes and the intertidal zone are addressed in Chapter 19: Coastal and Intertidal Impacts.

## 17.9 Design, Mitigation and Enhancement Measures

17.9.1 The assessment of effects will take account of a range of primary, secondary and tertiary mitigation measures. Key measures relevant to Water Resources, Flood Risk and Land Drainage are described below. At this stage, secondary mitigation is provisional, subject to the outcome of the PEIR and ES assessments.

17.9.2 The Project requires multiple watercourse crossings. A 'trenchless' construction method would be considered to cross complex and / or sensitive existing features, such as main rivers and environmentally sensitive areas. This may include auger boring, microtunnelling or horizontal directional drilling (HDD). A preliminary schedule of where a trenchless crossing method is proposed is included in Chapter 3: Description of the Project (Table 3-2). The tunnel methodology may be used for the crossing of the River Humber. The feasibility of alternative crossing techniques for the River Humber is currently being explored and an update will be reported in the PEIR. Upon completion of the trenchless crossing works, all land used for temporary working areas and pits would be restored, regardless of the technique used.

17.9.3 Trenchless crossings of watercourses would avoid physical changes to the rivers including their bed and banks, as well as impacts on flow and sediment transport regimes and hydromorphology. Disturbance within the riparian corridor would also be reduced where practicable.

17.9.4 Another considered primary mitigation measure is the inclusion of SuDS techniques to manage rainfall runoff from AGIs, including the Pump Facility. Suitable techniques would be selected, influenced by ground conditions and with reference to the drainage hierarchy (Ref 17.22), to achieve both attenuation and treatment of surface water runoff, avoiding increases in surface water flood risk and pollution.

17.9.5 With regard to secondary measures, a commitment will be made and secured through the DCO, to mitigate potential flood risk impacts associated with building AGIs in the floodplain. For example, design would aim to prevent impediment to key floodplain flow paths, and where there are losses of floodplain storage volume in undefended fluvial floodplain, these losses would be compensated for.

17.9.6 A suite of tertiary mitigation measures is also relevant to the Water Resources, Flood Risk and Land Drainage assessment. These include securing secondary consents under the Environmental Permitting Regulations, the Land Drainage Byelaws and the Marine and Coastal Access Act for qualifying works, as well as the good practice measures adopted during construction to avoid pollution, manage land drainage, mitigate flood risk and reduce temporary impacts on coastal processes and water quality in the intertidal zone. These measures will be documented in a Construction Environment Management Plan (CEMP), which would include a Surface Water Management Plan.

17.9.7 As part of the landfall works at north of Easington, there are four construction methods being considered as described in Chapter 3: Description of the Project. Further detail relating to coastal erosion is included in Chapter 19: Coastal and Intertidal Impacts.

## 17.10 Description of Likely Potential Significant Effects

### Construction

17.10.1 Good practice measures within the CEMP would reduce the risk of pollution of the water environment during construction by removing the pathways between sources and receptors for most working areas. However, potential for construction work to cause localised and temporary pollution effects would remain.

17.10.2 At open cut watercourse crossings there would be temporary physical disturbance and temporary changes to watercourse flow regimes may also occur, for example, where over pumping is required during construction of the pipelines and access route watercourse crossings. The effects would range in duration, but flumes and culvert crossings may be in place in some locations for several months, depending on the size and location, although appropriate measures detailed within the CEMP would help to mitigate these effects.

17.10.3 Whilst crossing watercourses via trenchless techniques reduces physical disturbance and flow regime effects, the technique is not entirely without pollution risk, which is associated with the potential for break out of drilling muds. Trenchless techniques also have a higher water demand.

17.10.4 During construction there would also be potential for effects on land drainage regimes and associated surface water flood risk, due to changes in land surface permeabilities or local topography, for example where vegetation cover is stripped, and earthworks are undertaken. At work sites located in the tidal and / or fluvial floodplain there would be potential for significant effects associated with

storage of spoil and storage of water for use in construction, reducing available floodplain storage or interrupting key floodplain flow paths.

17.10.5 There is potential for impacts on the structural integrity of flood defences during construction of the pipelines beneath them, due to settlement or vibration from trenchless construction techniques. As part of the ongoing engagement with the Environment Agency, discussions will be held to agree any required monitoring of structures and / or mitigation measures.

17.10.6 Following construction, the pipelines would be internally cleaned, gauged, flooded and hydrostatically tested to prove their integrity in accordance with the relevant specifications. Water for cleaning and testing may be sourced from rivers, groundwater, mains water supply or IDB watercourses, with any abstraction subject to regulatory approval. During abstraction, water treatment chemicals would be added to the pre-commissioning water to prevent corrosion and biological growth inside the pipeline, subject to the necessary chemical permits. Following hydrostatic testing, the water would be discharged, with the location and water quality monitoring requirements subject to agreement with the regulatory authorities.

17.10.7 These higher risk construction activities and associated receptors are proposed to be scoped into the ES. Effects on artesian water, springs and groundwater resources is addressed in Chapter 9: Ground Conditions and Hydrogeology. Chapter 9 also addresses risks associated with opening pollution pathways from contaminated land.

17.10.8 Likely significant effects relating to coastal processes (including erosion) and the intertidal zone are described in Chapter 19: Coastal and Intertidal Impacts.

## Operation

17.10.9 During operation of the Project, pollution impact pathways to surface waterbodies would be very limited. This is because land within the construction working width for the pipeline would be reinstated following completion of the construction works. There would be no operational discharges to surface watercourses other than treated surface water runoff. Physico-chemical elements supporting WFD waterbody status would therefore be safeguarded. Maintenance activities would fall under the Applicant's operational management procedures. No likely significant effects are therefore anticipated, and it is proposed that this aspect is scoped out of the assessment.

17.10.10 Given the nature of the Project, there would be no permanent effects on watercourse flow regimes. There would be no new consumptive water uses during operation, and the water quality of water receptors would not be degraded.

Therefore, the potential for likely significant effects on existing water interests (surface water abstractions and discharges) and hydromorphology is negligible.

17.10.11 Likely significant effects during operation are therefore limited to effects on land drainage and surface water flood risk at AGIs and increases in tidal and / or fluvial flood risk (where these sites are in the floodplain), in addition to groundwater flood risk. These aspects will be assessed in the PEIR and the ES, which will be informed by the findings of a supporting FRA.

17.10.12 Likely significant effects relating to coastal processes (including erosion) and the intertidal zone are described in Chapter 19: Coastal and Intertidal Impacts.

### Decommissioning

17.10.13 No likely significant effects on hydrology and land drainage receptors have been identified in association with the decommissioning of the Project. This is because the pipelines will be left in situ, avoiding physical disturbances to water receptors and avoiding creation of pollution pathways. The AGIs and Pump Facility would be dismantled, with all equipment removed and the land returned to its former use.

17.10.14 Decommissioning would consider all the relevant environmental legislation and technology available at the time and any necessary licences and permits would be acquired. A Decommissioning Environmental Management Plan (DEMP) will be implemented during the decommissioning phase. The DEMP will set out a series of measures, based on environmental best practice guidance from a range of environmental disciplines, to control the predicted environmental effects of the decommissioning of the Project.

## 17.11 Summary of the Proposed Scope of Assessment

17.11.1 A summary of matters scoped in and out of further assessment is provided in Table 17-4.

*Table 17-4 – Matters Scoped In or Out of Further Assessment*

| Matter | Project stage | Scoped In | Scoped Out | Justification | Agreed with |
|---|---|---|---|---|---|
| Water interests (existing surface water abstractions and discharges) | Construction | ✓ | | Water required for pre-commissioning and commissioning of the pipeline and for consumptive use during the construction phase e.g., to supply construction welfare facilities and to supply water for trenchless crossing methodologies. | To be confirmed following stakeholder engagement. |
| | Operation and decommissioning | | ✓ | No new consumptive use of surface water resources is proposed during operation and decommissioning, and safeguards will be put in place to protect surface water quality so there would be no impacts on the integrity of existing water interests. | To be confirmed following stakeholder engagement. |
| Watercourses and waterbodies hydromorphology | Construction | ✓ | | Where open cut crossing methods are proposed, an impact pathway may be created, with potential for temporary effects. | To be confirmed following stakeholder engagement. |
| | Operation and decommissioning | | ✓ | Once the pipeline working width is reinstated, there would be no impact pathway. The banks and riparian corridors of watercourses would not be disturbed and there would be a suitable | To be confirmed following stakeholder engagement. |

| Matter | Project stage | Scoped In | Scoped Out | Justification | Agreed with |
|---|---|---|---|---|---|
| | | | | separation distance between channel beds and the crest of the buried pipelines. | |
| Surface water quality | Construction | ✓ | | Potential for temporary effects at construction works sites, for example, due to the generation of silted runoff and associated with over-pumping and dewatering activities (dewatering effects assessed in Chapter 9: Ground Conditions and Hydrogeology). Potential discharge of water used for pipeline testing although discharge location is TBC. | To be confirmed following stakeholder engagement. |
| | Operation and decommissioning | | ✓ | No operational discharges of effluents would be generated that would be discharged to surface waters. A suitable post-construction land drainage scheme would also be implemented. DEMP will be implemented during the decommissioning phase. | To be confirmed following stakeholder engagement. |
| Flood risk from rivers and the sea | Construction | ✓ | | There are working areas in Flood Zone 3. | To be confirmed following stakeholder engagement. |
| | Operation | ✓ | | Potential for permanent AGIs in Flood Zone 3 and in proximity to existing flood defences. | To be confirmed following |

| Matter | Project stage | Scoped In | Scoped Out | Justification | Agreed with |
|---|---|---|---|---|---|
| | | | | | stakeholder engagement. |
| | Decommissioning | ✓ | | Potential for decommissioning works to take place in areas at risk of flooding. | To be confirmed following stakeholder engagement. |
| Flood risk from surface water and effects on the land drainage regime (quantity and quality of flows) | Construction and operation | ✓ | | Temporary and permanent changes to impermeable land cover and potential for temporary disruption to existing land drainage routes and changes to water quality during construction. Installation of a suitable pre and post construction drainage scheme. | To be confirmed following stakeholder engagement. |
| | Decommissioning | | ✓ | Pipeline will remain in-situ. AGIs and Pump Facility would be removed and the land reinstated. | To be confirmed following stakeholder engagement. |
| Flood risk from groundwater | Construction | ✓ | | Construction includes works with the potential to impact groundwater flows (e.g., excavation of pipeline trench). | To be confirmed following stakeholder engagement. |

| Matter | Project stage | Scoped In | Scoped Out | Justification | Agreed with |
|---|---|---|---|---|---|
| | Operation and decommissioning | ✓ | | The Project is of low vulnerability to this type of flooding, however there is potential for artesian groundwater conditions along the route, so further assessment is warranted as part of the Project's FRA. | To be confirmed following stakeholder engagement. |
| Flood risk from artificial sources | Construction, operation and decommissioning | | ✓ | Project is of low vulnerability to flooding from artificial sources. This conclusion will be confirmed by the Project's FRA. | To be confirmed following stakeholder engagement. |
| Existing or proposed flood risk management infrastructure | Construction | ✓ | | There are locations where the pipeline would be routed under flood defences. Construction works could conflict with planned flood risk management projects and capital works. | To be confirmed following stakeholder engagement. |
| | Operation and decommissioning | | ✓ | Operation of the pipeline is not anticipated to impact existing or proposed flood risk management infrastructure. Dismantling of AGIs is not anticipated to impact flood risk management infrastructure. | To be confirmed following stakeholder engagement. |

## 17.12 References


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- Ref 17.4 – His Majesty's Stationery Office (1991) Land Drainage Act. Available at: https://www.legislation.gov.uk/ukpga/1991/59/contents
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# 18 Major Accidents and Disasters

## 18.1 Introduction

18.1.1 This chapter outlines the proposed scope of the Environmental Impact Assessment (EIA) with respect to Major Accidents and Disasters (MA&D). It includes a description of the proposed Study Area for the assessment, the datasets that will be used to inform the EIA, an overview of potential receptors, the likely significant effects to be considered within the EIA and how these likely significant effects will be assessed for the purpose of an EIA.

18.1.2 Based on professional judgement, major accidents or disasters are events or situations that have the potential to affect the Project causing immediate or delayed serious damage to one or more of human health, welfare, and the environment. This includes those that could occur as a result of the Project in the unlikely event of a fault in the pipeline, the Above Ground Installations (AGIs), or the Pump Facility. The assessment considers the risks of major accidents and disasters (hereafter referred to as MA&D Events) during construction and operation of the Project caused by natural hazards or manmade hazards (including operational failure).

18.1.3 The assessment methodology outlined below is based on the Institute of Environmental Management and Assessment's (IEMA) 'Major accidents and disasters in EIA: A primer' guidance (Ref 18.1). Ref 18.1 sets out key definitions for the assessment as follows:

- Major accident – "events that threaten immediate or delayed serious environmental effects to human health, welfare and / or the environment and require the use of resources beyond those of the client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g., train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events".
- Disaster – "may be a natural hazard (e.g., earthquake) or man-made / external hazard (e.g., act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident".

18.1.4 Environmental effects associated with unplanned events that do not meet the definition of a major accident and / or disaster (e.g., minor leaks and spills that may be contained within the construction sites are addressed in other topic chapters as appropriate and not in this section). This chapter should be read in conjunction with:

- Chapter 7: Ecology and Biodiversity.
- Chapter 9: Ground Conditions and Hydrogeology.

- Chapter 11: Cultural Heritage.
- Chapter 13: Socio-economics.
- Chapter 14: Human Health and Wellbeing.
- Chapter 15: Traffic and Transport.
- Chapter 16: Waste and Materials.
- Chapter 17: Water Resources, Flood Risk and Land Drainage.
- Chapter 19: Coastal and Intertidal Impacts.

18.1.5 While there are interactions and interrelationships between this chapter and Chapter 14: Human Health and Wellbeing, the scopes of the assessments differ through the assessment of risk. This chapter focuses on the low-likelihood, high consequence situations, and Chapter 14: Health and Wellbeing assesses the potential for harm to the general population and vulnerable populations resulting from low-likelihood, low consequence events.

## 18.2 Legislation, Policy and Guidance

18.2.1 The assessment to be undertaken to inform the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) will as appropriate be undertaken in accordance with and / or with regard to the following legislation, policy and guidance.

### Legislation

18.2.2 The following relevant legislation has been used to determine the methodology to be applied for the MA&D assessment:

- Health and Safety at Work Etc. Act 1974 (HSWA) (Ref 18.2) sets out the legal requirements and regulatory framework within which the Project must be designed, constructed and operated.
- Control of Major Accident Hazards (COMAH) Regulations 2015 (Ref 18.3) aim to reduce the risk of accidents involving dangerous substances, such as toxic substances, flammable substances, and explosives. The regulations also protect the environment and people from the potential damage caused by these accidents.
- Pipelines Safety Regulations (PSR) 1996 (Ref 18.4) are a set of regulations established in the United Kingdom to ensure the safe operation and maintenance of pipelines, focusing on preventing accidents, leaks, and other potential hazards associated with pipelines.
- Pressure Systems Safety Regulations (PSSR) 2000 (Ref 18.5) are a set of regulations that aim to prevent serious injury from pressure systems failing or their components failing. The regulations apply to pressure systems used at work and include a series of requirements to ensure safety.

- Construction (Design and Management) Regulations 2015 (CDM Regulations) (Ref 18.6). The CDM regulations were developed to help prevent construction accidents and fatalities. They ensure that construction work is carefully planned so that risks are managed from start to finish.

## Policy

### National Policy

#### National Policy Statements

18.2.3 As detailed in Chapter 1: Introduction, National Policy Statements (NPSs) set out the primary policy tests against which the application for a DCO for the Project would be considered. EN-1 (Ref 18.7) and EN-4 (Ref 18.8) are considered relevant for the Project with regards to MA&D.

18.2.4 Table 18-1 lists the relevant sections of the NPSs to major accidents and disasters and sets out the considerations of the relevant national policies in the assessment of major accidents and disasters.

*Table 18-1 – Relevant Sections of the National Policy Statements*

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-1 | 4.9.16 *COMAH regulations apply throughout the life cycle of the facility, i.e. from the design and build stage through to decommissioning. They are enforced by the Competent Authority comprising HSE or ONR (Office for Nuclear Regulation, for nuclear) and the EA acting jointly in England* | The MA&D assessment will consider the consultation received through stakeholder engagement from the competent authorities to ensure the Project is compliant. |
| EN-1 | *4.13.5 Applicants should consult with the HSE on matters relating to safety.* | Engagement with the HSE will be undertaken throughout the EIA process |
| EN-4 | *2.21.9 – 2.21.13 The principal legislation governing the safety of pipelines (the Pipelines Safety Regulations 1996) requires that pipelines are designed, constructed and operated so that the risks are as low as is reasonably practicable (ALARP).*<br>*In determining compliance, HSE expects pipeline operators to apply relevant good practice as a minimum.*<br>*In the pipeline industry there are well established standards, covering design, operation and maintenance of major accident hazard pipelines which can be used to demonstrate risks are ALARP.* | The pipeline and any proposed mitigation will be designed to ensure any risks are ALARP, with design of the pipeline to apply relevant good practice. |

### Guidance

18.2.5 The following relevant guidance has been used to determine the methodology to be applied for the MA&D assessment:

- The Institute of Environmental Management and Assessment (IEMA) (2020) has developed a guidance document 'Major Accidents and Disasters in EIA: A Primer' (Ref 18.1) to increase awareness of MA&Ds within EIA and its application.
- The Health and Safety Executive's (HSE) Reducing Risks, Protecting People (R2P2) (Ref 18.9).
- The Chemical and Downstream Oil Industries Forum (CDOIF) (Ref 18.10);
- HSE RR1035 Update of pipeline failure rates for land use planning assessments (Ref 18.11).
- UK Onshore Pipeline Operator's Association (UKOPA) Pipeline Product Loss Incidents and Faults Report (1962 – 2019) (Ref 18.12).
- HSE Failure Rate and Event Data for use within Risk Assessments (Ref 18.13).

## 18.3 Proposed Assessment Methodology

18.3.1 A significant effect for MA&D focuses on risk. This differs from the way in which many other topics in the EIA context are addressed, which assigns a sensitivity to receptors. Typically, other topics examine effects that are considered likely to occur and therefore such effects are unlikely to meet the thresholds required to be considered a major accident or a disaster.

18.3.2 Risk tolerability for MA&Ds in the UK is built on the principle of eliminating intolerable risks, and to ensure, particularly at engineering design stages, that any residual risks are further minimised where 'reasonably practicable'. This principle has been applied in the assessment here, with 'intolerable risk' interpreted as equivalent to 'significant adverse effects'. The term 'reasonably practicable' means that the level of risk and the benefits of reducing risk must be assessed against the trouble, time and money needed to control it (also termed As Low As Reasonably Practicable (i.e. ALARP)).

18.3.3 For the Major Accidents and Disasters event types which have been scoped in for further assessment in the PEIR / ES, the assessment would be conducted using a staged approach as outlined here:

- Identifying potential risk events related to the scoped in major event types (source / pathways and receptors).
- Screening these risk events, e.g., to remove unrealistic worst-case scenarios.
- Defining the reasonable worst consequence if the event did occur.

- Identifying any cross-disciplinary impacts.
- Identifying any possible prevention, minimisation and / or mitigation measures.
- Assessing the likelihood.
- Determining whether the risk has been mitigated to As Low As Reasonably Practicable (ALARP) and identification of any residual risks and their significance.

18.3.4 Volume 3: Appendix D considers the identified potential hazard events and their likelihood and identifies whether an event is scoped in to or out of the assessment, based on the guiding principles outlined above, having screened these events to remove unrealistic worst-cases.

18.3.5 The PEIR / ES will consider those MA&Ds which are scoped into the assessment. These are typically by their nature of a low likelihood but are important considerations so that resilience against them can be built into a project at the planning stage and provide sufficient information for informed decisions to be made for planning purposes. Resilience is built by ensuring that high consequence events are eliminated or, where elimination is not possible, reduced to such an extent that the chance of them occurring is so small that they can be deemed not to be significant.

18.3.6 The following factors are important in defining the criteria:

- Likelihood of the event occurring.
- Magnitude of change – the consequence thresholds of MA&Ds are established from the following dimensions and intrinsically account for receptor sensitivity:
  - Severity of harm (a combination of extent and damage potential).
  - Duration of harm (the recovery period) for non-human receptors, or the numbers of people affected for human receptors.

18.3.7 These combine to provide a measure of risk (i.e., the combination of the serious damage arising from a potential event and its likelihood of occurrence). At this stage, the estimates are necessarily qualitative and based on professional judgement informed by comparison against experience in similar industries and for similar developments, where possible and practical.

## Likelihood

18.3.8 The assessment will apply professional judgement to evaluate the likelihood of each potential major accident or disaster occurring once the mitigation is applied. The likelihood and risk reported is that above the baseline (i.e., the incremental likelihood and risk). This is the risk that can be attributed to the development directly or indirectly.

18.3.9 While qualitatively stated, the definition and classifications used for likelihood are designed to be compliant with HSE's R2P2 (Ref 18.9) for societal risk, and CDOIF (Ref 18.10) for environmental tolerability, if considered on a per effect basis rather than in terms of aggregated risk (i.e., the risk from all contributors to a receptor). Professional judgement has been used to establish the appropriate qualitative parameters for likelihood categorisation, with levels used ranging from 'Remote chance of occurring' through to 'Reasonable chance of occurring'. These then provide an allocation of likelihood against magnitude to determine risk significance, which in turn is an approach that is consistent with major accident tolerability perceptions commonly applied elsewhere in the UK.

## Impact Magnitude

18.3.10 In order to distinguish between potential major accidents of differing severities, all potential MA&Ds are categorised into one of four magnitude of change categories: Low, Medium, High and Very High. Any scenario which does not meet the criteria of a MA&D is simply listed as 'Not MA&D'. Magnitude of change within the context of MA&Ds is assessed from both the severity of the harm, and either the duration over which the receptor experiences that harm (for non-human receptors) or the number of people affected (human receptors).

18.3.11 Four categories of harm severity are considered:

- Not Significant: This level of harm is below the minimum threshold determined for a major accident or disaster in the CDOIF guidance (Ref 18.10) and / or in R2P2 (Ref 18.9).
- Severe, Major or Catastrophic: These represent increasing levels of damage or harm to populations or environmental receptors.

### Human Receptors

18.3.12 For human receptors, the number of people affected is accounted for in assigning the magnitude of change. The combination of harm severity and people affected for human receptors to determine magnitude of change is given in Table 18-2. This approach is based on professional judgement and ensures that there is appropriate alignment to HSE R2P2 guidelines by factoring in the number of people affected.

*Table 18-2 – Category of Risk for MA&D for Human Receptors*

| Severity of Harm | | | | Number of people affected |
|---|---|---|---|---|
| | Catastrophic | Very High | Very High | |
| | | High | Low to High | |
| | Major | Medium | | |
| | Severe | Low | | |
| | Not Significant | Not MA&D | | |

**Non-Human Receptors**

18.3.13 For non-human receptor types, four categories of duration are considered: Short, Medium, Long and Very Long Term.

18.3.14 The combination of harm severity and harm duration for non-human receptors to determine magnitude of change is given in Table 18-3.

*Table 18-3 – Category of Risk for MA&D for Non-human Receptors*

| | | Duration of Harm | | | |
|---|---|---|---|---|---|
| Severity of Harm | | **Short** | **Medium** | **Long** | **Very Long** |
| | Catastrophic | | High | Very High | Very High |
| | Major | | Medium | High | Very High |
| | Severe | | Low | Medium | High |
| | Not Significant | Not MA&D | | | |

## Significance of Effect

18.3.15 Guidance provided by IEMA (Ref 18.1) highlights that the context for inclusion of MA&Ds in EIA is to ensure that adequate focus is given to the provision for events leading to significant risk, with the objective of building resilience into a development against such effects.

18.3.16 Table 18-4 presents the magnitude of change and a qualitative likelihood scale to determine whether the risk is significant. In the assessment, a significant effect would represent a level of risk that would generally be considered intolerable.

18.3.17 A significant adverse effect for MA&Ds is one which would result in the following consequences, with a likelihood that the effect is considered intolerable to general society, based on commonly accepted benchmarks for what is intolerable:

- Serious damage to human populations – This includes harm which would be considered substantial, i.e., any fatality, multiple serious injuries or a substantial number requiring medical attention.
- Serious damage to the environment – Loss or significant detriment to populations of species or organisms, designated sites, cultural heritage sites, contamination of drinking water supplies, surface or groundwater, or harm to environmental receptors in line with other UK major accident regulations.

18.3.18 A significant effect could include both immediate and delayed effects. An immediate effect would be one that is self-evident at the time of the event (e.g., fire damage, injury). A delayed effect is one which becomes evident only after time (e.g., loss of feeding resources for a particular species leading to a change in ecosystem dynamics).

*Table 18-4 – Risk Levels for Receptors*

| Magnitude of Change | Likelihood (per receptor per effect) | | | | |
|---|---|---|---|---|---|
| | **Remote chance of occurring** | **Very small chance of occurring** | **Small chance of occurring** | **Chance of occurring** | **Reasonable chance of occurring** |
| **Very High** | Not Significant | Significant | Significant | Significant | Significant |
| **High** | Not Significant | Not Significant | Significant | Significant | Significant |
| **Medium** | Not Significant | Not Significant | Not Significant | Significant | Significant |
| **Low** | Not Significant | Not Significant | Not Significant | Not Significant | Significant |

## 18.4 Limitations and Assumptions

18.4.1 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:

- The design of structures and infrastructure will be subject to relevant Hazard Identification (HAZID) and Environmental Impact Identification (ENVIID) studies and actions identified integrated into the final design to reduce risks to be ALARP.
- Environmental effects associated with unplanned events that do not meet the definition of a major accident and / or disaster (e.g., minor leaks and spills that may be contained within the construction sites) are addressed in the relevant topic chapters and not in this section.

## 18.5 Stakeholder Engagement

18.5.1 At this early stage of the Project, no specific engagement has been undertaken in relation to the assessment of MA&Ds. However, engagement will be progressed as part of the EIA process.

*Table 18-5 – Summary of Engagement*

| Organisation and Date | Summary of Engagement |
|---|---|
| North Yorkshire Council | Scoping Opinion to be reviewed and any MA&D specific comments will be addressed and discussed with the local authority where necessary. |
| East Riding of Yorkshire Council | Scoping Opinion to be reviewed and any MA&D specific comments will be addressed and discussed with the local authority where necessary. |
| North Lincolnshire Council | Scoping Opinion to be reviewed and any MA&D specific comments will be addressed and discussed with the local authority where necessary. |
| North East Lincolnshire Council | Scoping Opinion to be reviewed and any MA&D specific comments will be addressed and discussed with the local authority where necessary. |
| Health and Safety Executive | Scoping Opinion to be reviewed and any MA&D specific comments will be addressed and discussed where necessary. Engagement with the HSE is underway on a regular basis and will continue through the EIA process. |
| Biofuelwatch | Biofuelwatch submitted concerns around safety during the non-statutory consultation period, noting the HSE guidelines and requested that the HSE confirm the safety of the pipeline. Engagement with HSE is ongoing. |

## 18.6 Study Area

18.6.1 Different Study Areas will be applied depending on the nature of the factor (defined below) that is under consideration. Each factor has been grouped into either an external source of major accidents or disasters (where the Project is a receptor), or where the Project is a source of major accident to receptors. The following factors and associated distances were adopted for setting the Study Area in order to capture internal and external influencing factors which may have high adverse consequences on the Project:

- External major accident Study Areas with the potential to create risks to the Project:
  - Airports and airfields within 10 km (Ref 18.21).
  - COMAH Establishments within 3 km (based upon typical HSE Land Use Planning restrictions).
  - Major Accident Hazard Pipelines within 1 km (Ref 18.22).
  - Carbon capture projects within the Humber region as discussed in Chapter 3: Project Description.
  - Fuel storage or retail facilities (where not COMAH establishments) – 1km (based on professional judgement).
  - Other utilities (pipelines, electrical, gas, electrical, telecommunications etc.) crossing the draft Order Limits.
- Disaster Study Areas:
  - Natural features with the potential to create risks to the Project (for example, hydrological and geological - more specifically, flood risk and unstable ground conditions respectively) within 1 km (beyond this Study Area there would be no pathway to affect the Project).
- Receptor Study Areas:
  - Receptors during construction within 500 m (beyond this Study Area there would be no pathway from construction activities to affect receptors).
  - Receptors during operation (including commissioning) within 1km (based upon a worst-case estimate of potential effects of carbon dioxide releases).
  - Receptors during decommissioning within 500 m (beyond this Study Area there would be no pathway from decommissioning activities to affect receptors).

18.6.2 The temporal scope of the assessment will be consistent with the period over which the Project would be carried out and therefore will cover the construction, operation and decommissioning phases.

## 18.7 Receptors

18.7.1 Receptors are defined within the IEMA guidance as “the specific component of the environment that could be adversely affected if the source reaches it” (Ref 18.1).

18.7.2 A preliminary list of relevant receptors has been identified through a review of base mapping and aerial photography. The identification of receptors at this stage has been limited to a preliminary 1 km Study Area. Therefore, at this stage, only a high-level identification of receptors for the purpose of scoping has been undertaken, as provided in Table 18-6.

*Table 18-6 – Potential Receptors*

| Receptor Type | Receptor Details |
|---|---|
| Human health (public) | Members of the public, local communities and nearby workers at other facilities are considered in this receptor type; this includes residential, commercial and industrial locations as well as public spaces.<br>The existing land-use within the 1km Study Area suggests that the area is sparsely populated and consists mostly of rural agricultural land.<br>There are likely to be a number of more vulnerable receptors such as education centres (e.g., colleges, schools), medical and care facilities (e.g., hospitals, care homes). The receptors will be confirmed in the PEIR and ES stage and assessment of vulnerable groups will be undertaken within Chapter 14: Human Health and Wellbeing. |
| Human health (workers) | All workers associated with the Project are considered in this receptor type.<br>Information regarding the construction and operational workforce is not available at this stage of the Project. Further information will be provided within the Project description at the PEIR and ES stage. |
| Designated land / waters sites (internationally important) | There are several designated land and water sites of international importance (Special Area of Conservation (SAC), Special Protection Area (SPA), and Ramsar) within the 1km Study Area (e.g., the Humber Estuary SAC, SPA and Ramsar). |
| Designated land / water sites (nationally important) | There are a number of designated land / water sites of national importance (Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), Marine Conservation Zone (MCZ) and Ancient Woodlands) within the 1km Study Area (e.g., Dimlington Cliffs SSSI). |
| Other designated land | This category includes receptors such as Areas of Natural Beauty (AONB), National Parks and Local Nature Reserves (LNR). |

| Receptor Type | Receptor Details |
|---|---|
| | There are no AONBs, National Parks or further designations within the 1km Study Area. |
| Priority Habitats | Priority habitats include Habitats of Principal Importance and other locally designated rural land-based schemes.<br>These have been identified in Chapter 7: Ecology and Biodiversity |
| Protected Species | Specific populations of species will be identified in the assessment undertaken in Chapter 7: Ecology and Biodiversity. |
| Widespread Habitat – Non-Designated Land | These categories include land / water which is used for agriculture, forestry, fishing, recreation, or aquaculture. |
| Widespread Habitat Non-Designated Waterbodies | |
| Soil or Sediment | Those soil or sediment receptors which are vulnerable to MA&Ds will be identified in future environmental reporting. |
| Groundwater – Source of Drinking Water | The presence of ground water will be identified in Chapter 9: Ground Conditions and Hydrogeology. |
| Groundwater – Source of Non-Drinking Water | |

| Receptor Type | Receptor Details |
|---|---|
| Historic Environment | This category is limited to Grade I listed buildings or Park and Gardens, scheduled monuments, and conservation areas. These are identified within Chapter 11: Cultural Heritage. This category does not extend to Grade II listed assets, in line with CDOIF guidance (Ref 18.10). |
| Fresh and Estuarine Water Habitats | There are several water bodies in the vicinity of the 1km Study Area, as identified in Chapter 17: Water Resources, Flood Risk and Land Drainage. |

## 18.8 Baseline Conditions

18.8.1 This section sets out the baseline data that will be relied upon to produce a detailed assessment of baseline conditions that will be contained within the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES).

18.8.2 The baseline conditions for the MA&D assessment will be derived from the following desk study sources:

- National Risk Register of Civil Emergencies (Ref. 18.14).
- British Geological Survey 'Onshore GeoIndex' (Ref 18.15).
- Tsunamis Hazard Map (Ref 18.16).
- The International Disaster Database (Ref 18.17).
- HSE COMAH 2015 Public Information Search (Ref 18.18).
- The Coal Authority Interactive Map (Ref 18.19).
- Project specific aerial imagery and mapping covering the Study Area.
- Information from the review of planning applications within the Study Area.

18.8.3 The baseline will draw on information from other topics of the ES for the Project as follows:

- Chapter 7 – Ecology and Biodiversity.
- Chapter 9 – Ground Conditions and Hydrogeology.
- Chapter 11 – Cultural Heritage.
- Chapter 13 – Socio-economics.
- Chapter 14 – Human Health and Wellbeing.
- Chapter 15 – Traffic and Transport.
- Chapter 16 – Waste and Materials.
- Chapter 17 – Water Resources, Flood Risk and Land Drainage.
- Chapter 19 – Coastal and Intertidal Impacts.

### Future Baseline

18.8.4 The Humberside region is predominantly agricultural, with clusters of heavy industry along the Project route. Further industrialisation is expected at Drax, Immingham, and Salt End, as a number of developments are proposed in these locations. These developments are mostly energy projects and connecting utilities, including electricity and gas connections, which have the potential to increase the number of hazardous and COMAH sites across Yorkshire and North Lincolnshire. These future conditions would be factored into the design of the Project, maintaining adequate distances from industry where required.

18.8.5 All risks from existing and future developments are currently controlled by national and international legislation, and the increasing technological safety of industry is likely to not significantly alter the baseline in the future.

## 18.9 Design, Mitigation and Enhancement Measures

18.9.1 Measures required to mitigate any MA&D impacts will be proposed in the PEIR and / or ES. These measures would be likely to include:

- Adherence to legislation, engineering standards and good practice.
- Introduction of Environmental, Health & Safety Management systems.
- Supplier management environmental, health & safety standards (e.g., Construction Skills Certification Scheme (CSCS)).
- Risk management systems.
- Construction and Environmental Management systems (a draft Construction Environmental Management Plan (CEMP) will be provided with the Development Consent Order (DCO) Application and the DCO application will contain a requirement for a CEMP).
- Management of the construction stage of the Project through the implementation of the Construction Phase Plan (required under the Construction (Design and Management) (CDM) Regulations 2015 (Ref 18.6).

## 18.10 Description of Potential Likely Significant Effects

### Construction

18.10.1 Potential likely significant effects for MA&D during construction include:

- Construction works causing damage to existing utilities such as power, water, telecommunications or natural gas with the potential for serious harm to the Project workforce and temporary loss of supply to the public.
- Accidents during pre-commissioning and commissioning which may lead to serious harm to the Project workforce.
- Fire in the construction compounds with the potential to cause serious harm to the Project workforce and possibly spreads to neighbouring areas.
- Accidental release of hazardous fluid during trenchless crossing or pre-commissioning works with the potential to cause serious harm to the Project workforce and spread to neighbouring areas.
- A major accident occurring on an external site or third-party pipeline involving hazardous substances causing serious harm to the Project workforce.
- Release of drilling fluids during a break-out during trenchless crossing works or major fuel spill with the potential to cause contamination to hydrogeology and hydrology and spread to soil and sediments.

### Operation

18.10.2 Potential likely significant effects for MA&D during operation are likely to include:

- Pipelines – damage due to external interference or external force (e.g., earthquake), both of which are outside the immediate control of the pipeline operator.
- Cyber Attacks may result in incorrect / unplanned operation of assets (i.e. shut down).
- Fire at an AGI site could cause damage to the pipework and equipment which may cause a leak of carbon dioxide.
- The pipelines or AGIs could be affected by a significant land movement. This could damage the pipelines and subsequently, cause a significant release of carbon dioxide.
- A major accident occurring on an external site or third-party pipeline involving hazardous substances causing serious harm to the Project workforce or Project assets.

### Decommissioning

18.10.3 Potential likely significant effects for MA&D during decommissioning include:

- Decommissioning works causing damage to existing utilities such as power, water, telecommunications or natural gas with the potential for serious harm to the Project workforce and temporary loss of supply to the public.
- Fire in decommissioning work sites with the potential to cause serious harm to the Project workforce and possibly spreads to neighbouring areas.
- Accidental release of hazardous fluid in construction compounds with the potential to cause serious harm to the Project workforce and spread to neighbouring areas.
- A major accident occurring on an external site or third-party pipeline involving hazardous substances causing serious harm to the Project workforce or Project assets.

## 18.11 Summary of the Proposed Scope of Assessment

18.11.1 The EIA Regulations (Ref 18.20) recognise that developments will affect different environmental aspects to differing degrees, and only those that are ‘likely to be significantly affected by the development’ warrant investigation.

18.11.2 The IEMA guidance (Ref 18.1) recommends the assessment focuses on events that have a low likelihood of occurrence but potentially high consequences. The justification for this is that events that would be high likelihood and high risk would be unacceptable for any development and therefore be managed or designed-out. Any low likelihood and low consequence events (e.g., minor construction

spills) would not be considered as major accidents or disasters. This approach has been adopted for the scoping in and out events from this assessment. Further detail on the matters scoped in or out of further assessment for MA&D is outlined in Volume 3: Appendix D.

## 18.12 References


- Ref 18.1 – Institute of Environmental Management and Assessment's (IEMA) 'Major accidents and disasters in EIA: A primer' Available at: https://www.iema.net/content/major-accidents-and-disasters-in-eia-an-iema-primer-october-2020/#:~:text=Major%20accidents%20and%20disasters%20should,minor%20clean%2Dup%20and%20restoration
- Ref 18.2 – HMSO (1974) Health and Safety at Work Etc. Act 1974 (HSWA)
- Ref 18.3 – HMSO (2015) Control of Major Accident Hazards (COMAH) Regulations 2015
- Ref 18.4 – HMSO (1996) Pipelines Safety Regulations (PSR) 1996
- Ref 18.5 – HMSO (2000) Pressure Systems Safety Regulations (PSSR) 2000
- Ref 18.6 – HMSO (2015) Construction (Design and Management) Regulations 2015 (CDM Regulations)
- Ref 18.7 – Department for Energy Security & Net Zero (2023) Overarching National Policy Statement for Energy (EN-1) https://assets.publishing.service.gov.uk/media/65bbfbdc709fe1000f637052/overarching-nps-for-energy-en1.pdf
- Ref 18.8 – Department for Energy Security & Net Zero (2023) National Policy Statement for Natural Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) https://assets.publishing.service.gov.uk/media/65a789a8867cd8000d5ae9be/nps-natural-gas-supply-infrastructure-pipelines-en4.pdf
- Ref 18.9 – The Health and Safety Executive's (HSE) Reducing Risks, Protecting People (R2P2)
- Ref 18.10 – The Chemical and Downstream Oil Industries Forum https://www.sepa.org.uk/media/219154/cdoif_guideline__environmental_risk_assessment_v2.pdf
- Ref 18.11 – HSE RR1035 Update of pipeline failure rates for land use planning assessments https://www.hse.gov.uk/research/rrhtm/rr1035.htm
- Ref 18.12 – UK Onshore Pipeline Operator's Association (UKOPA) Pipeline Product Loss Incidents and Faults Report (1962 – 2019) https://www.ukopa.co.uk/wp-content/uploads/2021/07/UKOPA-Product-Loss-Incidents-Faults-Report-1962-2019-1.0-July-2021.pdf

- Ref 18.13 – HSE Failure Rate and Event Data for use within Risk Assessments https://www.primatech.com/images/docs/failure-rates.pdf
- Ref 18.14 – National Risk Register Of Civil Emergencies https://assets.publishing.service.gov.uk/media/5a82a189e5274a2e8ab5887d/UK_National_Risk_Register_2017.pdf
- Ref 18.15 – British Geological Society (2024) GeoIndex Onshore https://mapapps2.bgs.ac.uk/geoindex/home.html
- Ref 18.16 – United Nations Office for Disaster Risk Reduction https://www.preventionweb.net/publication/europe-tsunami-hazard-map
- Ref 18.17 – Centre for Research on the Epidemiology of Disasters, International Disaster Database https://www.emdat.be/
- Ref 18.18 – HSE COMAH 2015 Public Information Search
- Ref 18.19 – The Coal Authority https://datamine-cauk.hub.arcgis.com/
- Ref 18.20 – The EIA regulations
- Ref 18.21 – HSE (2019). Update of aircraft crash rates used by HSE in assessing hazards from chemical, process and other major hazard installations. Research Report 1140. (online) Available at: https://www.hse.gov.uk/research/rrpdf/rr1140.pdf
- Ref 18.22 – HSE (1994). Risks from Hazardous Pipelines in the United Kingdom. Contract Research Report 82. (online) Available at: https://www.hse.gov.uk/research/crr_pdf/1994/crr94082.pdf

# 19 Coastal and Intertidal Impacts

## 19.1 Introduction

19.1.1 This chapter outlines the proposed approach for assessing the likely significant effects on the intertidal and coastal environment arising from the construction, operation and decommissioning of the Project. This chapter focuses on the intertidal coastal processes. geology and ecology at the Easington landfall and within the predicted zone of influence. It sets out relevant legislation, policy and guidance and the proposed assessment methodology for evaluating the significance of potential effects.

19.1.2 The topic encompasses all coastal receptors of relevance to the Project, including geology, coastal processes, and ecology and biodiversity including the intertidal zone and coastal cliffs from Mean Low Water Springs (MLWS), which demarcates the Development Consent Order (DCO) limit in terms of consent between this Project and the offshore pipeline. This chapter is intended to be read as part of the wider Scoping Report.

19.1.3 This chapter should be read in conjunction with:

- Chapter 7: Ecology and Biodiversity.
- Chapter 8: Climate Change, Adaptation and Resilience.
- Chapter 9: Ground Conditions and Hydrogeology.
- Chapter 11: Cultural Heritage.
- Chapter 17: Water Resources, Flood Risk and Land Drainage

## 19.2 Legislation, Policy and Guidance

19.2.1 The assessment to be undertaken to inform the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) will be undertaken in accordance with, and with reference to, the following legislation, policy and guidance.

### Legislation

19.2.2 The following legislation is deemed of relevance to the Project with respect to the coastal environment:

- Petroleum Act 1998 (Ref 19.1) establishes the North Sea Transition Authority (NSTA) is the licensing/consenting authority for construction and operation of subsea pipelines, including carbon dioxide and hydrogen pipelines.
- Marine and Coastal Access Act (MCAA) 2009 (Ref 19.2) provides a system for marine management, including a planning system and system for the

licensing of activities in the marine environment, as well as providing for the designation of conservation zones.

- Coast Protection Act 1949 (Ref 19.3) relates to the protection of the coast against erosion and encroachment by the sea.
- Flood and Water Management Act 2010 (Ref 19.4) makes provisions for the management of risks in connection with flooding and coastal erosion.
- The Water Environment (Water Framework Directive) (WFD) Regulations 2017 SI 407 (Ref 19.5) provide a framework for managing the water environment in England and require compliance with a number of EU Directives on water quality.
- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (Ref 19.6) (Habitats Regulations) transpose the Habitats and Birds Directives into national law in the onshore environment and territorial waters out to 12 nautical miles, operating in conjunction with the Wildlife and Countryside Act 1981. They ensure that potential impacts on a protected site, such as a Special Area of Conservation (SAC), are considered before granting consent for a project.
- Wildlife and Countryside Act 1981 (as amended) (Ref 19.7) was primarily introduced in order to implement the Birds Directive and Bern Convention in United Kingdom (UK) law; the current legislation includes provisions for wildlife (protection for plants and animals) and nature conservation, the countryside and National Parks (including the designation of protected areas).
- The Countryside and Rights of Way Act 2000 (Ref 19.8) extends the ability of the public to enjoy the countryside whilst also providing safeguards for Land Owners / Land Occupiers Accordingly, the Countryside and Rights of Way Act 2000 gives a statutory right of access to open country and registered common land; modernises the rights of way system; gives greater protection to SSSIs; provides better management arrangements for Areas of Outstanding Natural Beauty (AONBs); and strengthens wildlife enforcement legislation;
- Natural Environment and Rural Communities (NERC) Act 2006 (Ref 19.9) created a ‘Biodiversity Duty’ to ensure due regard to the conservation of biodiversity. Section 41 of the act refers to a published list of habitats and species that are of principal importance for the conservation biodiversity in England.
- Environmental Protection Act 1990 (Ref 19.10) covers the legal responsibilities for controlling pollution of land, air and water through regulating the management of waste.
- Environmental Damage (Prevention and Remediation) (England) Regulations, 2015 SI 810 (Ref 19.11)

## Policy

### National Planning Policy

#### National Policy Statements

19.2.3 As detailed in Chapter 1: Introduction, National Policy Statements (NPSs) set out the primary policy tests against which the application for a DCO for the Project would be considered. EN-1 (Ref 19.12) and EN-4 (Ref 19.13) are considered relevant for the Project with regards to coastal and intertidal coastal and intertidal impacts.

19.2.4 Table 19.1 lists the relevant sections of the NPSs to coastal and intertidal processes and sets out the considerations of the relevant national policies in the assessment of coastal and intertidal impacts.

*Table 19-1 – Relevant Sections of the National Policy Statements*

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-1 | 4.3 Sites identified, or required, as compensatory measures for adverse effects on other Habitat Regulation Assessment (HRA) sites' should be 'given the same protection as sites covered by the Habitat's Regulations', implying that any land identified / used by other projects to compensate for impacts to European Sites should be included within the HRA. | The Coastal Environment assessment will consider the short, medium, and long-term effects and resulting impacts on intertidal biodiversity. This will be taken into account when producing the HRA. |
| EN-1 | 4.6 Environmental and Biodiversity Net Gain: Emphasising that Projects should not only avoid, mitigate and compensate harms (following the mitigation hierarchy) but also consider whether there are opportunities for enhancements, embedding such opportunities into a nature inclusive design. | The Coastal Environmental assessment will outline the applicants committed to adopting a sustainable approach to development by pro-actively taking measures to ensure that the Project leaves the environment in a better condition than it was before development, i.e. delivering Biodiversity Gain. The Project design has to date and will continue to follow the principles of the mitigation hierarchy – preference will be given first to avoiding impacts, then reducing remaining effects before applying targeted mitigation where required, which will be developed as part of the design process and will be informed by the ongoing assessment. Where residual effects remain, compensation will be provided. |

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-1 | 5.4 Conservation of biodiversity and geology (relating to the sites<br>that are designated for their geology and / or their geomorphological<br>importance). This section sets out the government's aims (paragraph 5.4.2) and specifys the following expectations concerning the conservation of biodiversity and EIA:<br>The ES should clearly and proportionately set out the potential effects including those on designated sites, protected species and habitats, other species identified as being of principal importance, and where EIA is not required (5.4.17 and 5.4.18) and include appropriate avoidance, mitigation, compensation and enhancement measures as an integral part of the proposed development (5.4.32 and 5.4.35).<br>Show how the project has taken advantage of opportunities to conserve and enhance biodiversity conservation interests (5.4.19) including consideration of wider ecosystem services and benefits of natural capital (5.4.20), and the delivery of significant benefits and enhancements beyond Biodiversity Net Gain (BNG), | The Coastal Environment assessment will consider the effects and resulting impacts on the coasts Geological Sites of Special Scientific Interest and Regionally Important Sites.<br>The Project will encourage a symbiotic relationship between design and ecological assessment, whereby assessment information will influence design (in line with the mitigation hierarchy) and effective design will aim to minimise impacts, driving proportionate<br>The Project is committed to delivering 10% BNG but is also focused on strategic habitat enhancement and creation, aiming to identify and implement opportunities to support healthy well-functioning ecosystems and establish coherent ecological networks in line with EN-1.<br>This chapter outlines the matters scoped in or out of further assessment which includes need for the assessment to be supported by Habitats Regulations Assessment (HRA). |

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| | which result in wider environmental gains (5.4.21 and 5.4.34).<br>The consideration of mobile / migratory species movement and their potential to interact with infrastructure (5.4.22).<br>Paragraphs 5.4.25 to 5.4.31 relate to Habitats Regulations, emphasising the need to work closely with, and seek advice from, Statutory Nature Conservation Bodies as early as possible in the design process in order to agree on a compensation plan (where required) and avoid introducing uncertainty to the consenting process.<br>The inclusion of measures to mitigate fully the direct and indirect effects of development on ancient woodland, ancient and veteran trees or other irreplaceable habitats during both construction and operational phases (5.4.32).<br>The production and implementation of a Biodiversity Management Strategy as part of their development proposals | |

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-1 | 5.6 "*Where onshore infrastructure projects are proposed on the coast, coastal change is a key consideration as well as a vital element of climate change adaptation*" | The Coastal Environment assessment will consider the effects and resulting impacts likely to cause physical change to the shoreline, i.e. erosion, coastal landslip, permanent inundation and coastal accretion. |
| EN-1 | 5.12 "*Noise resulting from a proposed development can also have adverse impacts on wildlife and biodiversity. Noise effects of the proposed development on ecological receptors should be assessed by the Secretary of State in accordance with the Biodiversity and Geological Conservation section of NPS Section 5.4*". | The Coastal Environment assessment will consider impacts of Noise on ecological receptors as part of the Project. |
| EN-1 | 5.16 "*Where the project is likely to have effects on the water environment, the applicant should undertake an assessment of the existing status of, and impacts of the proposed project on, water quality, water resources and physical characteristics of the water environment, and how this might change due to the impact of climate change on rainfall patterns and consequently water availability across the water environment, as part of the ES or equivalent*." | The Coastal Environment assessment will consider the effects and resulting impacts on the water environment associated with the construction / commissioning, operation and decommissioning as outlined. |

| National Policy Statement | NPS section | How it will be considered |
|---|---|---|
| EN-4 | 2.22 "*Where a project is likely to have adverse effects on water resources or water quality, an assessment of the impacts should be included in the ES;"* | The Coastal Environment assessment will consider the effects and resulting impacts on the water environment associated with the project. |
| EN-4 | 2.23 "*Where a project is likely to have adverse effects on the soil and geology, an assessment of the impacts should be included in the ES*." | The Coastal Environment assessment will consider the effects and resulting impacts on the coastal geology, including the likely impacts resulting in changes to shoreline erosion and accretion, associated with the project. |

### National Policy

- A Green Future: Our 25 Year Plan to Improve the Environment (Ref 19.14).
- UK Post-2010 Biodiversity Framework 2024 (Ref 19.15).
- Marine Policy Statement - Sets the framework for marine spatial planning in UK waters.
- UK Marine Plans - Provides area-specific marine plans to balance development with environmental protection in coastal and marine areas.
- Shoreline Management Plans (SMPs) - Non-statutory but essential for managing long-term coastal erosion and flood risks.

### Local Planning Policy

19.2.5 The Project lies within the jurisdictions of East Riding of Yorkshire and North East Lincolnshire. A summary of the relevant local planning policy which is relevant to a study of coastal matters will inform the coastal and intertidal effects assessment in the ES is provided in Table 19-2.

*Table 19-2 – Local Planning Policy*

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| East Riding Local Plan (2016) (Ref 19.16) | S2: Addressing climate change | "The Local Plan and development decisions will support a reduction in greenhouse gas emissions and adaptation to the expected impacts of climate change."<br>The Local Plan includes a table stating how this policy will be delivered. Relevant to this chapter, this covers promoting efficient use of water resources, building-in climate change resilience and flood management. | Climate change will be considered as part of the assessment for future implications on coastal receptors. |
| East Riding Local Plan (2016) | ENV6: Managing environmental hazards | *"Environmental hazards, such as flood risk, coastal change, groundwater pollution and other forms of pollution, will be managed to ensure that development does not result in unacceptable consequences to its users, the wider community, and the environment."* | Coastal change, flood risk and pollution will be considered as part of the Coastal Environment assessment. |
| East Riding Local Plan (2016) | Policy ENV4: Conserving and enhancing biodiversity and geodiversity | "ENV-4:<br>A. Proposals that are likely to have a significant effect on an International Site will be considered in the context of the statutory protection which is afforded to the site. | Project impacts likely to have a significant effect on protected (international, national and local) sites will be considered as part of the Coastal Environment assessment. Adequate mitigations and promotion of the |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | B. Proposals that are likely to have an adverse effect on a National Site (alone or in combination) will not normally be permitted, except where the benefits of development in that location clearly outweigh both the impact on the site and any broader impacts on the wider network of National Sites.<br>C. Development resulting in loss or significant harm to a Local Site, or habitats or species supported by Local Sites, whether directly or indirectly, will only be supported if it can be demonstrated there is a need for the development in that location and the benefit of the development outweighs the loss or harm.<br>D. Where loss or harm to a National or Local designated site cannot be prevented or adequately mitigated, as a last resort, compensation for the loss / harm must be agreed. Development will be refused if loss or significant harm cannot be prevented, adequately mitigated against or compensated for. | East Riding Local Plan will also be considered. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | E. Proposals should further the aims of the East Riding of Yorkshire Biodiversity Action Plan, designated Nature Improvement Areas (NIAs) and other landscape scale biodiversity initiatives. To optimise opportunities to enhance biodiversity, proposals should seek to achieve a net gain in biodiversity where possible and will be supported where they:<br>1. Conserve, restore, enhance or recreate biodiversity and geological interests including the Priority Habitats and Species (identified in the ERYBAP) and Local Sites (identified in the Local Sites in the East Riding of Yorkshire).<br>2. Safeguard, enhance, create and connect habitat networks in order to: i. protect, strengthen and reduce fragmentation of habitats; ii. create a coherent ecological network that is resilient to current and future pressures; iii. conserve and increase populations of species; and iv. promote and enhance green infrastructure.” | |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| North East Lincolnshire Local Plan 2013 to 2032 (Ref 19.17) | Policy 9: Habitat Mitigation – South Humber Bank | Within the Mitigation Zone identified on the Policies Map, proposals which adversely affect the Humber Estuary SPA / Ramsar site due to the loss of functionally linked land will normally be required to provide their own mitigation in order to comply with the requirements of the Habitats Regulations. | The coastal environment assessment will consider impacts that may adversely affect the Humber Estuary SPA / Ramsar sites. |
| | Policy 41: Biodiversity and Geodiversity | The Council will have regard to biodiversity and geodiversity when considering development proposals, seeking specifically to:<br>A. establish and secure appropriate management of, long-term mitigation areas within the Estuary Employment Zone, managed specifically to protect the integrity of the internationally important biodiversity sites;<br>B. designate Local Wildlife Sites (LWSs) and Local Geological Sites (LGSs) in recognition of particular wildlife and geological value;<br>C. protect manage and enhance international, national and local sites of biological and geological conservation importance, having regard to the hierarchy of designated sites, and the need for appropriate buffer zones; | The coastal environment assessment will consider Project impacts likely to have a significant effect on protected (international, national and local) sites will be considered as part of the Coastal Environment assessment. Adequate mitigations and promotion of the North East Lincolnshire Local Plan will also be considered. |

| Local Plan | Policy reference | Policy context | How it will be considered |
|---|---|---|---|
| | | D. minimise the loss of biodiversity features, or where loss is unavoidable and justified ensure appropriate mitigation and compensation measures are provided; E. create opportunities to retain, protect, restore and enhance features of biodiversity value, including priority habitats and species; and,<br>F. take opportunities to retain, protect and restore the connectivity between components of the Borough's ecological network. | |

### Guidance

19.2.6 The following guidance has been identified of being of potential relevance to the Project:

- Guidelines for Ecological Impact Assessment in the UK and Ireland: terrestrial, freshwater, coastal and marine (Chartered Institute of Ecology and Environmental Management (CIEEM), 2018) (Ref 19.18).
- Mandatory Biodiversity Net Gain in England: Technical Guide (CIEEM, 2024) (Ref 19.19).
- East Inshore and East Offshore Marine Plan (Department for Environment, Food and Rural Affairs (Defra), 2014) (Ref 19.20).
- North East Inshore and North East Offshore Marine Plan (Defra, 2021) (Ref 19.21).
- Flamborough Head to Gibraltar Point SMP (Humber Estuary Coastal Authorities Group, 2010) (Ref 19.22).
- Planning Inspectorate Advice Note 18: Water Framework Directive (The Planning Inspectorate, 2017) (Ref 19.23).
- The Humber Flood Risk Management Strategy (Environment Agency, 2008) (Ref 19.24).
- Humber 2100+ Sustainability Appraisal: Final Scoping Report (Jacobs, 2020) (Ref 19.25).
- Guidance for Pollution Prevention series (Environmental Agency, various publication dates) (Ref 19.26).
- Local Coastal Management Plans - Local plans developed by authorities and the Environment Agency to manage specific coastal areas based on SMP policies.
- EIA Guidance - Outlines requirements for assessing environmental impacts, including coastal process impacts, under relevant legislation (primarily the Town and Country Planning Act 1990).
- Environment Agency and MMO Guidance - Provides specific guidance on licensing, habitat protection, and FRA for development in coastal and marine areas.

## 19.3 Proposed Assessment Methodology

19.3.1 The overall assessment methodology for the Project is provided within Chapter 4. The approach within this chapter builds upon this approach.

## Value / Sensitivity

19.3.2 The following sources of best practice guidance have been used where applicable in order to determine receptor value / sensitivity, these align with Chapter 7: Ecology and Biodiversity, Chapter 9: Ground Conditions and Hydrogeology and Chapter 17: Water Resources, Flood Risk and Land Drainage to represent the sensitivity of the intertidal species and habitats, coastal geology and coastal processes respectively.

19.3.3 Guidance from the Design Manual for Roads and Bridges (DMRB) LA 109 Geology and Soils (Ref 19.27) will be used to inform the sensitivity matrix, considering the geological and hydrogeological significance as well as land uses.

*Table 19-3 – Geology Sensitivity Matrix*

| Sensitivity | Geology | Hydrogeology |
|---|---|---|
| High | Very rare / rare or nationally important sites. High sensitivity land use such as residential / public open spaces use. | Groundwater that is used for human consumption, and / or is within geological units that display a high level of water storage and may support water supply and / or river base flow on a strategic scale. Includes all Principal Aquifers and SPZ. |
| Medium | Regionally important sites, medium sensitive uses such as commercial or industrial uses. | Groundwater that is not currently used for human consumption, but which is within Secondary Aquifers that display generally good chemical quality (e.g., WFD Good chemical status) and / or groundwater quantities. Groundwater that is currently used for agricultural purposes (e.g., field irrigation). |
| Low | Local interested geology sites. Low sensitivity land use such as highway and rail. | Groundwater that is not currently used for human consumption and is within Secondary Aquifers that display poor chemical quality (i.e. WFD Poor chemical status) and groundwater quantities. Groundwater that is abstracted for low sensitivity industrial purposes (e.g., cooling water). |

| Sensitivity | Geology | Hydrogeology |
|---|---|---|
| Negligible | Very low important geology site. Undeveloped surplus land with no sensitive land use. | Groundwater that does not contribute meaningfully towards river base flow and is not used, and does not have a potential to be used, for drinking water supply. |

19.3.4 Guidance from the DMRB LA 113 Road drainage and the water environment (Ref 19.28) will be used to inform the sensitivity matrix, considering the geological and hydrogeological significance as well as land uses. The criteria for determining value, or 'sensitivity', will be based on the criteria in Table 3.70 of LA113.

19.3.5 The CIEEM guidelines (Ref 19.19) state the ecological features should be considered within a 'defined geographical context' (i.e. spatial scale) and recommends the following frame of reference:

- International and European.
- National.
- Regional.
- Metropolitan, County, vice-county or other Local Authority-wide area.
- River Basin District.
- Estuarine system / Coastal cell.
- Local.

19.3.6 Assigning importance to ecological features is based on professional judgement informed by available guidance and information and (where necessary) expert advice.

19.3.7 Those ecological features of sufficient value to be considered in decision-making (i.e. those considered to be of 'Local' importance or above), and which it is considered could experience significant effects as a result of the Project (i.e. effects that could adversely affect the integrity of the habitat or the favourable conservation status of a species' population), will be classified an IEF (Important Ecological Feature) and thus will be considered in the Ecological Impact Assessment (EcIA) as outlined in the CIEEM Guidelines (Ref 19.19). Other ecological features (i.e. those which are of less than 'local' importance will be scoped out, and not subject to any further assessment within the EcIA.

19.3.8 In accordance with the CIEEM guidelines, where there is the potential for a breach of legislation in relation to protected species (regardless of their importance), those species are also considered an IEF.

19.3.9 Following the identification and valuation of the IEF, it is necessary to investigate potential impacts on those features to understand how they might be affected by the Project.

19.3.10 The adaptability, tolerance, recoverability and value of a receptor is determined via existing research and information about the characteristics of the receptor as evaluated via qualified professional judgement. Table 19.4 below presents the definitions for the levels of sensitivity prescribed to receptors.

*Table 19-4 – Ecological Receptor Sensitivity Definitions*

| Receptor Sensitivity | Definition |
|---|---|
| **Very high** | Receptor has no capacity to accommodate a particular effect with no ability to recover, adapt or avoid. |
| **High** | Receptor has very low capacity to accommodate a particular effect with low ability to recover, adapt or avoid. |
| **Medium** | Receptor has low capacity to accommodate a particular effect and low ability to recover, adapt or avoid. |
| **Low** | Receptor has some resistance (tolerance) to accommodate a particular effect or some ability to recover, adapt or avoid. |
| **Negligible** | Receptor is generally resistant (tolerant) and can accommodate a particular effect without need to recover, adapt or avoid. |

## Impact Magnitude

19.3.11 The EIA will be based on a description of the anticipated activities associated with the Project, the impacts that are predicted as a result of these activities and the area over which such effects might be experienced by different receptors.

19.3.12 In determining the magnitude of an impact, reference will be made to the following characteristics (Table 19.5):

- Positive or negative.
- Spatial extent.
- Duration (assessed for the purposes of this chapter as either ‘short-term’ (up to one year), ‘medium-term’ (one – ten years) or ‘long-term’ (greater than ten years).
- Frequency and timing.
- Reversibility.

*Table 19-5 – Definitions of Magnitude Levels*

| Magnitude | Description |
|---|---|
| **High** | Impact occurs over large spatial scale and / or is long term or permanent in nature.<br>High frequency (i.e., occurring routinely or continuously for a long period of time) and / or at high intensity.<br>Impact and its effects will continue more than five years following cessation of activities, potentially irreversible |
| **Medium** | Impact occurs over a local to medium spatial scale and / or has a short to medium term duration.<br>Medium to high frequency (i.e., occurring routinely or continuously for a moderate length of time) and / or moderate intensity or occurring intermittently for short periods of time at moderate to high intensity.<br>Impact likely to be mitigated through natural processes (or mitigation measures) within a few years of cessation of activities (1 – 5 years) |
| **Low** | Impact is small-scale and localised and is of temporary or short-term duration.<br>Low frequency occurring occasionally or rarely for short time periods and / or at low intensity.<br>Recovery / impact likely to be mitigated through natural processes (or mitigation measures) within a year of cessation of activities |
| **Negligible** | Impact is highly localised (small-scale) and short-term in nature.<br>Transient – limited to the duration of the activity in question |

## Significance of effect

19.3.13 The assessment of likely significant environmental effects as a result of the Project will consider the construction, operational and decommissioning phases. Significance of the effect is typically a function of the sensitivity of the receptor and the magnitude of an impact. An indicative matrix of significance is provided in Table 4.1 of Chapter 4 – Environmental Impact Assessment Methodology.

19.3.14 The assessment of likely significant effects on receptors will be made using:

- Consideration of best practice / guidance.
- Professional judgement.
- Baseline information obtained and the Project details.
- Feedback and comments raised through stakeholder consultation.
- Quantification of potential effects.
- Identification of appropriate mitigation measures.

## 19.4 Limitations and Assumptions

19.4.1 To ensure transparency within the EIA process, the following limitations and assumptions have been identified at this stage:

- The desk-study is sufficiently robust for informing the impact assessment, with requirements for species-specific surveys outlined to further inform the baseline or monitoring, where relevant.
- In the event that health and safety restrictions prevent a full ecological baseline assessment, a precautionary principle will be applied to the assessment of ecological features. The precautionary principle will assume a 'reasonable worst-case' scenario informed by professional experience and knowledge, desk-based information and available field-based evidence for any ecological feature unable to be fully surveyed.
- The assessment will rely on available data, and while reasonable efforts will be made to ensure the data is accurate and up to date, the accuracy of third-party information cannot be guaranteed.
- It is assumed that sufficient data will be available from the Environment Agency, Lead Local Flood Authorities (LLFAs) to inform a site-specific FRA, with no need for the development of new flood risk models.
- The current condition and standards of protection provided by existing flood defences are assumed to be sufficiently defined by Environment Agency data, removing the need for baseline condition surveys.
- The assessment of construction effects on the intertidal zone will be qualitative, informed by a baseline assessment of cliff and shore platform erosion at the Easington landfall, as well as an assessment of coastal processes, alongside a desk study being conducted for the NEP (offshore carbon dioxide transportation and storage) ES.
- No water quality sampling or analysis is proposed, as existing baseline data is considered sufficient to characterise the water quality of surface water receptors.
- Sampling of intertidal sediments at the Easington landfall will be undertaken to establish baseline physical characteristics and contaminant levels.

19.4.2 There are further limitations and assumptions that may be of relevance to ecology and hydrology, outlined in the corresponding Chapters (please refer to Chapter 7 – Ecology and Biodiversity, Chapter 8 – Climate Change, Adaptation and Resilience, Chapter 9 – Ground Conditions and Hydrogeology and Chapter 17 – Water Resources, Flood Risk and Land Drainage). They have not been repeated here to avoid duplication.

## 19.5 Stakeholder Engagement

19.5.1 Non-statutory Consultation was undertaken between July and August 2024. The feedback received from the non-statutory consultation has informed the scope of the assessments and design of the Project presented in this report. Statutory Consultation is anticipated to take place in Q2 2025 and will be supported by a PEIR, which will be developed to aid consultees in making an informed view of the likely significant effects of the Project.

*Table 19-6 – Summary of Stakeholder Engagement*

| Organisation and date | Summary of engagement |
|---|---|
| East Riding of Yorkshire Council | Scoping Opinion to be reviewed and any Coastal Environment specific comments will be addressed and discussed with the local authority where necessary. |
| North East Lincolnshire Council | Scoping Opinion to be reviewed and any Coastal Environment specific comments will be addressed and discussed with the local authority where necessary. |
| *Maritime and Coastguard Agency (2024)* | Summary of written response:<br>• Note on this occasion that the Project will cross multiple rivers which are navigable, and works may have an impact on other marine users during the construction, operation and decommissioning phases.<br>• Works may be undertaken on the coast at Easington to connect the onshore pipeline to the offshore infrastructure as part of the wider East Coast Cluster, which is understood to be being consented through other legislation and is outside the scope of this Project.<br>• The MCA would expect the applicant to confirm the extent of construction works undertaken below the Mean High-Water Springs for the onshore works over the rivers and on the east coast at Easington.<br>• The MCA would expect any impact on shipping and navigation to be assessed by the applicant and any works in the marine environment to be subject to the appropriate marine licensing regime before carrying out any marine licensable works.<br>• The location of the works onshore which cross the River Trent and the River Humber (for example) may also fall within the jurisdiction of a Statutory Harbour Authority (SHA) and therefore they are responsible for the safety of navigation within their waters. The SHA should therefore be consulted on any plans for works within their waters. |

| Organisation and date | Summary of engagement |
|---|---|
| | • The MCA would like to ensure that the worst-case scenario for shipping and safe navigation is considered going forward and depending on the scale of the works a proportionate Navigation Risk Assessment, in accordance with the International Maritime Organisation Formal Safety Assessment Process, should be considered. |
| *Marine Management Organisation (2024)* | Summary of written response:<br>• Notified that any works within the Marine area require a licence from the Marine Management Organisation.<br>• It is down to the applicant themselves to take the necessary steps to ascertain whether their works will fall below the Mean High Water Springs mark.<br>• Marine Licensing Works activities taking place below the mean high water mark may require a marine licence in accordance with the Marine and Coastal Access Act (MCAA) 2009. Such activities include the construction, alteration or improvement of any works, dredging, or a deposit or removal of a substance or object below the mean high water springs mark or in any tidal river to the extent of the tidal influence.<br>• The MMO is also the authority responsible for processing and determining Harbour Orders in England, together with granting consent under various local Acts and orders regarding harbours.<br>• A wildlife licence is also required for activities that that would affect a UK or European protected marine species. The MMO is a signatory to the coastal concordat and operates in accordance with its principles.<br>• Proposals should conform with all relevant policies, taking account of economic, environmental and social considerations. Marine plans are a statutory consideration for public authorities with decision making functions. At its landward extent, a marine plan will apply up to the mean high water springs mark, which includes the tidal extent of any rivers. As marine plan boundaries extend up to the level of the mean high water spring tides mark, there will be an overlap with terrestrial plans which |

| Organisation and date | Summary of engagement |
|---|---|
| | generally extend to the mean low water springs mark. A map showing how England's waters have been split into 6 marine plan areas is available on our website. For further information on how to apply the marine plans please visit our Explore Marine Plans service.<br>• Planning documents for areas with a coastal influence may wish to make reference to the MMO's licensing requirements and any relevant marine plans to ensure that necessary regulations are adhered to. |
| *Environment Agency*<br>20 August 2024 | Summary of written response to Public Consultation stage of the Project:<br>• Highlighted the need to address the protection and enhancement of biodiversity around watercourse corridors.<br>• Highlighted the need to identify designated sites, protected habitats and species affected by the Project, including from any access routes and permanent or temporary compounds, and any mitigation and compensation requirements.<br>• Noted the desire to see consideration of the requirements of BNG and for the Project to consider the relevant Local Nature Recovery Strategies, the Water Framework Directive mitigation measures and the River Basin Management Plan when identifying options for BNG. |
| *Lincolnshire Wildlife Trust*<br>20 August 2024 | *Summary of written response to Public Consultation stage of the Project:*<br>• Identification of the ecological impacts of the Project, both in terms of direct impacts on habitats and species within the trenching corridor, and the developments wider sphere of disturbance.<br>• Identification of direct impacts on functionally linked land utilised by conservation features of, and designated habitats within, the statutory designated sites associated with the Humber.<br>• Raised concerns regarding the overspill of this development beyond the boundaries of the South Humber Gateway Industrial land allocation, and the precedent this corridor would set for wider encroachment and further industrialisation in this locality. |

| Organisation and date | Summary of engagement |
|---|---|
| | • Raised concerns regarding the cumulative impacts of the current intensive programme of development in the Immingham region, with multiple NSIPs and TCPA developments in progress, and specific concerns over the level of in-combination and cumulative impacts.<br>• Registered as an interested party for inclusion in any expert ecology groups or conservation working groups in relation to the Project. |
| Natural England<br>9 August 2024 | *Meeting with Natural England regarding the proposed survey methodology for passage and wintering birds.*<br>Overall Natural England confirmed they were happy with the chosen methodology as the proposed scope covered such an extensive area that the results, coupled with the specified desk study, should provide a clear picture of functionally linked land across the area. |

19.5.2 Stakeholder engagement with relevant statutory bodies, nature conservation organisations and local authorities will be considered as an ongoing process. As such, engagement and technical consultation will continue throughout the EIA process

19.5.3 As the EIA process progresses, consultation with the following bodies will be undertaken:

- Natural England.
- Maritime and Coastguard Agency (MCA).
- MMO.
- Humber Nature Partnership.
- Environment Agency.
- Yorkshire Wildlife Trust.
- East Riding Yorkshire Council.
- North East Lincolnshire Council.
- Royal Society for the Protection of Birds (RSPB).
- Local authorities.

19.5.4 The Project will consult with these statutory bodies and key stakeholder groups to notify them of any required survey scopes and to inform them on any preliminary survey results. It will further ensure that statutory consultees and key stakeholders are in agreement on the approach that has been adopted for the ecological appraisal of the Project, specifically in regard to proposed mitigation measures.

## 19.6 Study Area

### Coastal Processes and Geology

19.6.1 The Study Area for the assessment is proposed to include all land within the Landfall area and in addition a buffer of 500m from this boundary. This Study Area is expanded to 15km offshore and along the shoreline for the consideration coastal processes, to effectively capture the dynamic sediment regime. These Study Areas are considered, based on the nature of Project construction, operation, and decommissioning activities to appropriately capture those impacts within the direct landfall vicinity and the wider Study Area (Volume 2: Figure 19.1). The assessment focuses on the intertidal and coastal zone surrounding the Easington landfall site, encompassing the intertidal zone down to MLWS, where the Project meets the DCO limit for consent with the offshore carbon dioxide transportation and storage infrastructure project (Ref 19.30). This area captures the direct impact zone, where hydrological and geological dynamics may influence or be influenced by the Project. The Study Area with respect to coastal processes and geology for the EIA is illustrated in Volume 2: Figure 19.1.

19.6.2 Part of the Humber Estuary lies within the Study Area, a transitional estuarine environment influenced by both fluvial and marine processes, characterised by macro-tidal conditions and active sediment transport. Proximal receptors include intertidal mudflats, local fisheries, and areas of ecological significance designated under the Humber Estuary SAC and SPA.

19.6.3 Additional consideration is afforded to sensitive features, such as areas rapidly eroding cliffs (Dimlington Cliffs SSSI for example) and Spurn Head to the South, a key feature of the Humber Estuary. Spurn Head plays a crucial role in protecting the Humber Estuary from extreme weather events, thereby supporting its continued function as an industrial and port hub.

## Biodiversity and Ecology

19.6.4 As part of the assessment process a Zone of Influence (ZoI) is proposed with respect to biodiversity and ecological receptors in the coastal environment. This is the area in which changes are anticipated, arising from construction, operation and decommissioning activities with the potential for significant effects to occur.

19.6.5 The ZoI was determined through professional judgement, perceived impact pathways and best practice guidelines. The proposed ZoI outlined within this Report may be refined as the Project progresses and more information becomes available.

19.6.6 For the purpose of this Report, preliminary ZoIs have been identified for biodiversity and ecological receptors, as outlined in Table 19.7 and Figure 19.1-Study Area for the coastal environment for the Project. A wider ZoI has been proposed to encapsulate impacts to highly mobile species.

*Table 19-7 – ZoI Proposed for Coastal Environment Biodiversity and Ecology Receptors*

| Receptor | ZoI |
|---|---|
| Internationally designated nature conservation sites e.g., SAC, SPA and Ramsar sites | 2km buffer around the landfall location<br>To be extended to 5km for sites designated for wintering / passage birds |
| Nationally designated nature conservation sites e.g., National Nature Reserve (NNR), SSSI and Local Nature Reserve (LNR) and Local Nature Reserve (LNR) and MCZ | 2km buffer around the landfall location<br>To be extended to 5km for sites designated for wintering / passage birds |

| Receptor | ZoI |
|---|---|
| Non-statutory designated nature conservation sites | 2km buffer around the landfall location |
| Habitats and benthic ecology | 2km buffer around the landfall location |
| Mobile species (i.e., birds, fish and mammals) | 5km buffer around the landfall location |

## 19.7 Receptors

### Coastal Processes and Geology

19.7.1 The following receptors have been identified for intertidal coastal processes and geology:

- Statutory designated sites (i.e Dimlington Cliffs SSSI, Greater Wash SPA etc.).
- Coastal geology (i.e. glacial till cliffs).
- Surface waterbodies (i.e. Humber estuary).
- WFD waterbodies (i.e. Yorkshire South Water Body (GB640402491000)).
- Marine Conservation Zones (MCZ) (i.e. Holderness Inshore MCZ).
- Coastal floodplain (defined by the extents of EA Flood Zones 2 and 3a)

### Intertidal Ecology and Biodiversity

19.7.2 The following ecological receptors have been identified for intertidal ecology and biodiversity:

- Statutory designated sites.
- Intertidal habitats.
- Fish species.
- Benthic species (i.e., invertebrates, shellfish etc.).
- Bird species (i.e., wintering, passage and breeding).
- Otter (*Lutra lutra*).
- Non-Native Invasive Species (NNIS).

## 19.8 Baseline Conditions

19.8.1 This Section outlines the baseline conditions that will be relied upon to produce a detailed assessment of intertidal ecology and biodiversity receptors that will be contained within the PEIR and ES.

19.8.2 To supplement the baseline for the EIA it is recommended an Easington landfall walkover and sampling survey is undertaken. This will comprise a single survey activity to take place between March and October 2025 over a single spring tidal period. The results of this survey will update the preliminary survey results outlined within this chapter.

## Statutory Designated Sites

19.8.3 The following designated sites have been identified of being of relevance to the Project (Table 19.8) and illustrated in Volume 2: Figure 19.3 - Designated sites of relevance to the Project with respect to the coastal environment. Specifically, a total of seven statutory designated sites are present within the Study Area and of relevance to the coastal environment. Of these, three are noted to overlap with the landfall site, namely Greater Wash SPA, Dimlington Cliffs SSSI and Holderness Inshore MCZ.

*Table 19-8 – Statutory Designated Sites of Relevance to the Project*

| Designated Site | Qualifying Features | Approximate Distance from Landfall Site (km) |
|---|---|---|
| Holderness Inshore MCZ | Seabed habitats<br>Intertidal sand and muddy sand | 0 |
| Greater Wash SPA | Bird populations of national importance over winter, on passage and during the breeding season:<br>• Red-throated diver (*Gavia stellata*) (non-breeding).<br>• Common scoter (*Melanitta nigra*) (non-breeding).<br>• Common tern (breeding).<br>• Little tern (breeding).<br>• Little gull (*Hydrocoloeus minutus*) (non-breeding and breeding).<br>• Sandwich tern (*Sterna sandvicensis*) (breeding and non-breeding). | 0 |
| Humber Estuary Ramsar site | Breeding grey seal (*Halichoerus grypus*) colony<br>Internationally important waterfowl assemblage (non-breeding)<br>Species / populations occurring at levels of international importance:<br>• Eurasian golden plover (*Pluvialis apricaria*).<br>• Red knot (Calidris canutus).<br>• Dunlin (Calidris alpina).<br>• Black-tailed godwit (*Limosa limosa islandica*).<br>• Common redshank (*Tringa totanus*).<br>• Bar-tailed godwit (*Limosa lapponica*).<br>Migration route for river (*Lampetra fluviatilis*) and sea lamprey (*Petromyzon marinus*) | 2 |

| Designated Site | Qualifying Features | Approximate Distance from Landfall Site (km) |
|---|---|---|
| | Estuarine habitats<br>Breeding natterjack toads (*Epidalea calamita*) | |
| Humber Estuary SAC | Present of estuaries, mudflats and sandflats<br>Coastal lagoons<br>Sea lamprey<br>River lamprey<br>Allis shad (*Alosa alosa*)<br>Twaite shad (*Alosa fallax*)<br>Harbour seal (*Phoca vitulina*) | 2 |
| Humber Estuary SPA | Bird populations of European importance over winter, on passage and during breeding:<br>• Great bittern (*Botaurus stellaris*) (non-breeding and breeding).<br>• Common shelduck (*Tadorna tadorna*) (non-breeding).<br>• Eurasian marsh harrier (*Circus aeruginosus*) (breeding).<br>• Hen harrier (*Circus cyaneus*) (non-breeding).<br>• Pied avocet (*Recurvirostra avosetta*) (breeding and non-breeding).<br>• European golden plover (*Pluvialis apricaria*) (non-breeding).<br>• Red knot (*Calidris canutus*) (non-breeding).<br>• Dunlin (*Calidris alpina*) (non-breeding).<br>• Ruff (*Philomachus pugnax*) (non-breeding).<br>• Black-tailed godwit (*Limosa limosa*) (non-breeding).<br>• Bar-tailed godwit (*Limosa lapponica*) (non-breeding).<br>• Common redshank (*Tringa totanus*) (non-breeding). | 2 |

| Designated Site | Qualifying Features | Approximate Distance from Landfall Site (km) |
|---|---|---|
| | • Little tern (*Sterna albifrons*) (breeding). | |
| Humber Estuary SSSI | Intertidal and subtidal mudflats<br>Sandflats<br>Saltmarsh<br>Reedbeds<br>Nationally important numbers of breeding birds<br>22 species of wintering waterfowl<br>Passage waterfowl<br>River lamprey<br>Sea lamprey<br>Grey seal<br>Vascular plants (including at least ten nationally scarce species characteristic of coastal and wetland habitats)<br>Invertebrates | 2 |
| Dimlington Cliffs SSSI | Dimlington Cliff is the highest point on the Holderness coast. The site is considered to be in favourable condition and is the location of ongoing rapid coastal erosion. Good examples of rotational landslip can be seen within the site | 0 |

## Coastal Processes and Geology

19.8.4 Baseline data to characterise the Coastal environment and Geology within the Study Area will be collected from a desk study, with reference to published data sources, supplemented by data sets collected in consultation (e.g., the EA and LLFAs).

### Coastal Processes

#### Erosion and Accretion Patterns

19.8.5 The Holderness coastline is among Europe's fastest-eroding coasts, largely driven by strong wave action from the North Sea and the area's high susceptibility to erosion due to the soft, unconsolidated glacial till (Ref 19.30). The North Sea generates powerful wave action, especially during winter storms, which accelerates erosion along the shoreline. The average erosion rate along the Holderness coast ranges from 1 to 2m per year, with some areas experiencing recession rates as high as 3m annually (The East Riding Coastline: Past, present and future (Boyes et al., 2017) (Ref 19.31)). Erosion is most prevalent along exposed areas where wave energy is maximised, although local factors, such as sediment composition and coastal defences, may modulate these rates.

19.8.6 Sediment loss from eroding cliffs contributes to the supply of materials transported alongshore by littoral drift, moving predominantly southward and accumulating at the Humber Estuary mouth. This southward sediment transport supports the formation and maintenance of Spurn Head, a dynamic spit at the Humber Estuary entrance (Ref 19.30). Seasonal changes and storm events exacerbate erosion, particularly during winter, resulting in increased sediment mobilisation and periodic accretion further alongshore. Longshore drift plays a critical role in shaping the intertidal zone near Easington by redistributing sediments and influencing sediment deposition patterns. As a result, intertidal morphology is subject to ongoing adjustment in response to the balance of sediment input and erosion.

#### Sediment Transport and Deposition

19.8.7 Sediment transport in the Humber Estuary is driven by the interaction of tidal currents, surface waterbody input, and wave action, resulting in a complex regime where sediment is regularly mobilised, transported, and deposited. Sediments from the Easington landfall area input into this system (Ref 19.30). Sediments in the Easington intertidal zone exhibit a gradient of grain sizes, with coarser sands accumulating near the high-water mark and finer silts and clays settling further offshore, where hydrodynamic forces are weaker. Sediment transport rates for this section of the coast are estimated at approximately 200,000–350,000m³ annually, emphasising the highly dynamic nature of the sedimentary environment

(Southern North Sea Sediment Transport Study, Phase 2 (HR Wallingford et al., 2002) (Ref 19.32); (Ref 19.30)).

19.8.8 Seasonal and episodic events, such as storm surges and spring tides, play an essential role in sediment redistribution within the intertidal zone, creating transient features such as sandbanks and mudflats that shift in response to prevailing hydrodynamic conditions. Studies have shown that sediment accretion can occur in localised areas where flow velocity decreases, although such deposits are often temporary and subject to re-suspension during subsequent high-energy events (Ref 19.29).

### Morphological Changes

19.8.9 Features such as sandwaves, megaripples, and transient sandbanks frequently form along the seabed further offshore and are indicative of the active marine sediment transport regime in the vicinity of the landfall at Easington. These features are reworked by tidal flows and waves, periodically altering the intertidal landscape. Sediment accumulation and erosion in the intertidal zone respond to both seasonal hydrodynamic variations and episodic events, reflecting the constant morphological adjustments within this estuarine system (Ref 19.30*)*. At the Easington landfall site, these processes influence the periodic reshaping of the intertidal landscape, with dynamic sediment deposition, erosion, and adjustments to the estuarine morphology influenced by seasonal and episodic factors such as tidal surges.

### Tidal Influences and Currents

19.8.10 The Humber Estuary, classified as a macro-tidal estuary, experiences a large tidal range, with semi-diurnal tides oscillating between 3.5 and 7m (Ref 19.29; Ref 19.30). This significant tidal range drives powerful currents within the estuary, with peak flows reaching over 1.0m/s, particularly near the estuary mouth (Ref 19.29). The intertidal zone along the Easington coast is directly influenced by these tidal forces, which shape sediment transport, deposition, and erosion patterns. Additionally, tidal asymmetry within the estuary results in a stronger ebb flow than flood flow, a phenomenon that accelerates sediment outflow and promotes the scouring and deepening of certain estuarine channels (Ref 19.31).

19.8.11 Seasonal and episodic storm surges also contribute to tidal variability and can elevate water levels, temporarily altering the hydrodynamic regime and increasing erosion rates along the intertidal zone. Sediment transport and reworking are particularly pronounced during such events, where wave energy and tidal forces combine to mobilise sand and finer sediments, affecting substrate composition and stability in the intertidal area. Increased levels of turbidity, driven by fine sediment suspension from tidal and estuarine inputs, can impact light penetration and water quality, which can alter local habitat suitability (Ref 19.30).

### Water Quality

19.8.12 Water quality in the Humber Estuary is influenced by both natural and anthropogenic factors. Estuarine water quality has improved over recent decades due to enhanced wastewater treatment and industrial regulation, but turbidity levels remain high due to fine sediment influx from river discharge and tidal action. High turbidity levels are characteristic of the estuary and affect light penetration, oxygen levels, and primary productivity, impacting aquatic ecosystems and habitats such as intertidal mudflats (Ref 19.29). Additionally, localised sources of contamination, such as agricultural runoff and urban discharge, will influence water quality, particularly after heavy rainfall events.

### Data Sources for Coastal Processes

19.8.13 Baseline collection on sediment transport, coastal water quality (in particular turbidity) and coastal morphology will be derived from secondary sources of information. This would be carried out by means of a desk-based study assessing historical shoreline position data for the coastline around the landfall and reviewing existing modelling of the degree of coastal erosion undertaken for the NEP (Ref 19.30). Data would also be sourced from, published literature, and information provided by the EA and East Riding of Yorkshire Council during consultation in order to support these assessments.

19.8.14 Additional published survey data is available to provide a comprehensive overview of the area's coastal interactions. Data will be collated to contextualise and describe environmental variables impacting coastal processes, including:

- Metocean.
- Wave.
- Wind.
- Currents.
- Sediment transport.
- Coastline conditions (e.g., recession rates).

19.8.15 Reports and data produced for the wider Humber area which have contributed significantly to this assessment are as follows:

- Southern North Sea Sediment Transport Study (Ref 19.32).
- Southern North Sea longshore sediment transport (Sutherland et al., 2002) (Ref 19.33).
- Flamborough Head to Gibraltar Point SMP Appendix C: Assessment of Coastal Behaviour and Baseline Scenarios (Ref 19.22).
- East Riding of Yorkshire Council Coastal Explorer (East Riding of Yorkshire Council, 2024a) (Ref 19.34).
- NEP Integrated Site Survey – Environmental Baseline Report (Gardline, 2022a) (Ref 19.35).

- NEP Integrated Site Survey – 2021 Environmental Survey Habitat Assessment (Gardline, 2022b) (Ref 19.36).

19.8.16 A number of other site-specific studies and publicly available reports that have informed this work are as follows:

- UK Marine Renewables Atlas (ABPmer, 2024) (Ref 19.37).
- The East Riding Coastline: Past, Present and Future (Ref 19.31).
- East Riding Coastal Monitoring Programme, Seabed Mapping: Flamborough Head to Spurn Point (East Riding of Yorkshire Council, 2024b) (Ref 19.38).

19.8.17 For watercourse receptors (where applicable) and the intertidal zone, WFD status data (Catchment Data Explorer (Environmental Agency, 2021) (Ref 19.39)) will be collected to characterise existing qualities and status objectives, as well as any measures identified to achieve these measures (Humber River Basin Management Plan (Environment Agency, 2015) (Ref 19.40)). Existing surface water interests (abstractions and discharges) will be identified with reference to Environment Agency consent / permit registers. Areas of fluvial / coastal floodplain will be described using EA flood model data and existing flood defence assets will be identified (Ref 19.40). Other sources of flood risk, such as from surface water, groundwater and artificial sources, will be characterised in consultation with the LLFAs and with reference to relevant Strategic FRA and other published sources.

19.8.18 Desk study data sources include:

- Environment Agency flood maps for rivers and the sea, surface water and reservoirs.
- Environment Agency Catchment Data Explorer that records WFD data.
- Environment Agency Water Quality Data Archive which provides records of water quality data for monitored main rivers.
- Ordnance Survey maps.
- Aerial imagery.

**Regional and Coastal Geology**

19.8.19 The Holderness coast near Easington is geologically characterised by glacial till (primarily soft boulder clay), sands, and gravels, deposited during the Devensian glaciation approximately 18,000 years ago (Ref 19.31). This unconsolidated material, known as till, contribute to Holderness' status as one of Europe's fastest-eroding coastlines, with typical erosion rates of 1–2m per year annually and episodic sediment liberation (estimated at 3million $m^3$ per year) (Ref 19.30). The erosion of these glacial deposits has also contributed to the formation of the extensive sand and mudflats characterising the Humber Estuary's intertidal zones.

19.8.20 Geological data of the intertidal area near Easington contains a sequence of fine to medium sands with interbedded layers of gravel and clay. These sediments are periodically reworked by tidal forces and wave action, producing a dynamic substrate that may exhibit varying degrees of compaction. Additionally, peat outcrops have been observed along this coastline, which are remnants of former terrestrial surfaces and provide evidence of historic sea-level fluctuations over the past several thousand years (The Holocene evolution of the Humber Estuary: Reconstructing change in a dynamic environment (Metcalfe et al., 2000) (Ref 19.41)). Such geological features indicate that the Holderness coastline has undergone significant morphological change due to both natural and anthropogenic influences.

### Groundwater and Aquifer Systems

19.8.21 The region is underlain by the Chalk aquifer, a key groundwater resource in East Yorkshire, supplying both drinking water and agricultural needs. However, this aquifer is largely confined beneath impermeable layers of till, isolating it from direct interaction with surface waters in the intertidal zone (Ref 19.39). While direct hydrological connectivity between the aquifer and the intertidal zone is limited, groundwater flow in deeper strata may influence subsurface conditions, particularly if construction activities penetrate beyond the superficial sediment layers.

19.8.22 Available information sources that will be used to establish the baseline conditions include:

- Aerial imagery and mapping.
- Multi-Agency Geographic Information for the Countryside (MAGIC) (Defra, 2024) (Ref 19.42).
- Geology Viewer (British Geological Survey (BGS), 2024a) (Ref 19.43*).*
- Unexploded Ordnance (UXO) Risk Maps (Zeticia UXO, 2024) (Ref 19.44).
- Environmental database information (such as Landmark Envirocheck or Groundsure).
- Records and geo-environmental data held by Local Planning Authority (LPA) relating to current and historical contaminative land uses, including waste sites, where provided.
- Records and geo-environmental data held by LPAs relating to Regionally Important Geological Sites (RIGS) and quarrying / mining sites, where provided.
- Records held by local authorities of water abstractions and Private Drinking Water supplies, where provided.
- Site walkover of areas of interest such as the intertidal area at Easington landfall, and areas of potential sources of contamination (i.e., coal mining areas etc).

- Existing ground investigation information, if available.

19.8.23 Additional context of existing ground conditions within the ZoI can be found within the following sources:

**Geology**

19.8.24 Published geological maps and the GIS data sourced from the BGS (Map Sheet No. 86 Hull, the Estuary of the Humber, Goole, Caistor, Brigg, Bedrock, (1891) (Ref 19.45); Map Sheet No. 80 Kingston upon Hull, Solid (1983) (Ref 19.46)) indicate that the Project is underlain by the geological succession.

**Geological Sites of Special Scientific Interest (SSSI) and Regionally Important Geological Sites (RIGS)**

19.8.25 A review of currently available information from MAGIC (Ref 19.42) identified one Geological SSSI in proximity to the landfall site, Dimlington Cliff SSSI. No RIGS or Local Geological Sites were identified within the landfall site.

## Intertidal Ecology and Biodiversity

### Habitats

19.8.26 In the intertidal ZoI habitat types of infralittoral coarse sediment (A5.13) and circalittoral coarse sediment (A5.14) are found. Infralittoral coarse sediment constitutes coarse sand, gravelly sand, shingle and gravel, characteristic of moderately exposed habitats. Generally found in tide-swept marine inlets, species such as polychaetes (i.e., *Chaetozone setosa* and *Lanice conchilega*), cumacean crustacea (i.e., *Iphinoe trispinosa* and *Diastylis bradyi*), and venerid bivalves dominate. Circalittoral coarse sediment, also common for tidal inlets and exposed coastlines, may be characterised by robust infaunal polychaetes, mobile crustacea and bivalves (EUNIS Habitat Classification 2012 amended 2019 (EUNIS, 2019) (Ref 19.47)).

19.8.27 A survey conducted in 2022, covered part of the Project ZoI (Ref 19.30). This survey recorded low resemblances of rocky and *Sabellaria spinulosa* reefs in the nearshore (i.e., overlapping with the ZoI). Specifically, low resemblance rocky reefs were documented within the Holderness Inshore MCZ, where faunal communities on deep moderate energy circalittoral rock (A4.27) was noted (Ref 19.36)

19.8.28 Additionally, based on the statutory designated sites identified in Table 19.4 estuarine habitats, coastal lagoons, saltmarsh mudflats and sandflats are documented in proximity to the Project in the offshore areas within the ZoI for biodiversity and ecology. The Humber Estuary itself is a large macro-tidal coastal plain with examples of strandline, foredune, mobile, semi-fixed dunes, fixed dunes and dune grassland. The shoreline of the Humber Estuary is characterised by exposure, with sandy shores characterised of more exposed areas. Saltmarsh

habitats are also documented; the lower saltmarsh comprises of common cordgrass (*Spartina anglica)* and annual glasswort *Salicornia* communities, with low to mid marsh communities dominated by sea aster (*Aster tripolium*), common saltmarsh grass (*Puccinellia maritima*) and sea purslane (*Atriplex portulacoides*) communities. The upper portion of the community is atypical (Information Sheet on Ramsar Wetlands (RIS): Humber Estuary (Joint Nature Conservation Committee (JNCC), 2008) (Ref 19.48)).

19.8.29 A preliminary shoreline survey at the landfall was conducted in 2022. The intertidal zone of the Project is bordered by cliffs that are subject to significant erosion. The extent of the survey area comprised a rippled sandy beach, with a clay platform located in the mid / lower shore with medium sand overlaying shingle in places. The beach appeared to increase in shingle composition with an increased beach profile, alongside patches of pebbles toward the strandline and sea defence. Some cliff deposits were identified within the sediments of the intertidal area. The strandline areas were dominated by hornwrack (*Flustra foliacea*) and boulders (Intertidal Survey Report – Interim Results Technical Appendix (RSK Environment Ltd., 2022) (Ref 19.49)).

**Species**

**Benthic Communities**

19.8.30 The survey (Ref 19.30) noted in the nearshore area significant presence of Annelida (*Serpulidae*), Arthropoda (*Cirripedia*), Bryozoa (*Flustridae*), Chordata (*Ascidiacea*), Cnidaria (*Hydrozoa* and *Tubularia*) as well as Animalia tubes and burrows and faunal turf (Ref19.35). Specifically, the Annelida *Spiophanes bombyx* was the most abundant taxa. However, stations surveyed in the nearshore concluded largely impoverished samples with low species diversity (Ref 19.35).

**Fish Species**

19.8.31 The Humber Estuary is a documented migration route for river (*Lampetra fluviatilis*) and sea lamprey (*Petromyzon marinus*) owing to the designated of several statutory designated sites. Species such as allis shad and twaite shad may also be recorded within the Project ZoI.

19.8.32 There may be a number of commercially important species that utilise the intertidal area for nursery and / or spawning grounds, as such there is capacity for them to overlap with the Project ZoI. Nursery grounds for Atlantic cod (*Gadus morhua*), Atlantic herring (*Clupea harengus*), lemon sole (*Microstomus kitt*), sprat (*Sprattus sprattus*), whiting (*Merlangius merlangus*), European plaice (*Pleuronectes platessa*) and sandeel (*Ammodytes* spp.) overlap with the ZoI (Spawning and nursery grounds of selected fish species in UK waters (Ellis et al., 2012) (Ref 19.50); Fisheries Sensitivity Maps in British Waters (Coull et al., 1998)

(Ref 19.51)). Whilst, spawning grounds of Atlantic herring, lemon sole, European plaice, sand eel and sole (*Solea solea*) overlap the Project ZoI (Ref 19.50; Ref 19.51).

### Bird Species

19.8.33 As identified in Table 19.4, extensive sand and mud flats within the Project ZoI offer extensive habitats to a diverse bird assemblage comprising both seabird and shorebird species. Species of relevance to the Project may therefore include, but it not limited to:

- Eurasian golden plover (*Pluvialis apricaria*).
- Red knot (Calidris canutus).
- Dunlin (Calidris alpina).
- Common redshank (*Tringa totanus*).
- Black (*Limosa limosa*) and bar tailed godwit (*Limosa lapponica*);
- Red throated diver (*Gavia stellata*).
- Little tern (Sterna albifrons).
- Sandwich tern (Sterna sandvicensis).

19.8.34 The preliminary shoreline survey undertaken in 2022 uncovered the potential presence of sand martin (*Riparia riparia*) burrows, suggesting the utilisation of the area for nesting. Additionally sand martins were documented feeding on the sandy beach along the shoreline (Ref 19.49).

### Mammals

19.8.35 Grey seal (*Halichoerus grypus*) and harbour seal (*Phoca vitulina*) may also be recorded in the ZoI of the Project. Donna Nook, which is approximately 20km south of the Project landfall location, supports a breeding colony of grey seals, and is the second largest colony in England (i.e., approximately 65% of the South-east England Seal Monitoring Unit (SEE-SMU) population (Scientific Advice on Matters Related to the Management of Seal Population: 2022 (Special Committee on Seals (Ref 19.52)). It is estimated there may be up to three harbour seal per 25km$^2$ and up to 75 grey seal per 25km$^2$ at the landfall of the Project (Habitat-based predictions of at-sea distribution for grey and harbour seals in the British Isles) (Ref 19.53).

19.8.36 Otter may be present within the area of the Project, with two confirmed sighting of otter within 5km of Easington within the past four years (Eurasian Otter (*Lutra lutra*) (NBN Atlas, 2024) (Ref 19.54)). While otter are unlikely to use the intertidal habitat around the Project landfall directly as more inshore marine areas are preferred for foraging, they may move through the area while travelling between foraging, resting and breeding areas.

### NNIS

19.8.37 The ZoI is perceived to be located outside of the current natural range for white-clawed crayfish. A recent record of a single individual was noted approximately 1.7km upstream of the draft Order Limits; it is feasible that this is an anomaly (Ecological Data Search (as part of Data License – E05914 (North and East Yorkshire Environmental Data Centre, 2021) (Ref 19.55); Lincolnshire Environmental Records Centre Search (Greater Lincolnshire Nature Partnership, 2022) (Ref 19.56)).

## Future Baseline

19.8.38 The future baseline represents known or anticipated changes to conditions considered likely in the absence of the Project which should be assessed as part of the ES.

19.8.39 To establish the future baseline, the existing baseline at the time of survey is considered along with likely changes before the construction and operation phases of the Project. Likely changes may include the continuation of current trends in baseline conditions, development phases of other planned or consented developments within the area and likely effects of climate change.

19.8.40 There are several areas of consideration for detailing a description of the future baseline's anticipated evolution of environmental conditions for the Project area, these include:

- **Rising Sea Levels:** Mean sea levels are projected to rise due to climate change, which will dominate future extreme water levels. Historic sea level rise in the Humber Estuary area is documented, with allowances provided by the Environment Agency for future planning.
- **Coastal Erosion**: Rising sea levels and increased storm frequency will likely accelerate coastal erosion, especially along the Holderness coast.
- **Cliff and Shore Platform Changes:** Cliff and shore platform erosion rates near Easington have been investigated in recent studies, with cliff recession rates reportedly increasing in recent years. The shore platform is expected to lower by up to 3.3 m over the next 50 years due to rising sea levels.
- **Industrialisation / Human Population:** Increased industrialisation and anthropogenic use of the environment may result in increased pressure on natural resources, and a degradation of current conditions. Habitat fragmentation and reduced water quality are such examples of issues with potential to arise from these factors.

### Coastal Processes and Geology

19.8.41 There are several future baseline scenarios to consider with respect to coastal processes and geology, notably in relation to coastal erosion:

- The Holderness coast is expected to continue eroding under existing conditions. The coastline near Easington could experience recession rates of 1–2m per year due to sustained wave energy from the North Sea and increased storm frequency and intensity under climate change projections. With projected sea-level rise, erosion rates are likely to increase, leading to more substantial coastal recession, habitat loss, and changes in sediment distribution along the Humber Estuary.
- Sediment transport dynamics may also shift, as higher energy wave climates and storm surges intensify. These conditions could lead to greater southward sediment transport and deposition at Spurn Head, potentially reshaping the intertidal areas and influencing sediment accumulation around the estuary mouth (Humber MAREA - Physical Processes Study: Baseline Characterisation (ABPmer, 2012) (Ref 19.29); Offshore Environmental Statement for the Northern Endurance Partnership (NEP) (NEP, 2023) (Ref 19.30)). Without intervention, ongoing erosion and sediment transport changes could significantly affect the intertidal morphology near the landfall site, impacting both ecological and structural stability.
- Furthermore, increasing industrial pressures along the estuary, including port expansions, energy developments, and logistical infrastructure to support the expanding Humber industrial cluster, could intensify the existing coastal processes. Human interventions, such as dredging for port access, channel deepening, and coastal defences, may disrupt natural sediment transport dynamics. These modifications could exacerbate sediment displacement and alter the deposition patterns, leading to potential accretion or material loss in certain intertidal areas.
- Urban and industrial development may also increase stormwater runoff, which can alter sediment loads, degrade water quality, and enhance erosion within the estuary. Such cumulative impacts are likely to result in intensified shoreline modification, further reducing the natural buffering capacity of the intertidal zone against wave action. This, combined with anticipated sea-level rise, could lead to accelerated coastline retreat near Easington, thereby compromising the resilience of the natural intertidal environment. Cumulative impacts will be considered within the cumulative assessment, which is further outlined in Chapter 20: Cumulative Effects.
- The geological baseline, predominantly consisting of glacial till and boulder clay, is expected to remain subject to the aforementioned significant erosion pressures. Continued natural erosion and sea-level rise are likely to exacerbate cliff and foreshore retreat along the Holderness coast. Over the

Project's lifetime, the Holderness cliffs may erode further, leading to continued sediment input into the Humber Estuary.

- The continued supply of sediment from cliff erosion will likely support intertidal mudflat and sandbank maintenance but could also increase coastal vulnerability as sediment input fails to keep up with rising erosion rates. As a result, future baseline conditions may reveal an increasingly narrow and degraded coastline near Easington, potentially affecting the stability of any nearshore infrastructure and habitats that depend on sediment balance.
- Projected increases in industrial activity could influence the geological stability of the Holderness coastline. Additional coastal defences or land reclamation projects to protect industrial sites (e.g., flood defence) from rising sea levels may limit sediment exchange, causing localised erosion or shifts in sediment supply. This could lead to destabilisation of cliff areas and intertidal substrates as natural sediment inputs become restricted, particularly affecting the unconsolidated boulder clay and sand deposits characteristic of this coastline.
- In addition, subsurface activities, such as water abstraction or geotechnical work, could impact groundwater flow patterns. With increased water extraction to support industrial and population demands, there may be increased pressure on the underlying Chalk aquifer. This could result in localised ground subsidence or changes in hydrology that influence sediment stability and potentially affect coastal erosion patterns.

19.8.42 Hydrological conditions in the Humber Estuary area are expected to evolve due to sea-level rise, increased storm surges, and changing precipitation patterns. These factors could lead to more frequent tidal inundation and potentially larger tidal ranges, which may affect sediment stability, water quality, and habitat conditions in the intertidal area. The increased frequency of storm surges would likely result in more substantial saltwater intrusion and brackish water encroachment further upstream, altering salinity gradients and impacting estuarine habitats.

- Changes in river discharge volumes from the Ouse and Trent could also affect hydrodynamic forces within the estuary. Seasonal variations in freshwater input are expected to fluctuate more drastically due to climate-driven precipitation changes, which may influence turbidity levels, sediment transport, and nutrient cycling within the intertidal area. Consequently, hydrological variability could impact species composition, water quality, and intertidal ecosystem productivity over time.
- Rising human population and industrial expansion in the Humber region may place increased demand on freshwater resources, potentially altering the hydrological balance within the estuary. Expanded agricultural and urban runoff may introduce more nutrients, contaminants, and suspended solids

into the water system, increasing turbidity and potentially affecting intertidal habitat conditions.

- Stormwater infrastructure associated with urban and industrial expansion could alter local hydrodynamics by directing increased runoff volume into the estuary, leading to more frequent or intense flood events. Such shifts may change tidal dynamics and estuarine mixing, impacting the natural salinity gradients and potentially contributing to brackish water encroachment into freshwater areas. These changes could significantly alter sediment deposition, nutrient availability, and overall estuarine water quality, affecting both human and ecological receptors.

**Biodiversity and Ecology**

19.8.43 Future baseline considerations for biodiversity and ecological receptors of relevance to the Project comprises the following:

- Future ecological conditions in the intertidal zone at Easington are likely to be influenced by habitat loss due to coastal erosion, changes in sediment distribution, and the effects of climate change on species composition. Rising sea levels, increased frequency in storm events, and shifting salinity patterns may reduce habitat suitability for some intertidal and estuarine species.
- The erosion of mudflats and salt marshes, which provide critical feeding and nesting habitats for migratory birds and marine species, could result in biodiversity loss. Climate change-induced shifts in temperature, salinity, and sediment stability may also affect the range and abundance of benthic invertebrates, reducing the prey availability for bird species that rely on intertidal feeding grounds. Long-term biodiversity impacts consequent of shoreline erosion, associated with the loss of critical habitats (e.g., nesting and foraging) and climate change, may include a shift toward more resilient, opportunistic species that can tolerate dynamic and variable conditions, potentially altering the ecological composition of the Humber Estuary SAC / Special Protection Area (SPA). Impacts to the UK national sites network and associated qualifying interests will be considered further within the Project's Report to Inform Appropriate Assessment (RIAA).
- Population growth and industrialisation near the Humber Estuary are likely to increase anthropogenic pressures on biodiversity and ecological health. Expanding industrial sites and increased shipping traffic could lead to elevated pollution levels, including oil spills, heavy metals, and increased waste discharge. Pollution can directly affect water quality and benthic organisms, with compounding impacts on species higher up the trophic hierarchy, such as shorebirds and fish.

- Additionally, habitat fragmentation from coastal developments may limit the available space for species reliant on intertidal areas. Urban encroachment could disrupt critical migratory pathways and reduce nesting or feeding grounds for avian species protected under the Humber Estuary SAC and SPA. As natural habitats shrink, sensitive species may experience population declines or shifts in distribution, providing opportunity for more resilient but potentially invasive species to establish themselves within the disturbed environment. Impacts to the UK national sites network and associated qualifying interests will be considered further within the Project's RIAA.

## 19.9 Design, Mitigation and Enhancement Measures

19.9.1 The Project design will follow the principles of the mitigation hierarchy – preference will be given first to avoiding impacts, then reducing remaining effects before applying targeted mitigation where required. Where residual effects remain, compensation will be provided.

19.9.2 Avoidance, mitigation and compensation measures leading to a reduction in adverse effects will be identified prior to an evaluation of the effects of impacts (i.e. these measures will constitute 'embedded mitigation'). Any residual effects will be identified following consideration of embedded mitigation measures. Monitoring requirements will also be considered, and details determined once full survey results have been interpreted and full details of the Project are known.

19.9.3 Specific secondary mitigation measures will be developed as part of the PEIR and finalised within the ES following survey / assessment and further design amendments. It will include specific / strategic habitat provision (which will be detailed within future iterations of the Conservation Strategy) and any measures necessary to satisfy HRA, Natural England derogation licences, Environment Agency permits and SSSI assent (where required).

19.9.4 In regard to construction methods there would be assurance that the pipeline is adequately buried below the predicted cliff line and seabed profile throughout its design life (25 years) such that it would not become exposed. Additionally, after the pipeline has been installed, it will be buried using the excavated material and the beach will be reinstated to the pre-construction condition as far as reasonably practicable. Currently, four construction methods are being considered in the intertidal zone (see Chapter 3: Description of the Project), one requiring microtunnelling with a temporary cofferdam through the intertidal area; the other methods involve trenchless techniques. The current basis is that the trenchless methods would have less of an impact on the coastal environment within the Study Area, in terms of sediment dispersion, disturbance of habitats and species and implications for coastal erosion.

19.9.5 Where possible, the Project will be designed to limit impact to important geological features or resources, and avoid sources of contamination, through careful routeing and site selection. Alignment will minimise interference with areas prone to high erosion, reducing sediment disturbance and protecting coastal features critical to habitat stability.

19.9.6 Construction, operations, decommissioning and design of the pipeline will be in accordance with relevant industry codes of practice, standards and recommended practice. A Construction Environment Management Plan (CEMP) will additionally be prepared prior to construction of the Project to highlight specific measures in order to mitigate impacts to the coastal environment. Best practice measures within the CEMP would reduce the risk of pollution of the water environment during construction by removing the pathways between sources and receptors for most working areas. However, potential for construction work to cause localised and temporary pollution effects would remain.

19.9.7 Decommissioning would consider all the relevant environmental legislation and technology available at the time and any necessary licences and permits would be acquired. A Decommissioning Environmental Management Plan (DEMP) will be implemented during the decommissioning phase, this shall identify and mitigate the potential impacts of decommissioning activities which could harm sensitive receptors.

19.9.8 A suite of tertiary mitigation measures is also relevant to the hydrology and land drainage assessment (see Chapter 17 – Water resources, flood risk and land drainage). These include securing secondary consents under the Environmental Permitting Regulations, the Land Drainage Byelaws and the Marine and Coastal Access Act 2009 for qualifying works, as well as the best practice measures adopted during construction to avoid pollution, manage land drainage, mitigate flood risk and reduce temporary impacts on coastal processes and water quality in the intertidal zone.

19.9.9 The assessment of effects will take account of a range of primary, secondary and tertiary mitigation measures. Specific methods of mitigation are outlined below. The Coastal Environment assessment will rely on commitments outlined in the draft Register of Commitments (Volume 3: Appendix F).

19.9.10 Please note that during 2025, BNG will come into effect for NSIPs. At the time of writing this is estimated to be November 2025. In alignment with BNG legislation and best practice guidance, the Biodiversity Gain Hierarchy will be followed to achieve BNG, including:

- Avoiding adverse effects to very high, high and medium ’distinctiveness’ habitats.

- Mitigating these effects where they cannot be avoided.
- Compensating for adverse effect on on-site habitats by, in order of priority: enhancing on-site habitat, creating new on-site habitats, securing local off-site BNG provision via the allocation of registered off-site gain and finally, as the last resort, the purchase of statutory credits.

19.9.11 The results of the updated survey would feed into calculation of the existing baseline as measured in units by the Statutory Biodiversity Metric.

# 19.10 Description of Potential Likely Significant Effects

## Coastal Processes and Geology

19.10.1 This section outlines the potential likely significant effects to intertidal coastal processes and geological receptors.

**Construction**

19.10.2 The following likely potential impacts have been identified:

- **Sediment Disturbance**: Pipeline installation may increase sediment suspension and turbidity, potentially impacting benthic habitats and water quality.
- **Scour and Erosion**: Disturbances to the sediment profile may enhance erosion, affecting shoreline stability and adjacent habitat structures.
- **Temporary Habitat Displacement**: Construction activities may temporarily displace intertidal species and habitats.
- **Open Cut Construction**: If open cut methods are selected in the intertidal zone, associated works would carry a higher pollution risk. A reduced risk also exists in the event that the intertidal zone crossing involves trenchless techniques, such as Horizontal Directional Drilling (HDD). The unlikely event of a drilling fluid break-out during HDD activities prior to pipeline installation would also have the potential for localised and temporary effects, although appropriate measures detailed within the CEMP would help to mitigate these effects.
- **Physical Disturbance:** For example, if a cofferdam was needed to create a dry working area in the inter-tidal zone these effects would be short term in duration.
- **Storage of Spoil Material:** At work sites located in the tidal zone there would be potential for significant effects associated with storage of spoil reducing available storage or interrupting key flow paths.
- **Superficial Geology:** Changes in the upper levels of the underlying superficial geology structure and reduction of quality due to compaction or erosion during storage due to construction activities.

- **Soil Compaction:** Compaction of the upper levels of the underlying superficial geology due to construction vehicle movements degrading soil quality and causing potential waterlogging due to construction activities.
- **Impeded Groundwater Flow:** Reduction in flow to groundwater supported sites, abstractions and surface water bodies and changes to hydrology locally due to the requirement for dewatering due to construction activities; Water interests: Water required for pre-commissioning and commissioning of the pipeline and for consumptive use during the construction phase e.g., to supply construction welfare facilities and to supply water for trenchless crossing methodologies.
- **Flood Risks**: Potential for temporary and permanent changes to impermeable land cover and potential for temporary disruption to existing land drainage routes and changes to water quality during construction. There are working areas in Flood Zone 3 along the coast.
- **Spills & Leaks to Ground**: Pollution of ground from chemical spillages and leaks from plant, machinery, and other contaminants stored on site due to construction activities.
- **Spills & Leaks to Water**: Sensitive groundwater and surface water receptors at risk from drilling fluids or other fluids used during construction activities where pathways are created such as excavations and drilling.
- **Groundwater Support Sites:** Reduction in quality or levels of groundwater supporting sites protected under European and UK habitat legislation, such as a Ramsar site or a SSSI due to dewatering due to construction activities.
- **Geological Sites / Features:** Geologically important sites could be compromised due to disturbance of ground conditions caused by construction activities.
- **Contaminated Material**: Construction workers, groundwater and geology including the intertidal zone could be compromised due to disturbance of potentially contaminated soils, sediments and waters caused by construction activities.

**Operation**

19.10.3 No likely significant effects on coastal processes and geology have been identified in association with the Operation of the Project.

19.10.4 During operation of the Project, pollution impact pathways to surface waterbodies and within the intertidal zone would be very limited. This is because land within the pipeline construction working width would be reinstated following completion of the construction works, and there would be no AGI in the intertidal zone. There would be no operational discharges to surface waterbodies nor runoff from terrestrial AGIs in the intertidal zone. Physico-chemical elements supporting WFD waterbody status would therefore be safeguarded. Maintenance activities would

fall under the Applicant's operational management procedures. No likely significant effects are therefore anticipated, and it is proposed that this aspect is scoped out of the assessment.

19.10.5 Due to active coastal erosion in the vicinity of the Easington landfall the buried pipeline has the potential to become exposed during the operational lifetime of the Project. The Project design will ensure a suitable burial depth, and appropriate measures are in place to prevent this potential future effect. If defensive measures are required for the pipeline landfall, then the impacts that these, and any operational maintenance, may have on the coastal processes within the intertidal zone will be considered.

19.10.6 The Project will ensure it does not impact the supply of littoral sediment toward the south (i.e., toward Spurn Head) during operations.

19.10.7 Given the nature of the Project, there would be no permanent effects on waterbody flow regimes. There would be no new consumptive water uses, and the water quality of water receptors would not be degraded. Therefore, the potential for likely significant effects on existing water interests (surface water abstractions and discharges) and hydromorphology is negligible. These aspects are further detailed in Chapter 17 – Water resources, flood risk and land drainage but are subsequently scoped out of the coastal environment assessment.

**Decommissioning**

19.10.8 No likely significant effects on coastal processes and geology have been identified in association with the decommissioning of the Project. This is based on the approach that the pipeline will be left in situ, avoiding physical disturbances to noted receptors and avoiding creation of pollution pathways. The AGIs and Pump Facility would be dismantled, with all equipment removed and the land returned to agricultural or other appropriate uses. Impacts of this regard will be considered within the relevant onshore chapters (i.e., Chapter 9 – Ground conditions and hydrogeology and Chapter 17 – Water resources, flood risk and land drainage).

## Intertidal Ecology and Biodiversity

19.10.9 This section outlines the potential likely significant effects to intertidal ecology and biodiversity receptors.

19.10.10 As a largely below-ground development, the Project will result in predominantly short-term and temporary impacts to facilitate construction. As such, the majority of receptors will likely only be subject to potential effects during construction activities.

### Construction

19.10.11 The potential impacts anticipated to occur consequent of construction include:

- Direct habitat loss and potential damage, degradation and / or fragmentation of habitats / species during site clearance and excavation.
  - This may lead to the direct loss of sessile benthic species and habitats in the coastal environment; mobile species (i.e., fish, bird and mammal species) may further be displaced due to habitat loss, degradation and / or fragmentation or through changes in prey availability. Specifically, there may be temporary habitat loss / fragmentation during the installation of a temporary cofferdam.
- Acoustic and vibration disturbance consequent of construction activities (i.e., HDD, microtunnelling and installation of a temporary cofferdam).
  - This may lead to potential direct injury and / or mortality (i.e., Temporary Threshold Shift (TTS), Permanent Threshold Shift (PTS), recoverable injury) or behavioural disturbance (i.e., avoidance, masking, displacement) to noise sensitive species (i.e., mammals, birds and fish species) (Marine mammal noise exposure criteria: Updated scientific recommendations for residual hearing effects (Southall, et al., 2019) (Ref 19.57); An overview of fish bioacoustics and the impacts of anthropogenic sounds on fishes (Popper, et al.,2019) (Ref 19.58); Sound exposure guidelines (Popper, et al.,2014) (Ref 19.59)).
- Visual disturbance associated with physical presence of equipment.
  - The physical presence of infrastructure and vessels may lead to temporary spatial displacement of mobile species during construction.
- Disturbance from use of artificial light consequent of equipment usage.
  - This has the potential to trigger attraction and / or disorientation to bird species, specifically when in migration, altering migration pathways which can lead to increased energetic expenditure in individuals (Tracking flights to investigate seabird mortality induced by artificial lights (Rodríguez, et al., 2022) (Ref 19.60)).
  - Fish species may also be attracted to artificial light when light spills into the estuarine / marine environment (Importance of the artificial light field around offshore petroleum platforms for the associated fish community (Keenan, et al., 2007) (Ref 19.61)), repeat exposure may alter recruitment and survivability of species (The influence of light on elasmobranch behaviour and physiology: a review (Carroll, et al., 2023) (Ref 19.62)).

- Changes in air quality (i.e., from emissions and dust) associated with equipment usage.
  - Emissions and dust can trigger reduced fitness in air breathing species, i.e., mammals and bird species, which may lead to displacement.
- Changes in water and sediment quality (i.e., sediment run-off, silt dispersal, chemical / fuel spills, etc.) associated with pipeline installation; and
  - Where contamination occurs (i.e., from chemical / fuel spills), there is potential for bioaccumulation to occur to higher trophic level species, but also reduced fitness, direct injury and / or morality.
  - Silt and sediment dispersion associated with construction may trigger increased turbidity of the water column; this may lead to potential smothering of benthic species and habitats, clogging of the gills and asphyxiation in fish, reduced visual acuity and changes in prey availability.
- Spread of NNIS.
  - This has potential to lead to the out-competition of native species in the coastal environment.

**Operation**

19.10.12 Operational impacts are anticipated to be restricted to AGI locations and are therefore considered within Chapter 7 – Ecology and biodiversity. Therefore, there are no perceived impacts to intertidal ecology and biodiversity receptors, as such they have been scoped out from further assessment.

**Decommissioning**

19.10.13 It is expected that upon decommissioning the pipeline will remain in-situ. As such decommissioning activities and associated impacts will likely be restricted to AGI locations and therefore encompassed in Chapter 7 – Ecology and biodiversity. Therefore, there are no perceived impacts to intertidal ecology and biodiversity receptors, as such they have been scoped out from further assessment.

## 19.11 Summary of the Proposed Scope of Assessment

19.11.1 A summary of matters scoped in or out of further assessment are outlined in - Table 19.9.

*Table 19-9 – Matters Scoped In and Out of Further Assessment*

| Matter | Project Stage | Scoped In | Scoped Out | Justification | To be agreed as part of EIA Scoping |
|---|---|---|---|---|---|
| **Coastal Processes and Geology** | | | | | |
| Water quality and coastal processes in the intertidal zone | Construction | ✓ | | Temporary works within the intertidal zone having potential to impact water quality and coastal processes. If a trenchless crossing solution was selected these effects could be scoped out as there would be very limited physical disturbance and no likely significant pollution pathways. | To be agreed as part of EIA Scoping |
| | Operation and Decommissioning | | ✓ | Once construction works and reinstatement is complete all infrastructure in the intertidal zone would be buried to a suitable depth of cover and no operational discharges are proposed. Due to the eroding coastline and dynamic coastal processes in the intertidal zone, monitoring measures would be in place to ensure that the pipeline does not become exposed. Further details of relevant design and monitoring measures will be included in the PEIR and ES.<br>Pipeline infrastructure will remain in-situ following Project decommissioning. | To be agreed as part of EIA Scoping with East Riding of Yorkshire Council and the Environment Agency (subject to agreeing a suitable |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | To be agreed as part of EIA Scoping |
|---|---|---|---|---|---|
| | | | | | pipeline depth of cover) |
| Water interests (existing surface water abstractions and discharges) | Construction | ✓ | | Water required for pre-commissioning and commissioning of the pipeline and for consumptive use during the construction phase e.g., to supply construction welfare facilities and to supply water for trenchless crossing methodologies. | To be agreed as part of EIA Scoping |
| | Operation and Decommissioning | | ✓ | No new consumptive use of surface water resources is proposed, and safeguards will be put in place to protect surface water quality so there would be no impacts on the integrity of existing water interests. | |
| Watercourses and waterbodies – hydromorphology | Construction | ✓ | | Where open cut crossing methods are proposed, an impact pathway may be created, with potential for temporary effects. | To be agreed as part of EIA Scoping |
| | Operation and Decommissioning | | ✓ | Once the pipeline working width is reinstated, there would be no impact pathway. The banks and riparian corridors of waterbodies would not be disturbed and there would be a suitable separation distance between channel beds and the crest of the buried pipeline. | |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | To be agreed as part of EIA Scoping |
|---|---|---|---|---|---|
| Surface water quality | Construction | ✓ | | Potential for temporary effects at construction works sites, for example, due to the generation of silted runoff. | To be agreed as part of EIA Scoping |
| | Operation and Decommissioning | | ✓ | No operational discharges of effluents would be generated that would be discharged to surface waters. | |
| Flood risk from rivers and the sea | Construction | ✓ | | There are working areas in Flood Zone 3. | To be agreed as part of EIA Scoping |
| | Operation | | ✓ | No operational impacts perceived for the coastal environment, as no AGI's located in the intertidal Study Area. | |
| | Decommissioning | | ✓ | No decommissioning impacts perceived for the coastal environment. | |
| Flood risk from surface water and effects on the land drainage regime (quantity and quality of flows) | Construction and Operation | ✓ | | Temporary and permanent changes to impermeable land cover and potential for temporary disruption to existing land drainage routes and changes to water quality during construction. Installation of a suitable pre and post construction drainage scheme. | To be agreed as part of EIA Scoping |
| | Decommissioning | | ✓ | Pipeline will remain in-situ. | |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | To be agreed as part of EIA Scoping |
|---|---|---|---|---|---|
| Flood risk from other sources (groundwater, artificial sources) | Construction, Operation and Decommissioning | | ✓ | There would be limited barriers to existing groundwater flow paths due to the generally shallow excavations to create the pipeline trenches and the Project is of low vulnerability to flooding from these 'other' sources. These conclusions will be confirmed by the Project's FRA. | To be agreed as part of EIA Scoping |
| **Intertidal Ecology and Biodiversity** | | | | | |
| Statutory designated sites scoped into all phases:<br>Greater Wash SPA<br>Holderness Inshore MCZ | Construction, operation and decommissioning | ✓ | | The Greater Wash SPA and Holderness Inshore MCZ overlap the landfall site and have been scoped in due to the potential for direct impacts (e.g., loss of habitat, artificial light impacts, underwater noise impacts etc.) and / or indirect impacts (e.g., changes in water and sediment quality, changes in prey availability, etc.) during construction and decommissioning. A Habitats Regulations Assessment (HRA) will be undertaken to determine any significant effects on the Greater Wash SPA and this will include an assessment of any land that is 'Functionally Linked' to the site. | To be agreed as part of EIA Scoping |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | To be agreed as part of EIA Scoping |
|---|---|---|---|---|---|
| | | | | The Project will be located in close proximity to the Greater Wash SPA. This site is scoped in due to the potential for operational lighting and noise and vibration impacts from construction activities to negatively affect bird features for which the SPA is designated. | |
| Statutory designated sites scoped into construction and decommissioning phases:<br>Humber Estuary Ramsar Site<br>Humber Estuary SAC<br>Humber Estuary SPA | Construction and decommissioning | ✓ | | The Humber Estuary Ramsar site, SAC, SPA and SSSI have been scoped in due to the potential for direct impacts (e.g., loss of habitat, noise impacts, artificial light impacts) and / or indirect impacts (e.g., changes in water and sediment quality, smothering, bioaccumulation, changes in prey availability etc.) during construction as these sites are approximately 2km from the landfall site.<br>A HRA will be undertaken to determine any significant effects on the Humber Estuary Ramsar site, SPA and SAC and this will include an assessment of any land that is 'Functionally Linked' to them. | To be agreed as part of EIA Scoping |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | To be agreed as part of EIA Scoping |
|---|---|---|---|---|---|
| Humber Estuary SSSI | Operation | | ✓ | There are no perceivable pathways to impact any of these statutory designated sites during operation. | To be agreed as part of EIA Scoping |
| Benthic ecology | Construction and decommissioning | ✓ | | The Project extends into the intertidal zone at the landfall location. The Project will seek to avoid any habitats of high ecological value.<br>There is potential for direct impacts during construction. Impacts may include direct habitat loss and / or fragmentation; indirect impacts may also arise (i.e., smothering, contamination, bioaccumulation, etc.). | To be agreed as part of EIA Scoping |
| | Operation | | ✓ | There are no perceivable pathways to impact intertidal ecology during operation. | To be agreed as part of EIA Scoping |
| Fish species | Construction and decommissioning | ✓ | | A number of fish species may overlap with the Project ZoI where the Project crosses waterbodies, including qualifying features of designated sites (i.e., lamprey species). There is therefore a risk of both direct and indirect impacts to such species, where overlap occurs. There may be a risk of disturbance to species consequent of with increased noise and / or | To be agreed as part of EIA Scoping |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | To be agreed as part of EIA Scoping |
|---|---|---|---|---|---|
| | | | | vibration, changes in water quality (increased turbidity), smothering, artificial light and changes in prey availability. | |
| | Operation | | ✓ | There are no perceivable pathways to impact fish during operation. | To be agreed as part of EIA Scoping |
| Birds | Construction | ✓ | | Several bird species of both national and international conservation value may overlap with the ZoI of the Project. A range of habitats in the intertidal zone are suitable to support a range of species. In the absence of appropriate mitigation, habitat removal to facilitate construction could lead to a breach of legislation in relation to breeding birds (e.g., killing / injury of individuals and damage / destruction of nests / eggs). There is also potential for temporary spatial disturbance associated with construction activities (i.e., elevations in airborne noise, artificial light impacts and vessel presence). | To be agreed as part of EIA Scoping |

| Matter | Project Stage | Scoped In | Scoped Out | Justification | To be agreed as part of EIA Scoping |
|---|---|---|---|---|---|
| | Operation and decommissioning | | ✓ | There are no perceivable pathways to impact birds in the coastal environment during operation. | To be agreed as part of EIA Scoping |
| Mammals | Construction | ✓ | | Mammal species of national and international importance may overlap with the ZoI of the Project and consequently be impacted through construction activities. Principally, species may be disturbed through both underwater and airborne noise impacts, alongside changes in prey availability, changes in air quality and changes in water quality. Additionally, in the absence of appropriate mitigation, habitat removal / disturbance to facilitate construction could lead to a breach of legislation in relation to seal species (i.e., intentionally or recklessly kill, injure individuals). | To be agreed as part of EIA Scoping |
| | Operation and decommissioning | | ✓ | There are no perceivable pathways to impact mammals during operation. | To be agreed as part of EIA Scoping |

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# 20 Cumulative Effects

## 20.1 Introduction

20.1.1 This chapter of the Scoping Report describes the methodology to be used to inform the assessment of cumulative effects that may arise as result of the Project, in accordance with Schedule 4, paragraph 5(e) of EIA Regulations.

20.1.2 The purpose of the cumulative effects assessment is to assess whether the combination of multiple effects upon a common receptor would result in an effect of greater significance than the individual effects alone, that may arise from the construction / commissioning, operation, maintenance and decommissioning of the Project.

20.1.3 The methodology sets out the relevant legislation and policy, the data to be used to inform the assessment, the matters / topics to be scoped in and out of the assessment, and how those effects will be assessed for the purpose of the EIA.

20.1.4 This methodology considers the assessment of two types of cumulative effects:

- Intra-project effects (the interaction and combination of different residual (post-mitigation) environmental effects of the Project affecting the same Receptor).
- Inter-project effects (the residual (post-mitigation) environmental effects of the Project combining and interacting with the residual environmental effects of other 'Committed Developments'. This will include, where relevant, considering the potential for cumulative effects to occur as a result of the Project interacting with other parts of the wider East Coast Cluster (ECC) (see Chapter 2: Project Background and Context of EIA Scoping report for further details of the ECC).

20.1.5 The cumulative effects assessment will be based on the information and reported residual effects from the technical chapters of the ES (the methodology for which is set out Chapter 5 to 19 of this Scoping Report) and the Committed Development Data to be collected as part the assessment.

20.1.6 This chapter should be read in conjunction with:

- Chapter 2: Background and Context – for more information on the Project and the wider ECC.
- Chapter 3: Description of the Project – for more detailed information on the Project.
- Chapter 4: EIA Methodology – for details of overarching methodology adopted for this Project notably on how residual effects are to be reported.
- Chapters 5 to 18: in relation to the potential residual effects to be considered as part of the Intra-project and Inter-project assessments.

## 20.2 Legislation, Policy and Guidance

### Legislation

**EU EIA Directive 2014/52/EU (Ref 20.1)**

20.2.1 Cumulative effects assessment (CEA) is laid out in the Environmental Impact Assessment (EIA) Directive (EIA Directive 2014/52/EU) which refers to assessment of effects on private and public projects on the environment.

20.2.2 Under Section 5 (2) of the EIA Directive 2015/52/EU) the EIA must do the following:

> *"The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the Project on the following factors –*
>
> *(a) Population and human health;*
> *(b) Biodiversity, with particular attention to species and habitats under Directive 92/43/EEC and Directive 2009/147/EC;*
> *(c) Land, soil, water, air and climate;*
> *(d) Material assets, cultural heritage and the landscape;*
> *(e) The interaction between factors referred to in sub-paragraphs (a) to (d)."*

**Infrastructure Planning (EIA) Regulations 2017 (Ref 20.2)**

20.2.3 Schedule 4 paragraph 5(e) of the infrastructure EIA Regulations 2017 requires that an ES should include a description of cumulative effects resulting from:

> "*The cumulation of effects with other existing and, or approved projects, taking into account any existing environmental problems relating to areas of particular environmental important likely to be affected or the use of natural resources*".

20.2.4 Schedule 4 paragraph 5 also states that under regulations 5(2) of the EIA Regulations 2017, a description of the likely significant effects should cover any cumulative effects of the development.

### Policy

20.2.5 The need to consider cumulative effects in planning and decision making is set out in the relevant National Policy Statements (NPS). The Overarching NPS for Energy (EN-1) (Ref 20.3) paragraph 4.1.5 states that the Secretary of State needs to take into account:

> *"Its potential adverse impacts, including on environment, and including and long-term and cumulative adverse impacts, as well as any measures to avoid, reduce, mitigate or compensate for any adverse impacts, following mitigation hierarchy."*

20.2.6 The NPS for Energy (EN-1) also states in paragraph 4.2.12 that:

> *"Applicants should set out how residual impacts will be compensated for as far as possible. Applicants should also set out how any mitigation or compensation measures will be monitored, and reporting agreed to ensure success, and that action is taken, changes to measures may be need e.g., adaptive management. The cumulative impacts of multiple developments with residual impacts should also be considered."*

## 20.3 Proposed Assessment Methodology

20.3.1 The cumulative effects assessment will follow the methodology presented in several guidance documents available, including PINS Advice Notes (Ref. 20.4), which will inform the approach taken to cumulative effects.

20.3.2 The assessment will consider the following types of cumulative effects:

- Intra-project effects – the interaction and combination of different residual (post-mitigation) environmental effects of the Project affecting the same Receptor. For example, visual and noise effects during construction effecting the same residential dwelling.
- Inter-project effects – the residual (post-mitigation) environmental effects of the Project combining and interacting with the residual environmental effects of other 'Committed developments', including consideration of other parts of the Project, affecting the same Receptor.

20.3.3 The assessment will be qualitative and based on environmental information available at the time of assessment. However, partial quantitative assessments may be undertaken where reliable and accurate environmental data is available.

20.3.4 Where information is not available, assumptions will be made based on professional judgement and clearly stated alongside any uncertainty as part of the assessment.

### Intra-Project Effects

20.3.5 Regulation 5 (2) (e) of EIA Regulations 2017 requires that the EIA process should describe and assess in an appropriate manner the interaction between the factors referred to in sub-paragraphs (a) to (d), which are:

- *(a) population and human health;*
- *(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*
- *(c) land, soil, water, air and climate;*
- *(d) material assets, cultural heritage and the landscape*

20.3.6 As part of the Intra-project effects assessment, common sensitive receptor groups will be identified and used to report residual effects. This approach will be undertaken as all environmental topics in the ES will not report effects on the same specific named receptors, with different locations being reported on, with some reporting using representative receptors. This approach will allow for differences in approaches to the reporting of effects on different / multiple receptors groups.

20.3.7 The common sensitive receptor groups to be used as part of the assessment will be developed following further baseline survey work which will identify likely receptors.

20.3.8 The assessment will initially review the ES chapters to identify the receptors which are predicted to be subject to residual effects from more than one environmental topic. A qualitative assessment will then be undertaken upon these receptors, using professional judgement and the information provided within the technical chapters, to determine the overall Intra-project effect significance.

20.3.9 The approach to the assessment of Intra-project effects for the Project only will consider the changes in baseline conditions at common sensitive receptors. It will be based on the information and Study Areas within the technical chapters. It will consider residual effects only.

20.3.10 The Intra-project effects assessment will cover the most likely significant cumulative effects, rather than reporting every potential interaction.

## Inter-Project Effects

20.3.11 The assessment methodology for Inter-project effects will involve the following 4 steps aligned to the advice provided in the PINS advice note - *Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment* (Ref. 20.4).

## Step 1 – Establishing the Long List of Committed Developments

20.3.12 An initial ‘long list’ of other ‘Committed Developments’ will be identified through a search of the relevant local planning authorities’ planning registers, the Planning Inspectorate’s (PINS) planning register, local plans and other publicly available sources.

20.3.13 The scale and nature of the Committed Developments that are proposed to be considered as part this initial long list will include all ‘Major Developments’ as defined in Article 2 (Interpretation) of The Town and Country Planning (Development Management Procedure) (England) Order 2015 (Ref. 20.5) which states:

*"major development" means development involving any one or more of the following—*

*(a) the winning and working of minerals or the use of land for mineral-working deposits;*
*(b) waste development;*
*(c) the provision of dwellinghouses where—*
*(i) the number of dwellinghouses to be provided is 10 or more; or*
*(ii) the development is to be carried out on a site having an area of 0.5 hectares or more and it is not known whether the development falls within sub-paragraph (c)(i);*
*(d) the provision of a building or buildings where the floor space to be created by the development is 1,000 square metres or more; or*
*(e) development carried out on a site having an area of 1 hectare or more.*

20.3.14 Committed Developments that fall below the above threshold for a Major Development have been excluded from the assessment, as these relate to developments of small scale and local importance. These developments are not considered likely to give rise to significant cumulative environmental effects.

20.3.15 Committed Developments that are consented via Permitted Development rights via The Town and Country Planning (General Permitted Development) (England) Order (GPDO) 2015 will generally not be considered, as such developments would generally not be considered to have the potential to result in significant environmental effects, with paragraph 10 of Article 3 of the GDPO 2015 effectively negating the use of these rights for EIA Development (which by definition have significant environmental effects) for most types of development. Additionally, such development would generally not require an 'express' consent and so no publicly available information would be available.

20.3.16 The scale and nature of other Committed Developments that are proposed to be considered will also include other large-scale developments consented outside of the Town and Country Planning regime such as through the Planning Act 2008 (Development Consent Orders / NSIP), Transport and Works Act 1992 (Transport and Works Act Orders (TWAO)) or similar large scale infrastructure consenting regimes relating to offshore infrastructure projects.

20.3.17 As noted in Chapter 2: Project Background, the Project is an important part of the end-to-end carbon dioxide transportation and storage infrastructure network, which enables the ECC. Elements of the ECC at the time of completing the cumulative effects assessment, will be at different stages of development and will be seeking separate consents by the appropriate consenting regimes. The other components of the ECC that need to be considered as part of the cumulative effects assessment will be agreed with relevant stakeholders (e.g., PINS, Local Planning Authorities etc.) in advance of completing the assessment.

20.3.18 Other reasonably foreseeable projects will also be identified as Committed Developments such as allocated sites that fit the definition of Major Development as set out above the relevant Local Plans.

20.3.19 The availability of information needed to undertake the Inter-project effects assessment will depend on the status of the Committed Developments identified. A level of certainty, based on the available information, will then be attributed to each Committed Development and recorded. Table 2 from the PINS Advice Note (Ref 20.4) will be used to indicate the level of certainty assigned to each Committed Development, from Tier 1 (most certain) to Tier 3 (least certain) as set out below in Table 20-1.

*Table 20-1 – Committed Developments – Level of Certainty*

| Certainty | Description from Table 2 of PINS Advice Note (Ref 20.4) | Committed Developments to be Recorded and Assigned Certainty in Descending Order |
|---|---|---|
| **Tier 1** | • *Under construction.*<br>• *Permitted applications under the Planning Act or other regimes but not yet implemented.*<br>• *Submitted applications under the Planning Act or other regimes but not yet determined.*<br>• *All refusals subject to appeal procedures not yet determined.* | 1. Major Development, NSIP / TWAO or other major infrastructure projects that are under construction.<br>2. Major Development, NSIP / TWAO or other major infrastructure projects within the last five years that are not yet implemented.<br>3. Major Development, NSIP / TWAO or other major infrastructure projects that have submitted applications(s) but not yet determined.<br>4. Major Development, NSIP / TWAO or other major infrastructure projects which have been refused but are subject to appeal procedures not yet determined. |
| **Tier 2** | • *Projects on the Planning Inspectorates programme of projects.* | Projects on PINS Programme of Projects. |
| **Tier 3** | • *Projects on the Planning Inspectorates programme of projects where a scoping report has not be submitted.*<br>• *Identified in the relevant Development Plan and emerging Development Plans, with appropriate weight given as they near adoption, recognising that there will be limited information available on the relevant proposals.* | Projects identified in relevant development plans (and emerging development plans) which would have the characteristics of Major Development.<br>Other plans and programmes (as appropriate) which set out the framework for future development consents/approvals, where such development is reasonably likely to come forward and would likely be a Major Development, NSIP / TWAO or other major infrastructure project. |

| Certainty | Description from Table 2 of PINS Advice Note (Ref 20.4) | Committed Developments to be Recorded and Assigned Certainty in Descending Order |
|---|---|---|
| | • *Identified in other plans and programmes, as appropriate, which set the framework for future development consents or approvals, where such development is reasonably likely to come forward.* | Other developments which form part of the Project such as those considered as 'Associated Development' |

20.3.20 The initial long list will be sent to the relevant Local Authorities for comments, input and agreement prior to developing a short list (see section 20.5 below).

20.3.21 Following the above data collection exercise, the long list will be refined to a short-list in line with the criteria laid out in the below section.

## Step 2 – Establishing the Short List

20.3.22 After Step 1 – Establishing the Long List of Committed Developments, the long list of Committed Developments will be consolidated into a short list, that will further consider the following criteria as per the PINS Advice Note (Ref 20.4) – see Table 20-2 below:

*Table 20-2 – Additional Short List Criteria*

| Criteria | Description |
|---|---|
| Temporal scope | Is the consent for the Committed Development still extant and would the construction or operational phase potentially overlap with the Project?<br>(Phasing details of Committed Developments will be reviewed where available) |
| Scale and nature of development and potential for common receptors | The scale or nature of the Committed Developments, the potential that they share common sensitive receptors with the Project and how likely they are to result in significant cumulative effects will be considered. |
| Other factors | For example, the nature and, or capacity of the receiving environment, which could make a significant cumulative effect with the Committed Developments more or less likely.<br>Also, the availability of information that is available and sufficient to allow the identified receptors and residual effects of the Committed Development will be considered. Committed Developments that have no, or insufficient environmental assessment information, will typically not be considered as it will not be possible to accurately identify common receptors or cumulative effects. |

20.3.23 Professional judgement will be applied to support the exclusion of Committed Developments which exceed meeting the criteria to be included on the Long List but which may not give rise to discernible cumulative effects on receptors, and vice versa and so excluded from the short list. The reasons for including or excluding each Committed Development will be clearly stated.

20.3.24 The short list will also be sent to the relevant Local Authorities before the next assessment step is undertaken (see section 20.5 below).

### Step 3 – Information Gathering

20.3.25 Further detailed information will be collected for the Committed Developments shortlisted in Step 2 – Establishing the Short List. This information will feed into the Step 4 – Assessment. As per PINS Advice Note (Ref 20.4), this information will include but is not limited to.

- Proposed design and location information.
- Proposed programme of construction, operation and decommissioning.
- Environmental assessments that set out baseline data and effects arising. from the other existing and, or approved development.

20.3.26 This information will be collated from different sources including the Planning Inspectorate, Local Authority, statutory bodies or other consenting bodies websites and direct liaison with stakeholders.

### Step 4 – Assessment

20.3.27 The assessment of the Inter-project effects will be based on the residual effects identified in the Technical Chapters of the ES as well as available environmental information for the applicable Committed Developments to identify common sensitive receptors categories within the defined Study Area.

20.3.28 The qualitative evaluation at the receptor level will consider the following:

- Combined magnitude of change.
- Sensitivity / value / importance of the receptor / receiving environment to change.
- Duration and reversibility of effect.

20.3.29 Through a combination of evaluating the residual effects presented in the ES and the environmental information available for the Committed Developments, conclusions will be drawn as to the likelihood for significant Inter-project effects.

20.3.30 Each environmental topic chapter of the ES will present the Inter-project effects assessment of their topic. The ES will then summarise the assessment, including reporting where significant Inter-project effects have been identified.

20.3.31 The cut-off date for the Inter-project effects assessment will be 12 weeks prior to submission of the DCO to allow for data collection, compilation and reviews to be completed. Where Committed Developments comes forward following the cut-off date, additional information may be provided to the Examining Authority during the examination in relation to effects arising.

20.3.32 The ES will also describe measures envisaged to avoid, prevent, reduce, or, if possible, offset any identified significant Cumulative Effects and, where appropriate, any proposed monitoring arrangements. The means of securing delivery of these measures will be explained.

## 20.4 Limitations and Assumptions

20.4.1 The assessment of Intra-project effects resulting from the Project will be focused on the residual effects from the construction, operational and decommissioning phases following the implementation of mitigation measures that are secured through DCO requirements or other mechanisms.

20.4.2 The assessment of Inter-project effects will be based on the interpretation and assessment of publicly available data and limited by the level of information available.

20.4.3 There may be cases that other 'Committed Developments' are screened into the short-list which have environmental information available for some or the majority of topics, but not for others. In such instances, the Inter-project effects assessment may be limited to only those topics which have sufficient environmental information to inform an assessment. However, in such cases, efforts will be made for the topics lacking environmental information to make any assessment based upon assumptions. This will be stated in the ES.

20.4.4 Although environmental information may be available for existing and, or approved developments it may be limited in its compatibility where different assessment methodologies or criteria have been used. Where a lack of information limits and / or prevents the cumulative assessment, this will be stated in the ES.

## 20.5 Stakeholder Engagement

20.5.1 The long list and short list will be sent to the relevant Local Authorities before the next assessment step is undertaken.

20.5.2 The draft Order Limits crosses the following four Local Authority areas (from west to east):

- North Yorkshire.
- East Riding of Yorkshire.
- North Lincolnshire.

- North East Lincolnshire.

20.5.3 Noting the search areas as set out below may extend beyond the administrative areas of the above four Local Authority areas, data will also be collected from the following Local Authority areas (from west to east):

- West Lindsey.
- Hull City Council.

20.5.4 The draft Order Limits also crosses the following Local Authority areas (from west to east) that deal with minerals and waste applications:

- North Yorkshire.
- Lincolnshire County Council.

20.5.5 A provisional long list (Step 1 – Establishing the Long List of Committed Developments), based on data collected up to 1 November 2024 has been included as Volume 3: Appendix E of this report based on the above criteria and the format set out in *Annex 1: Matrix 1 - Identification of 'other development' for CEA* of the PINS advice note (Ref. 20.4). This provisional long list will be subject to change as further Committed Developments are recorded in the interim period leading up to submission of the draft DCO and currently only includes existing planning applications and other large-scale Committed Developments consented outside of the Town and Country Planning regime as well as allocations from adopted local plans. Emerging local plan / neighbourhood plan allocations will be added to the final long list according to the stage of preparation of the emerging plans (e.g., the more advanced its preparation, the greater the weight that may be given) and the extent to which there are unresolved objections to relevant policies (e.g., the less significant the unresolved objections, the greater the weight that may be given).

## 20.6 Study Area

### Intra-Project Effects

20.6.1 In relation to Intra-project effects, effect Interactions may occur wherever two or more effects arising during the construction, operation or decommissioning phases of the Project have an impact on a common receptor group and/or a specific named receptor. The Study Area for Effect Interactions is therefore considered to be the maximum extent to which two (or more) effects may cause an impact on these types of receptors. In this case, the spatial extent of all effects assessed within each topic chapter in this ES defines the Study Area.

### Inter-Project Effects

20.6.2 Based on the Zones of Influence for the different environmental topics from the Environmental Statement (ES) and professional judgement, the initial long list search will be based on a search area of 2km from the draft Order Limits for all Major Developments or allocated sites from the relevant Local Plans and 10km from the draft Order Limits for other large-scale Committed Developments consented outside of the Town and Country Planning regime such as NSIP or TWAO.

## 20.7 Summary of the Proposed Scope of Assessment

20.7.1 The environmental factors scoped in or out of the cumulative effects assessment are outlined in Table 20-3 (Intra-project effects) and Table 20-4 (Inter-project effects) with justification provided.

*Table 20-3 – Factors or Matters Scoped In or Out of Further Assessment - Intra-Project Effects*

| Environmental Factors | Factors or Matters Scoped In or Out with Reference to Chapters of Scoping Report | Comment |
|---|---|---|
| Agriculture and Soils | These factors have been scoped out of the Intra project effects assessment as it is considered that the impacts as assessed in the other technical chapters would not result in further significant Intra project effects in relation to the receptors assessed and reported in Chapter 5: Agriculture and Soils. | Matters scoped in as identified in column 2 will be considered as part of the Intra-project assessment in this chapter.<br>It is considered that where potential significant effects have been scoped out of the technical assessments as identified in column 2, that potential significant cumulative effects are unlikely to occur and so are scoped out of the Intra-project assessment in this chapter. |
| Air Quality | All matters as scoped into Chapter 6: Air Quality (Table 6-9). | |
| Ecology and Biodiversity | This factor has been scoped out of the Intra project effects assessment as this chapter will already consider the potential interactions of noise, air quality and surface/groundwater on designated/non-designated sites and habitats. No further significant Intra project effects are considered likely. | |
| Climate change, adaption & resilience | All matters as scoped into Chapter 8 (Table 8-10) with the specific exception of Greenhouse Gases (GHG).<br>This specific matter (GHG) has been scoped out of the cumulative assessment (both Inter and Intra project effects) as the impacts of GHG emissions do not have a geographical limit. The Institute of Environmental Management & Assessment (IEMA) Guidance (Ref. 20.6) states that:<br>*'The atmospheric concentration of GHGs and resulting effect on climate change is affected by all sources and sinks globally, anthropogenic and otherwise. As GHG emission impacts and* | |

| Environmental Factors | Factors or Matters Scoped In or Out with Reference to Chapters of Scoping Report | Comment |
|---|---|---|
| | *resulting effects are global rather than affecting one localised area, the approach to cumulative effects assessment for GHGs differs from that for many EIA topics where only projects within a geographically bounded study area of, for example, 10km would be included… Effects of GHG emissions from specific cumulative projects therefore in general should not be individually assessed, as there is no basis for selecting any particular (or more than one) cumulative project that has GHG emissions for assessment over any other.'*<br>Not undertaking a comparison of combined GHG emissions against the national carbon budgets is therefore considered logical and reasonable and so has been scoped out of the cumulative effects assessment. | |
| Ground Conditions & Hydrogeology | All matters as scoped in as part of Chapter 9: Ground Conditions & Hydrogeology (Table 9-7). | |
| Landscape and visual | All matters as scoped in as part of Chapter 10: Landscape and visual (Tables 10-8, 10-9 & 10-10). | |
| Cultural Heritage | All matters as scoped in as part of Chapter 11: Cultural Heritage (Table 11-4). | |
| Noise and Vibration | All matters as scoped in as part of Chapter 12: Noise and Vibration (Table 12-5). | |

| Environmental Factors | Factors or Matters Scoped In or Out with Reference to Chapters of Scoping Report | Comment |
|---|---|---|
| Socio-economics | All matters as scoped in as part of Chapter 13: Socio-economics (Table 13-5). | |
| Human health and wellbeing | All matters as scoped in as part of Chapter 14: Human health and wellbeing (Table 14-6). | |
| Traffic and Transport | All matters as scoped in as part of Chapter 15: Traffic and Transport (Table 15-6). | |
| Waste and Materials | All matters as scoped in as part of Chapter 16: Waste and Materials (Table 16-5). | |
| Water Resources, Flood Risk and Land Drainage | All matters as scoped in as part of Chapter 17: Water Resources, Flood Risk and Land Drainage (Table 17-2). | |
| Major Accidents and Disasters | These factors have been scoped out of the Intra project effects assessment as it is considered that the impacts as assessed in the other technical chapters would not result in further significant Intra project effects in relation to the receptors assessed and reported in Chapter 18: Major Accidents and Disasters. | |
| Coastal and Intertidal Impacts | All matters as scoped in as part of Chapter 19: Coastal and Intertidal Impacts (Table 19-5). | |

*Table 20-4 – Factors or Matters Scoped In or Out of Further Assessment - Inter-Project Effects*

| Environmental Factors | Matters | Matters Scoped In or Out and Justification |
|---|---|---|
| Agriculture and Soils | All | The matters scoped in as identified in Chapter 5: Agriculture and Soils (Table 5-11) have the potential to result in significant Inter-project effects when considered with the Project and so are scoped into the Inter-project assessment. It is considered that where potential significant effects have been scoped out in Chapter 5 (Table 5-11) that potential significant Inter-project effects are unlikely to occur and so are scoped out of the Inter-project assessment. |
| Air Quality | All | This environmental factor has been scoped out of the Inter-project assessment for impacts associated with construction and operational traffic. Transport and associated assessments of vehicle emissions (which Chapter 6: Air Quality of the ES will be based on), are inherently considered to be cumulative as they incorporate modelled traffic data growth for future traffic flows and are based on a worst-case scenario. |
| Ecology and Biodiversity | | Cumulative effects on designated HRA sites can be excluded as will be covered as part of the accompanying Habitat Regulation Assessment. |
| Climate change, adaption & resilience | All with exception of GHG – see below | The matters scoped in as identified in Chapter 8 (Table 8-10) with the specific exception of GHG have the potential to result in significant Inter-project effects when considered with the Project and so are scoped into the Inter-project assessment. It is considered that where potential significant effects have been scoped out in Chapter 8 (Table 8-10), that potential significant Inter-project effects are unlikely to occur and so are scoped out of the Inter-project assessment |
| | GHG | This specific matter (GHG) has been scoped out of the cumulative assessment (both Inter and Intra project effects) as the impacts of GHG emissions do not have a geographical |

| Environmental Factors | Matters | Matters Scoped In or Out and Justification |
|---|---|---|
| | | limit. The Institute of Environmental Management & Assessment (IEMA) Guidance (Ref. 20.6) states that:<br>*'The atmospheric concentration of GHGs and resulting effect on climate change is affected by all sources and sinks globally, anthropogenic and otherwise. As GHG emission impacts and resulting effects are global rather than affecting one localised area, the approach to cumulative effects assessment for GHGs differs from that for many EIA topics where only projects within a geographically bounded study area of, for example, 10km would be included… Effects of GHG emissions from specific cumulative projects therefore in general should not be individually assessed, as there is no basis for selecting any particular (or more than one) cumulative project that has GHG emissions for assessment over any other.'*<br>Not undertaking a comparison of combined GHG emissions against the national carbon budgets is therefore considered logical and reasonable and so has been scoped out of the cumulative effects assessment. |
| Ground Conditions & Hydrogeology | All | The matters scoped in as identified in Chapter 9: Ground Conditions & Hydrogeology (Table 9-7) have the potential to result in significant Inter-project effects when considered with the Project and so are scoped into the Inter-project assessment. It is considered that where potential significant effects have been scoped out in Chapter 9 (Table 9-7) that potential significant Inter-project effects are unlikely to occur and so are scoped out of the Inter-project assessment. |
| Landscape and visual | All | The matters scoped in as identified in Chapter 10: Landscape and Visual (Tables 10-8, 10-9 & 10-10) have the potential to result in significant Inter-project effects when considered with the Project and so are scoped into the Inter-project assessment. It is considered that where potential significant effects have been scoped out in Chapter 8 (Table 8-10), that |

| Environmental Factors | Matters | Matters Scoped In or Out and Justification |
|---|---|---|
| | | potential significant Inter-project effects are unlikely to occur and so are scoped out of the Inter-project assessment. |
| Cultural Heritage | All | The matters scoped in as identified in Chapter 11: Cultural Heritage (Table 11-4) have the potential to result in significant Inter-project effects when considered with the Project and so are scoped into the Inter-project assessment. It is considered that where potential significant effects have been scoped out in Chapter 11 (Table 11-4) that potential significant Inter-project effects are unlikely to occur and so are scoped out of the Inter-project assessment. |
| Noise and Vibration | All | This environmental factor has been scoped out of the Inter-project assessment for impacts associated with construction and operational traffic. Transport and associated assessments of vehicle emissions (which Chapter 12: Noise and Vibration of the ES will be based on), are inherently considered to be cumulative as they incorporate modelled traffic data growth for future traffic flows and are based on a worst-case scenario. |
| Socio-economics | All | The matters scoped in as identified in Chapter 13: Socio-economics (Table 13-5) have the potential to result in significant Inter-project effects when considered with the Project and so are scoped into the Inter-project assessment. It is considered that where potential significant effects have been scoped out in Chapter 13 (Table 13-5) that potential significant Inter-project effects are unlikely to occur and so are scoped out of the Inter-project assessment. |
| Human health and wellbeing | All | The matters scoped in as identified in Chapter 14: Human Health and Wellbeing (Table 14-6) have the potential to result in significant Inter-project effects when considered with the Project and so are scoped into the Inter-project assessment. It is considered that where potential significant effects have been scoped out in Chapter 14 (Table 14-6) that potential |

| Environmental Factors | Matters | Matters Scoped In or Out and Justification |
|---|---|---|
| | | significant Inter-project effects are unlikely to occur and so are scoped out of the Inter-project assessment. |
| Traffic and Transport | All | This environmental factor has been scoped out of the Inter-project assessment for impacts associated with construction and operational traffic. Transport and associated assessments of vehicle emissions are inherently considered to be cumulative as they incorporate modelled traffic data growth for future traffic flows and are based on a worst-case scenario. |
| Waste and Materials | All | The matters scoped in as identified in Chapter 16: Waste and Materials (Table 16-5) have the potential to result in significant Inter-project effects when considered with the Project and so are scoped into the Inter-project assessment. It is considered that where potential significant effects have been scoped out in Chapter 16 (Table 16-5)) that potential significant Inter-project effects are unlikely to occur and so are scoped out of the Inter-project assessment. |
| Water resources, Flood Risk and Land Drainage | All | The matters scoped in as identified in Chapter 17: Water Resources, Flood Risk and Land Drainage (Table 17-2) have the potential to result in significant Inter-project effects when considered with the Project and so are scoped into the Inter-project assessment. It is considered that where potential significant effects have been scoped out in Chapter 17 (Table 17-2) that potential significant Inter-project effects are unlikely to occur and so are scoped out of the Inter-project assessment. |
| Major Accidents and Disasters | All | The matters scoped in as identified in Chapter 18: Major Accidents and Disasters (as shown in Volume 3: Appendix D) have the potential to result in significant Inter-project effects when considered with the Project and so are scoped into the Inter-project assessment. It is considered that where potential significant effects have been scoped out |

| Environmental Factors | Matters | Matters Scoped In or Out and Justification |
|---|---|---|
| | | in Chapter 18 that potential significant Inter-project effects are unlikely to occur and so are scoped out of the Inter-project assessment. |
| Coastal and Intertidal Impacts | All | The matters scoped in as identified in Chapter 19 (Table 19-5) have the potential to result in significant Inter-project effects when considered with the Project and so are scoped into the Inter-project assessment. It is considered that where potential significant effects have been scoped out in Chapter 19 (Table 19-5) that potential significant Inter-project effects are unlikely to occur and so are scoped out of the Inter-project assessment. |

## 20.8 References


- Ref 20.1 – European Commission Environmental Impact Assessment (EIA) Directive (2011/92/EU as amended by 2014/52/EU)
- Ref. 20-2 – The Infrastructure Planning (Environmental Impact Assessment Regulations 2017. Available at: The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
- Ref 20-3 – Department for Energy Security and Net Zero (2023) National Policy Statements (NPS). The Overarching NPS for Energy (EN-1)
- Ref. 20-4 – The Planning Inspectorate (2024) Advice on Cumulative Effects Assessment. Available at: Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment - GOV.UK
- Ref. 20-5 – Article 2 (Interpretation) of The Town and Country Planning (Development Management Procedure) (England) Order 2015. Available at The Town and Country Planning (Development Management Procedure) (England) Order 2015
- Ref. 20-6 – Institute of Environmental Management & Assessment (IEMA) Guide: Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available at 2022_iema_greenhouse_gas_guidance_eia.pdf

# 21 Summary

## 21.1 Scope of Assessment

21.1.1 It is proposed that the following environmental factors, as listed under Regulation 5 (2) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, are included in the scope of the EIA:

- Agriculture and Soils.
- Air Quality.
- Ecology and Biodiversity.
- Climate Change, Adaptation and Resilience.
- Ground Conditions and Hydrogeology.
- Landscape and Visual.
- Cultural Heritage.
- Noise and Vibration.
- Socio-Economics.
- Human Health and Wellbeing.
- Traffic and Transport.
- Waste and Materials.
- Water Resources, Flood Risk and Land Drainage.
- Major Accidents and Disasters.
- Coastal and Intertidal Impacts.
- Cumulative Effects.

21.1.2 Specific elements of each environmental topic that are scoped in and scoped out are presented in Table 21-1.

21.1.3 Further information regarding the proposed scope of each assessment, including the justification for Scoped In / Scoped Out matters, is included in the respective topic chapter.

*Table 21-1 – Matters Scoped In To and Out Of the EIA*

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| Agriculture and Soils | Agricultural land | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |
| | Soils | Construction | ✓ | |
| | | Operation | | ✓ (disturbance) |
| | | | ✓ (temperature) | |
| | | Decommissioning | ✓ | |
| | Agricultural land holdings | Construction and decommissioning | ✓ | |
| | | Operation | | ✓ |
| Air Quality | Fugitive dust emissions | Construction and decommissioning | ✓ | |
| | Emissions from Non-Road Mobile Machinery (NRMM) | Construction and decommissioning | ✓ | |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | Vehicle emissions | Construction and decommissioning | ✓ | |
| | Vehicle emissions | Operation | | ✓ |
| | Back-up generator emissions | Operation | ✓ | |
| | Venting | Operation | | ✓ |
| Ecology and Biodiversity | Holderness Coast IEF | Construction, Operation and Decommissioning | ✓ | |
| | Humber Estuary and River Derwent IEFs | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |
| | Other Statutory Designated Sites scoped into construction:<br>SSSIs: Eastoft Meadow; Eskamhorn Meadows; and South Ferriby Chalk Pit. Thorne and Hatfield Moors SPA<br>LNRs: Phoenix Parkway | Construction | ✓ | |
| | | Decommissioning and Operation | | ✓ |
| | Remaining Statutory Designated Sites (see full list in Volume 3: Appendix A) | Construction, Operation and Decommissioning | | ✓ |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | Other Non-Statutory Designated Sites scoped into construction (see full list in Volume 3: Appendix B) | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |
| | Remaining Non-Statutory Designated Sites (see full list in Volume 3: Appendix B) | Construction, Operation and Decommissioning | | ✓ |
| | Arboricultural features (TPOs and veteran trees) (see Volume 3: Appendix C) | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| | Ancient woodland | Construction, Operation and Decommissioning | | ✓ |
| | Priority Habitats | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |
| | Invertebrates (excluding White-clawed crayfish) | Construction, Operation and Decommissioning | ✓ | |
| | White-clawed crayfish | Construction, Operation and Decommissioning | | ✓ |
| | Freshwater fish | Construction | ✓ | |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | | Operation and Decommissioning | | ✓ |
| | Reptiles | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| | Breeding birds | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| | Wintering/ passage birds | Construction, Operation and Decommissioning | ✓ | |
| | Badger | Construction, Operation and Decommissioning | ✓ | |
| | Bats | Construction, Operation and Decommissioning | ✓ | |
| | Otter | Construction, Operation and Decommissioning | ✓ | |
| | Water vole | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | Amphibians (excluding GCN) | Construction, Operation and Decommissioning | ✓ | |
| | GCN | Construction, Operation and Decommissioning | | ✓ |
| | Dormouse | Construction, Operation and Decommissioning | | ✓ |
| | Other notable mammals (brown hare, hedgehog, and harvest mouse) | Construction, Operation and Decommissioning | | ✓ |
| | NNIS | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| Climate change, adaptation and resilience | Climate change, adaptation and resilience – greenhouse gas emission | Construction, Operation and Decommissioning | ✓ | |
| | Climate Change Resilience | Construction, Operation and Decommissioning | ✓ | |
| | In-Combination Climate Change Impact Assessment | Construction | | ✓ |
| | | Operation and decommissioning | ✓ | |
| Ground Conditions | Geology | Construction, Operation and Decommissioning | ✓ | |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| and Hydrogeology | Hydrogeology | Construction, Operation and Decommissioning | ✓ | |
| Landscape and Visual | Effects upon the special qualities of the Lincolnshire Wolds NL, and the special qualities of potential Yorkshire Wolds NL. | Construction, Operation and Decommissioning | | ✓ |
| | Effects on the potential Lincolnshire Wolds NL extension within North Lincolnshire. | Construction, Operation and Decommissioning | | ✓ |
| | Effects on the River Derwent Corridor ILA, Lower Derwent Valley ILA & Goole Moors ILA within the Study Area surrounding the pipeline alone. | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |
| | Effects on the River Derwent Corridor ILA, Lower Derwent Valley ILA & Goole Moors ILA within the Study Area surrounding the AGIs. | Construction, Operation and Decommissioning | ✓ | |
| | Effects on the special qualities / key attributes of the 'Great Limber and the Chalk Wolds Estates' AGLV. | Construction, Operation and Decommissioning | | ✓ |
| | Effects upon the special character of the Spurn Heritage Coast. | Construction, Operation and Decommissioning | | ✓ |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | Effects on the valued landscape and seascape characteristics within the Study Area surrounding the AGIs and Pump Facility. | Construction & Decommissioning and Operation | ✓ | |
| | Effects on the valued landscape and seascape characteristics within the Study Area surrounding the pipeline and Humber crossing construction areas alone. | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |
| | Effects on individual elements that contribute to the character of the landscape and seascape within the Study Area surrounding the pipeline, Humber crossing, AGIs and Pump Facility. | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |
| | Effects on the visual receptors wholly outside of the ZTV. | Construction, Operation and Decommissioning | | ✓ |
| | Effects on visual receptors beyond: a 1km offset from the pipeline, a 1.5km radius around AGIs, 2km around the Humber crossing areas and 2.5km around the Pump Facility. | Construction, Operation and Decommissioning | | ✓ |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | Effects on the residential communities and recreational receptors (listed in section 10.10) within the LVIA Study Areas arising from the AGIs and Pump Facility. | Construction, Operation and Decommissioning | ✓ | |
| | Effects on residential communities and recreational receptors (listed in section 10.10) within the Study Areas arising from the pipeline and Humber crossing. | Construction | ✓ | |
| | | Operation | | ✓ |
| | Effects on users of the Yorkshire Wolds National Trail. | Construction, Operation and Decommissioning | | ✓ |
| | Effects on users of the Trans Pennine Trail long distance path. | Construction, Operation and Decommissioning | | ✓ |
| | Effects on users of the Viking Way long distance path. | Construction and decommissioning | ✓ | |
| | | Operation | | ✓ |
| | Effects on users of National Cycle Routes 1, 65 and 169. | Construction Operation, and Decommissioning | ✓ | |
| | Effects on visitors to the Registered Park and Garden of Brocklesby Park. | Construction Operation, and Decommissioning | | ✓ |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | People travelling by train along the railway lines heading south from Goole. | Construction Operation, and Decommissioning | | ✓ |
| | People at their place of work | Construction Operation, and Decommissioning | | ✓ |
| | The effects of lighting at the pipeline, AGIs and Pump Facility upon landscape, seascape and visual receptors. | Construction and decommissioning | | ✓ |
| | The effects of lighting at the Humber crossing upon landscape, seascape and visual receptors. | Construction | ✓ | |
| | | Operation & Decommissioning | | ✓ |
| | The impact of lighting at the pipelines and AGIs. | Operation | | ✓ |
| | Effects of operational lighting at the proposed Pump Facility. | Operation | ✓ | |
| Cultural Heritage | Physical impacts to terrestrial archaeology and paleoenvironmental deposits | Construction and Operation | ✓ | |
| | Historic landscape character | Construction and Operation | ✓ | |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | Intertidal and marine archaeology at the Humber Estuary | Construction and Operation | | ✓ |
| | Marine archaeology at Easington | Construction and Operation | | ✓ |
| | Physical impacts to built heritage | Construction and Operation | | ✓ |
| | All assets – impacts through changes in the setting of assets, where that setting contributes to their value | Construction and Operation | ✓ | |
| | All assets | Decommissioning | | ✓ |
| Noise and Vibration | Human receptors | Construction | ✓ | |
| | | Construction phase – Traffic flows | ✓ | |
| | | Operational phase - Pump Facility | ✓ | |
| | | Operational phase – Traffic flows (Pump Facility) | ✓ | |
| | | Decommissioning phase - AGIs and Pump Facility | ✓ | |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | | Operational phase – Traffic flows (excluding Pump Facility) | | ✓ |
| | | Operational phase – buried pipeline | | |
| | | Operational phase – AGIs | | ✓ |
| | | Operational phase – Vibration | | ✓ |
| | | Decommissioning phase – Pipelines | | ✓ |
| Socio-economics | Private Property | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |
| | Community Assets | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |
| | Recreation Assets | Construction, Operation and Decommissioning | ✓ | |
| | Tourism | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | Local economy and employment | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |
| | Local economic expenditure and supply chain effects | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |
| Human Health and Wellbeing | Effects on physical and mental health and wellbeing | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |
| Traffic and Transport | Assessment of Traffic and Transport impacts | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| Waste and Materials | Materials (use of excavated arisings only) | Construction | ✓ | |
| | Materials (minerals assessment only) | Construction | ✓ | |
| | Materials (other materials) | Construction, Operation and Decommissioning | | ✓ |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | Waste | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| Water Resources, Flood Risk and Land Drainage | Water interests (existing surface water abstractions and discharges) | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| | Watercourses and waterbodies hydromorphology | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| | Surface water quality | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| | Flood risk from rivers and the sea | Construction, Operation and Decommissioning | ✓ | |
| | Flood risk from surface water and effects on the land drainage regime (quantity and quality of flows) | Construction and Operation | ✓ | |
| | | Decommissioning | | ✓ |
| | Flood risk from groundwater | Construction, Operation and Decommissioning | ✓ | |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | Flood risk from artificial sources | Construction, Operation and Decommissioning | | ✓ |
| | Existing or proposed flood risk management infrastructure | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| Major Accidents and Disasters | See Appendix D – due to the extent of this information | | | |
| Coastal and Intertidal Impacts | Water quality and coastal processes in the intertidal zone | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| | Water interests (existing surface water abstractions and discharges) | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| | Watercourses and waterbodies – hydromorphology | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| | Surface water quality | Construction | ✓ | |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | | Operation and Decommissioning | | ✓ |
| | Flood risk from rivers and the sea | Construction | ✓ | |
| | | Operation | | ✓ |
| | | Decommissioning | | ✓ |
| | Flood risk from surface water and effects on the land drainage regime (quantity and quality of flows) | Construction and Operation | ✓ | |
| | | Decommissioning | | ✓ |
| | Flood risk from other sources (groundwater, artificial sources) | Construction, Operation and Decommissioning | | ✓ |
| | Statutory designated sites scoped into all phases:<br>Greater Wash SPA<br>Holderness Inshore MCZ | Construction, Operation and Decommissioning | ✓ | |
| | | Construction and Decommissioning | ✓ | |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | Statutory designated sites scoped into construction and decommissioning phases:<br>Humber Estuary Ramsar Site<br>Humber Estuary SAC<br>Humber Estuary SPA<br>Humber Estuary SSSI | Operation | | ✓ |
| | Benthic ecology | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |
| | Fish species | Construction and Decommissioning | ✓ | |
| | | Operation | | ✓ |
| | Birds | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| | Mammals | Construction | ✓ | |
| | | Operation and Decommissioning | | ✓ |
| Cumulative Impacts | Intra-project effects | Construction, Operation and Decommissioning | ✓ | |

| Topic | Matter | Project Stage | Scoped In | Scoped Out |
|---|---|---|---|---|
| | Inter-project effects | Construction, Operation and Decommissioning | ✓ | |

21.1.4 Once the Scoping Opinion has been received from the Planning Inspectorate and considered, preparations will be made for the formal pre-application consultation under Sections 42 and 48 of the Planning Act 2008. A Preliminary Environmental Information Report (PEIR) will be produced and consulted on in Q2/3 2025. The PEIR will provide an initial statement of the environmental information available for the Project, including descriptions of the likely environmental effects and mitigation measures that are expected to be adopted. The PEIR is intended to allow those taking part in the consultation to understand the nature, scale, location and likely significant environmental effects of the Project, such that they can make an informed contribution to the process of preapplication consultation under the Planning Act 2008 and to the EIA process.

21.1.5 Consultation will also be undertaken with the local community in accordance with Section 47 of the Planning Act 2008. A Statement of Community Consultation (SoCC) will be developed which sets out the types and likely dates of consultation and engagement.

21.1.6 The Applicant will further refine the Project, giving regard to the consultation responses received from the Scoping Report. The final results of the EIA will be presented in an Environmental Statement (ES) and a summary of all consultation responses received and how the Applicant had regard to the feedback will be presented in a Consultation Report, both of which will accompany the Development Consent Order (DCO) application.

EAST $CO_2$AST CLUSTER

Northern Endurance Partnership

Humber Carbon Capture Pipeline