

Viking CCS pipeline

Preliminary Environmental Information Report Volume II

Main PEIR

Applicant: Chrysoar Production (U.K.) Limited,
a Harbour Energy Company

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Chapter 6

Ecology and Biodiversity



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6 Ecology and Biodiversity

6.1 Introduction

- 6.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents the preliminary assessment of the potential effects of the Viking CCS Pipeline (hereafter referred to as 'the Project') on ecology and biodiversity. This is referred to as the 'Ecological Impact Assessment (EclA)'.
- 6.1.2 This chapter is supported by **Figure 6-1** to **Figure 6-4**, which show the statutory nature conservation designations within 10 km of the Project, non-statutory designated sites within 2 km of the Project, Habitats of Principal Importance within 2 km of the Project, Phase 1 habitats and ornithology survey areas.

6.2 Legislation, Policy and Guidance

- 6.2.1 A summary of the international, national, and local legislation, planning policy and guidance relevant to the EclA is set out below.

Legislative Framework

- 6.2.2 The following legislation is potentially relevant to the EclA:
- The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations) (Ref 6-1)¹;
 - The Wildlife and Countryside Act 1981 (as amended) (WCA) (Ref 6-2);
 - Countryside and Rights of Way (CRoW) Act 2000 (Ref 6-3);
 - The Natural Environment and Rural Communities (NERC) Act 2006 (Ref 6-4);
 - The Protection of Badgers Act 1992 (Ref 6-5);
 - The Hedgerows Regulations 1997 (Ref 6-6);
 - The Wild Mammals (Protection) Act 1996 (Ref 6-7);
 - Salmon and Freshwater Fisheries Act 1975 (Ref 6-8);
 - The Eels (England and Wales) Regulations 2009 (Ref 6-9);
 - The Water Environment (Water Framework Directive) (England and Wales) regulations 2017 (2000/60/EC) (WFD) (Ref 6-10); and
 - Environment Act 2021 (Ref 6-11)

National Planning Policy Statements

- 6.2.3 The overarching National Planning Policy for Energy (EN-1) (Ref 6-12) sets out national policy for energy infrastructure and is part of a suite of National Policy Statements (NPS) issued by the Secretary of State for Energy and Climate Change. A further five technology-specific NPSs for the energy sector cover: fossil fuel electricity generation (EN-2); renewable electricity generation (both onshore and offshore) (EN-3); gas supply infrastructure and gas and oil pipelines (EN-4); the electricity transmission and distribution

¹ This transposes into UK law, post-Brexit, the provisions of the European Habitats and Wild Birds Directives and their respective Annexes of species and habitats that are qualifying features of the European network of Special Areas of Conservation (SAC) and Special Protection Areas (SPA). The EU Directives are directly incorporated into Regulation 9 of the domestic legislation.

network (EN-5); and nuclear electricity generation (EN-6). These should be read in conjunction with this NPS where they are relevant to an application.

- 6.2.4 NPS EN-4 (Ref 6-13) is relevant for this Project, as although this NPS only covers those nationally significant infrastructure pipelines which transport natural gas or oil, the information is useful in identifying impacts to be considered in applications for pipelines intended to transport other substances.
- 6.2.5 The National Planning Policy Framework (NPPF) (Ref 6-14) sets out the Governments planning policies for England and how these are expected to be applied by Local Authorities within their Local Development Frameworks (LDF). Chapter 15 of the NPPF ‘*Conserving and enhancing the natural environment*’ sets out the requirements to consider biodiversity in planning decisions.
- 6.2.6 **Table 6-1** provides quotations from national planning policy relevant to ecology and biodiversity.

Table 6-1: National Planning Policy relevant to Ecology and Biodiversity

Policy Reference	Policy Context
National Policy Statement	
Overarching National Policy Statement for Energy (EN-1) (Ref 6-12)	
5.3.3	<i>“Where the development is subject to EIA the applicant should ensure that the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The applicant should provide environmental information proportionate to the infrastructure where EIA is not required to help the IPC consider thoroughly the potential effects of a proposed project.”</i>
5.3.4	<i>“The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests”.</i>
National Policy Statement for Gas Supply and Infrastructure and Gas and Oil Pipelines (EN-4) (Ref 6-13)	
2.21.3	<i>“The ES should include an assessment of the biodiversity and landscape and visual effects of the proposed route and of the main alternative routes considered (see Section 5.9 of EN-1). 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. Where it is unlikely to be possible to restore landscape to its original state, the applicant should set out measures to avoid, mitigate, or employ other landscape measures to compensate for, any adverse effect on the landscape.”</i>

Policy Reference	Policy Context
National Policy Statement	
2.21.5	<i>“Mitigation measures to protect the landscape and ecology could include reducing the working width required for the installation of the pipeline in order to reduce the impact on the landscape where it will not be possible to fully reinstate the route.”</i>
2.21.6	<i>“In circumstances where the habitat to be crossed contains ancient woodland, trees subject to a Tree Preservation Order, or hedgerows subject to the Hedgerows Regulations 1997, the applicant should consider whether it would be feasible to use horizontal direct drilling under the ancient woodland or thrust bore under the protected tree or hedgerow and the IPC should consider requiring this, where not included in the proposal.”</i>
Draft Overarching National Policy Statement for Energy (EN-1) (Ref 6-47)	
5.4.3	<i>“Where the development is subject to EIA the applicant should ensure that the ES clearly sets out any effects on internationally, nationally, and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The applicant should provide environmental information proportionate to the infrastructure where EIA is not required to help the Secretary of State consider thoroughly the potential effects of a proposed project.”</i>
5.4.4	<i>“The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests. As set out in Section 4.6, the design process should embed opportunities for nature inclusive design. The applicant is encouraged to consider how their proposal can contribute towards Biodiversity Net Gain in line with the ambition set out in the 25 Year Environment Plan. Energy infrastructure projects have the potential to deliver significant benefits and enhancements beyond Biodiversity Net Gain, which result in wider environmental gains. The scope of potential gains will be dependent on the type, scale, and location of each project.”</i>
Draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Ref 6-48)	
2.21.1	<i>“Sections 4.3 and 5.9 of EN-1 sets out the general principles that should be applied in the assessment of biodiversity and landscape and visual impacts. Additional considerations apply during the construction of a pipeline (which, without mitigation, can affect both landscape and ecology). These comprise the effect upon specific landscape elements within and adjacent to the pipeline route, such as grasslands, field boundaries (hedgerows, hedgebanks, drystone walls, fences), trees, woodlands, and watercourses. There will also be temporary visual impacts caused by the need to access the</i>

Policy Reference	Policy Context
National Policy Statement	
	<p><i>working corridor and to remove flora and soil. The working width of the pipeline will vary depending on the surrounding terrain. Temporary impacts could include large excavations where deep pits are needed for boring beneath rivers, roads, and sensitive features.</i></p>
2.21.2	<p><i>Long term impacts upon the landscape for pipelines are likely to be limited, as once operational the main infrastructure is usually buried. They are likely to include:</i></p> <ul style="list-style-type: none"> <i>• limitations on the ability to replant landscape features such as hedgerows or deep-rooted trees over or adjacent to the pipeline; and</i> <i>• structures and indication points necessary to identify the pipeline route and provide it with service access.</i>
2.21.3	<p><i>The ES should include an assessment of the biodiversity and landscape and visual effects of the proposed route and of the main alternative routes considered (see Section 5.10 of EN-1). 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. Where it is unlikely to be possible to restore landscape to its original state, the applicant should set out measures to avoid, mitigate, or employ other landscape measures to compensate for, any adverse effect on the landscape.</i></p>
National Planning Policy Framework (NPPF) (Ref 6-14)	
Chapter 15	<p><i>To protect and enhance biodiversity and geodiversity, plans should:</i></p> <ol style="list-style-type: none"> <i>a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and,</i> <i>b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.</i> <p><i>When determining planning applications, local planning authorities should apply the following principles:</i></p> <ol style="list-style-type: none"> <i>a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;</i> <i>b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not</i>

Policy Reference	Policy Context
National Policy Statement	
	<p><i>normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;</i></p> <p><i>c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and</i></p> <p><i>d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.</i></p> <p><i>The following should be given the same protection as habitats sites:</i></p> <p><i>a) potential Special Protection Areas and possible Special Areas of Conservation;</i></p> <p><i>b) listed or proposed Ramsar sites; and</i></p> <p><i>c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.</i></p> <p><i>The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.”</i></p>

Local Planning Policy

6.2.7 The North-East Lincolnshire Local Plan was adopted in 2018 (Ref 6-15). Policies relevant to the Project are outlined in **Table 6-2** below.

Table 6-2: Policies relevant to ecology within the North-east Lincolnshire Local Plan

Policy Document	Policy Number	Policy Detail
North East Lincolnshire Local Plan 2013 to 2032	Policy 9 - Habitat Mitigation - South Humber Bank	1. Within the Mitigation Zone identified on the Policies Map (covering an area of agricultural land on the South Humber Bank between Pyewipe and Immingham), 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

Policy Document	Policy Number	Policy Detail
		<p>mitigation in order to comply with the requirements of the Habitats Regulations.</p> <p>2. The Strategic Mitigation sites, circa 120 ha, identified on the Policies Map, represent those sites which have been identified to deliver appropriate mitigation which will address the adverse impacts of development within the Mitigation Zone at a strategic level. The identified Mitigation Sites will be safeguarded against development, and appropriate habitat will be delivered and managed on these sites in accordance with the North East Lincolnshire South Humber Gateway Ecological Mitigation Delivery Plan.</p> <p>3. Development proposals on greenfield land² within the Mitigation Zone will be required to make contributions towards the provision and management of the mitigation sites identified on the Policies Map. Where landowners have contributed to the implementation strategy through the donation of land, the required contribution will be reduced by an equivalent value.</p> <p>4. The Council will secure such contributions, based on a proportional approach relating to the site area. The formula for the calculation of the relevant contribution is as follows:</p> <p style="text-align: center;">Contribution (£) = SA x (£MC/ha)</p> <p>The Mitigation Contribution (£MC/ha) will be £11,580/ha. This contribution is not index linked. The Contribution shall be paid when development commences on site, or through agreement with the Council where a phase approach to delivery is accepted by the Council.</p> <p>5. All other planning requirement will also be expected to be met.</p> <p>6. On an exceptional basis independent alternative mitigation proposals will be considered on sites within the identified Mitigation Zone. Proposals should be supported by evidence that demonstrates that the alternative mitigation contributes to the overall mitigation strategy and ensures that the development avoids adverse effects on the integrity of the SPA/Ramsar site, alone or in combination. It will be a requirement of any planning consent that mitigation is implemented prior to the commencement of development.</p>

² Exceptionally brownfield sites may be required to contribute if evidence identifies that SPA/Ramsar birds have been using the site in significant numbers.

Policy Document	Policy Number	Policy Detail
	Policy 41 - Biodiversity and Geodiversity	<p>1. The Council will have regard to biodiversity and geodiversity when considering development proposals, seeking specifically to:</p> <ul style="list-style-type: none"> • 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 (see Policy 9 'Habitat Mitigation - South Humber Bank'); • designate Local Wildlife Sites (LWSs) and Local Geological Sites (LGSs) in recognition of particular wildlife and geological value; • 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; • minimise the loss of biodiversity features, or where loss is unavoidable and justified, ensure appropriate mitigation and compensation measures are provided; • create opportunities to retain, protect, restore and enhance features of biodiversity value, including priority habitats and species; and • take opportunities to retain, protect and restore the connectivity between components of the Borough's ecological network. <p>2. Any development which would, either individually or cumulatively, result in significant harm to biodiversity which cannot be avoided, adequately mitigated or as a last resort compensated for, will be refused.</p>

6.2.8 The East Lindsey Core Strategy was adopted in 2018 (Ref 6-16). Policies relevant to the Project are outlined in **Table 6-3** below.

Table 6-3: Policies relevant to ecology in the South-east Lincolnshire Local Plan

Policy Document	Policy Number	Policy Detail
East Lindsey Local Plan Core Strategy	Strategic policy 24	<p>1. Development proposals should seek to protect and enhance the biodiversity and geodiversity value of land and buildings, and minimise fragmentation and maximise opportunities for connection between natural habitats.</p> <p>2. The Council will protect sites designated internationally, nationally or locally for their biodiversity and geodiversity importance, species populations and habitats identified in</p>

Policy Document	Policy Number	Policy Detail
		<p>the Lincolnshire Biodiversity Action Plan and the Natural Environment and Rural Communities (NERC) Act 2006. Development, which could adversely affect such a site, will only be permitted in exceptional circumstances:</p> <ul style="list-style-type: none"> • In the case of internationally designated sites, where there is no alternative solution and there are overriding reasons of public interest for the development; • In the case of nationally designated sites, there is no alternative solution and the reasons for the development clearly outweigh the biodiversity value of the site; or • In the case of locally designated sites, and sites that meet the criteria for selection as a Local Site, the reasons for the development clearly outweigh the need to protect the site in the long term. <p>3. In exceptional circumstances, where adverse impacts are demonstrated to be unavoidable and development is permitted which would damage the nature conservation or geological value of a site, the Council will ensure that such damage is kept to a minimum and will ensure appropriate mitigation, compensation, or enhancement of the site through the use of planning conditions or planning obligations. Compensation measures towards loss of habitat will be used only as a last resort where there is no alternative. Where any mitigation and compensation measures are required, they should be in place before development activities start that may disturb protected or important habitats and species. Proposals to provide or enhance a site will be supported.</p> <p>4. Where new habitat is created it should, where possible, be linked to other similar habitats to provide a network of such sites for wildlife.</p> <p>5. Planning permission will only be granted for development which directly or indirectly leads to loss or harm to ancient woodland or aged or veteran trees, in exceptional circumstances, where the developer can demonstrate that the wider benefits of that loss clearly outweigh the protection of the trees.</p>
<p>East Lindsey Local Plan Core Strategy</p>	<p>Strategic Policy 27</p>	<p>1. Large-scale renewable and low carbon energy development, development for the transmission and interconnection of electricity, and infrastructure required to support such development, will be supported where their individual or cumulative impact is, when weighed against the benefits, considered to be acceptable in relation to:</p> <p>a) residential amenity;</p>

Policy Document	Policy Number	Policy Detail
		<p>b) surrounding landscape, townscape and historic landscape, character, and visual qualities;</p> <p>c) the significance (including the setting) of a historic garden, park, battlefield, building, conservation area, archaeological site or other heritage asset;</p> <p>d) sites or features of biodiversity or geodiversity importance, or protected species;</p> <p>e) the local economy;</p> <p>f) highway safety; and</p> <p>g) water environment and water quality.</p> <p>3. Development within or affecting the setting of the Lincolnshire Wolds Area of Outstanding Natural Beauty, and landscape areas defined as highly sensitive within the East Lindsey Landscape Character Assessment, will only be permitted in exceptional circumstances, where the development is in the public interest and considering the following:</p> <p>a) The need for the development, including any national considerations, and the impact of permitting it, or refusing it, upon the local economy; and,</p> <p>b) the cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way; and,</p> <p>c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be satisfactorily moderated.</p> <p>4. The presumption will be for connecting cables to be placed underground, or use made of existing or replacement infrastructure (of the same size and scale) along existing routes to carry any additional base load cabling.</p> <p>5. Small scale and micro renewable energy development will be supported where their individual or cumulative impact, when weighed against the benefits, is not considered to have an unacceptable impact on residential amenity; the context and setting of any areas of cultural or historic importance or heritage assets; and local landscape character and visual qualities.</p>

Local Biodiversity Action Plans

6.2.9 The UK Biodiversity Action Plan (BAP) was withdrawn in March 2011, the lists of Priority Species and Habitats being superseded by those within Section 41 of the NERC Act (2006). Local Biodiversity Action Plans (LBAPs) are no longer used as a formal expression of delivery of biodiversity targets but identify sub-regional priorities for nature conservation and

propose agreed actions to conserve, maintain, enhance and increase local Priority Species and Habitats.

6.2.10 The Lincolnshire Biodiversity Plan (Ref 6-17) is the relevant LBAP for the Study Area and was drafted by the Lincolnshire Biodiversity Partnership in 2011. The LBAP outlines biodiversity conservation objectives within the region and identifies priorities for action for priority habitats, species, locally important wildlife, and sites.

Guidance

6.2.11 The EclA has been carried out with regard to the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland (Ref 6-18).

6.2.12 Species specific guidance used to inform this EclA is referenced throughout the chapter and includes:

- The CIEEM guidelines for Preliminary Ecological Appraisal (Ref 6-19);
- Natural England's Standing Advice for protected species (Ref 6-20);
- The Joint Nature Conservation Committee's published Herpetofauna Workers' Manual and the Great Crested Newt Conservation Handbook (Ref 6-21 and Ref 6-22);
- The Bat Conservation Trust's *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Ref 6-23) and interim guidance on the use of night vision aids for bat emergence surveys (Ref 6-24);
- Otter survey guidance outlined in *Monitoring the Otter* (Ref 6-25);
- Water vole survey guidance outlined in the *Water Vole Mitigation Handbook* (Ref 6-26);
- Badger survey guidance outlined in *Surveying Badgers* (Ref 6-27); and
- Biodiversity net gain: good practice principles for development (Ref 6-28).

6.2.13 Stanbury *et al.* (2021; Ref 6-29) have published lists of Birds of Conservation Concern (BoCC). Red List species are those whose breeding population or range is rapidly declining (50% or more in the last 25 years), recently or historically, and those of global conservation concern. Amber List species are those whose breeding population is in moderate decline (25 – 49% in the last 25 years), rare breeders, internationally important and localised species and those of unfavourable conservation status in Europe. Green List species are those not of immediate conservation concern. Non-native species are classified as Not Assessed. These lists confer no legal status; however, they are useful when assessing the significance of predicted impacts and determining the level of mitigation that may be required when birds are affected by development or any other activity. Furthermore, inclusion on the Red List was a factor in determining the species for which BAPs were developed.

6.3 Scoping Opinion and Consultation

Scoping

6.3.1 A scoping exercise was undertaken in early 2022 to establish the content of the EclA and the approach and methods to be followed. The Scoping Report (Ref 6-30) records the findings of the scoping exercise and details the technical guidance, standards, best practice and criteria proposed to be applied in the assessment to identify and evaluate the likely significant effects of the Project on ecology and biodiversity.

6.3.2 A Scoping Opinion was provided by the Planning Inspectorate (a copy of which is included in *PEIR Volume IV Appendix 5-2*). The following requirements have been identified by stakeholders and these will be taken account of as part of the ongoing EclA (see **Table 6-4**).

Consultation

District Level Licensing for GCN

6.3.3 Natural England were consulted on the 17 March 2022 to confirm whether DLL would be available for the Project. It was confirmed that there is not currently a DLL scheme in operation in NE Lincs, and Natural England would need to gain some confidence in regards to pond delivery, before formally committing this Project into DLL. Natural England advised that they are aware of delivery options from some of their existing partners, which they are starting to explore.

6.3.4 Based upon the preferred pipeline route, Natural England conducted an impact assessment and provided a cost which equates to 4.5 compensation ponds. This cost was based upon the following assumptions:

- the boundary was not final;
- no ponds would be directly impacted;
- all impacts would be temporary; and
- Risk Zones of individual ponds would be taken into account.

6.3.5 Further consultation will be carried out with Natural England as necessary to confirm that DLL will be appropriate for this Project.

Additional Consultation

6.3.6 Further consultation will take place with Natural England, biodiversity officers for NELC, NLC, LCC, WLDC and ELDC (as applicable), the Environment Agency and other interested parties, such as the Lincolnshire Wildlife Trust. This is to make sure a robust approach is taken to scope and define the methodology of surveys necessary to inform the assessment.

Table 6-4: Summary of the EIA Scoping Opinion in relation to Ecology and Biodiversity

Section Reference to Scoping Opinion	Applicant's proposed matter	Planning Inspectorate / prescribed consultee comments	Response
<p>Planning Inspectorate Table 6-2</p>	<p>Impacts to foraging and commuting bats</p>	<p>The Scoping Report identifies the intention to limit bat activity surveys to areas of suitable habitat which will be permanently lost. The Inspectorate accepts, as stated in Table 6-2 [of Ref 6-30], that such surveys may not be warranted in relation to temporary habitat loss.</p> <p>However, the Inspectorate considers that they may be required to inform the assessment of likely significant effects and the design of appropriate mitigation in relation to the effects of construction lighting and effects resulting from impacts to linear habitat features. These matters should be considered in the ES where likely significant effects could occur, supported by appropriate evidence such as bat activity survey data. The Applicant should seek agreement from relevant consultees and provide a description of the approach taken in the ES, incorporating any relevant advice.</p>	<p>Bat activity surveys will be conducted in areas where hedgerows will be affected by the development (i.e., direct loss, changes in lighting). It is considered that surveys will only be necessary where hedgerows are likely to provide important connectivity linkages (i.e., links between blocks of woodland, parkland or to watercourses). This approach will be confirmed with consultees including Natural England.</p>
<p>Planning Inspectorate Table 6-2, 6-5</p>	<p>Detailed terrestrial invertebrate surveys.</p>	<p>The Scoping Report proposes to scope out detailed terrestrial invertebrate surveys on the basis that areas of high habitat suitability are likely to be avoided by the Project, which is located in predominantly arable land. It also explains that the requirement for such surveys will be reviewed following the completion of the Phase 1 habitat survey and desk study. The Inspectorate notes that neither the Potential Immingham Facility nor the Former TGT Site are situated on arable land. In the absence of the habitat survey and desk study information, and of</p>	<p>Invertebrate scoping assessments will be undertaken where habitats with potential to support notable invertebrate species are identified during the</p>

Section Reference to Scoping Opinion	Applicant's proposed matter	Planning Inspectorate / prescribed consultee comments	Response
		<p>evidence demonstrating clear agreement with relevant statutory bodies, the Inspectorate does not agree to scope this matter out at this stage but agrees that it may be appropriate to scope out detailed surveys once the results of these investigations are known. The ES should include an assessment of effects on terrestrial invertebrates, or the information referred to above to evidence that no likely significant effects would occur.</p>	<p>Phase 1 habitat surveys. In the first instance, it will be sought to avoid areas of suitable habitat. If it is not possible to avoid habitats, surveys will be completed to confirm the assemblage of invertebrates present. The scope of surveys may include butterfly transects or surveys for a particular species group. Where surveys are considered necessary, the scope will be agreed with relevant consultees.</p>
<p>Planning Inspectorate Table 6-2, 6-5</p>	<p>Detailed surveys for reptile species.</p>	<p>The Scoping Report states that areas of high habitat suitability for reptiles are likely to be avoided by the Project meaning that detailed surveys are not likely to be required but that the need for such surveys will be reviewed following completion of the Phase 1 habitat survey and desk study. In the absence of this information, and of evidence demonstrating agreement with the relevant statutory bodies, the Inspectorate does not agree to scope out detailed assessment for reptiles at this stage but agrees with the approach set out. Accordingly the ES should include an assessment or the information referred to demonstrating the absence of a likely significant effect.</p>	<p>Where habitats are identified with the potential to support reptiles, in the first instance, it will be sought to avoid these. If large areas with suitability for reptiles are identified (and cannot be avoided), surveys will be</p>

Section Reference to Scoping Opinion	Applicant's proposed matter	Planning Inspectorate / prescribed consultee comments	Response
			<p>conducted to inform the impact assessment. In some areas, sensitive working methods will be most appropriate to avoid harm to reptile populations (if present). The approach will be agreed with relevant consultees following the Extended Phase 1 habitat survey.</p>
<p>Planning Inspectorate Table 6-2, Table 6-5</p>	<p>Aquatic ecology – specific flora and fauna surveys.</p>	<p>The Scoping Report suggests that predicted temporary construction impacts will be adequately addressed through standard mitigation techniques, therefore specific aquatic flora and fauna surveys are unlikely to be required.</p> <p>In the absence of information such as river crossing methodologies and the mitigation techniques to be employed, the Inspectorate is not in a position to agree to scope these matters from the assessment.</p> <p>The Inspectorate accepts that as this information becomes known the scope of the assessment could be refined, however. Accordingly, the ES should include an assessment of likely significant effects on aquatic flora and fauna where these could occur, or the information referred to demonstrating that no likely significant effects will occur and detailing where agreement has been reached with the relevant consultation bodies.</p>	<p>Requirements for aquatic flora and faunal surveys will be reviewed once further information on river crossing locations and methodologies become available.</p>
<p>Planning Inspectorate Table 6-4</p>	<p>Air quality effects on sensitive</p>	<p>Table 6-4 [within the scoping report] does not identify Nitrogen deposition or acid deposition as potential impacts which could affect sensitive ecological receptors, however these matters are not explicitly proposed as scoped out. It is noted that</p>	<p>Potential air quality effects upon ecological receptors will be</p>

Section Reference to Scoping Opinion	Applicant's proposed matter	Planning Inspectorate / prescribed consultee comments	Response
and Chapter 12 (Air Quality Chapter 12)	ecological receptors.	Chapter 12 of the Scoping Report (Air Quality) considers these potential impacts as a possibility and sets out the approach to modelling relevant emissions from construction traffic if detailed assessment is deemed necessary. For the avoidance of doubt, the potential for Nitrogen deposition and/or acid deposition to arise and result in effects on ecological receptors should be considered in the ES, and subject to assessment where a pathway for significant effects is identified.	considered within the ES and as part of the HRA process.
Planning Inspectorate Table 6-1, Figure 6-1, Paragraph 6.2.7	Location of designated sites	The information in Table 6-1 (of the Scoping Report) does not appear to be consistent with the information in Figure 6-1 (of the Scoping Report) in terms of the proximity of the Proposed Development to the designated sites. Paragraph 6.2.7 provides more information however; it remains unclear if the Proposed Development lies within these designations. This must be clarified within the ES.	Potential effects upon designated sites are be considered within this PEIR and the ES.
Planning Inspectorate Para 6.2.13 to 6.2.15	Impacts to existing agricultural drainage and effects on habitats.	The Scoping Report indicates a likely commitment to trenchless crossing of watercourses in the ES, but also describes the potential for direct impacts to grazing marsh where the proposed pipeline route crosses this habitat. The intention to assess impacts related to construction activities is set out, however, the Inspectorate advises that the ES should also explain whether significant effects could arise from impacts to existing agricultural drainage, including effects on habitats outside of agricultural land relating to hydrological changes or degradation of water quality.	Potential direct and indirect hydrological effects upon ecological receptors will be considered within the ES. The construction and operational phases of the Project will be considered.
Planning Inspectorate Para 6.3.7 to 6.3.9	Identification of functionally linked land and ornithological survey scope.	The justification in the Scoping Report for the selection of the functionally linked land described is lacking in detail. The Inspectorate would expect the ES to give a full description of how these areas have been identified, the levels of precaution applied to this process, and the outcomes of consultation and degree of agreement reached with key stakeholders. It is also advised that the scope	Additional information on the selection of functionally linked land and the selection of survey methodology is

Section Reference to Scoping Opinion	Applicant's proposed matter	Planning Inspectorate / prescribed consultee comments	Response
		and methodology of the ornithological surveys is discussed with the relevant consultees and agreed where possible.	provided in this PEIR and will be provided in the ES.
Planning Inspectorate Table 6-2	Great crested newts – information to support the assessment of effects.	<p>The Scoping Report states that the presence/absence surveys proposed in Table 6-2 will be sufficient to support an application for a traditional European Protected Species Mitigation licence or a licence through the Natural England District Level Licensing (DLL) scheme. It also sets out the circumstances where populations size class assessment may be undertaken to inform the assessment of effects.</p> <p>The Inspectorate understands that the DLL approach includes strategic area assessment and the identification of risk zones and strategic opportunity area maps.</p> <p>The ES should include information to demonstrate whether the Project is located within a risk zone for GCN. If the Applicant enters into the DLL scheme, NE will undertake an impact assessment and inform the Applicant whether their scheme is within one of the amber risk zones and therefore whether the Project is likely to have a significant effect on GCN. The outcome of this assessment will be documented on an Impact Assessment and Conservation Payment Certificate (IACPC). The IACPC can be used to provide additional detail to inform the findings in the ES, including information on the Project's impact on GCN and the appropriate compensation required.</p>	A DLL approach will be sought for this Project. Supplementary information on GCN presence / absence will be provided where access has been permitted to enable eDNA of waterbodies to be undertaken within the relevant survey window.
Planning Inspectorate	Confidential Annexes	Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable ecological features. Specific survey and assessment data relating to the presence and locations of species such as badgers, rare birds and plants that could be subject to disturbance, damage, persecution, or commercial exploitation resulting from publication of the information, should be provided in the ES as a confidential	Information on sensitive species will be provided within a confidential annex.

Section Reference to Scoping Opinion	Applicant's proposed matter	Planning Inspectorate / prescribed consultee comments	Response
		annex. All other assessment information should be included in an ES chapter, as normal, with a placeholder explaining that a confidential annex has been submitted to the Inspectorate and may be made available subject to request.	
Mablethorpe and Sutton Town Council	Preservation of flora, fauna and local wildlife.	Should the proposal go ahead, it urges that all due care and consideration be given and taken with regard to preservation of flora, fauna and local wildlife along the planned route of the pipeline.	Habitats will be appraised for their potential to support protected and notable flora and fauna as part of the PEIR. Further surveys will be conducted where appropriate, and recommendations for avoidance, mitigation and compensation will be provided (where appropriate) in line with relevant planning policy and guidance.
Ministry of Defence	Creation of new habitats attracting birds.	The development partly occupies the statutory safeguarding Range zone surrounding Donna Nook. Within this zone, the principal concern of the MOD is that the creation of new habitats may attract and support populations of large and, or, flocking birds and if there is any flying activity including gliding and microlight aircraft.	These will be taken into account where mitigation is proposed.
North Lincolnshire Council	Approach to EclA	Having reviewed this Chapter of the report the Council's Ecologist has confirmed that they support the approach to the assessment of ecological impacts.	Noted.

Section Reference to Scoping Opinion	Applicant's proposed matter	Planning Inspectorate / prescribed consultee comments	Response
Natural England	Impact Risk Zones	<p>The proposal falls within Natural England's Impact Risk Zones of the following sites:</p> <p>Saltfleetby – Theddlethorpe Dunes Site of Special Scientific Interest (SSSI); Saltfleetby – Theddlethorpe Dunes and Gibraltar Point Special Area of Conservation (SAC); Humber Estuary SSSI and SAC; North Killingholme Haven Pits SSSI Humber Estuary Compensation Land.</p> <p>Accidental damage and other direct or indirect effects may occur to these designated sites. The ES would need to show any potential effects on these designations, including impacts on foraging habitat, noise, water quality, air quality or other disturbance which may damage or destroy the interest features for which these SSSIs have been notified. Impacts would need to be considered at all stages of the Project i.e. construction, operation and de-commissioning. It should also detail the mitigation required to avoid any identified impacts on designated sites.</p>	Potential effects upon designated sites will be considered within the ES and as part of the HRA process.
Natural England	The Humber Habitat Compensation and Mitigation Plan (HHCMP)	<p>helps identify the scope of potential habitat creation needed to enable developers/investors to achieve sustainable economic development in the region. It provides essential information for those wishing to bring forward development within the requirements of the regulatory framework surrounding the Humber Estuary's various national and international environmental and historical designations. Further information is available at South Humber Gateway strategic mitigation scheme:</p> <p>https://www.nelincs.gov.uk/planning-and-building-control/planning-policy/the-localplan/local-plan-background-information/south-humber-gateway/</p>	Noted.

Section Reference to Scoping Opinion	Applicant's proposed matter	Planning Inspectorate / prescribed consultee comments	Response
Natural England	Construction and Environmental Management Plan (CEMP)	Mitigation for all these [designated] sites should be secured through a CEMP which will set out the locations of these features and the measures proposed for their protection.	A Preliminary Draft CEMP has been prepared with this PEIR (<i>PEIR Volume IV Appendix 3-1</i>). This will be refined prior to submission of the DCO application. The CEMP shall include mitigation measures in respect of designated sites where this is considered necessary.
Natural England	Discretionary Advice Service	Natural England are engaging with the applicant via our Discretionary Advice Service with regard to avoiding adverse impacts to designated sites and protected species.	Ongoing consultation will be undertaken via the Discretionary Advice Service.
Natural England	Designated Sites Impact Assessment	The ES should consider any impacts upon local wildlife and geological sites, including local nature reserves. The ES should set out proposals for mitigation of any impacts and if appropriate, compensation measures and opportunities for enhancement and improved connectivity with wider ecological networks. Consultation should therefore take place with the Ecology Officers for Lincolnshire County Council. Non-statutory consultees such as the Wildlife Trusts should also be approached.	Potential effects upon local wildlife sites, geological sites and nature reserves will be considered within the ES.
Natural England	Impact Assessment	The ES should assess the impact of all phases of the proposal on protected species (including, for example, great crested newts, reptiles, birds, water voles, badgers and bats).	Effects upon protected and notable species from all phases of the

Section Reference to Scoping Opinion	Applicant's proposed matter	Planning Inspectorate / prescribed consultee comments	Response
		It should also provide details of any proposed mitigation measures required to protect these species. Consideration should be given to the wider context of the site, for example in terms of habitat linkages and protected species populations in the wider area. Natural England is engaging with the applicant regarding Natural England's District Level Licensing for Great Crested Newts.	development will be considered within the ES.
Natural England	Biodiversity Net Gain (BNG)	The ES should include a BNG Assessment and Habitat Management Plan. The Habitat Management Plan should explain how the site will continue to be managed and secured for the lifetime of the development. The Habitat Management Plan should also provide details on retention and enhancement of existing habitat features such as hedgerows, woodland and ponds. We would also particularly need details on proposed habitat connectivity to surrounding habitats which would contribute to the wider Nature Recovery Network.	A BNG assessment will be included within the ES with an outline Habitat Management Plan.
Natural England	BNG	Biodiversity Metric 3.0 provides a way of measuring and accounting for biodiversity losses and gains resulting from development or land management change. It can be found at The Biodiversity Metric 3.0 - JP039 (nepubprod.appspot.com).	A BNG assessment will be undertaken using the most up to date metric at the time of submission (currently metric 3.1 however metric 4.0 is expected in November 2022).

6.4 Assessment Method

6.4.1 Potential impacts on important ecological features have been assessed in accordance with CIEEM best practice guidance (Ref 6-19). As all surveys were ongoing at the time of writing, any assessments within this PEIR have been made following the precautionary principle and will be reassessed within the ES when full datasets are available. The aims of the EclA are to:

- identify relevant ecological features (i.e., designated sites, habitats, species or ecosystems) which may be impacted as a consequence of the Project;
- provide a scientifically rigorous and transparent assessment of the likely ecological impacts and resultant effects of the Project, which may be beneficial (i.e., positive) or adverse (i.e., negative);
- facilitate scientifically rigorous and transparent determination of the consequences of the Project in terms of national, regional and local policies relevant to nature conservation and biodiversity, where the level of detail provided is proportionate to the scale of the development and the complexity of its potential impacts; and
- set out the steps to be taken to adhere to legal requirements relating to the relevant ecological features concerned.

6.4.2 It is not necessary in the assessment to address all habitats and species with potential to occur in the zone of influence of a project. Instead, the focus should be on those that are 'relevant'. CIEEM guidance makes it clear that there is no need to "*carry out detailed assessment of ecological features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable*". This does not mean that efforts should not be made to safeguard wider biodiversity, and requirements for this will be considered. National policy documents emphasise the need to achieve no net loss of biodiversity and enhancement of biodiversity.

6.4.3 To support focussed EclA, there is a need to determine the scale at which the ecological features identified through the desk studies and field surveys are of value. The value of each ecological feature will be defined with reference to the geographical level at which it matters, and the results of this assessment will be used to identify the relevant features requiring impact assessment. The frames of reference that will be used for this assessment, based on CIEEM guidance, are:

- International (generally this is within a European context, reflecting the general availability of good data to allow cross-comparison);
- National (Great Britain, but considering the potential for certain ecological features to be more notable (of higher value) in an England context relative to Great Britain as a whole);
- Regional (e.g., North-east);
- County (Lincolnshire);
- District (town or parish area e.g., Grimsby or Louth);
- Local (ecological features that do not meet criteria for valuation at a District or higher level, but that have sufficient value to merit retention or mitigation); and

- Negligible (common and widespread ecological features of such low priority that they do not require retention or mitigation at the relevant location to otherwise maintain a favourable nature conservation status).

6.4.4 All ecological features of Local value and above, where there is the potential for the project to directly or indirectly impact them, will be taken forward to impact assessment and will be the ‘relevant ecological features’ for the purposes of ecological impact assessment. In line with the CIEEM guidelines, the terminology used within the EclA will draw a clear distinction between the terms ‘impact’ and ‘effect’. For the purposes of the EclA, these terms are defined as follows:

- *impact* – actions resulting in changes to an ecological feature; for example, site clearance activities leading to the felling of a tree utilised as a bat roost; and
- *effect* – outcome resulting from an impact, acting upon the conservation status or structure and function of an ecological feature; for example, killing/injury of bats and reducing the availability of breeding habitat because of the loss of a bat roost may lead to an adverse effect on the conservation status of the population concerned.

Significance Criteria

6.4.5 For each ecological feature only those characteristics relevant to understanding the ecological effect and determining the significance are described. The determination of the significance of effects will be made based on the predicted effect on the structure and function, or conservation status, of relevant ecological features, as follows:

- *not significant* - no effect on structure and function, or conservation status; and
- *significant* - structure and function, or conservation status is affected.

6.4.6 For significant effects (both adverse and beneficial) this will be qualified with reference to the geographic scale at which the effect is significant (e.g., an adverse effect significant at a national level).

6.4.7 The CIEEM approach described above broadly accords with the EIA methodology described in the Scoping Report (Ref 6-30). However, a matrix approach will not be used to classify effects, as this deviates from CIEEM guidance. To provide consistency of terminology in the final EclA with other chapters of the Environmental Statement (ES), the findings of the CIEEM assessment will be translated into the classification of effects scale as outlined in **Table 6-5** below.

Table 6-5: Relating CIEEM Assessment Terms to those used in other ES Chapters

Effect Classification	Terminology used in Other ES Chapters	Equivalent CIEEM Assessment
Significant (beneficial)	Major beneficial	Beneficial effect on structure/function or conservation status at regional, national or international level.
	Moderate beneficial	Beneficial effect on structure/function or conservation status at District or County level.
Not-significant	Minor beneficial	Beneficial effect on structure/function or conservation status at Site or Local level.
	Negligible	No effect on structure/function or conservation status.

Effect Classification	Terminology used in Other ES Chapters	Equivalent CIEEM Assessment
	Minor adverse	Adverse effect on structure/function or conservation status at Site or Local level.
Significant (adverse)	Moderate adverse	Adverse effect on structure/function or conservation status at District or County level.
	Major adverse	Adverse effect on structure/function or conservation status at Regional, National or International level.

6.4.8 Any significant adverse effects would be mitigated or compensated for, whilst ecological enhancements may be recommended where appropriate to meet planning policy objectives. Following the implementation of any mitigation and compensation, as appropriate, any residual effects on ecological features will be identified.

Extent of Study Areas

6.4.9 The Study Areas used in this assessment were defined with reference to the likely zone of influence over which the Project may have potential to result in significant effects on relevant ecological features.

6.4.10 It is important to recognise that the potential zone of influence of the Project may vary over time (e.g., the construction zone of influence may differ from the operational zone of influence) and/or depending on the individual sensitivities of different ecological features.

6.4.11 This was considered when defining Study Areas and these are sufficient to address the potential worst-case zone of influence of the Project on the relevant ecological features concerned. The extent of the Study Areas applied during the desk study and field surveys are detailed within **Table 6-6** and **Table 6-7** below, and in **Figure 6-4** (Phase 1 Habitat survey map).

Sources of Information

6.4.12 The ecological baseline has been determined through a combination of desk study and field survey, as summarised below.

Desk Study

6.4.13 A desk study was carried out to identify nature conservation designations and protected and notable habitats and species potentially relevant to the Project.

6.4.14 The desk study was carried out using the data sources detailed in **Table 6-6** and will be detailed within the Preliminary Ecological Appraisal Report which will be provided as an appendix to the ES. Protected and notable habitats and species include those listed under Schedules 1, 5 and 8 of the Wildlife and Countryside Act, 1981 (as amended) (Ref 6-2), Schedules 2 and 4 of The Habitats Regulations (Ref 6-1), and species and habitats of principal importance for nature conservation in England listed under Section 41 of the NERC Act, 2006.

6.4.15 Other notable habitats and species have also been considered and assessed on a case-by-case basis (e.g. those included in national Red Data Books and Lists, those within the Local Biodiversity Action Plan (LBAP) and/or those listed on RSPB red/amber lists, but not protected by legislation). This is consistent with the requirements of relevant planning policy.

Table 6-6: Desk Study Area and Data Sources

Ecological Feature	Study Area	Data Sources	Date Accessed
International statutory nature conservation designations (e.g., Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site)	10 km	Multi-Agency Geographic Information for the Countryside (MAGIC) website. Joint Nature Conservation Committee website (http://jncc.defra.gov.uk)	August 2022
National statutory nature conservation designations (e.g., Site of Special Scientific Interest (SSSI))	10 km	MAGIC website Natural England website	August 2022
Local non-statutory nature conservation designations (e.g. Local Wildlife Sites (LWS))	2 km	Greater Lincolnshire Nature Partnership/Lincolnshire Environmental Records Centre	February 2022
Habitats of Principal Importance	2 km	MAGIC website Lincolnshire Coastal Grazing Marshes Project Website (https://www.lincsmarshes.org.uk)	August 2022
Water Framework Directive (WFD) water bodies and supporting data	Nearest available relevant data	Environment Agency (EA) Catchment Explorer ³ EA Ecology and Fish Data Explorer ⁴	August 2022
Water bodies	500 m	1:25,000 Ordnance Survey maps Aerial photographs (Google Earth) MAGIC website	August 2022
Birds	5 km	Greater Lincolnshire Nature Partnership/Lincolnshire Environmental Records Centre British Trust for Ornithology (BTO) Wetland Birds Survey (WeBS) for records of wetland birds at coastal and inland WeBS count sectors within the Study Area. The Lincolnshire Bird Atlas (Ref 6-31) ⁵	January 2022 Pending

³ <https://environment.data.gov.uk/catchment-planning/>

⁴ <https://environment.data.gov.uk/ecology/explorer/>

⁵ Rather than extracting information wholesale regarding all species, supplementary information on key species and sites of ornithological importance has been extracted from Lincolnshire Birds Atlas on a case by case basis where this adds value to the baseline and assessment.

Ecological Feature	Study Area	Data Sources	Date Accessed
			September 2022
Native and non-native crayfish species	Nearest available relevant data	National Biodiversity Network (NBN) Atlas ⁶	August 2022
European Protected Species Mitigation Licence information	2 km	MAGIC ⁷ Website	August 2022
Protected and notable species	2 km	Greater Lincolnshire Nature Partnership/Lincolnshire Environmental Records Centre	January 2022

Field Surveys

6.4.16 The scope of habitat and species survey work considered necessary to inform the Environmental Impact Assessment is summarised in **Table 6-7**. Ornithology survey locations and a timeline of surveys completed to date are included in *PEIR Volume IV Appendix 6-1*.

⁶ EA crayfish records are commercially available on NBN Atlas

⁷ <https://magic.defra.gov.uk/>

Table 6-7: Scope and methods of ecological field surveys

Survey	Scope of Survey	Survey Period	Survey Area Extent	Justification
<p>Habitats:</p> <p>Phase 1 Habitat Survey and Habitat Assessment Condition to inform Biodiversity Net Gain Assessment</p>	<p>Phase 1 Habitat Survey in accordance with the published method (Ref 6-32). The Phase 1 habitat survey will be supplemented by UK Habitat Classification (UKHab) and condition assessment in accordance with Natural England’s Biodiversity Metric 3.1 – Technical Supplement (Ref 6-46).</p> <p>Assessment of possible presence of protected, priority⁸ or otherwise notable species and, where relevant, the likely importance of habitat features for such species.</p> <p>Record of Invasive Non-Native Species (INNS) of plants. Incidental records of protected or priority species or their field signs. The Phase 1 Habitat and UKHab surveys will also be supplemented by aerial habitat mapping.</p>	<p>Commenced May 2022 – survey ongoing.</p>	<p>Based on a working width of 36 m and a 50 m buffer either side of the preferred pipeline route. This will be extended further where deemed appropriate.</p>	<p>The information will form the basis of the calculation of potential permanent (albeit minor) and temporary habitat effects within the EclA.</p> <p>Habitat condition assessments are required to support a Biodiversity Net Gain (BNG) assessments for the Project.</p>
<p>Hedgerows</p>	<p>Hedgerows that are identified as potentially important and crossed by the Project will be surveyed in accordance with the methodology as outlined in Defra (2007) Hedgerow Survey Handbook: A standard procedure for local surveys in the UK (Ref 6-34).</p>	<p>Optimal time – May to September inclusive.</p>	<p>Areas to be identified following Phase 1 Habitat Survey, focused on the preferred route.</p>	<p>Dedicated hedgerow surveys considered to only be warranted where potentially important hedgerows are directly impacted by the Project. The information collated will also be used to inform the condition and distinctiveness assessments within the BNG calculation.</p>

⁸ These are also referred to as “protected and notable species/habitats” a definition of which is provided in paragraph 6.4.16

Survey	Scope of Survey	Survey Period	Survey Area Extent	Justification
				Hedgerows which are species-poor as determined by the Phase 1 habitat surveys will not be subject to detailed hedgerow surveys, as temporary effects on low value habitats can be appropriately assessed and mitigated without the requirement for additional baseline data.
Breeding Birds within habitats with potential functional linkages to designated sites	Surveys using a 'look-see' method to count Priority bird species and record their behaviours using BTO species codes and behaviour notations, from walked and driven transects and vantage points.	Monthly, between late March and July 2022 inclusive (5 surveys)	Scoping boundary plus up to 1 km buffer ⁹ either side of it within the area considered to be potentially functionally linked to the Humber Estuary and Greater Wash SPAs for breeding birds ¹⁰	Survey scope suitable to address the potential temporary indirect effects of the Project and the minor permanent habitat losses predicted.
Breeding Birds within Theddlethorpe Gas Terminal	Common Birds Census following reduced version of Marchant (1983; Ref 6-35)	Monthly April – early July inclusive (4 surveys to supplement regular counts during FLL surveys)	Within boundary of TGT	Functionally Linked Land surveys identified habitat suitable for ground nesting birds and detected use of this habitat by Priority Species. The Project may result in some habitat losses and disturbance within this area, during construction.

⁹ The survey area was reduced to a buffer of 150m either side of the indicative centreline of the Scoping Boundary during the months May – July 2022 to enable focused surveys to be carried out at strategic locations where necessary using other methodologies (see **Table 6-7**) and in acknowledgement that the qualifying features of the designated sites during the breeding season are more closely tied to localised breeding locations. During this time, surveys continued to include all of the wader mitigation area and adjacent fields between TGT and Theddlethorpe Dunes, from Theddlethorpe St Helen in the north, to “North End” in the south.

¹⁰ See Section paragraphs 6.4.18 – 6.4.21 “Defining Functionally Linked Land” for rationale behind the selection of functionally linked land survey area.

Survey	Scope of Survey	Survey Period	Survey Area Extent	Justification
Breeding Birds beyond potentially functionally linked land	Point Count method, recording all birds seen or heard by surveyors at the point location, using BTO species codes and behaviour notations.	Monthly between March and June 2022 inclusive (4 surveys)	Specific point count locations with visual coverage serving the Draft Order Limits. Timeline plan of count locations used included in <i>PEIR Volume IV Appendix 6-1</i> .	Will provide sufficient baseline information on breeding bird assemblages to enable robust assessment of potential temporary indirect effects of the Project and the minor permanent habitats losses predicted, in combination with third party data. The Project design avoids impacts on hedgerow, wetland, and woodland habitats.
Breeding hobby (<i>Falco subbuteo</i>) surveys	Transects through/past suitable breeding habitat and ad hoc Vantage Point watches to establish presence of hobbies within the survey area and to observe behaviours indicative of breeding.	Twice in September 2022	All suitable habitats within a maximum distance of approximately 500m of the Draft Order Limits.	To provide sufficient baseline information to assess the potential impacts of the Project on this Schedule 1 bird, and to inform micro-siting of pipeline route and other measures (where required) to avoid impacts.
Wintering and passage Priority bird species within habitats with potential functional linkages to designated sites	Surveys using a 'look-see' method to count birds and record their behaviours, using BTO species codes and behaviour notations, from walked and driven transects and ad hoc vantage points.	Monthly, August – March inclusive (November 2021 – March 2022; August – October 2022)	Scoping Boundary plus up to 1 km buffer either side of it within the area considered to be potentially functionally linked to the Humber Estuary and SPA	Will provide sufficient baseline information on wintering and passage bird assemblages to enable robust assessment of potential temporary indirect effects of the Project and the minor permanent habitats losses predicted, in combination with third party data. The Project design aims to avoid impacts on hedgerow, wetland, and woodland habitats.
Wintering birds beyond	Point Count method, recording all birds seen or heard by surveyors at the point	Monthly between November 2021	Specific point count locations with visual	Will provide sufficient baseline information on non-breeding bird

Survey	Scope of Survey	Survey Period	Survey Area Extent	Justification
potentially functionally linked land	location, using BTO species codes and behaviour notations.	and February 2022 inclusive (4 surveys)	coverage serving the Scoping Boundary, with focus on the preferred pipeline route. Timeline plan of count locations used included in <i>PEIR Volume IV Appendix 6-1</i> .	assemblages to enable robust assessment of potential temporary effects and minor permanent habitat loss, in combination with third party data.
Great Crested Newt	A DLL approach will be sought for this Project.	Waterbodies within 250 m of the LoD have been identified based upon OS mapping and aerial photography. Surveys are not required to submit an application to the DLL scheme.	N/A	N/A
Bats - Preliminary Roost Features (PRF) assessment	Permanent impacts on trees will be avoided where possible. Trees to be directly impacted will be subject to a PRF assessment survey in accordance with The Bat Conservation Trust guidance (Ref 6-24). No structures or buildings are proposed to be directly affected by the Proposed Scheme. Should a structure or building be	Any time of year.	As per the Phase 1 Habitat Survey results.	Information collated on the location of trees that are suitable for roosting bats will inform design and offset buffers to avoid direct effects upon potential roost sites (and avoidance of trees and woodland with higher ecological value irrespective of bats which should be avoided). Furthermore, the PRF

Survey	Scope of Survey	Survey Period	Survey Area Extent	Justification
	<p>impacted this will also be subject to PRF assessment in accordance with Collins <i>et al.</i> (Ref 6-23)</p>			<p>assessment information will form the basis of the scope for roost surveys (as detailed below).</p>
<p>Bats – Foraging/ Commuting</p>	<p>Activity surveys will be undertaken based upon published guidance (Ref 6-23) where potential effects upon foraging and commuting routes are identified.</p> <p>An appropriate level of survey effort comprising walked transects and periods of remote static detector deployment across the activity season will be undertaken based on the suitability of the habitats for foraging/ commuting bats, in accordance with standard survey guidance.</p> <p>Activity transect routes will be planned to provide representative coverage of all habitats of potential value to foraging/ commuting bats within proximity to the areas of permanent land take (although the requirements for this will be reviewed dependent on the suitability of the habitat for bats within areas where permanent facilities are proposed.</p>	<p>April/May to September.</p> <p>Surveys would commence at dusk for up to 3-4 hours and/ or dawn for 3-4 hours.</p>	<p>Limited to areas of suitable habitat which will be permanently lost to facilitate the development.</p>	<p>It is not considered warranted that detailed bat activity surveys will be required along the pipeline route given the temporary nature of habitat loss, and the avoidance of the removal of mature trees or other structures which may support roosting bats.</p> <p>Where linear habitat features e.g. watercourses/ hedgerows are affected by the Project, which may provide commuting routes or a foraging resource for bats, appropriate robust and precedented mitigation measures can be secured via adoption of construction methods that seek to avoid these features and reduce the temporary effects to a level that would not be significant.</p>
<p>Bats - Roosting</p>	<p>It is likely that the Project will be able to avoid trees with PRFs that have potential to support a bat roost. However, where this is not possible, trees will be subject to climb and inspect surveys to confirm if the tree could be used as a roost and/ or if there are signs of bats.</p>	<p>Climb and inspect surveys can be completed at any time of the year. If emergence / re-entry surveys are required, they should be</p>	<p>Features with bat roost suitability identified during the Phase 1 Habitat Survey, focused on the preferred pipeline route.</p>	<p>To determine appropriate mitigation, and EPSM licensing requirements if necessary, where trees with confirmed/ potential bat roosts cannot be entirely avoided.</p>

Survey	Scope of Survey	Survey Period	Survey Area Extent	Justification
	Where tree climbing confirms that the PRF does have potential to support a roost and /or where it is not possible to safely climb a tree, bat emergence/ re-entry surveys will be undertaken at dusk and dawn in accordance with standard survey guidance (Ref 6-23 and Ref 6-24).	completed between April/May and September.		
Badger	Presence/absence survey for setts and field signs will be completed in combination with Phase 1 habitat survey. The survey will focus on habitat suitable to support setts and will note any field signs such as setts, trails and/or latrines. Incidental records obtained through desk study data in combination with the completion of other surveys will also supplement the baseline assessment.	Any time of year – and will be combined with the Phase 1 Habitat Survey.	As per the result of Phase 1 Habitat Survey, with focus on preferred pipeline route (within a 50 m working width plus 30 m buffer and temporary construction areas)	To determine appropriate mitigation either through avoidance of impacts on setts, or Natural England licensing for sett closures where direct impacts cannot be avoided. Pre-construction surveys for badger in areas where records of badger activity are identified will be committed to via the EclA and embedded with mechanisms such as the Construction Environmental Management Plan (CEMP) or equivalent.
Otter and Water Vole	Presence/absence survey looking for field signs along watercourses and ditches where open cut crossing techniques will be required. Presence/absence survey based on the water vole Mitigation Guidelines. (Ref 6-26); a spring survey will be completed, and a second autumn period survey as required to confirm presence/ likely absence.	Otter – survey can be completed at any time. Water Vole - spring survey between April and end of June; with a second survey before end September.	Up to 500 m length of the watercourse – 250 m up and down stream of crossing point. Access will be required to both banks and up to 10 m from the bank edge.	To determine appropriate mitigation either through avoidance of impacts on water vole/ otter habitat, or Natural England licensing where direct impacts cannot be avoided.
Reptiles	Habitats will be assessed for their potential to support reptiles as part of the Phase 1	Optimal – April to middle of June	Limited - Only likely required at potential	Presence/ absence reptile surveys will only be considered warranted to be

Survey	Scope of Survey	Survey Period	Survey Area Extent	Justification
	<p>Habitat Survey based on technical guidance by Amphibian and Reptile Conservation (ARC) Trust (Ref 6-36). Where habitats appear suitable for reptile populations and are to be permanently affected by the Project, presence/absence surveys will be undertaken following guidance provided by in Froglife Advice Sheet 10: Reptile Surveys (Ref 6-37). Survey involves laying refugia (carpet tiles/roof felts) and leaving them in situ for up to 1-3 months. They will be checked 7 times and then removed after the last survey.</p>	<p>and September. However, surveys can be carried out between April and September inclusive depending on the weather.</p>	<p>permanent infrastructure locations such as at either end of the route, or at Block Valve Stations - subject to the findings of the Phase 1 Habitat Survey.</p>	<p>completed where areas of moderate/high value reptile habitat could not be avoided by the Project. These data will inform the EclA and mitigation strategy. Temporary construction effects upon small areas of suitable reptile habitat will be able to be mitigated through appropriate pre-construction measures where habitats/features of interest for reptiles are identified e.g. supervised vegetation clearance at an appropriate time of year.</p>
<p>Terrestrial Invertebrates</p>	<p>Bespoke methodology will be agreed with stakeholders where habitats have suitability to support protected or notable invertebrate species.</p>	<p>Any potentially important terrestrial invertebrate habitat would be identified during the Phase 1 Habitat survey and desk study.</p>	<p>As per the Phase 1 Habitat Survey results - focused on the preferred pipeline route.</p>	<p>We will seek to avoid areas of suitable habitat in the first instance. If it is not possible to avoid habitats, surveys will be completed to confirm the assemblage of invertebrates present. The scope of surveys may include butterfly transects or surveys for a particular species group.</p>
<p>Aquatic Ecology</p>	<p>A habitat condition assessment (Modular River Physical MoRPh) survey of watercourses will be undertaken to inform river condition assessment, and ditch condition assessment, for BNG will be undertaken for all water bodies crossed or potentially impacted by the Project.</p>	<p>If required: September 2022 – June 2023</p>	<p>Focused on watercourse crossing points.</p>	<p>Main watercourses (such as the Louth canal and Rivers Great Eau and Long Eau) will be crossed through non-open cut techniques; however, habitat condition assessments will be undertaken to inform Biodiversity Net Gain calculations.</p>

Survey	Scope of Survey	Survey Period	Survey Area Extent	Justification
	<p>Aquatic ecology walkover survey to identify survey locations, followed by targeted surveys of crossing points and the locations of potential impacts, potentially to include: macroinvertebrate survey, macrophyte survey, River Habitat Survey (RHS), fish survey, pond survey.</p>			<p>Specific aquatic flora and fauna surveys are not proposed on the basis that the majority of the construction impacts on drains/ ditches crossed by open-cut techniques will be temporary and reversible, and that potential impacts (e.g., increase in suspended sediment) can be adequately addressed through standard mitigation techniques to be committed to in the CEMP. However, some targeted surveys may be required.</p>

Defining “Functionally Linked Land” for the purposes of Surveys

6.4.17 The term “Functionally Linked Land” was, for the purposes of selecting survey areas and the scope of ornithology surveys, broadly defined as any land that could reasonably be considered likely to support the function and integrity of an SPA (in this case either the Greater Wash SPA with marine components¹¹ or Humber Estuary SPA¹²) by providing habitats likely to be used regularly by species for which the SPAs are designated and pink-footed goose (*Anser brachyrhynchus*)¹³. Since only a limited range of species would be expected to feed on terrestrial habitats more than a few kilometres inland of the coast, a combination of factors were considered when designing the surveys:

- The likely core foraging distances inland of the SPAs for qualifying features of a relevant SPA;
- The known distribution of coastal aggregations of SPA species as recorded by British Trust for Ornithology WeBS Low Tide Surveys (reported in Frost *et al.*, 2021; Ref 6-39) and the known roosts and feeding areas (both coastal and inland) of such species as set out in Cutts *et al.* (Ref 6-40);
- The broad habitat types present along the proposed pipeline route and its environs, and any areas of habitat suitable for breeding Schedule 1 birds and qualifying features of the SPAs;
- The presence of any key inland sites at which these species have been recorded, if any, as identified in the Lincolnshire Bird Atlas (Ref 6-31); and
- The presence of terrestrial habitat for a range of SPA species inland of the Theddlethorpe Gas Terminal (TGT) site (South Somercotes and Theddlethorpe) which the pipeline route is likely to cross, identified by the British Trust for Ornithology Wetland Birds Survey (BTO WeBS) as Lincolnshire Grazing Marshes Core (High Tide) count area (although there have been no recent regular WeBS counts in this area¹⁴). This lies within a larger target recovery area for Coastal Grazing Marsh, identified under the Lincolnshire Coastal Grazing Marshes Project¹⁵, that is known to support a range of breeding and non-breeding waders and wildfowl.

6.4.1 NatureScot (formerly Scottish Natural Heritage) (SNH, 2016; Ref 6-41) identify a core foraging distance for pink-footed goose of 15-20 km from roosts, although a study by Bell (1988; Ref 6-42) showed that 82.1% of pink footed goose movements were within 8 km of the roost and it is likely that, at most locations, pink-footed goose activity tails off significantly at distances greater than this from roosts. There is no published guidance regarding the likely foraging distance of waders from coastal roosts, but it is known that golden plover and lapwing can forage considerable distances inland of coastal habitats in winter. The core foraging range for pink-footed goose is likely to be a reasonable proxy for wader foraging distances and has, for the purposes of assessment, been used as a default for the likely maximum distances at which golden plover and other wader species known to occur regularly inland (in this case curlew and lapwing¹⁶) might move inland to feed from coastal roosts and foraging areas, subject to the considerations set out above.

¹¹ Since the qualifying features of this SPA are either entirely pelagic, or occur on land only at specific coastal locations distant from the Project area, there will be no effects on the function or integrity of the Greater Wash SPA with marine components.

¹² The interest features for which the Humber Estuary SSSI is designated were also considered, due to the significant spatial overlap and similarities between qualifying/interest features of the SSSI and SPA.

¹³ Although the Humber Estuary is not designated as an SPA for pink-footed geese, it is of international importance for the species (Bridges *et al.*, Ref 6-38).

¹⁴ <https://app.bto.org/websonline/sites/data/sites-data.jsp#locId=LOC1438229>

¹⁵ <http://www.lincsmarshes.org.uk/wildlife>

¹⁶ Note that the other species for which the SPAs are designated would be unlikely to occur on terrestrial habitats this far from coastal habitats within which they nest or roost.

- 6.4.2 Outside of the areas surveyed for presence of SPA species in the context of potential functional linkages with the designated sites, surveyors amassed hundreds of hours of time within the survey area while at point counts and while travelling between formal survey locations. Point counts were placed strategically so that, wherever possible, they achieved panoramic views across large areas of open countryside, with the intention that activity of species potentially associated with the SPAs would be detected, if it occurred. Where Priority Species¹⁷ occurred outside of formal surveys, such occurrences were logged as ad hoc incidental records and, if necessary, followed up to determine any patterns of habitat use. This way, any use of habitats by qualifying species of SPAs outside of the functionally linked land survey areas (regardless of whether these occurred during formal surveys) could be used to review the scope of the functionally linked land surveys and to adjust it as required.
- 6.4.3 Considering the factors set out above, the following areas of onshore habitat were judged to be most likely to provide a supporting role to the designated sites and were targeted for more intensive surveys than elsewhere, as per the methods summarised in **Table 6-7**:
- At the southern end of the Project, all land up to 1 km either side of the Scoping Boundary within the approximately 8 km (subject to confirmation of the route alignment) of proposed pipeline route inland from TGT; and
 - At the northern end of the Project, all land up to 1km either side of the Scoping Boundary within the approximately 5 km of proposed pipeline corridor southwards from the Immingham Facility.

Assessment Assumptions/Limitations

- 6.4.4 At the time of writing, access had been granted by 53% of landowners within the Draft Order Limits and field surveys were ongoing. In addition, feedback from the first round of non-statutory consultation, as well as ongoing work by the Project team, have led to some changes from the original Scoping Corridor, much of which has yet to be surveyed. Therefore, the ecological baseline is not complete and further survey work is required. The assessment undertaken for this PEIR is based upon a review of desk study data, 1:12.5cm aerial photography, and the field survey data available at the time of writing.

6.5 Baseline Environment

Existing Baseline

- 6.5.1 The ecological baseline relevant to the Project is summarised below. Further details of the findings of desk and field-based studies, including evaluation of the relative nature conservation value of identified ecological features, will be provided within the ES.

Designated Sites

Statutory Designated Sites

- 6.5.2 There are four European designated sites within the Draft Order Limits:
- The Humber Estuary SPA;
 - The Humber Estuary Ramsar;
 - Saltfleetby-Theddlethorpe Dunes and Gibraltar Point SAC¹⁸; and

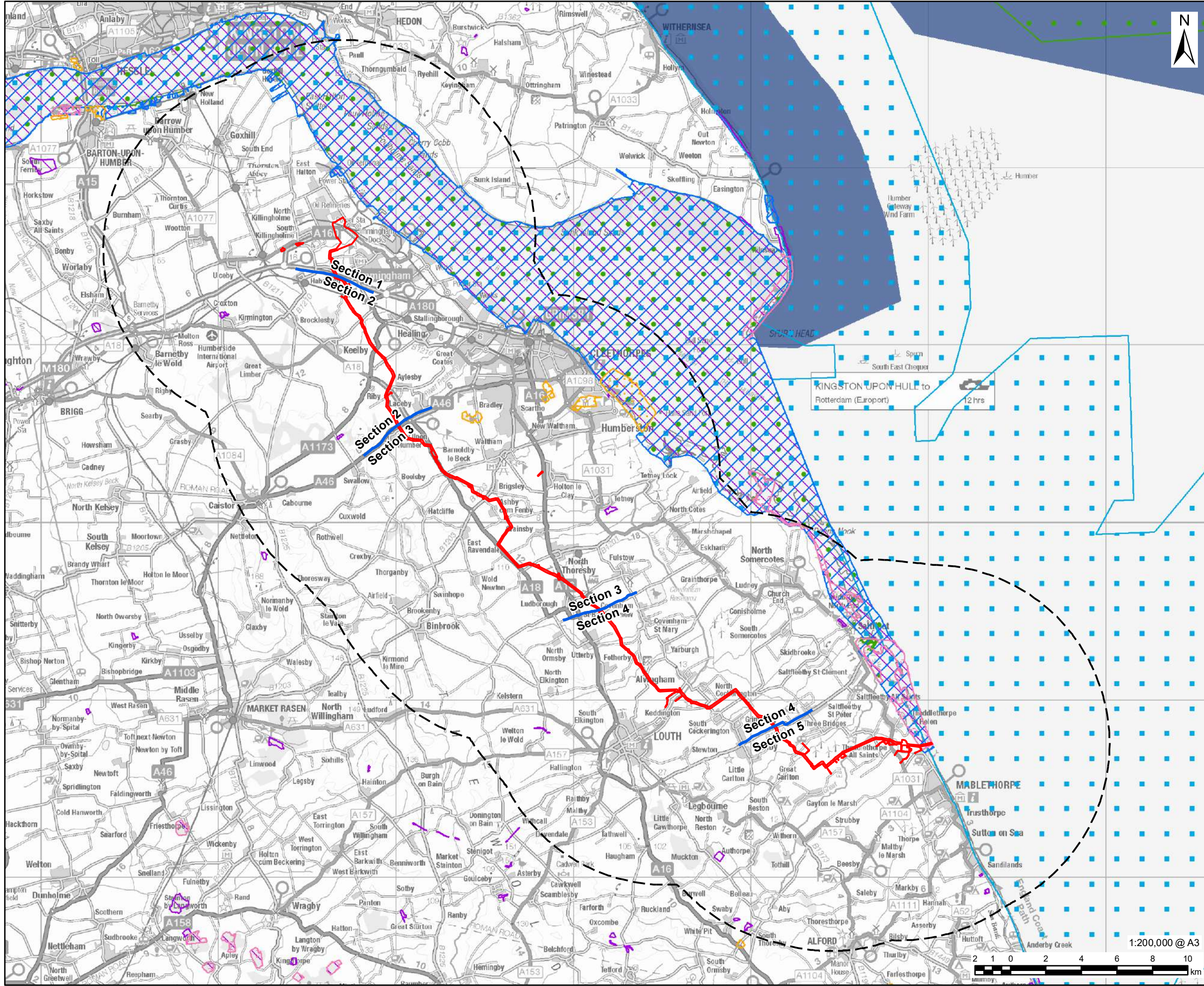
¹⁷ These are also referred to as “protected and notable species”, more information provided in section 6.7.

¹⁸ Although the Humber Estuary SPA and Ramsar and Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC are crossed by the Draft Order Limits, there will be no intrusive works in this location as the existing LOGGS pipeline will be used to transport CO₂.

- Greater Wash SPA with marine components¹⁹.

- 6.5.3 There is one further European designated site within 10 km of the Draft Order Limits – the Humber Estuary SAC, located 1.27 km north-east of the Draft Order Limits at its closest point.
- 6.5.4 There are 15 nationally designated sites (i.e., Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR)) within 10 km of the Draft Order Limits. There is one nationally designated site within the Draft Order Limits, which is Saltfleetby - Theddlethorpe Dunes SSSI.
- 6.5.5 Statutory designated sites that are overlapped by, or within 10 km of the Draft Order Limits, and the reasons for their designation, are summarised in **Table 6-8**.
- 6.5.6 Figure 6-1 shows the locations of the statutory designated sites in relation to the Draft Order Limits.

¹⁹ The end of the Draft Order Limits and the beginning of the SPA boundary are contiguous with Mean Low Water Springs.



LEGEND

	Draft Order Limits
	10km Study Area
	Ramsar
	Special Protection Area (SPA)
	Special Area of Conservation (SAC)
	Site of Special Scientific Interest (SSSI)
	National Nature Reserve (NNR)
	Local Nature Reserve (LNR)
	Marine Conservation Zone (MCZ)

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FIGURE TITLE

Figure 6-1

Statutory Designated Sites within 10km

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Table 6-8: Statutory Designated Sites for Nature Conservation within 10 km of the Draft Order Limits

Site	Grid Reference	Proximity to Draft Order Limits	Summary of Reasons for Designation
Humber Estuary SPA	TA241148	Within Section 5 of the Draft Order Limits.	<p>Qualifying features:</p> <ul style="list-style-type: none"> • avocet <i>Recurvirostra avosetta</i> (wintering and breeding) • bittern <i>Botaurus stellaris</i> (wintering), • hen harrier <i>Circus cyaneus</i> (wintering), golden plover <i>Pluvialis apricaria</i> (wintering), bar-tailed godwit <i>Limosa lapponica</i> (wintering), • ruff <i>Philomachus pugnax</i> (passage), • bittern <i>Botaurus stellaris</i> (breeding), • marsh harrier <i>Circus aeruginosus</i> (breeding), • little tern <i>Sternula albifrons</i> (breeding), shelduck <i>Tadorna tadorna</i> (wintering), • knot <i>Calidris canutus</i> (wintering and passage), • dunlin <i>Calidris alpina</i> (wintering and passage), • black tailed godwit <i>Limosa limosa</i> (wintering and passage), • redshank <i>Tringa tetanus</i> (wintering and passage). <p>The site is used regularly over winter by over 20,000 waterbirds.</p>
Humber Estuary Ramsar	TA238148	Within Section 5 of the Draft Order Limits	<p>Designated for habitats including dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons.</p> <p>The Humber Estuary Ramsar site supports a breeding colony of grey seals <i>Halichoerus grypus</i> at Donna Nook. The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most north-easterly breeding site in Great Britain of the natterjack toad <i>Bufo calamita</i>.</p> <p>The estuary supports a waterfowl assemblage of international importance (153,934 waterfowl, non-breeding season (5 year peak mean 1996/97-2000/2001).</p>

Site	Grid Reference	Proximity to Draft Order Limits	Summary of Reasons for Designation
			<p>The following bird species / populations occur at levels of international importance over winter and/or during the passage period (spring and autumn): golden plover, red knot, dunlin, black-tailed godwit, common redshank, common shelduck and bar-tailed godwit (JNCC, 2008).</p>
Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC	TF478909	Within Section 5 of the Draft Order Limits	<p>Habitats that are a primary reason for selection of this site: shifting dunes along the shoreline with marram grass <i>Ammophila arenaria</i>, fixed coastal dunes with herbaceous vegetation, dunes with sea buckthorn <i>Hippophae rhamnoides</i>, and humid dune slacks.</p> <p>Habitats present as a qualifying feature, but not a primary reason for selection of this site: embryonic shifting dunes.</p>
Greater Wash SPA with marine components	TF821744	Within Section 5 of the Draft Order Limits	<p>Qualifying features:</p> <ul style="list-style-type: none"> • red-throated diver <i>Gavia stellata</i> (wintering), • little gull <i>Hydrocoloeus minutus</i>, • sandwich tern <i>Thalasseus sandvicensis</i> (breeding), • common tern <i>Sterna hirundo</i> (breeding), • little tern <i>Sternula albifrons</i> (breeding); and • common scoter <i>Melanitta nigra</i>.
Humber Estuary SAC	TA232154	1.27 km north-east of Section 1 at the closest point	<p>Habitats that are a primary reason for selection of this site: Estuaries and mudflats and sandflats not covered by seawater at low tide.</p> <p>Habitats present as a qualifying feature, but not a primary reason for selection of this site: Sandbanks which are slightly covered by seawater all the time, coastal lagoons, <i>Salicornia</i> and other annuals colonizing mud and sand, Atlantic salt meadows, embryonic shifting dunes, shifting dunes along the shoreline with marram grass <i>Ammophila arenaria</i>, fixed coastal dunes with herbaceous vegetation and dunes with sea buckthorn <i>Hippopha rhamnoides</i>.</p> <p>Species present as a qualifying feature, but not a primary reason for site selection: sea</p>

Site	Grid Reference	Proximity to Draft Order Limits	Summary of Reasons for Designation
			lamprey <i>Petromyzon marinus</i> , river lamprey <i>Lampetra fluviatilis</i> , and grey seal <i>Halichoerus grypus</i> .
Saltfleetby - Theddlethorpe Dunes SSSI	TF481908	Within Section 5 of the Draft Order Limits	Includes flats, dunes, salt and freshwater marsh support an exceptionally rich flora and fauna. There are outstanding assemblages of vascular plants, invertebrates and breeding birds and it is the most north-easterly breeding site in Britain for the Natterjack Toad. The intertidal sands and muds provide extensive feeding and roosting grounds for wildfowl and waders including brent geese, shelduck and dunlin.
Humber Estuary SSSI	TA232155	1.27 km north-east of Section 1 at the closest point	The Humber Estuary supports nationally important habitats including intertidal mudflats and sandflats, coastal saltmarsh and associated saline lagoons, sand dunes and standing waters. The estuary supports nationally important numbers of 22 wintering waterfowl and nine passage waders, and a nationally important assemblage of breeding birds of lowland open waters and their margins. It is also nationally important for a breeding colony of grey seal, river lamprey and sea lamprey, a vascular plant assemblage and an invertebrate assemblage.
North Killingholme Haven Pits SSSI	TA166197	2.35 km north of Section 1	Large saline lagoons which provide roosting and feeding grounds for waterfowl. Nine species of specialist lagoonal species are recorded from the pits include the polychaete worm <i>Alkmaria romijni</i> . Designated for aggregations of non-breeding birds: <ul style="list-style-type: none"> • Black-tailed Godwit <i>Limosa limosa islandica</i>;
Swallow Wold SSSI	TA168048	2.90 km south-west of Section 2	Designated for: <ul style="list-style-type: none"> • CG2 - <i>Festuca ovina</i> - <i>Avenula pratensis</i> lowland calcareous grassland • CG4 - <i>Brachypodium pinnatum</i> lowland calcareous grassland

Site	Grid Reference	Proximity to Draft Order Limits	Summary of Reasons for Designation
Tetney Blow Wells SSSI	TA320007	4.08 km south-east of Section 3	Tetney Blow Wells consists of reedbeds together with base-rich fern and swamp vegetation associated with the calcareous water of four large artesian springs.
Muckton Wood SSSI	TF382811	6.52 km south-west of Section 5	An example of primary woodland on boulder clay at the eastern edge of the Lincolnshire Wolds. Alder replaces the typical oak/ash canopy with a hazel understorey in areas where there is sub-surface water movement towards Muckton Beck. The area is managed as hazel coppice-with-standards. The site supports one of the largest heronries in the county, with over 30 breeding pairs.
Sea Bank Clay Pits SSSI	TF532792	7.73 km south-east of Section 5	A series of isolated flooded clay workings of varying size, depth and topography which now support uncommon aquatic plant communities characteristic of the slightly brackish, eutrophic (nutrient-rich) water in addition to extensive reedbeds and a rich marginal wetland flora.
Swaby Valley SSSI	TF391776	9.33 km south of Section 5	This glacial overflow valley supports two habitats now scarce in Lincolnshire - floristically diverse, lime-rich marsh and unimproved chalk turf. The marsh borders a stream bisecting the valley floor and the interest of the grassland is increased by the terraced nature of the slopes. Designated for botanical interest.
Calceby Marsh SSSI	TF398772	9.42 km south of Section 5	An outstanding example of a base-rich marsh.
Saltfleetby - Theddlethorpe Dunes NNR	TF481908	Within Section 5 of the Draft Order Limits	Includes flats, dunes, salt and freshwater marsh support an exceptionally rich flora and fauna.
Bradley & Dixon Woods LNR	TA242059	2.29 km north-east of Section 3	Ancient woodland.
Weelsby Woods Park LNR	TA285073	3.84 km north-east of Section 3	A large urban public park and woodland.

Site	Grid Reference	Proximity to Draft Order Limits	Summary of Reasons for Designation
Cleethorpes Country Park LNR	TA306067	3.88 km north-east of Section 3	A 64-hectare country park which includes a lake, wetland, woodland, grassland, hedgerows and scrub habitats.
Cleethorpes LNR	TA331070	5.80 km north-east of Section 3	Habitats include saltmarshes, mud flats, sand dunes and sand banks.
Donna Nook NNR	TF447961	6.69 km north of Section 5	The reserve consists of dunes, slacks and inter-tidal areas. In winter, there is a breeding colony of grey seals, with more than 2,000 pups born annually.

Non-Statutory Designated Sites

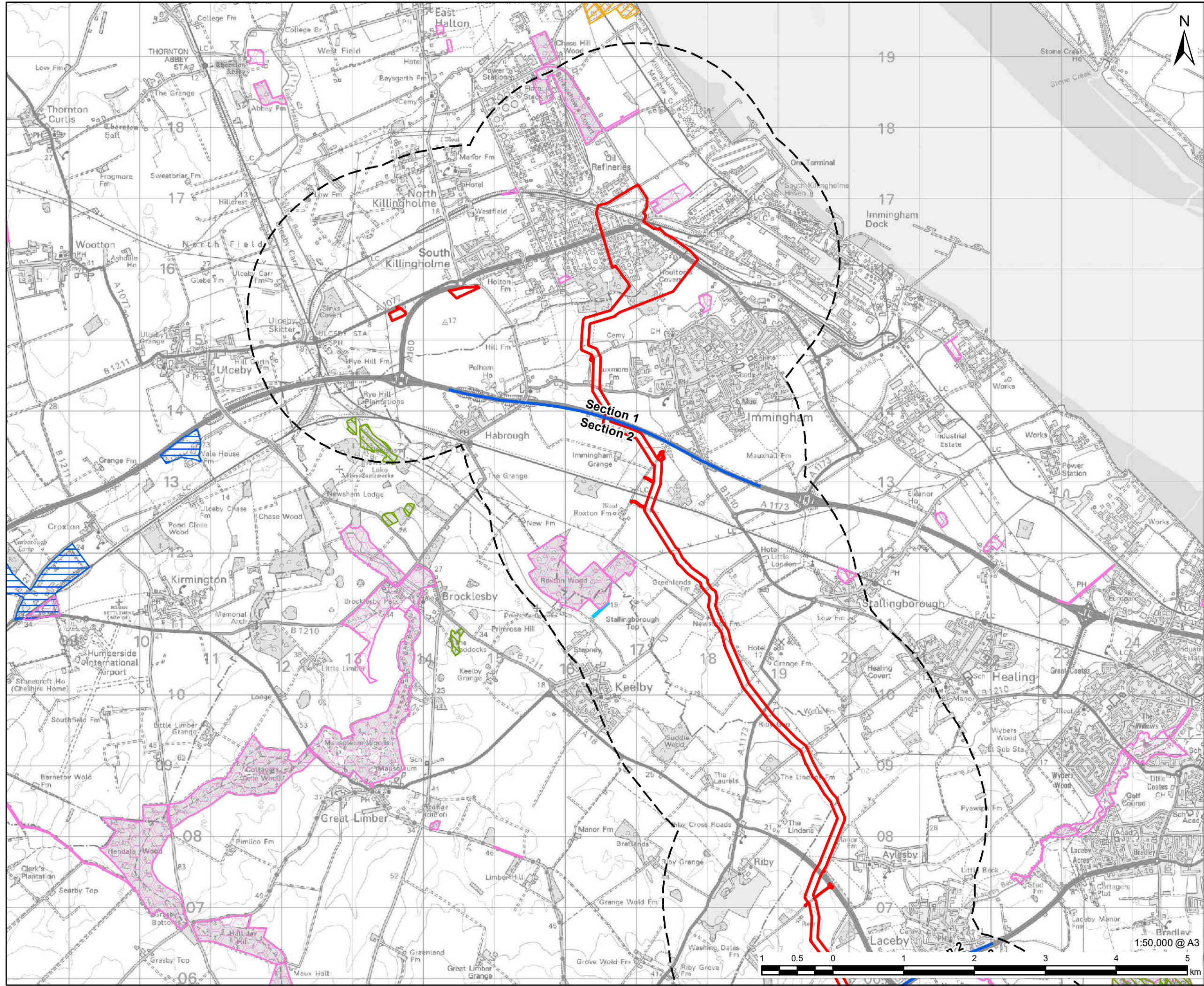
6.5.7 There are 33 non-statutory sites designated for their nature conservation value within 2 km of the Draft Order Limits; these designations include Local Wildlife Sites (LWS), Sites of Nature Conservation Interest (SNCI) Local Wildlife Trust (LWT) sites or Roadside Nature Reserve (RNR) sites. These are summarised in **Table 6-9** below. The locations of non-statutory designated sites in relation to the Draft Order Limits are provided in **Figure 6-2**.

Table 6-9: Non-Statutory Designated Sites Within 2 km

Site	Grid Reference	Proximity to Draft Order Limits	Summary Reasons for Designation
River Freshney Headwaters LWS	TA222053	Within Section 3 of the Draft Order Limits	Designated for its wetland habitat.
Waithe Beck East LWS	TA247018	Within Section 3 of the Draft Order Limits	Designated for its standing water and mosaic of standing water, neutral grassland and flowing water.
Great Eau SNCI	TF440844	Within Section 5 of the Draft Order Limits	Designated for its woodland, wet woodland, running water, and habitat mosaic.
Long Eau, East SNCI	TF439881	Within Section 5 of the Draft Order Limits	Designated for its wetland with a biodiverse species assemblage and habitat mosaic.
Great Eau LWS	TF443849	Within Section 5 of the Draft Order Limits	Designated for its woodland, wet woodland, running water, and habitat mosaic.
Brackenbrough Road Verge LWS	TF339918	8 m north-east of Section 4	Designated for its species rich neutral grassland.
Brackenbrough RNR	TF339918	11 m north-east of Section 4	Designated for its species rich neutral grassland.
Rosper Road Pools LWS	TA175170	0.05 km east of Section 1	Designated for its standing water with botanical interest.

Site	Grid Reference	Proximity to Draft Order Limits	Summary Reasons for Designation
Red Leas Lane Verges LWS	TF386904	0.08 km north-west of Section 4	Unimproved calcareous grassland, damp grassland.
Brackenbrough Wood LWS	TF340908	0.22 km south-west of Section 4	Designated for its structurally diverse woodland.
Mablethorpe North Dunes LWS	TF501864	0.22 km south of Section 5	Designated for its dune habitats.
Long Eau, West SNCI	TF412866	0.28 km south-west of Section 5	Designated for its running water with biodiverse species assemblage and its wetland with a biodiverse species assemblage.
Irby Dales LWS	TA193054	0.34 km south-west of Section 2	Designated for its mosaic of species rich neutral and calcareous grassland.
Roxton Wood LWS	TA161116	0.47 km south-west of Section 2	Designated for its woodland
Homestead Park Pond LWS	TA179155	0.49 km south-east of Section 1	Designated for its species rich neutral grassland
Saltbyfleet-Theddlethorpe Dunes LWT	TF467917	0.51 km north of Section 5	The reserve contains tidal sand and mudflats, salt and freshwater marshes and sand dunes.
Mayflower Wood Meadow LWS	TA159158	0.59 km north-west of Section 1	Designated for its species rich neutral grassland
Medieval Village of Beesby LWS	TF264963	0.60 km south-west of Section 3	Designated for its mosaic of species rich neutral and calcareous grassland.
Burkinshaw's Covert LWS	TA160 183	0.87 km north-west of Section 1	Designated for its species rich wet woodland and neutral grassland
Station Road Field LWS	TA168181	0.88 km north-west of Section 1	Designated for its mosaic of species rich neutral grassland and species rich calcareous grassland. Habitat is no longer present.
Long Eau, East LWS	TF441883	1.05 km north-east of Section 5	Designated for its wetland with a biodiverse species assemblage and habitat mosaic.
Long Eau, West LWS	TF407862	1.07 km south-west of Section 5	Designated for its running water with biodiverse species assemblage and its wetland with a biodiverse species assemblage.

Site	Grid Reference	Proximity to Draft Order Limits	Summary Reasons for Designation
Great Carlton Wetlands LWS	TF409863	1.07 km west of Section 5	Wetland habitats – no further information available.
Roxton Wood RNR	TA164111	1.12 km south-west of Section 2	Road verge
Roxton Wood Road Verges LWS	TA165112	1.12 km south-west of Section 2	Road verge / green lane / path
Eastfield Road Railway Embankment LWS	TA152170	1.13 km west of Section 1	Designated for its species rich neutral grassland and species rich calcareous grassland. .
Irby Holmes Wood	TA203032	1.14 km south-west of Section 3	Designated for its plantation on ancient woodland.
Irby Dales Wood West LWS	TA184051	1.24 km south-west of Section 2	Designated for its plantation on ancient woodland.
Manby Wetlands LWS	TF407863	1.42 km west of Section 4	Designated for its species rich neutral grassland, running or standing water with botanical interest and its botanically interesting wetland areas.
Helen House Farm Grassland LWS	TF462853	1.52 km west of Section 5	Grassland – no further information available.
Stallingborough Meadow LWS	TA199116	1.72 km east of Section 2	Designated for its standing water with botanical interest
Stallingbrough Meadows East LWS	TA200116	1.84 km east of Section 2	Designated for its species rich neutral grassland
Buck Beck East LWS	TA295061	1.92 km north of Section 3	Watercourse – no further information available.



- LEGEND
- Draft Order Limits
 - Route Section Break
 - 2km Study Area
 - Ancient Woodland
 - Local Geological Site
 - Local Wildlife Site
 - Local Wildlife Trust
 - Road Nature Reserve

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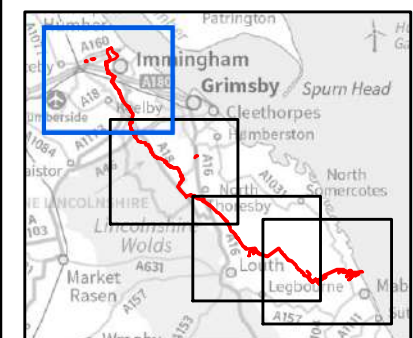
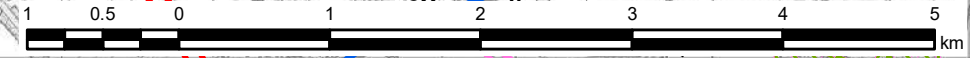


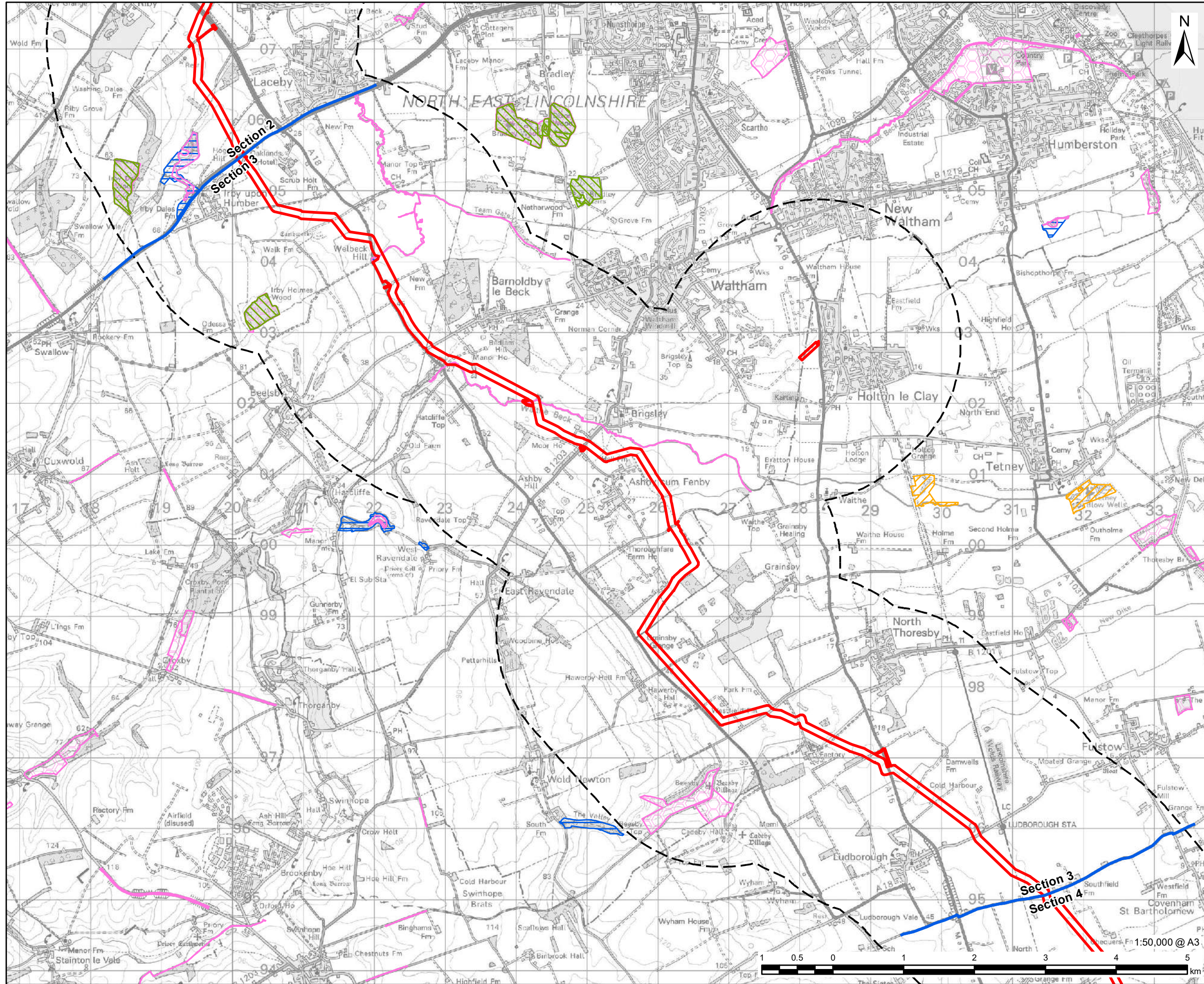
FIGURE TITLE
Figure 6-2 (1 of 4)
Non-Statutory Designated Sites within 2km

ISSUE PURPOSE
 PEIR

PROJECT NUMBER / REFERENCE
 60668955 / VCCS_221102_PEIR_6-2

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- LEGEND**
- Draft Order Limits
 - Route Section Break
 - 2km Study Area
 - Ancient Woodland
 - Local Geological Site
 - Local Wildlife Site
 - Local Wildlife Trust

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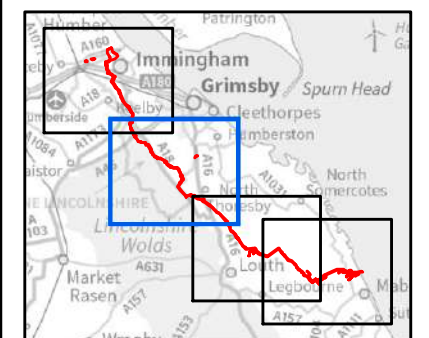
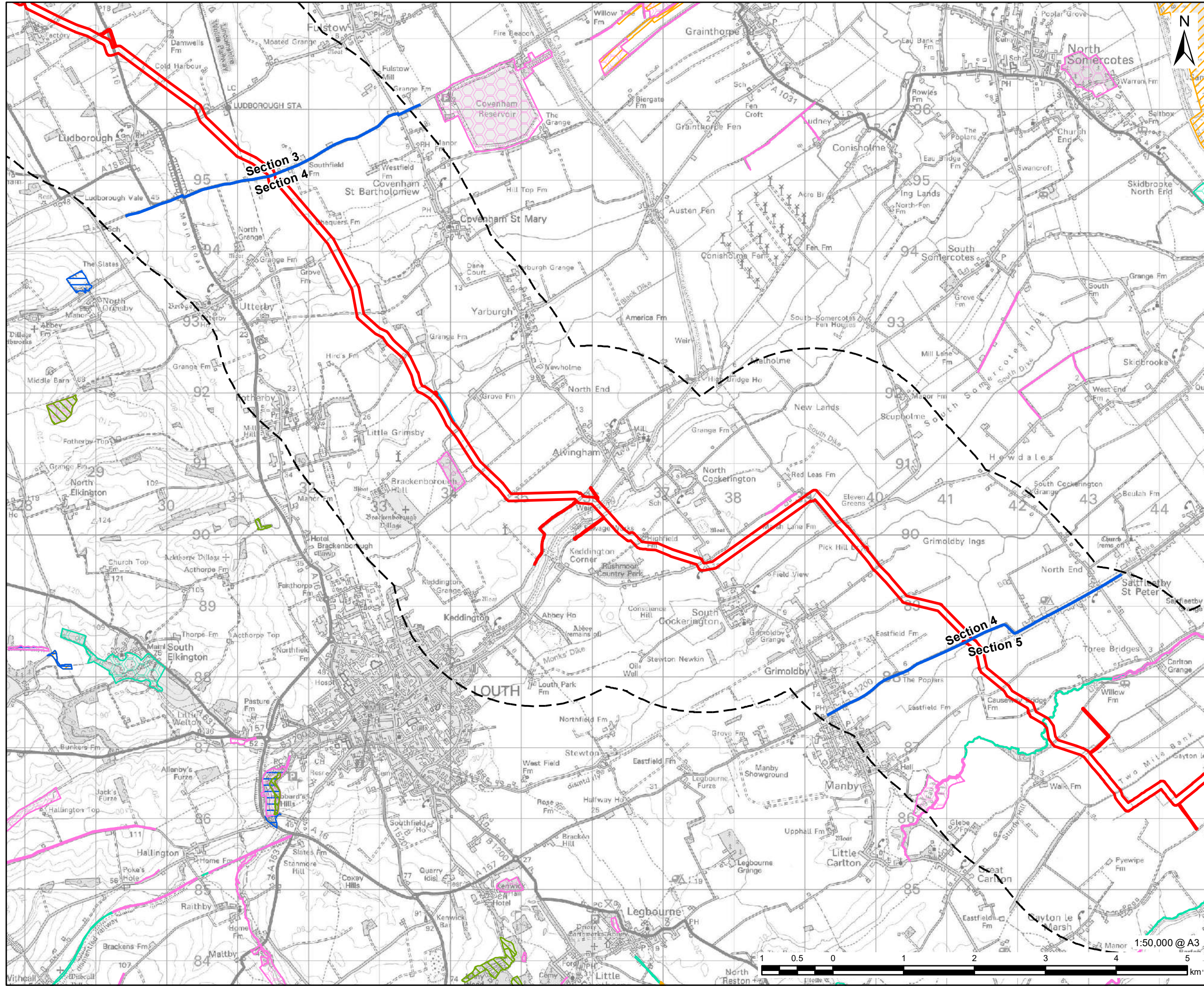


FIGURE TITLE
 Figure 6-2 (2 of 4)
 Non-Statutory Designated Sites within 2km

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LEGEND

- Draft Order Limits
- Route Section Break
- 2km Study Area
- Ancient Woodland
- Local Geological Site
- Local Wildlife Site
- Local Wildlife Trust
- Road Nature Reserve
- Site of Nature Conservation Interest

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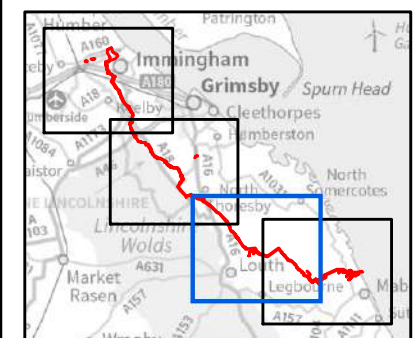


FIGURE TITLE

Figure 6-2 (3 of 4)
Non-Statutory Designated Sites within 2km

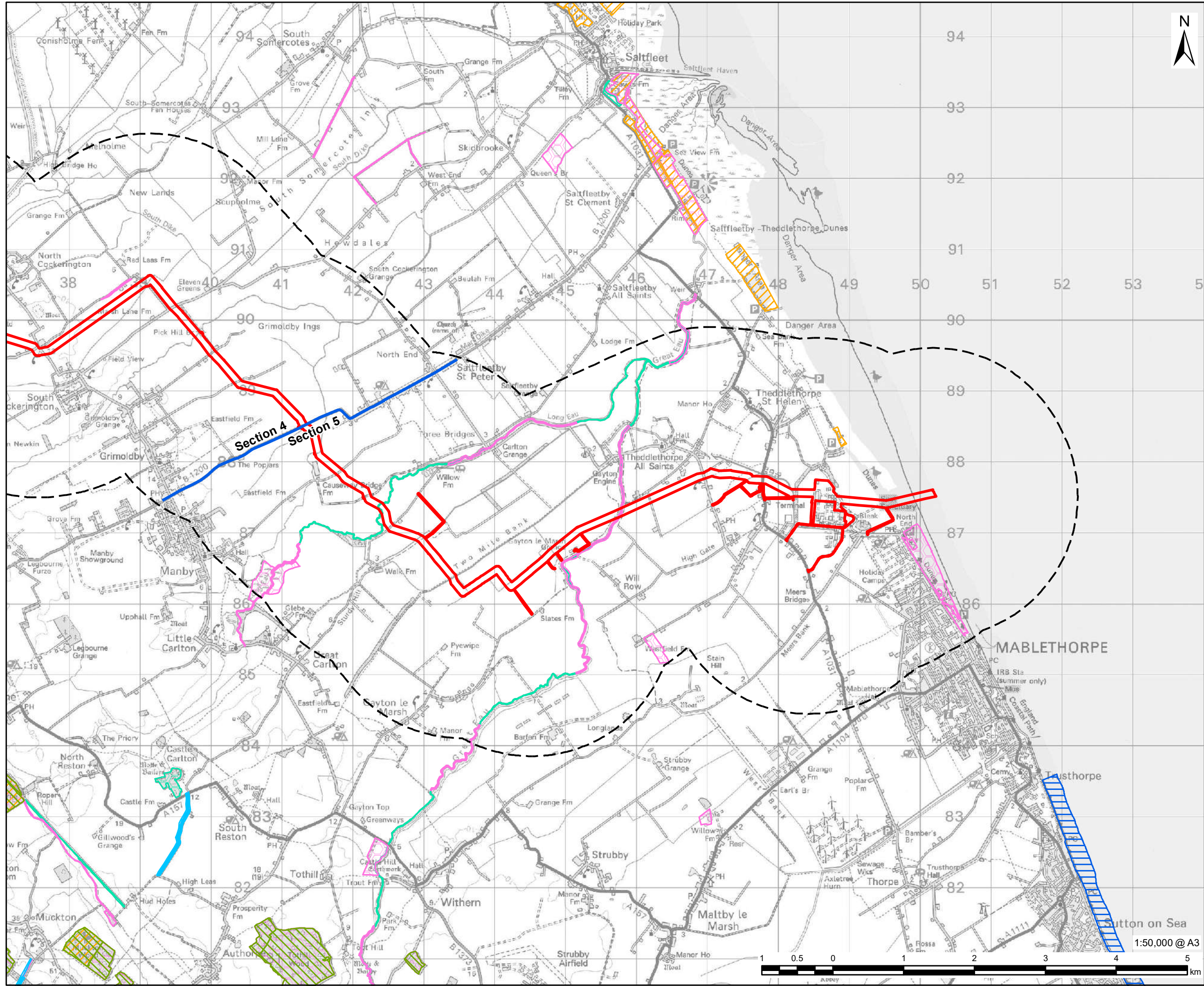
ISSUE PURPOSE

PEIR

PROJECT NUMBER / REFERENCE

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LEGEND

- Draft Order Limits
- Route Section Break
- 2km Study Area
- Ancient Woodland
- Local Geological Site
- Local Wildlife Site
- Local Wildlife Trust
- Road Nature Reserve
- Site of Nature Conservation Interest

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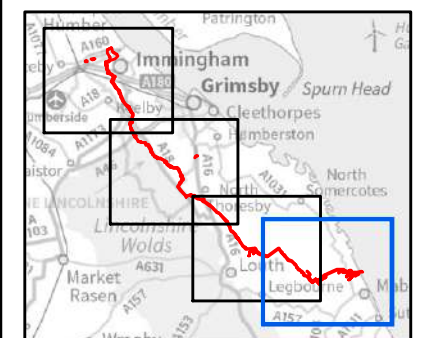


FIGURE TITLE
Figure 6-2 (4 of 4)
Non-Statutory Designated Sites within 2km

ISSUE PURPOSE
 PEIR

PROJECT NUMBER / REFERENCE
 60668955 / VCCS_221102_PEIR_6-2

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Habitats of Principal Importance

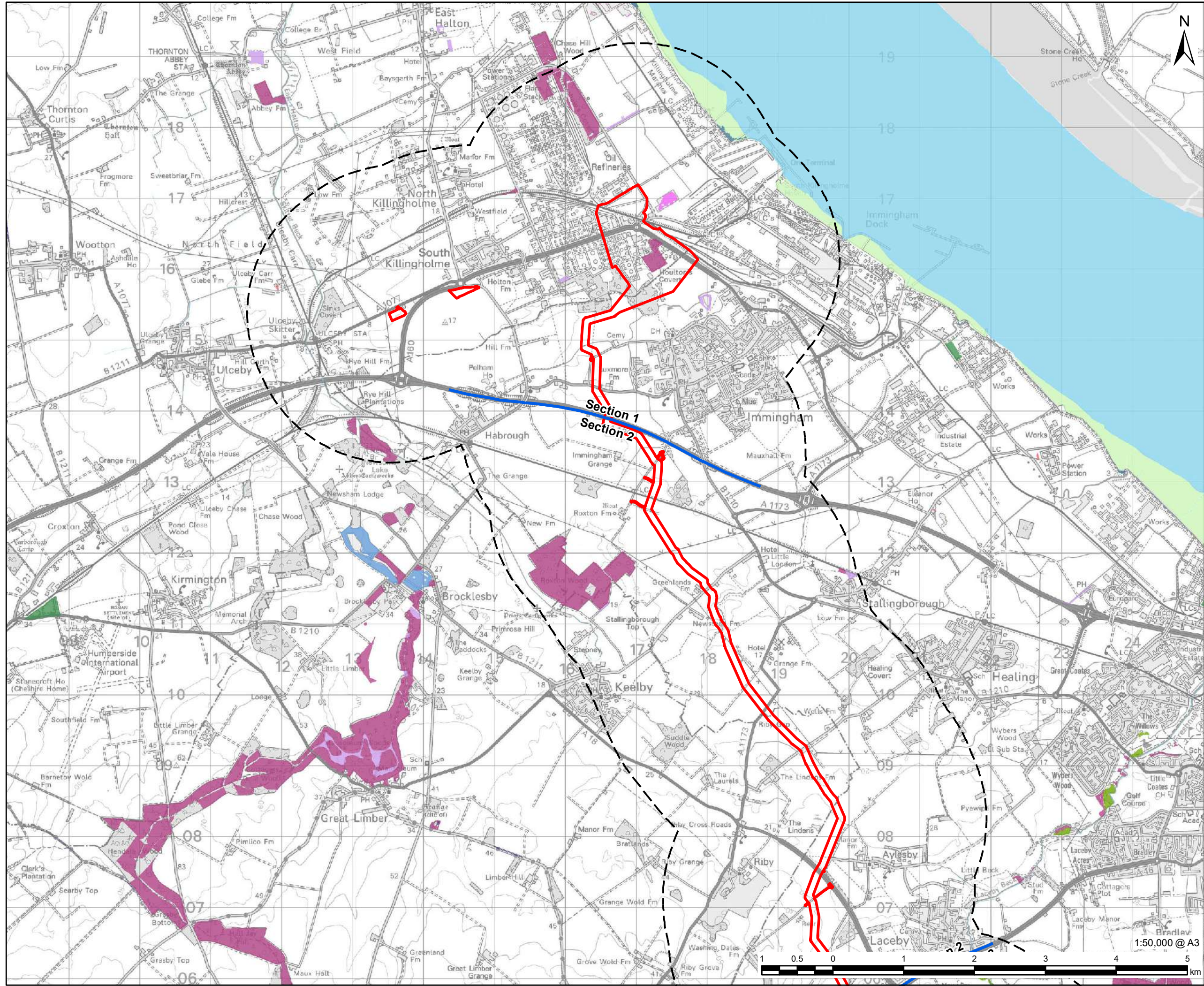
6.5.8 The following Habitats of Principal Importance (HPI) are present within the Draft Order Limits:

- coastal sand dunes;
- lowland mixed deciduous woodland;
- woodpasture and parkland;
- coastal and floodplain grazing marsh;
- rivers;
- ponds; and
- hedgerows.

6.5.9 In addition, the following HPI have been identified within 2 km of the Draft Order Limits:

- coastal and floodplain grazing marsh;
- coastal saltmarsh;
- coastal sand dunes;
- eutrophic standing waters;
- intertidal mudflats;
- lowland calcareous grassland;
- lowland fens;
- lowland meadows;
- lowland mixed deciduous woodland;
- woodpasture and Parkland;
- ponds;
- reedbeds;
- rivers;
- traditional orchards;
- wet woodland; and
- hedgerows.

6.5.10 The locations of HPI in relation to the Draft Order Limits are provided in **Figure 6-3**.



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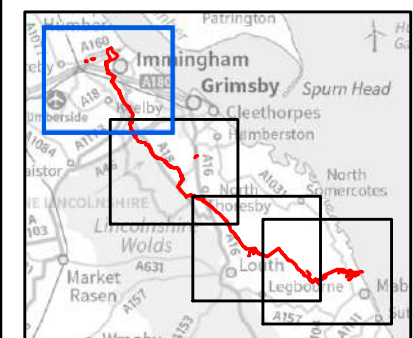
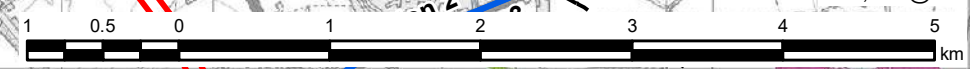


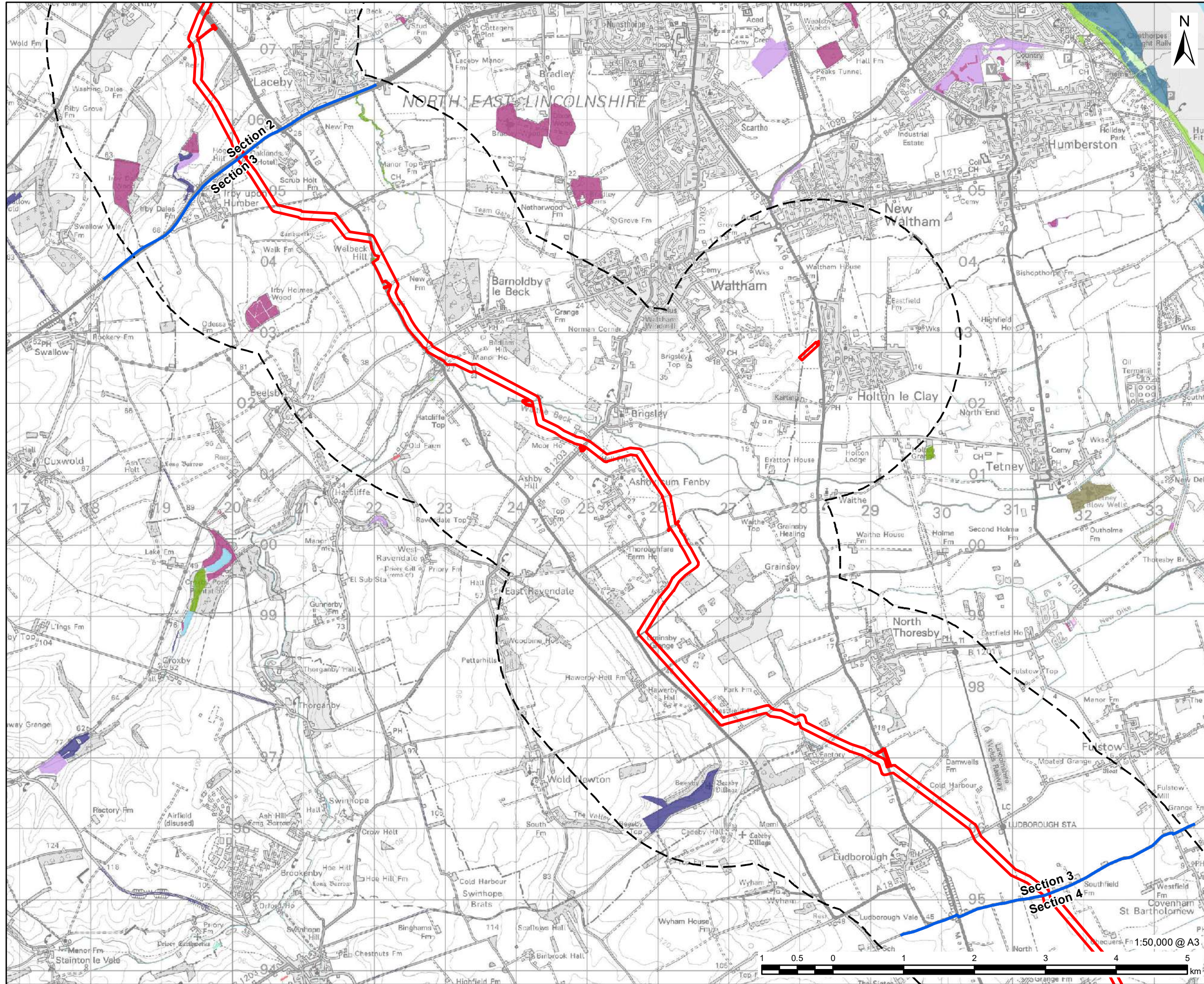
FIGURE TITLE

Figure 6-3 (1 of 4)

Habitats of Principal Importance

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LEGEND

- Draft Order Limits
- Route Section Break
- 2km Study Area
- Habitat of Principal Importance**
- Coastal Saltmarsh
- Coastal Sand Dunes
- Eutrophic Standing Waters
- Intertidal Mudflat
- Lowland Calcareous Grassland
- Lowland Dry Acid Grassland
- Lowland Fen
- Lowland Meadow
- Lowland Mixed Deciduous Woodland
- Reedbed
- River (Priority Habitat)
- Traditional Orchards
- Wet Woodland

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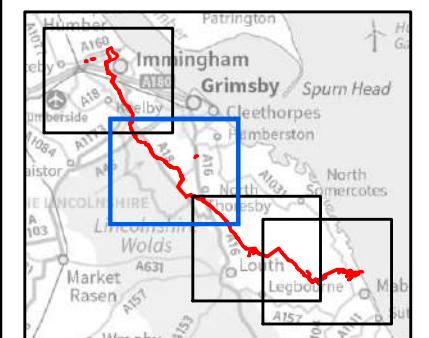
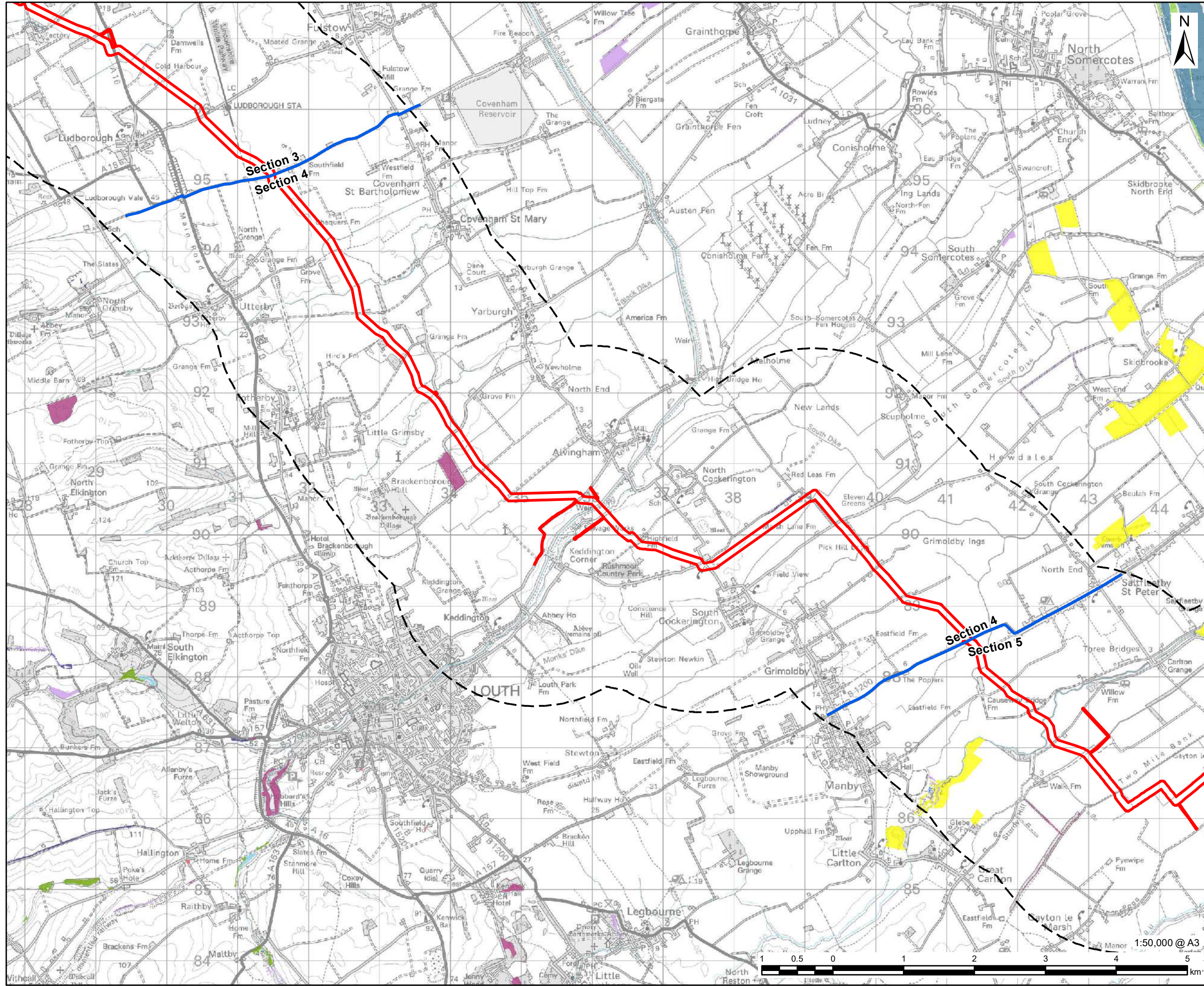


FIGURE TITLE
 Figure 6-3 (2 of 4)
 Habitats of Principal Importance

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LEGEND

- Draft Order Limits
- Route Section Break
- 2km Study Area

Habitat of Principal Importance

- Coastal and floodplain grazing marsh
- Coastal Saltmarsh
- Coastal Sand Dunes
- Lowland Calcareous Grassland
- Lowland Fen
- Lowland Meadow
- Lowland Mixed Deciduous Woodland
- Ponds
- Reedbed
- River (Priority Habitat)
- Traditional Orchards
- Wet Woodland

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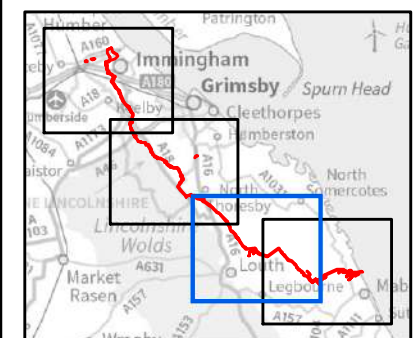
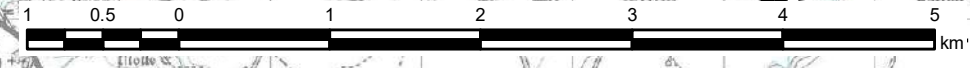
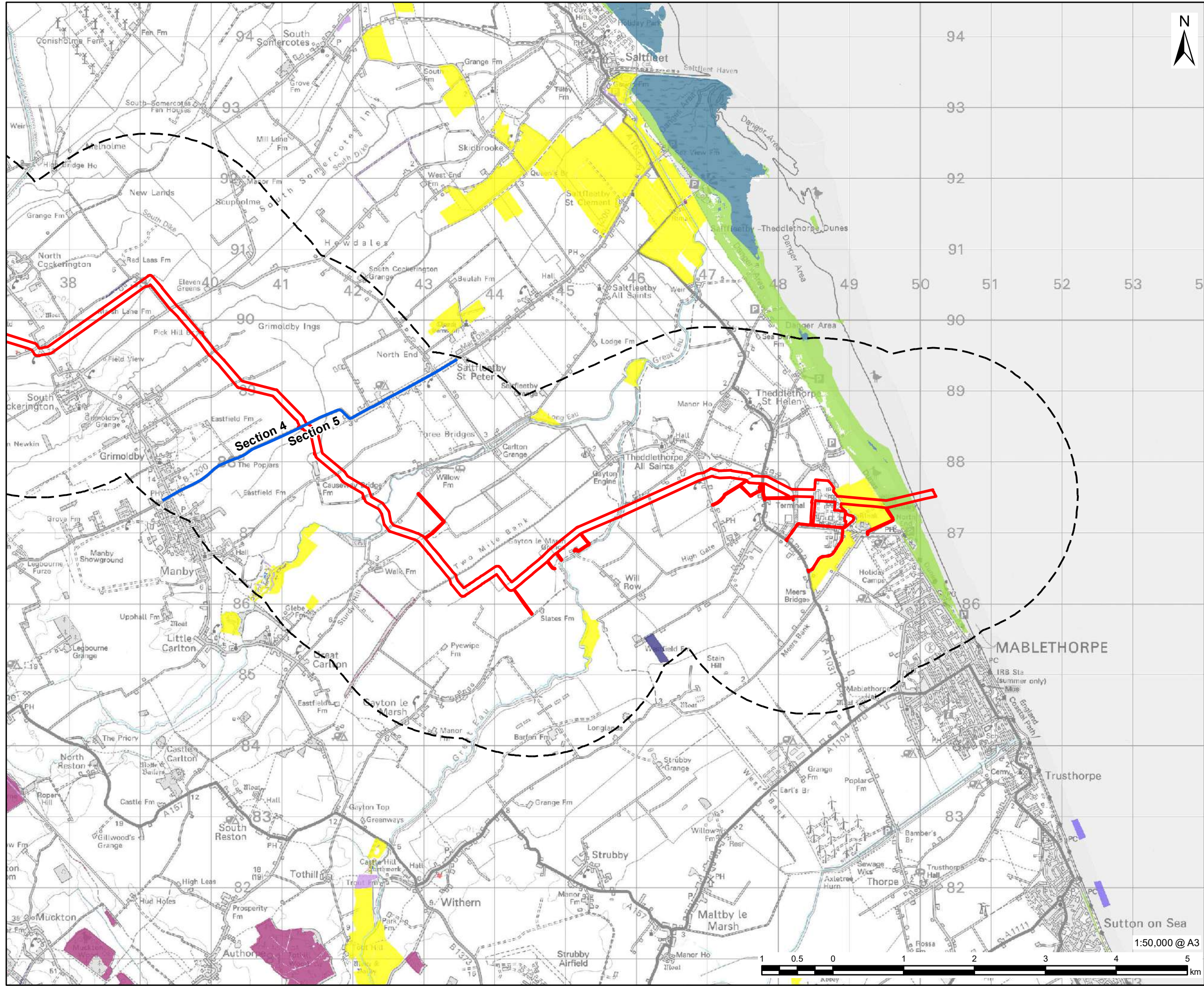


FIGURE TITLE

Figure 6-3 (3 of 4)
Habitats of Principal Importance

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LEGEND

- Draft Order Limits
- Route Section Break
- 2km Study Area
- Habitat of Principal Importance**
- Coastal and floodplain grazing marsh
- Coastal Saltmarsh
- Coastal Sand Dunes
- Lowland Calcareous Grassland
- Lowland Fen
- Lowland Meadow
- Lowland Mixed Deciduous Woodland
- Peat and Clay Exposure with Piddocks
- Ponds
- Reedbed
- River (Priority Habitat)
- Traditional Orchards

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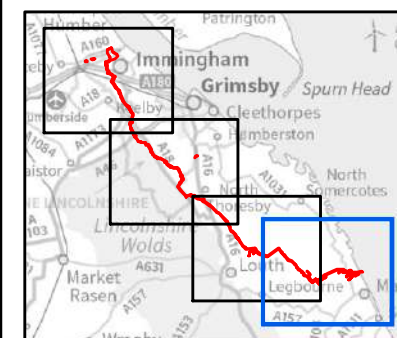


FIGURE TITLE

Figure 6-3 (4 of 4)

Habitats of Principal Importance

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6.6 Extended Phase 1 Habitat Survey

6.6.1 The habitats present within the Draft Order Limits are summarised below and shown in **Figure 6-4** in *PEIR Volume III*. For ease of reporting, the route has been split into 5 sections as defined within *Chapter 3: The Viking CCS Pipeline*:

- Section 1 - Rosper Road (Immingham) to A180;
- Section 2 - A180 to A46;
- Section 3 - A46 to Pear Tree Lane);
- Section 4 - Pear Tree Lane to Manby Middlegate (B1200); and
- Section 5 – Manby Middlegate (B1200) to Theddlethorpe and down to MLWS.

6.6.2 Habitats have been identified through a combination of desk-based surveys and field surveys. Detailed target notes will be available within an Extended Phase 1 habitat survey report, provided as an appendix to the ES.

6.6.3 Habitats identified within the Draft Order Limits are:

- Semi-natural broad-leaved woodland;
- broad leaved plantation woodland;
- scattered scrub;
- scattered trees;
- semi-improved neutral grassland;
- improved grassland;
- poor semi-improved grassland;
- tall ruderal;
- standing water;
- running water;
- dry ditch;
- sand dunes;
- arable;
- intact species poor hedgerow with trees;
- intact species rich hedgerow with trees;
- buildings;
- bare ground / hardstanding.

Section 1 – Rosper Road, Immingham to the A180

Broadleaved plantation woodland

- 6.6.4 Desk based mapping identified an unnamed area of broadleaved plantation woodland to the north-east of Manby Road (the A1173), and a further area of woodland to the south-west of Manby Road – Houlton's covert. Access was not available to these areas at the time of writing.
- 6.6.5 A further area of semi-mature broadleaved plantation woodland was identified to the south of Houlton's covert. Canopy species comprised of hawthorn *Crataegus monogyna*, ash *Fraxinus excelsior*, crack willow *Salix fragilis*, English oak *Quercus robur*, lime *Tilia* sp., and silver birch *Betula pendula*.

Scattered scrub

- 6.6.6 A mosaic of grassland and scattered scrub was present near the industrial areas in the north of the Study Area. Access was not available to these areas at the time of writing.

Semi-improved neutral grassland

- 6.6.7 A small strip of poor semi-improved neutral grassland was present within the Study Area. This habitat was dominated by perennial rye grass *Lolium perenne* with abundant red fescue *Festuca rubra* and occasional Yorkshire fog *Holcus lanatus*, meadow buttercup *Ranunculus acris*, creeping thistle *Cirsium arvense*, red clover *Trifolium pratense* and white clover *Trifolium repens*.

Improved grassland

- 6.6.8 A large parcel of improved grassland was present to the north of Habrough Road. This had been recently cut at the time of survey. The grassland was dominated by perennial rye grass, with other species present including Yorkshire fog, sweet vernal grass *Anthoxanthum odoratum*, tufted hair grass *Deschampsia cespitosa*, red clover and white clover.

Tall Ruderal

- 6.6.9 Tall ruderal vegetation was present along field margins dominated by common nettle *Urtica dioica*.

Open water

- 6.6.10 Waterbodies associated with the industrial areas in the north of the Study Area were identified using OS maps and aerial photography. Approximately nine waterbodies were identified within the Draft Order Limits, however most of these appear to be settlement ponds. Access was not available to these areas at the time of writing.

Running water

- 6.6.11 Several un-named watercourses were present within the Study Area. Access was not available to watercourses within the industrial areas within the north of the Study Area. In areas where access was granted, watercourses comprised wet ditches on field boundaries.

Arable

- 6.6.12 Several arable fields were present between Immingham and the A180. Arable fields included areas that had been harvested and contained stubble, fields used for cereal production and fields containing grass leys.

Intact species poor hedgerow with trees

- 6.6.13 Hedgerows with trees were present on the arable field boundaries. These were generally dominated by hawthorn with occasional dogrose *Rosa canina*, and an understory of

common nettle, bramble *Rubus fruticosus* agg., perennial rye grass, common hogweed *Heracleum sphondylium*, creeping buttercup and cleavers *Galium aparine*.

Buildings

- 6.6.14 Industrial buildings were present to the north and south of Humber Road (the A160). Access was not available to these areas at the time of writing, however these are unlikely to be directly impacted.

Bare ground / Hardstanding

- 6.6.15 Buildings and structures in the north of the Study Area were surrounded by roads and hardstanding. Access was not confirmed to these areas at the time of writing.

Section 2 – A180 to A46

Scattered Trees

- 6.6.16 A line of trees was present on the boundaries of arable fields in the middle of Section 2. Species comprised of cherry *Prunus* sp. and whitebeam *Sorbus aria*.

Semi-improved neutral grassland

- 6.6.17 Grassland habitats were identified to the north of Keelby Road through desk-based mapping. An additional area of semi-improved grassland was identified to the south-east of the A1173.

Running Water

- 6.6.18 North Beck Drain contained slow flowing water and some emergent vegetation. Himalayan balsam *Impatiens glandulifera* was present. Four further watercourses / field drains were identified through desk-based mapping and were not accessible at the time of writing.

Arable

- 6.6.19 Arable habitats were present throughout Section 2 comprised of fields used to grow crops.

Hedgerow with Trees

- 6.6.20 Both species rich and species poor hedgerows with trees were present on the boundaries of arable fields within Section 2 of the Study Area.

Hardstanding

- 6.6.21 The Draft Order Limits cross several roads. These include Keelby Road, the A1173, Wells Road and the A18.

Section 3 – A46 to Pear Tree Lane

Semi-natural broad-leaved woodland

- 6.6.22 There was a small area of semi-natural broad-leaved woodland associated with Barnoldby Le Beck Park. Trees species present included semi mature ash, sycamore *Acer pseudoplatanus*, beech *Fagus sylvatica*, cherry, hazel *Corylus avellana*, hawthorn, rowan *Sorbus aucuparia*, field maple *Acer campestre* and oak.

- 6.6.23 There was also a small area of woodland dominated by hawthorn to the north of Grainsby Grange.

Broadleaved plantation woodland

- 6.6.24 There was an area of newly planted woodland adjacent to Waithe Beck with canopy species including oak, alder, ash and hazel.

Semi-improved neutral grassland

6.6.25 Semi-improved neutral grassland was identified to the north of Laceby Beck. Grassland habitat was dominated by false oat grass, with common knapweed, common hogweed, rough meadow grass *Poa trivialis*, creeping thistle, Yorkshire fog, vetch *Vicia* sp., oxeye daisy *Leucanthemum vulgare*, dock *Rumex* sp. and yarrow *Achillea millefolium*. There was also semi-improved neutral grassland within Barnoldby le Beck Park.

Open Water

6.6.26 There was one pond present within Section 3 of the Draft Order Limits, to the north of Hall Farm at Ashby Cum Fenby.

Running water

6.6.27 The watercourse from Welbeck Spring was found to have a depth approximately 30 cm, banks were grassy and at an approximate angle of 45 degrees.

6.6.28 Waithe Beck was a small watercourse, approximately 1.5 m wide and 20 cm deep with a moderate flow and gravel substrate.

6.6.29 There were also un-named watercourses and ditches crossed by the Project.

Arable

6.6.30 The majority of the habitats within this section of the route were arable fields used to grow crops.

Hedgerow with trees

6.6.31 Both species rich and species poor hedgerows were present along the route. Hedgerows varied in composition, but were generally dominated by hawthorn, with occasional blackthorn, ash, field maple, dog rose and elder.

Defunct Hedgerow

6.6.32 There was a defunct hawthorn hedgerow along the route.

Dry ditch

6.6.33 There was a dry ditch, densely vegetated with tall ruderal species along the route.

Hardstanding

6.6.34 This habitat was present where the Draft Order Limits crosses roads.

Section 4 – Pear Tree Lane to Manby Middlegate (B1200)

Semi-improved neutral grassland

6.6.35 Desk based study indicated that an area of semi-improved neutral grassland was present to the north of Ings Lane and adjacent to the Louth Canal.

Running water

6.6.36 The route crosses Yarburgh beck, the Louth canal, and several ditches / unnamed watercourses.

Arable

6.6.37 The majority of the habitats within this section of the route were arable fields used to grow crops.

Bare ground / Hardstanding

6.6.38 This habitat was present where the Draft Order Limits crosses roads.

Section 5 – Manby Middlegate (B1200) to Theddlethorpe and down to MLWS

Mixed plantation Woodland

6.6.39 There is a strip of woodland to the east of The Cut watercourse.

Semi-improved neutral grassland

6.6.40 Desk based mapping indicates that there is semi-improved neutral grassland to the east of the former Viking Gas Terminal.

Improved Grassland

6.6.41 Improved grassland was dominated by perennial rye grass with a uniform sward height.

Running Water

6.6.42 The route crosses the Long Eau river which was approximately 6 m wide and slow flowing. The route also crosses the Two Mile Bank drain, the Great Eau, the Cut and unnamed ditches and watercourses.

Sand Dunes

6.6.43 Sand dunes are present at the south-eastern end of the route.

Arable

6.6.44 The majority of the habitats within this section of the route were arable fields used to grow crops.

Bare Ground

6.6.45 There is bare ground on the site of the former Theddlethorpe Gas Terminal.

6.7 Protected and Notable Species

6.7.1 The following protected and notable faunal species were identified through the desk study or Phase 1 habitat survey as present within the Draft Order Limits, or potentially within the zone of influence of the Project.

Invertebrates

6.7.2 **Table 6-10** summarises records for invertebrates recorded within 2 km of the Draft Order Limits within the last 10 years.

Table 6-10: Invertebrate Records within 2 km of the Draft Order Limits

Taxonomic group	Common Name	Scientific Name	Number of records	Most recent year recorded
Mollusc	American Jack Knife Clam	<i>Ensis leei</i>	2	2012
Insect - hymenopteran	-	<i>Arge berberidis</i>	1	2020
Insect - moth	Barred Sycamore Pigmy	<i>Stigmella speciosa</i>	1	2019
Insect - moth	Beaded Chestnut	<i>Agrochola lychnidis</i> *	11	2018

Taxonomic group	Common Name	Scientific Name	Number of records	Most recent year recorded
Insect - moth	Blair's Shoulder-knot	<i>Lithophane leautieri</i>	8	2018
Mollusc	Blind snail	<i>Cecilioides (Cecilioides) acicula</i>	1	2017
Insect - moth	Blood-vein	<i>Timandra comae</i> *	12	2020
Insect - moth	Brown-spot Pinion	<i>Agrochola litura</i> *	2	2018
Mollusc	Budapest Keeled Slug	<i>Tandonia budapestensis</i>	4	2016
Insect - moth	Buff Ermine	<i>Spilosoma lutea</i>	20	2020
Insect - moth	Centre-barred Sallow	<i>Atethmia centrago</i> *	1	2018
Insect - moth	Cinnabar	<i>Tyria jacobaeae</i> *	29	2020
Mollusc	Common Garden Snail	<i>Cornu aspersum</i>	2	2017
Insect - true bug (Hemiptera)	-	<i>Conostethus venustus</i>	1	2016
Crustacean	-	<i>Crangonyx pseudogracilis/floridanus sens. lat.</i>	31	2017
Insect - beetle (Coleoptera)	Cream-streaked Ladybird	<i>Harmonia quadripunctata</i>	1	2015
Insect - moth	Dark-barred Twin-spot Carpet	<i>Xanthorhoe ferrugata</i> *	8	2018
Insect - true bug (Hemiptera)	-	<i>Deraeocoris (Deraeocoris) flavilinea</i>	2	2015
Insect - moth	Dot Moth	<i>Melanchra persicariae</i> *	5	2018
Insect - moth	Double Dart	<i>Graphiphora augur</i> *	4	2018
Insect - moth	Dusky Brocade	<i>Apamea remissa</i> *	2	2017
Insect - true bug (Hemiptera)	-	<i>Eurhadina loewii</i>	1	2016
Crustacean	-	<i>Gammarus tigrinus</i>	3	2012
Insect - moth	Garden Tiger	<i>Arctia caja</i> *	7	2018
Insect - moth	Ghost Moth	<i>Hepialus humuli</i> *	11	2018

Taxonomic group	Common Name	Scientific Name	Number of records	Most recent year recorded
Mollusc	Girdled Snail	<i>Hygromia (Hygromia) cinctella</i>	2	2017
Mollusc	Green Cellar Slug	<i>Limacus maculatus</i>	7	2016
Insect - moth	Green-brindled Crescent	<i>Allophyes oxyacanthae*</i>	9	2018
Insect - beetle (Coleoptera)	Harlequin Ladybird	<i>Harmonia axyridis</i>	17	2019
Insect - moth	Hedge Rustic	<i>Tholera cespitis*</i>	2	2018
Insect - moth	Horse-Chestnut Leaf-miner	<i>Cameraria ohridella</i>	8	2016
Mollusc	Iberian Threeband Slug	<i>Ambigolimax valentianus</i>	1	2016
Mollusc	Jenkins' Spire Snail	<i>Potamopyrgus antipodarum</i>	200	2019
Insect - moth	Knot Grass	<i>Acronicta rumicis*</i>	4	2018
Insect - moth	Lackey	<i>Malacosoma neustria*</i>	15	2018
Insect - moth	Large Nutmeg	<i>Apamea anceps*</i>	1	2017
Insect - moth	Large Wainscot	<i>Rhizedra lutosa*</i>	14	2018
Insect - moth	Latticed Heath	<i>Chiasmia clathrata*</i>	2	2018
Insect - moth	Light Brown Apple Moth	<i>Epiphyas postvittana</i>	19	2018
Insect - moth	Marsh Moth	<i>Athetis pallustris*</i>	2	2012
Insect - moth	Mottled Rustic	<i>Caradrina morpheus*</i>	31	2018
Insect - moth	Mouse Moth	<i>Amphipyra tragopoginis*</i>	5	2018
Mollusc	-	<i>Physella acuta</i>	7	2017
Insect - moth	Powdered Quaker	<i>Orthosia gracilis*</i>	2	2018
Insect - moth	Rosy Minor	<i>Litoligia literosa</i>	9	2018
Insect - moth	Rosy Rustic	<i>Hydraecia micacea*</i>	10	2018
Insect - moth	Sallow	<i>Cirrhia icteritia</i>	10	2018
Insect - moth	Shaded Broad-bar	<i>Scotopteryx chenopodiata*</i>	5	2018

Taxonomic group	Common Name	Scientific Name	Number of records	Most recent year recorded
Insect - moth	Shoulder-striped Wainscot	<i>Leucania comma</i>	10	2018
Insect - butterfly	Small Heath	<i>Coenonympha pamphilus</i> *	41	2021
Insect - moth	Small Phoenix	<i>Ecliptopera silaceata</i> *	7	2018
Insect - moth	Small Square-spot	<i>Diarsia rubi</i> *	28	2018
Mollusc	Sowerby's Keeled Slug	<i>Tandonia sowerbyi</i>	1	2016
Insect - moth	Sycamore Midget	<i>Phyllonorycter geniculella</i>	3	2020
Mollusc	Tramp Slug	<i>Deroceras invadens</i>	5	2016
Insect - butterfly	Wall	<i>Lasiommata megera</i> *	26	2021
Insect - true bug (Hemiptera)	Western Conifer Seed Bug	<i>Leptoglossus occidentalis</i>	2	2018
Insect - moth	White Ermine	<i>Spilosoma lubricipeda</i> *	15	2018
Insect - moth	White-line Dart	<i>Euxoa tritici</i> *	19	2020
Insect - beetle (Coleoptera)	Wood-Boring Weevil	<i>Euophryum confine</i>	2	2016

*Listed under S41 of the NERC Act.

- 6.7.3 Arable habitats along the route will support a wide variety of invertebrate species; however, as they are managed for crop production, they are unlikely to support a significant assemblage of protected or notable species.
- 6.7.4 Woodland and hedgerows along the Draft Order Limits will support a more diverse range of invertebrate species. Watercourses and ditches along the route will support aquatic invertebrates and habitats associated with industrial land in the north of the route near Immingham and the south of the route near Theddlethorpe may support invertebrate communities associated with brownfield or coastal habitats.
- 6.7.5 Effects upon invertebrate communities are only considered likely where there are permanent losses of habitat; i.e., where the Immingham Facility is proposed (Section 1). The area where the Immingham Facility is proposed was not accessible to survey at the time of writing. There is the potential for further impacts to aquatic invertebrates where watercourses and ditches are crossed by open-cut methods.
- 6.7.6 There will be some localised habitat loss at the Block Valve Station sites, however these areas are within arable habitats and are unlikely to support protected or notable invertebrate assemblages.

- 6.7.7 Permanent works are proposed at eastern end of the route at the former Theddlethope Gas Terminal. Habitats in this area comprised of bare ground with hardstanding and had limited suitability to support protected or notable invertebrate assemblages.
- 6.7.8 Dedicated invertebrate surveys will be completed where habitats with the potential to support protected or notable invertebrate species will be permanently lost. The results of these surveys (if required) will be reported within the ES.
- 6.7.9 No effects upon invertebrates are anticipated during the operational or decommissioning phases of the development.

Amphibians

- 6.7.10 **Table 6-11** summarises records for amphibians within 2 km of the Draft Order Limits:

Table 6-11: Amphibian records within 2 km of the Draft Order Limits

Common Name	Scientific Name	Number of records within Draft Order Limits	Number of records within 2 km of the Draft Order Limits	Most recent year recorded
Great crested newt (GCN)	<i>Triturus cristatus</i>	18	141	2020
Smooth newt	<i>Lissotriton vulgaris</i>	16	57	2020
Palmate newt	<i>Lissotriton helveticus</i>	0	18	2012
Common frog	<i>Rana temporaria</i>	26	95	2018
Common toad	<i>Bufo bufo</i>	30	79	2018
Natterjack Toad	<i>Epidalea calamita</i>	39*	8*	2012

*Records for natterjack toad were provided at National Grid Square Resolution.

- 6.7.11 A search of the Magic website identified three European Protected Species Mitigation Licences (EPSML) for GCN within 2 km of Section 1 of the Draft Order Limits. The nearest licence record was 872 m north of the Draft Order Limits. There were two EPSML records within 2 km of Section 3 of the route; both records were from Ashby cum Fenby, with the nearest record 540 m west of the Draft Order Limits. There was one record of GCN from a Class Licence Return, within Section 4 of the route at North Cockerington, approximately 150 m north of the Draft Order Limits.
- 6.7.12 A review of Ordnance Survey Maps and Aerial photography identified 64 potential waterbodies within 250 m of the Draft Order Limits. No waterbodies will be permanently lost along the route.
- 6.7.13 As the development has the potential to result in the loss of suitable terrestrial habitat for GCN, a district level licence for the Project will be sought. As access to waterbodies within 250 m of the Draft Order Limits is not currently available, Natural England’s risk modelling will be used to identify whether the Project is likely to have a significant effect on GCN.

- 6.7.14 Natural England will undertake an impact assessment, the outcome of which will be documented in an Impact Assessment and Conservation Payment Certificate. This document will also provide additional detail to inform the findings in the ES, including information on the Project’s impact on GCN and the appropriate compensation required.
- 6.7.15 Natterjack toad is listed as a species present within the Saltfleetby-Theddlethorpe dunes SSSI and NNR in Section 5 of the Draft Order Limits. Natterjack toads are found in coastal sand dune systems, coastal marshes, and sandy heaths. They breed in warm, shallow water such as pools within dune slacks.
- 6.7.16 The dune habitats at Theddlethorpe will remain unaffected by the development as they are to the east of the dune valve, which is the eastern most extent of intrusive construction work. There will be no direct loss of dune habitat or potential breeding ponds during construction or operation, and there will be no changes in habitat management. The connection at Theddlethorpe will link to the existing LOGGS pipeline, therefore there will be no changes in hydrology. As such, no effects upon natterjack toad are anticipated during the construction or operational phases of the development and natterjack toad are scoped out of assessment within the ES.
- 6.7.17 The majority of the pipeline would likely remain in-situ during decommissioning and as such, no effects upon amphibians are anticipated.

Reptiles

- 6.7.18 **Table 6-12** summarises the reptile records within 2 km of the Draft Order Limits.

Table 6-12: Reptile records within 2 km of the Draft Order Limits

Common name	Scientific Name	Number of records within Draft Order Limits	Number of records within 2 km of the Draft Order Limits	Most recent year recorded
Common lizard	<i>Zootoca vivipara</i>	2	3	2018
Grass snake	<i>Natrix helvetica</i>	11	22	2013
Slow worm	<i>Anguis fragilis</i>	2	1	1976

- 6.7.19 The majority of habitats within the Draft Order Limits are arable and lack the connectivity and structural diversity to support reptile populations. Habitats surrounding ponds, wet ditches and small watercourses may support species such as grass snake. Coastal habitats at the southern end of the Project have suitability for common lizard.
- 6.7.20 No areas of moderate or high suitability for reptiles have been identified within the habitats surveyed to date. If the Phase 1 habitat surveys identify areas of moderate or high suitability for reptiles, and these cannot be avoided by the Project, presence / likely absence surveys will be completed to inform the ES.
- 6.7.21 Where temporary construction effects upon small areas of suitable reptile habitat are identified, these will be mitigated through appropriate pre-construction measures e.g., supervised vegetation clearance at an appropriate time of year. Appropriate working methods will be detailed within a Construction Ecological Management Plan (CEcMP).
- 6.7.22 No effects upon reptiles are anticipated during the operational phase of the development.

6.7.23 The majority of the pipeline would likely remain in-situ during decommissioning and as such, no effects upon reptiles are anticipated.

Fish

6.7.24 **Table 6-13** summarises records of fish within 2 km of the Draft Order Limits.

Table 6-13: Fish records within 2 km of the Draft Order Limits

Common name	Scientific Name	Number of records within Draft Order Limits	Number of records within 2 km of the Draft Order Limits	Most recent year recorded
Brown / sea trout	<i>Salmo trutta</i>	3	75	2018
Common carp	<i>Cyprinus carpio</i>	21	72	1990
Crucian carp	<i>Carassius carassius</i>	12	53	1990
European eel	<i>Anguilla anguilla</i>	43 (Also detected in EA monitoring)	307	2019
Grayling	<i>Thymallus thymallus</i>	2	0	1995
Rainbow trout	<i>Oncorhynchus mykiss</i>	1	11	2015
Spined loach	<i>Cobitis taenia</i>	0	3	2009
Other fish species recorded in EA monitoring data include: three-spined stickleback <i>Gasterosteus aculeatus</i> , European eel (including elvers), pike <i>Esox lucius</i> , Brown/sea trout, bullhead <i>Cottus gobio</i> , perch <i>Perca fluviatilis</i> , dace <i>Leuciscus leuciscus</i> and roach <i>Rutilus rutilus</i>				

6.7.25 Watercourses within the Draft Order Limits have suitability to support fish species including brown/sea trout *Salmo trutta*, European eel *Anguilla anguilla*, grayling *Thymallus thymallus*, spined loach *Cobitis taenia*, as well as the common and non-native species also identified in **Table 6-13** above. Other species not recorded in desk study data may also be present, including bullhead, and lamprey species designated in the citation of the Humber Estuary SAC/SSSI (river lamprey and sea lamprey).

6.7.26 All fish and their habitats are protected under the Salmon and Freshwater Fisheries Act 1975. Bullhead *Cottus gobio*, spined loach, and all lamprey species (brook lamprey *Lampetra planeri*, river lamprey *Lampetra fluviatilis*, sea lamprey *Petromyzon marinus*), are listed in the Habitats Directive Annex II, which requires significant populations of these species to be protected through the network of Natura 2000 sites (i.e., SACs).

6.7.27 European eel, spined loach, river lamprey, sea lamprey, and brown/sea trout are listed as species of principal importance under the NERC Act 2006. Bullhead are listed as UK BAP

Priority species. European eel is afforded further protection under the Eel Regulations 2009, which provides consideration for screening, abstraction, and eel passage.

- 6.7.28 The extent of fish habitats present will be established through aquatic walkover surveys, which will inform the requirement for further aquatic surveys where there is the potential for impacts upon aquatic receptors, including fish.
- 6.7.29 Construction effects through open-cut crossings of watercourses and fluming may have an adverse effect upon fish species present. Appropriate working methods will be detailed within a CEcMP.
- 6.7.30 No effects upon fish are anticipated during the operational phase of the development, except if culverts were to remain in situ within watercourses and ditches at crossing points, though none are currently proposed. Should any permanent culverts be required, culvert design would aim to maintain fish passage and longitudinal connectivity of habitats along the water body.

Birds

Desk Study Records

- 6.7.31 The desk study returned verified records for 39 Priority Species within the last 10 years, which are summarised in **Table 6-14**. None of the records are from within the Draft Order Limits. The majority (all but two) of the records are from Covenham Reservoir, which is 2.5km east of the Draft Order Limits.

Table 6-14: Desk Study Records of Priority Bird Species Within 5 km of the Draft Order Limits

Common name	Scientific name	BoCC Status	Number of records within Draft Order Limits	Number of records within 5km of the Draft Order Limits	Most recent year recorded
Avocet	<i>Recurvirostra avosetta</i>	Amber	0	1	2014
Black Stork*	<i>Ciconia nigra</i>	Not assessed	0	1	2015
Black Tern**	<i>Chlidonias niger</i>	Not assessed	0	1	2014
Black Necked Grebe	<i>Podiceps nigricollis</i>	Amber	0	9	2014
Cattle Egret***	<i>Bubulcus ibis</i>	Not assessed	0	1	2013
Common Scoter	<i>Melanitta nigra</i>	Red	0	2	2014
Cuckoo	<i>Cuculus canorus</i>	Red	0	2	2014

Common name	Scientific name	BoCC Status	Number of records within Draft Order Limits	Number of records within 5km of the Draft Order Limits	Most recent year recorded
Curlew	<i>Numenius arquata</i>	Red	0	2	2014
Fieldfare	<i>Turdus pilaris</i>	Red	0	1	2014
Gadwall	<i>Mareca strepera</i>	Amber	0	11	2014
Garganey	<i>Spatula querquedula</i>	Amber	0	2	2014
Goldeneye	<i>Bucephala clangula</i>	Red	0	13	2014
Green Sandpiper	<i>Tringa ochropus</i>	Amber	0	2	2014
Greenshank	<i>Tringa nebularia</i>	Amber	0	12	2014
Greylag goose	<i>Anser anser</i>	Amber	0	2	2014
Hawfinch	<i>Coccothraustes coccothraustes</i>	Red	0	9	2017
Hobby	<i>Falco subbuteo</i>	Green	0	2	2014
Hoopoe	<i>Upupa epops</i>	Not assessed	0	1	2016
Little gull	<i>Hydrocoloeus minutus</i>	Green	0	1	2014
Little tern	<i>Sternula albifrons</i>	Amber	0	1	2014
Long-tailed Duck	<i>Clangula hyemalis</i>	Red	0	35	2014
Mediterranean gull	<i>Ichthyaetus melanocephalus</i>	Amber	0	1	2014
Mute swan	<i>Cygnus olor</i>	Green	0	4	2014
Peregrine	<i>Falco peregrinus</i>	Green	0	2	2014

Common name	Scientific name	BoCC Status	Number of records within Draft Order Limits	Number of records within 5km of the Draft Order Limits	Most recent year recorded
Pintail	<i>Anas acuta</i>	Amber	0	9	2014
Pink-footed goose	<i>Anser brachyrhynchus</i>	Amber	0	1	2014
Red kite	<i>Milvus milvus</i>	Green	0	2	2015
Redshank	<i>Tringa totanus</i>	Amber	0	12	2014
Redwing	<i>Turdus iliacus</i>	Amber	0	2	2014
Rose-colored startling	<i>Pastor roseus</i>	Not assessed	0	1	2015
Ruff	<i>Philomachus pugnax</i>	Red	0	16	2014
Scaup	<i>Aythya marila</i>	Red	0	6	2014
Slavonian grebe	<i>Podiceps auritus</i>	Red	0	8	2014
Snow bunting	<i>Plectrophenax nivalis</i>	Amber	0	1	2014
Spoonbill	<i>Plaralea leucorodia</i>	Amber	0	1	2014
Swift	<i>Apus apus</i>	Red	0	3	2014
Whooper swan	<i>Cygnus cygnus</i>	Amber	0	2	2014
Wigeon	<i>Anas penelope</i>	Amber	0	6	2014
Yellow wagtail	<i>Motacilla flava</i>	Red	0	15	2014

6.7.32 The Lincolnshire Bird Atlas (Ref 6-31) provides little detail on the distribution of individual species throughout the county. Within 5 km of the Draft Order Limits (Draft Order Limits) twelve locations or broad areas are identified as key locations in terms of the number of ornithology records available for them, although none of them are within the Draft Order Limits. However no consolidated lists of species are provided for these locations, therefore further narrative on them cannot be provided.

6.7.33 Almost all of the intertidal habitats and their adjacent coastal hinterland along the Lincolnshire Coast from the Humber Estuary southwards as far as Theddlethorpe support roosting and feeding wetland birds, and these are reported in Cutts *et al.* (2016; Ref 6-40) at a level of detail that cannot be replicated in this report. Further information on aggregations of birds in winter along the Lincolnshire Coast is available from the BTO WeBS Report Online (Frost *et al.*, 2021; Ref 6-39) and, specifically for pink-footed goose, Brides *et al.* (2013: Ref 6-38) set out key roosts and feeding occurrences inland across Humberside and Lincolnshire.

6.7.34 Key sites for pink-footed goose are distant from the Draft Order Limits and include:

- Reads Island, Whitton Sands, Barton on Humber and a wide area of farmland up to approximately 6km south of the Humber and approximately 10km west of Reads Island. Collectively these areas lie between approximately 18km and 28km north west of the Draft Order Limits and more than 20km from the southerly limit of the functionally linked land area identified around it; and
- The Wash, approximately 30km South of the Draft Order Limits and approximately 22km from the southerly limit of the functionally linked land area identified around it²⁰.

6.7.35 Pink footed geese associated with the Humber Estuary occur in smaller numbers at several locations including;

- East Halton Skitter, 9km north of the northernmost extent of the Draft Order Limits;
- Close to Donna Nook, approximately 11km east of the Draft Order Limits; and
- The fields adjacent to Saltfleet Haven approximately 6.5km north east of the Draft Order Limits; and
- Irregularly and in small numbers at Caistor (approximately 8km south west of the Draft Order Limits) and Immingham (approximately 2km east of the Draft Order Limits).

6.7.36 Key sites or broad areas for Golden Plover and other waders that might occur as feeding flocks inland (principally curlew and lapwing) include:

- North Killingholme Haven Pits southwards to Immingham Dock, which is between 2km and 3km from the Draft Order Limits;
- Pyewipe, Grimsby, approximately 7km East of the Draft Order Limits;
- Humberston to Tetney, approximately 9km east of the Draft Order Limits;
- Tetney Haven to Donna Nook, approximately 9-11km east of the Draft Order Limits; and
- The coastal sands and marshes at Saltfleet – Theddlethorpe, between 2km and 6km from the southern end of the Draft Order Limits, and approximately 6km east of the Draft Order Limits.

Survey Records of Non-Breeding Birds

6.7.37 Tables summarising the results of the wintering and breeding bird surveys completed to date are included in *PEIR Volume IV Appendix 6-2*. The results are incomplete because surveys are ongoing to complete the original survey scope for functionally linked land, to address updates to the route corridor that were confirmed in late July 2022, and to gather species-

²⁰ Wintering pink-footed goose is a qualifying feature of The Wash SPA, however this SPA is at least 30km south of the Draft Order Limits and the key SPA pink-footed goose roost is approximately 55km south of the Draft Order Limits near Snettisham (Brides *et al.*, 2013; Ref 6.38), therefore this SPA is not considered further in terms of functional linkages to the Project.

specific baseline data for several species of Schedule 1 bird. It is anticipated that surveys will continue through to summer 2023.

6.7.38 The following qualifying features of the Humber Estuary Ramsar, SPA and SSSI were recorded:

- Avocet (*Recurvirostra avosetta*);
- Bar-tailed godwit (*Limosa lapponica*);
- Black-tailed godwit (*Limosa limosa*);
- Common scoter (*Melanitta nigra*; on open coastal waters only);
- Curlew (*Numenius arquata*);
- Golden plover (*Pluvialis apricaria*);
- Green sandpiper (*Tringa ochropus*);
- Greenshank (*Tringa nebularia*);
- Hen harrier (*Circus cyaneus*);
- Lapwing (*Vanellus vanellus*);
- Mallard (*Anas platyrhynchos*);
- Pink-footed goose;
- Pochard (*Aythya ferina*);
- Redshank (*Tringa totanus*);
- Shelduck (*Tadorna tadorna*);
- Teal (*Anas crecca*); and
- Wigeon (*Anas penelope*).

6.7.39 Maximum counts and key locations for these species and other Priority Species are provided in the summary table in *PEIR Volume IV Appendix 6.2*. No attempt has been made at this stage to provide any detailed analysis of the numbers recorded or their locations, as the surveys are incomplete at the time of writing. However, some general observations regarding broad locations in which these species occurred can be made, as provided below.

6.7.40 These species occurred almost exclusively at both ends of the Draft Order Limits, with the following locations (from north to south) contributing the vast majority of records to the baseline, both in terms of regularity of occurrence and numbers of birds recorded:

- Killingholme Marshes, north of Rosper Road Pools as far as the northern edge of the survey area (immediately north of the Draft Order Limits);
- Rosper Road Pools, immediately east of the Draft Order Limits;
- The open farmland flanking and intersecting the Draft Order Limits between Manby and Theddlethorpe gas Terminal; and
- Theddlethorpe managed wader mitigation area, between TGT and Theddlethorpe Dunes, immediately east of the Draft Order Limits.

6.7.41 Pink-footed goose occurred almost exclusively within the Manby – Theddlethorpe area, with peak counts attaining over 2,000 foraging and roosting individuals. There were further records of overflying skeins (flocks) in this area, associated with the observed use of

terrestrial habitats. This species also occurred twice as small overflying skeins, numbering up to 200 individuals, on two occasions over point count locations 19 and 20, close to the northern end of the Draft Order Limits, however there was no recorded habitat use by this species outside of the Manby – Theddlethorpe area.

- 6.7.42 Lapwing, golden plover and curlew were recorded almost exclusively east of Manby as far as Theddlethorpe at the southern end of the Draft Order Limits; and at the northern end of the Draft Order Limits at Rosper Road Pools and North Killingholme Marshes. The occurrence of godwits and other waders was restricted to Rosper Road Pools and North Killingholme Marshes. Almost all records of SPA and SSSI duck species were from Rosper Road Pools and Theddlethorpe managed wader mitigation area, although mallard also occurred on scattered waterbodies throughout the survey area. Redshank occurred mostly at the Theddlethorpe wader mitigation area and at Rosper Road Pools, but only in small numbers.
- 6.7.43 Lesser numbers of some of these species occurred as infrequent scattered records across the rest of the survey area, as follows:
- Lapwing occurred in an overflying flock of 300 birds on one occasion and feeding on fields between Aylesby and Irby on Humber, adjacent to the Draft Order Limits; and
 - Curlew occurred regularly but in small numbers on fields adjacent to Immingham Cemetery, immediately east and south of the Draft Order Limits
- 6.7.44 Hen harrier, greenshank and green sandpiper were recorded as singles on no more than two occasions and therefore no patterns of distribution or habitat use can be derived for these SPA qualifying species.
- 6.7.45 Other Priority Species typical of mixed farmland habitats (improved grasslands and large arable fields punctuated by hedgerows, small woodlands and scrub) were recorded as widespread across the Survey Area, with no exceptional records (either in terms of numbers or species) occurring. Passerines including linnet (*Linaria cannabina*), yellowhammer (*Emberiza citrinella*), house sparrow (*Passer domesticus*), tree sparrow (*Passer montanus*), dunnock (*Prunella modularis*), reed bunting (*Emberiza schoeniclus*), skylark (*Alauda arvensis*), and feeding flocks of starling (*Sturnus vulgaris*), fieldfare (*Turdus pilaris*) and redwing (*Turdus iliacus*) were present on most surveys and in most parts of the survey area. A range of otherwise common non-priority species including tits, finches, thrushes, pigeons and corvids, was recorded throughout the survey area, with no notable or exceptional records arising for these species.

Survey Records of Breeding Birds

- 6.7.46 During the breeding bird surveys, the following qualifying features of one or more of the Humber Estuary Ramsar, SPA and SSSI, and Greater Wash SPA, were recorded:
- Breeding avocet (at least 8 breeding pairs, at two locations); and
 - Marsh harrier (*Circus aeruginosus*) as singles overflying the survey area);
- 6.7.47 Other SPA and SSSI species were recorded during early or late breeding surveys, either as resident, post-wintering, or passage records, their distribution mirroring that recorded during the wintering surveys, but were otherwise absent from most breeding surveys;
- Hen harrier (a single overflying individual only)
 - Black-tailed godwit (at Rosper Road Pools and North Killingholme Marshes);
 - Common scoter (offshore at Theddlethorpe only);

- Curlew (at Theddlethorpe, Rosper Road Pools and North Killingholme Marshes);
- Dunlin (*Calidris alpina*, at Theddlethorpe);
- Redshank (at Theddlethorpe);
- Shelduck (at Rosper Road Pools);
- Teal (at Rosper Road Pools and Theddlethorpe);
- Wigeon (at Rosper Road Pools and Theddlethorpe); and
- Mallard (as a breeding species resident at Rosper Road Pools with scattered occurrence on water bodies throughout the survey area).

6.7.48 Similar to the wintering surveys, other Priority Species typical of the habitats present were recorded as widespread across the Survey Area and most of them were likely to be breeding. However there were no exceptional records (either in terms of numbers or species). Passerines included linnet, yellowhammer, house sparrow, tree sparrow, duncock, reed bunting, skylark, corn bunting (*Emberiza calandra*), yellow wagtail (*Motacilla flavla*) and a range of otherwise common and widespread non-priority species including tits, finches, thrushes, pigeons and corvids, with no notable or exceptional records arising for these species.

6.7.49 Lapwing bred adjacent to the Draft Order Limits near Aylesby, at Rosper Road Pools and at the northern end of the survey area at North Killingholme Marshes, with up to 4 breeding pairs in total. The presence of this as a breeding species, along with small numbers of scattered breeding corn bunting, tree sparrow, yellow wagtail, yellowhammer and skylark can be considered notable in a local or regional context.

6.7.50 **Table 6-15** sets out the Schedule 1 birds (irrespective of their role or otherwise as qualifying features of any designated sites) that were recorded as either breeding within the survey area, or occurring in habitats and locations that might support a breeding population of such species and that warrant additional surveys to establish their breeding status. The records have been compiled from the collective breeding and non-breeding survey data.

6.7.51 Their specific locations are omitted from this PEIR chapter for reasons of confidentiality and species protection. Additional surveys will be required for some or all of these species, where there is currently a lack of certainty regarding their breeding status and locations.

Table 6-15: Summary of Potential and Confirmed Breeding for Schedule 1 Birds

Common name	Scientific Name	Number of non-breeding records	Recorded breeding/breeding evidence to date	Summary of habitat use/behaviours observed	Potential for construction related impacts
Avocet	<i>Recurvirostra avosetta</i>	11	Approx. 8 pairs split between 2 locations	Two breeding locations identified. Non-breeding avocets also recorded at breeding locations.	Yes
Barn owl	<i>Tyto alba</i>	3	1	Sightings of individuals flying over/hunting. One location identified with breeding evidence (pellets, feathers, white splash). Other locations with potential to support breeding identified for further survey.	Unknown, pending further baseline data.
Hen harrier	<i>Circus cyaneus</i>	1	None	Hunting. Unlikely to breed in survey area	No
Hobby	<i>Falco subbuteo</i>	2	1 pair	Overflying, hunting and nesting.	No
Kingfisher	<i>Alcedo atthis</i>	3	None	Present on some watercourses. Breeding possible.	Yes
Little ringed plover	<i>Charadrius dubius</i>	Minimum 13 individuals	Minimum 3 pairs at one location	Feeding and breeding.	Yes
Marsh harrier	<i>Circus aeruginosus</i>	3	None	Flying over.	No
Peregrine	<i>Falco peregrinus</i>	3 records of a pair 2 records of singles	1 pair with fledged young	Roosting, nesting and flying over. At least one pair with a home range overlapping the survey area.	Yes
Red kite	<i>Milvus milvus</i>	1	None	Flying over. Breeding possible.	Yes, but very unlikely

Bats

6.7.52 **Table 6-16** summarises records for bats within 2 km of the Draft Order Limits.

Table 6-16: Bat records within 2 km of the Draft Order Limits

Common name	Scientific name	Number of records with Draft Order Limits	Number of records within 2 km of the Draft Order Limits	Most recent year recorded
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	14	58	2019
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	1	15	2012
Pipistrelle bat species	<i>Pipistrellus</i> sp.	6	85	2020
Brown long-eared bat	<i>Plecotus auritus</i>	2	68	2020
Myotis bat species	<i>Myotis</i> sp.	1	9	2012
Noctule	<i>Nyctalus noctula</i>	3	22	2020
Leisler's bat	<i>Nyctalus leisleri</i>	0	0	2012
Daubenton's bat	<i>Myotis Daubentoni</i>	0	10	2017
Natterer's Bat	<i>Myotis nattereri</i>	0	3	2006
Bat	Chiroptera	9	281	2019

6.7.53 The only areas where habitats will be permanently lost are within Section 1 of the Draft Order Limits where the Immingham Facility will be located, and Section 5 of the Draft Order Limits where the proposed Theddlethorpe Facility will be located. Small areas of habitat will be lost where Block Valves are proposed, but these are mainly located within arable habitats. There are no buildings, structures or mature trees within these areas and they are considered to have negligible suitability for roosting bats. At Immingham, habitats are open and exposed and subject to lighting from existing industry; therefore, these habitats are considered to have low suitability for foraging and commuting bats. Habitats are also open and exposed at Theddlethorpe, comprising of bare ground with ephemeral / short perennial and tall ruderal vegetation. As such, this location is also considered to have negligible suitability for foraging and commuting bats.

6.7.54 Arable habitats within the Draft Order Limits are considered to have low suitability for foraging and commuting bats. Small numbers of bats are likely to use hedgerows, woodland and watercourses within the Draft Order Limits for foraging and commuting.

- 6.7.55 Bat crossing point surveys will be completed in areas where linear features (hedgerows, watercourses or lines of trees) will be affected by the development. As effects upon habitats will be temporary and during the construction phase only, it is considered that surveys will only be necessary where features are likely to provide important linkages (i.e., links between blocks of woodland, parkland, or to watercourses). Areas of suitable habitat have been identified through review of aerial mapping and photography and are being confirmed during the ongoing Phase 1 habitat survey. The results of crossing point surveys will be provided within the ES and will inform the EclA.
- 6.7.56 There may be some temporary disturbance from lighting during the construction phase. Where security lighting is required during construction, this will be sited away from mature trees, hedgerows and watercourses. Block Valve Stations would be unlit except during maintenance or potential breakdown/emergency requirements, when permanent task lighting columns (approximately 4m high) would be employed. As Block Valve Stations will remain unlit for most of the time, no disturbance effects upon foraging and commuting bats are anticipated.
- 6.7.57 Effects upon linear features during the construction phase would be temporary; where hedgerows require removal to facilitate construction, these would be replanted using native species to maintain habitat connectivity.
- 6.7.58 The Project has been designed to avoid buildings present along the route, however some trees within the Draft Order Limits may have suitability for roosting bats. Where trees with potential roost features would be lost, aerial climb and inspect surveys and / or bat emergence / re-entry surveys will be completed to confirm presence / likely absence of roosting bats. Should roosting bats be confirmed present, an EPSML from Natural England will be sought and mitigation relied upon will be detailed within the ES.
- 6.7.59 The majority of the pipeline would likely remain in-situ during decommissioning and no effects upon roosting, foraging or commuting bats are anticipated.

Otter

- 6.7.60 **Table 6-17** summarises records of otter within 2 km of the Draft Order Limits.

Table 6-17: Otter records within 2 km of the Draft Order Limits

Common name	Scientific Name	Number of records within Draft Order Limits	Number of records within 2 km of the Draft Order Limits	Most recent year recorded
Otter	<i>Lutra lutra</i>	19	126	2020

- 6.7.61 Watercourses within the Draft Order Limits have suitability to support foraging otter and resting places (holts / couches) may be present.
- 6.7.62 Anticipated crossing types and methodologies are provided in Table 3-2 of *Chapter 3: The Viking CCS Pipeline*, with full details in *PEIR Volume IV – Appendix 3.2*. Major watercourses and canals will be crossed using trenchless crossing techniques to minimise disturbance of habitats. These include the following watercourses: North Beck Drain, Louth Canal, the River Ludd, Old Engine Drain and Great Eau.
- 6.7.63 Otter surveys will be completed where suitable habitats will be affected by the Project. If otter resting places would be lost or disturbed, a EPSML will be sought from Natural England and mitigation relied upon will be detailed within the ES.

6.7.64 The majority of the pipeline would likely remain in-situ during decommissioning and no effects upon otter are anticipated.

Water vole

6.7.65 **Table 6-18** summarises records of water vole within 2 km of the Draft Order Limits.

Table 6-18: Water vole records within 2 km of the Draft Order Limits

Common name	Scientific Name	Number of records within Draft Order Limits	Number of records within 2 km of the Draft Order Limits	Most recent year recorded
Water vole	<i>Arvicola amphibius</i>	122	1,166	2020

6.7.66 Watercourses within the Draft Order Limits have suitability to support water vole. If water vole are confirmed as present and the Project is likely to damage or destroy burrows, or displace water voles from their burrows, a licence from Natural England will be sought and mitigation relied upon will be detailed within the ES.

6.7.67 The majority of the pipeline would likely remain in-situ during decommissioning and no effects upon water vole are anticipated.

Brown hare

6.7.68 **Table 6-19** summarises records of brown hare within 2 km of the Draft Order Limits.

Table 6-19: Brown hare records within 2 km of the Draft Order Limits

Common name	Scientific Name	Number of records within Draft Order Limits	Number of records within 2 km of the Draft Order Limits	Most recent year recorded
Brown hare	<i>Lepus europaeus</i>	57	162	2019

6.7.69 Arable and grassland habitats within the Draft Order Limits have suitability to support brown hare. There may be temporary disturbance and displacement of brown hare during the construction or decommissioning phases of the development, however as brown hare have large home ranges, and there is suitable habitat in the wider area, effects are unlikely to be significant at a population level.

Hedgehog

6.7.70 **Table 6-20** summarises records of hedgehog within 2 km of the Draft Order Limits.

Table 6-20: Hedgehog records within 2 km of the Draft Order Limits

Common name	Scientific Name	Number of records within Draft Order Limits	Number of records within 2 km of the Draft Order Limits	Most recent year recorded
Hedgehog	<i>Erinaceus europaeus</i>	42	143	2020

6.7.71 Hedgerows, woodland and grassland within the Draft Order Limits have suitability to support hedgehog. In the absence of mitigation, there is potential for hedgehog to be harmed during site clearance. Any potential hibernacula would be cleared outside of the hibernation period for hedgehog (November to February) under an ecological watching brief.

6.7.72 No effects upon hedgehog are anticipated during the operational or decommissioning phases of the Project.

Badger

6.7.73 **Table 6-21** summarises records of badger within 2 km of the Draft Order Limits.

Table 6-21: Badger records within 2 km of the Draft Order Limits

Common name	Scientific Name	Number of records within Draft Order Limits	Number of records within 2 km of the Draft Order Limits	Most recent year recorded
Badger	<i>Meles meles</i>	55	345	2020

6.7.74 Information on badger will be provided in a confidential appendix in the ES.

6.7.75 Habitats such as woodland and hedgerows within the Draft Order Limits have suitability for foraging and sett building. If a badger sett will be lost or disturbed, a licence from Natural England will be sought, and mitigation relied upon will be detailed within the ES.

6.7.76 A pre-construction check for badger setts is recommended approximately 3 months prior to construction commencing to make sure there are no new setts within 30 m of the works area. Best practice working methods to avoid harm to badger (or other mammals) during construction, such as fencing off or covering of trenches will be detailed within a CEcMP.

6.7.77 No effects upon badger are anticipated during the operational phase of the development. A check for badger setts should be completed at least three months prior to decommissioning.

Aquatic Macroinvertebrates and macrophytes

6.7.78 The desk study has included analysis of EA monitoring data to identify key species. No protected or notable species were identified, with the exception of the INNS and non-native species described in the next section of this chapter.

6.7.79 No historic records of the protected white-clawed crayfish *Austropotamobius pallipes* were identified within the 2 km search radius.

6.7.80 An aquatic walkover survey will be completed at targeted locations where impacts are considered likely to establish the requirement for targeted aquatic macroinvertebrate and macrophyte surveys.

6.7.81 Where ponds are present and would be potentially impacted by the Project, pond Predictive System of Multimetrics (PSYM) surveys may be required to assess the impacts on aquatic flora and fauna present.

Invasive Non-Native Species

6.7.82 The desk study returned records of the following INNS within the Draft Order Limits: Japanese rose *Rosa rugosa*, Spanish bluebell *Hyacinthoides hispanica*, montbretia *Crocasmia x crocosmiiflora*, Virginia creeper *Parthenocissus quinquefolia*, Japanese knotweed *Fallopia japonica*, New Zealand pigmyweed *Crassula helmsii*, water fern *Azolla filiculoides*, Canadian pondweed *Elodea canadensis*, Nuttall’s waterweed *Elodea nuttallii*, and Himalayan Balsam *Impatiens glandulifera*.

6.7.83 Non-native species were also present in aquatic habitats, and while these may not be listed under statutory legislation, best practice biosecurity measures should be implemented during construction to prevent their spread. These species include New Zealand mud snail *Potamopyrgus antipodarum*, the freshwater shrimp *Crangonyx pseudogracilis*, and potentially American signal crayfish *Pacifastacus leniusculus*.

6.8 Summary of Baseline

6.8.1 A summary of the baseline ecology conditions within the Draft Order Limits is provided in **Table 6-22** below. As discussed in the methods section, all ecology features valued at local level or above, and with the potential to be affected have been taken forward for impact assessment. Legally controlled species listed under Schedule 9 of the W&CA (as amended) are also taken forward for assessment.

Table 6-22: Summary of the Baseline Ecology Conditions

Ecology Feature	Nature Conservation Value	Justification	Taken forward for assessment?
Humber Estuary SPA, SAC, Ramsar and SSSI	International and National	Site supports qualifying features under the relevant EC Directives that are of international importance.	Yes – potential for direct and indirect effects on habitats and qualifying features.
Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC and NNR	International and National	Site supports qualifying features under the relevant EC Directives that are of international importance.	Yes – potential for direct and indirect effects on habitats and qualifying features.
Greater Wash SPA - within marine components	International	Site supports qualifying features under the relevant EC Directives that are of international importance.	No –qualifying features are exclusively pelagic or strictly coastal and/or sufficiently distant from the Project for there to be no impacts or effects on them.

Ecology Feature	Nature Conservation Value	Justification	Taken forward for assessment?
North Killingholme Haven Pits SSSI	National	Supports habitats and species of National importance.	Yes – potential for direct and indirect effects on qualifying features.
Swallow Wold SSSI	National	Supports habitats of national importance.	No – no effects anticipated.
Tetney Blow Wells SSSI	National	Supports habitats of National Importance.	No – no effects anticipated.
Muckton Wood SSSI	National	Supports habitats of National Importance.	No – no effects anticipated.
Sea Bank Clay Pits SSSI	National	Supports habitats of National Importance.	No – no effects anticipated.
Swaby Valley SSSI	National	Supports habitats of National importance.	No – no effects anticipated.
Calceby Marsh SSSI	National	Supports habitats of National importance.	No – no effects anticipated.
Bradley and Dixon Woods LNR	County	Supports habitats of county importance.	No – no effects anticipated.
Weelsby Woods Park LNR	County	Supports habitats of county importance.	No – no effects anticipated.
Cleethorpes Country Park LNR	County	Supports habitats of county importance.	No – no effects anticipated.
Donna Nook NNR	National	Supports habitats and species of national importance.	No – no effects anticipated.
River Freshney Headwaters LWS	County	Watercourse of county importance. Within Draft Order Limits.	Yes – potential for direct and indirect effects.
Waithe Beck East LWS	County	Watercourse of county importance. Within Draft Order Limits.	Yes – potential for direct effects and indirect effects.
Great Eau SNCI	County	Watercourse of county importance. Within Draft Order Limits.	Yes – potential for direct and indirect effects.
Long Eau, East SNCI	County	Watercourse of county level importance.	Yes – potential for direct and indirect effects.

Ecology Feature	Nature Conservation Value	Justification	Taken forward for assessment?
		Within the Draft Order Limits.	
Great Eau LWS	County	Watercourse of county importance. Within the Draft Order Limits.	Yes – potential for direct and indirect effects.
Brackenborough Road verge LWS	County	Grassland of county importance. 8 m from Draft Order Limits.	Yes – potential for direct effects.
Brackenborough RNR	County	Grassland of county importance. 11 m from Draft Order Limits.	Yes – potential for direct effects.
Rosper Road Pools LWS	County	Waterbody 0.05 km from the Draft Order Limits	Yes – potential for disturbance of bird assemblage.
Red leas lane verges	County	Road verge of county importance.	No – 0.08 km from the Draft Order Limits. No effects anticipated.
Brackenbrough Wood LWS	County	Woodland of county importance.	No - 0.22 km from the Draft Order Limits. No effects anticipated.
Mablethorpe North Dunes LWS	County	Habitats of county importance.	No – 0.22 from the Draft Order Limits. No effects anticipated.
Long Eau, West SNCI, LWS	County	Watercourse of county importance.	No – 0.28 km upstream of the Draft Order Limits. No effects anticipated.
Irby Dales LWS	County	Grassland and ancient woodland of county importance.	No – 0.34 km upstream of the Draft Order Limits. No effects anticipated.
Saltbyfleet – Theddlethorpe Dunes LWT	County	Habitats of County importance.	No – 0.51 km north of the Draft Order Limits. No effects anticipated.
Mayflower Wood Meadow LWS	County	Grassland of County importance.	No – 0.59 km from the Draft Order Limits. No effects anticipated.

Ecology Feature	Nature Conservation Value	Justification	Taken forward for assessment?
Medieval Village of Beesby LWS	County	Medieval Village	No – 0.60 km from the Draft Order Limits. No effects anticipated.
Burkenshaw's Covert LWS	County	Woodland of County importance	No – 0.87 km from the Draft Order Limits. No effects anticipated.
Station Road Field LWS	County	Grassland habitat of County importance	No – 0.88 km from the Draft Order Limits. No effects anticipated.
Long Eau, East LWS	County	Watercourse of County importance.	Yes – hydrologically linked to the Draft Order Limits. Potential for direct and indirect effects.
Long Eau, West LWS	County	Watercourse of County Importance	No – 1.07 km upstream of the Draft Order Limits. No effects anticipated.
Great Carlton Wetlands LWS	County	Wetland habitat of County importance.	No – 1.7 km upstream of the Draft Order Limits. No effects anticipated.
Roxton Wood RNR	County	Road verge of County importance.	No – 1.12 km from the Draft Order Limits. No effects anticipated.
Roxton Wood Road Verges LWS	County	Road verge / green lane / path of County importance.	No – 1.12 km from the Draft Order Limits. No effects anticipated.
Eastfield Road Railway Embankment LWS	County	Habitats of County importance.	No – 1.13 km from the Draft Order Limits. No effects anticipated.
Irby Holmes Wood LWS	County	Woodland habitat of County importance.	No – 1.14 km from the Draft Order Limits. No effects anticipated.
Irby Dales Wood West LWS	County	Woodland habitat of County importance.	No – 1.24 km from the Draft Order Limits. No effects anticipated.
Manby Wetlands LWS	County	Wetland habitat of County importance.	No – 1.42 km upstream of the Draft Order Limits. No effects anticipated.

Ecology Feature	Nature Conservation Value	Justification	Taken forward for assessment?
Helen House Farm Grassland LWS	County	Grassland habitat of County importance.	No – 1.52 km from the Draft Order Limits. No effects anticipated.
Stallingbrough Meadow LWS	County	Grassland habitat of County importance.	No – 1.72 km from the Draft Order Limits. No effects anticipated.
Stallingborough Meadows East LWS	County	Grassland habitat of County importance.	No – 1.84 km from the Draft Order Limits. No effects anticipated.
Buck Beck East LWS	County	Watercourse of County importance.	No – 1.92 km from the Draft Order Limits, however it is hydrologically linked. Due to the separation distances no effects are anticipated.
Semi-natural broadleaved woodland	Local	Woodland supports invertebrates, nesting birds, foraging and commuting bats and small mammals.	Yes – potential for direct effects.
Broadleaved plantation woodland	Local	Woodland supports invertebrates, nesting birds, foraging and commuting bats and small mammals.	Yes – potential for direct effects.
Hedgerows	Local	Provide habitat for invertebrates, foraging and nesting birds, foraging and commuting bats and small mammals. Hedgerows are a HPI.	Yes – potential for direct effects.
Running water	Local	Rivers and streams are an HPI.	Yes – potential for direct and indirect effects.
Open water	Local	Ponds are a HPI	Yes – potential for direct and indirect effects.
Scattered Trees	Local	Mature trees may support invertebrates,	Yes – potential for direct effects.

Ecology Feature	Nature Conservation Value	Justification	Taken forward for assessment?
		bats and nesting birds.	
Sand dunes	International	Habitats form part of the Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC	Yes – potential for direct and indirect effects on habitats and qualifying features.
Arable, improved grassland, poor semi-improved grassland, tall ruderal, buildings, bare ground and scattered scrub.	Negligible	Habitats are common and widespread within Lincolnshire. Unlikely to support protected or notable species assemblages.	No – of negligible ecological importance.
Invertebrates (including aquatic macroinvertebrates)	To be confirmed	Phase 1 habitat and aquatic walkover surveys are ongoing. Invertebrate surveys will be completed where habitats are suitable, and it is deemed necessary to inform the impact assessment.	To be confirmed and included within the ES if required.
Great Crested Newt	To be confirmed through consultation with Natural England.	DLL approach to be progressed for this Project.	Yes - Natural England will undertake an impact assessment, the outcome of which will be documented in an Impact Assessment and Conservation Payment Certificate. This document will also provide additional detail to inform the findings in the ES, including information on the Project's impact on GCN and the appropriate compensation required.
Natterjack Toad	Negligible	Habitats with suitability for natterjack toad will not be affected by the Project.	No – no effects anticipated.

Ecology Feature	Nature Conservation Value	Justification	Taken forward for assessment?
Reptiles	To be confirmed	Phase 1 habitat surveys are ongoing. Reptile surveys will be completed where habitats are suitable, and it is deemed necessary to inform the impact assessment.	To be confirmed and included in the ES if required.
Fish	To be confirmed	Aquatic walkover survey to be completed to identify fish habitats at potential impact locations, and recommend targeted aquatic surveys where required.	To be confirmed and included in the ES if required.
Non-breeding birds ²¹	Local	Bird assemblage includes Priority Species that are otherwise common and widespread	Yes - potential for direct and indirect effects on roosting and/or feeding birds.
Breeding birds ²²	Local	Bird assemblage includes Priority Species that are otherwise common and widespread	Yes - potential for direct and indirect effects on nesting birds.
Breeding avocet	Local	Schedule 1 bird and a Priority Species	Yes - potential for direct and indirect effects on nesting birds.
Breeding little ringed plover	County	Schedule 1 bird and a Priority Species Scarce in Lincolnshire	Yes - potential for direct and indirect effects on nesting birds.
Breeding hobby	County	Schedule 1 bird and a Priority Species. Scarce in Lincolnshire	Yes - potential for direct effects on nesting birds
Breeding peregrine	County	Schedule 1 bird and a Priority Species	Yes - potential for direct effects on nesting birds

²¹ Exclusive of qualifying features of the Humber Estuary Ramsar, SPA and SSSI, which are covered off in assessment of impacts on designated sites. The assessment tables assess potential effects on non-breeding waders, ducks and geese separately in acknowledgement of their potentially greater sensitivity to disturbance than other non-breeding species.

²² Exclusive of qualifying features of the Humber Estuary Ramsar, SPA and SSSI, which are covered off in assessment of impacts on designated sites. Also exclusive of breeding Schedule 1 birds irrespective of their inclusion or not as qualifying features of designated sites.

Ecology Feature	Nature Conservation Value	Justification	Taken forward for assessment?
		Scarce in Lincolnshire	
Breeding kingfisher	Local	Schedule 1 bird and a Priority Species	Yes - potential for direct effects on nesting birds
Breeding barn owl	Local	Schedule 1 bird and a Priority Species	Yes - potential for direct effects on nesting birds
Roosting bats	To be confirmed	Bat emergence surveys and / or aerial climb and inspect surveys will be completed where trees with moderate or high suitability for roosting bats will be directly affected by the Project.	Yes – where direct effects upon trees with moderate or high suitability for roosting bats.
Foraging and commuting bats	To be confirmed.	Crossing point surveys will be completed where habitats with suitability for foraging and commuting bats will be affected by the Project.	Yes – potential for temporary loss / severance of linear features such as hedgerows.
Otter	Local	Otter are European protected species. Surveys are ongoing and have confirmed presence of otter on watercourses within the Draft Order Limits.	Yes - potential for direct and indirect effects upon otter.
Water vole	To be confirmed.	Presence / likely absence of watercourses with suitability for Water Vole are ongoing.	To be confirmed and included in the ES if required.
Brown hare	Local	Brown hare are a Species of Principal Importance (SPI).	Yes – potential for disturbance / temporary displacement of brown hare during the construction phase.
Hedgehog	Local	Hedgehog are a SPI.	Yes – potential for harm to hedgehog

Ecology Feature	Nature Conservation Value	Justification	Taken forward for assessment?
			during the construction phase.
Badger	Local	Protected under the Badgers Act 1992.	Yes – potential for disturbance during the construction phase.
Aquatic macrophytes	To be confirmed.	Aquatic walkover survey to be completed to identify aquatic habitats at potential impact locations, and recommend targeted aquatic surveys where required.	To be confirmed and included in the ES if required.
INNS	N/A	Legal offence to plant or otherwise spread in the wild.	Yes

Additional surveys

6.8.2 All surveys outlined in **Table 6-7** are ongoing and the full results will be provided within the ecology chapter of the ES.

6.9 Mitigation

Embedded Mitigation

- 6.9.1 EIA is an iterative process which informs the development of the project design. Where the outputs of the preliminary assessment identify likely significant effects changes to the design can be made or mitigation measures can be built-in to the proposal to reduce these effects.
- 6.9.2 This type of mitigation is defined as embedded mitigation, as mitigation measures which have been identified and adopted as part of the evolution of the project design (“embedded” into the project design).
- 6.9.3 The mitigation measures cannot be detailed in full until the baseline is completed, and the full impact assessment concluded. However, initial concepts are outlined in this section.
- 6.9.4 An initial high level routeing options assessment was undertaken by the Applicant to gain an initial understanding of the constraints and opportunities for the routeing of the proposed Viking CCS Pipeline. The route was then refined to avoid or minimise effects on receptors of ecological importance. These included statutory and non-statutory designated sites and Habitats of Principal Importance. Habitats such as woodland and ponds have been avoided where possible to minimise ecological effects.
- 6.9.5 Where the route crosses major watercourses, trenchless construction techniques will be used to avoid disturbance within the channel and harm to bankside habitats. Design work is currently ongoing to identify the appropriate method required for each crossing point and crossing details will be included within the ES. A preliminary crossing schedule is included in *PEIR Volume IV - Appendix 3.2*.

Additional Mitigation

6.9.6 A Preliminary Draft Construction Environmental Management Plan (CEMP) has been prepared as part of this PEIR and can be found in *PEIR Volume IV - Appendix 3.1*. This sets out the preliminary additional and enhancement mitigation measures identified in this preliminary assessment of significant effects. This section summarises the types of mitigation measures that will be considered to mitigate against the effects on Ecology and Biodiversity where required. These measures should be adopted during the construction phase and will be refined and be developed as part of the construction assessment for the ES:

- **B1:** *An Invasive Species Management Plan should be developed (this will form part of the Final CEMP), identifying relevant invasive non-native species within the area to ensure that all necessary precautions are taken to prevent their spread;*
- **B2:** *Undertake pre-construction ecology surveys (species specific surveys will be determined for the next iteration of this Draft CEMP);*
- **B3:** *Establish a Construction Exclusion Zone (CEZ) to define working areas and protect habitats outside of the Project boundary and retained habitats within, throughout development. The CEZ may need to be extended beyond 10m for certain Important Ecological Features, such as woodlands and trees, for example to protect root protection zones. The location of CEZ's will be defined within the Final CEMP and informed by a pre-construction ecological walkover (to identify any changes to the baseline and a tree survey (to BS 5837:2012);*
- **B4:** *Undertake any small-scale hedgerow removal for access purposes within the construction site outside of the breeding bird season (March – September). This will prevent birds nesting within the proposed construction works prior to construction. If scrub or hedgerow clearance is undertaken during the bird breeding season, then a breeding bird check should be undertaken by an experienced ecologist prior to any removal. If a nest is found, a suitable buffer will be erected and works will be required to stop within the vicinity until the young fledge;*
- **B5:** *Develop a method statement to ensure that site clearance is undertaken in a sensitive manner to allow the temporary displacement of reptiles, hedgehogs and brown hare;*
- **B6:** *Develop a method statement to ensure works within watercourse crossings include suitable measures to allow the passage of otters, water vole and fish throughout construction (i.e. during fluctuating water levels);*
- **B7:** *Ensure accordance with details within Important Ecological Features (IEF) specific method statements which may include monitoring of some of the IEF's before the construction phase;*
- **B8:** *Where temporary habitat is removed, these are to be reinstated. For habitats identified as IEF's, reinstatement will be to a condition of ecological value equal to or above the baseline conditions;*
- **B9:** *Hedgerows temporarily lost during construction are to be reinstated and, where appropriate, improved from their baseline condition: defunct or species-poor hedges will be replanted so as to achieve species-rich and continuous hedgerows, once re-established;*
- **B10:** *Where possible, hedgerow removal is to be kept to 20m to minimise habitat loss;*

- **B11:** A minimum buffer of 10m (where practicable) will be retained around retained IEF's to reduce any potential direct or indirect impacts on the species and habitats associated with them;
- **B12:** Where there is the loss of any tree with bat roost suitability, this is to be replaced on a 2:1 ratio; for each bat box installed, an equivalent number of bird boxes are to also be installed at the same location, where feasible;
- **B13:** A suitably qualified ecologist is to be available for the duration of the construction period to resolve any uncertainties regarding ecological issues and to monitor compliance with good practice mitigation measures (as defined in the Final CEMP). The ecologist will undertake all necessary surveys (e.g. for breeding birds) during the construction period to ensure up-to-date information is available;
- **B14:** Standard good practice and pollution control measures will be implemented during vegetation clearance;
- **B15:** Topsoil stripping should be undertaken outside of the winter period (October to March inclusive) where possible. If there is more than 15mm of rain over 24hr period then top soil stripping should cease until the soil is dry or 24 hours has passed, whichever is the sooner;
- **B16:** Habitat loss should be compensated with the creation of replacement habitats and habitat management on site;
- **B17:** Implementation of European Protected Species Mitigation licences where necessary, including (for example) DLL for great crested newt, licences to permit the disturbance of bats or creation of alternative habitat features (e.g., bat roosts), if required;
- **B18:** Monitoring of some of the IEF's may also be necessary during the construction phase, which will be detailed within IEF specific method statements;
- **OP1:** Establish an aftercare period to monitor all habitat reinstatement/creation/mitigation measures/net gain assessment by a suitably qualified ecologist to assess success. Where necessary, identify and implement remedial measures such as replacement of failed trees within newly planted hedgerows;
- Careful design (e.g., selection plant species for landscape planting that will be beneficial to a range of bird and insect species);
- Controls on noise generation and propagation where necessary(**I5-I18**);
- **C2:** A Landscape and Ecology Management Plan (LEMP) will be prepared to make sure that habitats created/ enhanced for biodiversity are maintained during the operational phase of the Project and should detail any measures required to control the spread of INNS.
- **Decom1:** A check for INNS should be completed at least one year prior to decommissioning to inform the decommissioning plan.

6.9.7 In general, the design of the Project and the temporary nature of the potential impacts is unlikely to trigger a need for any further mitigation or avoidance measures with respect to wintering farmland birds. However, measures (over and above standard environmental protection measures as set out the Preliminary Draft CEMP specifically to avoid disturbance of SSSI and SPA birds may be required, which include the following:

- **B19:** *Visual screening of works within sensitive areas that regularly support qualifying features of the SSSI and SPAs;*
- **B20:** *The use of noise abatement/reduction measures (such as acoustic fencing or other barriers) in such areas;*
- **B21:** *Careful lighting design to minimise light spill onto adjacent habitats from working areas at above ground installations;*
- **B22:** *Employing an Ecological Clerk of Works (ECoW) to supervise works, with an agreed threshold of disturbance response beyond which working practices/locations can be amended as required, or if necessary works can be temporarily halted, under advisement of the ECoW and where safe to do so.*

6.9.8 Consideration may also be given to timing or phasing works to avoid impacts on, in particular, qualifying features of designated sites where these are known to occur within the environs of the Project working area. Any such measure would only be needed if the wider package of embedded and additional mitigation measures, which is being updated as the Project design and baseline gathering activities progress, is not sufficient to reduce predicted impacts to non-significant levels.

6.9.9 To avoid impacts on breeding birds, clearance of vegetation should be undertaken outside of the main nesting bird season (March to September).

6.9.10 If this is not possible, then works should be preceded by a nesting bird check by a suitably experienced ecologist, to confirm the absence of active nests. Such a check should be undertaken no more than 48 hours prior to the vegetation clearance being undertaken. If birds are found to be nesting within vegetation due for removal, it will be necessary to establish a species-specific buffer zone around the nest and allow the young to fledge before removing the vegetation. Vegetation can be removed once an ecologist has confirmed that the young have fledged, and the buffer can be removed.

6.9.11 It should be noted that some birds, such as woodpigeon, can nest outside of the bird breeding season; therefore, should any nests be identified or suspected to be present an ecologist should be contacted for advice on appropriate working methods.

6.9.12 Regardless of the above measures, checks for nesting Schedule 1 birds, especially barn owl, peregrine, hobby, red kite, avocet, little ringed plover and kingfisher should be carried out where the Project intersects or passes close to suitable breeding habitats or known breeding locations for these species, and where the final package of mitigation cannot be relied upon to eliminate potential disturbance. Requirements for such surveys would be established at the DCO application stage and agreed with statutory consultees where required.

6.9.13 If nesting schedule 1 birds are found close to the works area, works within a stand off around the nest may need to be suspended for the duration of the breeding period. The timing of this measure and size of the standoff would be species and site-specific.

6.9.14 Measures to avoid disturbance of SSSI and SPA birds should follow the broad principles set out in section 6.9.7 to 6.9.14 where the measures to avoid disturbance to breeding birds set out above are not adequate to address this need.

6.9.15 This is a preliminary list of committed measures and is not intended to be definitive or comprehensive.

6.9.16 The preliminary assessment has been undertaken with the assumption that the embedded and additional mitigation measures are in place.

6.10 Preliminary Assessment of Effects

6.10.1 **Table 6-23 to Table 6-25** provide a preliminary assessment summary of the potential environmental effects following the implementation of the proposed mitigation, compensation or enhancement measures. Where baseline information has been verified through survey, justification of the likely significance of effect has been provided.

Table 6-23: Preliminary Assessment of Ecology and Biodiversity Effects during the Construction Phase

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
Humber Estuary SPA, SAC, Ramsar and SSSI	Noise and visual disturbance of breeding and non-breeding birds. Pollution resulting in degradation of habitats.	Short or medium term.	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. A CEMP will detail measures to prevent and control pollution and noise during construction. Specific mitigation measures outlined in section 6.9.7 to 6.9.14. Mitigation to be confirmed following completion of bird surveys and development of full Project design.	Reduced occurrence of SPA birds within terrestrial habitats that play a supporting role in the function of the designated site. Not Significant	Moderate – surveys to inform HRA and EclA are ongoing and the Project design is still in development, but significant baseline has been gathered to date.
Saltfleetby-Theddlethorpe Dunes and Gibraltar Point SAC and NNR	Pollution resulting in degradation of habitats.	Short or medium term.	Mitigation will be provided within the report to inform HRA.	Reduced occurrence of SSSI birds within terrestrial habitats	Low – surveys to inform HRA and EclA are ongoing. However work on valve structures adjacent

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
	Noise and visual disturbance of breeding and non-breeding birds during work on the isolation valve adjacent to the dunes.		A CEMP will detail measures to prevent and control pollution and noise during construction.	that play a supporting role in the function of the designated site. Not Significant	to Theddlethorpe Dunes will be of short duration and small in scale; and there will be no above-ground works within the intertidal habitats east of the dune system.
North Killingholme Haven Pits SSSI	Noise and visual disturbance of breeding and non-breeding birds. Pollution resulting in degradation of habitats (Killingholme Marshes) which are hydrologically linked to the SSSI.	Short or medium term	Specific mitigation measures outlined in paragraph 6.9.9. Mitigation to be confirmed following completion of bird surveys and development of full Project design. A CEMP will detail measures to prevent and control pollution during construction.	Reduced occurrence of SSSI birds within terrestrial habitats that play a supporting role in the function of the designated site. Not Significant	Moderate – the SSSI is sufficiently distant from the Draft Order Limits that disturbance of interest features can be ruled out. However surveys to inform EclA are ongoing. Standard control measures to avoid pollution.
River Freshney Headwaters LWS	Changes in water quality (chemical or physical) resulting watercourse crossings or a pollution event.	Short or medium term	A CEMP will detail measures to prevent and control pollution during construction.	Not Significant	Low – crossing point options are undergoing review by engineers.
Waithe Beck East LWS	Changes in water quality (chemical or physical) resulting	Short or medium term	A CEMP will detail measures to prevent	Not Significant	Low – crossing point options are undergoing review by engineers.

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
	watercourse crossings or a pollution event.		and control pollution during construction.		
Great Eau SNCI and LWS	Changes in water quality (chemical or physical) resulting watercourse crossings or a pollution event.	Short or medium term	A CEMP will detail measures to prevent and control pollution during construction.	Not Significant	High – HDD techniques will be used at to avoid effects upon the watercourse.
Long Eau, East SNCI and LWS	Changes in water quality (chemical or physical) resulting watercourse crossings or a pollution event.	Short or medium term	A CEMP will detail measures to prevent and control pollution during construction.	Not Significant	High – Non-intrusive auger bore techniques will be used to cross this watercourse.
Brackenbrough RNR	Degradation of habitat due to encroachment or machinery or a pollution event.	Short or medium term	Sensitive habitats will be fenced off during the construction phase. A CEMP will detail measures to prevent and control pollution during construction.	Not Significant	High – standard best practice methods will be followed to prevent damage to habitats.
Brackenbrough Road Verge LWS	Degradation of habitat due to encroachment or machinery or a pollution event.	Short or medium term	Sensitive habitats will be fenced off during the construction phase. A CEMP will detail measures to prevent and control pollution during construction.	Not Significant	High – standard best practice methods will be followed to prevent damage to habitats.

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
Rosper Road Pools LWS	Disturbance of bird assemblage due to noise and light pollution	Short or medium term	Specific mitigation measures outlined in paragraph 6.9.7 to 6.9.14. Mitigation to be confirmed following completion of bird surveys and development of full Project design. A CEMP will detail measures to prevent and control pollution, and noise during construction.	Negative effects on the function of the designated site through displacement of birds. Not Significant	Moderate - surveys to inform HRA and EclA are ongoing. However baseline noise and light levels are likely to be high in the context of surrounding port and other industrial infrastructure and vehicular traffic levels on Rosper Road.
Semi-natural broadleaved woodland	Direct loss of woodland habitat within the Draft Order Limits. Damage to retained trees due to encroachment of machinery, compaction of soil or a pollution event.	Short or medium term	Woodland habitats will be avoided where possible. Where trees are to be retained, they will be protected in accordance with BS 5837 (2012). A CEMP will detail measures to prevent and control pollution during construction.	Significant	Low – options for crossing woodland habitat are undergoing review by engineers. Standard best practice methods will be followed to prevent damage to retained woodland habitats.

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
Broadleaved plantation woodland	Direct loss of woodland habitat within the Draft Order Limits. Damage to retained trees due to encroachment of machinery, compaction of soil or a pollution event.	Short or medium term	Woodland habitats will be avoided where possible. Where trees are to be retained, they will be protected in accordance with BS 5837 (2012). A CEMP will detail measures to prevent and control pollution during construction.	Significant	Low – options for crossing woodland habitat are undergoing review by engineers. Standard best practice methods will be followed to prevent damage to retained woodland habitats.
Hedgerows	Direct loss of hedgerows. Damage to retained hedgerows due to encroachment of machinery, compaction of soil or a pollution event.	Short or medium term	Where sections of hedgerow are to be lost, these will be reinstated post construction. Retained sections of hedgerow will be protected in accordance with BS 5837 (2012). A CEMP will detail measures to prevent and control pollution during construction.	Not Significant	High – new sections of hedgerow will be planted at an appropriate time of year using native species. Establishment will be monitored to make sure BNG condition targets are met. Standard best practice methods will be followed to prevent damage to retained hedgerows during construction.
Running water	Changes in water quality (chemical or physical) resulting from watercourse	Short or medium term	A CEMP will detail measures to prevent and control pollution during construction.	Not Significant	Low – crossing point options are undergoing review by engineers.

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
	crossings or a pollution event. Crossing or culverting of watercourses – temporary during construction, or permanent.	Short – Long term	All WFD main rivers will be crossed by non-intrusive methods. Where minor watercourses and ditches are crossed they will be reinstated and culverts will include a natural bed to maintain longitudinal connectivity.	Not Significant	Low – crossing point options are undergoing review by engineers, and surveys to inform EclA are ongoing.
Open water	Direct loss of pond habitat.	Long term	Ponds habitat will be created under the DLL scheme to offset any losses of aquatic habitat.	Not Significant	High – mitigation to be delivered under Natural England DLL scheme.
Scattered trees	Direct loss of trees. Damage to retained hedgerows due to encroachment of machinery, compaction of soil or a pollution event.	Short or medium term	New trees will be planted to offset any losses.	Not Significant	High – establishment of new trees will be monitored to make sure BNG condition targets are met.
Sand Dunes	Damage to habitats through encroachment of	Short or medium term	A CEMP will detail measures to prevent and control pollution during construction.	Not Significant	High – standard best practice methods will be followed to prevent damage to habitats.

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
	machinery or a pollution event.				
Invertebrates (including aquatic macroinvertebrates)	Habitat loss	Long term	To be confirmed following any necessary surveys.	Not Significant	Low – surveys to inform EclA are ongoing.
GCN	Habitat loss. Killing, injury or disturbance of GCN.	Short or medium term	Strategic mitigation to be implemented under the DLL scheme.	Not Significant	High – mitigation to be delivered through DLL to ensure no significant effects at a population level.
Reptiles	Habitat loss. Killing or injury reptiles.	Short or medium term	To be confirmed following any necessary surveys.	Not Significant	Low – surveys to inform EclA are ongoing.
Fish	Pollution (physical or chemical) of watercourses.	Short or medium term	To be confirmed following any necessary surveys.	Not Significant	Low – surveys to inform EclA are ongoing.
Non-breeding waders, ducks and geese on terrestrial habitats	Habitat loss Noise and visual disturbance	Short or medium term	Specific mitigation measures outlined in section 6.9.11. Mitigation to be confirmed following completion of bird surveys and development of full Project design. A CEMP will detail measures to prevent and control pollution during construction..	Reduction in availability of feeding habitat. Displacement of birds from otherwise unaffected feeding habitat Not Significant	Moderate – surveys are incomplete and a final package of mitigation and avoidance measures has not been determined, however significant baseline has been gathered to date.

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
Non-breeding passerines (Priority Species)	Habitat loss Noise and visual disturbance	Short or medium term	Specific mitigation measures outlined in section 6.9. Mitigation to be confirmed following completion of bird surveys and development of full Project design. A CEMP will detail measures to prevent and control pollution during construction.	Reduction in availability of feeding habitat. Displacement of birds from otherwise unaffected feeding habitat Not Significant	Moderate – surveys are incomplete and a final package of mitigation and avoidance measures has not been determined, however significant baseline has been gathered to date.
Breeding birds (Priority Species, excluding breeding Schedule 1 species considered separately below)	Habitat loss Killing and injury of breeding birds, their eggs, nests and young. Noise and visual disturbance	Short or medium term	Mitigation set out in section 6.9. Mitigation to be confirmed following completion of bird surveys and development of full Project design. A CEMP will detail measures to prevent and control pollution during construction.	Reduction in availability of feeding habitat. Displacement of birds from otherwise unaffected breeding habitat. Reduction in breeding bird population Not Significant	Moderate - surveys are incomplete and a final package of mitigation and avoidance measures has not been determined, however significant baseline has been gathered to date.
Breeding avocet	Habitat loss Killing and injury of breeding birds,	Short or medium term	Mitigation set out in section 6.9 Mitigation to be confirmed following	Reduction in availability of breeding habitat.	Moderate - surveys are incomplete and a final Project design and package of mitigation and avoidance measures has

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
	their eggs, nests and young. Noise and visual disturbance		completion of bird surveys and development of full Project design. A CEMP will detail measures to prevent and control pollution during construction.	Displacement of birds from otherwise unaffected breeding habitat. Reduction in breeding bird population. Not Significant	not been determined, however significant baseline has been gathered to date.
Breeding little ringed plover	Habitat loss Killing and injury of breeding birds, their eggs, nests and young. Noise and visual disturbance	Short or medium term	Mitigation set out in section 6.9. Mitigation to be confirmed following completion of bird surveys and development of full Project design. A CEMP will detail measures to prevent and control pollution during construction.	Reduction in availability of feeding habitat. Displacement of birds from otherwise unaffected breeding habitat. Reduction in breeding bird population. Not Significant	Moderate - surveys are incomplete and a final Project design and package of mitigation and avoidance measures has not been determined, however significant baseline has been gathered to date.
Breeding hobby	Noise and visual disturbance	Short or medium term	Mitigation set out in section 6.9. Mitigation to be confirmed following completion of bird surveys and development of full Project design.	Displacement of birds from otherwise unaffected breeding habitat. Reduction of breeding success. Not Significant	Moderate – significant baseline has been gathered to date for this species, but hobby are elusive and may adopt different nesting locations from year to year

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
			A CEMP will detail measures to prevent and control pollution during construction.		
Breeding peregrine	Noise and visual disturbance	Short or medium term	Mitigation set out in section 6.9. Mitigation to be confirmed following completion of bird surveys and development of full Project design. A CEMP will detail measures to prevent and control pollution during construction.	Displacement of birds from otherwise unaffected breeding habitat. Reduction of breeding success. Not Significant	Moderate - surveys are incomplete and a final Project design and package of mitigation and avoidance measures has not been determined, however significant baseline has been gathered to date.
Breeding kingfisher	Habitat loss Killing and injury of breeding birds, their eggs, nests and young. Noise and visual disturbance	Short or medium term	Mitigation set out in section 6.9. Mitigation to be confirmed following completion of bird surveys and development of full Project design. A CEMP will detail measures to prevent and control pollution during construction.	Displacement of birds from otherwise unaffected breeding habitat. Reduction of breeding success. Not Significant	Low – further baseline is required to determine potential breeding location(s) and severity of impacts.

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
Breeding barn owl	Noise and visual disturbance	Short or medium term	Mitigation set out in section 6.9. Mitigation to be confirmed following completion of bird surveys and development of full Project design. A CEMP will detail measures to prevent and control pollution during construction.	Displacement of birds from otherwise unaffected breeding habitat. Reduction of breeding success. Not Significant	Low – further baseline is required to determine potential breeding location(s) and severity of impacts.
Roosting bats	Direct loss of roosts, killing, injury or disturbance of roosting bats.	Short or medium term	To be confirmed following any necessary surveys.	Not Significant	Low – surveys to inform EclA are ongoing.
Foraging and commuting bats	Severance of foraging or commuting habitat.	Short or medium term	Any trees or hedgerows lost during the construction phase will be replaced. Illumination of woodland, trees and hedgerows will be avoided.	Not Significant	Medium – surveys to inform EclA are ongoing.
Otter	Disturbance of otter resting places. Pollution (physical or chemical) of watercourses.	Short or medium term	To be confirmed following any necessary surveys. A CEMP will detail measures to prevent	Not Significant	Low – surveys to inform EclA are ongoing.

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
			and control pollution during construction.		
Water vole	Harm or disturbance of water vole. Damage or destruction to water vole burrows. Pollution (physical or chemical) of watercourses.	Short or medium term	To be confirmed following any necessary surveys.	Not Significant	Low – surveys to inform EclA are ongoing.
Brown hare	Disturbance or displacement of brown hare.	Short or medium term	None required - alternative suitable habitat available within the wider area.	Not Significant	High – brown hare have large home ranges and there are grassland and arable habitat within the wider area.
Hedgehog	Harm to hedgehog during site clearance.	Short term	Any potential hibernacula to be dismantled outside of the hibernation period (November to February).	Not Significant	High
Badger	Harm to badger or disturbance of setts.	Short or medium term	To be confirmed following any necessary surveys. A CEcMP will detail best practice measures to prevent harm to	Not Significant	Low – surveys to inform EclA are ongoing.

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
			mammals during construction.		
Aquatic macrophytes	Habitat loss	Long term	To be confirmed following any necessary surveys.	Not Significant	Low – surveys to inform EclA are ongoing.
INNS	Spread of INNS resulting in a legal offence.	Short, medium or long term	A contractor will be appointed to prepare an INNSMS. This plan will set out the measures which will be implemented to avoid the spread of INNS during construction and ensure legal compliance.	Not Significant	High – standard methods to control INNS to be implemented.

Table 6-24: Preliminary Assessment of Ecology and Biodiversity Effects for the Operational Phase

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
Humber Estuary SPA, SAC, Ramsar and SSSI	Permanent losses of terrestrial habitat used regularly by qualifying features of the designated site	Long term	Details of committed mitigation will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of bird surveys and	Reduction in availability of foraging and nesting habitat for SPA qualifying species. Not Significant	Low – assessed as part of the HRA process, but surveys to inform the HRA and EclA are ongoing and the Project design is still in development.

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
			development of full Project design.		
Saltfleetby-Theddlethorpe Dunes and Gibraltar Point SAC and NNR	No effects anticipated	N/A	N/A	Not Significant	High – assessed as part of the HRA process.
North Killingholme Haven Pits SSSI	No effects anticipated	N/A	N/A	Not Significant	High - based on spatial separation of designated site from Proposed Development
River Freshney headwaters LWS, Waith Beck East LWS, Great Eau SNCI & LWS, Long Eau East SNCI & LWS.	No effects anticipated	N/A	N/A	Not Significant	High
Brackenbrough RNR, Brackenbrough Road Verge LWS	No effects anticipated.	N/A	N/A	Not Significant	High - there will be no disturbance of these areas during operation.
Rosper Road Pools LWS	Disturbance of bird assemblage due to noise and light	Long term	Specific mitigation measures outlined in paragraphs 6.8.10 and 6.9.7 – 6.9.12.	Negative effects on the function of the designated site through displacement of birds.	Moderate - surveys to inform HRA and EclA are ongoing and proposed

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
	pollution from operational infrastructure at Immingham Facility.		Mitigation to be confirmed following completion of bird surveys and development of full Project design.	Not Significant	development design is not advanced enough to assess potential impacts and effects. However baseline noise and light levels are likely to be high in the context of surrounding port and other industrial infrastructure and vehicular traffic levels on Rosper Road.
Semi-natural broad-leaved woodland, Broad leaved plantation woodland, Hedgerows, Scattered trees.	Positive	N/A	N/A	Not Significant	High – New habitats will be created. The Applicant is committed to making a positive contribution to biodiversity net gain and additional details will be included within the ES. A HLMP will be implemented to monitor any habitat creation to make sure BNG condition targets are met.

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
Running water	No effects anticipated	N/A	N/A	Not Significant	High
Open Water	Positive	N/A	N/A	Not Significant	High – new ponds will be created as part of the DLL scheme and monitored accordingly.
Sand dunes	No effects anticipated	Long term	N/A	Not Significant	High - there will be no disturbance of sand dune habitat during operation.
Invertebrates	Positive	Long term	To be confirmed following any necessary surveys.	Not Significant	Medium – surveys to inform EclIA are ongoing. A HLMP will be implemented to monitor any habitat creation required as mitigation for invertebrate species. Creation of new ponds as part of DLL scheme will provide suitable habitat for invertebrates.
GCN	Positive	Long term	New ponds will be created as part of DLL scheme.	Not Significant	High - new ponds will be created as part of the DLL scheme and

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
					monitored accordingly.
Reptiles	No effects anticipated	N/A	To be confirmed following any necessary surveys.	Not Significant	Medium - to be confirmed following any necessary surveys.
Fish	No effects anticipated	<u>N/A</u>	To be confirmed following any necessary surveys.	Not Significant	Medium – surveys to inform EclA are ongoing.
Non-breeding waders, ducks and geese on terrestrial habitats.	No effects anticipated	N/A	N/A	Not Significant	Moderate – surveys to inform EclA are advanced (though still ongoing). Detailed Project design is still in development.
Non-breeding passerines (Priority Species)	No effects anticipated	N/A	N/A	Not Significant	Moderate – surveys to inform EclA are advanced (though still ongoing). Detailed Project design is still in development.
Breeding birds (Priority Species, excluding breeding Schedule 1)	No effects anticipated	N/A	N/A	Not Significant	Moderate - surveys to inform EclA are advanced (though still ongoing) and detailed Project

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
species considered separately below).					design is not yet available. There have been no surveys of Immingham Facility due to restricted land access.
Breeding avocet	Permanent habitat losses Noise and visual disturbance	Long term	Mitigation to be confirmed following completion of bird surveys and development of full Project design.	Reduction in breeding numbers by an estimated 1 breeding pair. Not Significant	Moderate - detailed Project design is not yet available to inform assessment.
Breeding little ringed plover	Permanent habitat losses Noise and visual disturbance from operational infrastructure.	Long term	Mitigation to be confirmed following completion of bird surveys and development of full Project design.	Reduction in breeding numbers by an estimated 3 breeding pairs. Not Significant	Moderate - detailed Project design is not yet available to inform assessment.
Breeding hobby	No effects anticipated	N/A	N/A	Not Significant	High
Breeding peregrine	No effects anticipated	N/A	N/A	Not Significant	High
Breeding kingfisher	No effects anticipated	N/A	N/A	Not Significant	High
Breeding barn owl	No effects anticipated	N/A	N/A	Not Significant	High

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
Roosting bats	No effects anticipated	N/A	To be confirmed following any necessary surveys.	Not Significant	Low - to be confirmed following any necessary surveys.
Foraging and commuting bats	No effects anticipated	N/A	There will be no additional lighting within suitable habitats during the operational phase. Habitats will be reinstated post construction to maintain habitat connectivity.	Not Significant	High - to be confirmed following any necessary surveys.
Otter	No effects anticipated	N/A	To be confirmed following any necessary surveys.	Not Significant	Medium - to be confirmed following any necessary surveys.
Water vole	No effects anticipated	N/A	To be confirmed following any necessary surveys.	Not Significant	Medium - to be confirmed following any necessary surveys.
Brown hare	No effects anticipated	Long term	Habitats will be returned to farmland post construction.	Not Significant	High - habitats will be returned to farmland post construction and will be available to brown hare.

Receptor	Potential Impact	Duration	Example Mitigation	Likely significance of effect	Confidence in Prediction
Hedgehog	No effects anticipated	Long term	Habitats will be reinstated post construction to maintain connectivity.	Not Significant	High – habitat creation will be monitored through a HLMP.
Badger	No effects anticipated	Long term	Habitats will be reinstated post construction and will be available to foraging badger.	Not Significant	High – habitat creation will be monitored through a HLMP.
INNS	Positive	Long term	A HLMP will be implemented for the operational phase of the development and any INNS will removed.	Not Significant	High - habitat creation and INNS will be monitored through a HLMP.

Table 6-25: Preliminary Assessment of Ecology and Biodiversity Effects for the Decommissioning Phase

Receptor	Potential Impact	Duration	Mitigation	Likely significance of effect	Confidence in Prediction
Humber Estuary SPA, SAC, Ramsar and SSSI	Noise and visual disturbance of breeding and non-breeding birds. Pollution resulting in degradation of habitats. Limited in extent where pipeline is left in the ground.	Short or medium term	Details of committed mitigation measures will be provided within the Environmental Statement, the report to inform HRA and the decommissioning plan. Mitigation to be confirmed following completion of bird surveys and development of full Project design. Specific mitigation measures in paragraphs 6.8.10 and 6.9.7 – 6.9.12.	Reduced occurrence of SPA birds within terrestrial habitats that play a supporting role in the function of the designated site. Not Significant	Moderate – surveys to inform HRA and EclA are ongoing but significant baseline has been gathered to date. Decommissioning options undergoing review by engineers
Saltfleetby-Theddlethorpe Dunes and Gibraltar Point SAC and NNR	Pollution resulting in degradation of habitats.	Short or medium term	Mitigation will be provided within the report to inform HRA and the decommissioning plan.	Not Significant	High - assessed as part of the HRA process.

Receptor	Potential Impact	Duration	Mitigation	Likely significance of effect	Confidence in Prediction
North Killingholme Haven Pits SSSI	Noise and visual disturbance of breeding and non-breeding birds. Pollution resulting in degradation of habitats. Pollution resulting in degradation of habitats (Killingholme Marshes) which are hydrologically linked to the SSSI.	Short or medium term	Specific mitigation measures outlined in paragraph 6.8.10. Mitigation to be confirmed following completion of bird surveys and development of full Project design. The decommissioning plan will detail measures to prevent and control pollution.	No effects are expected on this designation Not Significant	Moderate – the SSSI is sufficiently distant from the Draft Order Limits that disturbance of interest features can be ruled out. However surveys to inform EclA are ongoing. Standard control measures to avoid pollution.
Welbeck spring LGS	No effects anticipated	N/A	N/A	Not Significant	High – no disturbance anticipated as pipeline is to be left in situ.
River Freshney headwaters LWS, Waith Beck East LWS, Great Eau SNCI & LWS, Long Eau East SNCI & LWS.	Physical or chemical pollution.	Short, medium or long term	The decommissioning plan will detail measures to prevent and control pollution.	Not Significant	Low – decommissioning options undergoing review by engineers.

Receptor	Potential Impact	Duration	Mitigation	Likely significance of effect	Confidence in Prediction
Brackenbrough RNR, Brackenbrough Road Verge LWS	No effects anticipated	N/A	N/A	Not Significant	Low – decommissioning options undergoing review by engineers.
Rosper Road Pools LWS	Disturbance of bird assemblage due to works at Immingham Facility	Short or medium term	Specific mitigation measures outlined in paragraph 6.8.10 and 6.9.7 – 6.9.12. Mitigation to be confirmed following completion of bird surveys and development of full Project design. The decommissioning plan will detail measures to prevent and control pollution.	Not Significant	Low – decommissioning options undergoing review by engineers.
Semi-natural broad-leaved woodland, Broad leaved plantation woodland, Hedgerows, Scattered trees.	No effects anticipated	N/A	N/A	Not Significant	Low – decommissioning options undergoing review by engineers.
Running water	Physical or chemical pollution.	Short, medium or long term	The decommissioning plan will detail	Not Significant	Low – decommissioning

Receptor	Potential Impact	Duration	Mitigation	Likely significance of effect	Confidence in Prediction
			measures to prevent and control pollution.		options undergoing review by engineers.
Open Water	No effects anticipated	N/A	N/A	Not Significant	High – habitats to remain undisturbed.
Sand dunes	Damage to habitats through encroachment of machinery or a pollution event.	Short or medium term.	The decommissioning plan will detail measures to prevent and control pollution.	Not Significant	Low – decommissioning options undergoing review by engineers.
Invertebrates	No effects anticipated	N/A	N/A	Not Significant	Low – decommissioning options undergoing review by engineers.
GCN	Habitat loss. Killing, injury or disturbance of GCN.	Short or medium term	Update surveys will be completed as necessary to inform the decommissioning plan.	Not Significant	Medium – decommissioning options undergoing review by engineers.
Reptiles	Killing or injury.	Short or medium term	Update surveys will be completed as necessary to inform the decommissioning plan.	Not Significant	Medium – decommissioning options undergoing review by engineers.

Receptor	Potential Impact	Duration	Mitigation	Likely significance of effect	Confidence in Prediction
Fish	Adverse effects from a pollution event.	Short, medium or long term	Update surveys will be completed as necessary to inform the decommissioning plan. The decommissioning plan will detail measures to prevent and control pollution.	Not Significant	Low – decommissioning options undergoing review by engineers.
Non-breeding waders, ducks and geese on terrestrial habitats	Temporary habitat loss Noise and visual disturbance	Short or medium term	Specific mitigation set out in paragraph 6.8.10. Pipeline to be left in situ, therefore effects likely to be highly localised. The decommissioning plan will detail measures to prevent and control noise.	Reduction in availability of feeding habitat. Displacement of birds from otherwise unaffected feeding habitat Not Significant	Moderate – surveys are incomplete and a final package of mitigation and avoidance measures has not been determined, however significant baseline has been gathered to date. Decommissioning options undergoing review by engineers.
Non-breeding passerines (Priority Species)	Temporary habitat loss	Short or medium term	Specific mitigation set out in paragraph 6.8.10.	Reduction in availability of feeding habitat.	Moderate – surveys are incomplete, and a final package of mitigation and

Receptor	Potential Impact	Duration	Mitigation	Likely significance of effect	Confidence in Prediction
	Noise and visual disturbance		The decommissioning plan will detail measures to prevent and control noise.	Displacement of birds from otherwise unaffected feeding habitat Not Significant	avoidance measures has not been determined, however significant baseline has been gathered to date. Decommissioning options undergoing review by engineers.
Breeding birds (Priority Species, excluding breeding Schedule 1 species considered separately below)	Temporary habitat loss. Killing and injury of breeding birds, their eggs, nests and young. Noise and visual disturbance.	<u>Short or medium term</u>	Specific mitigation set out in paragraphs 6.9.7 – 6.9.12. The decommissioning plan will detail measures to prevent and control noise.	Reduction in availability of breeding habitat. Displacement of birds from otherwise unaffected breeding habitat. Reduction in breeding bird population. Not Significant	Moderate – surveys are incomplete and a final package of mitigation and avoidance measures has not been determined, however significant baseline has been gathered to date. Decommissioning options undergoing review by engineers.
Breeding avocet	Temporary habitat loss. Killing and injury of breeding birds, their eggs, nests and young. Noise and visual disturbance.	Short or medium term	Specific mitigation set out in paragraphs 6.9.7 – 6.9.12. The decommissioning plan will detail measures to	Reduction in availability of breeding habitat. Displacement of birds from otherwise unaffected breeding habitat.	Moderate – surveys are incomplete and a final package of mitigation and avoidance measures has not been determined, however significant baseline

Receptor	Potential Impact	Duration	Mitigation	Likely significance of effect	Confidence in Prediction
			prevent and control noise.	Reduction in breeding bird population. Not Significant	has been gathered to date. Decommissioning options undergoing review by engineers.
Breeding little ringed plover	Temporary habitat loss. Killing and injury of breeding birds, their eggs, nests and young. Noise and visual disturbance.	Short or medium term	Specific mitigation set out in paragraphs 6.9.7 – 6.9.12. The decommissioning plan will detail measures to prevent and control noise.	Reduction in availability of breeding habitat. Displacement of birds from otherwise unaffected breeding habitat. Reduction in breeding bird population. Not Significant	Moderate – surveys are incomplete and a final package of mitigation and avoidance measures has not been determined, however significant baseline has been gathered to date. Decommissioning options undergoing review by engineers.
Breeding hobby	No effects anticipated	N/A	N/A	Not Significant	High – the pipeline would be left in situ.
Breeding peregrine	No effects anticipated	N/A	N/A	Not Significant	High – the pipeline would be left in situ
Breeding kingfisher	No effects anticipated	N/A	N/A	Not Significant	High – the pipeline would be left in situ
Breeding barn owl	No effects anticipated	N/A	N/A	Not Significant	High – the pipeline would be left in situ
Roosting bats	No effects anticipated	N/A	N/A	Not Significant	Medium – decommissioning

Receptor	Potential Impact	Duration	Mitigation	Likely significance of effect	Confidence in Prediction
					options undergoing review by engineers.
Foraging and commuting bats	No effects anticipated	N/A	N/A	Not Significant	Medium – decommissioning options undergoing review by engineers.
Otter	Disturbance of otter resting places. Pollution (physical or chemical) of watercourses.	Short, medium or long term.	Update surveys will be completed as necessary to inform the decommissioning plan.	Not Significant	Low - decommissioning options undergoing review by engineers.
Water vole	Disturbance or destruction of Water Vole burrows. Killing or injury of water voles. Pollution (physical or chemical) of watercourses.	Short, medium or long term.	Update surveys will be completed as necessary to inform the decommissioning plan.	Not Significant	Low - decommissioning options undergoing review by engineers.
Brown hare	No effects anticipated	N/A	Pipeline to be left in situ.	Not Significant	High - habitats to remain undisturbed.
Hedgehog	No effects anticipated	N/A	Pipeline to be left in situ.	Not Significant	High - habitats to remain undisturbed.
Badger	Disturbance of a badgers sett.	Short or medium term	Update surveys will be completed as necessary to inform the	Not Significant	High – most habitats to remain undisturbed.

Receptor	Potential Impact	Duration	Mitigation	Likely significance of effect	Confidence in Prediction
			decommissioning plan.		
INNS	Spread of INNS resulting in a legal offence.	Short, medium or long term	Update surveys will be completed as necessary to inform the decommissioning plan. The decommissioning plan will include measures to avoid the spread of INNS (if present).	Not Significant	High – standard control measures to avoid INNS to be implemented.

Summary

- 6.10.2 The preliminary EclA has identified that in the absence of mitigation the Project has the potential to result in effects on ecological features as detailed in **Table 6-23** to **Table 6-25**.
- 6.10.3 Potential effects upon international statutory designated sites will be assessed as part of the EclA and through the Habitats Regulation Assessment (HRA) process as detailed below.
- 6.10.4 There are potential pathways of effect between the Project and designated sites. The potential for direct and indirect impacts on relevant designated sites will be considered in the EclA. Where possible any secondary or indirect impacts upon qualifying features of the site will be avoided through the design development and, where required, the adoption of appropriate mitigation measures.
- 6.10.5 Where statutory or non-statutory designated sites will be affected by the Project, the EclA will examine whether there will be any direct or indirect effects during construction or operation and confirm any relevant avoidance/ mitigation requirements.
- 6.10.6 The Project would, wherever possible, avoid direct impacts upon ponds and other waterbodies and, as such, the predicted effects upon great crested newt is limited to effects upon potential terrestrial habitat within 250 m of ponds where great crested newt is confirmed.
- 6.10.7 Only minor watercourses and drains would be crossed using open cut techniques to reduce the potential direct impacts upon aquatic habitats and potential effects upon associated protected fauna such as water vole or otter. Similarly, woodland, trees and other features with potential to support roosting bats and nesting birds would also be avoided as far as possible.
- 6.10.8 **Table 6-26** summarises the potential ecological effects resulting from the Project.

Table 6-26: Potential Ecological Effects Resulting from the Project

Stage of the Project	Activity / impact	Equivalent CIEEM Assessment
Construction	Permanent land take at Immingham and Theddlethorpe Facilities and at the Block Valve Stations.	Loss of habitat. Loss/ fragmentation of habitat supporting protected and notable species. Killing/ injury of protected and notable species e.g., GCN populations within 250 m of the preferred pipeline route. Fragmentation of habitats (loss of wildlife corridors).
	Temporary land take as a result of the pipeline, construction compound(s) and laydown areas	Damage to habitat supporting protected and notable species. Loss/ fragmentation of habitat supporting protected and notable species. Killing/ injury of protected and notable species e.g., GCN populations within 250 m of the preferred pipeline route. Fragmentation of habitats (loss of wildlife corridors).

Stage of the Project	Activity / impact	Equivalent CIEEM Assessment
	Restoration of habitats following completion of works	Damage to habitat supporting protected and notable species (depending how and when the restoration activities are completed). Killing/ injury of protected and notable species e.g., GCN populations within 250 m of the preferred pipeline route.
	Noise/ visual	Disturbance to designated sites e.g., qualifying waterbird features of the Humber Estuary SPA and Ramsar. Disturbance to protected and notable species e.g., roosting/ foraging bats.
	Lighting	Disturbance of nocturnal species.
	Changes in hydrology	Damage to watercourses.
	Surface water pollution	Damage to habitat supporting protected and notable species.
	Ground water pollution	Damage to habitat supporting protected and notable species.
	Dust emissions	Damage to habitats within designated sites due to dust smothering.
	Spread of invasive non-native plant species	Degradation of habitats, legal offence to plant or otherwise allow to spread in the wild.
Operation	Loss of potentially functionally linked land	Loss of functionally linked land used by bird species listed as qualifying species of European designated sites.
	Noise/ visual disturbance at Block Valve Stations	Disturbance to protected and notable species e.g., roosting/ foraging bats.
Decommissioning	Habitat disturbance	Killing/ injury of protected and notable species e.g., GCN populations within 250 m of the preferred pipeline route, badger setts within 50 m.
	Noise/ visual	Disturbance to designated sites e.g., qualifying waterbird features of the Humber Estuary SPA and Ramsar. Disturbance to protected and notable species e.g., roosting/ foraging bats.
	Changes in hydrology	Damage to watercourses such as the Long Eau, Great Eau and Louth Canal.
	Surface water pollution	Damage to habitat supporting protected and notable species.
	Ground water pollution	Damage to habitat supporting protected and notable species.

6.10.9 Based on the implementation of the embedded and standard mitigation measures as detailed, this preliminary EclA for the Project has concluded that:

- the Project is unlikely to have significant effects on any international, national or local sites designed for their biodiversity value;
- there will be loss of habitats, predominantly those within arable land, as a result of construction, which will be mitigated to the extent that no significant effects are likely; and
- there will be adverse effects on some species as a result of construction which will be mitigated to the extent that no significant effects are likely.

6.11 Habitat Regulations Assessment

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

6.11.2 European sites are protected under the Conservation of Habitats and Species Regulations 2017 (Ref 6-1). The UK left the EU on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 (“the Withdrawal Act”). However, the most recent amendments to the Habitats Regulations – the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 – make it clear that the need for HRA continues to apply.

6.11.3 The Draft Order Limits are located within 10 km of the following international sites:

- The Humber Estuary SPA;
- The Humber Estuary SAC;
- The Humber Estuary Ramsar;
- Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC; and
- Greater Wash SPA with marine components.

6.11.4 Stage 1 of the HRA process (Test of Likely Significant Effects) will consider the potential pathways of effect between the Project and the European designated sites within 10 km of the Scoping Boundary (on the basis that it is unlikely that a project such as this will affect sites further afield), and whether there is potential to have a significant adverse effect on the integrity of the European designated sites, either alone or in combination with other plans or projects. Potential pathways of effect currently include noise and visual disturbance during construction, pollution (via hydrological links to the designated sites) and dust emissions and loss / disturbance of functionally linked land used by qualifying bird species. Information used to support the HRA process will include desk study data and the suite of bird surveys outlined in *Appendix 6-2*.

6.11.5 Where there is potential for the Project to have a likely significant effect upon the qualifying features of the European designated sites, the pathway will be taken forward to Stage 2 - Appropriate Assessment. Baseline surveys were ongoing at the time of writing; however, it is anticipated that Appropriate Assessment will be required for the Project. At Appropriate Assessment, the measures that will be implemented to either avoid the impact in the first place, or to mitigate the ecological effect to such an extent that it is no longer significant, will be set out.

- 6.11.6 The HRA will be prepared in line with Planning Inspectorate Advice Note 10 (Ref 6-42) (Habitats Regulations Assessment). The HRA process will be in line with the EIA process.

6.12 Biodiversity Net Gain

- 6.12.1 The Environment Act was granted Royal Assent in November 2021 and was introduced to support the Government's overarching vision for leaving the environment in a better state for the next generation, including transposing elements of the UK Government's 25 Year Environment Plan (Ref 6-44) into statute and confirming the UK's approach to environmental governance post-Brexit.
- 6.12.2 Schedule 15 of the Environment Act 2021 (Ref 6-11) makes provision for Biodiversity Net Gain (BNG) in relation to development consent for nationally significant infrastructure projects. The requirement for BNG for NSIPs are not due to come into force until 2025, however the Applicant is committed to making a positive contribution to biodiversity net gain and additional details will be included within the ES. A BNG assessment will be undertaken for the Project in accordance with the published Natural England Biodiversity Metric 3.1 (Ref 6-46).
- 6.12.3 A key aim of the mitigation strategy is to achieve an overall net gain in biodiversity across the Project. The ecology and biodiversity assessment chapter in the ES will also be supported by a BNG assessment. The Applicant is committed to making a positive contribution to biodiversity net gain and additional details will be included within the ES.

6.13 Summary and Next Steps

- 6.13.1 It is anticipated that overall, the Project will not have a significant adverse effect on ecology and biodiversity and, in the long term, will achieve biodiversity net gain. This will be confirmed and reported in the ES taking in to account the findings of the ongoing field surveys.
- 6.13.2 A report to inform HRA is currently being prepared to identify whether the Project is likely to result in likely significant effects upon European designated sites. The final outcomes of the assessment of likely significant effects of the Project on ecology and biodiversity will be reported within the ES.

6.14 References

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