Outer Dowsing Offshore Wind

Landscape and Ecology Design Principles Plan

Date: June 2023

Outer Dowsing Document No: 8.7
Internal Reference: PP1-ODOW-DEV-CS-PLA-0009

Rev: V1.0

OUTER DOWSING OFFSHORE WIND

Company:	**Outer Dowsing Offshore Wind**	Asset:	**Whole Asset**
Project:	**Whole Wind Farm**	Sub Project/Package:	Whole Asset
Document Title or Description:	Landscape and Ecology Design Principles Plan		
Document Number:	8.7	3rd Party Doc No (If applicable):	N/A

Outer Dowsing Offshore Wind accepts no liability for the accuracy or completeness of the information in this document nor for any loss or damage arising from the use of such information.

Rev No.	Date	Status/Reason for Issue	Author	Checked by	Reviewed by	Approved by
V1.0	June 2023	Final	SLR	GoBe	Shepherd and Wedderburn	Outer Dowsing Offshore Wind

Table of Contents

List of tables

Abbreviations

Acronym	Expanded name
ACIEEM	Associate of the Chartered Institute of Ecology and Environmental Management
CoCP	Code of Construction Practice
CSCS	Construction Skills Certification Scheme
DAS	Discretionary Advice Service
DCO	Development Consent Order
ECC	Export Cable Corridor
ECoW	Ecological Clerk of Works
EPP	Evidence Plan Process
EPS	European Protected Species
ETG	Export Topic Group
GCN	Great Crested Newt
HDD	Horizontal Directional Drilling
KPI	Key Performance Indicators
LCC	Lincolnshire County Council
LEDPP	Landscape and Ecology Design Principles Plan
LEMS	Landscape and Ecological Management Strategy
LVIA	Landscape and Visual Impact Assessment
LWS	Local Wildlife Site
LWT	Lincolnshire Wildlife Trust
MHWS	Mean High Water Springs
NLCA	National Landscape Character Area
OHPL	Overhead Power Line
OLEMS	Outline Landscape and Ecological Management Strategy
OnSS	Onshore Substation
PEIR	Preliminary Environmental Impact Report
PRoW	Public Rights of Way
SSSI	Site of Special Scientific Interest

Terminology

Term	Definition
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.

Term	Definition
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP) from the Secretary of State (SoS) for Department for Energy Security and Net Zero (DESNZ).
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.
Evidence Plan	A voluntary process of stakeholder consultation with appropriate Expert Topic Groups (ETGs) that discusses and where possible agrees the detailed approach to the Environmental Impact Assessment (EIA) and information to support Habitats Regulations Assessment (HRA) for those relevant topics included in the process, undertaken during the pre-application period.
Impact	An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial.
Intertidal	Area where the ocean meets the land between high and low tides.
Landfall	The location at the land-sea interface where the offshore export cable will come ashore.
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.
Outer Dowsing Offshore Wind	The Project.
Onshore Export Cable Corridor (ECC)	The Onshore Export Cable Corridor (Onshore ECC) is the area within which the export cable running from the landfall to the onshore substation will be situated.
Onshore substation (OnSS)	The Project's onshore substation, containing electrical equipment 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.
Preliminary Environment Information Report (PEIR)	The PEIR is written in the style of a draft Environmental Statement (ES) and provides information to support and inform the statutory consultation process in the pre-application phase. Following that consultation, the PEIR documentation will be updated to produce the Project's ES that will accompany the application for the Development Consent Order (DCO).
PEIR Boundary	The PEIR Boundary is outlined in Figure 3.1 of Volume 1, Chapter 3: Project Description and comprises the extent of the land and/or seabed for which the PEIR assessments are based upon.
Receptor	A distinct part of the environment on which effects could occur and can be the subject of specific assessments. Examples of receptors

Term	Definition
	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.
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, TotalEnergies 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.
The Project	Outer Dowsing Offshore Wind (ODOW) including proposed onshore and offshore infrastructure
Trenchless techniques	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.

1 Introduction

1.1.1 This Outline Landscape and Ecology Design Principles Plan (LEDPP) is an outline document that, by reference to the assessments reported in the Preliminary Environmental Information Report (PEIR), sets out the principles that will be followed when finalising landscape and ecology mitigation, compensation and enhancement measures for the proposed onshore substation (OnSS) and onshore export cable corridor (ECC) for Outer Dowsing Offshore Wind (the Project).

2 Purpose of this Document

2.1.1 The LEDPP makes reference to the project description, landscape and visual impact assessment and onshore biodiversity assessment that are reported in the following chapters of the Preliminary Environmental Information Report (PEIR):

- Volume 1, Chapter 3: Project Description;
- Volume 1, Chapter 28: Landscape and Visual Impact Assessment (LVIA);
- Volume 1, Chapter 21: Onshore Ecology; and
- Volume 1, Chapter 22: Onshore Ornithology.

2.1.2 Both Volume 1, Chapter 3: Project Description and Volume 1, Chapter 28: Landscape and Visual Assessment consider the potential effects of the removal of landscape elements including ground cover, hedgerows, trees and woodlands.

2.1.3 Volume 1, Chapter 28: Landscape and Visual Assessment considers the physical effect of this removal as landscape elements that contribute to landscape character.

2.1.4 Volume 1, Chapter 21: Onshore Ecology and Volume 1, Chapter 22: Onshore Ornithology assessments consider these elements as ecological assets that contribute to the wider biodiversity of the area.

2.1.5 Volume 1, Chapter 3: Project Description provides details of the onshore elements of the Project which have informed the Project Description and the LVIA.

2.1.6 This LEDPP is intended as an in-principle document to support the PEIR documents and assessments and is the first step in a process which will continue to be developed as the design of the onshore elements of the Project progresses. Further baseline ecology survey data will be available and shared through the Evidence Plan Process (EPP) Export Topic Group (ETG) meetings with key consultees.

2.1.7 For PEIR, this LEDPP sets out the principles that will be used in the development of an Outline Landscape and Ecological Management Strategy (OLEMS) that will be provided as part of the Development Consent Order (DCO) application. The OLEMS, in turn, will set out the key landscape and ecology elements that will be secured in the final Landscape and Ecological Mitigation Strategy (LEMS) which will be secured as a requirement of the DCO Application post consent.

Table 1: Ecological and landscape information presented at the Project stages

PEIR	DCO Application	Post Consent
LEDPP	OLEMS	LEMS
Substation search areas and wider onshore ECC	Development of substation design and preferred onshore ECC	Detailed scheme design and construction detail
Baseline ecology surveys ongoing	Informed by baseline surveys and consultation	Informed by pre-construction surveys
Principles	Provides outline measures	Final details prior to construction

3 Spatial Scope

3.1.1 For the avoidance of doubt, this LEDPP relates to the onshore elements of the Project only (i.e., landward of Mean High Water Springs). This document does not relate to offshore works seaward of Mean High Water Springs that are principally marine activities except where stated otherwise, this applies to the areas beyond the intertidal zone.

3.1.2 The main exception to the above relates to measures to avoid disturbance to birds using intertidal habitats, which are included in this LEDPP.

4 Temporal Scope

4.1.1 This LEDPP primarily relates to measures to be employed during the construction phase of the onshore elements of the Project, and restoration aftercare period (detailed in Section 6 and 7) i.e. until such time as reinstatement measures are deemed to be successful. Some aspects of the LEDPP would also apply to pre-commencement activities (e.g., vegetation cutting and clearance).

5 Ecological Clerk of Works (ECoW)

5.1.1 An ECoW will be employed for the duration of the Project to allow for species specific mitigation, method statements and plans to be implemented effectively. All ecological measures within the final LEMS will be undertaken under the guidance of the ECoW.

5.1.2 The ECoW will undertake the following tasks:

- Arrange all specialist ecological surveys;
- Undertake regular site inspections and pre-construction checks for legally protected or notable species;
- Monitoring compliance with the LEMS and any protected species licence during construction (compliance audits would be undertaken by an appropriate external body);
- Assist in delivering site inductions and toolbox talks (i.e., presentations and the dissemination of information to site personnel on ecological matters);
- Assist in reviewing the final Construction Method Statement; and
- Notifying the Applicant and/or Principal Contractor of any issues/breaches in the LEMS.

5.1.3 The ECoW will undertake the following tasks:

- All site workers will be informed of the role and contact details of the ECoW. A copy of the LEMS will be kept on site at all times and site workers will be made aware of its location and/or who to contact in order to obtain a copy of the LEMS;
- It is anticipated that an ECoW team would be required, with the lead ECoW delegating duties to an appropriately skilled and experienced deputy/assistant ECoW(s), where necessary. The lead ECoW would be expected to have a minimum of three years' experience as a professional ecologist including suitable ECoW experience, preferably on large linear infrastructure projects with knowledge of UK ecological policy and legislation. The lead ECoW would be a member of an appropriate professional body, in the case of the Chartered Institute of Ecology and Environmental Management (CIEEM). This would be Associate grade (ACIEEM) or above. They would also hold a Construction Skills Certification Scheme (CSCS) card (or equivalent). Deputy/assistant ECoWs would also be expected to possess a suitable qualification and/or relevant professional experience.
- Curriculum vitae for the lead ECoW and other members of the ECoW team would be provided to Lincolnshire County Council (LCC) to demonstrate adherence to the role description in Paragraph 5.1.3, prior to construction commencing, thereby ensuring that proposed ECoW team members are suitably qualified and experienced.
- The ECoW/ECoW Team will be appointed either by the Principal Contractor or by the Applicant to oversee preliminary works and construction works. It is also possible that separate ECoW/ECoW Teams will be appointed by the Principal Contractor and the Applicant, with each ECoW/ECoW team performing different roles.

- Roles, responsibilities and lines of communication would be determined at the detailed design stage, with details provided in the final Code of Construction Practise (CoCP) and final LEMS.
- In addition to the monitoring undertaken by the ECoW, the Applicant will appoint an appropriate external body specifically for undertaking compliance audits. The compliance audits shall include identified key performance indicators (KPIs) for each identified ecological feature. The KPIs will be agreed as part of the agreed Final LEMS. The final LEMS will set out the frequency and dissemination of compliance audit reports for agreement with LCC in consultation with Natural England.

6 Landscape Mitigation Principles

6.1 Primary Mitigation

6.1.1 Primary mitigation in respect of the onshore elements of the Project has involved the sensitive siting and design of the onshore infrastructure during site selection, in order to reduce or avoid potential impacts.

6.1.2 The site selection process for the landfall, Onshore Export Cable Corridor (ECC) and OnSS sites considered constraints relating to physical landscape elements (such as woodlands, trees and hedgerows), landscape character and visual amenity, together with other environmental and technical constraints (Volume 1, Chapter 4: Site Selection and Consideration of Alternatives). The sensitivity of the surrounding landscape and of residents, road-users, workers and recreational users of the landscape was also a key consideration. The capacity of the landscape to accommodate the onshore elements of the Project is assessed in relation to the natural screening afforded by landform, woodlands and trees and the degree to which other surrounding infrastructure and buildings influence visual screening. Using these considerations, the locations will be further refined for the DCO Application.

Landfall

6.1.3 For PEIR, there is one landfall search area, situated on the coastline between Anderby Creek in the north and Chapel St. Leonards in the south. This search area covers an approximate 1.3km of the coastline and covers the coastal areas of Wolla Bank and Chapel Six Marshes. While the removal and replacement of planting along the coastal edge will be avoided through the use of undergrounding techniques, there is the potential that some vegetation would be removed in association with the construction compound and access tracks.

Onshore ECC

6.1.4 From the Landfall at Wolla Bank, there are two options for the onshore ECC: The first extending approximately 7km west and northwest, to the close-range Lincolnshire Node OnSS search area. The second extending approximately 43 to 45km south and southwest, to the more distant range Weston Marsh North and Weston Marsh South OnSS search areas.

6.1.5 The Weston Marsh ECC comprises a couple of alternative options. Approximately 4km northeast of Wainfleet All Saints there are two alternative options for crossing the A52. From these two short sections, a longer alternative ECC extends southwest on the northern side of the A52, while the other option is situated on the southern side. These options converge to the east of Boston, to form a single ECC, only diverging again at the southern end to reach either the Weston Marsh north or Weston Marsh south OnSS search area. The combination of careful siting and the use of undergrounding techniques will mean that the onshore ECC will avoid requiring the removal of large areas of vegetation. There will, however, still be the likely removal of small-scale and localised patches of vegetation along the onshore ECC, mostly comprising hedgerows, but also occasional hedge trees and trees in those instances where these cannot be avoided.

Onshore Substation

6.1.6 At PEIR stage the following three options are being assessed as potential locations for the OnSS;

- Lincolnshire Node OnSS;
- Weston Marsh North OnSS; and,
- Weston Marsh South OnSS.

6.1.7 The search areas, indicative footprint locations and indicative mitigation planting for the OnSS relative to each of these three options are shown on the Indicative Layout plans in Figures 27.29 to 27.31 in Volume 2, Appendix 6.1.27. As the details of the Project have not been finalised, these figures show the indicative locations for the OnSS, and indicative mitigation planting. The indicative mitigation planting has been created to illustrate the basic structure of the woodland planting that would be implemented to reduce the potential effects of the OnSS and enable a detailed assessment to be carried out, despite the layout currently not being fixed.

6.1.8 The Weston Marsh North OnSS and Weston Marsh South OnSS search areas lie within 2km of one another and as such are located in the same National Landscape Character Area (NLCA) and are subject to the same baseline influences. Two overhead electricity transmission lines intersect close to the Weston Marsh South OnSS search area and one of these extends close to the Weston Marsh North OnSS search area. The openness of this landscape means that these overhead electricity lines form a defining feature. There are also large-scale industrial buildings and a power station on the northern edge of Spalding, to the south of the search areas.

6.1.9 The Lincolnshire Node OnSS search area lies more than 50km to the north in a landscape where there are no close-range overhead electricity transmission lines, although there is a wind farm to the north, west of Mablethorpe and tall masts to the west of Sutton, which are visible from the more open parts of this area.

6.1.10 These landscape contexts were considered in Volume 1, Chapter 4: Site Selection and Consideration of Alternatives and are considered also in the preparation of mitigation proposals for each of the three OnSS options.

6.2 Construction Phase Mitigation

6.2.1 Mitigation opportunities during the construction phase of works will primarily relate to the restrictions imposed on the working areas and measures identified in the Outline CoCP (Document Reference 8.1).

6.2.2 Sensitive siting of construction compound areas away from more visible and larger numbers of receptors, will also be important to reduce the impact on the immediate views.

6.3 Operational Mitigation

6.3.1 Once the construction phases of the onshore elements are complete, replacement planting and new planting will be implemented in association with the landfall, onshore ECC and around the OnSS.

6.3.2 Landscape mitigation measures seek to avoid, reduce or offset temporary and permanent environmental effects, including those related to the landscape and visual resource. Landscape and visual effects change over time as mitigation measures establish and mature and existing landscape evolves, such as planting, and restoration of habitat types included as part of the proposed onshore elements of the Project.

Onshore ECC and Landfall Landscape Mitigation Principles

6.3.3 As the final Landfall location and onshore ECC location have not been selected ahead of the PEIR assessment, the landscape mitigation strategy for the Landfall and onshore ECC has not yet been fully developed, however a series of principles have been identified to inform the strategy. Key landscape and visual considerations in the development of this mitigation strategy include:

- Achievement of the best environmental fit of the preferred 60m wide permanent cable corridor where practicable, particularly in relation to reducing hedgerow and tree loss along the onshore ECC;
- Reinstatement of removed sections of hedgerows;
- Ensuring that the construction compound options are carefully selected taking into account landscape and visual receptors to reduce impacts during the construction period where practicable;
- Restoration of all temporary works and construction areas in relation to re-establishment of ground cover;
- Protection of all retained trees during the construction phase where practicable; and
- Should footpaths or cycleways be temporarily disrupted by the proposed onshore ECC or Landfall then reinstatement would form part of the mitigation strategy.

Reinstatement of Onshore ECC

6.3.4 Following construction of the landfall and installation of the onshore cables disturbed landcover and habitats would be reinstated. The overall aim of the reinstatement would be the re-establishment of existing ground cover or returning the disturbed ground to its original agricultural use. Where possible, excavated soils will be carefully stored and reinstated as soon as possible.

OnSS Mitigation Principles

Baseline Context

6.3.5 The landscape context to the Weston Marsh north OnSS search area and the Weston Marsh South OnSS search area comprises predominantly arable farmland in a flat, reclaimed landscape, where enclosure has been eroded and fields amalgamated, such that the landscape is relatively open and exposed.

6.3.6 In respect of Weston Marsh north OnSS search area, this is bounded to the southwest by the Overhead Power Line (OHPL), to the northwest by the A16 and to the southeast by the rural road, Marsh Drove. To the northeast the landscape is relatively open, and it is from this direction that the cables would extend to meet the OnSS. Within the wider landscape, the River Welland lies further to the southeast, defined by the steep enclosing banks which contrast with the flat and low-lying farmland. There is a distinct lack of hedgerows and tree cover in this landscape with the exception of planting associated with the A16 and occasional trees associated with farmsteads.

6.3.7 In respect of Weston Marsh south OnSS search area, this is bounded to the northeast and southeast by the OHPL, and by the rural Marsh Road on the western side. To the southwest the landscape is relatively open. The cables into the OnSS would extend from the northeast. Within the wider landscape, the River Welland lies further to the west, defined by the steep enclosing banks which contrast with the flat and low-lying farmland. There is a distinct lack of hedgerows and tree cover in this landscape with the exception of planting associated with Lord's Drain to the east and clusters of trees associated with farmsteads.

6.3.8 The landscape context to the Lincolnshire Node OnSS search area is different in that it is not a reclaimed landscape and, therefore, there is a less geometric pattern to the layout of the fields, roads and settlements. The search area lies within an area of rural arable farmland, with the village of Huttoft to the east, the rural Huttoft Road to the southeast, the village of Thurlby and the B1449 to the southwest, open farmland to the west, the hamlet of Asserby and the rural road through it to the northwest and Mill Lane to the northeast. The Boy Grift Drain cuts through the search area from the northeast to southwest. There are hedgerows marking some of the field boundaries and tree cover along the dismantled railway to the east and field boundaries to the east and south.

Outline Planting Principles

6.3.9 Outline planting mitigation principles have been developed for the OnSS site to compliment this existing landscape structure. These mitigation principles include areas of proposed woodland, areas identified for ecological mitigation in the form of habitat enhancement and areas with potential further planting following design progression and consultation.

6.3.10 The extent of the indicative proposed woodland planting is presented in the Indicative Layout plans in Volume 2, Appendix 28.1: Landscape and Visual Assessment Visualisations Wirelines. The screening woodland planting is also shown on the landscape and visual impact assessment (LVIA) visualisations as a dashed line to show the indicative height of the screening woodland after 15-years' establishment in the context of the assessed OnSS maximum parameters.

Proposed Planting

6.3.11 The proposed mitigation planting comprises native woodland, hedgerow and grassland species and would be located around the indicative OnSS location for Lincolnshire Node, Weston Marsh north and Weston Marsh south. The key aims of the proposed mitigation planting will be as follows:

- To create screening from key visual receptors in the surrounding area such as rural farmsteads and properties, rural roads and Public Rights of Way (PRoWs);

- To improve the appearance of the OnSS by reducing the perceived scale and mass of the OnSS and presenting a natural and organic screen and/or backdrop that will contrast with the built form;
- Increasing the biodiversity potential of the heavily modified agricultural landscape prevalent in these areas; and
- Exploring opportunities to connect with existing hedgerows and woodland areas to contribute to an improved integrated green network for wildlife.

6.3.12 The mitigation woodland planting would comprise a mix of faster growing 'nurse' species and slower growing 'core' species. Nurse species, such as field maple, hornbeam, hazel and wild cherry, would grow quicker so that after 15-years they would be approximately 6.8m to 8.3m in height. They would provide shelter to bring on core species, such as oak. Whilst the nurse species would be sufficiently fast growing to provide substantial screening of the OnSS after 15-years, the core species would outlive the nurse species and provide a preferred native woodland with a more robust structure closer in character to other woodland copses in this area.

6.3.13 Proposed woodland planting could be spaced to maximise growth rate and ultimate screening potential. An example of this would be to plant approximately one plant per m^2 in natural groups and not too regimented (i.e., in randomly spaced species groups of three, five and seven plants), however the precise detail of these spacings should form part of the planting schedule at a more detailed stage.

6.3.14 Hedgerow planting would comprise species rich hedgerows using appropriate native species such as hawthorn and blackthorn. The proposed hedgerows and woodland planting could restore historic field boundaries and strengthen lines of existing field boundaries, connecting new planting to established hedgerows and tree cover in the area and thereby complimenting the existing landscape structure.

6.3.15 The quality of the topsoil on the site has not been tested but given the existing and historical agricultural use, is considered likely to be of good quality. In relation to preparation of the planting areas the following guidelines could be followed: ensure area is weed free prior to planting; and break existing ground identified for tree planting to a suitable depth, harrow and remove large stones.

Advance Planting

6.3.16 In locations where there would not be any interference with construction works, and where it would be practical to undertake advanced planting, mitigation woodland could be planted during the early phases of the OnSS to ensure robust screening as early as possible. This advance planting if implemented at the start of the pre-construction phase would give the woodland in these areas' additional growth prior to completion of construction and commencement of operation.

7 Ecological Mitigation and Compensation Principles

7.1 Background to Approach

7.1.1 Although baseline ecological surveys have yet to be completed and the Project design finalised, it is clear at the time of writing that mitigation and compensation will likely be necessary for temporary and permanent habitat loss, and in respect of impacts to breeding and wintering birds, bats, great crested newts (GCN), water vole, otter, badgers and potentially other species/species groups such as reptiles, invertebrates and fish.

7.1.2 The definitions for the terms 'Avoidance', 'Mitigation', 'Compensation', and 'Enhancement' as used within this LEDPP and PEIR Volume 1, Chapter 21: Onshore Ecology and Volume 1, Chapter 22: Onshore Ornithology are 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.* Mitigation measures can be embedded (part of the Project design) or secondarily added to reduce impacts in the case of potentially significant effect;
- **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.

7.1.3 The intention is for this document to set out the guiding principles for the proposed mitigation measures and compensation habitats that are likely to be required. These initial recommendations for mitigation or compensation are preliminary, depending on results of further surveys and final Project design.

7.1.4 An OLEMS, including details of mitigation and compensation measures for other sections of the Onshore ECC (where applicable), as well as further details of proposed measures at the OnSS, will be provided with the ES, once relevant surveys (for all species) have been completed and proposed measures have been developed further. This OLEMS will also demonstrate how biodiversity net gain will be achieved and how the target habitat conditions in the Defra metric will be met (refer to Document Reference 8.3: Biodiversity Net Gain Principles and Approach for further information).

7.2 Primary Mitigation

7.2.1 Primary mitigation is achieved through careful selection of the onshore ECC and Project design including careful routing of the landfall and Onshore ECC and design of key crossing points and avoidance of direct impacts to designated sites, including Sites of Special Scientific Interest (SSSIs), Local Wildlife Sites (LWSs) and Lincolnshire Wildlife Trust (LWT) reserves. Where the onshore ECC crosses these designations, trenchless techniques will be used.

7.2.2 Avoidance of direct impacts on key areas of sensitivity including Priority Habitats (coastal sand dunes and reedbeds), will be applied wherever possible. The use of trenchless techniques will also be considered for such sensitive habitats.

7.2.3 Outline details of ecological mitigation measures specific to construction activities are provided separately in Document Reference 8.1: Outline CoCP and are not included in this document.

7.3 Construction Mitigation

7.3.1 The habitats within the PEIR Boundary are predominantly arable, however also represented are smaller areas of habitats that are important in their own right and, which support, or have potential to support, a range of protected species. These habitats and species are likely to be subject to negative effects during the construction of the Project.

Mitigation/Compensation for loss of Priority Habitats

Coastal Priority Habitats

7.3.2 The PEIR Boundary contains areas of Coastal Sand Dunes, Intertidal Mudflats and Reedbeds, all of which are within designated sites. Primary mitigation aimed at avoiding negative effects on designated sites will do the same for these habitats contained within them.

Arable Margins

7.3.3 **Principle 1. Use of salvage techniques to preserve and reinstate populations of rare arable weeds.** The presence of arable weeds is being determined through ongoing surveys. Mitigation practices embedded in the Project design will help to minimise impacts including temporary and permanent habitat loss, pollution, dust deposition and hydrological changes. Additional mitigation opportunities will be explored once survey data and further information regarding Project design becomes available. These may include salvage of turf from specific areas for re-use as seed material during re-establishment and seeding of new grassland areas with native and locally appropriate seed mixes.

Hedgerows, Hedgerow Trees and Lowland Mixed Deciduous Woodland

7.3.4 **Principle 2. Compensation for hedgerows lost provided as near as possible to where lost and on a 3:1 ratio**. Compensation for loss of hedgerows and trees will be provided by reinstating native, species-rich hedgerows with trees, and including ditches where these were also present originally, as well as creating new hedgerows where this is not possible. Hedges will be reinstated at their original location (or as close as possible), new hedgerows will be located so as to re-establish links and maintain the network. In all cases the hedgerows will comprise a locally appropriate mixture of at least seven woody species and including heavy standard trees at a 3:1 ratio for any lost (noting that trees will not be planted above onshore ECCs).

Rivers, Canals and Drains

7.3.5 Primary mitigation will ensure that impacts upon rivers and larger drains will be avoided through the use of trenchless techniques.

7.3.6 **Principle 3. Compensation for waterbodies lost provided as near as possible to where lost (ratio to be agreed).** No direct impacts on lakes or reservoirs are anticipated, however direct impacts to ponds may occur, although the quantum cannot be defined at the time of writing. Where ponds support GCN, mitigation and compensation will follow the requirement set out in any European Protected Species Licence (EPSL) covering the works.

Mitigation/Compensation for Impacts to Protected Species

7.3.7 The primary way impacts to protected species will be mitigated is via embedded avoidance measures protecting key habitats, and the progression of works under the associated licensing regime.

7.3.8 At the time of writing, agreement is being sought from Natural England via a Discretionary Advice Service (DAS) request regarding the compensation ratios to be adopted for ponds supporting GCN.

7.3.9 Additional key principles that will be followed to mitigate and compensate for impacts are described below.

7.3.10 **Principle 4. Avoidance of damage and disturbance to important species populations via sensitive timing of pre-construction and construction activities.** Wherever possible, vegetation which could possibly support nesting birds (i.e., trees, scrub or long grass) will be cleared outside the main breeding bird season (March to August inclusive). In order to reduce disturbance to wintering waterbirds along the onshore ECC and especially at the landfall and The Haven, the timing of noisy operations (e.g., piling, if required), may be restricted, or alternative, machinery and methods adopted. Where GCN are present, the deconstruction of ponds and ditches would occur outside the breeding season (February to July inclusive). Where possible, the closure of bat roosts would occur outside their season of use (e.g., a hibernation roost would be closed between May and August to avoid disturbance and damage to the roosting bat colony). The timing of specific site operations would be agreed with the ECoW prior to any work commencing.

7.3.11 **Principle 5. Mitigation for temporary loss of foraging habitat will be provided as close as possible to the area that is lost and remain accessible to the population in question throughout construction.** In most cases (GCN, bats, badger) this is anticipated to comprise a relaxation of/changes to arable or agricultural grassland management in areas near to the impact, to enable a more diverse sward to develop. Depending on the location, additional seeding of grassland/tall herbs may be used to ensure sufficient resource remains. Cut vegetation (such as arisings from hedgerow or scrub removal) will be used to create brash piles for use by sheltering amphibians and reptiles.

7.3.12 **Principle 6. Compensation for permanent loss of habitat will be provided as close as possible to those lost.** It is likely that the only permanent loss of GCN ponds or ditches (which could also support water vole, fish or invertebrates) might occur around the OnSS or other permanent infrastructure, as reinstatement will likely be achievable elsewhere. Where translocation of water vole is necessary, the provision of appropriate compensatory habitats to be created in advance of any potentially detrimental impact occurring. Where trees supporting roosting bats are lost, provision of artificial roosts will be as close to the location of those lost as possible, taking care to avoid areas subject to noise and light disturbance. If required, provision of artificial badger setts will be within the territory of the affected clan. Where necessary, compensation habitats will be approved by Natural England via the relevant licensing scheme.

7.3.13 **Principle 7. Retained habitats to remain accessible to dependent species populations throughout the construction phase via provision/protection of habitat links.** During construction the Project may create a barrier to wildlife movement, with bat flight lines potentially severed and otter commuting routes disturbed for example. Therefore, retained habitat links will be protected from damage or disturbance (noise, light spill etc.) and where habitat links are not retained, temporary planting or artificial habitat links will be provided and protected.

7.3.14 **Principle 8. Seek Enhancements.** Wherever possible enhancements will be sought to add value to compensation habitats, for example creating brash piles and log piles within new areas of planting and improving existing management regimes. Enhancement of permanent infrastructure will also be considered, for example provision of bat/bird nesting boxes, use of species-rich planting mix for boundary hedgerows and improving functional linkages across the landscape.

7.3.15 There may also be opportunities to undertake enhancement by partnering with third parties and undertaking works on their land.

Operational Mitigation

7.3.16 Primary mitigation and the progression of works under the relevant licencing regime will ensure that impacts arising from disturbance during routine maintenance will be avoided.

Decommissioning Mitigation

7.3.17 At the time of writing the extent of works that will be required at the decommissioning stage is not well defined, and it has been assumed for the purposes of the PEIR, that impacts would be in line with those arising during the Construction Phase. Therefore, the Principles outlined above would also be relevant for mitigating decommissioning impacts.

Monitoring and Management

7.3.18 **Principle 9. All habitats created as part of ecological mitigation/compensation, or to provide enhancement, will be subject to monitoring and ongoing management to ensure that aims and objectives are met.** Remedial or additional measures would be implemented if mitigation/compensation/enhancement measures prove unsuccessful. Further details of ongoing management and monitoring will be provided in the OLEMS, to be included with the ES.

7.4 Sustainability Principles

7.4.1 Opportunities to adopt sustainable approaches to working practices will be sought wherever is it feasible to do so. These opportunities will be outlined within the OLEMS but may include the minimisation of herbicide application and the use of biodegradable plastic free guards for hedgerow and tree planting.