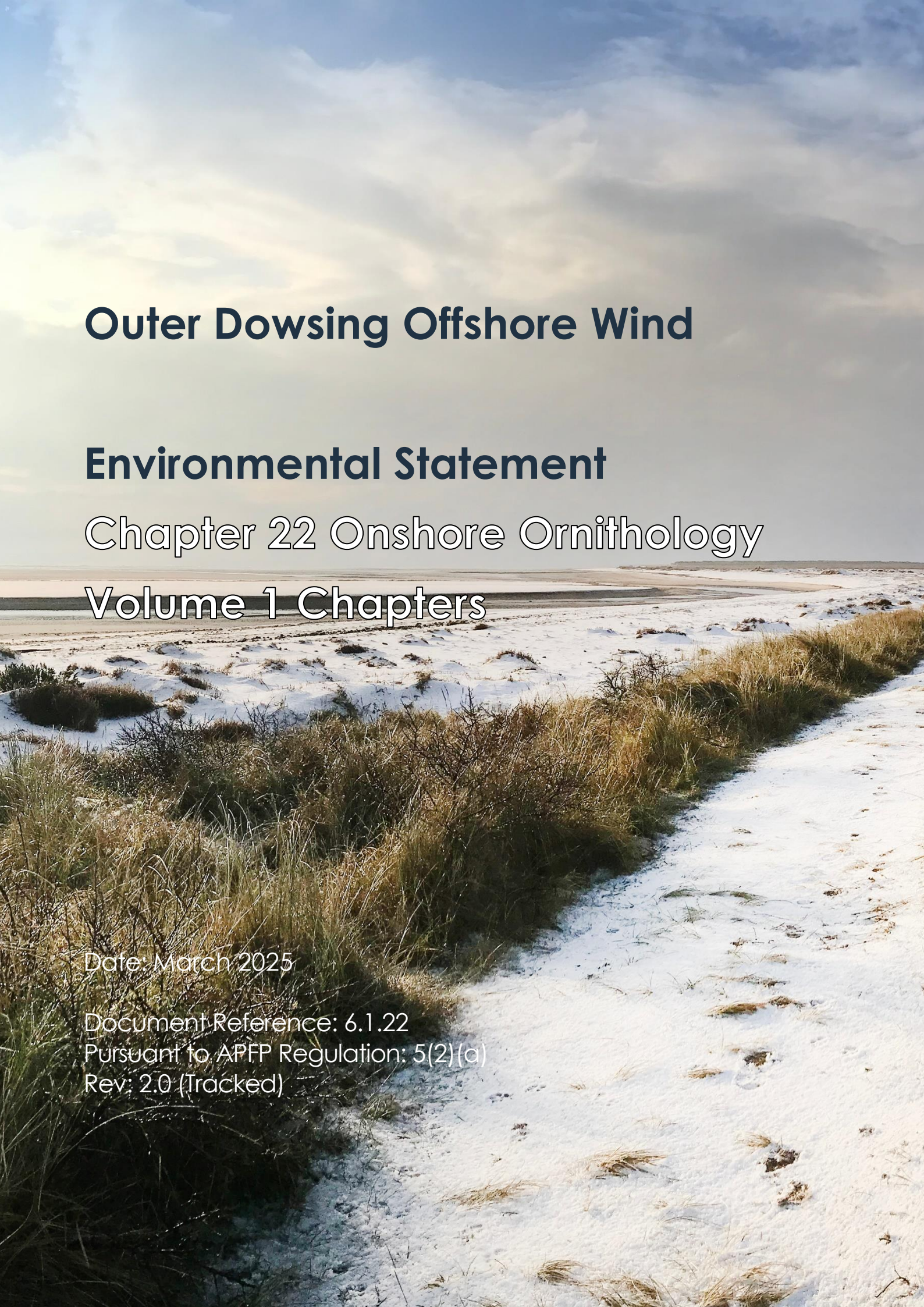

Outer Dowsing Offshore Wind

Environmental Statement

Chapter 22 Onshore Ornithology

Volume 1 Chapters

Date: March 2025

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1.0	March 2024	DCO Application	SLR	GoBe	Shepherd and Wedderburn	Outer Dowsing
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Acronyms and Terminology

Acronyms

Abbreviation / Acronym	Description
AEoI	Adverse Effect on Integrity
AIL	Abnormal Indivisible Load
AoS	Area of Search
AQMP	Air Quality Management Plan
BAEF	Boston Alternative Energy Facility
BNG	Biodiversity Net Gain
BoCC	Birds of Conservation Concern
BOU	British Ornithologists Union
BTO	British Trust for Ornithology
CCTV	Closed-Circuit Television
CIC	Cable Installation Compound
CIEEM	Chartered Institute of Ecology and Environmental Management
CMD	Compensation Measures Document
CMS	Construction Method Statement
CoCP	Code of Construction Practice
DAS	Discretionary Advice Service
DCO	Development Consent Order
DEFRA	Department for Environment, Food and Rural Affairs
DESNZ	Department for Energy, Security and Net Zero
ECC	Export Cable Corridor
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
EA	Environment Agency
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPP	Evidence Plan Process
ES	Environmental Statement
ETG	Expert Topic Group
EU	European Union
FCS	Favourable Conservation Status
FLL	Functionally Linked Land
GB	Great Britain
GLNP	Greater Lincolnshire Nature Partnership
HDD	Horizontal Directional Drilling
HRA	Habitats Regulations Assessment
IAQM	Institute of Air Quality Management
IDB	Internal Drainage Board
IECS	Institute of Estuarine and Coastal Studies
IOF	Important Ornithological Feature

Abbreviation / Acronym	Description
IRZ	Impact Risk Zone
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
LNR	Local Nature Reserve
LRP	Landscape Recovery Project
LWS	Local Wildlife Site
LWT	Lincolnshire Wildlife Trust
MAGIC	Multi-Agency Geographic Information for the Countryside
MDS	Maximum Design Scenario
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MoTH	Mouth of The Haven
N/A	Not Applicable
NE	Natural England
NERC	Natural Environment and Rural Communities
NGET	National Grid Electricity Transmission
NGR	National Grid Reference
NGSS	National Grid Substation
NIA	Nature Improvement Area
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NRMM	Non-Road Mobile Machinery
NSIP	Nationally Significant Infrastructure Project
ODOW	Outer Dowsing Offshore Wind (The Project)
OLEMS	Outline Landscape and Ecological Management Strategy
OnSS	Onshore Substation
OP	Observation Point
OS	Ordnance Survey
PEIR	Preliminary Environmental Information Report
PPEIRP	Pollution Prevention and Emergency Incident Response Plan
RBBP	Rare Breeding Birds Panel
RIAA	Report to inform Appropriate Assessment
RSPB	Royal Society for the Protection of Birds
SMP	Soil Management Plan
SNCB	Statutory Nature Conservation Body
SPA	Special Protection Area
SPMT	Self-Propelled Modular Transporters
SSSI	Site of Special Scientific Interest
TJB	Transition Joint Bay
UK	United Kingdom
WeBS	Wetland Bird Survey
WCP	Wildlife Conservation Projects Ltd
ZoI	Zone of Influence

Terminology

Term	Definition
400kV cables	High-voltage cables linking the OnSS to the NGSS.
400kV cable corridor	The 400kV cable corridor is the area within which the 400kV cables connecting the onshore substation to the NGSS will be situated.
The Applicant	GT R4 Ltd. The Applicant making the application for a DCO. The Applicant is GT R4 Limited (a joint venture between Corio Generation, Tota Energies and Gulf Energy Development (GULF)), trading as Outer Dowsing Offshore Wind. The Project is being developed by Corio Generation (a wholly owned Green Investment Group portfolio company), TotalEnergies and GULF.
Baseline	The status of the environment at the time of assessment without the development in place.
Biodiversity Net Gain	An approach to development that leaves biodiversity in a measurably improved state than it was previously. Where a development has an impact on biodiversity, developers are encouraged to provide an increase in appropriate natural habitat and ecological features over and above that being affected, to ensure that the current loss of biodiversity through development will be halted and ecological networks can be restored.
Cable ducts	A duct is a length of underground piping which is used to house the Cable Circuits.
Connection Area	An indicative search area for the NGSS.
Cumulative effect	The combined effect of the Project acting cumulatively with the effects of a number of different projects, on the same single receptor/resource.
Cumulative impact	Impacts that result from changes caused by other past, present or reasonably foreseeable actions together with the Project.
Damage	Damage here means any form of impact such as loss of habitat, soil compaction, changes in hydrology, nutrient enrichment, pollution, disturbance of species, spread of invasive species, etc.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP).
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of an impact with the sensitivity of a receptor, in accordance with defined significance criteria.
EIA Regulations	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
Environmental Impact Assessment (EIA)	A statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the Environmental Impact Assessment (EIA) Regulations, including the publication of an Environmental Statement (ES).
Environmental Statement (ES)	The suite of documents that detail the processes and results of the Environmental Impact Assessment (EIA).
Export cables	High voltage cables which transmit power from the Offshore Substations (OSS) to the Onshore Substation (OnSS) via an Offshore Reactive Compensation Platform (ORCP) if required, which may include one or more auxiliary cables (normally fibre optic cables).

Term	Definition
Habitats Regulations Assessment (HRA)	A process which helps determine likely significant effects and (where appropriate) assesses adverse impacts on the integrity of European conservation sites and Ramsar sites. The process consists of up to four stages of assessment: screening, appropriate assessment, assessment of alternative solutions and assessment of imperative reasons of over-riding public interest (IROPI) and compensatory measures.
Haul Road	The track within the onshore ECC which the construction traffic would use to facilitate construction.
Impact	An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial.
Important Ornithological Feature (IOF)	For the purposes of this assessment, only ornithological features of Local importance or greater and/or subject to special protection are subject to detailed assessment (and are referred to as "important ornithological features"). Effects on other ornithological features of lower importance are considered unlikely to be significant in legal or policy terms so are not subject to detailed assessment.
Intertidal	The area between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS)
Joint Bays	An excavation formed with a buried concrete slab at sufficient depth to enable the jointing of high voltage power cables.
Landfall	The location at the land-sea interface where the offshore export cables and fibre optic cables will come ashore.
Link boxes	Underground metal chamber placed within a plastic and/or concrete pit where the metal sheaths between adjacent export cable sections are connected and earthed.
Maximum Design Scenario	The project design parameters, or a combination of project design parameters that are likely to result in the greatest potential for change in relation to each impact assessed
Mitigation	Mitigation measures, or commitments, are commitments made by the Project to reduce and/or eliminate the potential for significant effects to arise as a result of the Project. Mitigation measures can be embedded (part of the Project design) or secondarily added to reduce impacts in the case of potentially significant effects.
National Grid Onshore Substation (NGSS)	The National Grid substation and associated enabling works to be developed by the National Grid Electricity Transmission (NGET) into which the Project's 400kV Cables would connect.
National Policy Statement (NPS)	A document setting out national policy against which proposals for Nationally Significant Infrastructure Projects (NSIPs) will be assessed and decided upon
Onshore Export Cable Corridor (ECC)	The Onshore Export Cable Corridor (Onshore ECC) is the area within which, the export cables running from the landfall to the onshore substation will be situated.
Onshore substation (OnSS)	The Project's onshore HVAC substation, containing electrical equipment, control buildings, lightning protection masts, communications masts, access, fencing and other associated equipment, structures or buildings; to enable connection to the National Grid
Onshore Infrastructure	The combined name for all onshore infrastructure associated with the Project from landfall to grid connection.

Term	Definition
Order Limits	The area subject to the application for development consent. The limits shown on the works plans within which the Project may be carried out.
Outer Dowsing Offshore Wind (ODOW)	The Project.
The Planning Inspectorate	The agency responsible for operating the planning process for Nationally Significant Infrastructure Projects (NSIPs).
Pre-construction and post-construction	The phases of the Project before and after construction takes place.
Preliminary Environmental Information Report (PEIR)	The PEIR was written in the style of a draft ES and provided information to support and inform the statutory consultation process in the pre-application phase. Following that consultation, the PEIR documentation has been updated to produce the Project's ES that will accompany the application for the Development Consent Order (DCO).
The Project	Outer Dowsing Offshore Wind, an offshore wind generating station together with associated onshore and offshore infrastructure.
Project design envelope	A description of the range of possible elements that make up the Project's design options under consideration, as set out in detail in the project description. This envelope is used to define the Project for Environmental Impact Assessment (EIA) purposes when the exact engineering parameters are not yet known. This is also often referred to as the "Rochdale Envelope" approach.
Receptor	A distinct part of the environment on which effects could occur and can be the subject of specific assessments. Examples of receptors include species (or groups) of animals or plants, people (often categorised further such as 'residential' or those using areas for amenity or recreation), watercourses etc.
Study area	Area(s) within which environmental impact may occur – to be defined on a receptor-by-receptor basis by the relevant technical specialist.
Trackout	Transfer of soil and dust onto public road from construction vehicles
Transition Joint Bay	The offshore and onshore cable circuits are jointed on the landward side of the sea defences/beach in a Transition Joint Bay (TJB). The TJB is an underground chamber constructed of reinforced concrete which provides a secure and stable environment for the cable.
Trenchless technique	Trenchless technology is an underground construction method of installing, repairing, and renewing underground pipes, ducts and cables using techniques which minimize or eliminate the need for excavation. Trenchless technologies involve methods of new pipe installation with minimum surface and environmental disruptions. These techniques may include Horizontal Directional Drilling (HDD), thrust boring, auger boring, and pipe ramming, which allow ducts to be installed under an obstruction without breaking open the ground and digging a trench.

Reference Documentation

Document Number	Title
6.1.3	Project Description
6.1.12	Intertidal and Offshore Ornithology
6.1.19	Onshore Air Quality
6.1.21	Onshore Ecology
6.1.24	Onshore Hydrology, Hydrogeology and Flood Risk
6.3.22.1	Ornithology Desk Study
6.3.22.21~~1A~~	Confidential Ornithology Desk Study
6.3.22.32~~2~~	Winter Bird Survey 2022-2023
6.3.22.43~~3~~	Breeding Bird Survey
6.3.22.53~~3A~~	Confidential Breeding Bird Survey Records 2023
6.3.22.64~~4~~	Bird Species List
6.3.22.7	Winter Bird Survey 2023-2024
6.3.22.8	Additional clarifications relating to Natural England's representations
7.7.1	Report to Inform Appropriate Assessment (RIAA)
8.10	Outline Landscape and Ecological Management Strategy (OLEMS)

22 Onshore Ornithology

22.1 Introduction

1. This chapter of the Environmental Statement (ES) presents the Environmental Impact Assessment (EIA) process and results, for the potential impacts of Outer Dowsing Offshore Wind (ODOW) ("the Project") on Onshore Ornithology. This chapter describes the likely significant effects on birds of the Project landward of Mean ~~Low~~ High Water Springs (MH~~L~~WS) during the construction, operation and maintenance, and decommissioning phases.
2. GT R4 Limited (trading as Outer Dowsing Offshore Wind) hereafter referred to as the 'Applicant', is proposing to develop the Project. The Project will include both offshore and onshore infrastructure including an offshore generating station (windfarm) located approximately 54km from the Lincolnshire coastline, export cables to landfall, onshore cables, connection to the electricity transmission network, and ancillary and associated development (see Volume 1, Chapter 3: Project Description for full details).
3. This chapter is supported by, and summarises, the information contained within the following Appendices in Volume 3:

- Appendix 22.1: Desk Study (document reference 6.3.22.1);
- Appendix 22.2: CONFIDENTIAL Desk Study (document reference 6.3.22.2~~1A~~);
- Appendix 22.3: Winter Bird Survey 2022-2023 (document reference 6.3.22.3~~2~~);
- Appendix 22.4: Breeding Bird Survey 2023 (document reference 6.3.22.4~~3~~);
- Appendix 22.5: CONFIDENTIAL Breeding Bird Survey Records 2023 (document reference 6.3.22.5~~3A~~);
- Appendix 22.6: Bird Species List (document reference 6.3.22.6~~4~~); ~~and~~
- Appendix 22.7: Winter Bird Survey 2023-2024 ~~Provisional Summary~~ (document reference 6.3.22.7)~~;~~ and
- ~~Appendix 22.8 Addendum: Winter Bird Survey 2023/24 (document reference 13.2) Appendix 22.8 Addendum: Winter Bird Survey 2023/24 (document reference 6.3.22.8); and~~
- Appendix 22.8: Additional clarifications relating to Natural England's Relevant Representations (Appendix I Onshore Ornithology) (document reference 6.3.22.8~~9~~).

4. This chapter should be read alongside the following chapters and documents:

- Volume 1, Chapter 3: Project Description (document reference 6.1.3);
- Volume 1, Chapter 12: Intertidal and Offshore Ornithology (document reference 6.1.12);
- Volume 1, Chapter 19 Onshore Air Quality (document reference 6.1.19);
- Volume 1, Chapter 21: Onshore Ecology (document reference 6.1.21);

- Volume 1, Chapter 24: Onshore Hydrology, Hydrogeology and Flood Risk (document reference 6.1.24)
- Part 7, Chapter 7.1: Report to Inform Appropriate Assessment (RIAA) (document reference 7.1); and
- Part 8, Document 8.~~12~~10: Outline Landscape and Ecological Management Strategy (OLEMS) (document reference 8.10~~2~~).

22.2 Statutory and Policy Context

5. The relevant legislation and planning policy for offshore renewable energy Nationally Significant Infrastructure Projects (NSIPs), specifically in relation to Onshore Ornithology, is outlined in Table 22.1.

Table 22.1 Legislation and policy context

Legislation/policy	Key provisions	Section where addressed
Legislation		
The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 as amended (The Environmental Assessments and Miscellaneous Planning (Amendment) (EU Exit) Regulations 2018)	The following extracts are areas of particular focus, although the Regulations have been considered as a whole: 4(2)b – *"The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors"* including *"biodiversity, with particular attention to species and habitats protected under any law that implemented Directive 92/43/EEC(1) and Directive 2009/147/EC(2)" i.e. the Habitats and Birds Directives.* Schedule 4 – *"The description of the likely significant effects should take into account the environmental protection objectives established at Union level (as they had effect immediately before exit day) or United Kingdom level which are relevant to the project, including in particular those established under the law of any part of the United Kingdom that implemented Council Directive 92/43/EEC and Directive 2009/147/EC" i.e. the Habitats and Birds Directives.*	Sections 22.5-22.9.
Conservation of Habitats and Species Regulations 2017 (as amended)	Part 2 - Protection of Special Protection Areas (SPA). Part 6 – Assessment of plans and projects.	The relevant provisions of the Conservation of Habitats and Species Regulations are addressed in Sections 22.5 and 22.9. Alongside the ES a RIAA has also been produced (Chapter 7.1), which addresses likely significant

Legislation/policy	Key provisions	Section where addressed
		effects/adverse effects on the integrity of European sites.
Wildlife and Countryside Act 1981 (as amended)	Protection of nesting birds including species of bird listed under Schedule 1, which are afforded additional protection from disturbance whilst nesting. Designation of Sites of Special Scientific Interest (SSSI).	The relevant provisions of the Wildlife and Countryside Act are addressed in Sections 22.5-22.9.
The Environment Act 2021	The Environment Act has wide ranging provisions including those around environmental governance, environmental regulation, waste and resource efficiency, air quality and environmental recall, water, nature and biodiversity, and conservation covenants. Schedule 15 of the Act is of particular relevance and introduces "*biodiversity gain in nationally significant infrastructure projects*". The part of the Environment Act relating to biodiversity net gain (and the associated amendments to the Planning Act) is not yet in force, with the parts relating to NSIPs unlikely to commence until November 2025 (in line with the Government target for commencement).	The relevant provisions of the Environment Act are addressed in Sections 22.5-22.9.
Natural Environment and Rural Communities (NERC) Act 2006	The NERC Act creates an obligation on the Secretary of State to publish lists of species of principal importance for conservation in England. It also includes a duty for public authorities to conserve biodiversity. This was amended by the Environment Act 2021, to include a duty to enhance biodiversity.	The relevant provisions of the NERC Act are addressed in Sections 22.5-22.9.

Legislation/policy	Key provisions	Section where addressed
National Parks and Access to the Countryside Act 1949	Sections 19 and 21 – designation of Local Nature Reserves (LNR).	Local designated sites are presented in Section 22.4.
National Planning Policy		
Overarching National Policy Statement (NPS) for Energy 2023 (NPS EN-1)	Section 5.4 'Biodiversity and Geological Conservation' is of relevance to this application with the following paragraphs considered key provisions: • Protection and enhancement of habitats and other species: *"Many individual wildlife species receive statutory protection under a range of legislative provisions.181 Other species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales, as well as for their continued benefit for climate mitigation and adaptation and thereby requiring conservation action"* • Applicant assessment: *"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 (including those outside England), on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity, including irreplaceable habitats"* • Protection and enhancement of habitats and other species	The current baseline environment is presented in Section 22.4, embedded mitigation measures presented in Table 22.8, additional mitigation in Table 22.21 Summary of additional mitigation measures and impact assessment in Section 22.8. Designated sites are presented in Section 22.4 Baseline Environment. Mitigation, compensation and enhancement measures are further detailed within the Document 8.10: OLEMS. The DCO will requires the submission and approval of an Environmental Management Plan (EMP) which is in accordance with the OLEMS. Project design is an iterative process that has sought to avoid sensitive features wherever possible. Alongside the ES, a RIAA has been produced (Chapter 7.1).

Legislation/policy	Key provisions	Section where addressed
	"Consideration should be given to improvements to, and impacts on, habitats and species in, around and beyond developments, for wider ecosystem services and natural capital benefits, beyond those under protection and identified as being of principal importance. This may include considerations and opportunities identified through Local Nature Recovery Strategies, and national goals and targets set through the government's strategy for nature for example." • Mitigation *'Applicants should include appropriate avoidance, mitigation, compensation and enhancement measures as an integral part of the proposed development. In particular, the applicant should demonstrate that:* *during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works the timing of construction has been planned to avoid or limit disturbance during construction and operation best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised, including as a consequence of transport access arrangements habitats will, where practicable, be restored after construction works have finished opportunities will be taken to enhance existing habitats rather than replace them, and where practicable, create new habitats of value within the site landscaping proposals. Where habitat creation is required as mitigation, compensation, or enhancement the location and*	

Legislation/policy	Key provisions	Section where addressed
	quality will be of key importance. In this regard habitat creation should be focused on areas where the most ecological and ecosystems benefits can be realised.'	
NPS for Renewable Energy Infrastructure 2023 (NPS EN-3)	The key provisions are as follows: • Paragraph 3.5.2 *'Proposals for renewable energy infrastructure should demonstrate good design, particularly in respect of landscape and visual amenity, opportunities for co-existence/co-location with other marine uses, and in the design of the project to mitigate impacts such as noise and effects on ecology and heritage* • Paragraph 3.8.236: *'Applicants are advised to develop an ecological monitoring programme to monitor impacts during the pre-construction, construction and operational phases to identify the actual impacts caused by the project and compare them to what was predicted in the EIA/HRA.*	Embedded mitigation measures are provided in Table 22.8 and additional mitigation in Table 22.21. Mitigation, compensation and enhancement measures are further detailed within the OLEMS (Part 8). Impact assessment is outlined in Section 22.8. Alongside the ES a RIAA has been produced (Chapter 7.1).
NPS for Electricity Networks Infrastructure 2023 (NPS EN-5)	The key provisions are as follows: • Paragraph 2.5.1*: 'When planning and evaluating the proposed development's contribution to environmental and biodiversity net gain, it will be important – for both the applicant and the Secretary of State – to supplement the generic guidance set out in EN-1 (Section 4.5) with recognition that the linear nature of electricity*	Applicable to Ecology and habitats (Volume 1, Chapter 21: Onshore Ecology).

Legislation/policy	Key provisions	Section where addressed
	networks infrastructure can allow for excellent opportunities to: *reconnect important habitats via green corridors, biodiversity stepping zones, and reestablishment of appropriate hedgerows; and/or connect people to the environment, for instance via footpaths and cycleways constructed in tandem with environmental enhancements.*	
National Planning Policy Framework (NPPF) (December 2023)	Section 15: Conserving and enhancing the natural environment. *This includes:* *"180. When determining planning applications, local planning authorities should apply the following principles:" "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 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;"*	Site Selection and Consideration of Alternatives (see Volume 1, Chapter 4) illustrates how all direct impacts on designated sites have been avoided through project design. Mitigation measures are provided in Table 22.8 and Table 22.21. Mitigation, compensation and enhancement measures are further detailed within the OLEMS (Part 8). The hierarchy of designated sites is provided in Section 22.4: Baseline Environment. Priority bird species have been included within the desk-based study (Section 22.4) and impact assessment (Section 22.8).

Legislation/policy	Key provisions	Section where addressed
	"181. The following should be given the same protection as habitats sites:" "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".	
The Natural Choice: securing the value of nature (Defra, 2011)	▪ Commitment 14: 'Protecting natural value through the planning system.' Using the NPPF as a vehicle; ▪ Commitment 15: 'Offsetting the impacts of development on biodiversity'; and ▪ Commitment 16: 'Planning for low carbon infrastructure'.	Mitigation measures are provided in Table 22.8 and Table 22.21. Impact assessment is outlined in Section 22.8. Mitigation, compensation and enhancement measures are further detailed within the OLEMS (Part 8).
Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services	*Outcome 1 – Habitats and Ecosystems (including freshwater environments): By 2020 we will have put in place measures so that biodiversity is maintained and enhanced, further degradation has been halted and where possible, restoration is underway, helping deliver more resilient and coherent ecological networks, healthy and well-functioning ecosystems, which deliver multiple benefits for wildlife and people, including:* *1A. Better wildlife habitats with 90% of priority habitats in favourable or recovering condition and at least 50% of SSSIs in favourable condition, while maintaining at least 95% in favourable or recovering condition;*	Mitigation measures are provided in Table 22.8 and Table 22.21 Impact assessment is outlined in Section 22.8. Mitigation, compensation and enhancement measures are further detailed within the OLEMS (Part 8).

Legislation/policy	Key provisions	Section where addressed
	1B. More, bigger and less fragmented areas for wildlife, with no net loss of priority habitat and an increase in the overall extent of priority habitats by at least 200,000 ha; *1C. By 2020, at least 17% of land and inland water, especially areas of particular importance for biodiversity and ecosystem services, conserved through effective, integrated and joined up approaches to safeguard biodiversity and ecosystem services including through management of our existing systems of protected areas and the establishment of nature improvement areas;* *1D. Restoring at least 15% of degraded ecosystems as a contribution to climate change mitigation and adaptation.* *<u>Outcome 3 – Species</u>: By 2020, we will see an overall improvement in the status of our wildlife and will have prevented further human-induced extinctions of known threatened species.*	
Local Planning Policy		
East Lindsey Core Strategy: SP 24 Biodiversity and Geodiversity.	The key provisions include: *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.*	Statutory and non-statutory designations will be avoided and safeguarded through careful design. Mitigation measures are provided in Table 22.8 and Table 22.21.

Legislation/policy	Key provisions	Section where addressed
	2.The Council will protect sites designated internationally, nationally or locally for their biodiversity and geodiversity importance, species populations and habitats identified in 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: *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* *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,*	Mitigation, compensation and enhancement measures are further detailed within the OLEMS (Part 8). Impact assessment is outlined in Section 22.8.

Legislation/policy	Key provisions	Section where addressed
	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. *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.* *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.'*	
East Lindsey Core Strategy: SP 25 – Green Infrastructure.	The key provisions include: *The Council will safeguard and deliver a network of accessible green infrastructure by:* *Protecting and safeguarding all greenspace identified through the Settlement Proposals DPD so that there is no net loss;* *Maximising opportunities for new and enhanced green infrastructure and publicly accessible open spaces in and around all communities;* *Seek opportunities to connect existing green infrastructure to improve the network of spaces and accessibility for both the local population and wildlife.*	Mitigation measures are provided in Table 22.8 and Table 22.21 Mitigation, compensation and enhancement measures are further detailed within the OLEMS (Part 8).

Legislation/policy	Key provisions	Section where addressed
	In the case of sites not identified on the Inset Maps, development will only be permitted on open spaces provided unacceptable harm will not be caused to their appearance, character or role in providing: a locally important habitat.	
South East Lincolnshire Local Plan 2011-2036: Policy 28 – The Natural Environment.	The key provisions are: *'2. Nationally or locally-designated sites and protected or Priority Habitats and species:* *a. development proposals that would directly or indirectly adversely affect these assets will not be permitted unless:* *(a) i. there are no alternative sites that would cause less or no harm; and* *(a)ii. the benefits of the development at the proposed site, clearly outweigh the adverse impacts on the features of the site and the wider network of natural habitats; and* *(a)iii. suitable prevention, mitigation and compensation measures are provided.* *3. Addressing gaps in the ecological network* *a. by ensuring that all development proposals shall provide an overall net gain in biodiversity, by:* *(a)i. protecting the biodiversity value of land, buildings and trees (including veteran trees) minimising the fragmentation of habitats;*	Mitigation measures are provided in Table 22.8 and Table 22.21 Mitigation, compensation and enhancement measures are further detailed within the OLEMS (Part 8). Alongside the ES, a RIAA has been produced (Document 7.1).

Legislation/policy	Key provisions	Section where addressed
	(a)ii. maximising the opportunities for restoration, enhancement and connection of natural habitats and species of principal importance; *(a)iii. incorporating beneficial biodiversity conservation features on buildings, where appropriate; and maximising opportunities to enhance green infrastructure and ecological corridors, including water space; and* *(a)iv. conserving or enhancing biodiversity or geodiversity conservation features that will provide new habitat and help wildlife to adapt to climate change, and if the development is within a Nature Improvement Area (NIA), contributing to the aims and objectives of the NIA.'*	
GLNP Nature Strategy 2020 – developing a Local Nature Recovery Strategy	The Nature Strategy sets out definitions of Priority Habitats and Species present within the Greater Lincholnshire.	Mitigation measures are provided in Table 22.8 and Table 22.21 Mitigation, compensation and enhancement measures are further detailed within the OLEMS (Part 8).

22.3 Consultation

6. Consultation is a key part of the Development Consent Order (DCO) application process. Consultation regarding Onshore Ornithology has been conducted through the following processes:

- Evidence Plan Process (EPP) including Expert Technical Group (ETG) meetings;
- EIA scoping process (ODOW, 2022);
- Natural England's Discretionary Advice Service (DAS);
- Section 47 consultation process (all public consultation phases including phase 1 and 1a); and,
- Section 42 consultation process (including Phase 2 Consultation, Autumn Consultation and Targeted Winter Consultation).

7. An overview of the Project consultation process is presented within Volume 1, Chapter 6: Technical Consultation (document reference 6.1.6).

~~8. The Project's technical consultation is summarised within Volume 1, Chapter 6: Technical Consultation (document reference 6.1.6).~~

~~9.~~8. A summary of the key issues raised during consultation to date, specific to Onshore Ecology, is outlined below in Table 22.2, together with how these issues have been considered in the production of this Chapter.

Table 22.2 Summary of consultation relating to Onshore Ornithology

Date	Consultation and key comments	Section where comment addressed
Scoping Opinion		
Scoping Opinion (The Planning Inspectorate, 9th September 2022) Comment ID: 3.15.2	**Study areas** *'The Environment Statement (ES) should clearly define and justify the study area for each ecological feature, with reference to the ZoI for the Proposed Development. The Applicant's attention is directed to the comments of Natural England (NE) (Appendix 2 of this Opinion) that identifies some concerns with regards to the spatial scope of the data sources, as specified in Table 8.3.1. The Applicant should seek to agree the sources and extent of data sources with relevant consultation bodies, including NE, as the onshore element of the scheme develops further.'*	Study areas and data sources referenced for each ecological feature are provided in Section 22.4. Desk study data are presented in Volume 3, Appendix 22.1: Ornithology Desk Study and Volume 3, Appendix 22.2: Confidential Desk Study. The 2km area of search for initial desk study records of bird species is appropriate, as it provides contextual information only, and a programme of bird surveys has been completed and forms the basis for the impact assessment presented herein. Direct impacts from the Project will be limited to a 400m buffer from the Order Limits and the 2km study area, therefore, extends beyond that. The desk study area was also originally based on the PEIR boundary which was larger in extent than the onshore Order Limits. Searches for designated sites extended beyond a distance of 2km.
Scoping Opinion (The Planning Inspectorate, 9th September 2022) Comment ID: 3.15.6	**Survey methodologies** *'The Scoping Report contains limited detail concerning the proposed species-specific surveys for onshore ecology and at this stage, the location of the onshore ECC and OnSS is not yet known. Effort should be made to agree the approach to surveys with relevant consultation bodies, including Natural England, as part of the EPP.*	Volume 3, Appendix 22.1: Ornithology Desk Study, Volume 3, Appendix 22.3: Winter Bird Survey Report, ~~and~~ Volume 3, Appendix 22.4: Breeding Bird Survey and Volume 3, Appendix 22.7: Winter Bird Survey 2023/24. ~~r~~Reports provide details regarding desk and field work undertaken to date.

Date	Consultation and key comments	Section where comment addressed
	The ES should detail the specific methodologies, this information could be included within appendices to the ES aspect chapter.'	Details of the winter bird survey methodology were provided in the PEIR. The scope of the breeding bird surveys was provided to Natural England by letter (dated 06/03/2023).
Scoping Opinion (The Planning Inspectorate, 9th September 2022) Comment ID: 3.15.7	**Confidential records** *'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 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 Planning Inspectorate and may be made available subject to request.'*	Information relating to Schedule 1 listed birds nest sites has been included within Volume 3, Appendix 22.2: Confidential Desk Study and Appendix 22.5 Breeding Bird Survey Confidential Records. Confidential information detailed within this chapter has been redacted.
Scoping Opinion (The Planning Inspectorate, 9th September 2022)	**Functionally Linked Land** *'Natural England advises that consideration is given to functionally linked land when assessing potential*	Winter bird surveys have been undertaken across the onshore Order Limits and surrounding minimum 400m buffer to identify any potentially functionally linked land (FLL)[1]. The baseline is described in Section

[1] 'Functionally linked land' (FLL) is a term often used to describe areas of land or sea occurring outside a designated site which is considered to be critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying feature for which a Special Protection Area (SPA)/Ramsar site has been designated. These habitats are frequently used by SPA species and support the functionality and integrity of the designated sites for these features (Bowland Ecology, 2021).

Date	Consultation and key comments	Section where comment addressed
Natural England Response, Point No. 130.	*impacts of the onshore cable route. We have provided Discretionary Advice Service (DAS) advice to the Applicant on this.'*	22.4 and the assessment in Section 22.8. FLL is also assessed in the RIAA (Part 7, Chapter 7.1).
Scoping Opinion (The Planning Inspectorate, 9th September 2022) Natural England Response, Point No. 134:	**Desk study area.** *Table 8.3.1 – The desk-based study includes data for birds obtained from the British Trust for Ornithology (BTO) for 'selected species only, Wetland and Farmland Birds' for the AoS and a 2km search radius. Birds are mobile species and many forage over greater distances. Natural England advises that consideration be given as to whether the desk-based study area should be extended for birds.* *Table 8.3.1 Bird Data. Natural England advises that consideration needs to be given to extending the study area based on data obtained from the Wetland Bird Surveys.*	Refer to explanation above regarding the 2km study area. WeBS data haves been obtained to inform the ES, with further information provided in Volume 3, Appendix 22.1: Ornithology Desk Study.
Scoping Opinion (The Planning Inspectorate, 9th September 2022) Natural England Response, Point No. 138	**Designated sites study area** *Table 8.3.1 – It is not clear why the Applicant has chosen an AoS plus 15km buffer for the desk-based study area for designated sites. Birds are mobile species, and some will forage at greater distances than 15km.* *Natural England advises that the scoping area should be based on the potential for species to be present within the area, the Impact Risk Zone (IRZ) for designated sites, as available on the Multi-agency Geographic Information for the Countryside (MAGIC) website, the*	Screening for designated sites was based on an initial 15km study area around the Scoping Project onshore boundary, which covered a much greater area than the onshore Order Limits. The study area has been extended where there is evidence of possible connectivity beyond this distance, for example, to include the North Norfolk SPA in relation to non-breeding pink-footed goose (Section 22.4). Sections of the onshore Order Limits overlap with multiple IRZs, either for all planning applications or for cable infrastructure projects specifically, as shown in Figure

Date	Consultation and key comments	Section where comment addressed
	ecology, i.e., foraging areas of designated species of sites in proximity to the proposed development area.	22.1.1 of Appendix 3.22.1. This shows that the study area exceeds the relevant IRZs.
Scoping Opinion (The Planning Inspectorate, 9th September 2022) Natural England Response, Point No. 139	**RSPB Reserves** *Table 8.3.1 – It is noted that RSPB reserves are located within or adjacent to the scoping area. Natural England suggest the Applicant liaise with RSPB.*	The Applicant has engaged with RSPB and RSPB have been invited to attend the relevant ETG meetings. The design of the route has ensured that the RSPB Reserves have been avoided.
Scoping Opinion (The Planning Inspectorate, 9th September 2022) Natural England Response, Point No. 143	**Mitigation hierarchy and designated sites** *Natural England welcomes that the cable route selection will avoid impacts to designated sites and features of conservation importance. Natural England welcome the use of the avoid, reduce, mitigate hierarchy.*	Comments noted.
Scoping Opinion (The Planning Inspectorate, 9th September 2022) Natural England Response, Point No. 149	**Survey timings** *Table 8.3.4 – It is noted that it is proposed that 'appropriate surveys to determine the location of protected and priority species once the preferred landfall, cable route corridor and OnSS location are known'. We advise that surveys should be undertaken during optimum survey periods in line with Natural England species guidance.*	Details of the scope and timing of winter and breeding bird surveys are provided in Volume 3, Appendices 22.3 Winter Bird Survey Report, 22.4 Breeding Bird Survey Report, and 22.7 Winter Bird Survey 2023/24. ~~Details of the scope and timing of winter and breeding bird surveys are provided in Volume 3, Appendices 22.2 Winter Bird Survey Report and 22.3 Breeding Bird Survey Report.~~ The scope and timing of surveys have been designed in accordance with relevant guidance and consulted on through the project consultation process.
Scoping Opinion (The Planning	**Survey scoping.**	No areas were excluded from winter bird surveys. The survey area for breeding birds was targeted in certain

Date	Consultation and key comments	Section where comment addressed
Inspectorate, 9th September 2022) Natural England Response, Point No. 153	*Bird survey areas and buffer. Natural England advises that it is the Applicant's responsibility to determine whether there is sufficient information/evidence to exclude areas from surveys.*	locations, as agreed in outline with Natural England (meeting date 27/06/2022), with full details provided to Natural England at the outset of the survey programme.
Scoping Opinion (The Planning Inspectorate, 9th September 2022) Natural England Response, Point No. 159	**Winter bird survey area and two-year baseline.** *Bullet point 3 on page 454 – It is noted that the following area has been proposed for wintering bird surveys, 'where located within the preferred cable route corridor and OnSS plus 400 m.'* *There is no set distance from The Wash SPA to determine if surrounding agricultural areas are functionally linked as this is normally informed by project specific surveys. We are aware that the northern area around The Wash is becoming increasing important for pink footed geese and golden plover.* *Natural England advises that "it is the Applicant's responsibility to determine whether there is sufficient information/evidence to exclude areas from surveys. As previously commented to the Applicant (29th July 2022), if it cannot be determined that areas are not functionally linked to a designated site for passage and over wintering Annex I birds then surveys should be carried out. Our standard advice would be two years of survey data to be obtained to inform possible mitigation measures. Given the proposed submission dates of Autumn 2023 this will be difficult. If less than two years of data is collected, then consideration should be given to extending the 400m buffer area*	Winter bird surveys have been completed covering land out to 400m either side of the 300m-wide PEIR Boundary corridor, along the full length of the route, inclusive of the Landfall and OnSS options (detailed in Appendix 22.3). This means that for the majority of the route corridor, the survey corridor spans 1,100m and the final survey buffer typically varies from 400m to 620m in width. A second season of non-breeding bird surveys commenced in September 2023 and ~~will run~~ ran through to April 2024. ~~A summary of the season two non-breeding bird results, covering September 2023 to early March 2024, is presented in Appendix 22.7.~~ These surveys are documented in Volume 3, Appendix 22.7 Winter Bird Survey 2023/24. In addition to the extension of the 400m survey buffer, data have been collected from those route corridors removed from the final project design. ~~This~~ These data have~~s~~ helped to inform the relative importance of the cable corridor with the surrounding habitats.

Date	Consultation and key comments	Section where comment addressed
	either side of the cable corridor in order to obtain further data to help demonstrate the relative importance of the cable corridor with the surrounding habitats."	
Scoping Opinion (The Planning Inspectorate, 9th September 2022) Natural England Response, Point No. 162	**Baseline survey completion.** *As per comments provided above. In addition, and as our previous comments to the Applicant (29th July 2022):* *"The concern would be the PEIR being submitted before the full suite of surveys have been completed. The full impacts cannot be assessed, and therefore correctly mitigated for, without the full survey results.* *Natural England will therefore not have provided formal Statutory Nature Conservation Body (SNCB) advice on the full suite of onshore ecology surveys prior to the application. Whilst the data may not be available at the time of submission, it is advised that the 2022 surveys are repeated in 2023 to provide that certainty into examination."*	Comments are noted. A full season of winter (2022-23) bird survey data was presented at PEIR stage, in order to maximise the value of the assessment at that stage. Breeding bird survey data was not available at the time of the PEIR, but a full season of 2023 data is presented and assessed within this ES. The second season of winter bird surveys has been undertaken between ~~is on-going in winter 2023-24 and data from~~ September 2023 ~~to~~ and ~~February~~ April 2024 (Volume 3, Appendix 22.7 Winter Bird Survey 2023/24). ~~is presented in a summary table in Appendix 22.7. There is also a comparison of abundance, frequency and distribution between the first and second winter seasons. A total of 23 months of winter bird survey data has been included; in the absence of a complete set of second winter season survey results a precautionary approach has been adopted in the absence of a complete set of second winter season survey results.~~ A single season (2023) of breeding bird surveys has been undertaken and is sufficient given the

Date	Consultation and key comments	Section where comment addressed
		temporary nature of the majority of the potential impacts and lack of functional linkage with SPA/Ramsar sites for breeding birds. [Confidential Text Removed]
Expert Topic Group (ETG) Meetings		
27/06/2022 (Natural England onshore surveys meeting)	**Baseline information.** Natural England agreed that as much baseline information as possible should be included in the PEIR.	As set out above, a full season of winter bird survey data was included in the PEIR Ornithology Chapter and PEIR Volume 2, Appendix 22.3: Winter Bird Report, in order to provide as full a baseline and assessment as possible at PEIR stage.
27/06/2022 (Natural England onshore surveys meeting)	**Breeding bird survey scope.** *Natural England welcome targeted surveys for breeding birds within a minimum of 100m of the route corridor in areas where: Schedule 1 species could occur; Wetland, scrub and woodland habitats potentially supporting sensitive and declining species; and where Permanent above ground infrastructure will be built.*	Comments noted and breeding bird surveys were completed in accordance with this outline methodology in 2023.
26/01/2023 (Onshore Ornithology ETG)	**Study area** Wintering birds' extent considered is 400m beyond the PEIR Boundary.	The 400m buffer was agreed and further information is provided in Section 22.4.
30/01/2023 (Natural England meeting)	**Desk study area** Natural England asked for a justification around the decision for 2km study area for mobile species.	The Applicant responded in a letter dated 17th February 2023 (Doc No. ODO-NAE-LET-0000008) to provide justification. Natural England responded on 14th March 2023 (NE Ref: 17783 419730) and made the following comments: *"Natural England understands that given the size of the data set and the uniformity of the habitats across the Lincolnshire landscape, that an extension in the study area for*

Date	Consultation and key comments	Section where comment addressed
		breeding birds and other mobile species might not add significant value to the findings at this time. However, as discussed during the ETG, the foraging range of Annex I pink footed geese now includes the Lincolnshire side of The Wash with birds likely to be from The Wash SPA and/or North Norfolk SPA As such, we advise the study area should take this into consideration. The study area should be based on the potential of pink footed geese to be present within the area and consider functionally linked land and supporting habitat, as well as fragmentation and disruption to habitats". The potential connectivity for pink-footed goose between the Project site and North Norfolk SPA is noted and has been considered within this Chapter.
08/03/2023 (emailed comments from RSPB following meeting with the Applicant)	**Greater Frampton Vision: Landscape Recovery Project.** RSPB stated *'we currently have a landscape recovery project running in the area that will be looking at how the land to the south east of Boston can be developed to expand the habitats that have developed so successfully at Frampton Marsh and Freiston Shore to seek to better link the reserve areas and provide a greater area for wildlife we have serious concerns about projects that would limit the ability to deliver the vision for the area. It was encouraging to hear about how the project might help deliver biodiversity benefits as part of net gain actions. We will be happy to explore these and potentially how they could help us deliver the landscape work we would like to do in the area, although this will be subject to securing*	A subsequent meeting was held between the Applicant and RSPB on 20 October 2023, to understand more about the Greater Frampton Vision project and opportunities for the Project to support and contribute to it and we welcome continued engagement. This assessment considers information regarding the Vision which was available at the time of writing.

Date	Consultation and key comments	Section where comment addressed
	sufficient certainties that a cable in this location was appropriate.' RSPB advised on 02/08/2023 (ETG) that the Greater Frampton Vision was at an early stage. It was agreed that a conversation between the Applicant and RSPB would be resumed once more information was available.	
16/03/2023 (Onshore Ornithology ETG)	**Survey scope and methods.** Breeding bird methodologies are also to be discussed with Natural England (Breeding Bird Methodology and Scope Letter was then issued to Natural England on 23/03/2023). Natural England highlighted to RSPB that only one years' worth of ornithology surveys will have been completed at the point of the ES. RSPB raised that two years' worth of data is the ideal.	Natural England responded via email on 16/11/2023 and confirmed that based on the information provided the approach seems reasonable. A single year of breeding bird surveys was completed in 2023 and is considered to be sufficient.
18/09/2023 (Onshore Ornithology ETG)	**Mitigation for designated sites.** Proposals for mitigation measures to avoid disturbance impacts to designated ornithological sites were presented at the ETG. These comprised the following: • a seasonal restriction to construction works during the core non-breeding bird season within 400m of The Wash SPA/Ramsar and RSPB Frampton Marsh. • A 4m high earth bund to screen the Landfall construction works from Anderby Marsh LWT Reserve. Feedback from stakeholders was provided in the subsequent ETG meeting.	The agreed mitigation measures for the Project relevant to Onshore Ornithology are detailed in Section 22.6 Embedded Mitigation and Table 22.21 Additional mitigation measures.
30/11/2023 (Onshore Ornithology ETG)	ODOW noted at the recent BNG meeting with RSPB it was noted that a seasonal restriction was not necessary in relation to RSPB Frampton Marsh Reserve, due to route design, vegetation screening and nearest habitat present. RSPB	The mitigation measures for the Project relevant to Onshore Ornithology are detailed in Section 22.6 Embedded Mitigation and Table 22.21 Additional mitigation measures.

Date	Consultation and key comments	Section where comment addressed
	clarified in the ETG meeting that the requirement for mitigation should be based on the baseline survey data. Natural England directed ODOW to the SoS's request in relation to Dudgeon and Sheringham Shoal Extension for a pink-footed goose management plan. Natural England advised that a September to April restriction aligns with those undertaken by Racebank and Lincs Offshore Windfarms in their construction. The Project's proposed seasonal restriction would however have to be based on the two years' worth of data, which ODOW acknowledged.	
Phase 2 Section 42 Comments		
20/07/2023 – Natural England	**The Wash SPA and Ramsar.** We advise that the assessment of two years of survey data on the distribution of passage and overwintering Annex 1 birds from The Wash SPA and Ramsar is required to inform any impact assessment and mitigation measures in order to ascertain the risk of Adverse Effect on Integrity (AeoI) occurring. We advise that there is a risk of further examination and/or determination delays if this critical data is not available at the time of Application.	Comments are noted. The Year 1 and Year 2 winter bird survey data are presented and assessed within this ES. ~~. A summary of the season two non-breeding bird survey results for the period September 2023 to late February 2024 is presented in Appendix 22.7.~~ As detailed above in relation to the consultation with Natural England on 09/09/2022, data available from outwith the 400m buffer of the Order Limits has helped to inform the relative importance of the cable corridor with the surrounding habitats.
20/07/2023 – Natural England	**The Wash SPA and Ramsar – Annex 1 species mitigation** We further advise that we expect to see an Outline Annex 1 species mitigation management plan for designated features of the SPA which have been identified as foraging outside of the SPA within the Project's Red Line Boundary.	Mitigation measures for SPA qualifying features have been included in the OLEMS (Part 8). This builds on and refines the range of measures/options included in PEIR Chapter 22 Onshore Ornithology. Additional, specific measures to avoid the risk of significant effects on Annex 1 birds have also been included.

Date	Consultation and key comments	Section where comment addressed
20/07/2023 – Natural England	**Ground-nesting birds mitigation** Natural England advises that there is a requirement for the project to produce a plan to demonstrate how they will mitigate the effects it may have on suitable nesting habitat for ground nesting birds. We advise that this plan is included within an OLEMS upon submission of the project into examination.	Mitigation measures for nesting birds have been included in the OLEMS (Part 8). This builds on and refines the range of measures included in PEIR Chapter 22 Onshore Ornithology. Additional specific measures to avoid the risk of significant effects on ground nesting birds have also been included.
20/07/2023 – RSPB	**Frampton Marsh and Greater Frampton Vision** *When two years of survey data are made available the RSPB will want to explore in detail the potential implications of construction disturbance on these species through the relevant ETG, considering areas of potential sensitivity and any mitigation that may be necessary.* *Based on the information set out in the PEIR, we consider there is potential for the cable route to affect both the reserve and the Landscape Recovery Project.* *Therefore, we would welcome further detailed discussions and consultation with the Outer Dowsing project team, to ensure that the cable routing avoids these reserves and any land that is key to the objectives of the Landscape Recovery Project.*	See comments above relating to the requirement for two years of baseline data (consultation with Natural England on 09/09/2022 and 20/07/2023) and consultation with the RSPB on 08/03/2023 regarding the Greater Frampton Vision. The RSPB Reserves at Frampton Marsh and Freiston Shore have been taken into consideration during the design process to ensure these sites are avoided. Other potential impacts, including impacts to functionally linked land, have been assessed within this chapter. Mitigation for designated sites is noted above (ETG on 18/09/2023) and is detailed in Section 22.6 Embedded Mitigation and Table 22.21 additional mitigation.
Autumn Consultation *Comments (where additional to Phase 2 S42)*		
22/11/2023 – Natural England	**Functionally Linked Land for Designated features of SPAs** *The project has concluded that impacts from increasing the footprint of the substation are unlikely to result in new significant effects on ornithological receptors because of the low ornithological potential for this type of land.*	Screening for SPAs was based on an initial 15km study area around the Scoping Project onshore boundary, which covered a much greater area than the onshore Order Limits. The study area has been refined through PEIR and ES stages based on the refined onshore project boundaries. The study area has been

Date	Consultation and key comments	Section where comment addressed
	Whilst we agree that this conclusion is likely accurate, Natural England look forward to reviewing the conclusion in further detail within the Environmental Statement. *Natural England would further note that agricultural land can be functionally linked to certain designated features of SPAs occurring in the wider region. Natural England expects and understands that consideration of encroachment onto land functionally linked to designated features of nearby SPAs will be included in the Environmental Statement.*	extended where there is evidence of possible connectivity beyond this distance, for example to include the North Norfolk SPA in relation to the non-breeding pink-footed goose.
22/11/2023	In addition to the Phase 2 S42 comments, RSPB noted: *We are encouraged by Outer Dowsing's interest so far in the Landscape Recovery Project (LRP), and in particular by the ongoing discussions between Zoe Gillard, the LRP lead, and Outer Dowsing's Chris Jenner, and we welcome further detailed discussions and consultation with the Outer Dowsing project team to ensure that the cable routing, substation and connection area impacts avoid the RSPB reserves and any land that is key to the objectives of the LRP.*	A meeting was held between the Applicant and RSPB on 20 October 2023, to understand more about the Greater Frampton Vision project and opportunities for the Project to support and contribute to it and we welcome continued engagement.
Additional Consultation		
ODOW letter to Natural England, Doc No. ODO-NAE-LET-000003, dated 19/08/2022	*ODOW noted in relation to the duration of winter bird surveys: "ODOW note Natural England's comment on the preference to undertake two years' worth of survey data for all areas which are potentially functionally linked. It is understood that this position differs from*	*Natural England (NE Ref: DAS/UDS A001310. 404443) provided the following advice in relation to the duration of winter bird surveys: "Natural England standard advise, including that given for North Falls and Five Estuaries, is*

Date	Consultation and key comments	Section where comment addressed
	the approach taken on another offshore wind Nationally Significant Infrastructure Project (NSIP) in Essex, where two years of data has only been requested for areas where designated sites may be directly affected, which was accepted by Natural England. ODOW note that the NSIP in question undertook 2 surveys per month during the wintering bird season and therefore propose to adopt this approach to align with Natural England's position. Given the ODOW route alignment has been developed to avoid entering any designated sites, we anticipate the proposal to undertake 2 surveys per month, ensures the suitability of 1 year of survey data". This letter also set out the high-level methodology for wintering bird survey and specified the planned survey timing of September/October through to March.	*that where there is the potential for Annex I SPA birds to be directly impacted by proposals whether inside a designated site or within functionally linked land, two years of survey data is required. This allows for interannual variations to be considered in more depth. As per or previous advice we are unable to agree with only one year of survey data without out provision of further supporting evidence".* *In relation to the proposed approach to wintering bird surveys, Natural England stated that "the current high-level mapping is precluding us from providing more specific advice".* The Year 1 and Year 2 winter bird survey data are presented and assessed within this ES.
16/11/2023	Natural England provided email advice in relation to the outstanding points of agreement. Natural England advised that the Year 2 and Year 1 non-breeding bird surveys should align as much as possible to account for inter annual variability. Natural England agreed with the outline mitigation measures provided via email. However they advise that depending on the	Year 2 winter surveys aligned with the Year 1 methodology. ~~A summary of the season two non-breeding bird survey results for the period September 2023 to late February 2024 is presented in Appendix 22.7.~~The results of Year 2 winter bird survey are in Volume 3, Appendix 22.7 Winter Bird Survey 2023/24. A response was provided to Natural England regarding mitigation measures for Annex I species

Date	Consultation and key comments	Section where comment addressed
	survey data, mitigation measures are likely to be required in certain locations from September through to end of April. Natural England welcome the seasonal restrictions in proximity to The Wash and Frampton Marsh but advise this is extended to areas known to be regularly used by Annex I species. Any seasonal restrictions will need to be determined by birds present and also in year weather conditions.	using FLL within the onshore survey area (dated 05/02/2024). These measures are presented in Table 22.21.
05/02/2024	ODOW submitted a letter to Natural England with further information on the mitigation proposals for FLL, specifically farmland and a commitment to localised working. This is pending a response from Natural England.	Mitigation measures for the Project relevant to Onshore Ornithology are detailed in Section 22.6 Embedded Mitigation and Table 22.21 Additional mitigation measures.

~~10.~~9. As identified in Volume 1, Chapter 3: Project Description and Volume 1, Chapter 4: Site Selection and Alternatives, the Project design envelope has been refined throughout the stages of the Project prior to DCO submission. This process has been informed by stakeholder consultation feedback and the environmental information gathered during each stage of the Project. Further details are provided in Section 22.6 Embedded Mitigation.

22.4 Baseline Environment

22.4.1 Study Area

~~11.~~10. The study/survey areas selected for each ornithological feature are listed below:

- Desk study areas include the following:
  - Internationally designated sites (SPA and Ramsar Sites) and nationally designated sites (SSSI) within 15km (See Figure 3.1 of Volume 3, Appendix 22.1: Ornithology Desk Study). In addition, pink-footed goose from the North Norfolk SPA and Ramsar, which is located beyond a distance of 15km, has been included, based on advice received from Natural England;
  - Onshore elements of Local Nature Reserves (LNR), Local Wildlife Sites (LWS), RSPB Reserves and Lincolnshire Wildlife Trust (LWT) Reserves within 2km from the onshore Order Limits (see Figure 3.2 of Volume 3, Appendix 22.1: Ornithology Desk Study); and
  - Records of bird species listed in Annex I of the EC Birds Directive, Schedule 1 of the Wildlife and Countryside Act (1981, as amended), Section 41 of the Natural Environment and Rural Communities Act (2006, as amended) and Birds of Conservation Concern (BoCC) Red List within 2km from the onshore Order Limits.
- Non-breeding bird surveys within the onshore Order Limits and a minimum 400m buffer.
- Breeding bird surveys in targeted areas within the onshore Order Limits and a minimum 100m buffer.

~~12.~~11. Table 22.2, Scoping Opinion section, provides explanations for the desk study areas for birds. The minimum 400m buffer for winter bird surveys, and 100m buffer for breeding bird surveys, was consulted on with Natural England, as referenced in Table 22.2, ETG Meetings section. These distances were selected because birds are unlikely to be affected by cable-trenching construction related disturbance beyond these distances (e.g. Cutts, N., Hemingway, K. & Spencer, J. (2013)).

~~13.~~12. The Order Limits from which a buffer was applied to yield the study area has contracted as the Project has progressed. This means that the original desk study was based on the onshore Scoping Boundary, which covered a much larger area than the onshore Order Limits. The first year winter and breeding bird survey areas were based on the onshore PEIR Boundary, which was approximately 300m in width as opposed to approximately 80m for the onshore Order Limits. The onshore PEIR Boundary also included route sections which have since been discounted, including Lincolnshire Node and the route to Weston Marsh to the south of the A52, which means we have now collected data which, whilst pertinent at earlier stages of the Project, is now contextual rather than needed for the assessment of effects of the Project on birds.

~~14.~~13. Figure 2.1 of Appendix 3.22.3: Winter Bird Survey 2022-2023 illustrates the winter bird survey area relative to the onshore Order Limits plus 400m buffer. Figure 3.1 of Appendix 3.22.4: Breeding Bird Survey 2023 illustrates the breeding bird survey area relative to the onshore Order Limits plus 100m buffer. Figure 1 of Appendix 22.7 Winter Bird Survey 2023-2024 shows the winter bird survey area relative to the Order Limits plus 400m buffer.

~~15.~~14. This chapter considers potential impacts to birds arising from all works occurring above Mean High Water Springs (MHWS). Potential impacts to birds arising from works taking place in the offshore environment (below MHWS, excluding beach access) are covered in Volume 1, Chapter 12: Intertidal and Offshore Ornithology. Whilst the assessment is restricted to effects arising from works above MHWS, it does consider effects on birds wherever they occur, including intertidal and near shore waters.

22.4.2 Existing Environment

~~16.~~15. This section describes the present conditions which constitute the existing baseline environment for Onshore Ornithology within the onshore study area. The onshore ECC will make landfall at Wolla Bank and head south to the OnSS at Surfleet Marsh, the 400kV cable corridor will connect the OnSS to the National Grid substation (NGSS) that is anticipated to be located within the Connection Area[2]. A description of the proposed works relevant to the Onshore Elements of the Project is detailed in Volume 1, Chapter 3: Project Description. The onshore study area for Onshore Ornithology is defined by the Order Limits, this has been split into a number of segments which describe the significant local features within the Order Limits.

~~17.~~16. The study area segments from landfall to the Connection Area are listed below:

- ECC 1: Landfall to A52 – Hogsthorpe;
- ECC 2: A52 – Hogsthorpe to Marsh Lane;
- ECC 3: Marsh Lane to A158 – Skegness Road;

[2] The Connection Area is an indicative study area for the NGSS

- ECC 4: A158 – Skegness Road to Low Road;
- ECC 5: Low Road to Steeping River;
- ECC 6: Steeping River to Fodder Dike Bank/Fen Bank;
- ECC 7: Fodder Dike Bank/Fen Bank to Broadgate;
- ECC 8: Broadgate to Ings Drove;
- ECC 9: Ings Drove to Church End Lane;
- ECC 10: Church End Lane to The Haven;
- ECC 11: The Haven to Marsh Road;
- ECC 12: Marsh Road to Fosdyke Bridge;
- ECC 13: Fosdyke Bridge to Surfleet Marsh OnSS; and
- ECC 14: Surfleet Marsh South OnSS to the Connection Area.

~~18.~~17. Bird species names in the chapter are British vernacular names and a list of all species and their scientific names, in accordance with BOU classification (2022), are provided in Appendix 3.22.6.

22.4.2.1 Designated Sites

~~19.~~18. Figures 3.1 to Figure 3.2 of Appendix 3.22.1: Ornithology Desk Study show the location of statutory and non-statutory ornithological designated sites in relation to the Onshore Order Limits. Table 22.3 s~~S~~ummarises the information relating to designated ornithological sites within the study area.

Table 22.3 Designated ornithological sites

Designated site	Distance and direction from onshore Order Limits (km)	Nearest segment	Cited/notified features
SPAs and Ramsar sites			
Greater Wash SPA	0 (adjacent to landfall at MHWS)	ECC 1	Breeding bird species: ▪ Sandwich tern; ▪ Common tern; and ▪ Little tern. Non-breeding bird species: ▪ Red-throated diver; ▪ Common scoter; and ▪ Little gull.
The Wash SPA and Ramsar	0.18 SE	ECC 11	SPA: ▪ Bewick's swan (Non-breeding); ▪ Pink-footed goose (Non-breeding); ▪ Dark-bellied brent goose (Non-breeding); ▪ Shelduck (Non-breeding)

Designated site	Distance and direction from onshore Order Limits (km)	Nearest segment	Cited/notified features
			▪ Wigeon (Non-breeding); ▪ Gadwall (Non-breeding); ▪ Pintail (Non-breeding); ▪ Common scoter (Non-breeding); ▪ Goldeneye (Non-breeding); ▪ Oystercatcher (Non-breeding); ▪ Grey plover (Non-breeding); ▪ Knot (Non-breeding); ▪ Sanderling (Non-breeding); ▪ Dunlin (Non-breeding); ▪ Black-tailed godwit (Non-breeding); ▪ Bar-tailed godwit (Non-breeding); ▪ Curlew (Non-breeding); ▪ Redshank (Non-breeding); ▪ Turnstone (Non-breeding); ▪ Common tern (Breeding); ▪ Little tern (Breeding); and ▪ Waterbird assemblage. Ramsar: ▪ Criterion 1 – Saltmarshes, major intertidal banks of sand and mud, shallow water, and deep channels; ▪ Criterion 3 – inter-relationship between saltmarshes, intertidal sand, mudflats, and estuarine waters; ▪ Criterion 5 – Bird assemblages of international importance; ▪ Criterion 6 – Bird species/populations occurring at levels of international importance: ○ Species with peak counts in spring/autumn: ▪ Redshank; ▪ Curlew (breeding); ▪ Oystercatcher (wintering); ▪ Grey plover (wintering); ▪ Knot (wintering); and

Designated site	Distance and direction from onshore Order Limits (km)	Nearest segment	Cited/notified features
			▪ Sanderling. ○ Species with peak counts in winter: ▪ Black-headed gull; ▪ Eider; ▪ Bar-tailed godwit; ▪ Shelduck; ▪ Dark-bellied brent goose; ▪ Dunlin; ▪ Pink-footed goose; ▪ Golden plover; and ▪ Lapwing. ○ Species with peak counts in spring/autumn: ▪ Black-tailed godwit; and ▪ Ringed plover.
Gibraltar Point SPA and Ramsar	4.15 SE	ECC 5	SPA: ▪ Grey plover (Non-breeding); ▪ Sanderling (Non-breeding); ▪ Bar-tailed godwit (Non-breeding); and ▪ Little tern (Breeding). Ramsar: • Criterion 5 – Assemblage of international importance – waterfowl; • Criterion 6 – species/populations occurring at levels of international importance: ○ Grey plover; ○ Sanderling; ○ Bar-tailed godwit; ○ Dark-bellied brent goose.
Humber Estuary SPA and Ramsar	12.5 N	ECC 1	SPA: ▪ Bittern (Non-breeding and breeding); ▪ Shelduck (Non-breeding); ▪ Marsh harrier (Breeding); ▪ Hen harrier (Non-breeding); ▪ Avocet (Non-breeding and breeding);

Designated site	Distance and direction from onshore Order Limits (km)	Nearest segment	Cited/notified features
			▪ Golden plover (Non-breeding); ▪ Knot (Non-breeding); ▪ Dunlin (Non-breeding); ▪ Ruff (Non-breeding); ▪ Black-tailed godwit (Non-breeding); ▪ Bar-tailed godwit (Non-breeding); ▪ Redshank (Non-breeding); ▪ Little tern (Breeding); and ▪ Waterbird assemblage. Ramsar (onshore): ▪ Criterion 1- dune systems and humid dune slacks; ▪ Criterion 5 – assemblages of international importance (waterfowl, non-breeding season); ▪ Criterion 6 – species/populations occurring at levels of international importance: ▪ Shelduck; ▪ Golden plover; ▪ Knot; ▪ Dunlin; ▪ Black-tailed godwit; ▪ Bar-tailed godwit; and ▪ Redshank.
North Norfolk Coast SPA and Ramsar	24km SE	ECC5	Species within potential foraging range: pink-footed goose.
SSSIs and NNRs (with notified bird features)			
The Wash SSSI and NNR	0.18 SE	ECC 11	Bird features listed in the SSSI 'Condition of Features' are: ▪ Breeding birds: ▪ Common tern; ▪ Little tern; ▪ Redshank; ▪ Non-breeding birds:

Designated site	Distance and direction from onshore Order Limits (km)	Nearest segment	Cited/notified features
			▪ >20,000 waterbirds; ▪ Avocet; ▪ Bar-tailed godwit; ▪ Bewick's swan; ▪ Black-tailed godwit; ▪ Dark-bellied brent goose; ▪ Common scoter; ▪ Curlew; ▪ dunlin; ▪ Gadwall; ▪ Golden plover; ▪ Goldeneye; ▪ Grey plover; ▪ Knot; ▪ Oystercatcher; ▪ Pink-footed goose; ▪ Pintail; ▪ Redshank; ▪ Ringed plover; ▪ Sanderling; ▪ Shelduck; ▪ Turnstone; ▪ 'Variety of wintering species'; ▪ Whooper swan; and ▪ Wigeon.
Gibraltar Point SSSI and NNR	4.15 SE	ECC 5	Bird features listed in the SSSI 'Condition of Features' are: ▪ Breeding birds: ▪ Little tern; and

Designated site	Distance and direction from onshore Order Limits (km)	Nearest segment	Cited/notified features
			▪ Assemblages of breeding birds – sand dunes and saltmarshes. ▪ Non-breeding birds: ▪ >20,000 waterbirds; ▪ Bar-tailed godwit; ▪ Dark-bellied brent goose; ▪ Dunlin; ▪ Grey plover; ▪ Knot; ▪ Oystercatcher; ▪ Ringed plover; ▪ Sanderling; and ▪ Wigeon.
Humber Estuary SSSI	19.5km N	ECC1	Bird features listed in the SSSI 'Condition of Features' are: ▪ Breeding birds: ▪ Little tern. ▪ Non-breeding birds: ▪ Avocet; ▪ Bar-tailed godwit ▪ Bittern; ▪ Black-tailed godwit; ▪ Dark-bellied brent goose; ▪ Curlew; ▪ Dunlin; ▪ Golden plover; ▪ Goldeneye; ▪ Greenshank; ▪ Grey plover; ▪ Hen harrier;

Designated site	Distance and direction from onshore Order Limits (km)	Nearest segment	Cited/notified features
			▪ Knot; ▪ Lapwing; ▪ Oystercatcher; ▪ Pochard; ▪ Redshank; ▪ Ringed plover; ▪ Ruff; ▪ Sanderling; ▪ Scaup; ▪ Shelduck; ▪ Teal; ▪ Turnstone; ▪ Whimbrel; ▪ Wigeon;
Saltfleetby to Theddlethorpe Dunes SSSI and NNR	12.5 N	ECC 1	Bird features listed in the SSSI 'Condition of Features' are: ▪ Breeding birds: ▪ Little tern; and ▪ Assemblages of breeding birds – scrub. ▪ Non-breeding birds: ▪ >20,000 waterbirds; ▪ Dark-bellied brent goose; ▪ Dunlin; ▪ Knot; ▪ Redshank; ▪ Sanderling; and ▪ Wigeon.
Sea Bank Clay Pits SSSI	Adjacent at landfall	ECC 1	The citation states *"The pits are also important for breeding, wintering and passage birds".*

Designated site	Distance and direction from onshore Order Limits (km)	Nearest segment	Cited/notified features
	trenchless crossing		
Local Wildlife Sites (cited for ornithological criteria)			
Middlemarsh Farm	0.44 E	ECC 4	▪ GM1 – *"Grassland at least 2ha in extent that is subject to a low intensity grazing regime and holds surface water in the winter months and supports a breeding bird population that scores a minimum bird index score of 13 using Table 13 (a)";* (from LWS designation criteria document, GLNP 2013). "*The impressive list of breeding birds since 2008 includes lapwing, redshank, snipe, avocet, yellow wagtail, reed and sedge warbler, reed bunting, skylark, shoveler, mallard and mute swan"* ▪ GM2 – *"Grassland at least 2ha in extent that is subject to a low intensity grazing regime and holds surface water in the winter months and supports a wintering/passage bird population that satisfies the threshold count for at least two of the species listed in Table 13 (b)" (GLNP, 2013). "Wigeon, lapwing, curlew and other birds use the area in winter" (GLNP, 2014).*
Lincolnshire Wildlife Trust Reserves (cited for ornithological features)			
Anderby Marsh	0 (partially within the boundary at landfall)	ECC 1	The LWT webpage (LWT, 2023) states *"this reserve is managed as a traditional coastal grazing marsh. It is hoped in future that this nature reserve will help support a range of conservation priority birds including lapwing, curlew, redshank, snipe, barn owl, starling and reed bunting. In recent years the marsh has attracted a couple of rare birds such as black-winged stilt and glossy ibis. Wigeon, teal and snipe are regular on the marsh in the winter months. The adjacent reedbed fringes attract numerous reed, sedge and Cetti's warblers. Marsh harrier is a regular sight in the summer as is cuckoo".*

Designated site	Distance and direction from onshore Order Limits (km)	Nearest segment	Cited/notified features
Wolla Bank Reedbed	0.01 S	ECC 1	The LWT webpage (LWT, 2023) states *"Water rail, reed warbler, sedge warbler, Cetti's warbler, grasshopper warbler, reed bunting and whitethroat all nest. Marsh harrier and hobby occur regularly in the summer and short-eared owls can be present in winter. Bearded tit is a regular visitor in the winter. Starling murmurations can sometimes be present in the winter months".*
Wolla Bank Pit	0.27 S	ECC 1	The LWT webpage (LWT, 2023) states *"Flooded clay pits with extensive beds of reed and sea club-rush, with great reedmace, fennel pondweed, wild celery, sea arrowgrass and water-crowfoot". "Snipe are frequent visitors in winter, when bittern and bearded tit are occasional visitors. In the breeding season, reed and sedge warblers, reed bunting and little grebe all nest. Many rare migrants have also been seen. Fieldfare, redwing and song thrush can be abundant in the winter".*
Chapel Pit	1.05 S	ECC 1	The LWT webpage (LWT, 2023) states *"Excavated for clay for the repair of the sea banks following the floods of 1953, the flooded pit has marginal reedbeds and aquatic plants, such as water-crowfoot and great reedmace. 15 species of duck have been recorded, mainly winter visitors. Bearded tit and bittern are recorded occasionally. In summer, breeding species include reed and sedge warblers, lesser whitethroat and little grebes can also be seen. In August and September thousands of migrating swallows and house martins roost in the reedbeds. Screens of willows round the banks of the pits have been planted in order to reduce disturbance to birds".*
Moulton Marsh	0.3 S	ECC 12	The LWT webpage (LWT, 2023) states *"The maturing woodland now holds a good population of tits and finches, while the scrub areas are habitat for whitethroats and buntings. The lagoons are an important wintering area for little grebe and water rail in winter. Redshank*

Designated site	Distance and direction from onshore Order Limits (km)	Nearest segment	Cited/notified features
			and little egret are regularly seen on the scrapes".
Frampton Marsh	0.7 SE	ECC 11	The Reserve is located adjacent to Frampton Marsh RSPB Reserve and is part of The Wash SPA, Ramsar and SSSI. The LWT webpage (LWT, 2023) states *"The area supports regular breeders such as redshank, oystercatcher, reed bunting, meadow pipit and skylark. In winter the saltings attract wigeon, mallard, shelduck, teal and brent geese, with large flocks of finches and buntings, notably linnet and twite and birds of prey such as hen harrier and merlin. The tidal mudflats form part of the wader feeding grounds, which give the Wash its international status. Large flocks of dunlin occur, as well as considerable numbers of grey plover, whimbrel, curlew, bar-tailed godwit and greenshank".*
RSPB Reserves			
Frampton Marsh	0.01 S (of enabling access track) and 0.18 S (of TCC)	ECC 11	The reserve is important for wintering wildfowl, migrating waders and breeding waders (RSPB, 2023a), but does not have listed features, as is the case for certain statutory sites for example. The southern half of the Reserve overlaps with The Wash SPA, Ramsar and SSSI.
Freiston Shore	1.75 SE	ECC 9	The majority of the reserve overlaps with The Wash SPA, Ramsar and SSSI. The reserve does not have specific listed features but is described as *"a tidal saltmarsh which also encompasses the habitats of saline lagoons and wet grassland". "Freiston Shore has one of the UK's largest 'managed realignment' projects, in which the RSPB has worked with the Environment Agency to convert 66 hectares of coastal farmland into tidal saltmarsh"* (RSPB, 2023b).

22.4.2.2 Species

Qualifying features of identified European sites

~~20.~~19. Table 22.4 presents summary data for those qualifying species from the identified SPAs and Ramsar sites recorded within the coastal OP survey area in 2022-23 and 2023-24. For winter birds, this relates to the coastal OP surveys covering the beach, inter-tidal and near-shore area within 400m of the onshore Order Limits. For breeding birds, this relates to records from the beach within ~100m of the onshore Order Limits.

Table 22.4 Summary data for relevant SPA and Ramsar qualifying species recorded from coastal observation point (OP) surveys 2022-23 and 2023-24

Species	Peak Count (from hourly counts) in each Year (Y)	% of survey hours in which species observed in each Year (Y)	UK (winter) or Britain (breeding – pairs) population	Peak count as % of national population	European site	Citation population	Peak count as % of designated site population	Most recent WeBS count (2017/18-21/22) for designated site (Austin *et al.*, 2023)	Peak count as % of WeBS count
Geese & Swans									
Dark-bellied brent goose	7 (Y1)	2%	135,000 (brent goose)	0.01	The Wash SPA (non-breeding)	17,000	0.04	10,374	0.1
					The Wash Ramsar (non-breeding)	20,861	0.03	10,374	0.1
					Gibraltar Point Ramsar (non-breeding)	682	1.03	Unavailable	N/A
Pink-footed goose	2 (Y1)	2%	510,000	0	The Wash SPA (non-breeding)	7,300	0.03	30,525	0.0
					The Wash Ramsar (non-breeding)	29,099	0.01	30,525	0.0
					North Norfolk SPA (non-breeding)	6,000	0.03	46,984	0.0
					North Norfolk Ramsar (non-breeding)	9,576	0.02	46,984	0.0
Bewick's swan	0	0	4,350	0	The Wash SPA (non-breeding)	130	0	4	0.0
Ducks									
Shelduck	1 (Y1) 2 (Y2)	1% (Y1) 1% (Y2)	51,000	0	The Wash SPA (non-breeding)	16,000	0.01	2,170	0.09
					The Wash Ramsar (non-breeding)	9,746	0.021	2,170	0.09
					Humber Estuary SPA (non-breeding)	4,464	0.042	6,486	0.03

Species	Peak Count (from hourly counts) in each Year (Y)	% of survey hours in which species observed in each Year (Y)	UK (winter) or Britain (breeding – pairs) population	Peak count as % of national population	European site	Citation population	Peak count as % of designated site population	Most recent WeBS count (2017/18-21/22) for designated site (Austin *et al.*, 2023)	Peak count as % of WeBS count
					Humber Estuary Ramsar (non-breeding)	4,464	0.02	6,486	0.0
Gadwall	0	0	31,000	0	The Wash SPA (non-breeding)	130	0	156	0.0
Wigeon	~~0~~14 (Y2)	4.17~~0~~%	450,000	0	The Wash SPA (non-breeding)	3,900	0.35	14,452	0.1
Pintail	2 (Y1)	1%	20,000	0.01	The Wash SPA (non-breeding)	1,700	0.12	315	0.6
Eider	1 (Y1)	1%	86,000	0	The Wash Ramsar (non-breeding)	1,109	0.09	1,609	0.1
Common scoter	40 (Y1)	8%	135,000	0.03	The Wash SPA (non-breeding)	830	4.82	1,109	3.6
					Greater Wash SPA (non-breeding)	3,449	1.16	Unavailable	N/A
Red-throated diver	1 (Y1)	7%	21,500	0	Greater Wash SPA (non-breeding)	1,407	0.07	Unavailable	N/A
Goldeneye	0	0	21,000	0	The Wash SPA (non-breeding)	220	0	64	0.0
Waders									
Oystercatcher	2 (Y1) 1 (Y2)	9% (Y1) 10% (Y2)	305,000	0	The Wash SPA (non-breeding)	24,000	0.01	23,097	0.01
					The Wash Ramsar (non-breeding)	15,616	0.01	23,097	0.01
Avocet	0	0	2,138 pairs	N/A	Humber Estuary SPA (breeding) [1]	64 pairs	N/A	N/A	N/A
			Unavailable	-	Humber Estuary SPA (non-breeding)	59	0	2,576	0.0

Species	Peak Count (from hourly counts) in each Year (Y)	% of survey hours in which species observed in each Year (Y)	UK (winter) or Britain (breeding – pairs) population	Peak count as % of national population	European site	Citation population	Peak count as % of designated site population	Most recent WeBS count (2017/18-21/22) for designated site (Austin *et al.*, 2023)	Peak count as % of WeBS count
Lapwing	0	0	635,000	0	The Wash Ramsar (non-breeding)	46,422	0	12,142	0.0
Golden plover	23 (Y1)	4%	410,000	0.01	The Wash Ramsar (non-breeding)	22,033	0.10	15,601	0.15
					Humber Estuary SPA (non-breeding)	30,079	0.08	20,812	0.1
					Humber Estuary Ramsar (non-breeding)	30,709	0.08	20,812	0.1
Grey plover	1 (Y1) 2 (Y2)	2% (Y1) 1% (Y2)	34,000	0	The Wash SPA (non-breeding)	5,500	0.032	11,496	0.02
					The Wash Ramsar (non-breeding)	13,129	0.01	11,496	0.02
					Gibraltar Point SPA (non-breeding)	2,793	0.074	Unavailable	N/A
					Gibraltar Point Ramsar (non-breeding)	3,980	0.053	Unavailable	N/A
Ringed plover	02 (Y2)	03%	43,000	0	The Wash Ramsar (non-breeding)	1,500	0.13	1,229	0.160
Curlew	18 (Y1) 8 (Y2)	214% (Y1) 1% (Y2)	125,000	0.01	The Wash SPA (non-breeding)	3,700	0.49	5,759	0.3
					The Wash Ramsar (passage)	9,438	0.19	No information	N/A
Bar-tailed godwit	0	0	54000	0	The Wash SPA (non-breeding)	7,396	0	16,533	0.0
					The Wash Ramsar (non-breeding)	16,546	0	16,533	0.0

Species	Peak Count (from hourly counts) in each Year (Y)	% of survey hours in which species observed in each Year (Y)	UK (winter) or Britain (breeding – pairs) population	Peak count as % of national population	European site	Citation population	Peak count as % of designated site population	Most recent WeBS count (2017/18-21/22) for designated site (Austin *et al.*, 2023)	Peak count as % of WeBS count
					Gibraltar Point SPA (non-breeding)	8,800	0	Unavailable	0.0
					Gibraltar Point Ramsar (non-breeding)	3,468	0	Unavailable	0.0
					Humber Estuary SPA (non-breeding)	2,752	0	1,876	0.0
					Humber Estuary Ramsar (non-breeding)	2,752	0	1,876	0.0
Black-tailed godwit	0	0	41000	0	The Wash SPA (non-breeding)	260	0	7,124	0.0
					The Wash Ramsar (non-breeding)	6,849	0	7,124	0.0
					Humber Estuary SPA (non-breeding)	1,113	0	5,646	0.0
					Humber Estuary Ramsar (non-breeding)	1,113	0	5,646	0.0
					Humber Estuary Ramsar (passage)	915	0	Unavailable	0.0
Turnstone	7 (Y2)~~0~~	3%~~0~~	43000	0.02	The Wash SPA (non-breeding)	980	0.71	758	0.92~~0~~
Knot	0	0	265,000	N/A	The Wash SPA (non-breeding)	75,000	0	209,300	N/A
					The Wash Ramsar (non-breeding)	68,987		209,300	
					Humber Estuary SPA (non-breeding)	28,165		26,428	

Species	Peak Count (from hourly counts) in each Year (Y)	% of survey hours in which species observed in each Year (Y)	UK (winter) or Britain (breeding – pairs) population	Peak count as % of national population	European site	Citation population	Peak count as % of designated site population	Most recent WeBS count (2017/18-21/22) for designated site (Austin *et al.*, 2023)	Peak count as % of WeBS count
					Humber Estuary Ramsar (non-breeding)	28,165		26,428	
Ruff	0	0	920	0	Humber Estuary SPA (non-breeding)	128	0	76	0.0
Sanderling	13 (Y1) 57 (Y2)	16% (Y1) 80% (Y2)	21,000	0.2706	The Wash SPA (non-breeding)	500	32.611.4	10,441	0.255
					The Wash Ramsar (non-breeding)	3,505	0.541.62	10,441	0.255
					Gibraltar Point Ramsar (non-breeding)	971	1.345.8	No information	N/A
					Gibraltar Point SPA (non-breeding)	1,140	1.145.0	No information	N/A
Dunlin	12 (Y1) 24 (Y2)	4% (Y1) 2% (Y2)	350,000	0	The Wash SPA (non-breeding)	29,000	0.086	28,948	0.081
					The Wash Ramsar (non-breeding)	36,600	0.05	28,948	0.081
					Humber Estuary SPA (non-breeding)	22,222	0.108	17,634	0.14
					Humber Estuary Ramsar (non-breeding)	22,222	0.108	17,634	0.14
					Humber Estuary Ramsar (passage)	20,269	0.1208	No information	N/A
Redshank	2 (Y1)	1% (Y1	100,000	0	The Wash SPA (non-breeding)	4,331	0.2504	5,329	0.04

Species	Peak Count (from hourly counts) in each Year (Y)	% of survey hours in which species observed in each Year (Y)	UK (winter) or Britain (breeding – pairs) population	Peak count as % of national population	European site	Citation population	Peak count as % of designated site population	Most recent WeBS count (2017/18-21/22) for designated site (Austin *et al.*, 2023)	Peak count as % of WeBS count
	11 (Y2)	5% (Y2)			The Wash Ramsar (non-breeding)	6,373	0.~~02~~17	5,329	0.~~04~~2
					Humber Estuary SPA (non-breeding)	4,632	0.~~04~~23	2,659	0.~~08~~41
					Humber Estuary Ramsar (non-breeding)	4,632	0.~~04~~23	2,659	0.~~08~~41
					Humber Estuary Ramsar (passage)	7,462	0.15~~03~~	No information	N/A
Gulls & Terns									
Black-headed gull	16 (Y1) 200 (Y2)	38% (Y1) 26% (Y2)	2,200,000	0	The Wash Ramsar (non-breeding)	31403	0.6~~1~~	16,348	~~0.1~~1.2
Little tern	N/A	N/A	1,450 pairs	N/A	Greater Wash SPA (breeding)	798 pairs	N/A	N/A	N/A
					The Wash SPA (breeding)	30 pairs	N/A	N/A	N/A
					Gibraltar Point SPA (breeding)	40 pairs	N/A	N/A	N/A
					Humber Estuary SPA (breeding)	51 pairs	N/A	N/A	N/A
Sandwich tern	~~N/A~~2 (Y2)	~~N/A~~1.04	14,000 pairs	N/A	Greater Wash SPA (breeding)	3852 pairs	N/A	N/A	N/A
Common tern	N/A	N/A	11,000 pairs	N/A	Greater Wash SPA (breeding)	510 pairs	N/A	N/A	N/A
					The Wash SPA (breeding)	220 pairs	N/A	N/A	N/A
Herons									
Bittern	0	0	227 pairs	0	Humber Estuary SPA (breeding)	2 males	N/A	N/A	N/A

Species	Peak Count (from hourly counts) in each Year (Y)	% of survey hours in which species observed in each Year (Y)	UK (winter) or Britain (breeding – pairs) population	Peak count as % of national population	European site	Citation population	Peak count as % of designated site population	Most recent WeBS count (2017/18-21/22) for designated site (Austin *et al.*, 2023)	Peak count as % of WeBS count
					Humber Estuary SPA (non-breeding)	4	0	0	0
Raptors									
Marsh harrier	1 (Y1)	1%	400 pairs	N/A	Humber Estuary SPA (breeding)	10 females	N/A	N/A	N/A
Hen harrier	0	0	N/A	0	Humber Estuary SPA (non-breeding)	8	0	Unavailable	0

~~21.~~20. Table 22.5 presents the peak counts from the onshore Order Limits during winter walkover surveys 2022-23 and 2023-24, and breeding records from 2023, for those qualifying species from the identified SPAs and Ramsar sites.

Table 22.5 Summary data for relevant SPA and Ramsar qualifying species from the onshore Order Limits plus 400m buffer in 2022-23 and 2023-24 (winter walkover surveys[3])

Species	Peak flock Count[4] (non-breeding) in each Year (Y)	No. of breeding territories (confirmed and probable)	UK (winter) or Britain (breeding – pairs) population	Peak count as % of national population	European site population	Citation population	Peak count as % of designated site population	Most recent WeBS count 2017/18-2021/22 for designated site (Austin *et al*. 2023)	Peak count as % of WeBS count
Geese & Swans									
Dark-bellied brent goose	1,100 (Y1) 650 (Y2)	N/A	135,000 (brent goose)	0.8	The Wash SPA (non-breeding)	17,000	6.5	10,374	10.6
					The Wash Ramsar (non-breeding)	20,861	5.3	10,374	10.6
					Gibraltar Point Ramsar (non-breeding)	682	161.3	Unavailable	N/A
Pink-footed goose	217 (Y1) 5000 (Y2)	N/A	510,000	0.980.0	The Wash SPA (non-breeding)	7,300	3.068.5	30,525	16.40.7
					The Wash Ramsar (non-breeding)	29,099	0.717.2	30,525	16.40.7
					North Norfolk SPA (non-breeding)	6,000	3.683.3	46,984	10.60.5
					North Norfolk Ramsar (non-breeding)	9,576	2.352.2	46,984	10.60.5

[3] These surveys included the coastal area at the landfall as well as the ECC and hence include records of some species restricted to coastal habitats such as sanderling. More detailed survey of the coastal area was undertaken during the Coastal OP Surveys.

[4] Peak flock count' refers to the highest count of a single flock across the survey ~~period~~season. It is considered inappropriate to sum the counts within the survey area on each visit, as the large survey area and survey methodology do not allow for simultaneous/instantaneous counts of the whole area and birds are likely to move between areas/fields, particularly as a single visit took multiple days to complete, and therefore there would be a risk of counting the same birds multiple times. It is acknowledged that it is therefore not an estimate of the peak number of birds within the survey area at any one time and the evaluation section therefore considers the frequency of observations and the peak and average counts from individual fields/land parcels as shown in Volume 3, Appendix 22.3.

Species	Peak flock Count[4] (non-breeding) in each Year (Y)	No. of breeding territories (confirmed and probable)	UK (winter) or Britain (breeding – pairs) population	Peak count as % of national population	European site population	Citation population	Peak count as % of designated site population	Most recent WeBS count 2017/18-2021/22 for designated site (Austin *et al*. 2023)	Peak count as % of WeBS count
Bewick's swan	0	N/A	4,350	0.0	The Wash SPA (non-breeding)	130	0.00	4	0
Ducks									
Shelduck	15 (Y1) 6 (Y2)	0	51,000	0.03~~0.0~~	The Wash SPA (non-breeding)	16,000	0.1	2,170	0.7
					The Wash Ramsar (non-breeding)	9,746	0.2	2,170	0.7
					Humber Estuary SPA (non-breeding)	4,464	0.3	6,486	0.2
					Humber Estuary Ramsar (non-breeding)	4,464	0.3	6,486	0.2
Gadwall	87 (Y1) 165 (Y2)	0	31,000	0.5~~0.3~~	The Wash SPA (non-breeding)	130	~~66.9~~126.9	156	105.8~~55.8~~
Wigeon	460 (Y1) 400 (Y2)	N/A	450,000	0.1	The Wash SPA (non-breeding)	3,900	11.8	14,452	3.2
Pintail	0	N/A	20,000	0.0	The Wash SPA (non-breeding)	1,700	0.0	315	0.0
Eider	0	N/A	86,000	0.0	The Wash Ramsar (non-breeding)	1,109	0.0	1,609	0.0
Common scoter	0	N/A	135,000	0.0	The Wash SPA (non-breeding)	830	N/A*	1,109	N/A
					Greater Wash SPA (non-breeding)	3,449	0	Unavailable	N/A
Goldeneye	~~0~~1 (Y2)	N/A	21,000	0~~0.0~~	The Wash SPA (non-breeding)	220	0.5~~0.0~~	64	1.6~~0.0~~

Species	Peak flock Count[4] (non-breeding) in each Year (Y)	No. of breeding territories (confirmed and probable)	UK (winter) or Britain (breeding – pairs) population	Peak count as % of national population	European site population	Citation population	Peak count as % of designated site population	Most recent WeBS count 2017/18-2021/22 for designated site (Austin *et al*. 2023)	Peak count as % of WeBS count
Waders									
Oystercatcher	23 (Y1) 4 (Y2)	0	305,000	0.0	The Wash SPA (non-breeding)	24,000	0.1	23,097	0.1
					The Wash Ramsar (non-breeding)	15,616	0.1	23,097	0.1
Avocet	5 (Y1) 22 (Y2)	4	2,138 pairs	0.2	Humber Estuary SPA (breeding) [1]	64 pairs	6.3	N/A	N/A
			Unavailable	N/A	Humber Estuary SPA (non-breeding)	59	37.3~~8.5~~	2,576	0.9~~0.2~~
Lapwing	400 (Y1) 2000 (Y2)	2	635,000	0.3~~0.0.6~~	The Wash Ramsar (non-breeding)	46,422	4.3~~0.86~~	12,142	~~0.2~~3.29~~16~~.5
Golden plover	250 (Y1) 2000 (Y2)	N/A	410,000	0.5~~0.1~~	The Wash Ramsar (non-breeding)	22,033	9.1~~1.1~~	15,601	12.8~~1.6~~
					Humber Estuary SPA (non-breeding)	30,079	6.6~~0.8~~	20,812	9.6~~1.2~~
					Humber Estuary Ramsar (non-breeding)	30,709	6.5~~0.8~~	20,812	9.6~~1.2~~
Grey plover	7 (Y1) 4 (Y2)	N/A	34,000	0.0	The Wash SPA (non-breeding)	5,500	0.1	11,496	0.1
					The Wash Ramsar (non-breeding)	13,129	0.3	11,496	0.1
					Gibraltar Point SPA (non-breeding)	2,793	0.3	Unavailable	N/A
					Gibraltar Point Ramsar (non-breeding)	3,980	0.2	Unavailable	N/A

Species	Peak flock Count[4] (non-breeding) in each Year (Y)	No. of breeding territories (confirmed and probable)	UK (winter) or Britain (breeding – pairs) population	Peak count as % of national population	European site population	Citation population	Peak count as % of designated site population	Most recent WeBS count 2017/18-2021/22 for designated site (Austin *et al*. 2023)	Peak count as % of WeBS count
Ringed plover	4 (Y1) 1 (Y2)	0	43,000	0.0	The Wash Ramsar (non-breeding)	1,500	0.3	1,229	0.3
Curlew	56 (Y1) 103 (Y2)	0	125,000	0.08~~0.0~~	The Wash SPA (non-breeding)	3,700	2.8~~1.5~~	5,759	1.8~~1.0~~
					The Wash Ramsar (passage)	9,438	1.1~~0.6~~	No information	N/A
Bar-tailed godwit	0	N/A	54000	0.0	The Wash SPA (non-breeding)	7,396	0.0	16,533	0.0
					The Wash Ramsar (non-breeding)	16,546		16,533	
					Gibraltar Point SPA (non-breeding)	8,800		Unavailable	
					Gibraltar Point Ramsar (non-breeding)	3,468		Unavailable	
					Humber Estuary SPA (non-breeding)	2,752		1,876	
					Humber Estuary Ramsar (non-breeding)	2,752		1,876	
Black-tailed godwit	16 (Y1) 18 (Y2)	N/A	41000	0.04~~0.04~~	The Wash SPA (non-breeding)	260	6.9~~6.15~~	7,124	0.3~~0.22~~
					The Wash Ramsar (non-breeding)	6,849	0.3~~0.23~~	7,124	0.3~~0.22~~
					Humber Estuary SPA (non-breeding)	1,113	1.6~~1.4~~	5,646	0.3~~0.28~~

Species	Peak flock Count[4] (non-breeding) in each Year (Y)	No. of breeding territories (confirmed and probable)	UK (winter) or Britain (breeding – pairs) population	Peak count as % of national population	European site population	Citation population	Peak count as % of designated site population	Most recent WeBS count 2017/18-2021/22 for designated site (Austin *et al*. 2023)	Peak count as % of WeBS count
					Humber Estuary Ramsar (non-breeding)	1,113	1.6~~1.4~~	5,646	0.3~~0.28~~
					Humber Estuary Ramsar (passage)	915	2~~0.2~~	Unavailable	N/A
Turnstone	2 (Y1) 18 (Y2)	N/A	43000	0.04~~0.0~~	The Wash SPA (non-breeding)	980	1.8~~0.2~~	758	2.4~~0.3~~
Knot	0	N/A	265,000	0.0	The Wash SPA (non-breeding)	75,000	0.0	209,300	0.0
					The Wash Ramsar (non-breeding)	68,987		209,300	
					Humber Estuary SPA (non-breeding)	28,165		26,428	
					Humber Estuary Ramsar (non-breeding)	28,165		26,428	
Ruff	~~0~~16 (Y2)	N/A	920	1.7~~0.0~~	Humber Estuary SPA (non-breeding)	128	12.5~~0.0~~	76	21.1~~0.0~~
Sanderling	~~0~~19 (Y2)	N/A	21,000	0.09~~0~~	The Wash SPA (non-breeding)	500	~~0~~3.8	10,441	0.2~~0~~
					The Wash Ramsar (non-breeding)	3,505	~~0~~0.5	10,441	~~0~~0.2
					Gibraltar Point Ramsar (non-breeding)	971	2~~0~~	No information	N/A
					Gibraltar Point SPA (non-breeding)	1,140	1.7~~0~~	No information	N/A

Species	Peak flock Count[4] (non-breeding) in each Year (Y)	No. of breeding territories (confirmed and probable)	UK (winter) or Britain (breeding – pairs) population	Peak count as % of national population	European site population	Citation population	Peak count as % of designated site population	Most recent WeBS count 2017/18-2021/22 for designated site (Austin *et al*. 2023)	Peak count as % of WeBS count
Dunlin	46 (Y1) 9 (Y2)	N/A	350,000	0.01~~0.0~~	The Wash SPA (non-breeding)	29,000	0.2	28,948	0.2
					The Wash Ramsar (non-breeding)	36,600	0.1	28,948	0.2
					Humber Estuary SPA (non-breeding)	22,222	0.2	17,634	0.3
					Humber Estuary Ramsar (non-breeding)	22,222	0.2	17,634	0.3
					Humber Estuary Ramsar (passage)	20,269	0.2	No information	N/A
Redshank	35 (Y1) 41 (Y2)	0	100,000	0.04~~0.0~~	The Wash SPA (non-breeding)	4,331	0.9~~0.8~~	5,329	0.8~~0.7~~
					The Wash Ramsar (non-breeding)	6,373	0.6~~0.5~~	5,329	0.8~~0.7~~
					Humber Estuary SPA (non-breeding)	4,632	0.9~~0.8~~	2,659	1.5~~1.3~~
					Humber Estuary Ramsar (non-breeding)	4,632	0.9~~0.8~~	2,659	1.5~~1.3~~
					Humber Estuary Ramsar (passage)	7,462	0.5~~0.5~~	No information	N/A
Gulls & Terns									
Black-headed gull	137 (Y1) 600 (Y2)	0	2,200,000	0.02~~0.0~~	The Wash Ramsar (non-breeding)	31403	1.9~~0.4~~	16,348	3.7~~0.8~~

Species	Peak flock Count[4] (non-breeding) in each Year (Y)	No. of breeding territories (confirmed and probable)	UK (winter) or Britain (breeding – pairs) population	Peak count as % of national population	European site population	Citation population	Peak count as % of designated site population	Most recent WeBS count 2017/18-2021/22 for designated site (Austin *et al*. 2023)	Peak count as % of WeBS count
Little tern	N/A	N/A	1,450 pairs	N/A	Greater Wash SPA (breeding)	798 pairs	N/A	N/A	N/A
					The Wash SPA (breeding)	30 pairs		N/A	
					Gibraltar Point SPA (breeding)	40 pairs		N/A	
					Humber Estuary SPA (breeding)	51 pairs		N/A	
Sandwich tern	N/A	N/A	14,000 pairs	N/A	Greater Wash SPA (breeding)	3852 pairs	N/A	N/A	N/A
Common tern	N/A	N/A	11,000 pairs	N/A	Greater Wash SPA (breeding)	510 pairs	N/A	N/A	N/A
					The Wash SPA (breeding)	220 pairs		N/A	
Herons									
Bittern	0	0	227 pairs	0	Humber Estuary SPA (breeding)	2 males	0	N/A	0
					Humber Estuary SPA (non-breeding)	4	0	0	0
Raptors									
Marsh harrier	2 (Y1) 2 (Y2)	3	400 pairs	0.75	Humber Estuary SPA (breeding)	10 females	N/A	N/A	N/A
Hen harrier	2 (Y1)	N/A	Unavailable	N/A	Humber Estuary SPA (non-breeding)	8	25	Unavailable	N/A

~~22.~~21. A review of the comparative information presented in Tables 22.4 and 22.5, alongside the data in Appendices 22.1~~, 22.2 and 22.3~~ ~~22.3, 22.4,~~ to 22.5 and 22.7, indicates that there are 14 species which may be present in numbers which exceed 1% of the relevant designated site and/or national population (citation and/or most recent WeBS estimate). As explained in the tables above, given that the peak flock count has been used and is not a summed count for the whole survey area due to the risk of double counting, the raw data has also been considered, including the frequency of records and peak and average flock counts for each field/land parcel (see Volume 3, Appendix 22.3: Winter Bird Survey Report 2022-2023 and Appendix 22.7 Winter Bird Survey 2023/24), to characterise the populations. The distribution and abundance of those species during the winter 2022-23 and 2023-24 surveys (from within the onshore Order Limits plus relevant buffer), including reference to relevant data obtained via the desk study and breeding bird survey, is outlined in the following sections. Thereafter, additional Annex I~~1~~, Schedule 1, S41 and BoCC Red listed species are detailed.

Dark-bellied brent goose

~~23.~~22. There were 13 observations of dark-bellied brent goose from the Year 1 winter walkover ~~2022-23~~ surveys (24 observations in Year 2), with a peak flock count of 1,100 individuals in Year 1 and 650 in Year 2. Most observations were from The Haven and adjacent fields, mainly of feeding birds. There were very few records from the coastal OP surveys, with a peak count of seven and the species only recorded on two visits only in Year 1. Dark-bellied brent goose is a S41 and BoCC Amber listed species and the qualifying interest of the European sites listed in Tables 22.4 and 22.5.

Pink-footed goose

~~24.~~23. There were 27 observations of pink-footed goose on the ground from the Year 1 winter walkover ~~2022-23~~ surveys, with a peak flock count of 217 individuals and 23 observations with a peak count of 5000 in Year 2. The records were distributed widely across the survey area, mainly of small flocks in Year 1, but several flocks of between 120 and 1400 individuals were recorded in Year 2. LWT advised that approximately 2,000 pink-footed geese roosted at Anderby Marsh in winter 2021-22 following an increase in standing water. Pink-footed goose is on the amber list of birds of conservation concern and the qualifying interest of the European sites listed in Tables 22.4 and 22.5.

Gadwall

~~25.~~24. There were 13 observations of gadwall from the Year 1 winter walkover ~~2022-23~~ surveys, with a peak flock count of 87 individuals and 47 records with a peak count of 165 individuals in Year 2. The peak flock counts in both years ~~was~~ were from Anderby Marsh. No gadwall were recorded during the coastal OP surveys and the species was not recorded as breeding. Gadwall is BoCC Amber listed.

Wigeon

~~26.~~25. There were 23 observations of wigeon from the Year 1 winter walkover ~~2022-23~~ surveys, with a peak count of 460 individuals and 66 observations with a peak count of 400 individuals in Year 2. The peak flock count from Year 1 was from Anderby Marsh, with a cluster of registrations there and also near Low Road. In Year 2, large flocks (more than 100 individuals) were almost exclusively concentrated in ECC 1. The species was not recorded during coastal OP surveys within 400m of landfall in Year 1 and only two observations with a peak count of 14 were made in Year 2. The survey area is outside of the typical breeding range for the species and there was no evidence of breeding during breeding bird surveys. Wigeon is BoCC Amber listed.

Common scoter

~~27.~~26. Common scoter were recorded on six visits during the coastal OP surveys with a peak count of 40 in Year 1 and on visit with a peak count of one in Year 2. Common scoter is Schedule 1, S41 and BoCC Red listed.

Red throated diver

~~28.~~27. LWT advise that red-throated diver is present offshore in large numbers in late winter, gathering before departure, exceeding the national importance threshold in spring 2020 and 2021. Red-throated diver is Annex 1 and BoCC Amber listed and was recorded offshore of the landfall on five visits in Year 1, each of single individuals, so numbers are low within the 400m buffer survey area (and maximum ZoI from onshore works). The GB wintering population is estimated to be 21,500 individuals (Woodward *et al*., 2020). Red throated diver is Annex 1 and Schedule 1 listed.

Avocet

~~29.~~28. The Year 1 winter bird surveys yielded one record of avocet from within the survey area, comprising a group of five birds on 20 March 2023 at Anderby Marsh (within ECC 1 segment). [Confidential Text Removed] Four records of four (Anderby Marsh), eight (The Haven), 13 (Low Road) and 22 birds (The Haven) were recorded in Year 2. ~~These were likely birds prospecting for nest sites.~~

~~30.~~29. A total of four breeding pairs of avocet were recorded within the survey area at [Confidential Text Removed]

Lapwing

~~31.~~30. Year 1 ~~W~~winter ~~2022-23~~ bird surveys recorded 230 observations of lapwing with a peak flock count of 400, from an arable field adjacent to Decoy Wood (ECC 6). Records were distributed widely across the route. No observations were obtained from the coastal OP surveys. In Year 2, lapwings were recorded in steady numbers across the whole ECC regularly between October and April. Overall, 156 observations were recorded across all 14 ECC segments and during a total of 15 visits with a peak flock count of 2,000 individuals recorded in ECC 7 in late October.

~~32.~~31. Two breeding territories were also identified, both in the landfall area (ECC 1). Lapwing is S41 and BoCC Red listed.

Golden plover

~~33.~~32. Year 1 ~~W~~winter ~~2022-23~~ walkover surveys recorded 79 observations of golden plover with a peak flock count of 250 from the same field in which the peak lapwing count was obtained (ECC 6). Observations were of birds feeding and loafing within fields across the survey area. In Year 2, golden plovers were recorded regularly only between late November and early January, but a peak count of 2,000 individuals was recorded during the first influx of this species in late October. Overall, 30 observations were recorded across 12 ECC segments and during a total of six visits. A peak count of 23 was recorded from the coastal OP surveys in Year 1, however, the species was only present on a single visit. No observations from the coastal OP survey were made in Year 2. LWT advised that 175 golden plover were recorded at Anderby Marsh in February 2023. Golden plover is Annex I~~1~~ listed.

Curlew

~~34.~~33. There were 267 observations of curlew from the ~~winter 2022-23~~Year 1 winter walkover surveys, with a peak flock count of 56 individuals. Curlew were widespread throughout the survey area, utilising arable and pasture fields, as well as Anderby Marsh (ECC 1) and The Haven (ECC 10 and 11). In Year 2, curlew was recorded regularly, with the numbers of records steadily rising from November and peaking in late December. Overall, 160 observations were recorded across 13 ECC segments and during a total of 14 visits with a peak flock count of 103 individuals recorded in ECC 12 in late November. A peak count of 18 curlew was obtained from the coastal OP surveys in Year 1 and the species was present on five visits. ~~-~~Eight curlew were observed foraging during a single coastal OP survey visit in early October 2023.

~~35.~~34. There were no records of breeding curlew from the 2023 breeding bird surveys. Curlew is S41 and BoCC Red listed.

Sanderling

~~36.~~35. In Year 1, ~~T~~the peak count during the coastal OP surveys was 13 and the species was present on nine visits. In Year 2, sanderling were observed regularly between October and April across 13 visits with a peak count of 57 individuals (on 09/11/23). The sanderling were recorded predominantly foraging. A single flock of 19 individuals was recorded foraging in ECC 1 in late April 2024 as part of walkover surveys. Sanderling is BoCC Amber listed.

Redshank

~~37.~~36. There were 48 observations of redshank from the Year 1 winter walkover surveys, with a peak flock count of 35 individuals. The were some aggregations of records from the River Welland, The Haven and Anderby Marsh. In Year 2, redshank was recorded regularly between September and April, with the numbers peaking in the middle of winter season. Overall, 106 observations were recorded across 11 ECC segments with a peak flock count of 41 individuals in late February (ECC 11). The peak count from the coastal OP surveys in Year 1 was two and the species was only present on a single occasion. In Year 2, redshank were recorded foraging on four visits during coastal OP surveys (in October and November) with a peak count of 11 individuals.

~~38.~~37. There were no records of breeding redshank from the 2023 breeding bird surveys. Redshank is BoCC Amber listed.

Black-headed gull

~~39.~~38. There were 63 observations of black-headed gull from the Year 1 winter walkover surveys, with a peak flock count of 137 individuals. Black-headed gulls were widespread throughout the survey area, utilising agricultural fields. In Year 2, black-headed gulls were recorded on all visits with a noticeable peak in numbers in November and numbers decreasing towards the end of the winter season. Overall, 640 observations were recorded across all 14 segments with a peak flock count of 600 individuals in early November (in ECC 8). The species was recorded during 13 of the visits ~~at~~ in the Year 1 coastal OP surveys with a peak count of 16. In Year 2, black-headed gulls were regularly observed during a total of 14 visits with a peak count of 200 individuals on 4/10/24. Whilst the peak flock count was below 1% of the relevant designated site population, given the relatively high number of records, the species has been included on a precautionary basis as an important feature.

~~40.~~39. There were no records of breeding black-headed gull from the 2023 breeding bird surveys. Black-headed gull is BoCC Amber listed.

Marsh harrier

~~41.~~40. A peak of two marsh harriers was recorded during the winter walkover surveys both in Year 1 and Year 2.

~~42.~~**41.** [Confidential Text Removed]

Hen harrier

~~43.~~42. There was a single record of two hen harriers obtained from the Year 1 winter walkover surveys, from north of the A52, over an arable field. The species was not recorded during coastal OP surveys. There were many records of non-breeding hen harrier from the GLNP dataset, however, they are generally at low resolution and with limited supporting information. Hen harrier is Annex 1, Schedule 1, S41 and BoCC Red listed.

22.4.2.3 Other SSSI species

~~44.~~43. Additional species which are notified features of the relevant SSSIs (including European site qualifying features that did not meet the 1% threshold) and have been recorded within the survey area are described in the following sections. Where citation or WeBS population estimates are available these have been provided and compared with a 1% threshold. The geographical scale of importance for each feature is provided in Table 22.6 at the end of this section.

Shelduck

~~45.~~44. A single shelduck was recorded from Year 1 coastal OP surveys and there were eight observations with a peak flock count of 15 individuals from the winter walkover surveys. Two shelduck were observed in late April 2024 from Year 2 coastal OP surveys. Shelduck was recorded in small numbers in Year 2 between October and April. Overall, 32 observations were recorded across eight ECC segments and during a total of ten visits with a peak flock count of six individuals in late February. ~~-~~No breeding shelduck were recorded. Shelduck is a qualifying feature of The Wash SPA, Humber Estuary SSSI and is mentioned in the citation for Saltfleetby-Theddlethorpe Dunes SSSI and as a breeding feature of Gibraltar Point SSSI. It is also BoCC Amber listed. The most recent WeBS count for the Humber Estuary is 6,486 (2017/18-2021/22) and the peak flock count equates to 0.23% of that.

Oystercatcher

~~46.~~45. Oystercatcher were recorded in low numbers during the Year 1 winter walkover surveys with a peak flock count of 23 individuals. Oystercatcher was recorded regularly in Year 2 winter walkover surveys only from February onwards with a peak count of four individuals. Overall, 18 observations were recorded across eight ECC segments and during a total of eight visits. Oystercatcher (non-breeding) occurs in internationally important numbers in the Gibraltar Point SSSI and nationally important numbers in the Humber Estuary SSSI. It is also a qualifying feature of The Wash SPA and Ramsar and the peak flock count equates to approximately 0.1% of the citation and most recent WeBS count for The Wash. The Humber Estuary most recent WeBS count is 5,806 (2017/18-2021/22) and the peak flock count equates to 0.4% of that.

~~47.~~46. No breeding oystercatcher were recorded within the breeding bird survey area. It is BoCC Amber listed.

Grey plover

~~48.~~47. There were three observations of grey plover from Year 1 winter walkover surveys with a peak flock count of seven individuals, the species being recorded from The Haven only. Grey plover was recorded sporadically in Year 2 walkover surveys between October and March with a peak count of four individuals. Overall, nine observations were recorded in ECC 10 and 11 and during a total of five visits. There were two observations from the coastal OP surveys in Year 1, each of a single bird and two grey plovers were observed on a single visit in December 2023 (Year 2)~~.~~ Grey plover is a qualifying feature of The Wash SPA, Gibraltar Point SSSI and Humber Estuary SSSI. It is BoCC Amber listed. The GB wintering population is estimated to be 34,000 individuals (Woodward *et al*., 2020). The most recent WeBS count for The Wash is 11,496 (2017/18-2021/22) and the peak flock count equates to 0.06% of that.

Ringed plover

~~49.~~48. There were six observations of ringed plover with a peak flock count of four individuals from the Year1 winter walkover surveys and a single bird was recorded in late April in Year 2. No records were obtained from the coastal OP surveys in Year 1 and a peak count of two individuals was recorded in Year 2. Ringed plover is a qualifying species of The Wash Ramsar, Gibraltar Point SSSI and Humber Estuary SSSI. It is BoCC Red listed. The most recent WeBS count for The Wash is 1,229 (2017/18-2021/22) and the peak flock count equates to 0.3% of that. There were no breeding records for this species from the 2023 breeding bird surveys.

Black-tailed godwit

~~50.~~49. There were only two observations of black-tailed godwit from the Year 1 winter walkover surveys, with a peak flock count of 16 individuals, both records from The Haven. Black-tailed godwits were recorded irregularly between September and April. Overall, 12 observations were recorded in ECC 1 and 11 and during a total of nine visits with a peak flock count of 18 individuals recorded in ECC 1 in late November. The species is Schedule 1, S41 and BoCC Red listed.

Ruff

~~51.~~50. No records of ruff were obtained from winter walkover or coastal OP surveys in Year 1. Ruff was recorded only sporadically in Year 2 walkover surveys, five records were made on five visits, mostly between September and December. A peak count of 16 individuals was recorded in late September in ECC 11 (the Haven). No breeding ruff territories were identified during the 2023 breeding surveys. [Confidential Text Removed]. Ruff is Schedule 1 and BoCC Red listed.

Dunlin

~~52.~~51. Dunlin were recorded during coastal OP surveys in November and December with a peak count of 12 individuals in Year 1 and a peak count of 24 individuals in Year 2. They were only recorded from Anderby Marsh and The Haven during the Year 1 winter walkover surveys, with a peak flock count of 46 and a peak count of nine individuals in Year 2.~~-~~Dunlin is a qualifying feature of The Wash SPA and Ramsar and Humber Estuary SPA and Ramsar (non-breeding and passage). Dunlin occurs in nationally important numbers within The Humber Estuary SSSI and is also mentioned within the citation for Saltfleetby-Theddlethorpe Dunes SSSI. The peak flock count of 24 birds equates to 0.08~~2~~% of the most recent WeBS count for The Wash and 0.14~~3~~% of the most recent WeBS count for the Humber Estuary. Dunlin is BoCC Red listed.

Bittern

~~53.~~52. There were no records of bittern from within the survey area during the winter walkover and coastal OP surveys and no breeding bittern were identified during the 2023 breeding bird surveys. LWT have advised that records of bittern from Wolla Bank Reedbed have been increasing, particularly in late winter and early spring. Bittern is a qualifying feature of Humber Estuary SPA and SSSI (breeding and non-breeding). Bittern is Annex I~~1~~, Schedule 1, S41 and BoCC Amber listed.

22.4.2.4 Other Annex I, Schedule 1, NERC Section 41 and BoCC Red listed species

Whooper swan

~~54.~~53. Whooper swan is listed on Annex I and is BoCC Amber listed. There were 25 observations from the Year 1 winter walkover surveys with a peak flock count of 15 individuals. Whooper swan was recorded regularly although in small numbers in Year 2 between October and March. Overall, 20 observations were recorded across nine ECC segments and during a total of ten visits with a peak flock count of 297 individuals in December. The records were widespread and primarily from arable fields. The GB wintering population is estimated to be 16,000 individuals (Woodward *et al*., 2020).

Pochard

~~55.~~54. Pochard is BoCC Red listed and there was only a single observation of this species ~~during the winter walkover surveys,~~during the Year 1 winter walkover surveys of nine individuals, however, that was from Frampton Marsh located >500m from the onshore Order Limits.

Grey partridge

~~56.~~55. A single probable grey partridge breeding territory was recorded in Year 1, located in ECC 13. Grey partridge was recorded regularly in small numbers throughout the Year 2 winter season. Overall, 14 observations were recorded across nine ECC segments and during a total of ten visits with a peak flock count of eight. The species is NERC Section 41 and BoCC Red listed and the UK population is estimated to be 37,000 breeding territories.

Cuckoo

~~57.~~56. There were two confirmed territories in ECC 6, and two probable territories in the ECC 1 and 11. LWT advises that the coastal scrub seaward of Anderby Marsh is a hotspot for cuckoo with as many as ten birds between Anderby Creek and Chapel Six Marshes. The species is NERC Section 41 and BoCC Red listed and the UK population is estimated to be 18,000 breeding pairs.

Little ringed plover

~~58.~~57. Little ringed plover was not recorded during the 2023 breeding bird surveys. [Confidential Text Removed]. The species is Schedule 1 listed and the UK population is estimated to be 1,250 breeding pairs.

Woodcock

~~59.~~58. Woodcock is BoCC Red listed, and the species was recorded on three occasions during Year 1 winter walkover surveys, with two of the records of single birds in flight, and the other a single bird on the ground >200m outside of the onshore Order Limits. The GB wintering population is estimated to be 1,400,000 individuals (Woodward *et al*., 2000).

Herring gull

~~60.~~59. Herring gull is NERC Section 41 and BoCC Red listed. There were 16 records from the winter walkover surveys with a peak flock count of 21 individuals in Year 1 and 164 observations with a peak flock count of 80 individuals in Year 2. The species was recorded in 11 visits during the coastal OP survey counts with a peak count of 16 and during all visits with a peak count of 61 in Year 2. The GB wintering population is estimated to be 730,000 individuals (Woodward *et al*., 2020).

Great northern diver

~~61.~~60. Great northern diver is Annex 1 and BoCC Amber listed and was recorded offshore of the landfall (i.e. within the 400m buffer survey area) on three visits in Year 1 (~~,~~ each of single individuals) and one individual in Year 2. The GB wintering population is estimated to be 4,350 individuals (Woodward *et al*., 2020).

Little egret

~~62.~~61. Little egret is Annex I~~1~~ listed and there were 107 observations from the Year 1 winter walkover surveys with a peak flock count of five individuals. Little egret was recorded on each visit in small numbers in Year 2 winter walkover surveys. Overall, 155 observations were recorded across 13 ECC segments with a peak count of ten individuals. The GB wintering population is estimated to be 11,500 individuals (Woodward *et al*., 2020). The species was not recorded as breeding within the survey area, although was frequently observed foraging indicating that birds breed in the locality.

Red kite

~~63.~~62. Red kite is Annex ~~1~~I listed and there were six observations from the Year 1 winter walkover surveys, with a peak of three individuals and with most observations being of birds in flight. The GB wintering population is estimated to be 590-695 individuals (Woodward *et al*., 2020). Red kite was not recorded during the 2023 breeding bird surveys.

Barn owl

~~64.~~63. Barn owl is a Schedule 1 listed species. Breeding barn owl survey identified the following breeding and roosting sites:

- [Confidential Text Removed].

~~65.~~64. LWT advise that barn owl regularly hunt over Anderby Marsh (and are breeding nearby). They are also regular at Wolla Bank Reedbed in winter. There is a local conservation programme for barn owls, involving the provision of nest boxes, and data has been ~~requested~~ obtained ~~but are not available at the time of writing~~and presented in Appendix 3.22.2: Confidential Desk Study (document reference 6.3.22.2). Out of a total of 87 nest sites located within the 2km search area, 12 nest sites (14.9%) were located within the Order Limits plus~~+~~ 200m.

~~66.~~65. The GB breeding population is estimated to be 4,000 pairs and the wintering population to be 4,000-14,000 individuals (Woodward *et al*., 2020).

Kingfisher

~~67.~~66. Kingfisher is Annex I~~1~~ and Schedule 1 listed and there were nine observations from the Year 1 winter walkover surveys, with most observations being of birds in flight. Three individuals were recorded in Year 2 (October and February) in ECC 1 and 2. As a secondary species, the dataset provides an indication of distribution and abundance only, as is the case for several species below.

~~68.~~67. Kingfisher was recorded in ECC 6 during the 2023 breeding bird surveys but there was no evidence of nesting. LWT advise that kingfisher is often recorded at Wolla Bank Reedbed in late summer. The resident GB breeding population is estimated to be 3,650-6,100 pairs (Woodward *et al*., 2020).

Peregrine

~~69.~~68. Peregrine is Annex I~~1~~ and Schedule 1 listed and there were three observations from the Year 1 winter walkover surveys, all of single individuals, with most observations being of birds in flight. Three observations were recorded in Year 2 winter walkover surveys (September, December and February) of single individuals in three ECC segments. No evidence of peregrine breeding within the survey area was identified. The resident GB breeding population is estimated to be 1,650 pairs (Woodward *et al*., 2020).

Bearded tit

~~70.~~69. Bearded tit was not recorded within the survey area during the winter 2022-23 and breeding 2023 surveys. Two observations were made in Year 2 winter walkover surveys (late November and late January) with a peak count of three individuals. All observations were in ECC 1. LWT advise that bearded tit winter at Wolla Bank Reedbed in double figures. [Confidential Text Removed]. Bearded tit is listed on Schedule 1 and the UK breeding population is estimated at 695 pairs (Woodward *et al*., 2020).

Skylark

~~71.~~70. Skylark is NERC Section 41 and BoCC Red listed and there were 104 observations from the Year 1 winter walkover surveys, with a peak flock count of 85. Skylark was recorded between September and February in Year 2 winter walkover surveys, with the most records and peak numbers noted in the first half of the winter season. Overall, 38 observations were recorded across 11 ECC segments and during a total of ten visits with a peak flock count of 35 individuals in late October. A total of 11 territories were confirmed during the 2023 breeding bird surveys, distributed along the route (note that the typical nesting habitat of arable fields was not targeted during the breeding bird surveys). The GB breeding population is estimated to be 1,500,000 territories (Woodward *et al*., 2020); a wintering population estimate is unavailable.

Cetti's warbler

~~72.~~71. Cetti's warbler is listed on Schedule 1. There were two observations with a peak count of six individuals during the Year 1 winter walkover surveys and~~.~~ 22 observations of single individuals recorded in Year 2 between September and April (this species was recorded on 14 visits). All observations were of singing birds ~~All records were~~ from the wetland habitats at Wolla Bank and Chapel Six Marshes.

~~73.~~72. [Confidential Text Removed].

~~74.~~73. The resident GB breeding population is estimated to be 3,450 males (Woodward *et al*., 2020).

Marsh Warbler

~~75.~~74. Marsh warbler is listed on Schedule 1, NERC Section 41 and BoCC Red List. [Confidential Text Removed]

Grasshopper warbler

~~76.~~75. A single breeding territory of grasshopper warbler was recorded, within ECC 1. The species is NERC Section 41 and BoCC Red listed. The UK population is estimated at 12,000 territories (Woodward *et al*., 2020).

Starling

~~77.~~76. LWT advised that >20,000 starlings were recorded roosting at Wolla Bank Reedbed in winter 2021-22 and 150,000 in the reedbeds at Chapel Six Marshes in autumn 2020, with more typical numbers being approximately 50,000. Starling was regularly recorded in Year 2 winter walkover surveys between September and March, with the most records noted in November and December. Overall, 126 observations were recorded across 14 ECC segments and during a total of 14 visits with a peak flock count of 800 individuals in early November. A single probable starling territory was recorded within the breeding bird survey area, in ECC 3, with the low number of territories likely related to the limited number of suitable buildings. Starling is a NERC Section 41 and BoCC Red listed species and the UK population size is estimated at 1.8 million breeding pairs (Woodward *et al*., 2020).

House sparrow

~~78.~~77. The species was confirmed as breeding in two locations, with nine nests estimated. House sparrow is NERC Section 41 and BoCC Red listed and the UK population is estimated at 5.3 million breeding pairs (Woodward *et al*., 2020).

Yellow wagtail

~~79.~~78. A single yellow wagtail breeding territory was confirmed, located in ECC 3. No notable post-breeding aggregations were recorded during the Year 1 winter walkover surveys and the species was not recorded in Year 2 winter walkover surveys. LWT advise there was a roost of 351 yellow wagtails at Wolla Bank Reedbed in August 2022. August falls between the periods in which breeding and non-breeding surveys were undertaken for the Project. The species is NERC Section 41 and BoCC Red listed and the UK population is estimated to be 20,000 breeding territories (Woodward *et al*., 2020).

Greenfinch

~~80.~~79. Greenfinch was widely recorded throughout the survey area with two confirmed and five probable breeding territories. Greenfinch was recorded six times on four visits in Year 2 winter walkover surveys (in September, November and December) across five ECC segments and with a peak count of 27 individuals. The species is BoCC Red listed and the UK population is estimated to be 785,000 breeding pairs (Woodward *et al*., 2020).

Linnet

~~81.~~80. Linnet was widely recorded across the survey area with eight confirmed breeding territories. A peak flock count of 50 was recorded during Year 1 winter surveys. Linnet was regularly recorded in Year 2 winter walkover surveys between September and April. Overall, 76 observations were recorded across all ECC segments and during a total of 14 visits with a peak flock count of 110 individuals in early November. The species is NERC Section 41 and BoCC Red listed and the UK population is estimated to be 560,000 breeding territories (Woodward *et al*., 2020).

Yellowhammer

~~82.~~81. Yellowhammer is NERC Section 41 and BoCC Red listed and there were 34 observations from the Year 1 winter walkover surveys, with a peak flock count of 65 individuals. Single yellowhammers were recorded five times on three visits in Year 2 winter walkover surveys (December and April) across four ECC segments. Five breeding territories were confirmed within the survey area. The GB breeding population is estimated to be 685,000 territories (Woodward *et al*., 2020).

Reed bunting

~~83.~~82. Reed bunting is NERC Section 41 and BoCC Amber listed and there were four observations from the Year 1 winter walkover surveys, with a peak flock count of 25 individuals. Nine observations were recorded in Year 2 winter walkover surveys in September, March and April (i.e. outside of the core winter period) in seven ECC segments. Eight breeding territories were confirmed within the survey area. The GB breeding population is estimated to be 255,000 territories (Woodward *et al*., 2020).

22.4.2.5 Identification of Important Ornithological Features

Methodology for identifying Important Ornithological Features

~~84.~~83. Ecological features can be important for a variety of reasons and the rationale used to identify them is explained below. Importance may relate, for example, to protected status; species rarity; the extent to which such species are threatened throughout their range; or to their rate of decline.

~~85.~~84. Important ornithological features are considered here to be those:

- SPA, ornithological Ramsar and SSSI, and qualifying bird features;
- Listed on Annex I of the Birds Directive which are native to GB;
- Specially protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended);
- A species of principal importance for conservation listed in Section 41 of the NERC Act 2006;
- A potentially important population of a species which is red listed in the UK (Stanbury *et al*., 2021)
- A population exceeding 1% of the population at the Local level or above (see explanation below); and/or.
- A bird community which meets the criteria for designation as a SSSI or LWS (see explanations below).

~~86.~~85. Effects on other ornithological features of lower importance are considered unlikely to be significant in legal or policy terms so are not subject to detailed assessment.

~~87.~~86. Where appropriate, the value of species populations has been determined using the standard '1% criterion' method, as used, for example, within the Guidelines for the Selection of Biological SSSIs (Drewitt, Whitehead & Cohen, 2023). For example, a population representing >1% of the biogeographic population is important at the relevant level, e.g., a population which is >1% of the national population of a species is nationally important. Whilst population data is generally available at the national level, they are not always available at County or Local levels and, therefore, may need to be estimated (e.g. extrapolating from National estimates).

~~88.~~87. The SSSI selection guidelines (Part 2, Chapter 17, Annex 1) also present a scoring system for breeding bird communities. This has been referred to in order to consider whether any particular bird community within the survey area may meet the threshold index value for SSSI qualification. The relevant habitat types to which the scoring system can be applied are: Sand dunes and saltmarsh; lowland damp grassland; lowland open waters and their margins; and lowland farmland.

~~89.~~88. The GLNP selection guidelines for LWS (2013) in Lincolnshire also present a scoring system for bird communities, specifically in relation to grazing marsh (coastal and floodplain), for both breeding and wintering birds.

~~90.~~89. The CIEEM Guidelines state that the importance of an ecological feature should be considered within a defined geographical context. The following frame of reference has been used for ornithological features:

- International;
- GB;
- County (i.e., Lincolnshire);
- Local (i.e., within 5km of the onshore Order Limits); and
- Designated site[5].

Identification of Important Ornithological Features

~~91.~~90. Table 22.6 outlines the Important Ornithological Features that have been identified within the study area, and which may be affected by the Project.

[5] For birds recorded outside of the boundaries of designated sites however, it is often not known whether they form part of any designated site population.

Table 22.6 Important Ornithological Features

Important Ornithological Feature	Importance Criteria	Summary of survey area population data	Geographic Scale of Importance of bird populations (within the survey area for individual features)
International Sites			
The Wash SPA and Ramsar	SPA and/or Ramsar site	-	International
Greater Wash SPA			
Gibraltar Point SPA and Ramsar			
Humber Estuary SPA and Ramsar			
North Norfolk SPA and Ramsar			
SSSIs with notified ornithological interest features:			
The Wash SSSI	SSSI	-	UK
Gibraltar Point SSSI			
Humber Estuary SSSI			
Saltfleetby-Theddlethorpe Dunes SSSI			
RSPB Reserves			
Frampton Marsh	RSPB Reserve	-	UK
Freiston Shore			
LWS Reserves selected for ornithological features or significant value identified to local bird populations within the citation			
Middlemarsh Farm LWS	LWS	-	County
LWT Reserves with ornithological features			

Important Ornithological Feature	Importance Criteria	Summary of survey area population data	Geographic Scale of Importance of bird populations (within the survey area for individual features)
Anderby Marsh	LWT Reserve	-	County
Wolla Bank Pit			
Wolla Bank Reedbed			
Chapel Pit			
Moulton Marsh			
Frampton Marsh			
SPA/Ramsar qualifying features and SSSI listed features:			
Dark-bellied brent goose	Qualifying feature (non-breeding) of The Wash SPA and Ramsar; Gibraltar Point Ramsar; Humber Estuary SSSI; Saltfleetby-Theddlethorpe SSSI. S41 and BoCC Amber.	Peak flock counts exceed 1% of the designated site population (non-breeding) and close to 1% of GB population (non-breeding).	The Wash SPA and Ramsar; Gibraltar Point Ramsar; Humber Estuary SSSI; Saltfleetby SSSI; GB.
Pink-footed goose	Qualifying feature (non-breeding) of The Wash SPA and Ramsar; North Norfolk SPA and Ramsar. BoCC Amber	Peak flock counts ~~close to or~~ exceed 1% of the designated site populations (non-breeding).	The Wash SPA and Ramsar; North Norfolk SPA and Ramsar; County.
Whooper swan	Wash SSSI	Peak flock count of ~~15~~ 297 with widespread distribution along the ECC route.	Local

Important Ornithological Feature	Importance Criteria	Summary of survey area population data	Geographic Scale of Importance of bird populations (within the survey area for individual features)
Shelduck	The Wash SPA and Ramsar; Humber Estuary SPA and Ramsar.	Peak flock count of 15 and few records.	Local
Gadwall	The Wash SPA; BoCC Amber	Peak flock counts exceed 1% of the designated site population (non-breeding).	The Wash SPA. County.
Wigeon	The Wash SPA; Gibraltar Point SSSI; Humber Estuary SSSI; Saltfleetby-Theddlethorpe Dunes SSSI. BoCC Amber.	Peak flock counts exceed 1% of the designated site population (non-breeding).	The Wash SPA; Gibraltar Point SSSI; Humber Estuary SSSI; Saltfleetby SSSI. County.
Pintail	The Wash SPA; Schedule 1 and BoCC Amber.	Peak count of 2 from landfall surveys only (present on one visit).	Less than Local
Teal	Humber Estuary SSSI. BoCC Amber.	Peak flock count of ~~130~~ 300 birds from the ECC surveys.	Local

Important Ornithological Feature	Importance Criteria	Summary of survey area population data	Geographic Scale of Importance of bird populations (within the survey area for individual features)
Scaup	Humber Estuary SSSI. Schedule 1, S41, BoCC Red.	One observation of 138.	Local
Pochard	Humber Estuary SSSI. BoCC Red.	Single observation of 9 birds.	Less than Local
Eider	The Wash Ramsar. BoCC Amber.	Peak of a single individual.	Less than Local
Common scoter	Greater Wash SPA; Wash SPA. Schedule 1, S41, BoCC Red.	Peak flock counts exceed 1% of the designated site population (non-breeding).	Greater Wash SPA; The Wash SPA; County.
Red-throated diver	Greater Wash SPA. Annex 1 and Schedule 1.	Recorded on five landfall survey visits, each of a single individual.	Less than local
Oystercatcher	The Wash SPA and Ramsar; Gibraltar Point SSSI; Humber Estuary SSSI. BoCC Amber.	Recorded in low numbers at various locations along the ECC, with a peak flock count of 23.	Local

Important Ornithological Feature	Importance Criteria	Summary of survey area population data	Geographic Scale of Importance of bird populations (within the survey area for individual features)
Avocet	Humber Estuary SPA (non-breeding and breeding); Wash SSSI (non-breeding). Annex 1, Schedule 1, BoCC Amber.	Single observation from late March in Year 1 winter walkover surveys and four records with a peak count of 22 in early April in Year 2 are~~,~~ ~~more~~ likely to be birds prospecting to breed rather than non-breeding birds. Breeding pairs exceed 1% of the designated site population (breeding).	Humber Estuary SPA (breeding). County (breeding). Less than Local (non-breeding).
Lapwing	Qualifying feature (non-breeding) of The Wash Ramsar; Humber Estuary SSSI. S41, BoCC Red.	Peak flock counts exceed 1% of the designated site population (non-breeding).	The Wash Ramsar; Humber Estuary SSSI; County.
Golden plover	Qualifying feature of The Wash Ramsar and Humber Estuary SPA and Ramsar (non-breeding); Annex 1.	Feature has been recorded within the survey area with peak flock counts close to or in excess of 1% of the designated sites population, indicating that FLL for qualifying features is present within the survey area (non-breeding).	The Wash SPA and Ramsar; Humber Estuary SPA and Ramsar County.
Grey plover	The Wash SPA and Ramsar; Gibraltar Point SPA and Ramsar; Humber Estuary SSSI; BoCC Amber	Peak of ~~a single bird~~two individuals recorded during landfall surveys. During ECC surveys recorded from The Haven only, with a peak flock count of 7.	Local
Ringed plover	The Wash Ramsar; Humber Estuary SSSI; Gibraltar Point SSSI. BoCC Red.	Peak flock count of 4.	Less than Local

Important Ornithological Feature	Importance Criteria	Summary of survey area population data	Geographic Scale of Importance of bird populations (within the survey area for individual features)
Curlew	Qualifying feature (non-breeding) of The Wash SPA and Ramsar; Humber Estuary SSSI; S41 and BoCC Red.	Peak flock counts exceed 1% of the designated site population (non-breeding).	The Wash SPA and Ramsar; Humber Estuary SSSI. County.
Black-tailed godwit	Qualifying feature (non-breeding) of The Wash SPA and Ramsar; Humber Estuary SPA and Ramsar. Schedule 1, S41, BoCC Red.	~~Two observations only with p~~Peak flock count of ~~16~~18 in the Year 2 winter walkover surveys.	Less than Local
Turnstone	Wash SPA; Humber Estuary SSSI. BoCC Amber.	Peak count of 18 in the Year 2 winter walkover surveys~~Single record of two individuals~~.	Less than Local
Ruff	Humber Estuary SPA. Schedule 1, BoCC Red.	~~Not recorded.~~Five records with a peak count of 16 individuals in Year 2 winter walkover surveys. [Confidential Text Removed]	Local
Sanderling	Qualifying feature (non-breeding) of The Wash SPA and Ramsar; Gibraltar Point SPA and Ramsar; Humber Estuary SSSI; Saltfleetby-Theddlethorpe Dunes SSSI. BoCC Amber.	Whilst the peak count exceeds 1% of the citation population, it is not close to 1% of the most recent WeBS counts (The Wash, non-breeding). Peak flock counts exceed 1% of the designated site population (Gibraltar Point, non-breeding).	Gibraltar Point SPA and Ramsar; Humber Estuary SSSI; Saltfleetby SSSI. County.
Dunlin	Qualifying feature (non-breeding) of The Wash SPA and Ramsar; Humber	Peak count of ~~12~~ 24 during Coastal OP survey counts. During ECC surveys only recorded from Anderby Marsh and The Haven with a peak flock count of 46.	Local

Important Ornithological Feature	Importance Criteria	Summary of survey area population data	Geographic Scale of Importance of bird populations (within the survey area for individual features)
	Estuary SPA and Ramsar; Gibraltar Point SSSI. BoCC Red.		
Redshank	Qualifying feature (non-breeding) of The Wash SPA and Ramsar; Humber Estuary SPA and Ramsar. The Wash SSSI (breeding). Amber.	Peak flock counts close to or exceed 1% of the designated site population (non-breeding). Not recorded as a breeding species.	Non-breeding: The Wash SPA and Ramsar; Humber Estuary SPA and Ramsar; County. Breeding: Less than Local.
Black-headed gull	Wash Ramsar. BoCC Amber.	Peak flock count~~s~~ ~~close to~~exceeds 1% of the designated site population (non-breeding).	The Wash Ramsar. County.
Sandwich tern	Greater Wash SPA (breeding). Annex I, BoCC Amber.	No breeding colonies within the survey area and limited suitable foraging habitat.	Less than Local
Little tern	Greater Wash SPA; Wash SPA; Gibraltar Point SPA; Humber Estuary SPA (all breeding). Annex I, Schedule 1, BoCC Amber.	No breeding colonies within the survey area and limited suitable foraging habitat.	Less than Local
Common tern	Greater Wash SPA and Wash SPA (breeding). Annex I, BoCC Amber.	No breeding colonies within the survey area and limited suitable foraging habitat.	Less than local

Important Ornithological Feature	Importance Criteria	Summary of survey area population data	Geographic Scale of Importance of bird populations (within the survey area for individual features)
~~Common tern~~ Bittern	~~Greater Wash SPA and Wash SPA (breeding).~~ ~~Annex I, BoCC Amber.~~ Humber Estuary SPA (breeding and non-breeding). Annex I, Schedule 1, S41, BoCC Amber.	~~No breeding colonies within the survey area and limited suitable foraging habitat.~~ Not recorded. LWT advised of non-breeding records from Wolla Bank Reedbed.	~~Less than local~~ Local
Marsh harrier	Humber Estuary SPA (breeding) Schedule 1, BoCC Amber.	Breeding territories exceed 1% of the designated site population (breeding).	Humber Estuary SPA; County
Hen Harrier	Humber Estuary SPA (non-breeding) Annex I, Schedule 1, S41, BoCC Red.	Single observation of two birds.	Less than Local
Additional Annex 1 species:			
Little egret	Annex I	Foraging within the survey area during the breeding season but not found to be nesting. Outside of the breeding season the peak flock count was ~~5~~ five and was recorded occasionally.	Local
Great northern diver		Recorded offshore of the landfall (i.e. within the 400m buffer survey area) on three visits, each of single individuals.	Local

Important Ornithological Feature	Importance Criteria	Summary of survey area population data	Geographic Scale of Importance of bird populations (within the survey area for individual features)
Kingfisher		Occasional observations but not found to be nesting. LWT advise that they are often observed at Wolla Bank Reedbed in late summer.	Local
Red kite		Recorded scarcely, with a peak of three, outside of the breeding season only.	Less than local
Peregrine		Occasional observations but not found to be nesting.	Less than local
Additional Schedule 1 listed birds:			
Little ringed plover	Schedule 1	Presence of a single breeding pair.	County
Barn owl		Presence of an occupied breeding site and active roost sites. Locations of barn owl nest sites within 2km of the Order Limits were obtained from the Wildlife Conservation Projects Ltd. (WCP). There were 12 potential nest sites (boxes) within the Order Limits plus 200m.	County
Cetti's warbler		Presence of a breeding population.	County
Bearded tit		Presence of a winter flock in Wolla Bank Reedbed reserve. Not known to breed within the survey area.	County
Marsh warbler		[Confidential Text Removed]	GB
Additional Section 41 and/or Red Listed birds:			
Starling	Section 41 and Red Listed	Presence of large winter roosts in the Wolla Bank Reedbed. Single probably breeding territory.	County

Important Ornithological Feature	Importance Criteria	Summary of survey area population data	Geographic Scale of Importance of bird populations (within the survey area for individual features)
Yellow wagtail		Presence of large winter roosts in the Wolla Bank Reedbed. Single breeding territory.	
Grey partridge		Two probable breeding territories. Observed on 14 occasions with a peak count of ~~8~~eight in the Year 2 winter walkover surveys.	Local
Cuckoo		Two confirmed and two probable territories. LWT advise that Anderby Marsh is a hotspot.	Local
Skylark		Peak flock count of 85. 11 confirmed breeding territories along the ECC route.	
House sparrow		The species was confirmed as breeding in two locations, with nine nests estimated.	
Greenfinch	Red Listed.	Two confirmed and five probable breeding territories. Peak count of 27 in Year 2 winter walkover survey.	
Linnet	Red Listed ~~Section 41 and Red Listed~~	Eight confirmed breeding territories. Peak flock count of ~~50~~ 110 during ECC non-breeding surveys.	Local
Yellowhammer	Section 41 and Red Listed	Five breeding territories. Peak flock count of 65 during ECC non-breeding surveys.	
Reed bunting	Section 41 and Amber Listed	Eight breeding territories. Peak flock count of 25 during ECC non-breeding surveys.	
Grasshopper warbler	Section 41 and Red Listed	Single breeding territory.	Less than Local
Woodcock	Red Listed	Small number of records of single birds.	
Herring gull	Section 41 and Red Listed	Peak flock count of 80 from the ECC surveys and peak count of ~~16~~ 61 from landfall surveys.	

Important Ornithological Feature	Importance Criteria	Summary of survey area population data	Geographic Scale of Importance of bird populations (within the survey area for individual features)
Bird Assemblages			
Breeding bird assemblage from particular habitat types	N/A	Anderby Marsh (an LWT Reserve) would meet the LWS selection criteria under GM1 and GM2 (coastal grazing marsh) for supporting a breeding and non-breeding bird assemblage.	County
Non-breeding bird assemblage from particular habitat types	N/A		County

22.4.3 Cropping within the Order Limits

91. The Project has carried out crop surveys in spring 2023 as part of geomorphology surveys covering approximately 30%~~1,000~~ (2,370 ha) ~~within~~ of the Order Limits and found only ~~20ha~~ 37 ha of sugar beet, representing ~~2~~1.6% of the land~~ surveyed~~. The analyses and distribution of sampled crops are presented in Figure 1 Appendix 22.8 Additional clarifications relating to Natural England's Relevant Representations (Appendix I Onshore Ornithology) (document reference 6.3.22.8).

~~92. They were west of the A52 near Old Leake.~~ The dominant crop types in this sample were wheat (887ha), fallow (282ha) and grass (213ha). Crop availability and rotation analyses were undertaken within a larger sample area in proximity to the Wash SPA for the years 2019, 2020 and 2021 using the Rural Payment Agency's Crop Map of England (CROME) database. Winter wheat and grass were the most prevalent crop types across this wider area, with 39% (31,646 ha) and 45% (37,359 ha) respectively in 2019 and 2021. Potato and spring barley were the next most prevalent crop types, covering up to 33% (26,657 ha) in 2020. Fallow land fluctuated between 10% (7,928 ha) in 2019, 3% (2,613 ha) in 2020 and 4% (3,023 ha) in 2021. Sugar beet oscillated between 3% (2,366 ha) and 5% (4,429 ha) of all crops. ~~A sample from the ECC between Butterwick and Fosdyke found approximately 80-90% brassicas, with other crops including leeks, potatoes, and flowers. Two crops are harvested annually.~~

22.4.4 Future Baseline

~~93.~~92. Baseline ecological conditions could evolve in the future as a result of land use policy, environmental improvements, climate change and development pressures. Other factors include accumulation of nutrients in soils and water from agricultural runoff and atmospheric pollution; coastal erosion; and changes at the breeding sites of the over-wintering species. There may also be some changes to the baseline over time as a result of natural variation and weather events.

~~94.~~93. Climate change is also predicted to result in complex changes to biodiversity. This includes coastal habitats that cannot respond to sea level rise or coastal erosion by moving inland (for example, due to the presence of urban land or flood defences) are, therefore, at risk of loss, resulting in the loss of habitat for wintering, passage and breeding birds. Habitats could also be created in locations where existing farmland is no longer defended from sea level rise. Climate change is also affecting patterns of bird migration, including 'range-shift' by which birds migrate shorter distances to their over-wintering grounds. For some species breeding at higher latitudes, this could lead to a reduction in the populations wintering in Great Britain.

~~95.~~94. The above events and trends have the potential to alter the baseline conditions over time. However, in the absence of any detailed, quantifiable information it has been assumed that the baseline conditions will remain largely as they are for the purpose of the assessment (with the exception of other developments, where known, which are considered in the assessment of cumulative effects (see Section 22.9)). This is particularly likely in relation to the construction phase, which is anticipated to commence from 2026.

~~96.~~95. The Boston Alternative Energy Facility (BAEF) project was granted development consent in July 2023 and includes a requirement to deliver compensatory measures for adverse effects on the integrity of The Wash SPA and Ramsar. This will consist of creation of grassland and wetland habitat from existing arable land to offset disturbance displacement of waterbirds from the River Haven. The compensation sites will need to be created in advance of the adverse effects from the BAEF project commencing and it is, therefore, assumed that creation will be completed in advance of the construction works for the Project commencing. Compensation sites receive the equivalent level of protection as habitats sites as set out in the NPPF. Four option fields have been identified, one of which overlaps with the onshore Order Limits (a temporary access track only) and is adjacent to the ECC and the other three are located >500m from the ECC, as shown in Figure 22.4 (Document Reference 6.2.22.4).

~~97.~~96. Details of the proposed compensation sites are provided in the HRA (DESNZ, 2023). The compensation site overlapping with the Order Limits is named 'Wyberton Roads (South)'. The plans for these two fields are:

- *"improvement of the area as a dry grassland roosting and foraging site;*
- *the dry areas would be re-seeded with regional wild flora and grasses and the sward height maintained low for roosting waterbirds;*
- *part-buried nest boxes for shelduck would be added in banks and edges; and*
- *improvement of the site as a wildlife refuge would also likely include, measures to reduce vehicular and pedestrian disturbance to the site such as a blinds-style fence along the north-east side of the land parcel".*

~~98.~~97. The HRA states that *"Section 3 of the Compensation Measures Document (CMD) defines the quantum of compensation which would be required"*. The CMD states "*Each of the Wyberton Roads (North), Wyberton Roads (South), and Corporation Point is approximately 15ha or more in area and, therefore, once converted to habitat for waterbirds* ***any one of these sites*** *would be of suitable scale to exceed the affected area"* (Royal Haskoning DHV, 2023). BAEF has since confirmed that the Wyberton Roads South site has been chosen for habitat creation, with works planned to be completed in summer 2024 (i.e. in advance of construction works for the Project commencing).

~~99.~~98. The RSPB Greater Frampton Vision Landscape Recovery Project is currently in the planning stages and aims to create a wetland landscape replacing arable fields and joining up the RSPB Freiston Shore and Frampton Marsh Reserves. It is described in more detail in Section 22.8 and the boundary is illustrated in Volume 2, Figure 22.2 (document reference 6.2.22.2) relative to the Order Limits. The project is at an early stage of development, but subject to DEFRA approval, RSPB expect to undertake habitat creation works between 2026-2029, which would be broadly in line with the construction phase for the Project. The habitats will take some time to establish, but for the purposes of this assessment, it is assumed that they will begin to establish from the start of the operation phase of the Project.

~~100.~~99. For reinstatement of habitats temporarily cleared for the Project, and within the Greater Frampton Vision boundary, they would be reinstated where doing so aligned with the RSPB's vision, otherwise alternative habitats would be created in alignment with the RSPB's vision. It is likely that these would be wetland habitats, however, detailed habitat creation plans are not available at this stage of the Landscape Recovery Project (LRP). This would not apply to habitat identified as having notable ecological value which would be reinstated regardless.

~~101.~~100. The BAEF compensation sites and RSPB Greater Frampton Vision will result in the creation of two new areas in proximity to the onshore Order Limits in which lapwing, golden plover and other waterbirds will be more abundant than now and this will be considered in the assessment of effects.

22.5 Basis of Assessment

22.5.1 Data Sources

~~102.~~101. A desk-based study has been undertaken to identify and collate sources of pre-existing ecological data of relevance to the Project. The results of this study are provided in Appendix 3.22.1: Desk Study and Appendix 3.22.2: Confidential Desk Study. The sources of data included the following:

- Joint Nature Conservation Committee (JNCC) website;
- MAGIC website and Natural England's datasets at data.gov.uk;
- Greater Lincolnshire Nature Partnership (GLNP) – bird records from within 2km of the onshore Order Limits;
- Lincolnshire Wildlife Trust (LWT) – bird data held from relevant LWT Reserves;
- British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) count sectors from within 2km of the onshore Order Limits; and
- Royal Society for the Protection of Birds (RSPB) – bird records from within 500m of the onshore Order Limits.

~~103.~~102. Winter bird surveys included 'through the tide' surveys of the beach, inter-tidal and near shore area at the landfall between September 2022 and March 2023 (Year 1) and between September 2023 and April 2024 (Year 2). The surveys were carried with a frequency of ~~(~~two visits per month~~)~~. Through the tide surveys commenced at either low or high tide and continued for approximately six hours to high or low tide. These surveys are referred to as 'coastal observation point (OP) surveys'.

~~104.~~103. In addition, winter bird surveys of the onshore PEIR Boundary plus 400m buffer were completed between September 2022 and March 2023 (two visits per month). Winter bird surveys of the ECC North of the A52, which was added to the Project proposals in November 2022 following consultation, took place between November 2022 and March 2023 (two visits per month). Full details are provided in Appendix 3.22.2. The second year of winter bird surveys was carried out between September 2023 and April 2024 (two visits per month) within the Order Limits plus 400m buffer. The method involved driving and walking between observation points where birds in coastal and intertidal habitats, freshwater wetland habitats, fields and the surrounding landscape could be viewed, giving excellent coverage of the survey area. These surveys are referred to as 'winter walkover surveys'. These surveys also included the beach and intertidal area within 400m of the onshore Order Limits, although a more detailed survey of those areas was conducted by the Coastal OP Surveys.

~~105.~~104. Both survey types specifically targeted wintering waterbirds ('target species'), however, other notable species, e.g., raptors listed on Schedule 1 of the Wildlife and Countryside Act or Annex I~~1~~ of the Birds Directive, or particularly large concentrations of passerine species listed on Section 41 of the NERC Act or BoCC Red List, were also recorded ('secondary species').

~~106.~~105. Targeted surveys for breeding birds (Gilbert, Gibbons & Evans, 1998) were undertaken within a minimum of 100 m of the onshore PEIR Boundary in areas where:

- specially protected species could occur i.e. those listed on Schedule 1 of the Wildlife and Countryside Act, as amended, and those listed in Annex I~~1~~ of the EC Birds Directive;
- wetland, scrub and woodland habitats potentially supporting sensitive and declining species, such as breeding waders or notable wildfowl, and turtle dove could occur; and
- permanent above ground infrastructure will be built.

~~107.~~106. For the latter two bullet points, target species were those listed on Annex I, Schedule 1, NERC Section 41 and the BoCC Red list. Full details are provided in Appendix 3.22.4.

22.5.2 Scope of the Assessment

~~108.~~107. The following potential impacts which were scoped into the assessment at PEIR stage each remain relevant following refinement of the project design:

- Construction:
  - Impact C1: Loss and damage of habitat for bird species listed as IOFs in Table 22.6 including FLL;

- Impact C2: Killing of and/or injury to birds, nestlings or eggs and/or damage to nests (all species);
- Impact C3: Disturbance and displacement of IOFs, including those utilising FLL;
- Impact C4: Pollution of waterbodies and watercourses used by IOFs, especially via suspended solids but potentially also via spillage of vehicle fluids from construction machinery; and
- Impact C5: Air quality impacts on habitats used by IOFs.

- Operation and maintenance:
  - Impact O1: Disturbance of IOFs during planned and unplanned maintenance works when the proposed development is operational.
- Decommissioning:
  - Impact D1: Impacts are likely to be similar to construction, but more limited in geographical extent and timescale and there would be no permanent habitat loss.
- Potential Transboundary Effects:
  - Impact T1: It was noted during the PEIR assessment that potential transboundary effects would be considered following the ES stage impact assessment. Any or all of the other impacts potentially resulting in a population decline of migratory bird species, affecting populations in another country as well as England.

~~109.~~108. The assessment includes the potential for each these impact pathways to ultimately affect the integrity of SSSIs, LWS and nature reserves listed as IOFs in Table 22.6 by causing a decline in the qualifying populations of birds, where these are known, within the designated site. An assessment of the potential for adverse effects on the integrity of European sites is provided separately in the RIAA.

~~110.~~109. Details surrounding the decommissioning phase are yet to be fully clarified. In addition, it is also recognised that policy, legislation and local sensitivities evolve, which may limit the applicability of this assessment at that future time. Decommissioning activities are not anticipated to exceed the construction phase worst case, as assessed, given that Landfall and cable infrastructure is expected to be left in situ. The decommissioning methodology would be finalised nearer to the end of the lifetime of the Project, to be in line with current guidance, policy and legislation. Any such methodology would be agreed with the relevant authorities and statutory consultees. Furthermore, the DCO will include requirements for the submission of decommissioning programmes.

22.5.3 Impacts Scoped out of Assessment

~~111.~~110. Impacts were scoped out of the assessment where appropriate in line with feedback provided through the Scoping Opinion (The Planning Inspectorate, 2022), Section 42 responses and further consultation through the EPP. The assessment's scope was also based on the receiving environment and expected parameters of the Project (Volume 1, Chapter 3: Project Description), the expected scale of impact and the potential for a pathway for effect on the environment. All potential impacts scoped in at PEIR stage remain scoped into this assessment.

22.5.4 Realistic Worst-Case Scenario

~~112.~~111. Table 22.7 identifies the Maximum Design Scenario (MDS) for Onshore Ornithology in environmental terms, defined by the Project design envelope.

- The Maximum Design Envelope is outlined in Chapter 3 Project Description (document reference 6.1.3) and the following parameters are supported by the following figure that can be found in ES Volume 2:
  - Figure 3.4 Indicative Onshore Infrastructure (document reference 6.2.3.4)
    - *This figure outlines the indicative infrastructure layers as well as associated IDs that have been assigned to each infrastructure element for reference throughout this chapter and the ES. Where an ID is relevant to this figure it is presented in square brackets e.g. [PCC-1].*

~~113.~~112. The enabling accesses, while forming part of the Order Limits, will be used for a short amount of time (up to two-months) and will see no physical modification to the land surface. As such, the activities are considered to result in no change from the baseline scenario, and as such have been excluded from the assessment.

Table 22.7 Maximum design scenario for Onshore Ornithology for the Project

Potential effect	Maximum design scenario assessed	Justification
Construction		
Impact C1: Loss and damage of habitat for protected and priority bird species including FLL.	Most of the cable route will be constructed using an open cut method of cable construction. Where open cut trenching is not practicable, for example, due to significant obstructions, or to avoid a significant feature, trenchless techniques will be employed. Vegetation will be cleared from the areas proposed for open cut trenching–, temporary construction compounds, cable installation compounds, the OnSS and access tracks (Including temporary and permanent access)-. The installation of the onshore export cable is a linear construction project with an expected overall construction duration of up to 51-months in total. Enabling access tracks will not require any surface clearance or excavation, however track matting or similar may be laid to protect the ground surface during wet conditions. The potential impacts from the enabling accesses are so minor that they have been excluded from assessment. The trenchless crossing areas (without a haul road) will have no physical impact to above ground habitats. Some sections where trenchless techniques are being employed -will have a haul road running through them. The haul road will not cross rivers and main drains. Approximately 30% of the route will be installed by trenchless techniques, which reduces the footprint of land temporarily lost. Haul road would be typically 6.8m wide (and up to 9m at passing places) including verges and drainage channels (where required).	The largest area and duration of potential temporary habitat loss has been considered. Given the sequential nature of the works, it may be that some areas can be reinstated ahead of the 51-month schedule, but they cannot be determined at this stage. It is not expected that there will be any additional permanent onshore habitat loss to that described here.

Potential effect	Maximum design scenario assessed	Justification
	It is assumed for the Cable Installation Compounds (CICs) that the whole area will be stripped of vegetation. The area will include the launch/receive pits and plant and machinery will include excavators and drilling rigs. For other temporary construction compounds (SCCs and PCCs), it is also assumed that the whole area will be subject to vegetation clearance. These areas may be used for equipment and materials storage, welfare facilities and staff parking. Permanent habitat loss associated with onshore Order Limits is limited to the OnSS (including the permanent access)~~,~~, Transition Joint Bays (TJBs) and the permanent access (off Roman Bank road) at the Landfall and the Joint Bays and Link Boxes along the onshore ECC and 400kV cable corridor. Link boxes are expected to have a permanent footprint of approximately 4m^2 (one manhole type cover) per link box and as they are distributed throughout the Order Limits, will not result in a material loss of habitat for birds. There will be two manhole type covers for each TJB (circuit). The National Grid Substation (NGSS) at Weston Marsh has been considered in Section 22.9 cumulative impact assessment. For all other areas habitats that have been cleared will be reinstated on a like for like basis. Where those habitats have been identified as having important ecological functionality, they will be enhanced in line with the commitments presented within the Outline Landscape and Ecological Management Strategy (OLEMS) (document reference 8.10). For example, a hedgerow may be replaced with greater species diversity, more standard trees, and an enhanced management regime. In addition, there will be landscape planting at the new OnSS which in addition to providing a visual screen, will also provide enhanced habitat for many bird species.	

Potential effect	Maximum design scenario assessed	Justification
	~~Areas where works are not due to take place will be left undisturbed until Year 2, rather than stripping the entire corridor in Year 1. Approximately 1/3 of the ECC will remain unstripped during the winter of construction year 1.~~ Areas where works are not due to take place that year will be left un-stripped outside of the haul road (where required).	
Impact C2: Killing of and/or injury to birds.	The potential exists for nesting birds to be impacted by inadvertent injury or killing, primarily during the vegetation clearance stage but also as a result of birds nesting in short vegetation or bare ground.	It has been assumed that there is a risk of inadvertent killing or injury in all areas within the onshore Order Limits other than where impacts are avoided through use of trenchless techniques.
Impact C3: Disturbance of protected and priority bird species, including those utilising FLL.	The potential exists for bird species to be disturbed by noise and human presence. It is assumed that the construction will take place over up to 51-months and across all seasons. Chapter 6.1.3 states that *"The cable duct installation works are continuous, with each work front progressing a section at a time. In any given location, once the cable ducts have been installed, the trench will be backfilled, and the work front will continue moving onto the next section to minimise the amount of land being worked on at any one time*". Onshore construction works and construction-related traffic movements to or from the site shall typically take place between 0700 hours and 1900 hours Monday to Saturday with no activity on Sundays or bank holidays, noting the exceptions as set out in the draft DCO. Landfall installation will be undertaken from the Transition Joint Bay (TJB) site on the west side of Roman Bank. The trenchless technique that will be adopted at the landfall is HDD.	Breeding and non-breeding birds may be disturbed by the visual presence of construction staff on foot and/or plant and machinery and the noise and vibration generated by the plant/machinery.

Potential effect	Maximum design scenario assessed	Justification
	Most of the cable route will be constructed using an open cut method of cable construction. During construction of the cable trenches the topsoil will be stripped and subsoil excavated. The trenches will be excavated using a mechanical excavator, and the export cables will be installed into the open trench from a cable drum delivered to site. The remainder of the trench is then backfilled with the excavated material. The stored topsoil will then be replaced and the surrounding land reinstated back to its previous use. An earth bund will be installed at the perimeter of the open trench sections only, on both sides, approximately 1.5m in height, which will be seeded. Where an open trench approach is not possible, for example, due to significant obstructions (e.g. a major road or watercourse), trenchless techniques may be employed, such as HDD. Plant and machinery at Cable Installation Compounds will include excavators and drilling rigs. There will be six 'major' trenchless installation locations, including the landfall and The Haven crossing; the rest are classed as 'minor' drills. For the onshore substation, grading, earthworks and drainage will be undertaken initially. Foundations will then be installed which will either be ground-bearing or piled, based on the prevailing ground conditions. The proposed building substructures will be predominantly composed of steel and cladding materials although brick/block-built structures are sometimes employed. The steelwork may be erected with the use of cranes. A key aspect of the substation installation will be the delivery of the transformers, shunt reactors, dynamic reactive power compensators (e.g. static synchronous compensators), and harmonic filters. Due to their size and weight, these items will be classified as Abnormal Indivisible Loads (AILs) and delivered via specialist means and offloaded with the use of cranes, Self-	

Potential effect	Maximum design scenario assessed	Justification
	Propelled Modular Transporters (SPMTs) or skids. The majority of the remaining equipment is anticipated to be erected with the use of small mobile plant and lifting apparatus. No construction works are planned to occur on the beach or inter-tidal zone. Open trenching works will be focussed on the summer months and no trenching is expected during November to February inclusive. During October and March, soil handling works will be reduced and will only take place where ground conditions are suitable. During the winter period (November to February inclusive), works continue at trenchless installation sites and joint bays that can be accessed by temporary haul roads. Areas of silt lands, closest to the coast will be targeted for construction during the summer months, because of the nature of the soils. These areas are heavily cropped for brassicas and are closest to coastal areas.	
Impact C4: Pollution of waterbodies and watercourses affecting designated sites for bird species, especially via suspended solids but potentially also via spillage of vehicle fluids from construction machinery.	Main rivers, Internal Drainage Board (IDB) and EA maintained assets will be crossed by trenchless techniques where technically practical. It may be preferable for some smaller watercourses and drains to be crossed by open trench crossing.	MDS is as described in Chapter 24 Onshore Hydrology, Hydrogeology and Flood Risk.
Impact C5: Air quality impacts on designated sites and habitats used	Effects from air quality are largely associated with airborne pollutants caused by construction traffic and equipment. The assessment will focus on designated sites within and close to the construction zone, temporary site compounds and along	MDS is as described in Chapter 19 Onshore Air Quality.

Potential effect	Maximum design scenario assessed	Justification
by protected and priority bird species.	access roads and will consider the likely change relative to critical loads. Dust deposition impacts will also be assessed.	
Operation and Maintenance		
Impact O1: Disturbance of designated sites qualifying features, protected and priority bird species during planned and unplanned maintenance works when the proposed development is operational.	Onshore, the O&M requirements will be largely corrective, accompanied by infrequent on-site inspections of the onshore ECC. However, all onshore infrastructure will be constantly monitored remotely, and there may be O&M staff visiting the OnSS to undertake works when necessary (currently expected to be once per week). The OnSS will not be manned; and security at the substation will be provided through the use of perimeter fencing and closed-circuit television (CCTV). Periodic access to TJBs may also be required for inspection.	MDS is as described in Chapter 3 Project Description.
Decommissioning		
Impact D1: Impacts are likely to be similar to construction, but more limited in geographical extent and timescale and there would be no permanent habitat loss.	Onshore, it is expected that cable would be left in-situ to avoid adverse effects on the environment and communities. The PD chapter states *"The decommissioning process for the ECC has not been made regarding the final decommissioning policy for the onshore cables, considering that industry best practices, rules and legislation change over time"*. An onshore decommissioning plan will be developed providing further details on the decommissioning of the onshore elements of the Project in accordance with the onshore decommissioning requirement of the DCO.	MDS is as described in Chapter 3 Project Description.

22.6 Embedded Mitigation

~~114.~~113. Mitigation measures that were identified and adopted as part of the development of the Project design and are therefore 'embedded' into the Project design, ~~;~~ that are relevant to Onshore Ecology are listed in Table 22.8. General mitigation measures, which would apply to all parts of the Project, are set out first. Thereafter, mitigation measures that would apply specifically to Onshore Ornithology in relation to the works being undertaken within the onshore Order Limits are described separately.

Table 22.8 Embedded mitigation relating to Onshore Ornithology

Project phase	Mitigation measures embedded into the project design
General	
Project design	Careful siting of the onshore Order Limits to avoid direct impacts to designated sites with ornithological interest features, including SPAs, Ramsar sites, ornithological SSSIs and RSPB reserves. Where the onshore ECC unavoidably crosses LWSs and LWT reserves (which include small areas of two Annex I habitats: embryonic shifting dunes and dunes with sea buckthorn, and which may have functional linkage), trenchless techniques will be used. These sites will also be avoided by construction infrastructure such as the haul road. ~~Where the Order Limits unavoidably cross LWSs and LWT reserves, trenchless techniques will be employed.~~ Avoidance of direct impacts on key areas of sensitivity including Priority Habitats (for example coastal sand dunes and reedbeds) which may support concentrations of sensitive bird species. This includes the avoidance of the beach for construction works.
Construction	
Ecological Management Plan (EMP)	An EMP will be submitted post-consent and will be in accordance with the OLEMS. This will include measures to protect nesting birds including the following. Removal of vegetation will take place outside of the breeding season (considered to be March – August inclusive) wherever possible. Where that is not possible in discrete areas, a check for the presence of nesting birds by the EcoW will take place in advance of work. Where active nests are located, the relevant areas of vegetation will be retained until such time as young fully fledge, or the nesting attempt has ended.
Habitat reinstatement	Habitats removed during construction will be reinstated as soon as practicable upon completion of works. Reinstatement of temporarily impacted land to its previous use/quality so far as reasonably practicable, excluding any permanent above ground infrastructure. To minimise the impact to soil quality/agricultural practices, soils would be managed and restored in line with the Final Soil Management Plan (SMP) which must be

Project phase	Mitigation measures embedded into the project design
	in accordance with the Outline SMP (document reference 8.1.4) submitted alongside this ES as part of the Outline Code of Construction Practice (CoCP) (Document reference 8.1). The submission of a CoCP which must include a Soil Management Plan (in accordance with the Outline Soil Management Plan) is secured by the code of construction practice requirement of the DCO. For skylark and yellow wagtail breeding in arable fields, these fields will be returned to their previous land use and quality. Therefore, any effect on their populations will be temporary.
Minimising disturbance to non-breeding waterbirds and breeding Schedule 1 birds within Anderby Marsh and Wolla Bank Reedbed LWT Reserve	The landfall construction area will be set back a minimum of 80m from the Anderby Marsh LWT Reserve. A 4m high earth bund will be constructed on three sides surrounding HDD works area to screen works from Anderby Marsh (additional to the existing Roman Bank landscape feature). This is illustrated in Plate 26.3 of Appendix 26.4 (Document Reference 6.3.26.4). At the conclusion of the construction phase, the earth bund will be removed. During its presence, however, it will be seeded with a mix of wildflower seeds. The 4m high earth bund will also provide a screen to Wolla Bank Reedbed LWT Reserve which is located approximately 200m to the south-east of the construction compound. ~~The landfall construction area will be set back a minimum of 80m from the Anderby Marsh LWT Reserve. A 4m high earth bund will be constructed on three sides surrounding HDD works area to screen works from Anderby Marsh (additional to the existing Roman Bank landscape feature). This is illustrated in Plate 26.3 of Appendix 26.4 (Document Reference 6.3.26.4).~~
Minimising disturbance to non-breeding waterbirds using FLL	There will be a perimeter subsoil and topsoil bund, of approximately 1.5m height, at either side of the open trenched sections which will provide a degree of visual and acoustic screening between those works and the surrounding landscape. This is shown in Plate 7.2 of Chapter 3 (Document Reference 6.1.3). No impact piling will be used for trenchless crossings; rotary/ silent piling will be utilised at the landfall HDD, with vibratory sheet piling at the CICs to facilitate the trenchless crossings along the onshore ECC and 400kV cable corridor where required.
Pollution prevention	A range of embedded pollution prevention mitigation measures are detailed in Table 2~~4~~3.19 of Chapter ~~24~~ 23 Geology and Ground Conditions (document reference 6.1.~~24~~23).

Project phase	Mitigation measures embedded into the project design
	All construction work will be managed in line with the Pollution Prevention and Emergency Response Plan (PPREIRP) to be drafted in line with the Outline PPREIRP (document refence 8.1.4) as included in the Outline CoCP (document reference 8.1). The submission of a CoCP which must include a PPREIRP (in accordance with the Outline Soil Management Plan) is secured by the code of construction practice requirement of the DCO.
Operation and Maintenance	
General	Operational practices will incorporate measures to prevent pollution and increased flood risk, including emergency spill response procedures, clean up and control of any potentially contaminated surface water runoff. These measures will be included within an Environmental Management Plan (EMP). The ~~nMP~~ EMP will include specific measures to avoid potential impact to protected or notable species or sensitive habitats. Where unplanned operational or maintenance works are required, appropriate mitigation measures would be developed and agreed with relevant consultees prior to works taking place.
Decommissioning	
General	Decommissioning practices will incorporate measures similar to the construction phase. Provision of a decommissioning plan in advance of decommissioning works is a requirement of the DCO, to include protection of ornithological features, based on up-to-date survey information and relevant guidance in place at the time of decommissioning.

22.7 Assessment Methodology

~~115.~~114. The ecological evaluation and impact assessment approach used in this report is based on CIEEM Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland ('CIEEM Guidelines') (CIEEM, 2018, updated in April 2022), which are widely regarded as industry best practice.

22.7.1 Mitigation Hierarchy

~~116.~~115. Where likely significant effects have been identified, the mitigation hierarchy has been applied, as stipulated in the NPSs. The mitigation hierarchy sets out a sequential approach beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied, residual effects are then identified along with any necessary compensation measures, and incorporation of proposals for a net gain in biodiversity.

~~117.~~116. It is important for the EcIA to clearly differentiate between avoidance, mitigation, compensation, and enhancement. These terms are defined here as follows:

- **Avoidance** is used where an impact has been avoided e.g., through changes in the Project design;
- **Mitigation**, or minimisation, is used to refer to measures to reduce or remedy a specific negative impact *in situ*;
- **Compensation** describes measures taken to offset residual effects, i.e., where mitigation *in situ* is not possible; and,
- **Enhancement** is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

22.7.2 Impact Assessment

~~118.~~117. The impact assessment process involves the following steps:

- Identifying and characterising potential impacts;
- Incorporating measures to avoid and mitigate (reduce) those impacts;
- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects (if required); and,
- Identifying opportunities for ecological enhancement and demonstrating net gain.

~~119.~~118. When describing impacts, reference has been made to the following characteristics, as appropriate:

- Beneficial, negligible or adverse;
- Extent;
- Magnitude;
- Duration (short term <5 years, mid-term 5-10 years, long term >10 years);
- Timing;
- Frequency; and,
- Reversibility.

~~120.~~119. The impact assessment process has considered both direct and indirect impacts:

- Direct ecological impacts are changes that are directly attributable to a defined action, e.g., the physical loss of habitat occupied by an important bird species during the construction process.
- Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process or features, e.g., the interruption of watercourses which cause hydrological changes, which, in the absence of mitigation, could lead to the drying out of downstream habitats used by important bird species.

22.7.3 Significant Effects

~~121.~~120. The concept of ecological significance is addressed in paragraphs 5.24 through to 5.28 of the CIEEM Guidelines and Annex A of BS42020 (BSI Standards Publication, 2013). Significance is a concept related to the weight that should be attached to effects when decisions are made. Effects can be considered significant if they contravene legislation or policy protection or have an appreciable effect on the conservation status of an important ecological feature. This considered whether the project will cause a noticeable change in the population size or distribution of the species, taking into account its current population and distribution and whether the species is already declining/contracting or increasing/expanding.

~~122.~~121. It is acknowledged that the wider project EIA has adopted a matrix-based approach to determining significance of effects, which differs from the approach set out in the CIEEM EcIA guidelines and followed by this chapter.

22.7.4 Assumptions and Limitations

~~123. The assessment has been based on survey data from a single non-breeding bird season (winter 2022-23)~~

~~124. Surveys are on-going for a second season of non-breeding bird surveys, in accordance with survey guidelines. A summary of the available second season data from 12 of the 14 visits, September to late February, have been presented in Appendix 22.7. As detailed in that appendix, the season two summary results do not change the mitigation requirements or conclusions of residual effects for those species utilising functionally linked land, specifically dark-bellied brent goose, pink-footed goose, lapwing, golden plover and curlew, presented in this chapter. The surveys will be completed in April 2024 and, as requested by Natural England, presented in full shortly thereafter as supplementary information, along with a review and update of the impact assessment for non-breeding birds.~~

~~125.~~122. The ~~first year of~~ non-breeding surveys were undertaken on a twice-monthly basis in order to collect a large data sample and characterise distribution and abundance as fully as practicable. Nevertheless, the assessment for non-breeding birds has taken a precautionary approach, building in additional mitigation where there is uncertainty. Additionally, non-breeding bird data from Year 1 ~~has~~ have been collected over a much wider area than the potential impact zone around the onshore Order Limits, given that the survey area was based on the wider PEIR boundary which included now de-selected route options at Lincolnshire Node and a route south of the A52. Data from those areas provides an indication of the relative importance of the land within the onshore Order Limits and associated impact buffers.

~~126.~~123. ~~For~~ In the first winter bird survey (2022-23), a very small proportion of the Order Limits plus 400m buffer survey area was not covered ~~in winter 2022-23~~ due to changes in the Order Limits, as shown in Figure 22.2.1 of Appendix 22.3. This relates to the primary construction compound near Wyberton and The Welland crossing between the OnSS and NGSS. Both of these features will be located further away from The Wash Estuary than the adjoining segments of the ECC which were surveyed. The ~~, and the~~ utilisation by wintering birds of these areas ~~areas is unlikely to differ from the nearby segment of ECC which have been~~was surveyed in the second winter bird survey in 2023-24.~~. Data from those areas has therefore been extrapolated when considering potential impacts in the area of the 400kV route. 620~~

~~127.~~124. For breeding bird survey, a small proportion of the Core Survey Area has not been covered during the surveys due to changes to the Order Limits, as shown in Figure 22.3.1 of Appendix 22.3. This also relates to the Wyberton compound and the Welland crossing between the OnSS and NGSS. The Wyberton compound is arable land only and therefore did not meet the habitat survey requirements and therefore was not included in the breeding bird survey footprint. For the Welland crossing, a long section of the Welland down-river of the crossing was included in the breeding bird survey, contains very similar habitats and is likely to support a similar breeding bird assemblage. However, for the majority of the Survey Area the ground covered a larger buffer than 100m from the Order Limits, including the Lincolnshire Node Onshore Substation and the ECC route south of the A52, which have since been deselected from the Project.

22.8 Impact Assessment & Mitigation

22.8.1 Construction

125. This section presents the assessment of impacts to the important ornithological features identified arising from the construction phase of the Project, through reference to the MDS presented in Table 22.7 and assuming that all of the embedded mitigation measures set out in Table 22.8 are implemented. Part 7, Chapter 7.1: RIAA presents the assessment of adverse effects on the integrity of European and Ramsar sites and Chapter 21: Onshore Ecology describes the likely significant effects on the non-avian aspects of SSSIs, LWSs and nature reserves.

22.8.1.1 Impact C1: Loss and damage of habitat for protected and priority bird species including FLL

~~128.~~126. As outlined in Table 22.7, permanent habitat loss will be limited to the footprint of the OnSS, the permanent accesses located at the OnSS and landfall, plus small access hatches at the TJBs and link boxes (small manhole covers~~-~~).

~~129.~~127. Temporary habitat loss will occur for a maximum period of 51-months, before like for like reinstatement of habitats. The area subject to clearance is illustrated in Volume 2, Figure 3.4 (document reference 6.2.3.4) and includes the open trenched sections, Cable Installation Compound sections, temporary construction compounds, construction accesses and haul road.

~~130.~~128. There will be no permanent or temporary habitat loss at the beach, or inland between MHWS and the landfall compound.

~~131.~~129. Embedded mitigation includes the use of trenchless techniques such that in those areas as illustrated in Volume 2, Figure 3.4 (document reference 6.2.3.4), where they exclude the haul road, there will be no damage to the existing habitats. Avoidance of impacts through the use of trenchless techniques includes all LWS and LWT Reserves within the onshore Order Limits, including the main hotspot for birds at Anderby Marsh, as well as The Haven River. Additional embedded mitigation includes routeing of the ECC to avoid SPA, Ramsar, SSSI and RSPB Reserve designated areas.

Species restricted to areas in which habitats will be retained

~~132.~~130. Species which were recorded only from the near-shore, intertidal, beach, coastal dunes, Anderby Marsh or The Haven include: common scoter, cuckoo, avocet, grey plover, little ringed plover, ruff, sanderling, dunlin, red-throated diver, great northern diver, bittern, bearded tit, Cetti's warbler and marsh warbler. These habitats will not be subjected to vegetation clearance or direct habitat loss, noting that this chapter considers impacts from works occurring landward of MHWS only. It is, therefore, concluded that the impact of habitat loss on these species will be avoided or negligible and **not significant**.

Qualifying features from European sites utilising functionally linked land

Dark-bellied brent goose

~~133.~~131. There were no records of dark-bellied brent goose from the ~~2022-23~~ winter bird surveys in the vicinity of the OnSS and, therefore, no potential for permanent habitat loss (no significant effect).

132. The only observations of this species in Year 1 from within the onshore Order Limits were from The Haven and adjacent fields. The peak flock count for the survey area of 1,100 was from a field close to The Haven but outwith the onshore Order Limits. Flocks were recorded using the two arable fields immediately adjacent to the east and west sides of the river crossing, with a peak of 109 and 67 birds respectively. These were the only two locations which will be subject to temporary habitat loss which were recorded as utilised by this species within the onshore Order Limits. Records of this species from within the Year 1 winter walkover survey area were clustered at The Haven and adjacent fields, likely because this is the closest point of the ECC to the SPA boundary.

133. In Year 2, 24 observations were recorded across 12 visits predominantly in ECC 10 and 11 with a peak flock count of 650 individuals outwith the Order Limits. Distribution in Year 2 consisted of flocks clustered around The Haven crossing area, which is similar to Year 1. Only two records were made within ECC 11 (peak count of 180 and peak count of 250) within the trenchless section crossing The Haven. A flock of 600 was noted in ECC 10 in season two. This was a single observation in December, with birds feeding and loafing across two winter cereal fields. The flock was located in an area between approximately 120m and 500m from the Order Limits. A single observation of a flock of 88 was recorded in ECC 12, from a field located between approximately 370m and 1.1km from the Order Limits (excluding enabling access tracks).

134. Dark-bellied brent geese were recorded most frequently on land classed as not farmland (13 registrations, a total of 1,580 birds); however, most birds were recorded on cereal crops (nine registrations, a total of 1,839 birds) (Volume 3, Appendix 22.8). Wheat and grass are the first and the third most common crop types within the Order Limits plus 400m with an estimated coverage of 2,915 ha and 700 ha respectively. These crops are evenly distributed along the Order Limits plus 400m. These crops were also most common within sample crop polygons with an average coverage of 14,141 ha and 12,251 ha respectively for 2019, 2020, and 2021 (Appendix 22.8).

~~134.~~135. The Haven itself will be avoided through the use of trenchless techniques and, therefore, there will be no loss of riparian, saltmarsh or other intertidal habitats. The peak flock count from those riparian habitats was 650 birds.

~~135. Flocks were recorded using the two arable fields immediately adjacent to the east and west sides of the river crossing, with a peak of 109 and 67 birds respectively. These were the only two locations which will be subject to temporary habitat loss which were recorded as utilised by this species within the onshore Order Limits. Records of this species from within the winter walkover survey area were clustered at The Haven and adjacent fields, likely because this is the closest point of the ECC to the SPA boundary.~~

136. The GB dark-bellied brent goose winter population is estimated at 135,000 and has declined by 4% between 1995/96 to 2020/21 (in UK) although distribution has expanded by 69.3% (Woodward *et al*. 2020 and Austin *et al*., 2023, from BTO BirdFacts). The species status in Lincolnshire is described as *"three distinct races occur. Nominate Dark-bellied Brent is a very common coastal winter visitor September-May, mainly to The Wash and outer Humber. Scarce but regular in summer, especially on The Wash"* (Lincs Bird Club). The peak flock count of 109 from a land parcel which will be subject to habitat loss (the peak count from the wider survey area was 1,100) represents approximately 0.08% of the GB winter population and a small proportion of the Lincolnshire population.

137. The cable installation compounds will be set back from the river edge by approximately 100m, and the width of the ECC corridor is such that only part of each field will be occupied. The area of temporary habitat loss for this species is, therefore, very small (0.05km^2 from arable recorded as utilised by this species from within 1km of The Wash). The temporary loss of 0.05km^2 of arable field habitat, which is common in proximity to the estuary, would result in **no significant effect** on dark-bellied brent goose.

Pink-footed goose

138. There were no records of pink-footed goose from the ~~2022-23~~ winter bird surveys in the vicinity of the OnSS and, therefore, no potential for permanent habitat loss (no significant effect).

139. In Year 1, ~~P~~pink-footed goose was recorded from within the onshore Order Limits, specifically areas which will be subject to temporary habitat loss, from the following locations:

- Peak flock count of 21 in arable field in ECC 3. The area of habitat loss comprises approximately 20% of the field area.
- Peak flock count of 34 in arable field in ECC 4. The area of habitat loss comprises approximately 20% of the field area.
- Peak flock count of 4 from ECC 5. The area of habitat loss comprises approximately 10% of the field area.
- Peak flock count of 6 from ECC 7. The area of habitat loss comprises approximately 40% of the field area.
- Peak flock count of 12 from ECC 7. The area of habitat loss comprises approximately 30% of the field area.

- Peak flock count of 43 from ECC 9. The area of habitat loss comprises approximately 20% of the field area.
- Peak flock count of 67 from ECC 11. The area of habitat loss comprises approximately 30% of the field area.

140. In Year 2, pink-footed goose was recorded from within the Order Limits, specifically areas which will be subject to temporary habitat loss, from the following locations:

- Peak flock count of 12 in arable field in ECC 1. The area of temporary habitat loss comprises approximately 20% of the field area.
- Peak flock count of 450 in arable field in ECC 2. The area of temporary habitat loss comprises approximately 5% of the field area.
- Peak flock count of 23 in arable field from ECC 4. The area of temporary habitat loss comprises approximately 5% of the field area.
- Peak flock count of 93 in arable field from ECC 5. The area of temporary habitat loss comprises approximately 25% of the field area.
- Peak flock count of 1,100 in arable field from ECC 7. The area of temporary habitat loss comprises approximately 10% of the field area.
- Peak flock count of 6 in arable field from ECC 7. The area of temporary habitat loss comprises approximately 20% of the field area.
- Peak flock count of 900 in arable field from ECC 8. The area of temporary habitat loss comprises approximately 15% of the field area.
- Peak flock count of 800 in arable field from ECC 8. The area of temporary habitat loss comprises approximately 25% of the field area.
- Peak flock count of 5,000 in arable field from ECC 10. The area of temporary habitat loss comprises approximately 40% of the field area.

~~140.~~141. The GB pink-footed goose winter population is estimated at 510,000 and has increased by 104% between 1995/96 to 2020/21 (in UK) and distribution has expanded by 94.6% (Woodward *et al*. 2020 and Austin *et al*., 2023, from BTO BirdFacts). The species status in Lincolnshire is described as *"a very common winter visitor during Sep-Apr, mainly to the Humber and The Wash, but there are many coastal and inland movements. A few injured birds remain in summer"* (Lincs Bird Club). The peak flock count from a land parcel which will be subject to habitat loss of ~~67~~ 5000 represents approximately 0.~~01~~98% of the GB winter population and likely ~~a small proportion~~>1% of the Lincolnshire population.

142. In total, pink-footed geese were recorded from ~~seven~~ 16 of the fields within the onshore Order Limits which will be subject to temporary habitat loss. These were all arable fields. Pink-footed geese feed on a range of agricultural crops and grassland, and will commute large distances to foraging grounds, typically up to 20km. In Year 2 of the winter walkover surveys, the majority of pink-footed geese were recorded on bare earth/ ploughed fields (five registrations of a total of 8,122 bird records), followed by stubbles (eight registrations, a total of 2,269), grass (four registrations, a total of 2,157) and cereal crops (five registrations, a total of 1,743) (Appendix 22.8~~9~~).

Given the increasing population, the availability of alternative foraging habitat, the small scale of habitat loss relative to the foraging range and the temporary nature of the loss, there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect** on pink-footed goose due to temporary habitat loss.

Gadwall

~~141.~~143. There were no records of gadwall from the ~~2022-23~~ winter bird surveys of the OnSS and, therefore, no potential for permanent habitat loss (no significant effect).

~~142.~~144. The GB gadwall winter population is estimated at 31,000 and has increased by 73% between 1995/96 to 2020/21 (in UK) although distribution has expanded by 90.3% (Woodward *et al*. 2020 and Austin *et al*., 2023, from BTO BirdFacts). The species status in Lincolnshire is described as *"fairly common though localised breeding species and winter visitor. Numbers have increased since the 1980s"* (Lincs Bird Club).

~~143.~~145. The peak flock count of ~~87~~ 165 was recorded at Anderby Marsh and that location will be avoided through the use of trenchless techniques. Otherwise, records of this species from within the onshore Order Limits were limited to a peak flock count of two on the Steeping River and a peak flock of seven at the Haven crossing, and ~~that~~ these locations will also be avoided through trenchless techniques. Given that none of the areas to be subject to temporary habitat loss were recorded in use by gadwall, it is concluded that there would be **no significant effect**.

Wigeon

~~144.~~146. There were no records of wigeon from the ~~2022-23~~ winter bird surveys (and no suitable habitat) in the vicinity of the OnSS and, therefore, no potential for permanent habitat loss (no significant effect).

~~145.~~147. The GB wigeon winter population is estimated at 450,000 and has declined by 11% between 1995/96 to 2020/21 (in UK) although distribution has expanded by 25.4% (Woodward *et al*. 2020 and Austin *et al*., 2023, from BTO BirdFacts). The species status in Lincolnshire is described as *"common or very common winter visitor and passage migrant, especially to The Wash and the Humber. Scarce in summer, and occasionally suspected of breeding. Rare Breeding Birds Panel (RBBP)."* (Lincs Bird Club).

148. The peak flock counts of 460 (Year 1) and 400 (Year 2) ~~was~~ were recorded at Anderby Marsh and that location will be avoided through the use of trenchless techniques. Otherwise, records of this species in Year 1 from within the onshore Order Limits were limited to a peak flock count of 117 (a single observation during the survey period, in February) in an arable field in segment ECC 5 and a peak flock count of 110 (in Year 2) from a pond 300m west of the ECC in segment ECC 4 (there were a small number of additional records from fields overlapping with the 400m buffer zone). The species is common in coastal areas in the county, so will utilise numerous arable fields in the wider area. Wigeon is a dabbling duck species, feeding on plant material at wetlands as well as feeding inland on grassland and arable land. The cable will be open trenched through ~~that~~ the relevant field in ECC5, however, less than 50% of the field will be subject to habitat loss. Given that only a single arable field of the areas to be subject to temporary habitat loss was recorded in use by wigeon, it is concluded that there would be **no significant effect.**

Lapwing

~~146.~~149. There were no records of lapwing from the ~~2022-23~~ winter bird surveys in the vicinity of the OnSS and, therefore, no potential for permanent habitat loss (no significant effect).

~~147.~~150. In Year 1, ~~L~~lapwing (>10 individuals) was recorded from within the onshore order limits, specifically areas which will be subject to temporary habitat loss, from the following locations:

- Peak flock count of 11 in arable field in ECC 1. The area of habitat loss comprises approximately 10% of the field area.
- Peak flock count of 29 in arable field in ECC 3 (c. 10% loss).
- Peak flock count of 130 in arable field in ECC 3 (c. 40% loss).
- Peak flock count of 43 in arable field in ECC 5 (c. 10% loss).
- Peak flock count of 35 in arable field in ECC 6. The area of habitat loss comprises an access track only along one edge of the field.
- Peak flock count of 27 in arable field in ECC 6 (c. 30% loss).
- Peak flock count of 60 in arable field in ECC 6 (c. 10% loss, from the corner of the field). A flock of 2,500 was recorded just outside the 400m buffer in this locality.
- Peak flock count of 34 in arable field in ECC 6 (c. 30% loss).
- Peak flock count of 121 in arable field in ECC 7(c. 20% loss).
- Peak flock count of 34 in arable field in ECC 7 (c. 10% loss).
- Peak flock count of 32 in arable field in ECC 7(c. 30% loss).
- Peak flock count of 55 in arable field in ECC 8(c. 10% loss, from the edge of the field).
- Peak flock count of 50 in arable field in ECC 8(c. 30% loss).

- Peak flock count of 42 in arable field in ECC 8 (c. 20% loss, from the edge of the field).
- Peak flock count of 40 in arable field in ECC 9 (c. 20% loss).
- Peak flock count of 232 in arable field in ECC 9 (c. 30% loss).
- Peak flock count of 36 in arable field in ECC 9 (c. 50% loss).
- Peak flock count of 13 in arable field in ECC 9 (c. 10% loss).
- Peak flock count of 48 in arable field in ECC 10 (c. 20% loss).
- Peak flock count of 16 in arable field in ECC 11 (c. 20% loss).
- Peak flock count of 41 in arable field in ECC 12 (c. 30% loss).
- Peak flock count of 13 in arable field in ECC 12 (c. 40% loss).
- Peak flock count of 26 in arable field in ECC 13. The proposal is for an access track only, however, it will follow an existing well defined track so habitat loss will be negligible.

151. In Year 2, lapwing (>10 individuals) was recorded from within the onshore order limits, specifically areas which will be subject to temporary habitat loss, from the following locations:

- Peak flock count of 41 in arable field in ECC 2. The area of temporary habitat loss comprises approximately 20% of the field area.
- Peak flock count of 400 in arable field in ECC 2 (c. 10% temporary loss).
- Peak flock count of 250 in arable field in ECC 2 (c. 20% temporary loss).
- Peak flock count of 150 in arable field in ECC 2 (c. 15% temporary loss)
- Peak flock count of 40 in arable field in ECC 3 (c. 20% temporary loss).
- Peak flock count of 1,500 in arable field in ECC 3 (c. 30% temporary loss).
- Peak flock count of 200 in arable field in ECC 3 (c. 10% temporary loss).
- Peak flock count of 300 in arable field in ECC 3 (c. 25% temporary loss).
- Peak flock count of 24 in arable field in ECC 4 (c. 25% temporary loss).
- Peak flock count of 126 in arable field in ECC 5 (c. 25% temporary loss).
- Peak flock count of 300 in arable field in ECC 5 (c. 40% temporary loss).
- Peak flock count of 80 in arable field in ECC 5 (c. 40% temporary loss).
- Peak flock count of 26 in arable field in ECC 5 (c. 10% temporary loss).
- Peak flock count of 23 in arable field in ECC 6 (c. 25% temporary loss).
- Peak flock count of 64 in arable field in ECC 7 (c. 15% temporary loss).
- Peak flock count of 2,000 in arable field in ECC 7 (c. 40% temporary loss).
- Peak flock count of 62 in arable field in ECC 7 (c. 40% temporary loss).
- Peak flock count of 1,200 in arable field in ECC 7 (c. 10% temporary loss).

- Peak flock count of 164 in arable field in ECC 8 (c. 25% temporary loss).
- Peak flock count of 85 in arable field in ECC 8 (c. 10% temporary loss).
- Peak flock count of 24 in arable field in ECC 8 (c. 5% temporary loss).
- Peak flock count of 40 in arable field in ECC 8 (c. 10% temporary loss).
- Peak flock count of 54 in arable field in ECC 9 (c. 10% temporary loss).
- Peak flock count of 45 in arable field in ECC 9 (c. 30% temporary loss).
- Peak flock count of 80 in arable field in ECC 9 (c. 25% temporary loss).
- Peak flock count of 100 in arable field in ECC 10 (c. 15% temporary loss).
- Peak flock count of 77 in arable field in ECC 10 (c. 10% temporary loss).
- Peak flock count of 200 in arable field in ECC 11 (c. 10% temporary loss).
- Peak flock count of 400 in arable field in ECC 11 (c. 15% temporary loss).
- Peak flock count of 68 in arable field in ECC 12 (c. 20% temporary loss).
- Peak flock count of 29 in arable field in ECC 12 (c. 20% temporary loss).
- Peak flock count of 31 in arable field in ECC 13 (c. 30% temporary loss).
- Peak flock count of 53 in arable field in ECC 13 (c. 10% temporary loss).
- Peak flock count of 11 in arable field in ECC 13 (c. 30% temporary loss).
- Peak flock count of 60 in arable field in ECC 14 (c. 10% temporary loss).

152. In addition, the following records were obtained from the Connection Area:

- Peak flock count of 37 in arable field in ECC 14 within the Connection Area (the area of habitat loss will depend on the final location of the substation).
- Peak flock count of 153 in arable field in ECC 14 (within the Connection Area (the area of temporary habitat loss will depend on the final location of the substation).

~~148.~~153. The population of non-breeding lapwing of The Wash Ramsar is in unfavourable condition and the numbers have significantly declined from a citation population of 46,422 to the most recent WeBS estimate of 12,976. The GB lapwing winter population has declined by 47% between 1995/96 to 2020/21 although distribution has not changed significantly (Austin *et al*., 2023, from BTO BirdFacts). The GB breeding population has declined by 59% between 1967 and 2020 and undergone an 18.6% contraction in distribution (BTO BirdFacts). The UK winter population is estimated to be 635,000 (2006-07) and the breeding population 98,000 pairs (2016) (Woodward *et al*., 2020 from BTO BirdFacts). The species is described as *"common but declining breeding species, and very common passage migrant and winter visitor"* in Lincolnshire (Lincs Bird Club). The peak flock count of ~~232~~ 2000 from a land parcel which will be subject to temporary habitat loss represents approximately 0.31~~04~~% of the UK winter population and potentially >1% of the Lincolnshire population, however, the majority of the peak flock counts were substantially lower than ~~232~~2000.

~~149.~~154. A review of the winter ecology of lapwings and golden plover (Gillings & Fuller, 1999) identified the following aspects of their feeding ecology and habitat preferences. Both lapwing and golden plover consume invertebrate prey at and below the soil surface, utilising grassland and arable fields. On cultivated land, the species are known to use bare till, particularly shortly after ploughing, as well as winter cereals and stubbles. Some studies have indicated a preference for grassland over arable, particularly permanent pastures with higher earthworm density, and particularly in mid to late winter perhaps as the soil may be more protected from frost (Gillings & Fuller, 1999). In arable dominated regions, they have been found to persist feeding on cropland throughout the winter. Structural aspects of fields are also important, with a general preference for larger fields, those without tall boundary features and with well-drained soils. They will, therefore, utilise a range of arable field habitats, which aligns with their recorded widespread distribution during ECC walkover surveys.

~~150.~~155. Gillings & Fuller (1999) state that "*The switch to grassland does not occur in all areas. In Norfolk, where grassland occurs at low density, Golden Plovers and Lapwings did not switch to grassland even during cold weather. They persisted feeding on sugar beet stubbles, short autumn cereals, and bare till throughout the winter until departing for breeding grounds in March (S. Gillings unpubl.)".*

~~151.~~156. Lapwing is widespread across the survey area and as is shown from the bullet point list in paragraphs 150 and 151, all aggregations were from arable fields. It is also clear from the list that even for those fields affected, generally <40% of the field area will be temporarily lost, due to the narrow width of the ECC (potential disturbance displacement is assessed separately). The area to be temporarily lost is small relative to the non-breeding foraging range of the species.

~~152.~~157. Arable farming is the dominant land use in the region and arable field habitat is common in the area surrounding the ECC. BTO state that *"there is good evidence that declines have resulted from habitat loss and degradation due to changes in agricultural practice, in particular change from spring to autumn sowing, drainage of grasslands and loss of mixed farmland, which have led to breeding productivity dropping below a sustainable level. Chick mortality is thought to be the main determinant of poor Lapwing productivity, and therefore of population decline"* (BTO BirdFacts, 2023). One study shows that the population size has been limited by breeding success and not the availability of over-winter arable farmland habitat (Sheldon *et al*., 2004). This suggests that temporary loss of arable habitat to the Project would not have an appreciable impact on the lapwing non-breeding population.

~~153.~~158. Given that habitat loss will be temporary, short-term, impacting generally <40% of the field area where the ECC overlaps with land utilised by lapwing and that loss for this species will be limited to arable land only which is common in the local area and not a causal factor for declines in the wintering population, there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect** on non-breeding lapwing is predicted.

~~154.~~159. Two breeding lapwing pairs were identified, both from Anderby Marsh. The requirement for surveys for breeding lapwing from agricultural fields along the route of the ECC, with the exception of areas of permanent infrastructure, was not necessary on the basis of the temporary nature of impact and low quality of the habitat, with the survey scope agreed with Natural England. Given that Anderby Marsh will be avoided through the use of trenchless crossing, the absence of breeding records from the OnSS, and the temporary nature of the impact, **no significant effect** on breeding lapwing is predicted.

Golden plover

~~155.~~160. There were no records of golden plover from the ~~2022-23~~ winter bird surveys in the vicinity of the OnSS and, therefore, no potential for permanent habitat loss (no significant effect).

~~156.~~161. In Year 1, ~~G~~golden plover (>10 individuals) was recorded from within the onshore Order Limits, specifically areas which will be subject to temporary habitat loss, from the following locations:

- Peak flock count of 23 in arable field in ECC 1 (c.20% loss).
- Peak flock count of 31 in arable field in ECC 1 – Landfall compound (c. 70% loss).
- Peak flock count of 11 in arable field in ECC 2. (c. 50% loss).
- Peak flock count of 64 in arable field in ECC 3 (c.50% loss).
- Peak flock count of 35 in arable field in ECC 6 (c.30% loss).
- Peak flock count of 250 in arable field in ECC 6 (c. 10% loss, from the corner of the field). A flock of 950 was recorded just beyond the 400m buffer in this locality.

- Peak flock count of 36 in arable field in ECC 7 (c. 20% loss).
- Peak flock count of 26 in arable field in ECC 7 (c. 10% loss).
- Peak flock count of 11 in arable field in ECC 9 (c. 50% loss).
- Peak flock count of 73 in arable field in ECC 9 (c. 30% loss).
- Peak flock count of 87 in arable field in ECC 9 (c. 60% loss).
- Peak flock count of 19 in arable field in ECC 12 (c. 40% loss).

162. In Year 2, golden plover (>10 individuals) was recorded from within the onshore Order Limits, specifically areas which will be subject to temporary habitat loss, from the following locations:

- Peak flock count of 52 in arable field in ECC 1 (c. 10% temporary loss).
- Peak flock count of 105 in arable field in ECC 3 (c. 20% temporary loss).
- Peak flock count of 120 in arable field in ECC 5 (c. 40% temporary loss).
- Peak flock count of 17 in arable field in ECC 6 (c. 15% temporary loss).
- Peak flock count of 57 in arable field in ECC 6 (c. 35% temporary loss).
- Peak flock count of 1,000 in arable field in ECC 6 (c. 15% temporary loss).
- Peak flock count of 14 in arable field in ECC 8 (c. 40% temporary loss).
- Peak flock count of 72 in arable field in ECC 8 (c. 25% temporary loss).
- Peak flock count of 102 in arable field in ECC 9 (c. 20% temporary loss).
- Peak flock count of 150 in arable field in ECC 10 (c. 10% temporary loss).
- Peak flock count of 114 in arable field in ECC 10 (c. 10% temporary loss).
- Peak flock count of 27 in arable field in ECC 13 (c. 40% temporary loss).

~~157.~~163. Golden plover is a non-breeding qualifying feature of Humber Estuary SPA and Ramsar and The Wash Ramsar. The Wash Ramsar population has a restore objective and the population has declined from 22,033 at citation to 15,212 at the latest BTO WeBS count (2015/16-19/20). The Humber SPA and Ramsar populations have maintain objectives, with the population increasing from 30,709 at citation to 31,237 at the latest BTO WeBS count (2015/16-19/20). The GB golden plover winter population has declined by 14% between 1995/96 to 2020/21 although distribution has expanded by 18.5% (Austin *et al.*, 2023, from BTO BirdFacts). The GB breeding population is stable but undergone a 20.9% contraction in distribution (BTO BirdFacts). The UK winter population is estimated to be 410,000 (2006-07) and the breeding population 33,000 pairs (2016) (Woodward *et al.*, 2020 from BTO BirdFacts). The species is described as a *"very common passage migrant and winter visitor, occasional in summer"* in Lincolnshire (Lincs Bird Club). The peak flock count of ~~250~~ 1000 represents approximately 0.~~06~~24% of the UK winter population, and potentially >1% of the Lincolnshire population, however, the majority of the peak flock counts were ~~substantially~~ lower than ~~250~~1000.

~~158.~~164. BTO states that the causes of population changes are unclear (BTO BirdFacts, 2023). The winter population is, however, increasing in Europe and undergoing an eastwards range shift, potentially due to climate change, indicating that otherwise suitable habitat has been vacated in GB and, therefore, winter habitat availability would not be a limited resource in GB (Birdlife International, 2024).

~~159.~~165. Habitat loss will be temporary, short-term, impacting generally 50% or less of the field area where the ECC overlaps with land utilised by golden plover and that loss for this species will be limited to arable land only which is common in the local area and not a causal factor for declines in the wintering population. It is therefore concluded that there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect** on golden plover due to temporary habitat loss.

Curlew

~~160.~~166. There were no records of curlew from the ~~2022-23~~ winter bird surveys in the vicinity of the OnSS and, therefore, no potential for permanent habitat loss (no significant effect). There were no records of breeding curlew from the 2023 breeding bird surveys.

~~161.~~167. In Year 1, ~~C~~curlew (>10 individuals) was recorded from within the onshore Order Limits, specifically areas which will be subject to temporary habitat loss, from the following locations:

- Peak flock count of 13 in pasture field in ECC 5. Trenchless techniques are planned in this area so habitat loss would be limited to the haul road only across one corner of the field.
- Peak flock count of 11 in arable field in ECC 5 (c. 40% loss).
- Peak flock count of 28 in a small arable field in ECC 7 (c. 80% loss).
- Peak flock count of 25 in ECC 7 (c. 30% loss).
- Peak flock count of 28 in arable field in ECC 8 (c. 30% loss).
- Peak flock count of 29 in arable field in ECC 10 (c. 30% loss).
- Peak flock count of 17 in arable field in ECC 10 (c. 40% loss).
- Peak flock count of 17 in arable field in ECC 13. The field is planned for an access track only, to follow an existing tractor access along one edge of the field.

~~162.~~168. In Year 2, curlew (>10 individuals) was recorded from within the onshore Order Limits, specifically areas which will be subject to temporary habitat loss, from the following locations:

- Peak flock count of 74 in arable field in ECC 5 (c. 25% temporary loss).
- Peak flock count of 52 in arable field in ECC 5 (c. 40% temporary loss).
- Peak flock count of 29 in arable field in ECC 6 (c. 25% temporary loss).
- Peak flock count of 12 in arable field in ECC 10 (c. 40% temporary loss).
- Peak flock count of 20 in arable field in ECC 13 (c. 40% temporary loss).

~~163.~~ Curlew is a non-breeding qualifying feature of The Wash SPA and Ramsar. The Wash SPA population has a maintain objective and the population has increased from 3,700 at citation to 6,061 at the latest BTO WeBS count (2015/16-19/20). The GB curlew winter population is estimated at 125,000 and has declined by 30% between 1995/96 to 2020/21 (in UK) although distribution has expanded by 11.6% (Woodward *et al*. 2020 and Austin *et al*., 2023, from BTO BirdFacts). The GB breeding population is estimated at 59,000 pairs and has declined by 48% between 1995-2020 (in UK) and undergone a 19.2% contraction in distribution (BTO BirdFacts). The species is described as a *"common passage migrant and winter visitor; scarce and local breeder"* in Lincolnshire (Lincs Bird Club). The peak flock count of 74 represents approximately 0.59% of the GB winter population and likely <1% of the Lincolnshire population.

~~164.~~169. Research indicates that the main cause of the population decline relates to habitat changes at breeding sites (BTO BirdFacts, 2023) and, therefore, availability of winter habitat is not a major causal factor. The same sources states *"a study of colour-ringed birds wintering in south-west England suggested that apparent survival was highest during winter, and hence the main threats to this wintering population appeared to be during the breeding season or on migration (Robinson et al. 2020)".* Whilst the European breeding population overall has declined, there have been apparent increases in the wintering populations along the East Atlantic flyway (Birdlife International, 2024).

~~165.~~170. Curlew is omnivorous, eating a variety of invertebrate prey and plant material and feeds in coastal habitats, such as mudflats, as well as grassland and arable fields (eg. Brown, 2015).

~~166.~~171. The impact assessment is the same as described for lapwing, on the basis of their similar distribution and broad habitat preferences, and no evidence for lack of availability of winter farmland impacting on the population. On the same basis, it is concluded that there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect** on non-breeding curlew due to habitat loss.

~~167.~~172. No breeding curlew were identified. The requirement for targeted surveys for breeding curlew from agricultural fields along the route of the ECC, with the exception of areas of permanent infrastructure, was not necessary on the basis of the temporary nature of impact and low quality of the habitat. Given the absence of breeding records from the OnSS, and the temporary nature of the impact elsewhere along the ECC, **no significant effect** on breeding curlew is predicted.

Redshank

~~168.~~173. There were no records of redshank from the winter bird surveys in the vicinity of the OnSS and, therefore, no potential for permanent habitat loss (no significant effect).

~~169.~~174. In Year 1, redshank was recorded from within the onshore Order Limits, specifically areas which will be subject to temporary habitat loss, from the following locations:

- Peak flock count of two in arable field in ECC 5. Less than 50% of the field will be subject to habitat loss. Likely associated with the drain at the field edge, outside of the Order Limits;

- Peak flock count of four in ECC 8 in arable field (likely associated with the drain at the field edge). Approximately 50% of the field will be subject to habitat loss, although only a very small section of drain will be affected, with a culvert to support the haul road crossing (the cable will cross the drain via trenchless crossing).
- Peak flock count of eight in ECC 8 (c. 20% loss).
- Peak flock count of two from an arable field from ECC 9. Cable Installation Compound and haul road will occupy approximately 30% of the field.
- Peak flock count of three from an arable field from ECC9. Open trench will result in approximately 30% habitat loss from that field.
- Peak flock count of 11 in ECC 13 from the bank of the River Welland and adjacent field, however, an access track only is planned for that location, to follow an existing track, so will not be subject to habitat loss.

175. In Year 2, redshank was recorded from within the onshore Order Limits, specifically areas which will be subject to temporary habitat loss, from the following locations:

- Peak flock count of three in arable field in ECC 1. Less than 40% of the field will be subject to temporary habitat loss.
- Peak flock count of two from an arable field from ECC 3 (c. 15% temporary loss).
- Peak flock count of three from an arable field from ECC 3 (c. 20% temporary loss).
- Peak flock count of six from an arable field from ECC 5 (c. 40% temporary loss).
- Peak flock count of three from an arable field from ECC 8 (c. 30% temporary loss).
- Peak flock count of 39 in ECC 13 from the bank of the river Welland adjacent to a field, of which c. 30% be subject to habitat loss.

~~170.~~176. The GB redshank winter population is estimated at 100,000 and has declined by 20% between 1995/96 to 2020/21 (in UK) although distribution has expanded by 2.9% (Woodward *et al*. 2020 and Austin *et al*., 2023, from BTO BirdFacts). The GB breeding population is estimated at 22,000 pairs and has declined by 49% between 1995-2020 (in UK) and undergone a 43.1% contraction in distribution (BTO BirdFacts). The species is described as *"nominate British and continental form a common passage migrant and winter visitor and fairly common breeding species of coastal marshes. Scarce/very scarce inland. Icelandic form (robusta) a common passage migrant and winter visitor"* in Lincolnshire (Lincs Bird Club). The peak flock count of 39 represents approximately 0.04% of the GB winter population and likely a small proportion of the Lincolnshire population.

~~171.~~177. BTO state (assumed in relation to the breeding population) that *"There is good evidence to suggest that Redshank decline is related to changes in habitat management, in particular drainage and agricultural intensification. Where birds still nest in wet meadows, a suggested solution includes manipulating water levels, reducing grazing and suspending agricultural operations during the nesting period"* (BTO BirdFacts, 2023). The same source states *"Wintering populations (augmented by many Icelandic and some other northern European breeders) have shown some increase since the 1970s but have been in decline since about 2001, although the most recent counts suggest this decline may now have slowed and wintering numbers since 2011/12 have remained relatively stable (WeBS: Frost et al. 2020)".* The species population in Europe has undergone a moderate decline between 1980 and 2013 (Birdlife International, 2024).

~~172.~~178. Of the areas to be subject to temporary habitat loss, only a small number of locations (arable fields and field drains) were recorded in use by low numbers of redshank and it is, therefore, concluded that there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect.**

Black-headed gull

~~173.~~179. In Year 1 winter bird walkover surveys, black-headed gulls were widespread throughout the survey area, utilising agricultural fields, with a peak flock count of 137 individuals. In Year 2, 640 observations were recorded across all 14 segments with a peak flock count of 600 individuals in early November (in ECC 8). The species was recorded during 13 of the visits at the landfall with a peak count of 16 in Year 1 and 200 in Year 2. There were no records of breeding black-headed gull from the 2023 breeding bird surveys.

~~174.~~180. Black-headed gull is a non-breeding qualifying feature of The Wash Ramsar, and the population has declined from a citation estimate of 31,403 to the most recent WeBS count of 14,541. The GB black-headed gull winter population is estimated at 2.2 million and has declined by 31% between 1995/96 to 2020/21 (in UK) and distribution has contracted by 5% (Woodward *et al*. 2020 and Austin *et al*., 2023, from BTO BirdFacts). The GB breeding population is estimated at 140,000 pairs and has undergone a 12.5% contraction in distribution (BTO BirdFacts). The species is described as *"very common resident, passage migrant and winter visitor"* in Lincolnshire (Lincs Bird Club). The peak flock count of 600 represents approximately 0.03% of the GB winter population and likely a small proportion of the Lincolnshire population.

~~175.~~181. Project design has ensured no habitat loss from the beach, where the species was recorded on most visits. The main watercourses and wetlands have also been avoided through the use of trenchless techniques. The temporary loss of arable field habitats, which are common in the local area, and from a small area relative to the non-breeding foraging range for this species, is such that the impact would be of negligible magnitude for this species (and **not significant**).

Marsh harrier

~~176.~~182. [Confidential Text Removed]. Therefore, there will be no loss of nesting habitat as a result of the project.

~~177.~~183. The GB marsh harrier breeding population is estimated at 590 pairs and has undergone an 884% expansion in distribution (BTO BirdFacts). A national winter population estimate is unavailable. The RBBP provide a population estimate of 424 breeding pairs in the UK (RBBP five year mean), with a 2021 maximum number of breeding pairs of 473 and a strong 25 year increase (Eaton *et al*. 2023). The species is described as *"fairly common passage migrant and summer visitor, increasing in winter"* in Lincolnshire (Lincs Bird Club). The three territories represent approximately 0.7% of the UK breeding population and a likely a significant proportion of the Lincolnshire population.

~~178.~~184. Throughout the year, marsh harriers hunt over arable fields, reedbed, freshwater marsh and salt marsh (Underhill-Day, 2002). A study in East Anglia found the home range of males to be 569ha during courtship to 1,407ha post-fledging, with birds hunting up to 7km from the nesting area (Underhill-Day, 1990). Females home ranges vary from 100 to 1,300ha (Hardey *et al*. 2013). There were a total of nine records of marsh harrier during the Year 1 winter walkover surveys and 12 record in Year 2. The ECC route is an approximately 80m wide linear corridor and habitat loss will primarily be of arable farmland, which is common in the local area. Given the temporary loss of common foraging habitat from approximately 0.31km^2 within 2km of [Confidential Text Removed] and 0.33km^2 within 2km of the [Confidential Text Removed], there would be no appreciable negative change in population size or distribution and, therefore, the impact is **not significant**.

Species Populations of County Value

Barn owl

~~179.~~185. A single occupied barn owl breeding site was identified within the survey area, as well as three active roosting sites. Each of these is located outside of the onshore Order Limits and, therefore, will not be directly impacted. The GB breeding population is estimated to be 4,000 pairs and the wintering population to be 4,000-14,000 individuals (Woodward *et al*., 2020). The breeding population has increased by 228% from 1995-2020 (BTO BirdFacts, 2023). The species is described as *"common and widespread resident with good breeding years coinciding with peaks in the vole population"* in Lincolnshire (Lincs Bird Club, 2023). The 'State of the UK barn owl population – 2022' (Barn Owl Trust) report does not include detailed monitoring data from Lincolnshire, but has supplementary information that six broods were ringed in the county in 2022 plus an additional two sites with second broods. It is likely that the single breeding site identified exceeds 1% of the county breeding population.

186. Vegetation clearance to facilitate the construction works will result in the loss of some potential foraging habitat, however, this is dominated by arable fields. Much of the rough grassland (which is a potential foraging habitat for Barn Owl) within the onshore Order Limits, which occurs along main drains and watercourses, as well as at Anderby Marsh, will be retained and avoided by the use of trenchless techniques. The typical home range for barn owl is a 3km radius from the nest site (~2,800ha), and the area of temporary habitat loss during construction, totalling ~39ha plus ~0.4ha of linear features, would form a small part of that. The impact will be temporary, of up to 42-months duration.

187. The nest site locations from WCP have been presented in Appendix 22.8: Confidential Desk Study (document reference 6.3.22.2), within the Order Limits plus 200m buffer to accommodate all protection zones.

Out of a total of 87 potential nest sites located within the 2km search area, 12 potential nest sites (14.9%) are located within the Order Limits plus 200m.

188. Nest occupancy data were not obtained, but occupancy data from the local barn owl group will be reviewed pre-construction, alongside pre-works barn owl surveys, to identify current nest sites within the potential zone of influence of the project and to review and develop mitigation measures to ensure adherence to the legal protection of the species as a Schedule 1 listed bird. Where a nest site is within a 200m ZoI, then it may be necessary to close off that box temporarily prior to the nesting season and reopen it after completion of works. Should that be necessary, it would be conducted in liaison with the relevant landowner and barn owl conservation group, and an alternative box would be erected nearby outwith the ZoI prior to any temporary capping of boxes. This will ensure that nest sites will be protected. Temporary foraging habitat loss will be small relative to foraging range.

~~180.~~189. On this basis, it is concluded that there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect** on barn owl due to habitat loss.

Starling

~~181.~~190. LWT advised that >20,000 starlings were recorded roosting at Wolla Bank Reedbed in winter 2021-22 and 150,000 in the reedbeds at Chapel Six Marshes in autumn 2020, with more typical numbers being approximately 50,000. A single probable starling territory was recorded within the breeding bird survey area, in ECC 3.

~~182.~~191. The GB population size is estimated at 1.65 million breeding pairs and has declined by 53% between 1995 to 2020 (in UK) and distribution has contracted by 5% (Woodward *et al*. 2020 and Austin *et al*., 2023, from BTO BirdFacts). A winter population estimate is unavailable. The species is described as *"very common resident, passage migrant and winter visitor"* in Lincolnshire (Lincs Bird Club). BTO advise that *"There is good evidence that changes in first-year overwinter survival rates best account for observed population change. Although the ecological drivers of Starling decline are poorly understood, changes in the management of pastoral farmland are thought to be largely responsible"* (BTO BirdFacts, 2023).

~~183.~~192. The large winter roosts are located outside of the onshore Order Limits and will not be directly impacted by the construction works. The single breeding territory was identified from a grassland field and whilst the nest location was not confirmed, there are mature trees and buildings at the edge of the field, which will be retained, as the field itself will be crossed by trenchless techniques. The starling nest was most likely to be located in the buildings and less likely to be in a hole in a tree, with the field used for foraging and not nesting. Therefore, the territory will not be displaced through temporary habitat loss during the construction period. On this basis, it is concluded that there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect** on starling due to habitat loss.

Yellow wagtail

~~184.~~193. LWT advise there was a roost of 351 yellow wagtails at Wolla Bank Reedbed in 2022. A single yellow wagtail breeding territory was confirmed, located in ECC 3. The GB population is estimated to be 20,000 breeding territories (Woodward *et al*., 2020). The UK breeding population has declined by 69% between 1967 and 2020 and distribution has contracted by 32%. The BTO states that *"Britain holds almost the entire world population of the distinctive race flavissima, so population changes in the UK are of global conservation significance"* (BTO BirdFacts, 2023). The species is described as a *"summer visitor and passage migrant. British race flavissima is common"* in Lincolnshire (Lincs Bird Club, 2023). The single breeding territory is likely to be an underestimate given that the species breeds in arable fields and those habitats were not targeted by the surveys, on the basis that most impacts are temporary only. Areas of permanent infrastructure were included in the surveys. Therefore, the Site based breeding population may approach 1% of the County breeding population.

~~185.~~194. BTO advise that *"agricultural intensification is the ultimate cause of population declines. However, the mechanisms underlying the decline remain unclear"* (BTO BirdFacts, 2023). The same source states *"the magnitude of Yellow Wagtail decline appears to vary between habitats, being strongest in wet grassland and marginal upland areas (Henderson et al. 2004, Wilson & Vickery 2005). Chamberlain & Fuller (2000, 2001) found that there were greater range contractions in regions dominated by pastoral agriculture".*

~~186.~~195. The large winter roost is located outside of the onshore Order Limits and will not be directly impacted by the construction works. The single breeding territory was from an arable field and similar field habitats are common in the locality. Research has found that *"most yellow wagtails nested in spring-sown crops, especially potatoes, for which there was a strong preference; most territories were in the largest fields"* (Mason & McDonald, 2000). They are also associated with wetland habitats and feed on small invertebrates.

~~187.~~196. The impact will be the temporary loss of a relatively small amount of primarily arable land (the ECC occupies approximately 30% of the field area in which the territory centre has been mapped) and, therefore, the majority of the field would be retained and continue to provide nesting habitat. The loss of habitat in this area is predominantly arable crops, with field margins, drains and grasslands largely being avoided through trenchless techniques. Such habitats are likely to provide suitable foraging habitat as a source of invertebrate prey. It is, therefore, considered unlikely that habitat loss would result in displacement of the breeding territory.

~~188.~~197. It is concluded that there may be a **significant effect** on yellow wagtail due to habitat loss, which would be temporary and at a Local level only. Whilst avoidance or mitigation measures, such as a seasonal restriction, are not considered to be necessary given the temporary nature of the impact, the Project intends for provision of compensatory habitat for the duration of the impact. Compensatory habitat management is detailed in Section 22.8.4 and includes the provision of areas of fallow land and short-growing crops, which will provide suitable foraging habitat for this species.

Target species Populations of Local or Less than Local Value (i.e. listed on Annex I, Schedule 1, NERC Section 41 and/or BoCC Red list)

Breeding Birds

~~189.~~198. No target bird species (i.e. those listed on Annex I, Schedule 1, NERC Section 41 and/or BoCC Red List) were recorded as breeding within the footprint of the onshore substation, where the majority of the permanent habitat loss will occur. The large majority of the habitat loss will be temporary only and will predominantly consist of arable land. The majority of the semi-natural habitats present along the route corridor, such as treelines and hedgerows along watercourses will be avoided through the use of trenchless techniques, thus retaining nesting habitat for many of the passerine species recorded within the survey area. Given the narrow linear nature of the route, it is expected that for most passerine species for which territories are affected, alternative nesting habitat would be available and there would be partial loss of foraging habitat, primarily cropland, from within the home range and some territories would be able to shift distribution rather than being entirely displaced.

~~190.~~199. Eleven breeding skylark (S41 Priority Species/BOCC Red list) territories were recorded, however, that will be an underestimate given that surveys did not target arable fields, which the species occupies for breeding and has a widespread distribution. The GB population size is estimated at 1.6 million territories and has declined by 15% between 1995 to 2020 (in UK) and distribution has contracted by 1.9% (Woodward *et al*. 2020 and Austin *et al*., 2023, from BTO BirdFacts). A winter population estimate is unavailable. The species is described as *"very common resident, passage migrant and winter visitor. Breeding numbers have declined in recent years"* in Lincolnshire (Lincs Bird Club). BTO advise that *"There is good evidence to indicate that the most likely cause of declines in Skylark is agricultural intensification, specifically the change from spring to autumn sowing of cereals, which reduces the number of breeding attempts possible and may also reduce overwinter survival due to loss of winter stubbles"* (BTO BirdFacts, 2023).

~~191.~~200. The onshore ECC and 400kV cable corridor occupies only part of each arable field (often less than 50%) within which it is located and, therefore, potential nesting habitat within each field would be retained. Research indicates that set-aside/fallow land and spring cereals provide suitable nesting habitat for skylark throughout the breeding season and encourage their incorporation into agri-environment schemes targeted at this species (Chamberlain *et al*. 1999). It is, therefore, likely that parts of the land within the onshore Order Limits during the construction phase would provide suitable habitat for this species, notably the vegetated perimeter bunds, which would essentially provide the equivalent of fallow land. There is a residual risk, however, of a **significant effect** on skylark due to habitat loss, which would be temporary and at a Local level only.

~~192.~~201. The following species populations of Local value were identified as breeding within the survey area:

- Grey partridge (s41 Priority Species/BOCC Red list): one probable territory identified from a field outwith the onshore Order Limits.
- Cuckoo: (s41 Priority Species/BOCC Red list): One probable territory located by the Haven within a trenchless crossing (no impact) section; one confirmed territory by the side of a railway line, mapped adjacent to the onshore Order Limits (scrub to be retained); one confirmed territory mapped in a field which overlaps with the onshore Order Limits (the woodland immediately to the south of the onshore Order Limits where the species likely nests will be retained); one probable territory at Wolla Bank, outwith the onshore Order Limits in the coastal nature reserves which will be avoided by the Project.
- House sparrow (s41 Priority Species/BOCC Red list): two confirmed breeding colonies at buildings located outwith the onshore Order Limits.
- Greenfinch (BoCC Red): one confirmed territory located in an area of trees, scrub and wetland located outwith the onshore Order Limits; one confirmed and one probable territory located in a treeline outwith the onshore Order Limits (the section which overlaps will be avoided through trenchless techniques); one probable territory identified in a garden located outwith the onshore Order Limits; one probable territory identified located within a scrub lined linear feature located outwith the onshore Order Limits; one probable territory identified in a treelined linear feature located outwith the onshore Order Limits.

- Linnet (NERC Section 41, BoCC Red): one confirmed territory from Anderby Dunes (outwith the onshore Order Limits); one confirmed territory from a hedgerow which will be avoided by trenchless techniques (other than a small section to accommodate the haul road); one confirmed territory identified from a field adjacent to an area of scrub which is outwith the onshore Order Limits; one confirmed territory from an area of scrub adjacent to Hobhole Drain which will be avoided through trenchless techniques; one confirmed territory from an area of scrub outwith the onshore Order Limits; one confirmed territory from a scrub lined linear feature partly outwith the onshore Order Limits (where it intersects it will be avoided through trenchless techniques, with only the haul road crossing the feature); one confirmed territory from a scrub lined linear feature avoided through trenchless techniques; and one confirmed territory from the embankment of the River Welland, where the Project access track will follow the existing access track along the top of the bund, therefore there will be no habitat loss.
- Yellowhammer (NERC Section 41, BoCC Red): one confirmed territory from a treeline along a track which will be avoided by trenchless techniques other than the haul road; one confirmed territory from an area of scrub and wetland outwith the onshore Order Limits; one from a scrub lined linear feature which will be avoided through use of trenchless techniques; one from a hedgerow outwith the onshore Order Limits; and one from the embankment of the River Welland, where the Project access track will follow the existing access track along the top of the bund and therefore there will be no habitat loss.
- Reed bunting (NERC Section 41, BoCC Amber): Two confirmed territories from the coastal nature reserves, one within and one outside of the Order Limits; two confirmed territories identified from arable fields through which the ECC runs; one from the edge of the Wainfleet Relief Channel which will be avoided through trenchless techniques; one from the edge of a drain which will be avoided through trenchless techniques; one from a drain which will be avoided through trenchless techniques but with a haul road crossing; and one from the embankment of the River Welland, where the Project access track will follow the existing access track along the top of the bund, therefore there will be no habitat loss.
- Corn bunting (NERC Section 41, BoCC Red): Two confirmed territories from ECC 14, with territory centres mapped as outside of the onshore Order Limits.
- Grasshopper warbler (NERC Section 41, BoCC Red): a single territory from the coastal nature reserves, outside of the Order Limits.
- Dunnock (NERC Section 41, BoCC Amber): six confirmed territories and one possible territory, associated with linear features across the ECC.

~~193.~~202. The majority of these territories were associated with trees, scrub or wetland habitats which will be avoided by project design or design mitigation such as the use of trenchless crossings. Overall, the impact of habitat loss for breeding birds of Local and Less than Local value, including all priority and BoCC Red listed species which are not also qualifying features of European sites or of County value (which have been assessed above), would result in no appreciable negative change in population size or distribution and be **not significant**.

Non-Breeding Birds

~~194.~~203. A single target species, common gull (a single record of 189 birds and a single record of a single bird), was recorded utilising habitats within the footprint of the onshore substation, where the majority of the permanent habitat loss will occur. Given the low frequency of occurrence in this location, the loss of arable habitat which is abundant in the local area, and the widespread distribution of this species, permanent habitat loss would be an impact of negligible magnitude. As described in the 'breeding birds' section, the large majority of the temporary habitat loss will be of cropland and the ECC typically occupies only part (often <50%) of each arable field in which it is located. Given the design mitigation which has avoided the large majority of the natural and semi-natural habitats along the route, and the temporary nature of the impact, habitat loss for non-breeding birds of Local and Less than Local value, including all priority and BoCC Red listed species which are not also qualifying features of European sites or of County value (which have been assessed above), would result in no appreciable negative change in population size or distribution and, therefore, is **not significant**.

Other Designated Ornithological Sites

Non-European Designated Ornithological Sites

~~195.~~204. There will be no habitat loss from any onshore ornithological designated site, as ~~the~~ either the route design has avoided interaction with them, or otherwise (such as for Anderby Marsh) they will be avoided through the use of trenchless crossing techniques (**no significant effect**).

BAEF Wyberton Roads South Compensation Site

~~196.~~205. The onshore Order Limits ~~overlaps~~ does not overlap with the Wyberton Roads South compensation site boundary, ~~comprising a temporary enabling access track only,~~ as shown in Figure 22.1. BAEF propose to convert these fields from arable to dry grassland habitat. ~~It is unclear whether the existing tracks will be retained, although it is expected that they will in order to continue to facilitate access for management of the grassland. A small area of dry grassland habitat which is currently arable land would, therefore, be at risk of being lost temporarily to accommodate the enabling access track for the Project. This track would only be used at the outset and end of the construction phase in that area , to mobilise and demobilise plant and equipment. This would be for a period of approximately one week each for mobilisation and demobilisation and would be restricted to the summer months. Machinery used would be of a similar scale to agricultural machinery. Given the very small area, the impact of~~Therefore there would be no habitat loss (excluding disturbance which is assessed separately) ~~would be of negligible magnitude~~, ~~would not undermine the conservation objectives of the designated site and~~and the effect would **not be significant**.

22.8.1.2 Impact C2: Killing of and/or Injury to Birds

~~197.~~206. Embedded mitigation measures, as shown in Table 22.8, include that all construction work will be undertaken in accordance with an Ecological Management Plan (EMP) which will include measures to protect nesting birds from being killed, injured or damaged. This will ensure compliance with the Wildlife and Countryside Act 1981 (as amended) and the protection afforded to nesting birds. With this mitigation in place, killing or injury or damage to active nests will be avoided, and there will, therefore, be **no significant effect** as a result of this impact pathway.

22.8.1.3 Impact C3: Disturbance of Protected and Priority Bird Species, Including Those Utilising FLL

~~198.~~207. Temporary disturbance to birds could occur as a result of construction activity for up to 51-months and could occur anywhere within the onshore Order Limits, excluding the trenchless crossing areas, as shown in Volume 2, Figure 3.4 (document reference 6.2.3.4). The haul road continues through some of the trenchless crossings, and in those instances, the haul road itself may cause disturbance.

~~199.~~208. Disturbance of birds during construction through noise or the visual presence of site workers and machinery may displace birds with knock-on effects on survival and productivity. Disturbance can lead to effective habitat loss, as birds may not utilise the habitat impacted by the noise or visual disturbance. Survey buffers from the onshore site boundary, as set out through the consultation process, of 400m for wintering waterbirds and 100m for breeding priority species were adopted as reasonable distances up to which target bird species may be disturbed by the planned construction works.

~~200.~~209. A report by The Institute of Estuarine and Coastal Studies (IECS) (Cutts *et al*., 2009) provides a review of the evidence relating to construction disturbance impacts on non-breeding waterfowl and was used to develop a Waterbird Disturbance Mitigation Toolkit (Cutts *et al*., 2013). The Toolkit summarises the following general waterbird disturbance levels from visual stimuli:

- High level disturbance stimuli: close proximity of works (<100m); works or 3rd parties on foreshore; workers on foot; large/fast moving machinery.
- Moderate level disturbance stimuli: high level activities for which birds are habituated; and small/slow moving plant.
- Low level disturbance stimuli: moderate level activities for which birds are habituated; works out of sight; high level works >500m away from birds (or 300m with habituation); moderate level works >300m away (or 250m with habituation).

~~201.~~210. The study summarises the waterbird responses to construction noise disturbance as:

- High noise level effects – sudden noise of > 60dB (at the bird) or prolonged noise of > 72dB.
- Moderate noise level effects – occasional noise > 55 dB, regular noise 60-72 dB and long-term regular noise >72dB.

- Low noise level effects – noise < 55dB and noise between 55-72dB in some highly disturbed areas.

~~202.~~211. The Toolkit provides a table presenting standard distance decay rates for noise and states *"Acceptable dose levels (e.g., up to 70dB) are shaded green with dark green unlikely to have any effect whilst the pale green might occasionally induce a low-level behavioural response such as heads-up".* Above the acceptable 70dB dose threshold *"yellow to orange shading is where a response is likely but mitigation may be effective in reducing disturbance risk; pale red where mitigation is necessary and might be of value, but with remaining risk of effect; dark red where a flight response is almost certain to occur and would be increasingly difficult to mitigate through simple screening etc and may require the cessation of works during high sensitivity periods".*

~~203.~~212. As described in Table 22.7, the ECC and 400kV cable corridor comprises two distinct types of activity which occur in discrete sections along the route, as illustrated in Volume 2, Figure 3.4 (document reference 6.2.3.4). Open trenched sections will include perimeter earth bunds of approximately 1.5m height, which will screen ground level works activities from the surrounding habitats. Trenches will be dug by mechanical excavator and cables laid from a cable drum. Cable Installation Compounds will not include perimeter earth bunds and plant and machinery will include excavators and drilling rigs. There will be six 'major' trenchless Cable Installation Compounds, including the landfall and The Haven crossing; the rest are classed as 'minor' drills. Construction works at the OnSS will include foundations, erection of steel framework and delivery of abnormal indivisible loads and installation by cranes.

~~204.~~213. The noise assessment for the Project is detailed in Volume 1, Chapter 26: Noise and Vibration. This has assessed noise disturbance impacts to SPAs, Ramsar sites and SSSIs (i.e. to the designated sites themselves, rather than functionally linked land, which has been assessed herein and in the RIAA), as well as to Anderby Marsh LWT Reserve. A threshold level of 55dB LAeq has been adopted for that assessment, derived from the Air Quality Technical Advisory Group 09 (AQTAG09) document, which provides guidance on the effects of industrial noise on wildlife. From this it has been determined that this threshold level will not be met within the boundary of any such designated site as a result of the construction activity, excluding a very small amount of overlap with The Wash SPA at The Haven. This is addressed through additional mitigation, comprising a seasonal restriction to construction activity, to avoid works during the period of **October to March inclusive** within 400m of The Wash SPA and Ramsar.

~~205.~~214. Year 1 surveys have identified the following qualifying features occurring within the small section of The Wash SPA/Ramsar which falls within 400m of the onshore Order Limits:

- dark-bellied brent goose, peak of 250 (frequency of 4 in Oct, Nov, Feb and Mar) and peak of 81 (frequency of 1, in Oct, over-flying);
- pink-footed goose, peak of 67 (frequency of 2, in Nov and Dec); and

- black headed gull, peak of 25 (frequency of 1, in Mar).

215. Year 2 surveys have identified the following qualifying features occurring within the small section of The Wash SPA/Ramsar which falls within 400m of the onshore Order Limits:

- dark-bellied brent goose, peak of 650 (frequency 3 in Jan); and
- little egret, peak of 2 (frequency 1);

~~206.~~216. It is recognised that sudden, impulsive type noise tends to have a greater disturbance impact to birds than regular, consistent noise. The Toolkit suggests a threshold of 70dB L_{Amax} for non-breeding waterbirds; however, evidence for breeding waterbirds and other species is more limited. Therefore, a more precautionary 65dB L_{Amax} threshold may be appropriate when also considering impacts to breeding birds. L_{Amax} is the metric which gives an indication of peak levels, so would encompass the impulsive type noise which may be most impactful. It is, however, more reliable given the nature of the planned works to model L_{Aeq} (average) construction noise levels, as there is limited published data regarding maximum noise levels from plant. This is particularly true for the Project, which has committed to use silent piling technology (at landfall) and vibratory sheet piling, rather than impact piling along the onshore ECC and 400kV cable corridor, with impact piling limited to the OnSS Construction~~-~~. The remaining construction activities are non-drilling related activities, such as the use of excavators and dumpers, where the average and peak noise levels are unlikely to be significantly different.

~~207.~~217. Coincidentally, the noise assessment for human receptors also adopts the 65dB (L_{Aeq}) threshold and that indicates that along the ECC route and 400kV cable corridor, the distance from the working area at which the 65dB threshold level is met or exceeded is 80m. The average noise level generated from the open trenched and Cable Installation Compound sections, as well as site establishment and restoration, is similar.

~~208.~~218. During the project's landfall works, a Landfall Compound will be required to accommodate the drill rig, TJBs, cable storage, installation activities and welfare facilities. Each drill would start from the Landfall Compound [PCC-1] to the west of Roman Bank, to drill eastward below Roman Bank, Anderby Marsh LNR, the sea defence, and beach, exiting in the subtidal zone at a suitable depth seaward of MLWS.

~~209.~~219. Given the close proximity of the Landfall compound to Anderby Marsh LWT Reserve, which is utilised by a range of sensitive non-breeding waterbirds and breeding Schedule 1 species, more detailed noise modelling was undertaken to assess the potential noise impacts from the planned construction works at the landfall.

~~210.~~220. The modelling results for the landfall incorporate the embedded mitigation (See Section 22.6) of a 4m high earth bund to shield the construction area from the nature reserve, as well as the existing landscape feature of Roman Bank. The model shows that this results in predicted noise levels within Anderby Marsh Reserve to be below the 55dB L_{Aeq} contour (see Appendix 26.4, Figure 26.4 (document reference 6.3.26.4)) and below the 65dB L_{Amax} contour. It is, therefore, concluded that with the embedded mitigation in place, the noise levels would be below the threshold at which adverse behavioural bird responses would be initiated.

~~211.~~221. Additional mitigation to further reduce the potential noise disturbance at the landfall includes the commitment to use silent piling technology, to locate noisier plant at the western end of the compound as far as practicable, and to construct the mitigation bund in August and/or September, after the core breeding bird season and prior to the winter season/early in the passage period.

Qualifying Features From European Sites Utilising Functionally Linked Land

Dark-bellied brent goose

~~212.~~222. In Year 1, ~~A~~all except one of the brent goose records within the onshore Order Limits plus 400m buffer were recorded at The Haven during the 2022-23 ECC winter surveys, both in fields and saltmarsh. Brent geese were recorded from the following locations within the potential disturbance area (excluding habitat loss areas which have been assessed separately):

- The highest peak flock count of 1,100 was from an arable field east of the river and 200m to the south of the ECC (Cable Installation Compound section) at the closest point.
- A peak flock count of 48 from an arable field located 130m to the north of the ECC (Cable Installation Compound) at the closest point in ECC 11.
- Peak flock counts of 370, 148 and 81 from the River Haven and associated inter-tidal banks, within the trenchless works section (no haul road). The Cable Installation Compound areas are set back from the riverbank approximately 100m on either side. The river channel is contained within two bunds, which provide screening between the adjacent fields and the river/inter-tidal habitats, with an intervening line of trees also present parallel with the west bank.
- A peak flock count of 250 from the saltmarsh west of the river (within The Wash SPA boundary) and approximately 200m to the south of the ECC (Cable Installation Compound section) at the closest point. A bund is present between the saltmarsh and the ECC area, providing screening.

223. In Year 2, brent geese were recorded from the following locations within the potential disturbance area (excluding habitat loss areas which have been assessed separately):

- A flock of 600 in ECC 10 from an arable field 250m to the west from of the ECC (Cable Installation Compound section).

- A flock of 21 in ECC 10 from an arable field 300m to the east of the ECC (Cable Installation Compound section).
- A peak count of 180 in ECC 11 from an arable field 350m to the east from the ECC (Cable Installation Compound section).
- A flock of 450 in ECC 11 from an arable field 100m to the east from the ECC (Temporary Access Track).
- A peak count of 300 in ECC 11 from an arable field 250m to the east from the ECC (Secondary Construction Compound).
- A peak count of 650 from ECC 11 from grassland in a riparian zone 350m to the east from the ECC (Cable Installation Compound section).
- A flock of 88 in ECC 12 from an arable field 380m from the ECC (Cable Installation Compound section).
- A flock of 14 in ECC 12 from an arable field 350m from the ECC (Cable Installation Compound section).

224. In Year 2, dark-bellied brent goose was recorded most frequently on land classed as not farmland (13 registrations, a total of 1,580 bird records); however, most birds were recorded on cereal crops (nine registrations, a total of 1,839 bird records). The area of clustered activity around The Haven consists of predominately arable fields with grasslands and riparian habitat associated with The Haven. Wheat and grass are the first and the third most common crop types within the Order Limits plus 400m with an estimated coverage of 2,915 ha and 700 ha respectively. These crops are evenly distributed along the Order Limits plus 400m (Appendix 22.8 Figure 1). These crops were also the most common within sample crop polygons with an average coverage of 14,141 ha and 12,251 ha respectively for 2019, 2020, and 2021 (Appendix 22.8).

~~213.~~225. The peak flock count of 1,100 represents approximately 0.81% of the GB winter population. The Disturbance Toolkit classifies brent goose as a species of high sensitivity to visual and noise disturbance and advises that for any visible construction works planned within 400m of brent geese consideration should be given to mitigation options. Owens (1977) however states: *"Brent geese quickly become habituated to most sounds. Unexpected ones, such as nearby gun shots from wildfowlers, usually put the geese to flight. Similarly, the first shots of the day at the Colne Army ranges caused geese to leave the saltings for the mudflats. They quickly returned however and ignored all subsequent firing that day. At Foulness, the extremely loud but regular bangs made during weapon testing caused little reaction after the first weeks. Brent Geese fed undisturbed 50m from passing trains at Leigh Marsh."*

~~214.~~226. There may be line of sight between geese in the ~~two~~ nine arable field locations listed above and the Cable Installation Compound construction works and, therefore, a risk of displacement of geese from those locations. For the flocks observed on the river and saltmarsh habitats, the intervening bunds will provide a visual screen between birds on the ground and the construction area (other than potentially for tall machinery) and a noise attenuation barrier. Given the proximity, there remains a risk of displacement as a result of birds in flight choosing not to settle in those areas and/or from noise disturbance. The impact would be adverse, affecting a small section of The Haven and ~~two~~ six adjacent fields, temporary (for a period of up to 42-months) and affecting up to 1,100 geese (**a potentially significant effect**).

227. The additional mitigation for The Wash SPA and Ramsar, comprising a seasonal restriction to construction activity, to avoid works during the period of October to March inclusive within 400m of The Wash SPA, will reduce the potential disturbance impact to this species. Additionally, the seasonal restriction will be extended to cover the identified brent goose foraging areas adjacent to The Haven, as shown in Volume 2, Figure 22.4 (document reference 6.2.22.4).

228. Data from the additional visit in April 2024 indicates that dark-bellied brent geese are still present at the River Haven at a notable abundance in this month and therefore works within 400m of the Haven, as illustrated in Figure 52 of Appendix 22.7 during April will be limited to soft start works. Soft start works in April will entail site preparations and establishment of the haul road and work areas. No drilling will take place in April. Visual screening will be installed in the seasonally restricted area around The Haven in April in order to minimise potential visual disturbance arising from soft start works.

229. Within the October to March seasonally restricted area works would be limited to vegetation clearance and maintenance, in order to avoid clearance during the nesting bird season and to minimise the risk of birds establishing nests within the working area. The Applicant commits to employing an Ecological Clerk of Works (ECoW) to undertake a survey for brent geese within the seasonally restricted area prior to vegetation clearance works commencing in a discreet area. No clearance works will commence whilst brent geese are present within 400m of the area to be cleared. Once clearance works have commenced, they will continue until works have been completed in that location.

~~215.~~230. Usual agricultural operations will continue in the seasonally restricted area. Essential non-intrusive survey works would also be permitted within the seasonally restricted periods.

~~216.~~231. The temporal spread of records of this species are presented in Table 22.9 and Table 22.10.

Table 22.9 Temporal spread of dark-bellied brent goose records from Year 1 and Year 2 non-breeding bird surveys (Order Limits plus 400m buffer)

Metric (Survey Type)	Month							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Year 1:								

Metric (Survey Type)	Month							
Peak Count (Coastal OP Surveys)	0	7	0	4	0	0	0	-
Peak Flock Count (ECC Surveys)	0	81	250	487	48	1,100	370	-
Total Number of Flocks (ECC Surveys)	0	2	3	1	1	4	2	-
Year 2:								
Peak Count (Coastal OP Surveys)	0	0	0	0	0	0	0	0
Peak Flock Count (ECC Surveys)	0	14	38	600	650	450	250	180
Total Number of Flocks (ECC Surveys)	0	1	3	3	4	6	3	4

~~Metric (Survey Type)~~	~~Month~~						
	~~Sep~~	~~Oct~~	~~Nov~~	~~Dec~~	~~Jan~~	~~Feb~~	~~Mar~~
~~Peak Count (Coastal OP Surveys)~~	~~0~~	~~7~~	~~0~~	~~4~~	~~0~~	~~0~~	~~0~~
~~Peak Flock Count (ECC Surveys)~~	~~0~~	~~81~~	~~250~~	~~487~~	~~48~~	~~1,100~~	~~370~~
~~Total Number of Flocks (ECC Surveys)~~	~~0~~	~~2~~	~~3~~	~~1~~	~~1~~	~~4~~	~~2~~

Table 22.10 Temporal spread of dark-bellied brent goose records from nearby BTO WeBS Sector Counts

5 Year Average - BTO WeBS Counts								
Sector	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Frampton North 41	0	0	0	5	1	1	1	0
Frampton North 23	0	0	31	36	103	35	37	4
Frampton North 60	0	40	6	31	140	5	0	0
Anderby	0	0	0	0	0	0	0	0
Burgh Marsh Zone 1	0	0	0	0	0	0	0	0

~~217.~~232. These data indicate that an appropriate seasonal restriction for dark-bellied brent geese at the Haven would apply from **October to March inclusive**, with works restricted to soft start works only in April~~.~~.

233. A pre-construction survey for dark-bellied brent goose will be undertaken at the seasonally restricted area at The Haven and adjacent land to ensure that the proposed mitigation remains appropriate.

234. This will ensure that disturbance impacts are minimised to the ~~three~~ functionally linked areas listed above because no works will occur within 400m of them during the core non-breeding period when the geese are present. This excludes the field in ECC 11 with a peak flock count of 48 in Year 1, two records from ECC 10 (600 and 21) and two records from ECC 12 (88 and 14) in Year 2, which are located further away from the cluster around the Haven but within 400m of the Order Limits. These records are at least 250m away from the ECC. The seasonally restricted area has been defined to encompass the area of clustered activity around The Haven.

~~218. The Applicant commits to employing an Ecological Clerk of Works (ECoW) to undertake a survey for brent geese within the seasonally restricted area prior to vegetation clearance works commencing in a discreet area. No clearance works will commence whilst brent geese are present within 400m of the area to be cleared. Once clearance works have commenced, they will continue until works have been completed in that location.~~

~~In Year 2, dark-bellied brent goose was recorded most frequently on land classed as not farmland (13 registrations, a total of 1,580 bird records); however, most birds were recorded on cereal crops (nine registrations, a total of 1,839 bird records). Contrary to the rest of the assessed species, dark-bellied brent geese records concentrate around a specific area around the River Haven crossing. This area consists of predominately arable fields with grasslands and riparian habitat associated with The Haven, within the Order Limits plus 400m. Wheat and grass are the first and the third most common crop types within the Order Limits plus 400m with an estimated coverage of 2,915 ha and 700 ha respectively. These crops are evenly distributed along the Order Limits plus 400m (Appendix 22.8 Figure 1). These crops were also most common within sample crop polygons with an average coverage of 14,141 ha and 12,251 ha respectively for 2019, 2020, and 2021 (Appendix 22.8).~~

~~219.~~235. ~~This excludes the field in ECC 11 with a peak flock count of 48 which is located further away from the cluster around the Haven, but is within 400m of the Order Limits. This is excluded as it is a single record of a relatively small flock away from the area of clustered activity.~~ With this additional mitigation in place ~~at~~around the Haven, and considering the availability of alternative foraging habitat and~~,~~ the small scale of potential temporary displacement relative to the foraging range ~~and the temporary nature of the loss elsewhere,~~ there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect** on dark-bellied brent geese due to construction disturbance.

Pink-footed goose

~~220.~~236. Pink-footed goose is not included in the Disturbance Toolkit but is likely to have a similar sensitivity to construction disturbance to that described for brent goose and may be impacted by visual and noise disturbance at a distance of up to 400m from the source. Pink-footed geese were recorded during Year 1 winter bird surveys utilising various fields along the onshore ECC, at relatively low frequency and mainly in low numbers but occasionally in larger flocks, including some which constitute a significant proportion of the designated site populations.

~~221.~~237. In Year 1, ~~N~~notable flocks (of >50 birds) within the potential 400m disturbance buffer were (excluding habitat loss areas which have been assessed separately):

- Peak flock count of 217 in ECC 4 in an arable field immediately adjacent to the ECC with various Cable Installation Compound sections.
- Peak flock count of 107 from the edge of the 400m buffer in ECC 4.

- Peak flock count of 138 from ECC 5 in an arable field, 200m to the east of the ECC (a long open trenched section) at the closest point.
- Peak flock count of 67 from ECC 11 (TCC and trenchless works section), from saltmarsh by The Haven, 250m to the south of the ECC at the closest point, with an intervening bund.
- Peak flock count of 67 from ECC 11 from an arable field through which the ECC (open trench and Cable Installation Compounds) will run.

238. [Confidential Text Removed]. Notable flocks (of >50 birds) within the potential 400m disturbance buffer were (excluding habitat loss areas which have been assessed separately):

- Peak flock count of 500 from ECC 1 (Open Cut or Trenchless) from an arable field 380m east of the ECC.
- Peak flock count of 750 from ECC 2 (various Cable Installation Compounds) from a grassland field 380m southwest from the ECC.
- Peak flock count 250 from ECC 3 (Cable Installation Compounds) from an arable field 350m east from the ECC.
- Peak flock count of 300 from ECC 3 (Enabling Access Track) from a grassland field 300m north from the ECC.
- Peak count of 450 from ECC 5 (Open Cut or Trenchless) from an arable field -300m east from the ECC.
- Peak count of 1,400 from ECC 5 (Primary Construction Compound) from an arable field 200m from the compound.
- Peak count of 310 from ECC 8 (Cable Installation Compounds) from an arable field –150m north from the ECC.
- Peak count of 120 from ECC 11 (minor installations near Wyberton Road) from an arable field 150m from the nearest installation.
- Peak count of 75 from ECC 11 (minor installations near Wyberton Road) from an arable field 380m from the nearest installation.

~~222.~~239. The peak flock count of ~~217~~ 5000 represents approximately 0.~~04~~98% of the GB winter population. The only location with a peak flock count of >50 birds recorded utilising non-farmland habitat was the peak count of 67 recorded by The Haven in Year 1, and as described for brent goose, birds may be displaced from that area, however a seasonal restriction has been adopted for that area. The remaining notable groups were each from arable fields and there were only ~~three~~ ten identified from the whole survey area. Whilst the inherent characteristics of some arable fields make them more suitable for geese, such as their size and sightlines, usage will vary with crop rotation.

~~223.~~240. The temporal spread of records of this species are presented in Table 22.11 and Table 22.12.

Table 22.11 Temporal spread of pink-footed goose records from Year 1 and Year 2 non-breeding bird surveys (Order Limits plus 400m buffer)

Metric (Survey Type)	Month							
-	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Season one:								
Peak Count (Coastal OP Surveys)	0	2	0	0	0	0	0	-
Peak Flock Count (ECC Surveys)	0	12	217	67	12	7	138	-
Total Number of Flocks (ECC surveys)	0	2	6	12	3	2	2	-
Season two:								
Peak Count (Coastal OP Surveys)	0	0	0	0	0	0	0	0
Peak Flock Count (ECC Surveys)	0	1100	0	5000	900	310	0	0
Total Number of Flocks (ECC surveys)	0	7	0	3	8	5	0	0

~~Metric (Survey Type)~~	~~Month~~						
~~-~~	~~Sep~~	~~Oct~~	~~Nov~~	~~Dec~~	~~Jan~~	~~Feb~~	~~Mar~~
~~Peak Count (Coastal OP Surveys)~~	~~0~~	~~2~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~
~~Peak Flock Count (ECC Surveys)~~	~~0~~	~~12~~	~~217~~	~~67~~	~~12~~	~~7~~	~~138~~
~~Total Number of Flocks (ECC surveys)~~	~~0~~	~~2~~	~~6~~	~~12~~	~~3~~	~~2~~	~~2~~

Table 22.12 Temporal spread of pink-footed goose records from nearby BTO WeBS Sector Counts

5 Year Average - BTO WeBS Counts								
Sector	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Frampton North 41	0	0	0	0	0	0	0	0
Frampton North 23	0	0	0	0	0	0	0	0
Frampton North 60	0	0	0	0	0	0	0	0
Anderby	0	0	0	0	0	0	0	0
Burgh Marsh Zone 1	0	55	250	0	0	0	0	0

241. These data suggest that pink-footed goose occur in larger numbers in from October and throughout winter (November to February) and early spring (March).

~~224.~~242. ~~These data suggest that pink-footed goose occur in larger numbers in **early winter (Nov and Dec) and early spring (Mar).**~~

~~225.~~243. Pink-footed geese feed on a range of agricultural crops and grassland, and will commute large distances to foraging grounds, typically up to 20km. BirdLife International (accessed 2023) states that *"in its wintering areas the species is more reliant on grass, grain, vegetables (e.g. carrots, sugar beet (Kear 2005a)) and potatoes grown on agricultural land (del Hoyo et al. 1992)"*. It also states *"an investigation carried out in one of the ~~species's~~species' wintering areas (UK) found that it was most likely to forage on grasslands a minimum of 6 ha in area, managed by livestock grazing or mechanical cutting, with an optimum sward height of 13-20 cm (although the species was also found to use heavily grazed land down to a sward height to 1.5 cm), at a distance of less than 10km away from roosting sites (the optimum distance was 2-5km away) (Vickery and Gill 1999)".* The species will, therefore, feed on a variety of crop types and typically utilises fields within 10km of roosting sites (most likely to be within the SPA/estuary).

244. It is noted that the Sheringham Shoal and Dudgeon Offshore Windfarm Extension DCO Application includes outline mitigation for FLL (Sheringham Shoal, 2023, Doc Ref 9.19). This relates to pink-footed goose only and to sugar beet crop fields only. The Sheringham and Dudgeon Extension project has proposed to survey all fields which are: >6ha in size; within a 200m buffer of the Order Limits; fall within 10.4km of the SPA boundary; and where works are due to commence between November and January inclusive. Where sugar beet is identified, the Nov-Jan seasonal restriction for construction activity would be enacted (regardless of identified goose presence). Where geese are identified, the seasonal restriction would be extended, unless and until they have exhausted the foraging resource. This approach, however, is not appropriate for the Project as there are a wide variety of crop types present, with sugar beet forming only a small proportion[6] (only 37 ha of sugar beet out of a sample of 2,370 ha was identified within the Order Limits, representing 1.6% of the land), and geese have a widespread distribution across the survey area.

245. In season two, the majority of pink-footed geese were recorded on bare earth/ ploughed fields (five registrations of a total of 8,122 bird records), followed by stubbles (eight registrations, a total of 2,269), grass (four registrations, a total of 2,157) and cereal crops (five registrations, a total of 1,743) (Appendix 22.7).

[6] ~~The Project has carried out crop surveys in spring 2023 as part of geomorphology surveys covering approximately 30% (2,370 ha) of the Order Limits and found only 37 ha of sugar beet, representing 1.6% of the land.Cropping data for 1,000ha of the onshore Order Limits was undertaken in 2023 and of this only 20ha were sugar beet crop which was localised within ECC 9 Segment (representing 2% of the area that was surveyed)~~

~~226.~~246. Sample crop survey within the Order Limits plus 400m shows that fallow land, which includes bare ground/ ploughed and stubble fields is the second most common land use type (after wheat) covering an estimated 926 ha. Wheat and grass are the first and the third most common crop types within the Order Limits plus 400m with an estimated coverage of 2,915 ha and 700 ha respectively. All these crops were evenly distributed along Order Limits plus 400m (Appendix 22.8, Figure 1). Wheat and grass were also most common within sample crop polygons with an average coverage of 14,141 ha and 12,251 ha respectively for 2019, 2020 and 2021. On average, fallow and non-vegetated or sparsely vegetated land represented a total of 8,149 ha (Appendix 22.8).

~~227.~~247. Given the favourable conservation status of the population, the low number of records, the availability of alternative foraging habitat, the small scale of potential displacement relative to the foraging range, the temporary nature of the loss, and the peak flock count of 67 from non-arable habitat, it is concluded that there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect** on pink-footed goose due to temporary disturbance.

248. Nevertheless, the additional mitigation to enact a seasonal restriction around The Haven, and in particular the localised working commitment as detailed for lapwing (see paragraph 264), would reduce the potential for disturbance of pink-footed geese, including avoiding disturbance to those using non-arable habitat within the designated site boundary (as a result of the seasonal restriction at The Haven).

249. Additional mitigation measures requested by Natural England have also been incorporated and are detailed in the OLEMS (version 6, deadline 4a). This is a commitment to develop a pink-footed goose management plan. The outline management plan proposals provided in the OLEMS describe that firstly construction activities will be coordinated with local farmers to seek to avoid working near key crops utilised by foraging pink-footed geese between November and January. Where that is not possible, additional food resource would be provided, within a location within the project Order Limits therefore no additional land outside the Order Limits would be required to deliver this measure.

Gadwall

~~228.~~250. Gadwall was recorded within the 400m potential disturbance buffer during Year 1 winter ~~2022-23~~ bird surveys in the following locations:

- The peak flock count of 87 was recorded from Anderby Marsh, which is located approximately 80m at the closest point from the landfall construction compound.
- There was also a peak flock count of five from Wolla Bank Pit Reserve.
- Peak flock count of two from a pond 140m from the ECC (Cable Installation Compound) and 60m from an access track in ECC 1.
- Three peak flock counts of one, two and two birds on the Wainfleet Relief Channel, approximately 200m from the ECC (temporary access track or Cable Installation Compound) in ECC 5.

- Two peak flock counts of two from the Steeping River.

251. Gadwall was recorded within the 400m potential disturbance buffer during Year 2 winter bird surveys in the following locations:

- Peak flock count of 12 from ECC 4, from a wetland area 350m to the west of the ECC at the closest point, separated by a farm track.
- Peak flock count of two on the Wainfleet Relief Channel in ECC 5, approximately 250m from the ECC.
- Three peak flock counts of two, two and five birds in The Haven and adjacent relief channel in ECC 10 (trenchless work sections).
- Two peak flock counts of four and seven birds in the River Welland in ECC 13 (trenchless work sections).

~~229.~~252. The peak flock count of ~~87~~ 165 represents approximately 0.~~28~~53% of the GB wintering population. The recommended buffer for gadwall from construction activity is 200m (Wallis *et al*., 2019). There is a road and an existing earth mound (Roman Bank) separating the landfall construction compound from Anderby Marsh. In addition, as described in the introductory text for Impact 3, specific mitigation has been embedded in the design to further reduce potential disturbance to birds utilising Anderby Marsh, including a 4m high earth bund to be installed on the north, east and south sides of the landfall construction compound. As described in that section, this will reduce noise disturbance to the Marsh to below the threshold levels for significant disturbance to non-breeding waterbirds. The bund will also provide a screen between the compound and the other coastal nature reserves. The other flocks recorded were occasional records ~~each of one or two~~comprising of several birds only. With the specific landfall disturbance reduction mitigation in place, potential disturbance would be minimised and there would be **no significant effect** on non-breeding gadwall.

Wigeon

~~230.~~253. Wigeon was recorded within the 400m potential disturbance buffer during Year 1 winter ~~2022-23~~ bird surveys in the following locations:

- The peak flock count of 460 was recorded from Anderby Marsh, which is located within the onshore Order Limits and approximately 80m at the closest point from the landfall construction compound.
- Peak flock counts of 130 and 78 from a pond 300m west of the ECC (Cable Installation Compound) and in ECC 4.
- Peak flock counts from arable fields of 35 (250m to west of ECC at closest point) and 80 (20m west of ECC at closest point) from an Cable Installation Compound section in ECC 5.
- Peak flock count of two from a pond 250m south of the ECC, open trenched section, and peak flock count of 12 from ponds 300m south of the ECC, Cable Installation Compound, in ECC 7.

- Peak flock count of 350 (frequency of 1) from within RSPB Frampton Marsh Reserve. This was at the very edge of the 400m buffer from the ECC corridor, and closer to two enabling access tracks, which will be used during mobilisation and demobilisation only.

254. Wigeon was recorded within the 400m potential disturbance buffer during Year 2 winter bird surveys in the following locations:

- The peak flock count of 400 was recorded from Anderby Marsh, which is located within the onshore Order Limits and approximately 150m at the closest point from the landfall construction compound.
- Peak flock counts of 110 and 66 from a pond 300m west of the ECC (Cable Installation Compound) and in ECC 4.
- Peak flock count of seven from a pond 250m south of the ECC and peak flock count of two from ponds 300m south of the ECC, open trenched section, in ECC 7.
- Peak flock count of seven from a relief channel 500m north of the ECC (trenchless work section) in ECC 10.
- Peak flock counts of two and seven in the River Welland 250m south of the ECC (Cable Installation Compound) in ECC 12.
- Peak flock counts of nine and 14 in the River Welland 200m south of the ECC and 400m northeast of the ECC respectively (Cable Installation Compound and trenchless work section), in ECC 13 and 14.

~~231.~~255. The peak flock count of 460 represents approximately 0.1% of the GB wintering population. The recommended buffer for wigeon from construction activity is 200m (Wallis *et al*., 2019). As described in the assessment of impacts to non-breeding gadwall at Anderby Marsh, with the existing landscape features and the embedded mitigation measures, disturbance will be minimised to non-breeding waterbirds utilising Anderby Marsh. The single additional area within 200m of the ECC which was recorded in use during the winter ~~2022-23~~ bird surveys in Year 1 was a peak flock count of 80 in ECC 5 and a peak flock count of nine in ECC 13 from River Welland on Year 2. The field where wigeons were recorded in Year 1 ~~itself~~ will have an access track along one edge and is 20m from the ECC at the closest point, however, only part of the field is within the 200m potential disturbance buffer, and half of it is closest to an open trenched section, as well as having an intervening ditch which is partially lined with trees. It's, therefore, likely that up to half of the field may be subject to disturbance displacement. The field itself is arable. Wigeon were also recorded from the adjacent arable field, which is beyond the potential disturbance distance from the ECC. The potential disturbance impact would be adverse, temporary and affecting a single land parcel recorded in use by wigeon, an arable field which is common in the local area.

~~232.~~256. The wigeon population of The Wash SPA is at favourable conservation status. The most recent WeBS count (2015/16-2019/20) is 12,226. With the specific landfall disturbance reduction mitigation in place, and seasonal restriction around The Haven, potential disturbance would be minimised and there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect** on non-breeding wigeon.

Common scoter

~~233.~~257. As would be expected based on habitat requirements, common scoter was only recorded on the sea, offshore from the landfall during the 2022-23 winter bird surveys. This chapter assesses impacts arising from works in the onshore environment only, landward of MHWS~~.~~. It is, therefore, concluded that any potential disturbance to this species arising from onshore construction activity would be of negligible magnitude and **not significant**.

Avocet

~~234.~~258. [Confidential Text Removed]

~~235.~~259. Natural England have previously recommended a 300m safe working distance (for non-construction operations such as human presence and shooting) around avocet nest sites (Natural England, 2021).

~~236.~~260. [Confidential Text Removed]

~~237.~~261. For mitigation for avocet, please refer to the embedded mitigation in Table 22.8. [Confidential Text Removed]

~~238.~~262. Breeding avocet is a qualifying feature of the Humber Estuary SPA and the population is at favourable conservation status. The breeding population nationally has increased more than 300% in the 25 years to 2009 (Easton *et al*. 2021). With the embedded mitigation secured, there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect** on breeding avocet as a result of construction disturbance.

~~239.~~263. As an additional measure, a specific survey and monitoring protocol will be developed to ensure adherence with the legal protection for nesting avocet as a Schedule 1 nesting species.

Lapwing

~~240.~~264. ~~Winter 2022-23~~Year 1 winter bird surveys recorded 230 observations of lapwing with a peak flock count of 400, from ECC 12. Records were distributed widely across the route. No observations were obtained from the landfall through the tide surveys. Two breeding territories were also identified, both from Anderby Marsh.

~~241.~~265. In Year 1, ~~N~~notable flocks (of >100 birds) within the potential disturbance area (excluding habitat loss areas which have been assessed separately) were:

- Peak flock count of 258 from Anderby Marsh and 125 from an arable field adjacent and to the north of the landfall construction compound.

- Peak flock count of 110 from ECC 3, from an arable field adjacent to a TCC and 100m to the east of the ECC (mainly open trenched section) at the closest point.
- Peak flock count of 220 (frequency of 1) from ECC 4, >400m from the ECC but at the edge of the 400m buffer from an enabling access track.
- Peak flock count of 160 from ECC 5, from an arable field to the south of a TCC (separated by the A52 road) and 250m to the south of the ECC (Cable Installation Compound sections) at the closest point.
- Peak flock count of 138 from ECC 5, from an arable field 200m to the north of the ECC (open trenched and Cable Installation Compound sections) at the closest point and separated from it by multiple field boundaries with hedges/tress.
- Peak flock count of 110 from ECC 5, from a grassland field 350m to the north of the ECC at the closest point (apparently used for recreation).
- Peak flock count of 324 (frequency of 1) from the edge of the 400m buffer in ECC 5.
- Peak flock count of 148 (frequency of 1) from the edge of the 400m buffer in ECC 6.
- Peak flock count of 250 from ECC 8, from an arable field 200m south of the ECC at the closest point (open trenched section).
- Peak flock count of 208 from ECC 9, from an arable field adjacent to the ECC at the closest point.
- Peak flock count of 284 from ECC 9, from an arable field 200m to the west of the ECC at the closest point, separated from it by a minor road.
- Peak flock count of 157 from ECC 9, from an arable field 150m to the east of the ECC at the closest point, separated from it by a minor road and a treeline.
- Peak flock count of 232 from ECC 9, from an arable field which the ECC partly runs through.
- Peak flock count of 210 from ECC 11, from an arable field adjacent to the ECC at the closest point (the field itself being 1km in length).
- Peak flock counts of 400 and 100 from ECC 12, from two adjacent arable fields, adjacent to the ECC at the closest point and 500m at the furthest point.

266. [Confidential Text Removed].

267. In Year 2, notable flocks (of >100 birds) within the potential disturbance area (excluding habitat loss areas which have been assessed separately) were:

- Peak flock count of 1,000 from ECC 3, from an arable field 350m to the east of the ECC at the closest point, separated by a farm track.
- Peak flock count of 500 from ECC 3, from an arable field 350m to the west of the ECC at the closest point, separated by a farm track.
- Peak flock count of 110 from ECC 4, from a wetland area 350m to the west of the ECC at the closest point, separated by a farm track.

- Peak flock count of 120 from ECC 5, from an arable field 300m from the enabling access track to the north of the ECC.
- Peak flock count of 700 from ECC 5, from an arable field 150m from the ECC.
- Peak flock count of 143 from ECC 5, from an arable field 250m to the east of the ECC.
- Peak flock count of 108 from ECC 6, from an arable field 250m from the enabling access track and 650m to the east of the ECC.
- Peak flock count of 110 from ECC 9, from an arable field 250m to the west of the ECC at the closest point, separated by a minor road.
- Peak flock count of 300 from ECC 11, from an arable field 300m to the west of the ECC at the closest point, separated by a field boundary.
- Peak flock count of 107 from ECC 11, from an arable field 350m to the east of the ECC at the closest point, separated by multiple farm tracks.
- Peak flock count of 200 from ECC 12, from an arable field 350m to the east of the ECC at the closest point, separated by multiple farm tracks.
- Peak flock count of 165 from ECC 13, from an arable field 550m to the northwest of the OnSS at the closest point, separated by the A16 road (within the 400m buffer).
-

~~242.~~268. In addition, in Year 1, a peak flock count of 2,500 was recorded just outside of the 400m buffer in ECC 6. The population of non-breeding lapwing of The Wash Ramsar is in unfavourable condition and the numbers have significantly declined from a citation population of 46,422 to the most recent WeBS estimate of 12,976. One study found that the population size has been limited by breeding success and not the availability of over-winter arable farmland habitat (Sheldon *et al*., 2004). BTO BirdFacts (2023) states that the population decline is due to breeding productivity dropping below a sustainable level. The peak flock count of ~~400~~ 2,000 represents approximately 0.~~06~~32% of the UK wintering population.

~~243.~~269. The identified breeding lapwing at Anderby Marsh will be protected from disturbance by the existing bund at Roman Bank as well as the extra mitigation bund to be installed on three sides of the landfall construction compound.

~~244.~~270. Lapwing is classified as a species of moderate sensitivity to disturbance in the Disturbance Toolkit, although it is noted that research into disturbance to wintering birds is limited. In relation to visual disturbance, a distance of 300m is cited at which 'high level' disturbance stimuli could elicit a disturbance response. The Toolkit considers that noise levels of up to 72dB at the feature would be acceptable, with caution above 55dB. It states that lapwing will roost to within 200m of plant and, therefore, a source noise generation of 115-120dB at 200m from lapwing may be acceptable, with caution above 87-92dB at 200m range.

271. Disturbance, in the absence of mitigation, has the potential to limit foraging and displace birds to potentially sub-optimal foraging and roosting locations and, therefore, has the potential to impact survival of lapwing within the vicinity. Lapwing primarily utilise arable fields within the survey area, and similar agricultural land is common in the surrounding area.

272. In Year 2 winter bird surveys, bare earth/ploughed fields were the most frequently recorded field type utilised by lapwing (81 registrations, a total of 9,505 bird records), followed by cereals (27 registrations, a total of 4,356 bird records) and grassland (42 registrations, a total of 2,727). The latter refers primarily to wetland sites particularly Anderby Marsh (Appendix 22.7).

273. Sample crop survey within the Order Limits plus 400m shows that fallow land, which includes bare ground/ ploughed and stubble fields is the second most common land use type (after wheat) covering an estimated 926 ha. Wheat and grass are the first and the third most common crop types within the Order Limits plus 400m with an estimated coverage of 2,915 ha and 700 ha respectively. All these crops were evenly distributed along the Order Limits plus 400m (Figure 1, Appendix 22.8).

~~245.~~274. Wheat and grass were also most common within sample crop polygons with an average coverage of 14,141 ha and 12,251 ha respectively for 2019, 2020 and 2021. On average, fallow and non-vegetated or sparsely vegetated land represented a total of 8,149 ha.

~~246.~~275. Embedded design and mitigation measures would also apply to non-breeding lapwing, including avoiding impact piling other than at the OnSS; a 4m high earth bund at the landfall construction compound; and perimeter earth bunds along the open trenched sections.

~~247.~~276. The disturbance impact would be of temporary duration, of up to 51-months, and would not be uniform across the ECC during that time, with works occurring in discrete areas at any one time. The impact would be localised in relation to certain work activities, notably site establishment and restoration and Cable Installation Compound works (works within open trenched areas being partially screened by perimeter earth bunds). The impact would largely relate to arable field habitat, which is common in the surrounding area. Whilst the population has declined recently, this is due to declines relating to breeding success (rather than wintering habitat availability) and there is likely to be available alternative suitable wintering habitat for the remaining birds to use when displaced from areas around construction activity. Given the frequency of records and on a precautionary basis, it is considered that temporary construction disturbance may results in an appreciable change in population size or distribution at the level of The Wash Ramsar (should the populations be linked), and, therefore **there is potential for a significant adverse effect** on lapwing.

~~248.~~277. In order to minimise the potential for disturbance, and provide even greater certainty to the conclusions, additional mitigation has been included in the form of a commitment to localised working. As detailed in Table 22.21 works between November to February inclusive will be carried out by several small teams at discrete locations along the route, such as joint bay or link box installation, trenchless crossings, cable installation (pulling of cables through pre-installed ducts) and other non-intrusive earth works (e.g. cable testing). Assuming a works area of 100m at these sites and 10 active sites, this would account for approximately 1,000m of works or (1km/70km) or **1.4%** of the cable corridor at any one time. Activity on the remaining 98.6% of the corridor will be confined to the operatives taking daily access to the work site where this involves the use of a haul road and moving the drilling plant to the next site once the work at any location is complete.

~~249.~~278. Between April to September inclusive (weather dependent), the works area would account for approximately **5%** of the cable corridor. During October and March, summer works will progressively be completed/started and transitioned between summer and winter working levels.

~~250.~~279. This commitment to localised working will ensure that disturbance is minimised, particularly during the period of November to February inclusive, with the level of works reducing in October and increasing in March, from/to maximum extents between April to September of approximately 5% of the route corridor at any one time.

~~251.~~280. The temporal spread of records of this species are presented in Table 22.13 and Table 22.14.

Table 22.13 Temporal spread of lapwing records from Year 1 and Year 2 non-breeding bird surveys (Order Limits plus 400m buffer)

Metric (Survey Type)	Month							
-	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Season one:								
Peak Count (Coastal OP Surveys)	0	0	0	0	0	0	0	--
Peak Flock Count (ECC Surveys)	0	0	324	138	230	400	250	-
Total Number of Flocks	0	0	20	78	48	55	29	-
Season two:								
Peak Count (Coastal OP Surveys)	0	0	0	0	0	0	0	0
Peak Flock Count (ECC Surveys)	3	2000	1500	700	1200	1000	88	6
Total Number of Flocks	1	7	16	44	47	21	12	8

~~Metric (Survey Type)~~	~~Month~~						
~~-~~	~~Sep~~	~~Oct~~	~~Nov~~	~~Dec~~	~~Jan~~	~~Feb~~	~~Mar~~
~~Peak Count (Coastal OP Surveys)~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~
~~Peak Flock Count (ECC Surveys)~~	~~0~~	~~0~~	~~324~~	~~138~~	~~230~~	~~400~~	~~250~~
~~Total Number of Flocks~~	~~0~~	~~0~~	~~20~~	~~78~~	~~48~~	~~55~~	~~29~~

Table 22.14 Temporal spread of lapwing records from nearby BTO WeBS Sector Counts

5 Year Average - BTO WeBS Counts								
Sector	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Frampton North 41	62	32	167	169	56	65	0	5
Frampton North 23	0	3	94	536	13	103	1	1
Frampton North 60	0	0	0	0	0	0	0	0
Anderby	0	0	5	30	130	25	0	1
Burgh Marsh Zone 1	5	1	57	40	300	150	50	37

~~252.~~281. These data suggest that lapwing occur in larger numbers from ~~November~~ October **to March inclusive**.

~~253.~~282. The additional mitigation of suspending works during periods of freezing weather will also reduce the potential disturbance impact on this species.

~~254.~~283. Further specific mitigation options included at PEIR stage included the use of temporary screening during potentially disturbing construction works within and adjacent to areas used by significant numbers of waterbirds. Those fields listed above are the locations where the greatest aggregations of non-breeding lapwing have been recorded. Whilst the inherent characteristics of some arable fields make them more suitable for lapwing, such as their size and sightlines, usage will also vary with crop rotation. Given their widespread distribution, the localised working commitment will mitigate the potential for construction disturbance, and it is considered that screening is not appropriate. With the inclusion of this additional mitigation, it is concluded that there will be **no significant adverse effect** on lapwing.

Golden plover

~~255.~~284. Year 1 ~~W~~winter ~~2022-23~~ bird surveys recorded 79 observations with a peak flock count of 250. Observations were of birds feeding and loafing within fields across the survey area. A peak count of 23 was recorded from the landfall through the tide surveys, however, the species was only present on a single visit. LWT advised that 175 golden plovers were recorded at Anderby Marsh in February 2023.

~~256.~~285. In Year 1, ~~N~~notable flocks (of >100 birds) within the potential disturbance area (excluding habitat loss areas which have been assessed separately) were:

- Peak flock count of 110 from Anderby Marsh.
- Peak flock count of 950 from ECC 6 (same field as peak flock count of 2,500 lapwing) from an arable field which the ECC will run through. The centre of the field is 250m, and the furthest point of the field is 600m, from the ECC. The ECC runs through a corner of the field only.
- Peak flock count of 145 from ECC 8, from an arable field adjacent to the ECC (300m from it at the furthest point).

286. In Year 2, 30 observations were recorded across 12 ECC segments and during a total of six visits with a peak count of 2,000 individuals in ECC 12.

287. Notable flocks (of >100 birds) within the potential disturbance area (excluding habitat loss areas which have been assessed separately) were:

- Peak flock count of 300 from ECC 3, from an arable field 150m to the north of ECC.
- Peak flock count of 100 from ECC 5, from an arable field 350m to the east of the ECC and 200m from the enabling access track.
- Peak flock count of 2,000 from ECC 12, from an arable field 350m to the east of the ECC and separated by a farm track.

~~257.~~288. Whilst the species has a widespread distribution across the survey area, the numbers and frequency are lower than for lapwing, with only ~~three~~ five fields identified supporting groups of >100 birds. Golden plover population status at various spatial scales is detailed within the Habitat Loss section for this species.

~~258.~~289. A Natural England and RSPB report (2019) indicates that the breeding population is facing high level threats from climate change and non-climatic threats, whereas the wintering populations may benefit from climate change and face low level non-climatic threats, although it is also declining in GB. The winter population is, however, increasing in Europe and undergoing an eastwards range shift, potentially due to climate change, indicating that otherwise suitable habitat has been vacated in GB (Birdlife International, 2024). Therefore, winter habitat availability would not be a limited resource in GB. ~~(~~

~~259.~~290. Golden plover is classified as a species of moderate sensitivity to disturbance in the Disturbance Toolkit (Cutts *et al*., 2013), although it is noted that research into disturbance to wintering birds is limited. In relation to visual disturbance, a distance of 200m is cited at which 'high level' stimuli could cause disturbance. The Toolkit considers that noise levels up to 72dB at the feature would be acceptable, with caution above 55dB. It states that golden plover will roost to within 300m of plant and considers a source noise generation of 120-115dB at 300m from golden plover may be acceptable, with caution above 107-112dB.

291. The disturbance impact assessment and relevant embedded mitigation measures are the same as described for lapwing, on the basis of their similar distribution, habitat preferences, sensitivity to disturbance and that winter habitat availability is not a limiting factor for the population.

292. Field types utilised by golden plovers in the Year 2 of winter birds surveys were predominantly bare earth/ ploughed fields (16 registrations, a total of 2,099) and cereal fields (ten registrations, a total of 1,866), with the largest flock recorded in a recently sown crop field. These are the most common types of crops within the Order Limits and a wider area as presented in the disturbance assessment for lapwing and in Appendix 22.8.

~~260.~~293. With the embedded design and mitigation measures in place, the potential for disturbance will be reduced, and given the lower frequency and abundance than lapwing, and greater confidence in the availability of winter habitat, there would be no appreciable negative change in population size or distribution. Therefore, **no significant effect** on golden plover due to construction disturbance is anticipated. The proposed additional mitigation measures described for lapwing will also be applied, and be equally beneficial, for this species. The available data, as presented in Table 22. and Table 22.16, suggest that golden plover occur in larger numbers from ~~**November**~~ October **to March inclusive**~~, as is the case for lapwing~~.

Table 22.15 Temporal spread of golden plover records from Year 1 and Year 2 non-breeding bird surveys (Order Limits plus 400m buffer)

Metric (Survey Type)	Month							
-	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Season one:								
Peak Count (Coastal OP Surveys)	23	0	34	0	0	0	0	-
Peak Flock Count (ECC Surveys)	23	31	250	87	70	128	145	-
Total Number of Flocks	1	1	12	35	12	6	12	-
Season two:								
Peak Count (Coastal OP Surveys)	0	0	0	0	0	0	0	0
Peak Flock Count (ECC Surveys)	0	2000	102	500	1000	0	47	0
Total Number of Flocks	0	1	3	18	7	0	1	0

~~Metric (Survey Type)~~	~~Month~~						
~~-~~	~~Sep~~	~~Oct~~	~~Nov~~	~~Dec~~	~~Jan~~	~~Feb~~	~~Mar~~
~~Peak Count (Coastal OP Surveys)~~	~~23~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~
~~Peak Flock Count (ECC Surveys)~~	~~23~~	~~31~~	~~250~~	~~87~~	~~70~~	~~128~~	~~145~~
~~Total Number of Flocks~~	~~1~~	~~1~~	~~12~~	~~35~~	~~12~~	~~6~~	~~12~~

Table 22.16 Temporal spread of golden plover records from nearby BTO WeBS Sector Counts

5 Year Average - BTO WeBS Counts								
Sector	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Frampton North 41	1	0	150	1	0	0	0	0
Frampton North 23	0	0	0	0	0	0	0	10
Frampton North 60	0	0	0	0	0	0	0	0
Anderby	0	0	0	0	15	0	0	0
Burgh Marsh Zone 1	0	0	80	0	0	15	0	0

Curlew

~~261.~~294. There were 255 observations of curlew within the onshore Order Limits plus 400m survey area during the Year 1 winter ~~2022/23 bird~~ surveys (excluding landfall surveys), with a peak flock count of 56 individuals. Curlew were widespread throughout the survey area, utilising arable and pasture fields, as well as Anderby Marsh (ECC 1) and The Haven (ECC 10 and 11). A peak count of 18 curlew was obtained from the landfall through the tide surveys and the species was present on five visits. There were no records of breeding curlew from the 2023 breeding bird surveys.

~~262.~~295. In Year 1, ~~N~~notable flocks (of >50 birds) within the potential disturbance area (excluding habitat loss areas which have been assessed separately) were:

- Peak flock count of 54 curlew from an arable field 250m west of the ECC (an open trenched section) at the closest point in ECC 5.~~'~~
- Peak flock count of 56 from an arable field 150m from the ECC at the closest point (450m at the further point) and separated by a minor road in ECC 8.

296. In Year 2, there was only a single observation of eight curlew during the Coastal OP surveys. There were 160 observations during walkover surveys recorded across 13 ECC segments and during a total of 14 visits with a peak flock count of **103 individuals in ECC 12.**

297. In Year 2, notable flocks (of >50 birds) within the potential disturbance area (excluding habitat loss areas which have been assessed separately) were:

- Peak flock count of 89 curlew from an arable field in ECC 5, 350m north of the ECC (and 300m from the enabling access track).
- Peak flock count of 74 curlew from an arable field in ECC 5, 350m north of the ECC.
- Peak flock count of 100 curlew from an arable field in ECC 5, adjacent to the ECC.
- Peak flock count of 52 curlew from an arable field in ECC 11, adjacent to the ECC.

~~263.~~298. Whilst the species has a widespread distribution across the survey area, the numbers are lower than for lapwing and golden plover, with only ~~two~~ six fields identified supporting groups of >50 birds. Curlew is a non-breeding qualifying feature of The Wash SPA and Ramsar. The Wash SPA population has a maintain objective and the population has increased from 3,700 at citation to 6,061 at the latest BTO WeBS count (2015/16-19/20). The peak flock count of ~~56~~ 103 represents approximately 0.~~09~~08% of the GB winter population.

~~264.~~299. Research indicates that the main cause of the population decline relates to habitat changes at breeding sites (BTO BirdFacts, 2023) and, therefore, availability of winter habitat is not a major limiting factor. The same sources states *"a study of colour-ringed birds wintering in south-west England suggested that apparent survival was highest during winter, and hence the main threats to this wintering population appeared to be during the breeding season or on migration (Robinson et al. 2020)".*

~~265.~~300. Curlew is classified as a species of moderate sensitivity to disturbance in the Disturbance Toolkit. In relation to visual disturbance, a distance of 300m is cited at which 'moderate' and 'high level' disturbance stimuli could cause disturbance. The Toolkit considers that noise levels up to 117-122dB at source would be acceptable when birds are at 300m range.

301. The disturbance impact assessment and relevant embedded mitigation measures are the same as described for lapwing, on the basis of their similar distribution, broad habitat preferences, sensitivity to disturbance and that winter habitat availability is not a limiting factor for the population.

302. Grazed and ungrazed grassland (90 registrations, a total of 993 bird records) were the most used habitat by curlew in Year 2 winter bird surveys, followed by bare earth/ ploughed fields (39 registrations, a total of 410), cereals (19 registrations, a total of 309) and stubbles (10 registrations, a total of 147). These are the most common types of crops within the Order Limits and a wider area as presented in the disturbance assessment for lapwing and in Appendix 22.8.

~~266.~~303. With the embedded design and mitigation measures in place, disturbance will be minimised, and there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect** on curlew due to construction disturbance. The additional mitigation measures described for lapwing will also be applied, and equally reduce the risk of disturbance effects on the population, for this species. The available data, as presented in Table 22.17 and Table 22.18, suggest that curlew occur in larger numbers from **November to March inclusive**~~, as is the case for lapwing~~.

Table 22.17 Temporal spread of curlew records from Year 1 and Year 2 non-breeding bird surveys (Order Limits plus 400m buffer)

Metric (Survey Type)	Month							
-	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Season one:								
Peak Count (Coastal OP Surveys)	0	2	0	0	0	18	6	-
Peak Flock Count (ECC Surveys)	0	6	35	56	28	44	54	-
Total Number of Flocks	~~-~~0	6	21	58	58	56	56	-
Season two:								
Peak Count (Coastal OP Surveys)	0	8	0	0	0	0	0	0
Peak Flock Count (ECC Surveys)	0	6	103	52	74	100	49	4
Total Number of Flocks	0	6	25	53	17	30	18	12

~~Metric (Survey Type)~~	~~Month~~						
~~-~~	~~Sep~~	~~Oct~~	~~Nov~~	~~Dec~~	~~Jan~~	~~Feb~~	~~Mar~~
~~Peak Count (Coastal OP Surveys)~~	~~0~~	~~2~~	~~0~~	~~0~~	~~0~~	~~18~~	~~6~~
~~Peak Flock Count (ECC Surveys)~~	~~0~~	~~6~~	~~35~~	~~56~~	~~28~~	~~44~~	~~54~~

Metric (Survey Type)	Month						
Total Number of Flocks	0	6	21	58	58	56	56

Table 22.18 Temporal spread of curlew records from nearby BTO WeBS Sector Counts

5 Year Average - BTO WeBS Counts								
Sector	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Frampton North 41	0	0	0	0	0	0	0	0
Frampton North 23	28	7	5	11	10	9	3	4
Frampton North 60	0	0	0	1	0	0	0	0
Anderby	1	6	5	22	17	61	25	2
Burgh Marsh Zone 1	0	19	19	5	32	5	67	8

Sanderling

267.304. As would be expected based on habitat requirements, sanderling were recorded from the beach at the landfall only during Year 1 and Year 2 winter 2022-23 bird surveys. It is, therefore, concluded that any potential disturbance to this species arising from onshore construction activity would be of negligible magnitude and **not significant**.

Redshank

268.305. The highest peak flock count from the survey area was 35 41 individuals. There were some aggregations of records from the River Welland, The Haven and Anderby Marsh. Otherwise, the species was typically associated with main drains and field drains. The peak count from the landfall through the tide surveys was two and the species was only present on a single occasion.

269.306. There were no notable flocks (of >50 birds) within the potential disturbance area (excluding habitat loss areas which have been assessed separately). There were no records of breeding redshank from the 2023 breeding bird surveys.

270.307. Redshank is a non-breeding qualifying feature of The Wash SPA and Ramsar, and Humber Estuary SPA and Ramsar and a passage feature of the Humber Estuary Ramsar. The most recent BTO WeBS count for The Wash is 5,087, whereas the citation population for The Wash SPA was 4,331 and the objective is to maintain the population. The Wash Ramsar citation population was, however, higher at 6,373. The most recent WeBS count for The Humber Estuary is 2,881, whereas the citation population for The Humber Estuary SPA and Ramsar was 4,632 and the conservation objective is to restore.

~~271.~~308. With the use of trenchless techniques to cross the main watercourses and avoid Anderby Marsh, The Haven and Welland, as well as the embedded mitigation measures, potential disturbance will be minimised. Combined with the low numbers of redshank recorded within the survey area, there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect** on redshank due to construction disturbance. The additional mitigation, particularly the seasonal restriction to works around The Haven area, will further reduce the potential for disturbance to this species.

Black-headed gull

~~272.~~309. No breeding black-headed gull colonies were identified within the survey area. Black-headed gull is a species of low sensitivity to human disturbance and is likely to be tolerant of construction activities in proximity to foraging areas. The embedded design and mitigation measures would also apply to non-breeding black-headed gull, including avoiding impact piling other than at the OnSS. It is, therefore, concluded that disturbance would have **no significant effect** on black-headed gull. Additional mitigation, notably the restriction to works during freezing weather conditions, will further reduce the potential for disturbance to this species.

Marsh harrier

~~273.~~310. The following nesting marsh harriers were recorded:

- [Confidential Text Removed]

~~274.~~311. The three territories represent approximately 0.7% of the UK breeding population. There were a total of nine records of marsh harrier during the Year 1 winter ~~2022-23~~ ECC surveys and 12 records in Year 2 and no evidence of the presence of a communal winter roost.

~~275.~~312. [Confidential Text Removed] With this mitigation secured, and given the distances of estimated nesting sites from the construction works, it is concluded that disturbance to nesting marsh harriers will be avoided **(not significant).**

~~276.~~313. Throughout the year, marsh harriers hunt over arable fields, reedbed, freshwater marsh and salt marsh (Underhill-Day, 2002). A study in East Anglia found the home range of males to be 569ha during courtship to 1,407ha post-fledging, with birds hunting up to 7km from the nesting area (Underhill-Day, 1990). Females home ranges vary from 100 to 1,300ha (Hardey *et al*. 2013).

~~277.~~314. The ECC route is an approximately 80m wide linear corridor and potential disturbance displacement of foraging birds will be from arable farmland, which is common in the local area. Given the temporary loss of common foraging habitat from a small proportion of the home (breeding) and winter ranges, there would be no appreciable negative change in population size or distribution and the impact would be **not significant.**

~~278.~~315. A specific survey and monitoring protocol will be developed to ensure adherence with the legal protection for nesting marsh harrier as a Schedule 1 nesting species, to provide further assurance that disturbance to nesting birds will be avoided.

Species Populations of County Value

Little ringed plover

~~279.~~316. [Confidential Text Removed]. The potential disturbance impact is as described for breeding avocet and with the embedded mitigation described for avocet, there would be **no significant effect** on breeding little ringed plover as a result of construction disturbance. The additional mitigation to ensure protection of Schedule 1 nesting birds will also apply to this species.

Barn owl

317. Breeding barn owl survey identified a single occupied breeding site and three active roost sites within the survey area, each located within barns outside of the onshore Order Limits. [Confidential Text Removed]. They are also regular at Wolla Bank Reedbed in winter. The GB wintering population is estimated to be 4,000-14,000 individuals (Woodward *et al.*, 2020).

~~280.~~ Locations of barn owl nest sites within 2km of the Order Limits were obtained from the Wildlife Conservation Projects Ltd. (WCP), which coordinates and monitors barn owl nest boxes throughout Lincolnshire.

~~281.~~318. Shawyer *et al*. (2012) provide approximate protection zones for barn owl nest sites in relation to different types of construction activity. In relation to continuous construction activity:

- for vehicles and heavy plant the disturbance risk is Medium and the protection zone is 40m (minimum);
- for general building and landscape works the disturbance risk is Medium/High and the protection zone is 60m (min); and
- for heavy construction works (ground levelling, pile-driving, concrete crushing etc) the disturbance risk is High and the protection zone is 175m (min).

~~282.~~

319. The barn containing the nest box is located within a complex of barns in a farmstead with regular human activity in the vicinity. It is separated from the planned access track by a dense treeline. It is separated from the ECC by further barns and a hedgerow. The nest site is outwith the 40m protection zone for vehicular activity and 60m protection zone for landscape works, although within the 175m for ground levelling heavy works. Whilst there will not be any impact piling along the ECC, there will be heavy landscaping works. Given the location of the nest site, within a barn within a farmstead and that there are further buildings and vegetation between the nesting barn and the ECC, it is considered that disturbance displacement is highly unlikely.

~~283.~~

320. The roost sites are each beyond the relevant protection zones from the ECC boundary. For two of them, the project access track will follow the existing established farm track past the barns. These are both well-established farm tracks so it is considered unlikely that disturbance displacement would occur as a result of use of the tracks by construction vehicles.

~~284.~~

~~On this basis it is concluded that there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect** on breeding and non-breeding barn owl as a result of construction disturbance.~~The nest site locations from WCP have been presented in Appendix 3.22.2: Confidential Desk Study (document reference 6.3.22.2), within the Order Limits plus 200m buffer to accommodate all protection zones.

321. Out of a total of 87 potential nest sites located within the 2km search area, 12 potential nest sites (14.9%) are located within the Order Limits plus~~+~~ 200m.

~~285.~~

322. The up-to-date nest site data from the local barn owl group will be reviewed pre-construction, alongside pre-works barn owl surveys, to identify current nest sites within the potential zone of influence of the project and to review and develop mitigation measures to ensure adherence to the legal protection of the species as a Schedule 1 listed bird. Where a nest site is deemed at risk of disturbance, then it may be necessary to close off that box temporarily prior to the nesting season and reopen it after completion of works. Should that be necessary, it would be conducted in liaison with the relevant landowner and barn owl conservation group, and an alternative box would be erected nearby outwith the ZoI prior to any temporary capping of boxes.

323. On this basis it is concluded that there would be no appreciable negative change in population size or distribution and, therefore, **no significant effect** on breeding and non-breeding barn owl as a result of construction disturbance.

~~286.~~

Bearded tit

~~287.~~324. Bearded tit was not recorded within the survey area during the Year 1 winter ~~2022-23~~ and breeding 2023 surveys. [Confidential Text Removed]. LWT advise that bearded tit winter at Wolla Bank Reedbed in double figures. [Confidential Text Removed].

~~288.~~325. [Confidential Text Removed]. Wolla Bank Reedbed is approximately 200m to the southeast of the landfall construction compound at the closest point. With the embedded mitigation at the landfall, particularly the 4m high earth bund to screen the landfall works from the coastal reserves, any potential disturbance impact to non-breeding bearded tit would be negligible (and **not significant**).

Cetti's warbler

~~289.~~326. There were five observations with a peak count of six individuals during the Year 1 winter bird ECC surveys. ~~All records were from the wetland habitats at Wolla Bank and Chapel Six Marshes.~~ [Confidential Text Removed]

~~290.~~327. [Confidential Text Removed]. As a species nesting in dense scrub, it is of low sensitivity to construction disturbance and any disturbance at a range of 200m would be negligible. Inclusion of the mitigation bund around the landfall construction compound will further minimise disturbance to habitats within the coastal nature reserves. On that basis it is concluded that any potential disturbance impact to Cetti's warbler would be negligible (and **not significant**).

Starling

~~291.~~328. LWT advised that >20,000 starlings were recorded roosting at Wolla Bank Reedbed in winter 2021-22 and 150,000 in the reedbeds at Chapel Six Marshes in autumn 2020, with more typical numbers being approximately 50,000. A single probable starling territory was recorded within the breeding bird survey area, in ECC 3. The UK population size is estimated at 1.8 million breeding pairs (Woodward *et al*., 2020).

~~292.~~329. With the separation distance between the landfall construction compound of approximately 200m to Wolla Bank Reedbed and 800m to Chapel Six Marshes, combined with the mitigation earth bund to screen the compound from the reserves, construction disturbance to roosting starlings utilising habitats within the reserves would be of negligible magnitude (and **not significant**).

~~293.~~330. For the single breeding territory identified, the nest location was not determined, and the species nests in cavities, in a tree or building. As such the nest sites are less sensitive to disturbance and the species tends to be tolerant of human activity. Displacement of a breeding territory due to construction disturbance is, therefore, considered unlikely. It is concluded that construction disturbance to breeding starling would be of negligible magnitude (and **not significant**).

Yellow wagtail

~~294.~~331. LWT advise there was a roost of 351 yellow wagtails at Wolla Bank Reedbed in 2022. ~~No notable aggregations~~Yellow wagtails were not recorded during the Year 1 and Year 2 winter ~~2022-23~~ surveys. A single yellow wagtail breeding territory was confirmed, located in ECC 3. The UK population is estimated to be 20,000 breeding territories (Woodward *et al*., 2020).

~~295.~~332. The impact assessment described for starling equally applies to yellow wagtails roosting in the coastal reserves. The single breeding territory is located in an arable field through which the ECC runs, occupying approximately 30% of the field area. The field is surrounded by similar arable field habitats. Any displacement from breeding habitat is expected to be limited to a small area around the ECC and there is abundant alternative habitat available in the local area. It is concluded that construction disturbance to breeding and non-breeding yellow wagtail would be of negligible magnitude (and **not significant**).

Species Populations of Local or Less than Local Value

Breeding birds

~~296.~~333. Breeding bird species of Local value or less were predominantly passerines, which are less sensitive to disturbance than other groups and much less likely to be displaced as a result of the construction disturbance. For farmland birds, where there may be limited displacement from arable land, alternative cropland habitat is abundant in the local area. For species breeding in natural and semi-natural habitats, such as the coastal scrub and dunes and along main watercourses, there will be a stand-off between works and the breeding habitat, and in the case of the coastal habitats, mitigation screening to further reduce the potential for disturbance. Disturbance will be temporary and of no more than low magnitude, would not undermine the local breeding populations and, therefore, would **not be significant**.

Non-breeding birds

~~297.~~334. The non-breeding species of Local value includes a range of waterbirds which are mainly found in the natural and semi-natural habitats such as at the beach, the coastal reserve habitats or main watercourses. Disturbance to those locations will be minimised through stand off distances and embedded mitigation such as the earth bund at the landfall. Many of the species are passerines, which as described for breeding birds, are less sensitive to construction disturbance. For birds potentially displaced from arable fields, there is abundant similar habitat in the local area. The disturbance impact would be temporary and the additional mitigation measures including avoiding works during prolonged freezing weather conditions and embedded measures including perimeter earth bunds in open trenched sections would reduce the potential impact. Disturbance would be unlikely to undermine the local non-breeding populations and, therefore, would **not be significant**.

Other Designated Ornithological Sites

Non-European designated ornithological sites

~~298.~~335. The following non-European ornithological sites are located within the onshore Order Limits: Anderby Marsh LWT Reserve. The following sites are located within the 100m buffer: RSPB Frampton Marsh (enabling access track only) and Wolla Bank Reedbed LWT Reserve. Additionally, the following sites are located within the 400m buffer: The Wash SSSI, Wolla Bank Pit and Moulton Marsh LWT Reserves.

~~299.~~336. The coastal LWT Reserves of Anderby Marsh, Wolla Bank Reedbed and Wolla Bank Pit have been discussed in the preceding sections in relation to individual species impacts. With the embedded mitigation to have a minimum 80m stand off buffer from the coastal reserves and including the 4m high earth bund to screen the landfall compound from the reserves, potential disturbance impacts would be reduced below the threshold for adverse behavioural responses.

~~300.~~337. The Wash SSSI is located 180m from the onshore Order Limits at the closest point, at The Haven only. The SSSI boundary in this location is contiguous with that of the SPA and Ramsar, and the discussion in preceding sections concerning the potential disturbance impacts to features within the SPA apply equally to the SSSI features. The additional mitigation of a seasonal restriction to works during October to March inclusive within 400m of The Wash SPA and Ramsar also applies to the SSSI and will avoid disturbance impacts to non-breeding species during the core period.

~~301.~~338. The design of the ECC route has sought to be located as far away from the RSPB Frampton Marsh Reserve boundary as practicable, with the main ECC corridor being approximately 400m, and the secondary construction compound 325m, from the non-wooded land within the Reserve at the closest point. The location of the ECC in relation to the Reserve is presented in Volume 2, Figure 22.3 (document reference 6.2.22.3). Sections of the ECC within 400m of the Reserve are separated from it by a dense woodland strip which provides a natural screen. There are two proposed enabling access tracks in closer proximity (one from Access Location 40), the track to the west is screened by the woodland strip; the track to the north-east is approximately 150m from the non-wooded habitats within the reserve at the closest point, and an existing track is present between the two. This section of the Reserve is predominantly reedbed and there was a single aggregation of target waterbird species (wigeon) within that part of the Reserve during winter 2022-23 surveys. These enabling tracks will be used for a brief period only at the outset to mobilise plant and equipment and at the end to demobilise.

~~302.~~339. Given the presence of trees and hedgerows screening the reserve and the reedbed habitat which is the closest part of the reserve to the ECC, the impact of disturbance to birds within the boundary of the reserve would be negligible. The seasonal restriction to works between October to March inclusive will include areas to the east of Wyberton Roads, as shown in Volume 2, Figure 22.4 (document reference 6.2.22.4), which forms the access road to the Reserve.

~~303.~~340. Moulton Marsh LWS and LWT Reserve is located 300m to the south of the onshore Order Limits at the closest point, on the opposite side of the River Welland. Given the separation distance and the presence of the intervening river, potential disturbance impacts would be of negligible magnitude. In summary, there would be **no significant effect** on non-European ornithological sites as a result of construction disturbance.

~~304.~~341. The onshore Order Limits ~~partly overlaps with~~are adjacent to the compensation site~~, comprising a temporary access track only~~. The ECC route runs parallel with the compensation site, to the south of it, and immediately adjacent to it at the closest point (c.100m from it at the further point in this section). The closest section of ECC includes a mixture of open trenched, trenchless drilling compound and trenchless crossing (including haul road) sections. Field drains separate the ECC from the compensation site, but do not appear to have associated hedgerows or banks which would provide a degree of screening. Given the very close proximity of the ECC to the compensation site, and the location of the access track within it, it is likely that qualifying bird features, such as golden plover and lapwing, utilising the compensation site would be disturbed and potentially displaced from at least part of the site. Whilst the compensation site has not yet been established, and, therefore, what the utilisation by qualifying bird species will be is unknown, on a precautionary basis potential disturbance displacement could result in a potential **significant adverse effect** to qualifying bird species of The Wash SPA and Ramsar.

~~305.~~342. Therefore, mitigation is proposed in the form of a seasonal restriction to works within 400m of the Wyberton Roads South compensation site. The temporal spread of lapwing and golden plover records from those BTO WeBS Sectors located within 2km of the ECC are presented in Table 22.19 and Table 22.20 .

Table 22.19 Temporal spread of lapwing records from BTO WeBS Sectors within 2km of the onshore ECC

5 Year Average - BTO WeBS Counts												
Sector	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**
Frampton North 41	62	32	167	169	56	65	0	5	2	1	15	53
Frampton North 23	0	3	94	536	13	103	1	1	0	1	1	0
Frampton North 60	0	0	0	0	0	0	0	0	0	0	0	0
Anderby	0	0	5	30	130	25	0	1	0	1	0	0
Burgh Marsh Zone 1	5	1	57	40	300	150	50	37	27	41	60	40
Frampton South 01	0	0	1	0	0	0	0	2	5	2	6	0
Frampton South 41	7	2	1	1	0	167	0	0	0	0	1	0
Frampton South 42	2	78	1	91	259	1,091	21	22	4	0	0	0
Frampton South 43	3	3	188	40	50	25	5	1	3	0	0	0
Frampton South 44	21	111	180	2,775	3,332	715	44	59	32	3	6	3
Kirton 40	0	8	20	7	100	0	0	1	1	0	28	20
Kirton 41	8	10	18	50	0	1	0	0	0	0	0	0
Kirton 42	2	0	0	9	0	0	0	0	0	0	0	0
Kirton 43	0	0	56	0	13	0	0	0	0	0	0	0

Table 22.20 Temporal spread of golden plover records from BTO WeBS Sectors from within 2km of the onshore ECC

5 Year Average - BTO WeBS Counts												
Sector	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**
Frampton North 41	1	0	150	1	0	0	0	0	0	0	0	0
Frampton North 23	0	0	0	0	0	0	0	10	0	0	0	0
Frampton North 60	0	0	0	0	0	0	0	0	0	0	0	0
Anderby	0	0	0	0	15	0	0	0	0	0	0	0
Burgh Marsh Zone 1	0	0	80	0	0	15	0	0	0	0	0	0
Frampton South 01	0	0	0	0	0	0	0	0	0	0	0	0
Frampton South 41	0	8	1	1	1,500	1,000	241	0	0	0	0	33

5 Year Average - BTO WeBS Counts												
Frampton South 42	0	3	0	570	779	2,175	5	33	0	0	0	0
Frampton South 43	0	1	0	0	11	667	0	0	0	0	0	0
Frampton South 44	3	51	81	3,660	6,460	4,317	128	2	2	0	0	0
Kirton 40	0	0	0	0	150	0	0	0	0	0	0	0
Kirton 41	70	0	2	30	0	0	0	0	0	0	0	0
Kirton 42	0	0	0	0	8	0	0	0	0	0	0	0
Kirton 43	0	0	64	0	25	0	0	0	0	0	0	0

~~306.~~343. Tables 22.19 and 22.20 indicate that a seasonal restriction during the period of **November to February inclusive** would be appropriate to minimise disturbance to non-breeding golden plover and lapwing. With this mitigation in place, there would be **no significant effect** in relation to construction disturbance to the compensation site.

22.8.1.4 Impact C4: Pollution of waterbodies and watercourses used by protected and priority bird species, especially via suspended solids but potentially also via spillage of vehicle fluids from construction machinery

~~307.~~344. A detailed assessment of this impact is provided within Volume 1, Chapter 24: Hydrology, Hydrogeology and Flood Risk. To summarise, it concludes that with embedded mitigation measures in place, the impact to water quality as a result of direct spills would be negligible to minor adverse and not significant.

~~308.~~345. Chapter 24 considers the hydrological impacts of sediment runoff and spills/pollution on the following features: watercourses; near-shore coastal waters; transitional waterbodies (Witham and Welland); groundwater quality; and flood risk. These impacts are considered separately for the following elements of the Project: onshore ECC; OnSS; trenchless drilling; and landfall compound. The greatest potential for impacts to occur is during the construction phase, and all impacts that may occur during the operation and decommissioning phases are assessed as being of negligible magnitude and of minor adverse or negligible significance.

~~309.~~346. A range of hydrological mitigation measures have been provided, including:

- The outline CoCP will include:
  - Requirement for a flood response plan; and
  - Measures to control runoff, for example sediment fences, containment of storage areas and treatment of any runoff. Such measures would prevent the potential reduction in water quality associated with increased sediment loading affecting nearby tidal waters, fluvial watercourses or drainage ditches during construction works, especially during excavations or earthwork activities.
  - Measures to manage soil and stockpiling of materials which are contained within the Outline Soil Management Plan (SMP), within the CoCP (Document Ref 8.1.3). Measures include requirement for stockpiling to only be permitted in designated stockpile areas and all designated stockpile areas to be located be a minimum of 10 m from any open watercourse features.
  - Measures to minimise the risk of a pollution event, which are contained within the outline Pollution Prevention and Emergency Incident Response Plan (PPEIRP) within the CoCP (Document Ref 8.1.4). Measures include spill procedures and use of spill kits. These measures together with appropriate drainage systems and containment will minimise the potential for any reduction in water quality associated with spills or leaks of stored oils/fuels/chemicals or other polluting substances migrating into nearby water bodies.

~~310.~~347. The mechanism for hydrological impacts to coastal waters, which would include The Wash SPA and Ramsar and The Greater Wash SPA, from onshore works is indirect via watercourses discharging to the coast. Hydrological connections are with The Wash rather than The Humber. This mechanism will serve to reduce impacts from sediment entrainment and spills through settlement and dilution respectively and the assessed impacts on coastal waters from inland works, accounting for the embedded mitigation, are each of minor adverse or negligible magnitude.

~~311.~~348. Assessed impacts on transitional waterbodies and groundwater quality are each of minor adverse or negligible magnitude. The OnSS is located in an area at high risk of flooding from the tidal reach of the River Welland. However, construction activities would not impede floodplain flows (refer to Chapter 24 Hydrology and Flood Risk (document reference 6.1.24)).

~~312.~~349. Each assessed construction phase impact on watercourses is assessed as low magnitude, given the embedded mitigation and that any direct pollution from spills would be small. The impact would be of an intermittent nature and of short duration. A range of embedded mitigation measures are included to minimise potential impacts to water quality within watercourses.

~~313.~~350. The only pathway for hydrological impacts to bird populations which has not been assessed as of negligible magnitude, is water quality impacts on watercourses, assessed as being of low magnitude. This could result in minor degradation of watercourse habitats for birds, for example, through impacts to prey resources. However, a range of embedded mitigation measures have been included to minimise the potential for sediment and pollution impacts to watercourses. The potential impact would also be intermittent and short-term only during the construction phase. On this basis, it is deemed that there would be **no significant adverse effect** on any IOF as a result of pollution.

22.8.1.5 Impact C5: Air quality impacts on habitats used by protected and priority bird species

~~314.~~351. Impacts in relation to air quality, including on designated ornithological sites, have been assessed in Volume 1, Chapter 19 Onshore Air Quality and are summarised below in respect of ecological features:

Construction Impact 1, Dust/PM_{10} emissions:

- The ZoI is 20m from the onshore construction area.
- The potential impact pathway is damage to supporting habitats via dust deposition.
- The only SPA within 20m of the onshore Order Limits is the Greater Wash SPA, however, all construction activities will be located >20m from the SPA. Several ornithological LWS and LWT Reserves are within or adjacent to the Order Limits~~.~~. Figure 21.1.1 illustrates SPAs in proximity to the Order Limits and Figure 21.1.2 illustrates Local sites.

- The risk in relation to impacts to designated ecological sites has been deemed to be Medium, in the absence of mitigation, given the proximity of the Greater Wash SPA. Commensurate with that level of risk, mitigation measures are identified by Institute of Air Quality Management (IAQM) guidance (IAQM, 2023) to ensure that any potential impacts arising from any onshore construction works are minimised and, where possible, completely removed. These measures represent embedded mitigation for the Project and are included within the Outline Air Quality Management Plan (AQMP) and provided as part of the outline Code of Construction Practice (CoCP).
- Given the distances of construction works from key sensitive supporting habitats for birds, including Anderby Marsh and The Haven, combined with the embedded mitigation and predominantly agricultural land across the remainder of the ECC route, dust impacts to other supporting habitats for birds are considered to be of negligible magnitude.

Construction Impact 2, Road traffic emissions:

- The ZoI is 200m from a main public road link expected to witness a change in vehicular flows as a result of Project construction activities.
- The potential impact pathway is damage to supporting habitats via airborne pollutants.
- There are no European sites, within the ZoI. Effects on international ecological designations can be considered insignificant.
- Construction road traffic flows (alone and in-combination with other relevant plans/projects) are above the IAQM prescribed screening criteria on road links within 200m of a single SSSI (Candlesby Hill) and several local designations. Further assessment with the use of dispersion modelling to quantify the effect on Critical Loads/Levels has, therefore, been undertaken for these ecological sites. In relation to the SSSI, maximum modelled impacts (alone and in-combination) were below 1% of all Critical Levels/Loads.
- In relation to local sites, maximum modelled impacts (alone and in-combination) were below 1% of the minimum Critical Load for nutrient nitrogen deposition and acid deposition and impacts are concluded as negligible. Exceedances of the Critical Level are predicted at: ER10 (A16 Verges North of the River Glen LWS); ER25 (Hobhole Drain, Baker's Bridge South LWS); ER31 (Pinchbeck Marsh LWS); ER33 (Risegate EAU LWS); and ER34 (River Glen Corridor LWS). These exceedances occur across all three model scenarios and, therefore, occur in the future baseline regardless of the Project and/or committed developments and cumulative projects/plans coming forward. Each of these five sites are designated for ecological rather than ornithological features under the LWS selection criteria and are, therefore, assessed in Chapter 21: Ecology.

- Potential air pollution effects during the construction phase will be temporary and short-term (up to 36-months). The habitats outside of the ecological designated areas are predominantly agricultural and of low sensitivity to air pollution. For these reasons, road traffic impacts on supporting habitats for birds outside of designated areas can be considered negligible.

Construction Impact 3, Emissions from Non-Road Mobile Machinery (NRMM).

- The ZoI is 50m from potential NRMM activity.
- The potential impact pathway is damage to supporting habitats via airborne pollutants.
- The only SPA within 50m of the onshore Order Limits is the Greater Wash SPA~~,~~. Several ornithological LWS and LWT Reserves are within or adjacent to the Order Limits. Sea Bank Clay Pits SSSI is adjacent to the Order Limits at the landfall, but >50m from an area other than a trenchless crossing with no haul road.
- The maximum annual mean background pollutant concentrations across the study area are well below the respective Critical Levels. Concentrations across the full extent of the onshore Order Limits are expected to vary and be lower relative to the maximum reported.
- Whilst taking into account the embedded mitigation as well as the short-term, transient, phased nature of the construction works, the background pollutant concentrations and the potential areas of the designations affected, the likelihood of NRMM causing an exceedance or significant effect is considered to be low. Potential impacts from NRMM emissions on ecological receptors are, therefore, considered negligible.

22.8.1.6 Impact C6: Damage to international and national designated sites, local wildlife sites, and nature reserves within and surrounding the onshore Order Limits.

~~315.~~352. The onshore Order Limits was designed to avoid SPAs, Ramsar sites, ornithological SSSIs and RSPB Reserves. Where the boundary overlaps with ornithological LWSs, the project has committed to avoid those through the use of trenchless techniques. Therefore damage to designated ornithological sites will be avoided.

22.8.2 Operations and Maintenance

22.8.2.1 Impact O1: Disturbance of designated sites qualifying features, protected and priority bird species during planned and unplanned maintenance works when the proposed development is operational.

~~316.~~353. During the operational period (anticipated to be approximately 35 years), scheduled and unscheduled monitoring and maintenance activities will be required. Preventive maintenance will be undertaken according to a service schedule, whereas corrective maintenance will be needed to cover unexpected repairs.

~~317.~~354. Onshore, the O&M requirements will be largely corrective, accompanied by infrequent on-site inspections of the onshore ECC. Periodic access to JBs may be required for inspection.

~~318.~~355. There may be O&M staff visiting the OnSS to undertake works when necessary (currently expected to be once per week). The OnSS will not be manned. This would be highly localised within the OnSS with a minimal likelihood of disturbance expected to the adjacent habitats and species.

~~319.~~356. Maintenance activities will be subject to an Environmental Management Plan (EMP) which will include specific measures to avoid potential impacts to protected/notable species. The EMP would also include measures to minimise the risk of a pollution event. Following the implementation of an agreed EMP, **no significant adverse effects** are anticipated for any important ornithological features as a result of operation and maintenance activities.

22.8.3 Decommissioning

22.8.3.1 Impact D1: Impacts are likely to be similar to construction, but more limited in geographical extent and timescale and there would be no permanent habitat loss.

~~320.~~357. At the end of the operational lifetime of the windfarm, it is expected that the onshore cable would be left in-situ to avoid adverse effects on the environment and communities. Any final decommissioning methodology will adhere to industry best practice, rules and regulations at the time of decommissioning.

~~321.~~358. A Decommissioning Plan will be developed ~~-~~as required by the Decommissioning Requirement of the draft DCO. Mitigation for any impacts, likely to be limited to potential disturbance to birds, would be in-line with that described for the construction phase impacts.

~~322.~~359. With most infrastructure expected to be left *in situ* and following the implementation of embedded mitigation measures, **no significant adverse effects** on birds are anticipated.

~~323.~~360. However, should the onshore infrastructure be removed, for the purposes of a worst-case scenario, it is considered that impacts associated with the decommissioning phase would be no greater than those identified for the construction phase.

22.8.4 Summary of additional mitigation measures

~~324.~~361. Table 22.21summarises those measures identified through the impact assessment process as required to address potentially significant effects, or simply to further reduce the potential for impacts, in relation to birds.

Table 22.21 Summary of additional mitigation measures

Project phase	Additional mitigation measures to those embedded into the project design
Construction	
Protection of nesting birds	In order to protect ground nesting birds which may choose to nest in short vegetation or bare ground, such areas will be checked for the presence of nests by the ECoW prior to works commencing during the breeding bird season. Where an active nest is located, an appropriate stand-off zone as

Project phase	Additional mitigation measures to those embedded into the project design
	determined by the ECoW will be demarcated and avoided until it has been confirmed by the ECoW that the nesting attempt has ended. Nesting bird deterrent measures will be deployed in advance of the nesting season in large open fields (>5ha) as deemed appropriate by the ECoW to minimise the risk of ground nesting birds choosing to nest in the relevant areas. These will not be deployed in February in locations where aggregations of >50 individuals of geese and/or waders are known to occur. Alternatively, and preferably, autumn sown cereal crops will be used to reduce numbers of nesting birds within the construction corridor in areas where notable aggregations of geese and/or waders are known to occur.
Protection of Schedule 1 nesting birds from disturbance	Species listed in Schedule 1 of the Wildlife and Countryside Act (1981) as amended, are afforded legal protection from disturbance at the nest site, as well as protection of dependent young. Surveys would, therefore, take place during each breeding season in which construction occurs to identify the approximate locations of nesting Schedule 1 birds and to review the mitigation measures to ensure they are sufficient to avoid disturbance. Surveys for other priority species, which could be significantly disturbed by construction works such as breeding waders, would also be undertaken prior to construction commencing. The nest site data from the local barn owl group will be reviewed, alongside pre-works barn owl surveys, to identify current nest sites within the potential zone of influence of the project and to review and develop mitigation measures to ensure adherence to the legal protection of the species as a Schedule 1 listed bird. Where a nest site is deemed at risk of disturbance, then it may be necessary to close off access to that box temporarily prior to the nesting season and reopen it after completion of works. Should that be necessary, it would be conducted in liaison with the relevant landowner and barn owl conservation group, and an alternative box would be erected nearby outwith the ZoI in advance of capping the box.
Minimising disturbance to non-breeding birds within SPAs and Ramsar sites	ODOW has committed to avoiding any construction activity within a minimum of 400m of The Wash SPA and Ramsar (relevant to The Haven crossing), during the period of October to March inclusive. This will avoid disturbance impacts to non-breeding birds within those designated sites boundaries. The Wash SPA and Ramsar is located 180m from the onshore Order Limits at the closest point. The restricted area will extend from Wyberton Road up to CIC 247, as shown in Figure 22.4. This extends beyond the areas within 400m of The Wash, as described below in relation to brent geese. Should the BAEF Wyberton Roads (South) compensation site be completed in advance of, or during, the construction phase for the Project, there will

Project phase	Additional mitigation measures to those embedded into the project design
	be a seasonal restriction (November to February inclusive) to construction works[7] within 400m of that compensation site, as shown in Figure 22.4. In the event that the BAEF Wyberton Roads (South) compensation site is only completed during the construction phase for the Project, then construction works already underway at the point of completion would be allowed to continue. The Applicant will continue to engage with the BAEF project throughout construction.
Minimising disturbance to non-breeding waterbirds and breeding Schedule 1 birds within Anderby Marsh LWT Reserve	Where piling is required for the landfall works rotary and silent piling methods rather than impact piling will be adopted. Noisier plant will be located at the western end of the compound wherever possible. Site establishment, including creation of the bund, will be undertaken within the months of ~~March and/or~~ August/September between the core breeding and non-breeding seasons. March will be avoided for constructing the mitigation bund at the landfall. However, the Project will focus on completing the 'soft start' works during this period. These preparatory works, are crucial for ensuring a smooth start to the Bund work. The scope of these works are detailed within the OLEMS (document 8.1, version 6), with establishment of the welfare facilities, which will also house the majority of the equipment and personnel, being located 300m away from the Anderby Marsh reserve.
Minimising disturbance to non-breeding waterbirds using FLL	Seasonal Restriction The additional mitigation for The Wash SPA and Ramsar, comprising a seasonal restriction to construction activity, to avoid works during the period of October to March inclusive within 400m of The Wash SPA, will reduce the potential disturbance impact to qualifying species. Additionally, the seasonal restriction will be extended to cover the identified brent goose foraging areas adjacent to The Haven, as shown in Figure 22.4. Year 1 surveys recorded dark-bellied brent goose from the Order Limits plus 400m buffer predominantly from November through to March, with lower numbers in October. WeBS data from those sectors overlapping with or close to the Order Limits, for dark-bellied brent goose, shows peak numbers in January and low abundances in other months (sector counts of 40 or less). This indicates that a seasonal restriction for this species of November to March inclusive would be appropriate, which is within the October to March restriction for this area. Data from the additional visit in April 2024 indicates that dark-bellied brent geese are still present at the River Haven at a notable abundance in this month and therefore works within 400m of the Haven, as illustrated in

[7] ~~Not including construction vehicle movements.~~

Project phase	Additional mitigation measures to those embedded into the project design
	Figure 52 of Appendix 22.7 Winter Bird Survey 2023/24, during April will be limited to soft start works. Soft start works in April will entail site preparations and establishment of the haul road and work areas. No drilling will take place in April. Visual screening will be installed in the seasonally restricted area around The Haven in April in order to minimise potential visual disturbance arising from soft start works. Within the October to March seasonally restricted area works would be limited to vegetation clearance and maintenance, in order to avoid clearance during the nesting bird season and to minimise the risk of birds establishing nests within the working area. The Applicant commits to employing an Ecological Clerk of Works (ECoW) to undertake a survey for brent geese within the seasonally restricted area prior to vegetation clearance works commencing in a discreet area. No clearance works will commence whilst brent geese are present within 400m of the area to be cleared. Once clearance works have commenced, they will continue until works have been completed in that location. Usual agricultural operations will continue in the seasonally restricted area. Essential non-intrusive survey works would also be permitted within the seasonally restricted periods. ~~In addition to the season restriction in relation to The Wash SPA boundary, there will be a seasonal restriction to works to cover land within 400m of core areas used by foraging brent geese at The Haven. Year 1 surveys recorded dark bellied brent goose from the Order Limits plus 400m buffer predominantly from November through to March, with lower numbers in October. WeBS data from those sectors overlapping with or close to the Order Limits, for dark-bellied brent goose, shows peak numbers in January and low abundances in other months (sector counts of 40 or less). This indicates that a seasonal restriction for this species of November to March inclusive would be appropriate, which is within the October to March restriction for this area.~~ Localised Working For conventional cross-country construction methodologies involving soil handling, the primary construction period is March – October. During November to February period, works will continue at trenchless crossing sites and joint bays that can be accessed by temporary haul roads and hard-standings. No trenched excavation works for duct installation[8] for the onshore ECC[9] will be undertaken throughout November – February.

[8] Works will include emergency response (fencing/trench failures)/general maintenance (de watering etc)/security.
[9] Not including the construction works for the OnSS.

Project phase	Additional mitigation measures to those embedded into the project design
	In order to minimise the potential for disturbance, and provide even greater certainty to the conclusions, additional mitigation has been included in the form of a commitment to seasonal localised working. During the summer months (April to September inclusive, weather dependent), works will take place at between 20 to 30 locations at any time, or approximately 5% of the cable corridor. During October and March, summer works will progressively be completed/ started and transitioned between summer and winter working. Winter works will be localised and will be carried out by several small teams at discrete locations along the route, such as joint bays, link boxes, trenchless crossings, short sections of haul road, bellmouths and access, cable installation (pulling) and other non-intrusive earth works (e.g. cable testing, route maintenance). Assuming a works section of 100m at these sites and 10 active sites, this would account for approximately 1,000m of works or 1km out of 70km or 1.4% of the cable corridor at any one time. Activity on the remaining 98.6% of the corridor will be confined to the operatives taking daily access to the work site where this involves the use of a haul road and moving the drilling plant to the next site once the work at any location is complete. Pink-footed goose management plan Additional mitigation measures requested by Natural England have also been incorporated and are detailed in the OLEMS (version 6, deadline 4a). This is a commitment to develop a pink-footed goose management plan. The outline management plan proposals provided in the OLEMS describe that firstly construction activities will be coordinated with local farmers to seek to avoid working near key crops utilised by foraging pink-footed geese between November and January. Where that is not possible, additional food resource would be provided, within a location within the project Order Limits therefore no additional land outside the Order Limits would be required to deliver this measure. ~~Areas where works are not due to take place that year will be left un-stripped (with exception for the haul road (if required). Trenching for duct installation across farmland will be carried out between March and October and will be followed by 'partial land reinstatement' involving reinstating the topsoil where practicable, leaving only the haul road, where this is required. Where practical, following partial reinstatement the project will plant a cover crop until the point at which the landowner is ready to start the normal cropping rotation. The intention is to return land to agriculture as soon as possible.~~

Project phase	Additional mitigation measures to those embedded into the project design
	The 'where practical' in this instance refers to the fact that in some circumstances the Project may be in the position that the land can be handed back to the landowner to continue agricultural practices earlier than anticipated in which case there will be no opportunity plant a cover crop. Under this circumstance these areas of land are being reinstated to previous use and this habitat is no longer impacted. Where a cover crop is required; this will be in the form of a grass or clover mix variety which will be confirmed following the Applicants pre-commencement soil surveys and in line with the Outline Soil Management Plan (document 8.1.3, Version 2). Winter works will be localised and will be carried out by several small teams at discrete locations along the route, such as joint bays, link boxes, trenchless crossings, short sections of haul road, bellmouths and access, cable installation (pulling) and other non-intrusive earth works (e.g. cable testing, route maintenance). Assuming a works section of 100m at these sites and 10 active sites, this would account for approximately 1,000m of works or 1km out of 70km or 1.4% of the cable corridor at any one time. Activity on the remaining 98.6% of the corridor will be confined to the operatives taking daily access to the work site where this involves the use of a haul road and moving the drilling plant to the next site once the work at any location is complete. For conventional cross country construction methodologies involving soil handling, the primary construction period is March – October. During November to February period, works will continue at trenchless crossing sites and joint bays that can be accessed by temporary haul roads and hard-standings. No trenched excavation works for duct installation[10] will be undertaken throughout November – February. In order to minimise the potential for disturbance, and provide even greater certainty to the conclusions, additional mitigation has been included in the form of a commitment to localised working. Winter works will be localised and will be carried out by several small teams at discrete locations along the route, such as joint bay, link boxes, trenchless crossings, short sections of haul road, bellmouths and access, cable installation (pulling) and other non-intrusive earth works (e.g. cable testing, route maintenance). Assuming a works area of 100m at these sites and 10 sites, this would account for approximately 1,000m of works or (1km/70km) or 1.4% of the cable corridor at any one time. Activity on the remaining 98.6% of the corridor will be confined to the operatives taking daily access to the work site where this involves the use of a haul road and

[10] Works will include emergency response (fencing/trench failures)/general maintenance (de watering etc)/security

Project phase	Additional mitigation measures to those embedded into the project design
	~~moving the drilling plant to the next site once the work at any location is complete.~~ ~~During the summer months (April to September inclusive, weather dependent), works will take place at between 20 to 30 locations at any time, or approximately 5% of the cable corridor. During October and March, summer works will progressively be completed/started and transitioned between summer and winter working.~~ ~~Areas where works are not due to take place that year will be left un-stripped outside of the haul road (where required). Trenching for duct installation across farmland will be carried out between March and October and will be followed by 'partial land reinstatement' involving reinstating the topsoil, leaving only the haul road, where this is required. Where practical, following partial reinstatement the project will plant a cover crop until the point at which the landowner is ready to start the normal cropping rotation. The intention is to return land to agriculture as soon as practicable.~~ ~~Anticipated reinstatement figures are as follows:~~ ~~▪ Winter Year 0 (prior to mobilisation) – Localised vegetation clearance only and enabling works at some access locations.~~ ~~▪ Winter Year 1 – 35% stripped, with 3-5% (of whole corridor) partially reinstated.~~ ~~▪ Winter Year 2 – 70% stripped, 40% (of whole corridor) has been partially reinstated.~~ ~~▪ Winter Year 3 – 70% stripped (as 30% un-stripped as avoided through trenchless works), 80% of which fully reinstated to previous agricultural use.~~ ~~▪ Winter Year 4 – 100% fully reinstated to previous agricultural use.~~ ~~The cover crop habitat will be retained and managed for the duration of the construction period, until such time as it is restored to the previous land use.~~
	Disturbance to non-breeding waterbirds is likely to be most critical during periods of prolonged cold weather, when they may be unable to feed in their usual foraging areas and may face reduced prospects for survival. A scheme is in place to minimise the level of disturbance from wildfowl shooting in frozen conditions (JNCC, 2019). Similar measures would be imposed here, with the works suspended after seven consecutive days on which the ground was frozen (as measured at a nearby weather station). Any suspension of works would last for a minimum of seven days (or, as agreed by the ECoW), thereafter and any lifting of the suspension will take into consideration the need for a period of recovery for waterbirds after the end of the severe weather itself.

Project phase	Additional mitigation measures to those embedded into the project design
	~~Works would be stopped during periods of freezing weather. Disturbance to non-breeding waterbirds is likely to be most critical during periods of prolonged cold weather, when they may be unable to feed in their usual foraging areas and may face reduced prospects for survival. A scheme is in place to minimise the level of disturbance from wildfowl shooting in frozen conditions (JNCC, 2019). Similar measures would be imposed here, with the works suspended after seven consecutive days on which the ground was frozen (as measured at a nearby weather station). Any suspension of works would last for a minimum of seven days thereafter (or, as agreed by the ECoW), thereafter any lifting of the suspension will take into consideration the need for a period of recovery for waterbirds after the end of the severe weather itself.~~
Minimising habitat loss impact to non-breeding waterbirds using FLL	Areas where works are not due to take place that year will be left un-stripped (with exception for the haul road (if required). Trenching for duct installation across farmland will be carried out between March and October and will be followed by 'partial land reinstatement' involving reinstating the topsoil where practicable, leaving only the haul road, where this is required. Where practical, following partial reinstatement the project will plant a cover crop until the point at which the landowner is ready to start the normal cropping rotation. The intention is to return land to agriculture as soon as possible. The 'where practical' in this instance refers to the fact that in some circumstances the Project may be in the position that the land can be handed back to the landowner to continue agricultural practices earlier than anticipated in which case there will be no opportunity plant a cover crop. Under this circumstance these areas of land are being reinstated to previous use and this habitat is no longer impacted. Where a cover crop is required; this will be in the form of a grass or clover mix variety which will be confirmed following the Applicants pre-commencement soil surveys and in line with the Outline Soil Management Plan (document 8.1.3). Anticipated reinstatement figures are as follows: ▪ Winter Year 0 (prior to mobilisation) – Localised vegetation clearance only and enabling works at some access locations. ▪ Winter Year 1 – 35% stripped, with 3-5% (of whole corridor) partially reinstated. ▪ Winter Year 2 – 70% stripped, 40% (of whole corridor) has been partially reinstated. ▪ Winter Year 3 – 70% stripped (as 30% un-stripped as avoided through trenchless works), 80% of which fully reinstated to previous agricultural use. ▪ Winter Year 4 – 100% fully reinstated to previous agricultural use.

Project phase	Additional mitigation measures to those embedded into the project design
	The cover crop habitat will be retained and managed for the duration of the construction period, until such time as it is restored to the previous land use.
ECoW	An Ecological Clerk of Works (ECoW) will be employed to oversee construction work and minimise risks to IOFs.
Operation and Maintenance	
General	The EMP will include specific measures to avoid potential impacts to protected and priority bird species. Where unplanned/corrective works are required, appropriate mitigation measures will be developed and agreed with relevant consultees prior to works taking place. Primary mitigation will ensure that impacts arising from disturbance during routine maintenance will be avoided.
Decommissioning	
General	Decommissioning practices will incorporate measure similar to the construction phase, to prevent impacts to ornithological features. Provision of a decommissioning plan in advance of decommissioning works is a requirement of the draft DCO, to include protection of important ornithological features, based on up-to-date survey information and relevant guidance in place at the time of decommissioning.

22.8.4.1 Compensation Measures

~~325.~~362. As set out in section 3.7.5.6 of the OLEMS t~~T~~he Applicant will endeavour to utilise severed land to provide compensatory habitat for skylark and yellow wagtail in sections of fields adjacent to or near to the Order Limits, subject to agreements with landowners. Suitable habitat would be created immediately prior to construction commencement and would be retained for the duration of construction at each specific location. Management options will take into consideration guidance in RSPB References C and D and Farm Wildlife (2024). These will include a mixture of:

- Fallow land – to provide high quality foraging habitat; and/or
- Suitable cover crop – to provide feeding habitat.

~~326.~~363. Full details of management options will be submitted as part of a final Ecological Management Plan. Use of broad-~~-~~spectrum insecticides would be avoided in these locations. It is recognised that land close to field boundaries, particularly those with tall vegetation, would be more likely to be avoided due to predation risk. For example, guidance suggests that skylark plots should be at least 24m from the field edge (RSPB C) and ideally >80m (Farm Wildlife, 2024).

~~327.~~364. The area of compensation land >24m from a field edge comprising hedgerow, scrub, woodland, or existing built linear feature (fenceline or wall) is anticipated to be up to 31 ha and the area which is >80m is up to 11 ha, subject to agreements with landowners. The total area subject to management is anticipated to be up to 65 ha, spread along the route of the onshore ECC and 400kV cable route, subject to agreements with landowners. The areas identified as severed land (potential compensation areas) are shown in Figure 22.5 (document reference 6.2.25.5~~)~~).

22.8.5 Ornithological enhancements

~~328.~~365. Ecological enhancement will partly be delivered through enhancement of reinstated features which have ecological functionality (e.g. enhanced reinstated hedgerows), and landscape planting at the OnSS. Further details are provided in Biodiversity Net Gain (BNG) Project Principles and Approach (document reference 9.5). It is also envisaged that enhancement will be achieved through the collaboration ~~-~~with the Greater Frampton Vision project.

~~329.~~366. Details of landscape planting at the OnSS are provided in Chapter 28 and the extent is shown in Volume 2, Figure 28.15 (document reference 28.2.28.15). This comprises creation of woodland, hedgerows and grassland. The woodland planting would comprise native tree species. Chapter 28 states that *"The mitigation woodland planting will be designed to comprise a mix of faster growing 'nurse' species and slower growing 'core' species. Nurse species, such as alder, birch, and black poplar will grow quicker so that after 15 years they will be approximately 6.8 to 8.3m in height. They will provide shelter to bring on core species, such as oak, elm and sycamore".* The creation of these woodland strips and hedgerows will benefit the following priority breeding species recorded within the survey area: greenfinch, linnet, yellowhammer and reed bunting.

~~330.~~367. The RSPB Greater Frampton Vision Landscape Recovery Project aims to create a mosaic of wetland habitats between the RSPB Reserves at Frampton Marsh and Freiston Shore and the surrounding land (>1,800ha). The onshore Order Limits partially overlaps with the northern and western part of the Greater Frampton Vision area. The Vision is seeking approval by 2025 to begin habitat creation works between 2026-2029. This aligns with the Projects timescales, with construction planned to commence from 2026.

~~331.~~368. Specific habitats that will be created in the place of arable farmland, with the aim of enhancing habitats for bird populations, are:

- Dry grassland;
- Wet grassland/grazing marsh;
- Reedbed;
- Saline and freshwater lagoons; and
- Saltmarsh.

~~332.~~369. A meeting was held between RSPB and Outer Dowsing representatives on 20 October 2023 to discuss the two projects. It is proposed to produce a Memorandum of Understanding between the two parties to agree:

- Practical arrangements for construction and operation. It is likely that where the projects overlap, creation of grassland habitats is most likely.

~~333.~~370. The assessment of effects has not relied on the Project contributing to the Greater Frampton Vision. Instead, it has considered ornithological enhancements that will be delivered via landscape planting at the OnSS and enhanced reinstatement of habitats as described earlier in this section.

~~334.~~371. Should the Greater Frampton Vision be implemented, the creation of a mosaic of grassland, freshwater and saline habitats within and adjacent to the onshore Order Limits has the potential to benefit in particular the following species: dark-bellied brent goose (non-breeding); pink-footed goose (non-breeding); gadwall (non-breeding); wigeon (non-breeding); avocet (breeding); lapwing (breeding and non-breeding); golden plover (non-breeding); little ringed plover (breeding); curlew (breeding and non-breeding); redshank (breeding and non-breeding); black-headed gull (non-breeding); marsh harrier (breeding and non-breeding); barn owl (breeding and non-breeding); starling (non-breeding); and yellow wagtail (non-breeding).

22.9 Cumulative Impact Assessment

~~335.~~372. This cumulative impact assessment for Onshore Ornithology has been undertaken in accordance with the methodology provided in Volume 1, Annex 5.1: Cumulative Impact Assessment Methodology. Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered cumulatively with impact of other proposed or permitted plans and projects, can result in significant effects.

373. The projects and plans selected as relevant to the assessment of impacts to Onshore Ornithology are based upon an initial screening exercise undertaken on a long list. Each project, plan or activity has been considered and scoped in or out on the basis of effect-receptor pathway, data confidence and the temporal and spatial scales involved. Where no hydrological or ecological connection exists, the project or plan is located more than 1km from any part of the onshore ECC, or 5km from the centre of the OnSS study area, or the plan or project has been considered for planning after November 2023 (the cut off for identification of projects), these have been scoped out. Nationally Significant Infrastructure Projects (NSIPs) which have entered the planning process since November 2023, up to January 2025, have also been added, with reference to the Project's inter-relationships report (document reference 19.6). Two of these projects will overlap spatially and/or temporarily with the construction period for ODOW, i.e., The Eastern Green Link 3 and 4 (EGL3&4) and The Grimsby to Walpole (G2W) project. Both projects are in the pre-application phase with only limited information available in scoping reports.

374. The construction period for the EGL3&4 is planned between March 2028 and March 2033, whilst construction of G2W is scheduled for January 2029 to December 2032. However, there is not enough information publicly available in relation to siting of the projects, timing of their construction, and their potential impacts on which to base a meaningful cumulative assessment.

~~336.~~375. For the purposes of assessing the impact of the Project on Onshore Ornithology in the region, the cumulative effect assessment technical note submitted through the EIA Evidence Plan and forming Volume 1, Annex 5.1 [cumulative effects methodology annex] of this ES, screened in a number of projects and plans as presented in Table 22.22.

~~337.~~376. For qualifying bird species for internationally designated sites, a detailed assessment of effects in combination with other plans or projects is provided in the RIAA and is not repeated here. The assessment of cumulative effects on birds provided here, therefore, focuses on other important bird species, including notified species for nationally designated sites.

Table 22.22 Projects considered within the Onshore Ornithology cumulative assessment

Development type	Project	Status	Data confidence assessment/phase	Tier
Housing 680m NW of Order Limits at ECC10	B/20/0488 – 46 dwellings. Land adjacent to Fishtoft Scouts.	Outline planning decision – Favourable with conditions.	High – Biodiversity assessment (BNG) available. Ecological report is a two-page report scoping out ecological impacts.	Tier 1
Housing 800m NW of Order Limits at ECC10	B/20/0489 – 20 dwellings. Land adjacent to Fishtoft Scouts.	Planning decision – Favourable with conditions.	High – Biodiversity assessment (BNG) available.	Tier 1
Housing 1.1km SE of Order Limits at ECC9	B/21/0196 – 42 dwellings. Land to the rear of 1a - 15 Watery Lane. Original application ref. B/16/0465.	Approval of reserved matters – Favourable with conditions.	High. No ecological report with reserved matters application or original outline application. Not deemed necessary.	Tier 1

Development type	Project	Status	Data confidence assessment/phase	Tier
Housing 160m SW of Order Limits at ECC12	B/21/0419 – 11 dwellings - Land off Puttock Gate	Outline planning – Favourable with conditions.	High. Ecology survey report available.	Tier 1
Housing 420m E of Order Limits at ECC2	N/084/01712/22 – 89 dwellings. West End, Hogsthorpe. Original outline application - N/084/00809/19.	Reserved matters application – Registered.	High. No ecological report with reserved matters application. Ecology report available with original outline application.	Tier 1
Power Station 2.1km NW of Order Limits at ECC11	Boston Alternative Energy Facility (BAEF)	DCO application – consent granted July 2023.	High. DCO documents available.	Tier 1
Solar Farm 900m W of Order Limits at ECC6	S/195/02340/20 - Low Farm 49.9MW Solar Farm.	Planning permission – Approved.	High – Ecological report available.	Tier 1
Substation Within Order Limits at ECC14.	National Grid Substation at Weston Marsh	Pre-scoping.	Medium – ecological data for the area and basic design parameters available.	Tier 3
Plant based protein extraction facility and anaerobic digestor plant adjacent to OnSS	H17-1097-23 Naylor Farms, Land East of Surfleet Bank	Undecided	Medium – Design plans and statement available; biodiversity assessment not available.	Tier 2

~~338.~~377. The cumulative MDS for the Project is outlined in Table 22.23.

Table 22.23 Cumulative MDS

Impact	Scenario	Summary of individual project impacts
Cumulative loss and damage of habitat for protected and priority bird species including FLL.	Whilst the impact from loss of habitat as a result of the Project will predominantly be a temporary impact during the construction phase only, with habitats reinstated on completion of works, permanent infrastructure will occupy an area of approximately 18.2ha plus 0.34km of linear infrastructure. The impact from the eight cumulative projects will predominantly be permanent loss as they are each above ground built development schemes.	Four of the housing schemes will each result in the permanent loss of a small area of arable land, either part of an arable field or up to a single arable field. The fifth housing scheme will result in the loss of hardstanding, buildings and a paddock. As expected from the habitats present, none identified important bird populations which would be impacted by the loss of habitats. Only one (Hogsthorpe) references priority bird species, stating that habitats are suitable for yellowhammer, dunnock and bullfinch (although bird surveys were not required). Low Farm Solar Farm would result in the permanent loss of approximately 70ha of arable land, which was identified as FLL for pink-footed goose and Bewick's swan. The ecology report concluded that the loss would be a tiny fraction of the overall foraging resource available within commuting distance of The Wash. Breeding bird features were evaluated as being of Less than Local importance. The net impact was assessed as minor positive, through provision of grassland habitat providing enhancement for skylark, and pole mounted barn owl and kestrel nestbox. Wintering whooper swan, marsh harrier and little egret were evaluated as of Local importance. Minor loss of foraging resource for whooper swan, net gain of foraging habitat for marsh harrier and no impact on little egret with retention of all ditches. BAEF would result in the permanent loss of 1.54ha of mudflat and 0.99ha of saltmarsh. Mitigation for the loss of habitat for birds will be provided, through provision of additional foraging and roosting habitat. Eight hectares of arable will also be lost and not directly compensated. A landscape mitigation planting scheme will be delivered, including

Impact	Scenario	Summary of individual project impacts
		enhancement of retained hedgerows and replacement of lost hedgerows, which will compensate for loss of breeding bird habitat. The breeding bird and intertidal bird populations are evaluated as of Medium value and are assessed as assemblages only. The National Grid Substation NGSS will be located within the onshore Order Limits at Weston Marsh (the western terminus of the 400kV cable corridor). Design details are not available at this stage, but the assumptions include a footprint of approximately 800m by 200m plus temporary working area. Non-breeding and breeding bird survey data have been collected from the area in which the substation will be located, as part of the Project's surveys to establish the baseline in the area where the Project will connect to the NGSS, and presented in Appendices 3.22.3-3.22.5~~2~~ and 3.22.7~~3~~. Target breeding bird species territories within 100m of the substation option area, which would be at risk of habitat loss, comprise two skylark and one corn bunting territory. For target non-breeding birds utilising fields within the option area, and consequently at risk of habitat loss, these were limited to gulls (~~, with~~ peaks of 65 common gulls, ~~74~~ 200 black-headed gulls and six herring gulls), lapwing (peak 37), turnstone (peak 18) and skylark (peak 21). The Naylor Farms Protein Plant will be located at Surfleet Marsh and is a 14.3ha site currently managed as a cabbage field.
Cumulative killing of and/or injury to birds.	Killing and/or injury to birds will be completely avoided through the implementation of the embedded and additional mitigation. Therefore, the Project will not contribute to potential cumulative impacts in this regard. A similar level of compliance would be expected from other projects.	
Cumulative disturbance of protected and priority bird	Other projects giving rise to disturbance impacts during the	Of the five listed housing projects, one identified a potential disturbance risk to birds (Land off Puttock Gate). The ecology report

Impact	Scenario	Summary of individual project impacts
species, including those utilising FLL.	construction phase of the Project, resulting in a cumulative disturbance impact to bird populations.	considered potential negative indirect impact to The Wash through increased recreation and dog walking at The Wash. However, it was concluded this was unlikely on the basis of the small scale of the development and the presence of a park located in close proximity to the project. Low Farm Solar Park did not identify disturbance to birds as a potential impact. For the BAEF project, *"the Secretary of State considers that AEoI cannot be ruled out beyond all reasonable scientific doubt due to:* • *Alone effects due to vessel disturbance on:* ○ *The redshank and waterbird assemblages features of The Wash SPA and Ramsar, at the Principal Application Site;* ○ *The waterbird assemblages feature of The Wash SPA and Ramsar, along The Haven; and* ○ *The dark-bellied brent goose, black-tailed godwit, oystercatcher, redshank, turnstone and waterbird assemblages features of The Wash SPA and Ramsar, at the MOTH (mouth of The Haven)."* As referenced in Section 22.4, compensation measures have been secured to address these identified AEoI, through the provision of alternative foraging and roosting habitats. For the National Grid OnSS, baseline surveys undertaken for the Project did not identify any Schedule 1 breeding birds within the potential disturbance buffer. Target bird species breeding territories from the

Impact	Scenario	Summary of individual project impacts
		100m buffer have been outlined in relation to habitat loss, given that nest sites were not identified and for those territories with approximate centres within the buffer, the wider territory would overlap with the option area. For non-breeding birds from within the 400m buffer of the option area, Year 1 winter bird survey records were limited to a peak of 56 lapwing, seven herring gulls and four mute swans. In the Year 2, the following peak flock counts were recorded within 400m of the option area: -153 lapwings, 130 black-headed gulls, 32 common gulls and four herring gulls.
Cumulative pollution of waterbodies and watercourses used by protected and priority bird species, especially via suspended solids but potentially also via spillage of vehicle fluids from construction machinery.	With the mitigation measures in place, it is considered that the Project would not materially contribute to cumulative water quality impacts (as detailed in Volume 1, Chapter 24: Onshore Hydrology, Hydrogeology and Flood Risk) which could adversely affect important bird populations.	
Cumulative air quality impacts on habitats used by protected and priority bird species.	With the mitigation measures in place, it is considered that the Project would not materially contribute to cumulative air quality impacts (as detailed in Volume 1, Chapter 19 Onshore Air Quality) which could adversely affect important bird populations.	
Cumulative operational impacts - disturbance of designated sites qualifying features, protected and priority bird species during planned and unplanned maintenance works when the	Given that operational phase impacts to birds arising from the Project are expected to be very minor, they would not materially contribute to cumulative disturbance impacts which could adversely affect important bird populations.	

Impact	Scenario	Summary of individual project impacts
proposed development is operational.		
Cumulative decommissioning impacts - Impacts are likely to be similar to construction, but more limited in geographical extent and timescale and there would be no permanent habitat loss.	It is assumed that the onshore cables will be left *in situ* once the Project ceases operation and, therefore, onshore decommissioning impacts would be largely restricted to the OnSS and, therefore, the potential for impacts to important bird populations would be of very limited spatial extent. Should other projects be decommissioned at the same time as the Project, there could be cumulative disturbance impacts to birds.	The five housing schemes do not have restricted operational lifespans and are expected to remain in place beyond the 35-year minimum operational life of the Project. It is expected that the operational life of the Low Farm Solar Farm and BAEF project would be 25 years and, therefore, do not overlap temporally with decommissioning for the Project. The National Grid OnSS may be decommissioned once the Project ceases operation, although is more likely to be retained as part of the national electricity transmission network since it will support other connections in the area beyond the Project.

~~339.~~378. In relation to cumulative loss of habitat for IOFs, Low Farm Solar will result in the permanent loss of c.70ha of arable land, National Grid OnSS c.16ha, Protein Plant c.14ha, BAEF c.8ha and the five housing schemes each either a part of a field or up to a single arable field. The combined area is small relative to the arable field resource within the study area. BAEF will also result in the loss of mudflat and saltmarsh habitat and will provide compensatory foraging and roosting habitat for waterbirds. The main area of permanent habitat loss for the Project will be at the OnSS, however, surveys indicate that area is of low importance for bird populations. Unlike the other projects, the majority of the habitat loss within the onshore Order Limits will be temporary only, with habitats replaced on a like for like basis on completion of construction. Where potential significant effects at the local level have been identified for breeding skylark and yellow wagtail, the Applicant will endeavour to utilise severed land to provide compensatory habitat for skylark and yellow wagtail in sections of fields adjacent to or near to the Order Limits, subject to agreements with landowners. Where viable, suitable habitat will be created immediately prior to construction commencement and will be retained for the duration of construction at each specific location Overall, it is concluded that there would be **no significant adverse effect** on IOFs as a result of cumulative habitat loss.

~~340.~~379. Disturbance impacts to IOFs from the five housing projects were either scoped out, or considered to be of negligible magnitude. Similarly, the ecological assessment for Low Farm Solar focussed on permanent loss of FLL for waterbirds rather than potential disturbance impacts. For BAEF, disturbance impacts appear to be largely restricted to vessel disturbance to waterbirds along The Haven, for which AEoI of The Wash SPA and Ramsar could not be excluded. Compensation measures have been secured to address the disturbance impact. The Project will use trenchless techniques to cross The Haven, thereby avoiding direct impacts. The launch and exit pits will be located in fields either side of The Haven, and the bunds on each riverbank will provide visual screening between ground level works and the river. A seasonal restriction to works around The Haven between October to March inclusive will be implemented. Potential disturbance from the Project will also be predominantly restricted to the construction phase and, therefore, temporary only.

380. Construction of the National Grid OnSS is expected to occur concurrently with the Project construction period, however, survey data indicates that the National Grid OnSS area is of low importance for birds. Overall, it is concluded that there would be **no significant adverse effect** on IOFs as a result of cumulative disturbance.

~~341.~~

22.10 Inter-Relationships

~~342.~~381. Table 22.24 sets out the inter-relationships between this chapter and others within the ES. Inter-relationships are also discussed in Section 22.8 in relation to impacts C4 and C5.

Table 22.24 Inter-relationships between Onshore Ornithology and other chapters within the ES

Chapter	Details of inter-relationship
Chapter 12: Intertidal and Offshore Ornithology	This chapter assesses impacts on birds in the intertidal and offshore environments resulting from development activities occurring below MHWS.
Chapter 19: Onshore Air Quality	This chapter considers air quality impacts during construction to sensitive ecological features, including sites designated for their bird populations, as a result of dust and increased road traffic.
Chapter 21: Onshore Ecology	This chapter addresses impacts on onshore ecological features (excluding birds) and sites designated for biodiversity.
Chapter 24: Hydrology, Hydrogeology and Flood Risk	This chapter provides a description of the hydrological setting of water courses and water bodies within the survey area, including those used by important bird populations, and assesses impacts upon them.

22.10.1 Interactions

~~343.~~382. An assessment of whether the impacts identified and assessed in this chapter have the potential to interact with each other is detailed below. Inter-related effects consider impacts from the construction, operation or decommissioning of the Project on the same receptor (or group).

~~344.~~383. Such inter-related effects include both:

- Project lifetime effects: i.e., those arising throughout more than one phase of the project (construction, operation, and decommissioning) to interact to potentially create a more significant effect on a receptor than if just one phase were assessed in isolation; and
- Receptor led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor (or group). Receptor-led effects might be short term, temporary or transient effects, or incorporate longer term effects.

~~345.~~384. A description of the process to identify and assess these effects is presented in Part 6, Volume 1 Chapter 5: EIA Methodology, with a summary of assessed inter-relationships provided in Table 22.25.

Table 22.25 Summary of assessed inter-relationships

Project phase(s)	Nature of inter-related effect	Assessment alone	Inter-related effects assessment
Project-lifetime effects			
Construction, operation and decommissioning	Disturbance to IOFs occurring during the three phases.	No significant adverse effect. Most disturbance would occur during the construction phase and it is expected that the disturbance	Disturbance impacts to IOFs would be very minor during the operation and decommissioning phases, and therefore not interact

Project phase(s)	Nature of inter-related effect	Assessment alone	Inter-related effects assessment
		impact would be much lower during the operation and decommissioning phases.	substantively with the main impact arising during the construction phase.
Receptor led effects			
Whilst each of the seven identified potential impact pathways could interact, the two main sources of potential impact to IOFs are habitat loss and disturbance during the construction phase. These two impacts would potentially result in the displacement of birds from the areas to be subject to vegetation clearance and the surrounding disturbance displacement buffer. It is considered that combined, these two impacts would not result in a significant effect on IOFs, taking account of the mitigation to reduce disturbance impacts, the nature of the habitats present and the temporary nature of the impact.			

22.11 Transboundary Effects

~~346.~~385. The potential for transboundary effects on onshore IOFs to occur is limited to potential impacts to migratory bird species. Taking into account the embedded and additional mitigation and the enhancement measures to be implemented, it is concluded that the Project would not result in transboundary effects on bird populations.

22.12 Conclusions

~~347.~~386. A summary of effects on important ornithological features and compliance with relevant legislation and policy is presented in Table 22.26. Contribution by the Project to the RSPB Greater Frampton Vision has not been agreed at the time of the assessment and, therefore, has not been relied upon in reaching the conclusions presented herein.

Table 22.26 Summary of Potential Impacts on Onshore Ornithology features

Description of effect and feature	Effect	Additional mitigation measures	Residual impact
Construction			
Impact 1: Loss and damage of habitat for protected and priority bird species including FLL			
Species restricted to areas in which habitat will be retained			
Common scoter, cuckoo, avocet, grey plover, little ringed plover, ruff, sanderling, dunlin, great northern diver, bittern, bearded tit, Cetti's warbler and marsh warbler	No impact pathway.	No additional mitigation required.	No significant effect
Qualifying features of European sites utilising (potentially) functionally linked land			
Dark-bellied brent goose	Temporary, adverse, limited to ~~two~~ six arable fields only, partial loss.	No additional mitigation identified.	No significant effect
Pink-footed goose	Temporary, adverse, small area relative to foraging range, arable fields only, species at Favourable Conservation Status (FCS).	No additional mitigation identified.	No significant effect
Gadwall	None of the areas to be subject to temporary habitat loss were recorded in use by gadwall.	No additional mitigation required.	No significant effect
Wigeon	Only ~~a single~~two arable fields of the areas to be subject to temporary habitat loss was recorded in use by wigeon.	No additional mitigation required.	No significant effect
Lapwing	Temporary, adverse, small area relative to foraging range, arable fields only. Breeding territories at Anderby Marsh to be avoided.	No additional mitigation identified.	No significant effect
Golden plover	Temporary, adverse, small area relative to foraging range, arable fields only.		
Curlew			

Description of effect and feature	Effect	Additional mitigation measures	Residual impact
Redshank	Of the areas to be subject to temporary habitat loss, only a small number of locations (arable fields and field drains) were recorded in use by low numbers of redshank.	No additional mitigation required.	No significant effect
Black-headed gull	Temporary, adverse, small area relative to foraging range, arable fields only.	No additional mitigation required.	No significant effect
Marsh harrier	Three breeding pairs identified, each nesting outwith the onshore Order Limits. Temporary loss of common foraging habitat from a small proportion of the home (breeding) and winter ranges.	No additional mitigation required.	No significant effect
Species populations of County value			
Barn owl	Single occupied breeding site and three active roost sites identified. Locations of barn owl nest sites within 2km of the Order Limits were obtained from the Wildlife Conservation Projects Ltd. (WCP). There were 12 potential nest sites (boxes) within the Order Limits plus 200m. Temporary, adverse, small area relative to foraging range, mainly arable fields and low quality habitat.	Obtain third party occupancy data, and undertake pre-construction surveys, to review for any additional nest sites which could be impacted and if so to mitigate accordingly.	No significant effect
Starling	Large winter roosts in coastal reserves are outside of the onshore Order Limits and will not be directly impacted. Single breeding territory identified, but unlikely to be displaced by construction works.	No additional mitigation required.	No significant effect

Description of effect and feature	Effect	Additional mitigation measures	Residual impact
Yellow wagtail	Large winter roosts in coastal reserves are outside of the onshore Order Limits and will not be directly impacted. Single breeding territory identified.	No additional mitigation	Significant effect at Local level, temporary only.
Species populations of Local or Less than Local value			
Breeding birds	Temporary loss of predominantly intensively managed arable farmland	No additional mitigation	Significant effect at Local level, temporary only, for skylark. No significant effect for other species.
Non-breeding birds	Temporary loss of predominantly intensively managed arable farmland	No additional mitigation required.	No significant effect
Other designated ornithological sites			
Non-European designated ornithological sites	Designated sites avoided through design of the route, or alternatively through trenchless techniques.	No additional mitigation required.	No significant effect
BAEF compensation site: Wyberton Roads South	~~Temporary access track only and loss of a very small area of dry grassland~~No overlap with the Order Limits.	No additional mitigation required.	No significant effect
Impact 2: Killing and/or injury to birds			
All breeding bird species	Embedded mitigation includes that work will be undertaken in accordance with a CMS, which will include measures to protect nesting birds from being killed injured or damaged.	Pre-works surveys and mitigation plan to ensure protection of Schedule 1 nesting birds from disturbance.	No significant effect
Impact 3: Disturbance of protected and priority bird species, including those utilising FLL			
Qualifying features from European sites utilising functionally linked land			

Description of effect and feature	Effect	Additional mitigation measures	Residual impact
Dark-bellied brent goose	The impact would be adverse, affecting a small section of The Haven and adjacent fields, temporary (for a period of up to ~~42~~51-months) and affecting up to 1,100 geese (a significant effect).	A seasonal restriction to construction activity, to avoid works during the core non-breeding period of October to March inclusive within 400m of The Wash SPA. This will be extended to cover those areas around The Haven used by brent geese.	No significant effect
Pink-footed goose	Given the favourable conservation condition of the population and low number of records, as well as the availability of alternative foraging habitat (and recorded use of common crop types), the small scale of potential displacement relative to the foraging range and the temporary nature of the loss there would be no significant effect.	The seasonal restriction at The Haven for brent geese will also reduce disturbance to this species. The seasonal localised working commitment detailed for lapwing will also reduce disturbance to this species. A detailed Pink-footed Goose Management Plan will be developed.	No significant effect
Gadwall	With the specific landfall disturbance reduction mitigation in place, potential disturbance would be minimised.	The seasonal restriction at The Haven for brent geese will also reduce disturbance to this species.	No significant effect
Wigeon	With the specific landfall disturbance reduction mitigation in place, potential disturbance would be minimised.	The seasonal restriction at The Haven for brent geese will also reduce disturbance to this species.	No significant effect
Common scoter	Common scoter was only recorded on the sea offshore from the landfall. Works on	No additional mitigation required.	No significant effect

Description of effect and feature	Effect	Additional mitigation measures	Residual impact
	the beach are expected to be limited to emergency access only.		
Avocet	[Confidential Text Removed]	A specific survey and monitoring protocol will also be developed to ensure adherence with the legal protection for nesting avocet as a Schedule 1 nesting species.	No significant effect
Lapwing Golden plover Curlew	Temporary, affecting discrete areas at any one time, localised, affecting arable field habitats, species recorded utilising crop types which are widespread and common.	The seasonal restriction at The Haven for brent geese will also reduce disturbance to these species. A commitment to seasonal localised working on approximately 1.4% of the ECC at any one time between November and February inclusive. A commitment to localised working on approximately 5% of the ECC at any one time between April to September inclusive. Localised working in March and October will be between 1.4% and 5% of the ECC at any one time.	No significant effect
Sanderling	Sanderling were recorded from the beach at the landfall only during winter 2022-23 bird surveys. Works on the beach are expected to be limited to emergency access only.	No additional mitigation required.	No significant effect
Redshank	Low numbers recorded, aggregated at main rivers and wetlands. Embedded mitigation includes earth bund at the	The seasonal restriction to works at The Haven will minimise potential disturbance in that location.	No significant effect

Description of effect and feature	Effect	Additional mitigation measures	Residual impact
	landfall to screen works from Anderby Marsh.		
Black-headed gull	Black-headed gull is a species of low sensitivity to human disturbance and is likely to be tolerant of construction activities in proximity to foraging areas. Embedded design and mitigation including avoiding impact piling other than at the OnSS; perimeter earth bunds to open trenched sections; and suspending works during periods of freezing weather.	No additional mitigation required.	No significant effect
Marsh harrier	[Confidential Text Removed]Temporary loss of common foraging habitat from a small proportion of the home (breeding) and winter ranges.	A specific survey and monitoring protocol will also be developed to ensure adherence with the legal protection for nesting marsh harrier as a Schedule 1 nesting species.	No significant effect
Species populations of County value			
Little ringed plover	[Confidential Text Removed]	A specific survey and monitoring protocol will also be developed to ensure adherence with the legal protection for nesting little ringed plover as a Schedule 1 nesting species.	No significant effect
Barn owl	[Confidential Text Removed] Locations of barn owl nest sites within 2km of the Order Limits were obtained from the Wildlife Conservation Projects Ltd. (WCP). There were 12 potential nest sites (boxes) within the Order Limits plus 200m.	Review of nest site occupancy data from barn owl conservation group, as well as pre-works barn owl survey, to identify current nest sites within ZoI. Where required, nest boxes would be closed outside of the nesting season in partnership with the relevant	No significant effect

Description of effect and feature	Effect	Additional mitigation measures	Residual impact
		stakeholders, and replacement box/boxes erected.	
Bearded tit	[Confidential Text Removed] Wintering population at Wolla Bank Reedbed which is approximately 200m from the landfall compound. Embedded mitigation in the form of an earth bund screening around the landfall compound.	No additional mitigation required.	No significant effect
Cetti's warbler	[Confidential Text Removed]	No additional mitigation required.	No significant effect
Starling	Very large winter roosts within coastal nature reserves, >200m from the landfall construction compound. Embedded mitigation includes an earth bund to screen the compound from the coastal reserves.	No additional mitigation required.	No significant effect
Yellow wagtail	Large winter roosts within coastal nature reserves, >200m from the landfall construction compound. Embedded mitigation includes an earth bund to screen the compound from the coastal reserves.	No additional mitigation required.	No significant effect
Species populations of Local or Less than Local value			
Breeding birds	Temporary disturbance of breeding territories within c.100m of the onshore Order Limits.	No additional mitigation required.	No significant effect
Non-breeding birds	Temporary disturbance of non-breeding birds within C.400m of the onshore Order Limits.	No additional mitigation required.	No significant effect
Other designated ornithological sites			
Non-European designated ornithological sites	Designated sites within the potential disturbance distance either have existing	No additional mitigation required.	No significant effect

Description of effect and feature	Effect	Additional mitigation measures	Residual impact
	landscape and habitat features which minimise the potential for disturbance or will be subject to embedded mitigation such as the earth bund at the landfall.		
BAEF compensation site: Wyberton Roads South	The compensation site is adjacent to a section of the ECC, ~~and a temporary access track is located within the compensation site,~~ hence birds may be displaced from part or all of the compensation site.	The seasonal restriction to construction work in proximity to this compensation site will minimise potential disturbance in that location.	No significant effect
Impact 4: Pollution of waterbodies and watercourses used by protected and priority bird species, especially via suspended solids but potentially also via spillage of vehicle fluids from construction machinery			
All IOFs	Measures to minimise the risk of a pollution event will be contained within the PPEIRP. A detailed assessment of this impact is provided within the Volume 1 Chapter 24: Hydrology, Hydrogeology and Flood Risk.	No additional mitigation identified.	No significant effect
Impact 5: Air quality impacts on habitats used by protected and priority bird species			
All features	A detailed assessment of this impact is provided within Volume 1, Chapter 19: Onshore Air Quality.	No additional mitigation identified.	No significant effect
Operation and Maintenance			
Impact 1: Disturbance of designated sites qualifying features, protected and priority bird species during planned and unplanned maintenance works when the proposed development is operational.			
All IOFs	Once the OnSS is operational, activities would be limited to regular inspections and occasional maintenance. This would be highly localised within the substation, with a minimal likelihood of disturbance	No additional mitigation identified.	No significant effect

Description of effect and feature	Effect	Additional mitigation measures	Residual impact
	expected to the adjacent areas. Planned maintenance of the onshore ECC is likely to involve an annual visit by a small team.		
Decommissioning			
Impact 1: Impacts are likely to be similar to construction, but more limited in geographical extent and timescale and there would be no permanent habitat loss.			
All IOFs	Impacts likely to be similar to construction, but more limited in geographical extent and timescale, it is expected that cables would be left *in situ* and there would be no permanent habitat loss. Short term, localised, temporary, adverse effect.	No additional mitigation identified.	No significant effect
Cumulative			
All assessed impacts on all IOFs		No additional mitigation identified.	No significant effect

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