MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS

Onshore Biodiversity Benefit Statement

Deadline: Deadline 2

MOR001-FLO-CON-ENV-RPT-0129
MRCNS-J3303-RPS-10079

PINS Reference: EN020028
APFP Regulations: 5(2)(q)
Document reference: J11/F03
Rev: F03
5 June 2025

Document status					
Version	**Purpose of document**	**Approved by**	**Date**	**Approved by**	**Date**
F01	For issue: application	AS	September 2024	IM	September 2024
F02	S51 advice update	AS	December 2024	IM	December 2024
F03	Submission at D2	HK	June 2025	IM	June 2025

Prepared by:

RPS

Prepared for:

Morgan Offshore Wind Limited, Morecambe Offshore Windfarm Ltd

Contents

Tables

Figures

Glossary

Term	Meaning
400 kV grid connection cables	Cables that will connect the proposed onshore substations to the existing National Grid Penwortham substation.
Applicants	Morgan Offshore Wind Limited (Morgan OWL) and Morecambe Offshore Windfarm Ltd (Morecambe OWL).
Baseline	The status of the environment without the Transmission Assets in place.
Biodiversity benefit	An approach to development that leaves biodiversity in a better state than before. 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. For the Transmission Assets, biodiversity benefit will be delivered within identified biodiversity benefit areas within the Onshore Order Limits.
Code of Construction Practice	A document detailing the overarching principles of construction, contractor protocols, construction-related environmental management measures, pollution prevention measures, the selection of appropriate construction techniques and monitoring processes.
Commitment	This term is used interchangeably with mitigation and enhancement measures. The purpose of commitments is to avoid, prevent, reduce or, if possible, offset significant adverse environmental effects. Primary and tertiary commitments are taken into account and embedded within the assessment set out in the ES.
Development Consent Order	An order made under the Planning Act 2008, granting development consent.
Environmental Impact Assessment	The process of identifying and assessing the significant effects likely to arise from a project. This requires consideration of the likely changes to the environment, where these arise as a consequence of a project, through comparison with the existing and projected future baseline conditions.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment process.
Generation Assets	The generation assets associated with the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm include the offshore wind turbines, inter-array cables, offshore substation platforms and platform link (interconnector) cables to connect offshore substations.
Intertidal Infrastructure Area	The temporary and permanent areas between Mean Low Water Springs and Mean High Water Springs.
Landfall	The area in which the offshore export cables make landfall (come on shore) and the transitional area between the offshore cabling and the onshore cabling. This term applies to the entire landfall area at Lytham St. Annes between Mean Low Water Springs and the transition joint bays inclusive of all construction works, including the offshore and onshore cable routes, intertidal working area and landfall compound(s).
Mitigation measures	This term is used interchangeably with Commitments. The purpose of such measures is to avoid, prevent, reduce or, if possible, offset significant adverse environmental effects.

Term	Meaning
Morecambe OWL	Morecambe Offshore Windfarm Ltd is a joint venture between Zero-E Offshore Wind S.L.U. (Spain) (a Cobra group company) (Cobra) and Flotation Energy Ltd.
Morecambe Offshore Windfarm: Generation Assets	The offshore generation assets and associated activities for the Morecambe Offshore Windfarm.
Morgan and Morecambe Offshore Wind Farms: Transmission Assets	The offshore and onshore infrastructure connecting the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm to the national grid. This includes the offshore export cables, landfall site, onshore export cables, onshore substations, 400 kV grid connection cables and associated grid connection infrastructure such as circuit breaker compounds. Also referred to in this report as the Transmission Assets, for ease of reading.
Morgan OWL	Morgan Offshore Wind Limited is a joint venture between bp Alternative Energy investments Ltd. and Energie Baden-Württemberg AG (EnBW).
Morgan Offshore Wind Project: Generation Assets	The offshore generation assets and associated activities for the Morgan Offshore Wind Project.
Onshore export cables	The cables which would bring electricity from landfall to the onshore substations.
Onshore Order Limits	See Transmission Assets Order Limits: Onshore (below).
Onshore substations	The onshore substations will include a substation for the Morgan Offshore Wind Project: Transmission Assets and a substation for the Morecambe Offshore Windfarm: Transmission Assets. These will each comprise a compound containing the electrical components for transforming the power supplied from the generation assets to 400 kV and to adjust the power quality and power factor, as required to meet the UK Grid Code for supply to the National Grid.
Order Limits	See Transmission Assets Order Limits (below).
Transmission Assets	See Morgan and Morecambe Offshore Wind Farms: Transmission Assets (above).
Transmission Assets Order Limits	The area within which all components of the Transmission Assets will be located, including areas required on a temporary basis during construction and/or decommissioning.
Transmission Assets Order Limits: Onshore	The area within which all components of the Transmission Assets landward of Mean High Water Springs will be located, including areas required on a temporary basis during construction and/or decommissioning (such as construction compounds).

Acronyms

Acronym	Meaning
BNG	Biodiversity Net Gain
CoCP	Code of Construction Practice
DCO	Development Consent Order
Defra	Department for Environment, Food & Rural Affairs
ES	Environmental Statement
JNCC	Joint Nature Conservation Committee
NSIPs	Nationally Significant Infrastructure Projects

Units

Unit	Description
ha	Hectare
km	Kilometres
kV	Kilovolts
%	Percentage

1 Onshore Biodiversity Benefit Statement

1.1 Background

1.1.1 Introduction

1.1.1.1 This document forms the Onshore Biodiversity Benefit Statement which has been produced as part of a Development Consent Order (DCO) for the Morgan and Morecambe Offshore Wind Farms: Transmission Assets (referred to hereafter as 'the Transmission Assets').

1.1.2 Structure of this document

1.1.2.1 The structure of this Onshore Biodiversity Benefit Statement is as follows.

- **Section 1.1** provides an introduction to the Onshore Biodiversity Benefit Statement.
- **Section 1.2** provides the relevant policy and legislation in relation to biodiversity benefit.
- **Section 1.3** provides the approach to the delivery overall biodiversity benefit.
- **Section 1.4** provides the assessment of biodiversity benefit for area based habitats, hedgerows, and watercourses.
- **Section 1.5** provides a summary of the proposals for habitat creation and habitat enhancement.
- **Section 1.6** provides a summary of this Onshore Biodiversity Benefit Statement.
- **Section 1.7** provides a list of the material referred to in this Onshore Biodiversity Benefit Statement.

1.1.3 Project overview

1.1.3.1 Morgan Offshore Wind Limited (Morgan OWL), a joint venture between bp Alternative Energy Investments Ltd. (bp) and Energie Baden-Württemberg AG (EnBW), is developing the Morgan Offshore Wind Project. The Morgan Offshore Wind Project is a proposed offshore wind farm in the east Irish Sea.

1.1.3.2 Morecambe Offshore Windfarm Ltd (Morecambe OWL), a joint venture between Zero-E Offshore Wind S.L.U. (Spain) (a Cobra group company) (Cobra) and Flotation Energy Ltd, is developing the Morecambe Offshore Windfarm, also located in the east Irish Sea.

1.1.3.3 Morgan OWL and Morecambe OWL (the Applicants) are jointly seeking a single consent for their electrically separate transmission assets comprising aligned offshore export cable corridors to landfall and aligned onshore export cable corridors to separate onshore substations, and onward connection to the National Grid at Penwortham, Lancashire.

1.1.3.4 The purpose of the Transmission Assets is to connect the Morgan Offshore Wind Project: Generation Assets and Morecambe Offshore Windfarm: Generation Assets (collectively known as the 'Generation Assets') to the National Grid. The key components of the Transmission Assets include offshore, landfall and onshore elements. Details of the activities and infrastructure associated with the Transmission Assets are set out in Volume 1, Chapter 3: Project Description of the Environmental Statement (ES) (document reference F1.3).

1.1.4 Purpose of the Onshore Biodiversity Benefit Statement

1.1.4.1 The purpose of this Onshore Biodiversity Benefit Statement is to provide the following information.

- An assessment of the baseline value of habitats related to the permanent above ground infrastructure area for the Transmission Assets.
- An assessment of the potential worst-case impact of construction of the permanent above-ground infrastructure proposed for the Transmission on the value of habitats within the Onshore Infrastructure Area.
- Identify suitable opportunities for habitat creation and/or management principles for enhanced, restored or newly created habitats necessary to deliver biodiversity benefit (above baseline value) in relation to the permanent above ground infrastructure only.

1.1.4.2 As set out in **paragraph 1.2.1.7**, the biodiversity benefit for each project will be delivered within areas at the Morgan and Morecambe onshore substations in addition to the biodiversity benefit area at Lea Marsh Fields. The location and geographic extent of areas proposed for biodiversity benefit are presented in **Figure 1.4**, **Figure 1.5** and **Figure 1.6** of this Statement below. **Figure 1.7** within **Appendix J** provides indicative locations of enhancement measures at Lea Marsh Fields. **Appendix J** also outlines the principles of management measures and monitoring at Lea Marsh Fields.

1.1.4.3 As described in **section 1.3** below, the assessment has utilised the Department for Environment, Food & Rural Affairs (Defra) Biodiversity Net Gain (BNG) methodology and metric (version 4.1, published 29 November 2023), and is discussed separately for area-based habitats, hedgerows, and watercourses.

1.1.4.4 Any biodiversity benefit measures for the Transmission Assets would likely be implemented separately for the above ground permanent infrastructure associated with Morgan OWL, and the above ground infrastructure associate with Morecambe OWL.

1.1.4.5 This Onshore Biodiversity Benefit Statement should be read in conjunction with the Outline Ecological Management Plan (document reference J6) and the Outline Code of Construction Practice (document reference J1) and its supporting appendices.

1.1.5 Scope of the Onshore Biodiversity Benefit Statement

1.1.5.1 As mentioned above, the scope of the assessment of overall onshore biodiversity benefit is limited to areas of permanent habitat loss associated with permanent above ground infrastructure area for the Transmission Assets. As such, the following onshore elements of the Transmission Assets are considered.

- Onshore substations, including associated landscaping areas where permanent habitat loss would occur.
- Permanent access tracks to the onshore substations.

1.1.5.2 In addition, given that biodiversity benefit measures are likely to be implemented separately by the Morgan OWL and Morecambe OWL, biodiversity benefit calculations for area-based habitats, hedgerows, and watercourses have been presented separately for the Morgan onshore substation and Morecambe onshore substation.

1.2 Policy requirements and legislation

1.2.1 Environment Act 2021

1.2.1.1 Part 6 of the Environment Act 2021 includes provisions for BNG with respect to developers looking to submit DCO applications for Nationally Significant Infrastructure Projects (NSIPs). Specifically, Part 6 of the Environment Act 2021 states that there is an obligation for developers to ensure that all new proposals achieve a minimum of 10% improvement to biodiversity.

1.2.1.2 However, as stated in the Government response and summary of responses to the consultation on BNG (Defra, 2023), there will be no BNG requirement imposed on NSIPs until November 2025, but could choose to do so voluntarily, with the level of requirement to be detailed within a BNG statement (subject to prior publication and presently expected to be set at a minimum of 10%).

1.2.1.3 As such, the requirements of Part 6 of the Environment Act 2021 are not mandatory for the Transmission Assets, and instead have been voluntarily applied.

1.2.1.4 Defra have confirmed that projects which have been accepted for examination prior to the November 2025, would not be required to deliver the minimum BNG target.

1.2.1.5 Furthermore, following a request from the Applicants, on 4 October 2022 the Secretary of State issued a direction under section 35 of the Planning Act 2008 that the Transmission Assets should be treated as development for which a DCO is required. As such it is not subject to the mandatory BNG requirements for developments consented via the Town and Country Planning Act 1990.

1.2.1.6 Therefore, in accordance with existing legislation at the time application, there is no legal requirement for the Transmission Assets to deliver BNG.

1.2.1.7 The Applicants are proposing to make a voluntary commitment to achieve an overall biodiversity benefit for areas of permanent habitat loss associated with the permanent above-ground infrastructure of the Transmission Assets, as set out in **paragraph 1.1.5.1**.

1.2.1.8 In addition, as explained in the Outline Ecological Management Plan (document reference J6), the Applicants are pursuing additional opportunities for enhancement via engagement with projects in the wider area. Any enhancement mentions will form part of the detailed Ecological Management Plan(s).

1.2.2 National Policy Statements

1.2.2.1 There are currently six energy National Policy Statements (NPSs), three of which contain policy relevant to offshore wind development and the Transmission Assets, specifically:

- Overarching NPS for Energy (NPS EN-1) which sets out the UK Government's policy for the delivery of major energy infrastructure (Department for Energy Security & Net Zero 2023a).

1.2.2.2 **Table 1.1** sets out a summary of the policies within these this NPS, relevant to biodiversity benefit.

1.2.2.3 The policies within the current NPSs relevant to all topics in the ES can be viewed in the National Policy Statement tracker (document reference J26) and Planning Statement (document reference J28), submitted with the Application.

Table 1.1: Summary of NPS requirements relevant to biodiversity benefit

Summary of NPS provision	How and where considered
NPS EN-1	
Although achieving biodiversity net gain is not currently an obligation on applicants, Schedule 15 of the Environment Act 2021 contains provisions which, when commenced, mean the Secretary of State may not grant an application for a Development Consent Order unless satisfied that a biodiversity gain objective is met in relation to the onshore development in England to which the application relates. [Paragraph 4.6.1 of NPS EN-1]	As set out in **section 1.2.1** above, the Transmission Assets is not subject to a mandatory net gain requirement under the Environment Act 2021. Nevertheless, the Applicants have worked with statutory consultees to discuss the approach, and to develop the design, to allow the maximum benefit to biodiversity within the parameters of the Transmission Assets. This document (**section 1.5**) provides potential habitat creation and enhancement measures proposed to achieve measurable biodiversity benefit for the Transmission Assets. The results of the calculation of biodiversity benefit are shown in **section 1.3.3** of this document. As set out in **paragraph 1.1.5.1**, the biodiversity benefit approach taken for the Transmission Assets considers the permanent above-ground infrastructure of the Transmission Assets and ensures that biodiversity benefit will be delivered for these areas of permanent habitat

Summary of NPS provision	How and where considered
	loss. This approach seeks to provide biodiversity benefit whilst balancing other socio-economic and land use considerations.
The Secretary of State should give appropriate weight to environmental and biodiversity net gain, although any weight given to gains provided to meet a legal requirement (for example under the Environment Act 2021) is likely to be limited. [Paragraph 4.6.3 of NPS EN-1]	Information to inform this decision is provided within this document and Volume 3, Chapter 3: Ecology and nature conservation of the ES (document reference F3.3).
Energy NSIP proposals, whether onshore or offshore, should seek opportunities to contribute to and enhance the natural environment by providing net gains for biodiversity, and the wider environment where possible. [Paragraph 4.6.6 of NPS EN-1]	The Transmission Assets do not fall under the definition of an NSIP set out in the Planning Act 2008. However, as stated in **paragraph 1.2.1.4**, following a request from the Applicants, on 4 October 2022 the Secretary of State issued a direction under section 35 of the Planning Act 2008 that the Transmission Assets should be treated as a 'development for which development consent is required'. Commitments made as part of the Transmission Assets relevant to ecology are set out in section 3.8 of Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES (document reference F3.3). This includes measures to conserve biodiversity in terms of ecological interests. It also includes opportunities for biodiversity benefit. Habitat creation and enhancement measures proposed to achieve measurable biodiversity benefit for the Transmission Assets are set out in **section 1.5** of this document. The results of the calculation of biodiversity benefit are shown in **section 1.3.3** of this document.
In England applicants for onshore elements of any development are encouraged to use the latest version of the biodiversity metric to calculate their biodiversity baseline and present planned biodiversity net gain outcomes. This calculation data should be presented in full as part of their application. [Paragraph 4.6.7 of NPS EN-1]	The calculation undertaken for biodiversity benefit (**section 1.3.3** of this document) utilises the latest Defra Biodiversity Metric (version 4.1).
Where possible, this data should be shared, alongside a completed biodiversity metric calculation, with the Local Authority and Natural England for discussion at the pre-application stage as it can help to highlight biodiversity and wider environmental issues which may later cause delays if not addressed. [Paragraph 4.6.8 pf NPS EN-1]	Details regarding stakeholder consultation in relation to biodiversity benefit are set out in Volume 3, Chapter 3: Ecology and nature conservation of the ES (document reference F3.3) and the consultation report (document reference E1).
Biodiversity net gain should be applied after compliance with the mitigation hierarchy and does not change or replace existing environmental obligations, although compliance with those obligations will be relevant to the question of the baseline for assessing net gain and if they deliver an additional enhancement	Commitments made as part of the Transmission Assets relevant to ecology are set out in section 3.8 of Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES (document reference F3.3). This includes measures to conserve biodiversity in terms of ecological interests and complies with the mitigation hierarchy, with measures to avoid and minimise impacts as far as is possible.

Summary of NPS provision	How and where considered
beyond meeting the existing obligation, that enhancement will count towards net gain. [Paragraph 4.6.10 of NPS EN-1]	Habitat creation and enhancement measures proposed to achieve biodiversity benefit for the Transmission Assets are set out in **section 1.5** below. Wider ecological enhancement measures are set out in the Outline Ecological Management Plan (document reference J6).
Biodiversity net gain can be delivered onsite or wholly or partially off-site. We encourage details of any off-site delivery of biodiversity net gain to be set out within the application for development consent. [Paragraph 4.6.11 of NPS EN-1]	Biodiversity benefit for the permanent above ground infrastructure of the Transmission Assets is proposed to be provided within the Onshore Order Limits, as shown in **Figure 1.4** and **Figure 1.5**.

1.2.3 The National Planning Policy Framework

1.2.3.1 The National Planning Policy Framework (NPPF) was published in 2012 and updated in 2018, 2019, 2021 and 2023 (Ministry of Housing Communities & Local Government, 2023) (formerly Department for Levelling Up, Housing and Communities). The NPPF sets out the Government's planning policies for England. **Table 1.2** sets out a summary of the NPPF policies relevant to this Biodiversity Benefit Statement.

1.2.3.2 The NPPF has been updated and the draft version was published for consultation on 30 July 2024 with the consultation period ending on 24 September 2024 (Ministry of Housing, Communities and Local Government, 2024).

Table 1.2: Summary of NPPF requirements relevant to biodiversity benefit

Policy	Key provisions	How and where considered
Conserving and enhancing the natural environment. (NPPF Section 15)	Planning policies and decisions should contribute to and enhance the natural and local environment by: … d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; …. (Paragraph 180 (d)).	Impacts on habitats and species, alongside Commitments proposed to avoid and/or reduce potential impacts are discussed in Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES (document reference F3.3). This document (**section 1.5**) sets out habitat creation and enhancement measures proposed to achieve measurable biodiversity benefit for the Transmission Assets. The results of the calculations of biodiversity benefit are shown in **section 1.3.3** of this document. Wider ecological enhancement measures are set out in the Outline Ecological Management Plan (document reference J6).
Habitats and biodiversity (NPPF section 15)	To protect and enhance biodiversity and geodiversity, plans should: … b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity. (Paragraph 185 (b))	

1.2.3.3 The draft NPPF includes similar provisions as the current designated NPPF. The draft NPPF has been reviewed and there are no material updates for biodiversity benefit.

1.2.4 Local planning policy

1.2.4.1 The onshore elements of the Transmission Assets are located within the administrative areas of Fylde Council, Blackpool Council, South Ribble Borough Council and Preston City Council (and Lancashire County Council at the County level). The relevant local planning policies applicable to biodiversity benefit are summarised in **Table 1.3.**

Table 1.3: Summary of local policy relevant to biodiversity benefit

Policy	Key provisions	How and where considered
Fylde Local Plan to 2032 (incorporating Partial Review) (Adopted December 2021)		
Strategic Policy ENV2	**Section 1. Nature Conservation Sites and Ecological networks** The Council is committed to ensuring the protection and enhancement of Fylde's biodiversity and geological assets and interests. Proposals which primarily seek to enhance or conserve biodiversity will be supported in principle, subject to the consideration of other Local Plan policies Where development is considered necessary, adequate mitigation measures and compensatory habitat creation will be required through planning conditions and / or obligations, in order to secure measurable net gains for biodiversity. Measures should be put in place for the ongoing management of such features. **Section 2 Priority Species Protection** Planning permission will not be granted for development which would have an adverse effect on a priority species or its habitat, unless the benefits of the development outweigh the need to maintain the population of the species in situ. Should development be permitted that might have an adverse effect on a priority species or its habitat, planning conditions or agreements will be used to: • … • Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and	All relevant designated sites and areas for wildlife conservation and species afforded extra protections under The Conservation of Habitats and Species Regulations 2017 and Schedule 5 of the Wildlife and Countryside Act 1981 and ecological networks are identified in Volume 3, Annex 3.1: Onshore ecology desk study technical report (document reference F3.3.1) and Volume 3, Annex 3.3: Phase 1 habitat survey, national vegetation classification and hedgerow survey technical report of the ES (document reference F3.3.3). Assessment of the potential impacts and subsequent effects of the Transmission Assets, alongside Commitments, are discussed in Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES (document reference F3.3). This document (**section 1.5**) sets out habitat creation and enhancement measures proposed to achieve measurable biodiversity benefit for the above ground permanent infrastructure proposed for the Transmission Assets. The results of the calculations of biodiversity benefit are shown in **section 1.3.3** of this document. Wider ecological enhancement measures are set out in the Outline Ecological Management Plan (document reference J6).

Policy	Key provisions	How and where considered
	pursue opportunities for securing measurable net gains for biodiversity.	
South Ribble Local Plan 2012-2026 (Adopted July 2021)		
Policy G16 – Biodiversity and nature conservation	The borough's Biodiversity and Ecological Network resources will be protected, conserved and enhanced. The level of protection will be commensurate with the site's status and proposals will be assessed having regard to the site's importance and the contribution it makes to wider ecological networks. … In addition development should have regard to the provisions set out below: a. The need to minimise impacts on biodiversity and providing net gains in biodiversity where possible by designing in wildlife and by ensuring that significant harm is avoided or, if unavoidable, is reduced or appropriately mitigated and/or, as a last resort, compensated;	Assessment of the potential impacts and subsequent effects of the Transmission Assets, alongside Commitments, are discussed in Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES (document reference F3.3). This document (**section 1.5**) sets out habitat creation and enhancement measures proposed to achieve measurable biodiversity benefit for the Transmission Assets. The results of the calculation of biodiversity benefit are shown in **section 1.3.3** of this document. Wider ecological enhancement measures are set out in the Outline Ecological Management Plan (document reference J6).
Blackpool Local Plan Part 2: Site Allocations and Development Management Policies (Adopted 2023)		
Policy DM35 – Biodiversity	1. Development proposals will be required to: a. result in no loss or harm to biodiversity through avoidance, adequate mitigation either on site or off site or, as a last resort, compensatory measures secured through the establishment of a legally binding agreement; b. minimise the impact on biodiversity and provide net biodiversity gains through good design by incorporating biodiversity enhancements and habitat creation where opportunities exist in line with relevant legislation and guidance.	Assessment of the potential impacts and subsequent effects of the Transmission Assets, alongside Commitments, are discussed in Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES (document reference F3.3). This document (**section 1.5**) sets out habitat creation and enhancement measures proposed to achieve measurable biodiversity benefit for the Transmission Assets. The results of the calculations of biodiversity benefit are shown in **section 1.3.3** of this document. Wider ecological enhancement measures are set out in the Outline Ecological Management Plan (document reference J6).
Preston Local Plan 2012-2026 Site Allocations and Development Management Policies (Adopted July 2015)		
Policy EN10 – Biodiversity and nature conservation	In Preston, Biodiversity and Ecological Network resources will be protected, conserved, restored and enhanced. … In addition development must adhere to the provisions set out below:	Assessment of the potential impacts and subsequent effects of the Transmission Assets, alongside Commitments, are discussed in Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES (document referenceF3.3). This document (**section 1.5**) sets out habitat creation and enhancement measures proposed to achieve measurable biodiversity benefit for the

Policy	Key provisions	How and where considered
	a. The production of a net gain in biodiversity where possible by designing in wildlife and by ensuring that any adverse impacts are avoided or if unavoidable are reduced or appropriately mitigated and/or compensated …	Transmission Assets. The results of the calculations of biodiversity benefit are shown in **section 1.3.3** of this document. Wider ecological enhancement measures are set out in the Outline Ecological Management Plan (document reference J6).

1.3 Delivering biodiversity benefit

1.3.1 Overview

1.3.1.1 As explained above, the Applicants intend to deliver biodiversity benefit for areas of permanent habitat loss associated with the permanent above-ground infrastructure of the Transmission Assets, as set out in **paragraph 1.1.5.1**.

1.3.2 Approach

1.3.2.1 In order for the Transmission Assets to provide biodiversity benefit the following steps were undertaken.

- Step 1: baseline habitat types, extent and condition were determined via phase 1 habitat and National Vegetation Classification surveys undertaken in 2023 and 2024. Results of these surveys can be found in Volume 3, Annex 3.3: Phase 1 habitat, national vegetation classification and hedgerow survey technical report of the ES (document reference F3.3.3).
- Step 2: Identified habitats were then converted to the UK Habitat Classification system using the translation guidance in the Defra Biodiversity Metric 4.1. To facilitate assessment of habitats against the UK Habitat Classification habitat types used in the statutory Biodiversity Metric with reference to botanical species composition and indicator species as presented in the manual (UKHab Ltd, 2023).
- Step 3: The condition of each habitat parcel was defined using the relevant condition criteria for the habitat types as presented in The Statutory Biodiversity Metric Technical Annex 1: Condition Assessment Sheets and Methodology (Defra, 2023).
- Step 4: The geographic extent (or lengths) of identified habitats was then quantified using ArcGIS software, with the habitat type, extent and condition entered into the Defra Biodiversity Metric 4.1 to obtain baseline biodiversity unit values (referred to hereafter as ‘baseline habitat value’).
- Step 5: The geographic extent (or lengths) of identified habitats, taking into account the onshore substations, including landscaping, permanent access and biodiversity benefit area at Lea Marsh Fields was then calculated and entered into the Defra Biodiversity Metric 4.1 to obtain

baseline biodiversity unit values post construction (referred to hereafter as 'post-construction habitat value').

1.3.2.2 It should be noted that the habitat proposals to be created at Lea Marsh Fields were designed to achieve biodiversity benefit units in conjunction with landscaping associated with the Morgan and Morecambe onshore substations.

1.3.3 Survey methods

1.3.3.1 In order to inform the biodiversity benefit calculations for the baseline assessment, the following provides a summary of the survey methods used. Refer to Volume 3, Annex 3.3: Phase 1 habitat, hedgerow and national vegetation classification survey technical report of the ES (document reference F3.3.3) and, Volume 3, Annex 3.2: Onshore ecology and nature conservation survey methodologies of the ES (document reference F3.3.2) for further details.

1.3.3.2 Phase 1 habitat surveys were undertaken in accordance with the standard methodology set out in the Joint Nature Conservation Committee (JNCC) Handbook for Phase 1 Habitat Survey - a technique for environmental audit (JNCC, 2010).

1.3.3.3 Habitats that could support notable plant communities, or diverse assemblages of plant species, including rare or scarce species associated with Sites of Special Scientific Interest (SSSI) were scoped in for NVC surveys.

1.3.3.4 Where access could not be obtained, information on protected and notable habitats within the survey area was collected from existing studies and datasets and aerial photographs (viewed via Google maps and Google Earth Pro) were used to map habitats present. These are summarised in **Table 1.4** below.

Table 1.4: Summary of key desktop sources for Transmission Assets relevant to phase 1 habitat, hedgerow and NVC surveys

Title	Source	Year	Author
Multi-Agency Geographic Information for the Countryside (MAGIC)	Department for the Environment, Food & Rural Affairs (Defra)	2023	Defra
UK Protected Area Joint Nature Conservation Committee (JNCC)	JNCC website	2023	JNCC
A vegetation survey of the Fylde Sand Dunes and Saltmarshes	Fylde Sand Dune Project	2016	Graeme Skelcher

1.3.3.5 Hedgerow surveys used the methodology detailed in the most up to date Natural England Biodiversity Metric (4.1 at the time of assessment) to undertake a condition assessment of hedgerows.

1.3.3.6 Surveys of river habitats followed the guidelines set out in The Modular River Physical (MoRPh) Survey (Modular River Survey, 2022) and the Guide to Assessing River Condition (Gurnell *et al.*, 2022), which include many components of the Environment Agency's River Habitat Survey (2003).

1.4 Onshore biodiversity benefit

1.4.1 Overview

1.4.1.1 In accordance with the Defra BNG methodology and metric version 4.1, the following sections of this Onshore Biodiversity Benefit Statement provide an assessment of the onshore biodiversity benefit for area-based habitats, hedgerows and watercourses.

1.4.1.2 The location and geographic extent of baseline habitat types identified at the Morgan and Morecambe onshore substation areas, including the permanent access tracks are presented in **Figure 1.1**. Baseline habitat types identified at the biodiversity benefit area at Lea Marsh Fields are presented in **Figure 1.3**.

1.4.1.3 **Sections 1.4.2**, **1.4.3** and **1.4.4** below summarise the results of steps 1 to 4 of **paragraph 1.3.2.1**, for area-based habitats, hedgerows and watercourses respectively. **Appendix A** to **Appendix I** at the end of this Statement provide the full results of steps 1 to 4.

1.4.2 Area-based habitats

1.4.2.1 A summary of the habitat value (units) used to calculate the net change and biodiversity benefit for area-based habitat types is provided in **Table 1.5** below. This includes the baseline, retained, enhanced, created and overall habitat value of area-based habitat types.

1.4.2.2 The calculations provided in **Table 1.5** are based on the apportionment of land within the biodiversity benefit area at Lea Marsh Fields between Morgan and Morecambe. Specifically:

- 67% (or approximately 8.0 ha) of the biodiversity benefit area at Lea Marsh Fields would be required for the Morgan Offshore Wind Farm: Transmission Assets; and
- 33% (or approximately 4.0 ha) of the biodiversity benefit area at Lea Marsh Fields would be required for the Morecambe Offshore Wind Farm: Transmission Assets.

1.4.2.3 The apportionment of land within the biodiversity benefit area at Lea Marsh Fields is based on the areas needed for the permanent above-ground infrastructure for Morgan and Morecambe respectively.

1.4.2.4 Further detailed information, including the baseline assessment of habitat value, assessment of biodiversity value of post-construction habitat creation and assessment of biodiversity value of post-construction habitat enhancement are presented in **Appendix A**, **Appendix B** and **Appendix C** of this Onshore Biodiversity Benefit Statement respectively.

Table 1.5: Summary of area-based habitat biodiversity values

Location	Baseline habitat value	Retained habitat value	Enhanced habitat value	Created habitat value	Overall habitat value	Net change in habitat value	Change Biodiversity benefit
Morgan*							
Morgan onshore substation	95.75 units	1.82 units	10.85 units	83.74 units	96.41 units	+ 0.66 units	+ 0.69%
Biodiversity benefit area at Lea Marsh Fields	16.00 units	0.00 units	0.00 units	59.51 units	59.51 units	+ 43.51 units	+ 271.96%
Total	**111.75 units**	**1.82 units**	**10.85 units**	**143.25 units**	**155.92 units**	**+ 44.17 units**	**+ 46.13%**
Morecambe							
Morecambe onshore substation	27.56 units	0.12 units	0.00 units	35.04 units	35.15 units	+ 7.59 units	+ 27.55%
Biodiversity benefit area at Lea Marsh Fields	8.00 units	0.00 units	0.00 units	29.76 units	29.76 units	+ 21.76 units	+ 271.96% units
Total	**35.56 units**	**0.12 units**	**0 units**	**64.80 units**	**64.91 units**	**+ 29.35 units**	**+ 106.49%**
Transmission Assets							
Total	**147.31 units**	**1.94 units**	**10.85 units**	**208.05 units**	**220.83 units**	**+ 73.52 units**	**+ 59.62%**

*total % change is calculated as a percentage of the total Morgan / Morecambe onshore substation units

1.4.2.5 As shown in **Table 1.5** above, the baseline value of habitat types within the area of permanent above-ground infrastructure for the Transmission Assets and biodiversity benefit area at Lea Marsh Fields is 147.31 units. Within the area of permanent above-ground infrastructure for the Transmission Assets, a total of 145.37 units would be permanently lost during construction (see **Appendix A**). There would be no permanent loss of habitat within the biodiversity benefit area at Lea Marsh Fields.

1.4.2.6 **Table 1.5** indicates that a total of 1.94 units (see **Appendix A**) would be retained during construction and proposed habitat enhancements associated with the onshore substations would provide 10.85 units (see **Appendix C**).

1.4.2.7 **Table 1.5** demonstrates that proposed habitat creation associated with the onshore substations would provide a total of 208.05 units (see **Appendix B**).

1.4.2.8 Based on these figures, the onshore biodiversity benefit for area-based habitats would be 220.83 units (208.05 + 1.94 + 10.85 = 220.8416, accounting for rounding to two decimal places of the original numbers provided in the BNG metric). This represents a net increase of +73.52 units (220.83 – 147.31 = 73.52) and an overall net biodiversity benefit of +59.62%.

1.4.2.9 Further details on the habitat enhancement and creation measures proposed to achieve this net biodiversity benefit are set out in **sections 1.5.2** and **1.5.3** below.

1.4.3 Hedgerows

1.4.3.1 A summary of the habitat value (units) used to calculate the net change and biodiversity benefit for hedgerows is provided in **Table 1.6** below. This includes the baseline, retained, enhanced, created and overall habitat value of hedgerows.

1.4.3.2 Further detailed information, including the baseline assessment of habitat value, assessment of biodiversity value of hedgerow creation and assessment of biodiversity value of hedgerow enhancement assessment are presented in **Appendix D**, **Appendix E** and **Appendix F** at the end of this Onshore Biodiversity Benefit Statement respectively.

Table 1.6: Summary of hedgerow biodiversity values

Location	Baseline habitat value	Retained habitat value	Enhanced habitat value	Created habitat value	Overall habitat value	Net change in habitat value	Change Biodiversity benefit
Morgan							
Morgan onshore substation	17.01 units	7.56 units	0.86 units	16.52 units	25.68 units	+ 8.67 units	+ 51.00%
Morecambe							
Morecambe onshore substation	9.53 units	4.60 units	0.00 units	7.98 units	12.57 units	+ 3.04 units	+ 31.93%
Transmission Assets							
Total	**26.54 units**	**12.16 units**	**0.86 units**	**24.50 units**	**37.52 units**	**10.98 units**	**+ 41.37%**

1.4.3.3 As shown in **Table 1.6** above, the baseline value of hedgerows within the onshore substations, including landscaping, permanent access and biodiversity benefit area at Lea Marsh Fields is 26.54 units (see **Appendix D**).

1.4.3.4 **Table 1.6** indicates that a total of 12.16 units would be retained (see **Appendix D**) during construction and proposed habitat enhancements associated with the onshore substation would provide 1.60 units (see **Appendix F**).

1.4.3.5 **Table 1.6** demonstrates that that proposed hedgerow creation associated with the onshore substations would provide a total of 24.50 units (see **Appendix E**).

1.4.3.6 Based on these figures, the onshore biodiversity benefit for hedgerows would be 38.25 units (12.16 + 0.86 + 24.50 = 37.52). This represents a net increase of + 10.98 units (37.52 - 26.54 = 10.98) and an overall net biodiversity benefit of + 41.37%.

1.4.3.7 Further details on the hedgerow enhancement and creation measures proposed to achieve this net biodiversity benefit are set out in **sections 1.5.2** and **1.5.3** below.

1.4.4 Watercourses

1.4.4.1 A summary of the habitat value (units) used to calculate the net change and biodiversity benefit for watercourses is provided in **Table 1.7** below. This includes the baseline, retained, enhanced, created and overall habitat value of watercourses.

1.4.4.2 Further detailed information, including the baseline assessment of watercourse value, assessment of biodiversity value of watercourse creation and assessment of biodiversity value of watercourse enhancement assessment are presented in **Appendix G, Appendix H** and **Appendix I** at the end of this Onshore Biodiversity Benefit Statement respectively.

Table 1.7: Summary of watercourse biodiversity values

Location	Baseline habitat value	Retained habitat value	Enhanced habitat value	Created habitat value	Overall habitat value	Net change in habitat value	Change Biodiversity benefit
Morgan							
Morgan onshore substation	7.98 units	2.39 units	2.17 units	5.07 units	9.63 units	+1.65 units	+20%
Morecambe							
Morecambe onshore substation	0 units	0 units	0 units	0 units	0 units	0 units	0%
Transmission Assets							
Total	**7.98 units**	**2.39 units**	**2.17 units**	**5.07 units**	**9.63 units**	**+ 1.65 units**	**+20%**

1.4.4.3 As shown in **Table 1.7** above, the baseline value of watercourses within the onshore substations, including landscaping, permanent access and biodiversity benefit area at Lea Marsh Fields is 7.98 units (see **Appendix G**).

1.4.4.4 **Table 1.7** indicates that a total of 2.39 units would be retained (see **Appendix G**) during construction and proposed habitat enhancements associated with the onshore substation would provide 2.17 units (see **Appendix I).**

1.4.4.5 **Table 1.7** demonstrates that that proposed watercourse creation associated with the onshore substations would provide a total of 5.07 units (see **Appendix H**).

1.4.4.6 Based on these figures, the onshore biodiversity benefit for watercourses would be 9.63 units (2.39 + 2.17 + 5.07 = 9.63). This represents a net increase of + 1.65 units (9.63 - 7.98 = 1.65) and an overall net biodiversity benefit of +20%.

1.4.4.7 Further details on the watercourse enhancement and creation measures proposed to achieve this net biodiversity benefit are set out in **sections 1.5.2** and **1.5.3** below.

1.5 Habitat creation and enhancement

1.5.1 Overview

1.5.1.1 This section of the Onshore Biodiversity Benefit Statement provides a summary of the indicative habitat creation and enhancement measures proposed to achieve biodiversity benefit for the permanent habitat loss associated with the permanent above ground infrastructure area for the Transmission Assets.

1.5.1.2 The measures for habitat creation and enhancement have been informed using the outcome of the biodiversity benefit assessments for area-based habitats, hedgerows, and watercourses presented in **section 1.3.2** of this Onshore Biodiversity Benefit Statement above.

1.5.1.3 However, the habitat creation and enhancement proposals remain indicative at this stage in the DCO application process. The final habitat creation and enhancement proposals, will be based on detailed landscaping designs for the onshore substations and biodiversity benefit area at Lea Marsh Fields.

1.5.1.4 The location and geographic extent of the habitat creation and enhancement proposals at the onshore substations and biodiversity benefit area at Lea Marsh Fields is presented in **Figure 1.4** and **Figure 1.5** of this Onshore Biodiversity Benefit Statement respectively. Where habitat creation and enhancement has been proposed on temporary working areas (e.g. the onshore substation temporary areas), final proposals will be subject to landowner agreement.

1.5.2 Habitat enhancements

1.5.2.1 No habitat enhancements are proposed at the Morecambe onshore substation. This is because all existing habitats at the Morecambe onshore substation are being replaced by newly created high-value habitats (i.e. habitat creation). Therefore, this section only describes enhancements of existing habitats at the Morgan onshore substation.

Area-based habitats

1.5.2.2 Grassland habitat enhancement is proposed for areas of grassland retained at the Morgan substation site (see **Figure 1.4** and **Figure 1.5**).

1.5.2.3 The existing grassland habitat at this location comprises modified grassland in poor condition and other neutral grassland in poor condition. It is proposed to enhance these areas and establish an area of other neutral grassland in good condition.

Hedgerows

1.5.2.4 Hedgerow enhancement is proposed for a length of retained native species-rich hedgerow at the Morgan substation site (see **Figure 1.4** and **Figure 1.5**). Where hedgerows have been proposed on temporary working areas (e.g. the onshore substation temporary area), final proposals will be subject to landowner agreement.

1.5.2.5 The existing hedgerow at this location comprises species-rich hedgerow in poor condition. It is proposed to enhance this length of hedgerow and establish a species rich hedgerow in good condition.

1.5.2.6 To establish a length of species rich hedgerow in good condition at the Morgan substation site, the following indicative habitat management measures are proposed.

- Planting up any gaps in the existing species rich hedgerow with native species appropriate to the local area and soil conditions.
- Introduction of a management regime to improve shape of hedgerow in line with criteria for good condition as set out in Defra BNG condition assessment sheets.

Watercourses

1.5.2.7 Habitat enhancements along a section of Dow Brook at the Morgan substation site could be undertaken to provide biodiversity benefit.

1.5.2.8 Given the status of Dow Brook as a main watercourse, any measures proposed to improve the condition of the watercourse from poor to good condition would be agreed with the Environment Agency prior to the commencement of works, and would be contingent on obtaining any relevant permissions, consents and/or licenses.

1.5.3 Habitat creation

Area-based habitats

Grassland

1.5.3.1 Areas of grassland creation are proposed at the Morgan and Morecambe onshore substations and biodiversity benefit area at Lea Marsh Fields. These areas will comprise the creation of other neutral grassland and lowland meadow grassland using seed mixes appropriate to the area and local soil conditions (see **Figure 1.4** and **Figure 1.5**). Where grassland has been proposed on temporary working areas (e.g. the onshore substation temporary area), final proposals will be subject to landowner agreement.

1.5.3.2 The specific areas of grassland creation within the biodiversity benefit area at Lea Marsh Fields (see **Figure 1.6**) will be provided as part of the detailed design stage. **Figure 1.7** within **Appendix J** provides indicative locations of proposed enhancement measures at Lea Marsh Fields.

Woodland and scrub

1.5.3.3 Both woodland and potentially scrub planting is proposed at the Morgan and Morecambe onshore substations (see **Figure 1.4** and **Figure 1.5**). In addition, scrub planting will also be undertaken within the biodiversity benefit area at Lea Marsh Fields.

1.5.3.4 The specific areas of woodland and scrub creation within the biodiversity benefit area at Lea Marsh Fields (see **Figure 1.6**) will be provided as part of the detailed design stage. **Figure 1.7** within **Appendix J** provides indicative locations of proposed enhancement measures at Lea Marsh Fields.

1.5.3.5 To achieve good condition for the newly created areas of scrub and moderate condition for area of woodland, the following indicative management measures are proposed.

- Planting of species mixes characteristic of communities appropriate to the local area and soil conditions.
- Management to encourage a varied age structure of woody species and a diverse ground flora.
- For larger areas of trees and scrub, rides/glades would be created within planting areas to provide diversity of habitat structure.
- Management to provide transition zones between scrub and adjacent grassland (rather than an abrupt transition between habitat types).

Ponds

1.5.3.6 No additional ponds are proposed at the Morgan or Morecambe onshore substations (beyond those provided to compensate for the permanent loss of ponds during the construction of the Morgan onshore substation and the onshore export cable corridor for Morecambe OWL – refer to the Outline Ecological Management Plan (document reference J6)). However, additional attenuation ponds are proposed at the onshore substations. Although primarily to manage and control excess rainwater, these attenuation ponds could be managed to provide ecological benefits.

1.5.3.7 In addition, further ponds could be created within the biodiversity benefit area at Lea Marsh Fields (see **Figure 1.6**).

1.5.3.8 The specific areas for pond creation within the biodiversity benefit area at Lea Marsh Fields (see **Figure 1.6**) will be provided as part of the detailed design stage. **Figure 1.7** within **Appendix J** provides indicative locations of proposed enhancement measures at Lea Marsh Fields.

1.5.3.9 To achieve good condition for the newly created ponds, the following indicative management measures are proposed.

- Digging of ponds at the appropriate depth to ensure ponds do not dry out.

- Planting of aquatic, emergent and marginal native species of plants at the newly created ponds.

Hedgerows

1.5.3.10 Additional hedgerows could be created at the Morgan and Morecambe onshore substations and adjacent sections of permanent access tracks (see **Figure 1.4** and **Figure 1.5**). No additional hedgerows are proposed within the biodiversity benefit area at Lea Marsh Fields.

1.5.3.11 To achieve moderate condition for the newly created hedgerows planting up any gaps in the newly created hedgerow with native species appropriate to the local area and soil conditions could be undertaken.

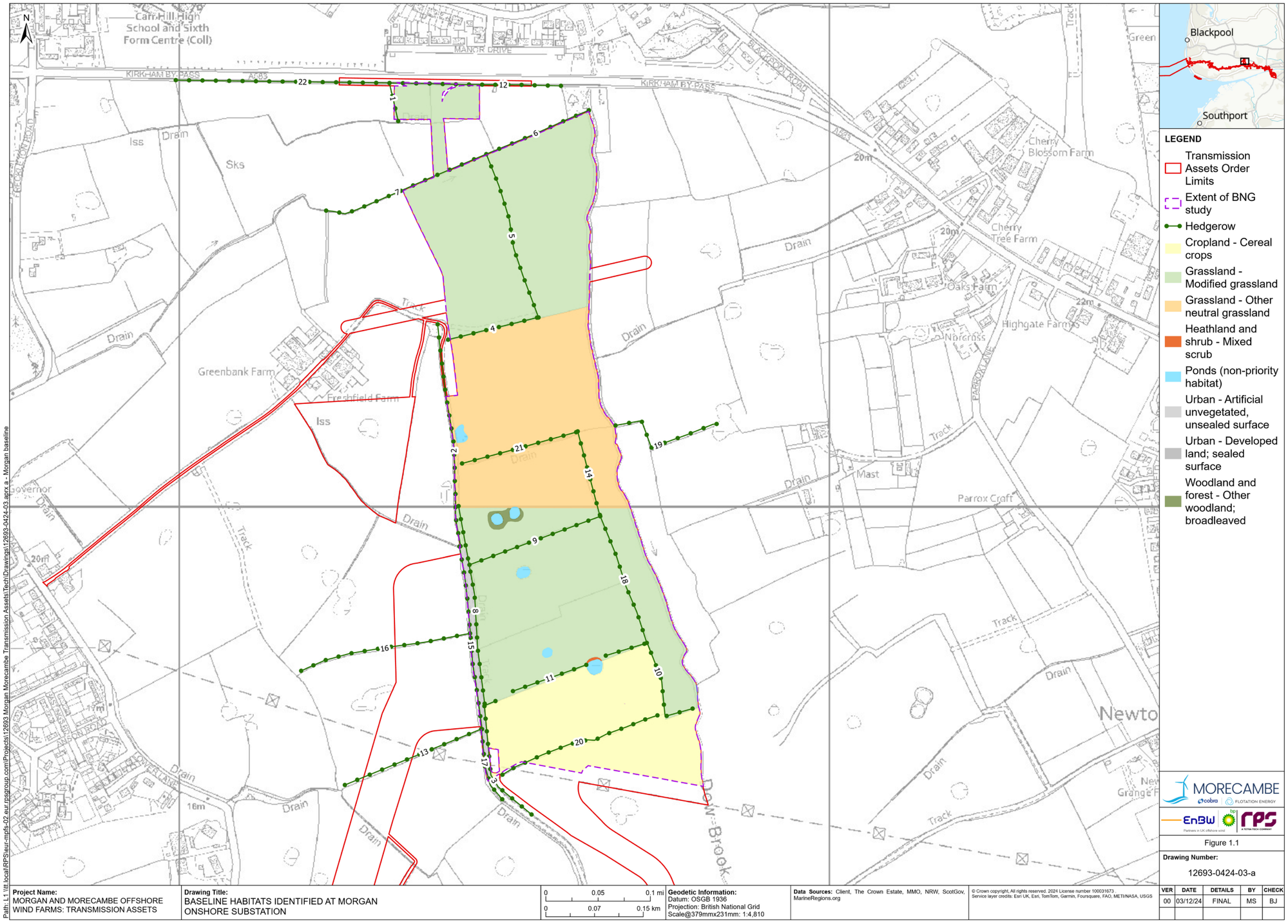
Watercourses

1.5.3.12 No additional watercourses are proposed at the Morgan or Morecambe onshore substations. However, additional ditches could be created within the biodiversity benefit area at Lea Marsh Fields (see **Figure 1.6**).

1.5.3.13 The specific areas for watercourse creation within the biodiversity benefit area at Lea Marsh Fields (see **Figure 1.6**) will be provided as part of the detailed design stage. **Figure 1.7** within **Appendix J** provides indicative locations of proposed enhancement measures at Lea Marsh Fields

1.5.3.14 To achieve good condition for the newly created ditches, the following indicative management measures are proposed.

- Creation of ditches with appropriate profile to encourage growth of aquatic, emergent and marginal species.
- Regular management to prevent ditches from becoming choked and to maintain water flows, and removal of arisings.
- Planting of the newly created ditches with appropriate native plant species.



Path: L:\1 Wt\local\RPS\eur-mpfs-02.eur.rpsgroup.com\Projects\12693 Morgan Morecambe Transmission Assets\Tech\Drawings\12693-0424-03 aprx a - Morgan baseline

Project Name: MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS

Drawing Title: BASELINE HABITATS IDENTIFIED AT MORGAN ONSHORE SUBSTATION

0 0.05 0.1 mi
0 0.07 0.15 km

Geodetic Information: Datum: OSGB 1936 Projection: British National Grid Scale@379mmx231mm: 1:4,810

Data Sources: Client, The Crown Estate, MMO, NRW, ScotGov, MarineRegions.org

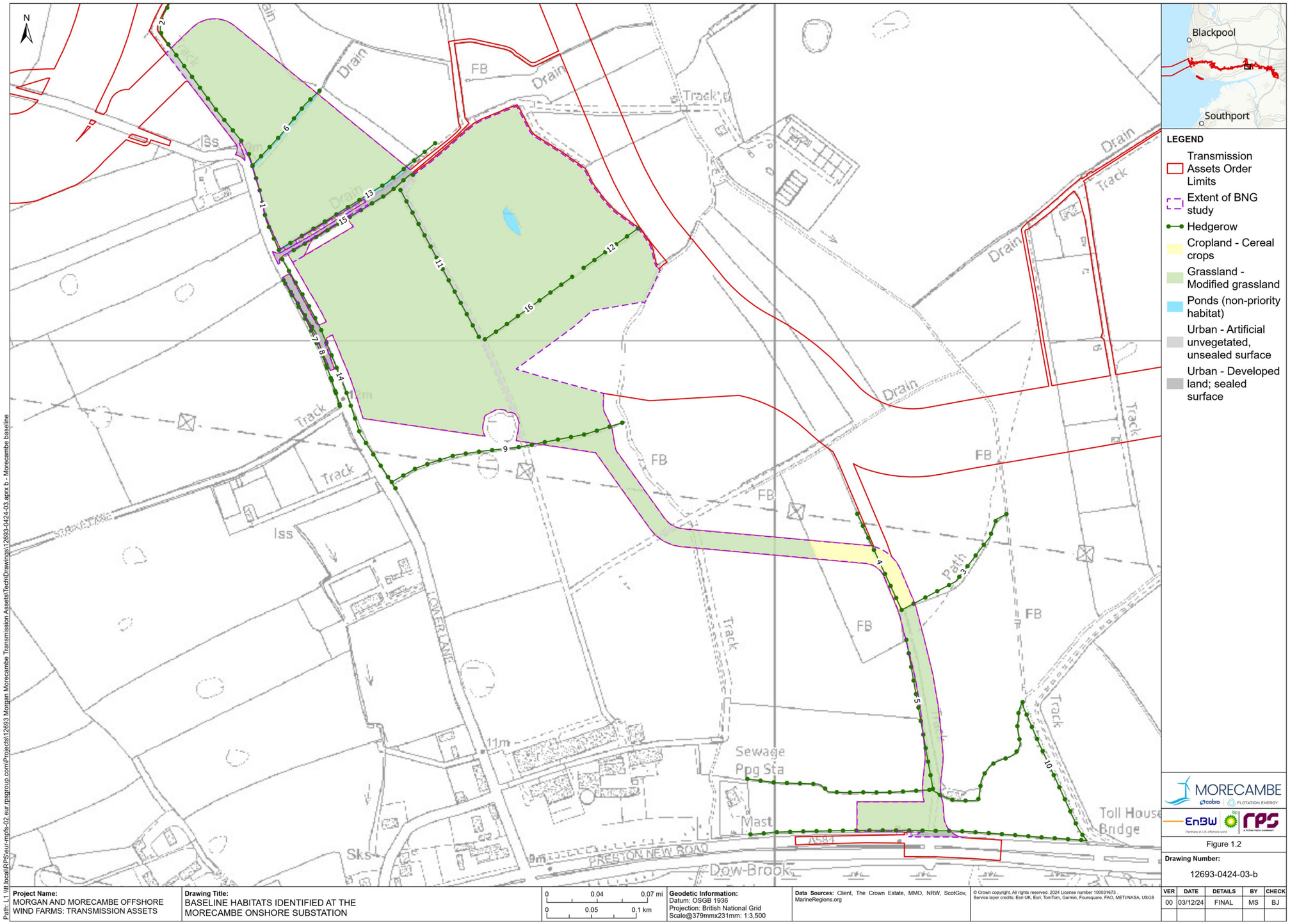
MORECAMBE cobra FLOTATION ENERGY
EnBW bp rps A TETRA TECH COMPANY Partners in UK offshore wind

Figure 1.1

Drawing Number: 12693-0424-03-a

VER	DATE	DETAILS	BY	CHECK
00	03/12/24	FINAL	MS	BJ

Figure 1.1: Baseline habitats identified at Morgan onshore substation



Path: L:\lfl.local\RPSeur-mpfs-02.eur.rpsgroup.com\Projects\12693 Morgan Morecambe Transmission Assets\Tech\Drawings\12693-0424-03.aprx b - Morecambe baseline

Project Name: MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS	**Drawing Title:** BASELINE HABITATS IDENTIFIED AT THE MORECAMBE ONSHORE SUBSTATION	0 0.04 0.07 mi 0 0.05 0.1 km	**Geodetic Information:** Datum: OSGB 1936 Projection: British National Grid Scale@379mmx231mm: 1:3,500	**Data Sources:** Client, The Crown Estate, MMO, NRW, ScotGov, MarineRegions.org	© Crown copyright. All rights reserved. 2024 License number 100031673 . Service layer credits: Esri UK, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS	Figure 1.2 **Drawing Number:** 12693-0424-03-b

VER	DATE	DETAILS	BY	CHECK
00	03/12/24	FINAL	MS	BJ

Figure 1.2: Baseline habitats identified at Morecambe onshore substation

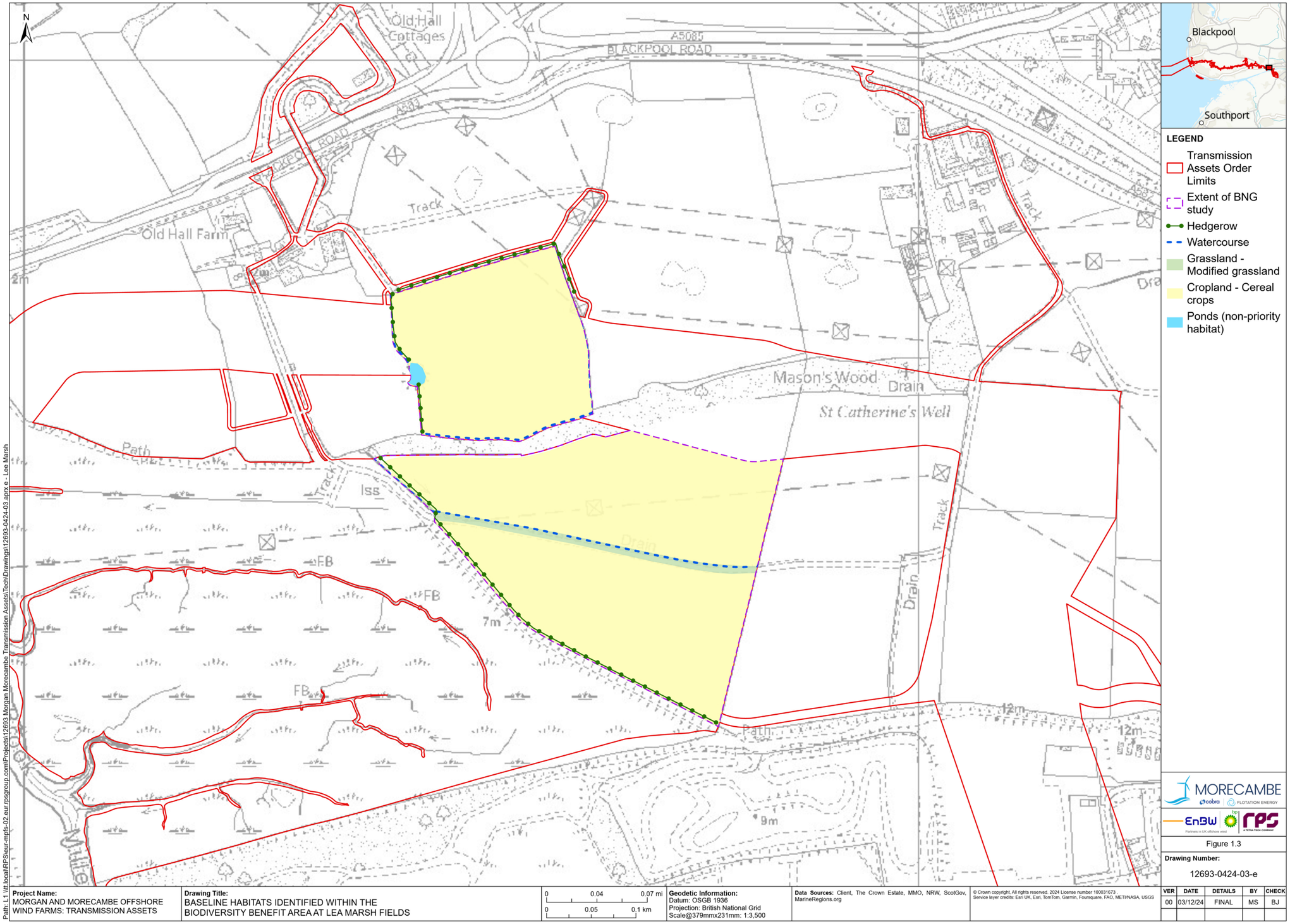


Figure 1.3: Baseline habitats identified within the biodiversity benefit area at Lea Marsh Fields

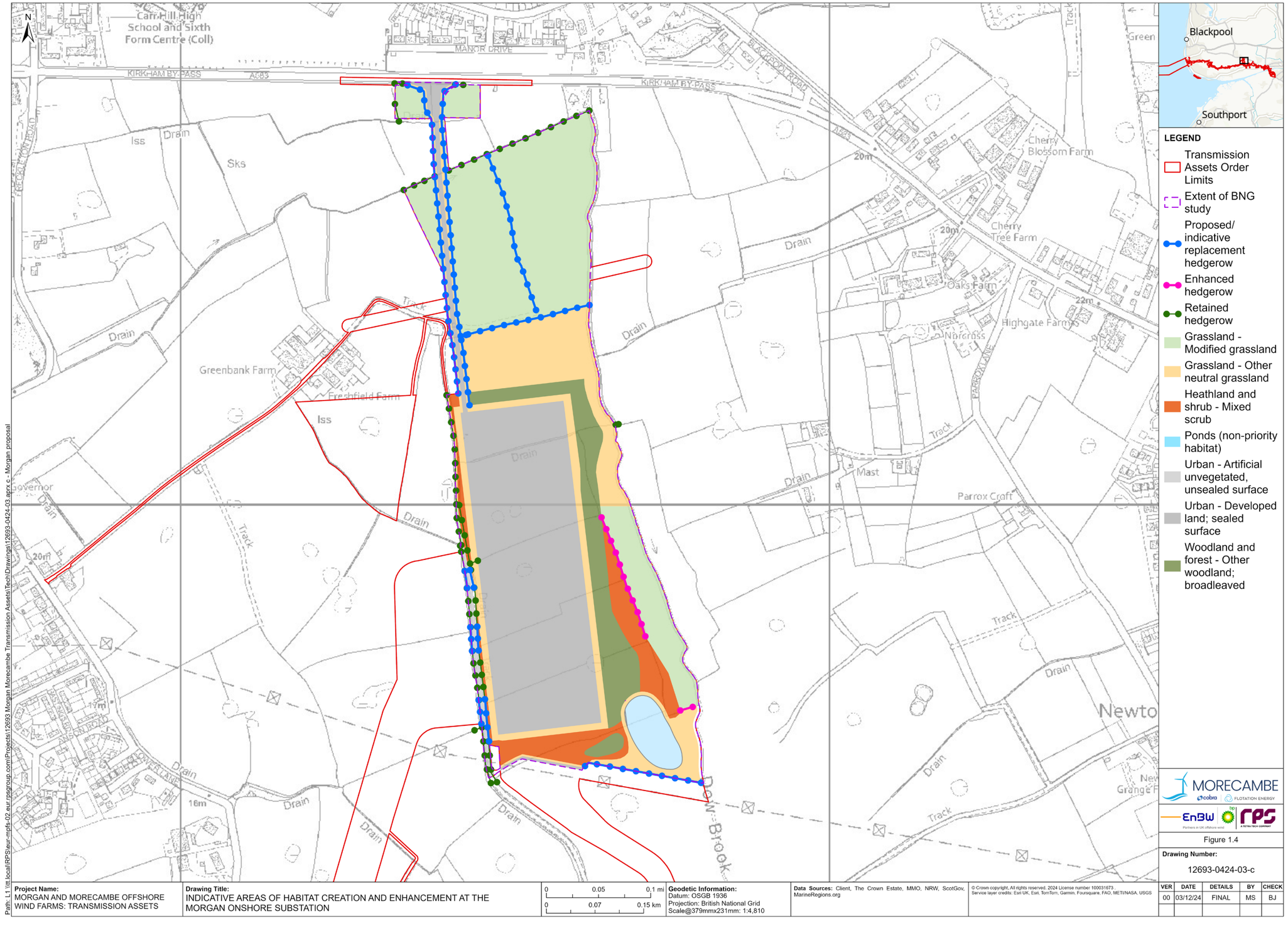


Figure 1.4: Indicative areas of habitat creation and enhancement at the Morgan onshore substation

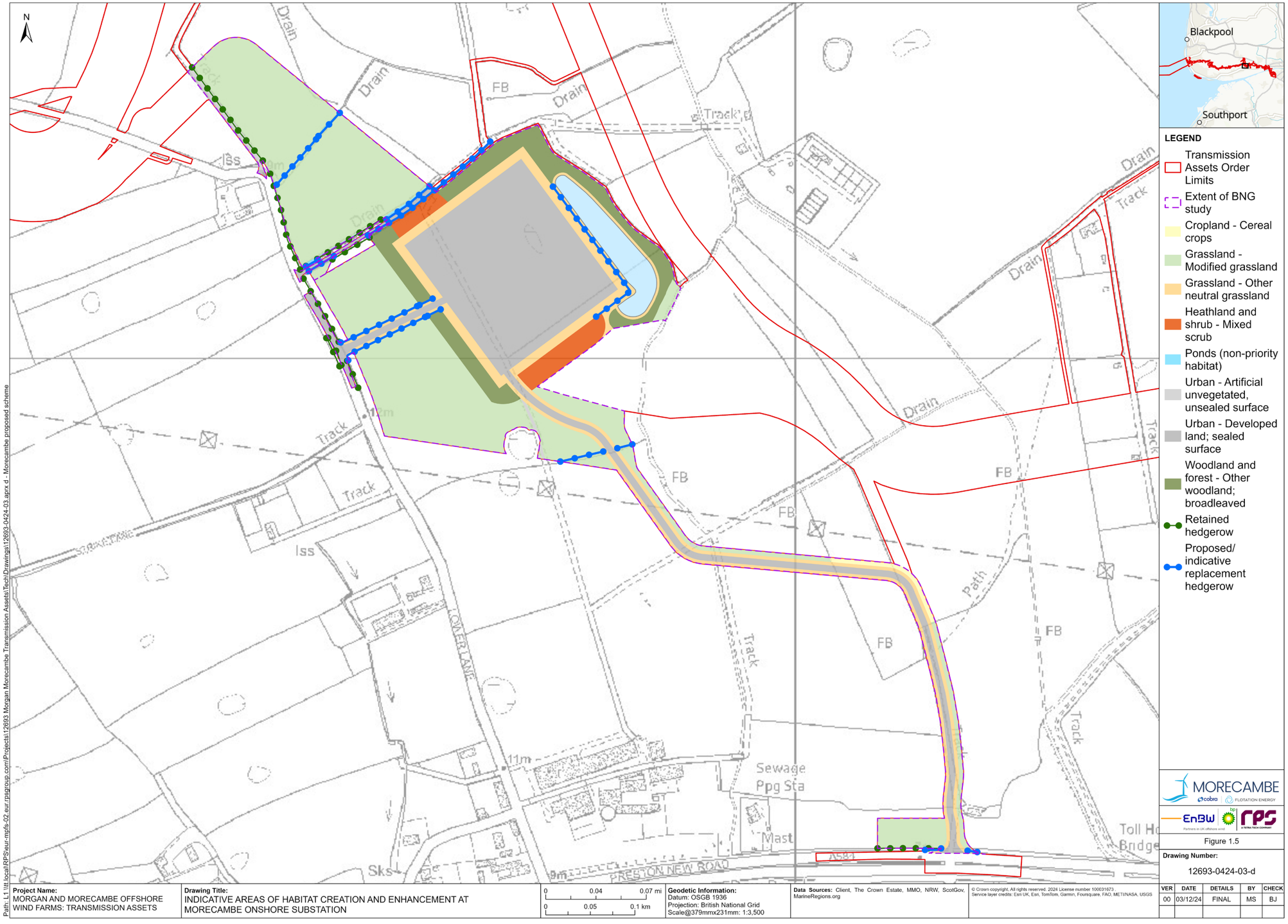


Figure 1.5: Indicative areas of habitat creation and enhancement at Morecambe onshore substation

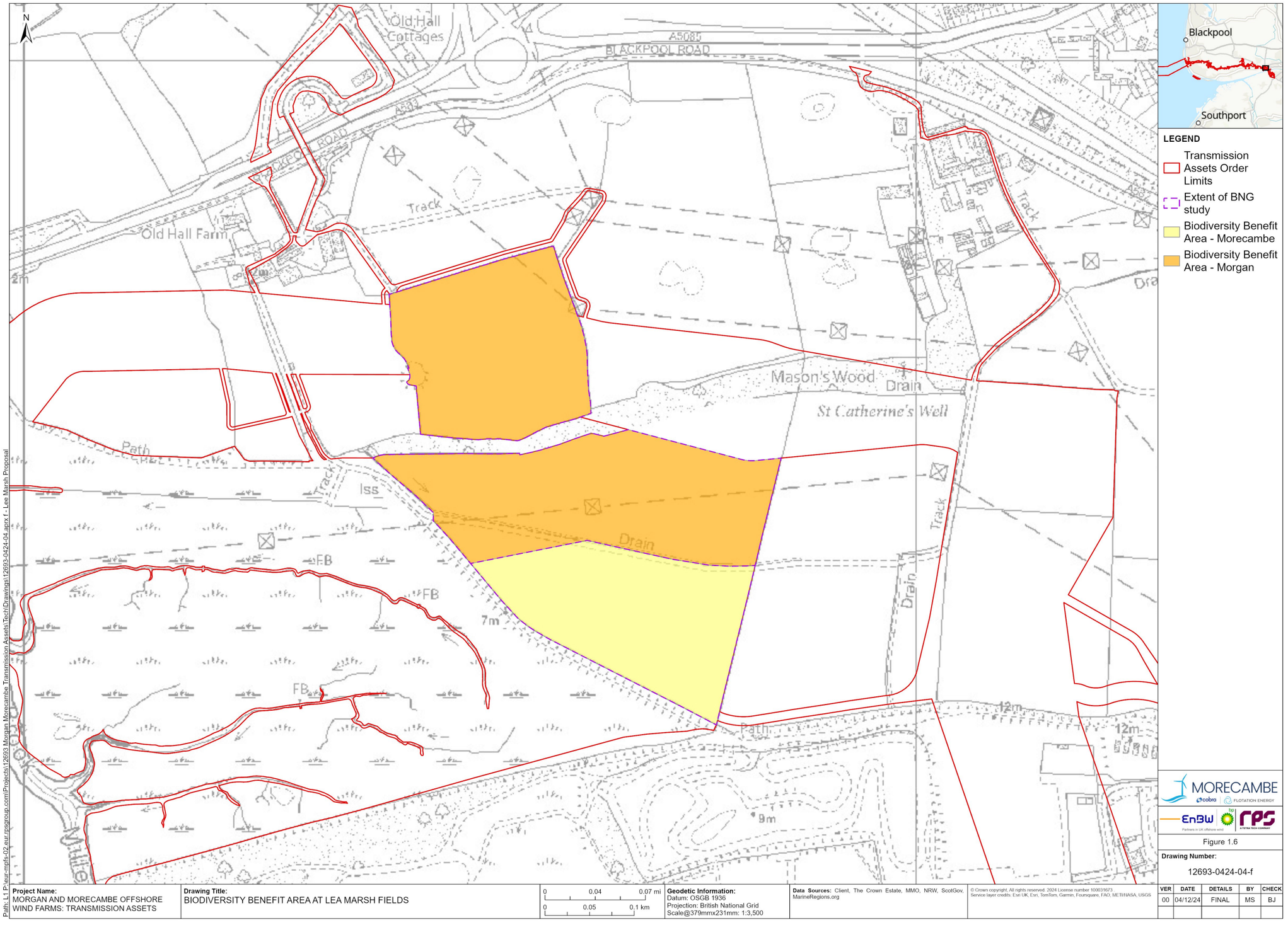


Figure 1.6: Biodiversity benefit area at Lea Marsh Fields

1.6 Summary

1.6.1.1 The Onshore Biodiversity Benefit Statement provides an assessment of the overall benefit to onshore biodiversity associated with the Transmission Assets. Specifically, the onshore substations, associated access tracks and biodiversity benefit area at Lea Marsh Fields.

1.7 References

Defra (2023) Government response and summary of responses to the consultation on BNG. Available at: Government response and summary of responses - GOV.UK (www.gov.uk). Accessed: July 2024.

Defra (2024) Biodiversity Net Gain methodology and metric. Available at: https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides. Accessed: July 2024.

Environment Agency (2003) River Habitat Survey in Britain and Ireland. Available at: https://www.riverhabitatsurvey.org/manual/rhs-manuals/ Accessed: August 2024

Gurnell, A. and Shuker, L. (eds) (2022) The MoRPh Survey: Technical Reference Manual, 2022 Version. Available at: https://modularriversurvey.org/. Accessed August 2024.

Gurnell, A.M, England, J., Scott, S.J., and Shuker, L.J. (eds) (2022) A GUIDE TO ASSESSING RIVER CONDITION Part of the Rivers and Streams Component of the BioDiversity Net Gain Metric. Available at: https://modularriversurvey.org/. Accessed August 2024.

JNCC (2010) Handbook for Phase 1 Habitat Survey – a technique for environmental audit. Available at: https://jncc.gov.uk/. Accessed: August 2024.

Skelcher, G. (2016). A vegetation survey of the Fylde Sand Dunes and Saltmarshes 2016. Report for the Fylde Sand Dune Steering Group, G. Skelcher

A.1.1 Baseline assessment of biodiversity value of area-based habitats

Habitat type	Area (ha)	Distinctiveness score		Condition score		Strategic significance score		Value (biodiversity units)[1]	Area of habitat retained	Area of habitat enhanced	Baseline value of retained habitats	Baseline value of enhanced habitats	Area of habitat lost (ha)	Value of habitats lost	Location
Cereal crops	4.54	Low	2	Condition Assessment N/A	1	Low	1	9.07	0.057	0.000	0.11	0.00	4.48	8.96	Morgan Substation
Modified grassland	15.26	Low	2	Poor	1	Low	1	30.52	0.162	1.315	0.32	2.63	13.78	27.57	Morgan Substation
Other neutral grassland	6.75	Medium	4	Moderate	2	Low	1	53.98	0.173	0.476	1.38	3.81	6.10	48.79	Morgan Substation
Mixed scrub	0.01	Medium	4	Moderate	2	Low	1	0.07	0.000	0.000	0.00	0.00	0.01	0.07	Morgan Substation
Ponds (non-priority habitat)	0.19	Medium	4	Moderate	2	Low	1	1.48	0.000	0.000	0.00	0.00	0.19	1.48	Morgan Substation
Artificial unvegetated, unsealed surface	0.35	V.Low	0	N/A - Other	0	Low	1	0.00	0.309	0.000	0.00	0.00	0.04	0.00	Morgan Substation
Developed land; sealed surface	0.02	V.Low	0	N/A - Other	0	Low	1	0.00	0.000	0.000	0.00	0.00	0.02	0.00	Morgan Substation
Other woodland; broadleaved	0.08	Medium	4	Moderate	2	Low	1	0.62	0.000	0.000	0.00	0.00	0.08	0.62	Morgan Substation
Cereal crops	0.28	Low	2	Condition Assessment N/A	1	Low	1	0.56	0.000	0.000	0.000	0.000	0.280	0.560	Morecambe Substation
Modified grassland	13.20	Low	2	Poor	1	Low	1	26.41	0.059	0.000	0.120	0.000	13.140	26.290	Morecambe Substation
Ponds (non-priority habitat)	0.07	Medium	4	Moderate	2	Low	1	0.60	0.000	0.000	0.000	0.000	0.070	0.600	Morecambe Substation

Habitat type	Area (ha)	Distinctiveness score		Condition score		Strategic significance score		Value (biodiversity units)[1]	Area of habitat retained	Area of habitat enhanced	Baseline value of retained habitats	Baseline value of enhanced habitats	Area of habitat lost (ha)	Value of habitats lost	Location
Artificial unvegetated, unsealed surface	0.25	V.Low	0	N/A - Other	0	Low	1	0.00	0.061	0.000	0.000	0.000	0.190	0.000	Morecambe Substation
Developed land; sealed surface	0.23	V.Low	0	N/A - Other	0	Low	1	0.00	0.046	0.000	0.000	0.000	0.190	0.000	Morecambe Substation
Cereal crops	12.00	Low	2	N/A	1	Low	1	24.00			0.00	0.00	12.00	24.00	Biodiversity benefit at Lea Marsh Fields
Total	**41.23**							**123.31**	**0.87**	**1.79**	**1.93**	**6.44**	**38.57**	**114.94**	

1: Calculated as: area x distinctiveness x condition x strategic significance score

B.1.1 Assessment of biodiversity value of area-based habitat creation

Proposed habitat	Area	Distinctiveness Score		Condition score		Strategic significance score		Final time to target condition (years)	Final time to target multiplier	Final difficulty of creation	Difficulty multiplier applied	Habitat units delivered	Location
Modified grassland	6.94	Low	2	Moderate	2	Low	1	4	0.867	Low	1	24.09	Morgan Substation
Other neutral grassland	0.72	Medium	4	Good	3	Low	1	10	0.700	Low	1	6.03	Morgan Substation
Other neutral grassland	3.80	Medium	4	Moderate	2	Low	1	5	0.837	Low	1	25.44	Morgan Substation
Mixed scrub	1.86	Medium	4	Good	3	Low	1	10	0.700	Low	1	15.64	Morgan Substation
Developed land; sealed surface	8.52	V.Low	0	N/A - Other	0	Low	1	0	1.000	Medium	0.67	0.00	Morgan Substation
Sustainable drainage system	0.63	Low	2	Good	3	Low	1	5	0.837	Medium	0.67	2.13	Morgan Substation
Other woodland; broadleaved	2.22	Medium	4	Moderate	2	Low	1	15	0.586	Low	1	10.41	Morgan Substation
Cereal crops	0.08	Low	2	Condition Assessment N/A	1	Low	1	1	0.965	Low	1	0.15	Morecambe Substation
Modified grassland	6.25	Low	2	Poor	1	Low	1	1	0.965	Low	1	12.07	Morecambe Substation
Other neutral grassland	0.92	Medium	4	Good	3	Low	1	10	0.700	Low	1	7.76	Morecambe Substation
Other neutral grassland	0.70	Medium	4	Moderate	2	Low	1	5	0.837	Low	1	4.69	Morecambe Substation
Mixed scrub	0.39	Medium	4	Good	3	Low	1	10	0.700	Low	1	3.29	Morecambe Substation
Ponds (non-priority habitat)	0.04	Medium	4	Moderate	2	Low	1	3	0.899	Low	1	0.32	Morecambe Substation
Artificial unvegetated, unsealed surface	0.05	V.Low	0	N/A - Other	0	Low	1	0	1.000	Low	1	0.00	Morecambe Substation
Developed land; sealed surface	3.85	V.Low	0	N/A - Other	0	Low	1	0	1.000	Medium	0.67	0.00	Morecambe Substation

Proposed habitat	Area	Distinctiveness Score		Condition score		Strategic significance score		Final time to target condition (years)	Final time to target multiplier	Final difficulty of creation	Difficulty multiplier applied	Habitat units delivered	Location
Sustainable drainage system	0.50	Low	2	Good	3	Low	1	5	0.837	Medium	0.67	1.69	Morecambe Substation
Other woodland; broadleaved	1.08	Medium	4	Moderate	2	Low	1	15	0.586	Low	1	5.08	Morecambe Substation
Other neutral grassland	3.3	Medium	4	Good	3	Low	1	10	0.700	Low	1	27.73	Biodiversity benefit at Lea Marsh Fields
Lowland meadows	3.3	V.High	8	Good	3	Low	1	15	0.586	High	0.33	15.32	Biodiversity benefit at Lea Marsh Fields
Ponds (priority habitat)	0.5	High	6	Good	3	Low	1	5	0.837	Medium	0.67	5.05	Biodiversity benefit at Lea Marsh Fields
Mixed scrub	3	Medium	4	Good	3	Low	1	10	0.700	Low	1	25.21	Biodiversity benefit at Lea Marsh Fields
Other neutral grassland	1.9	Medium	4	Good	3	Low	1	10	0.700	Low	1	15.97	Biodiversity benefit at Lea Marsh Fields
Total	**38.6**											**118.8**	

C.1.1 Assessment of biodiversity value of area-based habitat enhancement

Baseline habitat	Area (ha)	Baseline condition	Proposed habitat	Proposed distinctiveness	Dist. Score	Proposed condition	Cond. Score	Time to target condition (years)	Temporal multiplier	Difficulty of creation/enhancement	Difficulty multiplier	Habitat units delivered	Location
Grassland - Modified grassland	15.26	Poor	Modified grassland	Low	2	Good	3	15	0.586	Low	1	5.71	Morgan Substation
Grassland - Other neutral grassland	6.75	Moderate	Other neutral grassland	Medium	4	Good	3	10	0.700	Low	1	5.14	Morgan Substation
Total	**22.01**											**10.85**	

D.1.1 Assessment of biodiversity value of hedgerows

Hedgerow type	Length (km)	Distinctiveness score		Condition score		Strategic significance score		Value (hedgerow units)	Length of hedgerow retained	Length of hedgerow enhanced	Baseline value of retained hedgerow	Baseline value of enhanced hedgerow	Length of hedgerow lost (km)	Value of hedgerows lost	Location
Native hedgerow	0.0273781	Low	2	Moderate	2	Low	1	0.11	0.02737808	0	0.11	0.00	0.00	0.00	Morgan Onshore Substation
Native hedgerow	0.2329925	Low	2	Good	3	Low	1	1.40	0.23299253	0	1.40	0.00	0.00	0.00	Morgan Onshore Substation
Species-rich native hedgerow with trees	0.1227358	High	6	Good	3	Low	1	2.21	0.06557123	0	1.18	0.00	0.06	1.03	Morgan Onshore Substation
Native hedgerow	0.1370048	Low	2	Poor	1	Low	1	0.27	0	0	0.00	0.00	0.14	0.27	Morgan Onshore Substation
Native hedgerow	0.2647247	Low	2	Poor	1	Low	1	0.53	2.9172E-06	0	0.00	0.00	0.26	0.53	Morgan Onshore Substation
Native hedgerow	0.1717378	Low	2	Poor	1	Low	1	0.34	0.1717378	0	0.34	0.00	0.00	0.00	Morgan Onshore Substation
Native hedgerow	0.1395282	Low	2	Poor	1	Low	1	0.28	0.11609615	0	0.23	0.00	0.02	0.05	Morgan Onshore Substation
Native hedgerow	0.3273212	Low	2	Poor	1	Low	1	0.65	0.23830658	0	0.48	0.00	0.09	0.18	Morgan Onshore Substation
Native hedgerow	0.2146743	Low	2	Moderate	2	Low	1	0.86	0.01279477	0	0.05	0.00	0.20	0.81	Morgan Onshore Substation
Native hedgerow	0.2279521	Low	2	Moderate	2	Low	1	0.91	0	0.01990028	0.00	0.08	0.21	0.83	Morgan Onshore Substation
Native hedgerow	0.1199145	Low	2	Poor	1	Low	1	0.24	0	0	0.00	0.00	0.12	0.24	Morgan Onshore Substation
Species-rich native hedgerow with trees	0.0125091	High	6	Moderate	2	Low	1	0.15	0.01250906	0	0.15	0.00	0.00	0.00	Morgan Onshore Substation
Native hedgerow	0.1331918	Low	2	Moderate	2	Low	1	0.53	0	0	0.00	0.00	0.13	0.53	Morgan Onshore Substation

Hedgerow type	Length (km)	Distinctiveness score		Condition score		Strategic significance score		Value (hedgerow units)	Length of hedgerow retained	Length of hedgerow enhanced	Baseline value of retained hedgerow	Baseline value of enhanced hedgerow	Length of hedgerow lost (km)	Value of hedgerows lost	Location
Species-rich native hedgerow with trees	0.28259	High	6	Good	3	Low	1	5.09	0.17661849	0	3.18	0.00	0.11	1.91	Morgan Onshore Substation
Native hedgerow	0.0072535	Low	2	Poor	1	Low	1	0.01	0	0	0.00	0.00	0.01	0.01	Morgan Onshore Substation
Native hedgerow	0.0875783	Low	2	Moderate	2	Low	1	0.35	0.08757828	0	0.35	0.00	0.00	0.00	Morgan Onshore Substation
Species-rich native hedgerow	0.2077186	Medium	4	Poor	1	Low	1	0.83	0	0.19560005	0.00	0.78	0.01	0.05	Morgan Onshore Substation
Native hedgerow	0.0044772	Low	2	Moderate	2	Low	1	0.02	0.0044772	0	0.02	0.00	0.00	0.00	Morgan Onshore Substation
Native hedgerow	0.2139834	Low	2	Poor	1	Low	1	0.43	0	0	0.00	0.00	0.21	0.43	Morgan Onshore Substation
Species-rich native hedgerow	0.1821077	Medium	4	Moderate	2	Low	1	1.46	0	0	0.00	0.00	0.18	1.46	Morgan Onshore Substation
Native hedgerow	0.0552277	Low	2	Good	3	Low	1	0.33	0.01225128	0	0.07	0.00	0.04	0.26	Morgan Onshore Substation
Species-rich native hedgerow with trees	0.1127305	High	6	Moderate	2	Low	1	1.35	0.11273054	0	1.35	0.00	0.00	0.00	Morecambe Onshore Substation
Native hedgerow with trees	0.1310297	Medium	4	Poor	1	Low	1	0.52	0.1310297	0	0.52	0.00	0.00	0.00	Morecambe Onshore Substation
Native hedgerow	0.0170202	Low	2	Good	3	Low	1	0.10	0	0	0.00	0.00	0.02	0.10	Morecambe Onshore Substation
Native hedgerow	0.0804673	Low	2	Moderate	2	Low	1	0.32	0	0	0.00	0.00	0.08	0.32	Morecambe Onshore Substation
Native hedgerow	0.1690775	Low	2	Moderate	2	Low	1	0.68	0	0	0.00	0.00	0.17	0.68	Morecambe Onshore Substation
Native hedgerow	0.1096337	Low	2	Moderate	2	Low	1	0.44	2.1801E-05	0	0.00	0.00	0.11	0.44	Morecambe Onshore Substation
Native hedgerow with trees	0.0348213	Medium	4	Moderate	2	Low	1	0.28	0.03482134	0	0.28	0.00	0.00	0.00	Morecambe Onshore Substation

Hedgerow type	Length (km)	Distinctiveness score		Condition score		Strategic significance score		Value (hedgerow units)	Length of hedgerow retained	Length of hedgerow enhanced	Baseline value of retained hedgerow	Baseline value of enhanced hedgerow	Length of hedgerow lost (km)	Value of hedgerows lost	Location
Native hedgerow with trees	0.0342746	Medium	4	Good	3	Low	1	0.41	0.03427462	0	0.41	0.00	0.00	0.00	Morecambe Onshore Substation
Native hedgerow with trees	0.0814087	Medium	4	Moderate	2	Low	1	0.65	0	0	0.00	0.00	0.08	0.65	Morecambe Onshore Substation
Native hedgerow with trees	0.1297891	Medium	4	Poor	1	Low	1	0.52	0.07120446	0	0.28	0.00	0.06	0.23	Morecambe Onshore Substation
Native hedgerow	0.1858342	Low	2	Poor	1	Low	1	0.37	0	0	0.00	0.00	0.19	0.37	Morecambe Onshore Substation
Native hedgerow	0.0750575	Low	2	Poor	1	Low	1	0.15	0	0	0.00	0.00	0.08	0.15	Morecambe Onshore Substation
Species-rich native hedgerow with trees	0.172119	High	6	Moderate	2	Low	1	2.07	0.09132366	0	1.10	0.00	0.08	0.97	Morecambe Onshore Substation
Native hedgerow	0.1367268	Low	2	Moderate	2	Low	1	0.55	0.11345555	0	0.45	0.00	0.02	0.09	Morecambe Onshore Substation
Native hedgerow	0.1604095	Low	2	Moderate	2	Low	1	0.64	0.0484645	0	0.19	0.00	0.11	0.45	Morecambe Onshore Substation
Species-rich native hedgerow	0.1199384	Medium	4	Poor	1	Low	1	0.48	0	0	0.00	0.00	0.12	0.48	Morecambe Onshore Substation
Total											**12.14**	**0.86**	**2.91**	**13.52**	

E.1.1 Assessment of biodiversity value of hedgerow creation

Proposed habitat	Length (km)	Distinctiveness score		Condition score		Indicative time to target condition (years)	Temporal multiplier	Difficulty of creation	Difficulty multiplier	Anticipated hedgerow units delivered[1]	Location
Native species-rich hedgerow with trees	1.871	High	6	Good	3	20	0.490	Low	1	16.52	Morgan Onshore Substation
Native species-rich hedgerow with trees	0.904	High	6	Good	3	20	0.490	Low	1	7.98	Morecambe Onshore Substation
Total	**2.775**									**24.5**	

1: Calculated as: area x distinctiveness x condition x strategic significance score x temporal multiplier x difficulty multiplier

F.1.1 Assessment of biodiversity value of hedgerow enhancement

Baseline habitat	Length (km)	Baseline condition	Proposed habitat	Distinctiveness Score		Condition Score		Indicative time to target condition (years)	Temporal multiplier	Difficulty of creation/enhancement	Difficulty multiplier	Anticipated habitat units delivered	Location
Native hedgerow	0.196	Poor	Native hedgerow	Medium	4	Good	6	5	0.837	Low	1	2.10	Morgan Onshore Substation
Total	**0.196**											**2.10**	

G.1.1 Assessment of biodiversity value of watercourses

Hedgerow type	Length (km)	Distinctiveness score		Condition score		Strategic significance score		Value (watercourse units)	Anticipated length of watercourse retained	Anticipated length of watercourse enhanced	Baseline value of retained watercourse	Baseline value of enhanced watercourse	Indicative length of watercourse lost (km)	Anticipated value of watercourse lost	Location
Ditches	0.577	Medium	4	Moderate	2	Low	1	4.62			0.00	0.00	0.58	4.62	Morgan onshore substation site (wet ditches)
Other rivers and streams	0.539	High	6	Poor	1	Low	1	3.23	0.399	0.14	2.39	0.84	0.00	0.00	Morgan onshore substation site (Dow Brook east of substation)
Other rivers and streams	0.021	High	6	Poor	1	Low	1	0.13			0.00	0.00	0.02	0.13	Morgan onshore substation site (section of Dow Brook lost for construction of access track)
Total	**1.14**							**7.98**	**0.40**	**0.14**	**2.39**	**0.84**	**0.60**	**4.74**	

H.1.1 Assessment of biodiversity value of watercourse creation

Proposed habitat	Length (km)	Distinctiveness score		Condition score		Indicative time to target condition (years)	Temporal multiplier	Difficulty of creation	Difficulty multiplier	Anticipated watercourse units delivered[1]	Location
Ditches	0.9	Medium	4	Good	3	10	0.700	Medium	0.67	5.07	Biodiversity benefit area at Lea Marsh Fields
Total	**0.9**									**5.07**	

1: Calculated as: area x distinctiveness x condition x strategic significance score x temporal multiplier x difficulty multiplier

I.1.1 Assessment of biodiversity value of watercourse enhancement

Baseline habitat	Length (km)	Baseline condition	Proposed habitat	Proposed distinctiveness	Dist. Score	Proposed condition	Cond. Score	Indicative time to target condition (years)	Temporal multiplier	Difficulty of creation/enhancement	Difficulty multiplier	Anticipated watercourse units delivered	Location
Other rivers and streams	0.14	Poor	Other rivers and streams	High	6	Moderate	4	4	0.867	Medium	0.67	1.33	Biodiversity benefit area at Lea Marsh Fields
Total	**0.196**											**1.33**	

J.1 Enhancement Measures for Biodiversity Benefit Area at Lea Marsh Fields

J.1.1 Objectives

The objective of the Lea Marsh Fields biodiversity benefit area is to enhance existing priority habitats to achieve biodiversity benefit.

J.1.2 Principles of Management Measures

The management measures will seek to enhance the following existing features:

Ponds

The creation of several small ponds is proposed in the indicative locations shown in **Figure 1.7**. The design of the new ponds, including depth and coverage, will be agreed in consultation with Natural England. The ponds will be designed to discourage larger wader species and will be located outside the 400kV grid connection cable corridor.

Grassland management

The grassland areas will be enhanced to reduce nutrient levels in the soil to create areas of species-rich grassland

The grassland areas will be enhanced to create a mosaic of grassland habitats. A mowing regime could be implemented for the first two years to reduce nutrient levels in the soil.

Woodland planting

Indicative locations of woodland planting are shown on **Figure 1.7**. Shallow rooted species will be used where woodland areas are proposed close to the 400kV grid connection cable corridor.

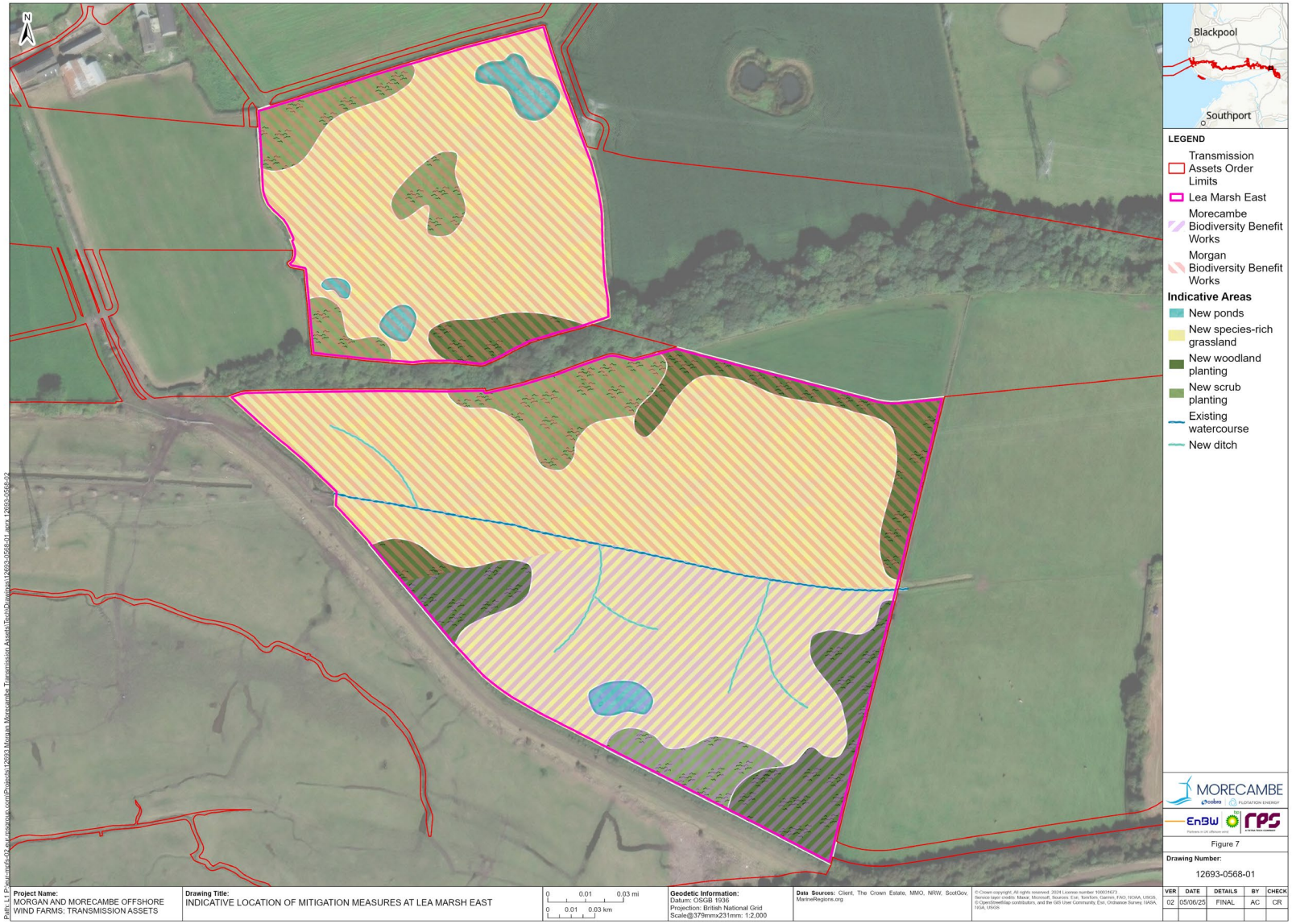


Figure 1.7: Indicative locations of enhancement measures at Lea Marsh Fields