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MONA OFFSHORE WIND PROJECT

Environmental Statement

Volume 3, Chapter 4: Onshore and intertidal ornithology (F02)

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Image of an offshore wind farm

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Prepared by:

RPS

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Mona Offshore Wind Ltd.

Deadline 7 Changes

This document has been updated at Deadline 7 of the Mona Offshore Wind Project examination in order to reflect the change to the Order Limits, forming the Change Request, which was accepted by the Examining Authority on 19 December 2024.

The following figures have been updated to reflect the updated onshore Order Limit change:

- Figure 4.1: Intertidal and onshore ornithology study areas
- Figure 4.2: Other projects, plans and activities screened into the cumulative effects assessment.

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Glossary

Term	Meaning
Autumn passage	The period when migratory species are returning to their wintering grounds.
Breeding season	This is the season during which species are engaged with mating and raising offspring. Although it is species dependant it is generally assumed to run from April to July (inclusive).
British Trust for Ornithology (BTO)	A non-statutory ornithological research organisation.
Cofnod	North Wales Environmental Information Service.
Development Consent Order	An order made under the Planning Act 2008 granting development consent for one or more NSIP.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment (EIA) process for the Mona Offshore Wind Project.
Evidence Plan Process	The Evidence Plan process is a mechanism to agree upfront what information the Applicant needs to supply to the Planning Inspectorate as part of the Development Consent Order (DCO) application for the Mona Offshore Wind Project Generation Assets.
Expert Working Group (EWG)	Expert working groups set up with relevant stakeholders as part of the Evidence Plan process.
Foraging	The time when birds are actively looking for food.
Intertidal area	The area between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS).
Information to Support the Appropriate Assessment (ISAA)	A report setting out a study to consider whether the Mona Offshore Wind Project could have adverse effects, either alone or in combination with other plans or projects, on the integrity of designated European sites for which the potential for likely significant effects (LSE) has been previously established.
Joint Nature Conservation Committee (JNCC)	A statutory body that advises the UK Government and devolved administrations on UK-wide and international nature conservation.
Landfall	The area in which the offshore export cables make contact with land and the transitional area where the offshore cabling connects to the onshore cabling.
Local Authority	A body empowered by law to exercise various statutory functions for a particular area of the United Kingdom. This includes County Councils, District Councils and County Borough Councils.
Maximum Design Scenario	The scenario within the design envelope with the potential to result in the greatest impact on a particular topic receptor, and therefore the one that should be assessed for that topic receptor.
National Policy Statement	The current national policy statements published by the Department for Energy Security & Net Zero in 2023.
Nationally Significant Infrastructure Project (NSIP)	Large scale developments (relating to energy, transport, water, or waste) which require a type of consent known as “development consent”.
Non-breeding season	Taken as the wintering season plus the spring and autumn passage period.
Non-Estuarine Waterbird Survey	A BTO led waterbird survey of non-estuarine stretches of coastline.
Roosting	The time when birds are sleeping or resting
Sites of Special Scientific Interest (SSSI)	An area protected under law for its nationally important biological or geological features.

Term	Meaning
Special Protection Area (SPA)	An area protected under law for its internationally or nationally important numbers of migratory bird species.
Sedentary	This describes birds that are not migratory and instead stay in the same territory or area all year. Many species can be both sedentary and migratory in different parts of their range, with some individuals carrying out migration while others remain in the same territory.
Spring passage	The period when migratory species are returning to their breeding grounds.
Statutory consultee	Organisations that are required to be consulted by an applicant pursuant to the Planning Act 2008 in relation to an application for development consent. Not all consultees will be statutory consultees (see non-statutory consultee definition).
The Planning Inspectorate	The agency responsible for operating the planning process for NSIPs.
Wetland Bird Survey (WeBS)	A monitoring programme of waterbirds in the UK organised by the BTO and run since 1965..
Wildlife and Countryside Act 1981, (as amended)	UK legislation which sets out protections for species and habitats.
Wintering season	The period when birds are present on their wintering grounds.

Acronyms

Acronym	Description
BBS	Breeding Bird Surveys
BOCC	Birds of Conservation Concern
BTO	British Trust for Ornithology
CBC	Common Bird Census
CCS	Current Conservation Status
CEA	Cumulative Effect Assessment
CIEEM	Chartered Institute of Ecology and Environmental Management
CoCP	Outline Code of Construction Practice
DCO	Development Consent Order
EC	European Council
ECoW	Ecological Clerk of Works
EWG	Expert Working Group
FCS	Favourable Conservation Status
HPAI	Highly Pathogenic Avian Influenza
IEF	Important Ecological Features
INNS	Invasive and Non-Native Species
ISAA	Information to Support Appropriate Assessment
JNCC	Joint Nature Conservation Committee

Acronym	Description
MDS	Maximum Design Scenario
MHWS	Mean High Water Spring
MLWS	Mean Low Water Spring
NGET	National Grid Electricity Transmission
NPS	National Policy Statement
NRW	Natural Resources Wales
NSIP	Nationally Significant Infrastructure Projects
PEIR	Preliminary Environmental Information Report
PPW	Planning Policy Wales
RSPB	Royal Society for the Protection of Birds
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
WeBS	Wetland Bird Survey
WOS	Welsh Ornithological Society
ZoI	Zone of Influence

Units

Unit	Description
%	Percentage
dB	Decibels
ha	Hectares
km	Kilometres
km^2	Square kilometres
kV	Kilovolts
m	Metre
m^2	Metres square
MW	Megawatts

4 Onshore and intertidal ornithology

4.1 Introduction

4.1.1 Overview

4.1.1.1 This chapter of the Environment Statement presents the assessment of the potential impact of the Mona Offshore Wind Project on onshore and intertidal ornithology. Specifically, this chapter considers the potential impact of the Mona Offshore Wind Project landward of Mean Low Water Springs (MLWS) and nearshore subtidal habitats during the construction, operations and maintenance and decommissioning phases. Those impacts of the Mona Offshore Wind Project seaward of MLWS and nearshore subtidal habitats are addressed in Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement.

4.1.1.2 The assessment presented is informed by the following technical reports:

- Volume 7, Annex 4.1: Onshore ornithology – wintering and migratory birds technical report
- Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report
- Volume 7, Annex 4.3: Onshore ornithology – breeding birds technical report.

4.1.1.3 In addition, this chapter draws upon information contained within Volume 1, Chapter 2: Policy and legislation; Volume 1, Chapter 5: Environmental Impact Assessment methodology and Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement.

4.2 Legislative and policy context

4.2.1 Legislation

4.2.1.1 There are two primary pieces of legislation that protect birds under UK law, namely the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended).

4.2.1.2 European Council Directive 2009/147/EC (otherwise known as the Birds Directive) recognised that habitat loss and degradation are the most serious threats to the conservation of wild birds. It stated that all member States must designate Special Protection Areas (SPAs) for the survival of all European wild birds and their habitats (listed in Annex 1 and 2 of the Birds Directive respectively). After the UK left the European Union, certain elements of the Birds Directive were transposed into UK law through the Conservation of Habitats and Species Regulations 2017 (as amended). This has created a national site network to ensure continued protection for existing SPAs and to any new sites designated under these regulations.

4.2.1.3 Additionally, all wild birds, their nests and their eggs are protected under Part 1, Section 1 of the Wildlife and Countryside Act 1981 (as amended). Subject to the provisions of Section 1, the legislation makes it an offence to intentionally:

- Kill, injure or take any wild bird (excluding certain specific game and other licence-controlled species)
- Take, damage or destroy the nest of a wild bird included in schedule ZA1

- Take, damage, destroy or otherwise interfere with the nest of any wild bird whilst it is in use or being built
- Obstruct or prevent any wild bird form using its nest
- Take or destroy the egg of any wild bird.

4.2.1.4 In addition, for birds listed on Schedule 1 of the Wildlife and Countryside Act 1981, it is also an offence to intentionally or recklessly:

- Disturb any species listed under Schedule 1 of the Wildlife and Countryside Act 1981 whilst it is building a nest or is in, on or near a nest containing eggs or young, disturb the dependent young of any species listed under Schedule 1.

4.2.2 Planning policy context

4.2.2.1 The Mona Offshore Wind Project will be located in Welsh offshore waters (beyond 12 nautical miles (nm) from the Welsh coast) and inshore waters, with the onshore infrastructure located wholly within Wales. As set out in Volume 1, Chapter 1: Introduction of this Environmental Statement, the Mona Offshore Wind Project is an offshore generating station located in Welsh waters and is a Nationally Significant Infrastructure Project (NSIP) as defined by Section 15(3) of the Planning Act 2008 (as amended) (the 2008 Act). As such, there is a requirement to submit an application for a Development Consent Order (DCO) to the Planning Inspectorate to be decided by the Secretary of State for the Department for Energy Security and Net Zero.

4.2.3 National Policy Statements

4.2.3.1 There are currently six energy National Policy Statements (NPSs), three of which contain policy relevant to offshore wind development and the Mona Offshore Wind Project, 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, 2024)
- NPS for Renewable Energy Infrastructure (NPS EN-3) (Department for Energy Security & Net Zero, 2024)
- NPS for Electricity Networks Infrastructure (NPS EN-5) (Department for Energy Security & Net Zero, 2024).

4.2.3.2 NPS EN-1 and NPS EN-3 include guidance on what matters are to be considered in the assessment. These are summarised in Table 4.1 below. NPS EN-1 and NPS EN-3 also highlight a number of factors relating to the determination of an application and in relation to mitigation. These are summarised in

4.2.3.3 Table 4.2.

4.2.3.4 NPS-5 includes guidance on what matters are to be considered in the onshore assessment of electrical networks. NPS EN-5 also highlights a number of factors relating to the determination of an application and in relation to mitigation. These are summarised in Table 4.3.

Table 4.1: Summary of the NPS EN-1 and NPS EN-3 provisions relevant to onshore and intertidal ornithology.

Summary of NPS EN-1 and EN-3 provision	How and where considered in the Environmental Statement
NPS EN-1	
All proposals for projects that are subject to the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) must be accompanied by an Environmental Statement (ES) describing the aspects of the environment likely to be significantly affected by the project. (NPS EN-1, paragraph 4.3.1).	Assessment of the potential significant effects of the Mona Offshore Wind Project are considered in section 4.9 of this chapter. Measures adopted as part of the Mona Offshore Wind Project, including primary and tertiary mitigation are discussed in section 4.8 of this chapter.
The Regulations require an assessment of the likely significant effects of the proposed project on the environment, covering the direct effects and any indirect, secondary, cumulative, transboundary, short, medium, and long-term, permanent and temporary, positive and negative effects at all stages of the project, and also of the measures envisaged for avoiding or mitigating significant adverse effects. (NPS EN-1, paragraph 4.3.3).	Assessment of the potential significant effects of the Mona Offshore Wind Project are considered in section 4.9 of this chapter. Measures adopted as part of the Mona Offshore Wind Project, including primary and tertiary mitigation are discussed in section 4.8 of this chapter. Assessment of the potential cumulative effects of the Mona Offshore Wind Project are considered in section 4.11, with the potential for transboundary effects presented in section 4.12.
The highest level of biodiversity protection is afforded to sites identified through international conventions. The Habitats Regulations set out sites for which an HRA will assess the implications of a plan or project, including Special Areas of Conservation and Special Protection Areas. (NPS EN-1, paragraph 5.4.4).	Internationally designated ornithological sites are considered in: Volume 7, Annex 4.1: Onshore ornithology wintering and migratory birds technical report of the Environmental Statement; Volume 7, Annex 4.2: Intertidal ornithology - wintering and migratory birds technical report of the Environmental Statement and Volume 7, Annex 4.3: Onshore ornithology breeding birds technical report of the Environmental Statement. Assessment of the potential significant effects of the Mona Offshore Wind Project on onshore and intertidal ornithology is presented within section 4.9 of this chapter. A separate report containing the Information to Support an Appropriate Assessment (ISAA) has been submitted as part of the offshore DCO (see Mona HRA – ISAA Part 1, Part 2, Part 3, document reference: E1.1, E1.2 and E1.3).
As a matter of policy, the following should be given the same protection as sites covered by the Habitats Regulations and an HRA will also be required: a) Potential Special Protection Areas and possible Special Areas of Conservation b) Listed or proposed Ramsar sites c) Sites identified, or required, as compensatory measures for adverse effects on any of the other sites covered by this paragraph. (NPS EN-1, paragraph 5.4.5).	Internationally designated ornithological sites are considered in: Volume 7, Annex 4.1: Onshore ornithology wintering and migratory birds technical report of the Environmental Statement; Volume 7, Annex 4.2: Intertidal ornithology - wintering and migratory birds technical report of the Environmental Statement; Volume 7, Annex 4.3: Onshore ornithology breeding birds technical report of the Environmental Statement. A separate report containing the ISAA has been submitted as part of the offshore DCO (see Mona HRA – ISAA Part 1, Part 2, Part 3, document reference: E1.1, E1.2 and E1.3).
Many SSSIs are also designated as sites of international importance and will be protected accordingly. Those that are not, or those features of SSSIs not covered by an international designation, should be given a high degree of protection. All National Nature Reserves are notified as SSSIs	Important areas for onshore and intertidal ornithology are considered in: Volume 7, Annex 4.1: Onshore ornithology wintering and migratory birds technical report of the Environmental Statement; Volume 7, Annex 4.2: Intertidal ornithology - wintering and migratory birds technical report of the Environmental Statement and Volume 7,

Summary of NPS EN-1 and EN-3 provision	How and where considered in the Environmental Statement
(NPS EN-1 paragraph, 5.4.7).	Annex 4.3: Onshore ornithology breeding birds technical report of the Environmental Statement. Assessment of the potential significant effects of the Mona Offshore Wind Project on onshore and intertidal ornithology is presented within section 4.9 of this chapter.
Many individual wildlife species receive statutory protection under a range of legislative provisions. Other species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales and thereby requiring conservation action. (NPS EN-1 paragraph, 5.4.16).	Assessment of the potential significant effects of the Mona Offshore Wind Project on onshore and intertidal ornithology and relevant mitigation measures are identified and considered in section 4.9 and 4.8 of this chapter respectively. In addition, all species afforded extra protections under the Conservation of Habitats and Species Regulations 2017 (as amended) (formerly the EU Birds Directive Annex I), Schedule 1 of the Wildlife and Countryside Act, and Section 7 species of the Environment (Wales) Act 2016, are considered in Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report and Volume 7, Annex 4.3: onshore ornithology - breeding birds technical report of the Environmental Statement.
Where the development is subject to EIA the applicant should ensure that the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance (including those outside England), on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity, including irreplaceable habitats. (NPS EN-1, paragraph 5.4.17).	The process of identifying designated sites has been undertaken in section 4.5.1 of this chapter. The baseline ornithological environment, both onshore and intertidal, is described in section 4.4 of this chapter. Assessment of the potential significant effects of the Mona Offshore Wind Project for protected species are identified and considered in section 4.9 of this chapter. Important areas for onshore and intertidal ornithology are considered in: Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report and Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement.
The design of Energy NSIP proposals will need to consider the movement of mobile / migratory species such as birds… and their potential to interact with infrastructure. As energy infrastructure could occur anywhere within England and Wales, both inland and onshore and offshore, the potential to affect mobile and migratory species across the UK and more widely across Europe (transboundary effects) requires consideration, depending on the location of development. (NPA EN-1, paragraph 5.4.22).	Those migratory species that have potential to interact with the infrastructure associated with the Mona Offshore Wind Project have been presented in Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report and Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement with summaries included within this chapter in sections 4.5.3, 4.5.4 and 4.5.5. Assessment of the potential significant effects of the Mona Offshore Wind Project for these species are considered in section 4.9. A cumulative assessment of the potential impact on these species from the Mona Offshore Wind Project and other projects is presented in section 4.11. The potential for transboundary impacts on these species is considered within section 4.12.

Summary of NPS EN-1 and EN-3 provision	How and where considered in the Environmental Statement
NPS EN-3	
In addition, the applicant is expected to define the precise route for offshore transmission infrastructure, including the wind farm export cable to the offshore transmission network connection point or onshore connection point, the onshore and offshore locations of any associated infrastructure such as substations or the location of bootstraps/ subsea 'onshore' transmission. (NPS EN-3, paragraph 2.8.67).	The location and geographic extent of the onshore transmission infrastructure, including Mona Landfall, Onshore Cable Corridor, 400 kV Grid Connection Cable Corridor and Onshore Substation is outlined within Volume 1, Chapter 3: Project description. The maximum impacts of the cable route, onshore connection point and associated infrastructure during construction, operation, and decommissioning are discussed in section 4.7.1.
Applicants should consult at an early stage of pre-application with relevant statutory consultees and energy not-for profit organisations/non-governmental organisations as appropriate, on the assessment methodologies, baseline data collection, and potential avoidance, mitigation and compensation options should be undertaken. (NPS EN-3, paragraph 2.8.104).	Throughout the Mona Offshore Wind Project consultations with relevant statutory and non-statutory stakeholders have been carried out (e.g. via the Evidence Plan Process Expert Working Groups (EWG)) and are presented in section 4.3. Further information on consultation can be viewed in the Consultation Report (document reference: E3) and the Mona Offshore Wind Project Scoping Opinion (document reference: J8)
Offshore wind farms have the potential to impact on birds through: • Collisions with rotating blades • Direct habitat loss • Disturbance from construction activities • Displacement during the operations phase, resulting in loss of foraging/roosting area • Impacts on bird flight lines (i.e. barrier effect) and associated increased energy use by birds for commuting flights between roosting and foraging areas • Impacts upon prey species and prey habitat • Impacts on protected sites. (NPS EN-3, paragraph 2.8.136).	Assessment of the potential significant effects of the Mona Onshore Development Area relevant to onshore and intertidal ornithology for Important Ecological Features (IEFs), as defined in section 4.5.6, are identified and discussed in section 4.9 of this chapter. This assessment includes the potential impacts of habitat loss, habitat disturbance, fragmentation and species isolation, pollution and the spreading of invasive and non-native species (INNS). Further details relating to the potential impacts on designated sites themselves are deferred to the Habitat Regulation Assessment, Stage 2: ISAA (document reference: E1.2). Further details related to the potential impact on birds through collisions with rotating blades and potential impacts on bird flight lines are provided in Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement. Relevant mitigation measures are identified and considered in section 4.8 of this chapter.
Applicants should discuss the scope, effort and methods required for ornithological surveys with the relevant statutory advisor, taking into consideration baseline and monitoring data from operational windfarms . (NPS EN-3, paragraph 2.8.143).	Baseline survey methods have been discussed with Natural Resources Wales (NRW) and the Royal Society for the Protection of Birds (RSPB) through the EWG framework, see Table 4.7 for further information. In addition, the Scoping Report and Preliminary Environmental Information Report (PEIR) have been submitted with recourse for the statutory advisor to respond through the Scoping Opinion or Section 42 process. Further detail on the consultation process is contained within the Consultation Report (document reference: E3).

Table 4.2: Summary of NPS EN-1 and NPS EN-3 policy on decision making relevant to onshore and intertidal ornithology.

Summary of NPS EN-1 and EN-3 provision	How and where considered in the Environmental Statement
NPS EN-1	
In the 25 Year Environment Plan, the government set out its vision for a quarterof-a-century action to help the natural world regain and retain good health. A commitment to review the plan every 5 years was set into law in the Environment Act 2021. The Environmental Improvement Plan was published in 2023, which reinforces the intent of the 25 Year Environment Plan and sets out a plan to deliver on its framework and vision. The government's policy for biodiversity in England is set out in the Environmental Improvement Plan 2023176, the National Pollinator Strategy177 and the UK Marine Strategy178. The aim is to halt overall biodiversity loss in England by 2030 and then reverse loss by 2042, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people. This aim needs to be viewed in the context of the challenge presented by climate change. Healthy, naturally functioning ecosystems and coherent ecological networks will be more resilient and adaptable to climate change effects. Failure to address this challenge will result in significant adverse impact on biodiversity and the ecosystem services it provides. (NPS EN-1, paragraph 5.4.2).	Assessment of the potential significant effects of the Mona Offshore Wind Project and associated mitigation for specific onshore and intertidal bird species are identified and discussed in sections 4.9 and 4.8 of this chapter respectively.
The Secretary of State will need to take account of what mitigation measures may have been agreed between the applicant and the SNCB and the MMO/NRW (where appropriate). The Secretary of State will also need to consider whether the SNCB or the MMO/NRW has granted or refused, or intends to grant or refuse, any relevant licences, including protected species mitigation licences. (NPS EN-1, paragraph 5.4.45).	Mitigation measures with respect to onshore and intertidal ornithology have been considered in section 4.8 of this chapter.
In taking decisions, the Secretary of State should ensure that appropriate weight is attached to designated sites of international, national, and local importance; protected species; habitats and other species of principal importance for the conservation of biodiversity; and to biodiversity and geological interests within the wider environment. (NPS EN-1, paragraph 5.4.48).	Internationally, nationally, and locally important ornithological sites are considered in Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report; and Volume 7, Annex 4.3: onshore ornithology - breeding birds technical report of the Environmental Statement. This process of identifying designated ornithological sites of international, national, and local importance has been considered in section 4.4 of this chapter. In addition, all species afforded extra protections under the Conservation of Habitats and Species Act 2017 (as amended) (formerly the EU Birds Directive Annex I), Schedule 1 of the Wildlife and Countryside Act, and Section 7 species of the Environment (Wales) Act 2016, are considered in: Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report and Volume 7,

Summary of NPS EN-1 and EN-3 provision	How and where considered in the Environmental Statement
	Annex 4.3: onshore ornithology - breeding birds technical report of the Environmental Statement. This has been taken into consideration in the assessment in section 4.9 of this chapter.
The Secretary of State should use requirements and/or planning obligations to mitigate the harmful aspects of the development and, where possible, to ensure the conservation and enhancement of the site's biodiversity or geological interest. (NPS EN-1, paragraph 5.4.50).	Assessment of the potential significant effects of the Mona Offshore Wind Project and mitigation measures are identified and discussed in sections 4.9 and 4.8 of this chapter respectively.
The Secretary of State should refuse consent where harm to a protected species and relevant habitat would result, unless there is an overriding public interest, and the other relevant legal tests are met. In this context the Secretary of State should give substantial weight to any such harm to the detriment of biodiversity features of national or regional importance or the climate resilience and the capacity of habitats to store carbon, which it considers may result from a proposed development. (NPS EN-1, paragraph 5.4.55).	Nationally important sites are considered in section 4.5.1 and Section 7 species of the Environment (Wales) Act 2016 are considered in Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report ; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report and Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement. Section 7 species of the Environment (Wales) Act 2016 are also considered in the assessment in section 4.9 of this chapter. A separate report containing the ISAA has been submitted as part of the offshore DCO (see Mona HRA – ISAA Part 1, Part 2, Part 3, document reference: E1.1, E1.2 and E1.3). No significant effects to protected species have been found.

Table 4.3: Summary of NPS EN-5 policy on decision making relevant to onshore and intertidal ornithology.

Summary of NPS EN-5 provision	How and where considered in the Environmental Statement
Where biodiversity impacts are identified, including those associated with bird collision with overhead lines, the Secretary of State should be satisfied that all feasible options for mitigation have been considered and evaluated appropriately. (NPS EN-5, paragraph 2.11.1).	Assessment of the potential significant effects of the Mona Offshore Wind Project are considered in section 4.9 and mitigation measures are identified in sections 4.8.

4.2.4 Welsh National Marine Plan

4.2.4.1 The onshore and intertidal ornithology impact assessment has been made with consideration to the specific policies set out in the Welsh National Marine Plan (Welsh Government, 2019). Key provisions are set out in Table 4.4 along with details as to how these have been addressed within the assessment.

Table 4.4: Welsh National Marine Plan policies of relevant to onshore and intertidal ornithology.

Policy	Key provisions	How and where considered in the Environmental Statement
ENV_01: Resilient marine ecosystems	Proposals should demonstrate how potential impacts on marine ecosystems have been taken into consideration and should, in order of preference: • Avoid adverse impacts • Minimise impacts where they cannot be avoided • Mitigate impacts where they cannot be minimised. If significant adverse impacts cannot be avoided, minimised or mitigated, proposals must present a clear and convincing case for proceeding. Proposals that contribute to the protection, restoration and/or enhancement of marine ecosystems are encouraged.	The measures adopted to mitigate the potential impacts of the Mona Offshore Wind Project relevant to onshore and intertidal ornithology are outlined in section 4.8.
ENV_03: Invasive Non-Native Species	Proposals should demonstrate how they avoid or minimise the risk of introducing and spreading invasive non-native species. Where appropriate, proposals should include biosecurity measures to reduce the risk of introducing and spreading of invasive non-native species.	The potential for impact from INNS is identified and discussed in section 4.9.5. Measures adopted to mitigate the potential impact of the Mona Offshore Wind Project are outlined in section 4.8, including those designed to reduce the risk of spreading INNS. Further detail on the presence of INNS, and related measures adopted to mitigate the potential impact of the Mona Offshore Wind Project can be viewed in Volume 3, Chapter 3: Onshore ecology and Volume 7, Annex 3.14: National vegetation classification and invasive and non-native species technical report.
GOV_01: Cumulative effects	Proposals should demonstrate that they have assessed potential cumulative effects and should, in order of preference: • Avoid adverse effects; and/or • Minimise effects where they cannot be avoided; and/or • Mitigate effects where they cannot be minimised. If significant adverse effects cannot be avoided, minimised or mitigated, proposals must present a clear and convincing case for proceeding. Proposals that contribute to positive cumulative effects are encouraged.	The potential for cumulative effects is assessed in section 4.11 of this chapter and the methodology behind the assessment is provided in section 4.10. Further details relating to the cumulative effects assessment and the reasoning behind the inclusion of projects is presented within Volume 5, Chapter 5.1: Cumulative effects screening matrix of the Environmental Statement.

Policy	Key provisions	How and where considered in the Environmental Statement
SOC_03: Marine pollution incidents	Proposals should demonstrate how they minimise their risk of causing or contributing to marine pollution incidents.	The potential for pollution is identified as a potential significant effect and discussed in section 4.9 of this chapter. The methods adopted to reduce the potential impact of significant effects from the Mona Offshore Wind Project are outlined in section 4.8 of this chapter.
ELC_01a: Low carbon energy (supporting) wind	Proposals should comply with the relevant general policies and sector safeguarding policies of this plan and any other relevant considerations.	The policies and legislation relevant to the Mona Offshore Wind Project are discussed throughout section 4.2 of this chapter and further details is presented within Volume 1, Chapter 2: Policy and legislative context of the Environmental Statement.

4.2.5 Planning Policies for Wales

4.2.5.1 Planning Policy Wales (Welsh Government, 2021) (PPW) sets out the land use planning policies of the Welsh Government. The objective is to ensure the planning system contributes towards sustainable development and improves the social, economic, environmental and cultural wellbeing of Wales. Those sections of particular relevance to onshore and intertidal ornithology are set out in in Table 4.5 below.

Table 4.5: Summary of Planning Policy Wales (PPW) relevant to onshore and intertidal ornithology.

Summary of PPW	How and where considered in the Environmental Statement
Development proposals must consider how they will: support the conservation of biodiversity; ensure action in Wales contributes to international responsibilities towards biodiversity and habitats; ensure statutorily and non-statutorily designated sites are protected; safeguard from direct impacts on protected and priority species and the ecological networks and components that underpin them; secure enhancement of and improvements to ecosystem resilience. (PPW, paragraph 6.4.3).	Internationally, nationally, and locally important ornithological sites are considered in Volume 7, Annex 4.1: Onshore ornithology wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report; and Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement. This process of identifying designated ornithological sites of international, national, and local importance has been considered in section 4.4 of this chapter. In addition, all species afforded extra protections under the Conservation of Habitats and Species Act 2017 (as amended) (formerly the EU Birds Directive Annex I), Schedule 1 of the Wildlife and Countryside Act, and Section 7 species of the Environment (Wales) Act 2016, are considered in Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report; and Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement. This has been taken into consideration in the assessment in section 4.9 of this chapter. Measures adopted by the Mona Offshore Wind Project, including an Outline Code of Construction Practice (document reference: J26) and Outline Landscape and Ecology Management Plan (document reference: J22), which incorporates a Bird Protection Plan, are listed in section 4.8.

Summary of PPW	How and where considered in the Environmental Statement
Development should not cause any significant loss of habitats or populations locally or nationally and must provide a net benefit for biodiversity. (PPW, paragraph 6.4.5).	An assessment of the significance of effects of the project alone and in-combination with other projects are presented in section 4.9 and section 4.11 of this chapter. Measures adopted by the Mona Offshore Wind Project, including an Outline Code of Construction Practice (document reference: J.26) and Outline Landscape and Ecology Management Plan (document reference: J22), which incorporates a Bird Protection Plan, are listed in section 4.8.
The presence of a protected species is a material consideration when assessing the impacts of a proposal. An ecological survey to determine the presence of any such species and assess the likely impact of the development may be required to inform decision making. (PPW, paragraph 6.4.22).	All bird species afforded extra protections under the Conservation of Habitats and Species Act 2017 (as amended) (formerly the EU Birds Directive Annex I), Schedule 1 of the Wildlife and Countryside Act, and Section 7 species of the Environment (Wales) Act 2016, are considered in Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report; and Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement. This has been taken into consideration in the assessment in section 4.9 of this chapter. Data relating to the protected bird species outlined above was used to inform this chapter and associated annexes. This data was gathered through ornithological surveys including wintering and migratory bird surveys, intertidal waterbird surveys and breeding bird surveys.

4.2.6 Local Planning Policies

4.2.6.1 The Mona Offshore Wind Project lies within the administrative areas of Conwy County Borough Council and Denbighshire County Council.

4.2.6.2 The assessment of potential changes to onshore and intertidal ornithology has also been made with consideration to the specific policies set out in Conwy Local Development Plan 2007-2022 (Conwy County Borough Council, 2013) and Denbighshire County Council Local Development Plan 2006-2021 (Denbighshire County Council, 2013).

4.2.6.3 Both the Conwy Local Development Plan and Denbighshire County Council Local Development Plan are currently going through a replacement process. Details of any change to policy relevant to onshore and intertidal ornithology are not currently available and the timetable for publication is under review following the Covid-19 pandemic. It is hoped that the Conwy County Borough Council Replacement Local Development Plan will be sent to the Welsh Government in 2024 (Conwy County Borough Council, 2023). Responses from the consultation on the Denbighshire County Council Replacement Local Development Plan are currently being considered and will inform the development of the Deposit Local Development Plan, no date for the publication of this is currently available (Denbighshire County Council, 2024).

4.2.6.4 Key provisions are set out in Table 4.6 along with details as to how these have been addressed within the assessment.

Table 4.6: Local planning policy relevant to onshore and intertidal ornithology.

Policy	Key provisions	How and where considered in the Environmental Statement
Conwy Local Development Plan 2007-2022 (adopted 2013)		
NTE/3 - Biodiversity	New development should aim to conserve and, where possible, enhance biodiversity. All proposals should include a Biodiversity Statement detailing the extent of any impact on biodiversity. The Council will refuse proposals which do not adequately mitigate and remediate impacts on, and include enhancement measures for, protected sites and protected or priority species or habitats. Proposals for these measures should be secured by planning conditions and obligations.	The onshore and intertidal ornithological baseline has been established in section 4.5 of this chapter by reviewing data sources/desktop studies and undertaking site specific surveys. Mitigation measures relevant to onshore and intertidal ornithology are set out in section 4.8.
The Denbighshire County Council Local Development Plan 2006-2021 (adopted 2013)		
VOE 5	Development proposals that may have an impact on protected species or designated sites of nature conservation will be required to be supported by a biodiversity statement which must have regard to the County biodiversity aspiration for conservation, enhancement, and restoration. Where the overall benefits of a development outweigh the conservation interest of a locally protected nature site, mitigation, and enhancement measures in or adjacent to these sites should be an integral part of the scheme. Where necessary, these measures should be in place prior to the commencement of development. Planning permission will not be granted for development proposals that are likely to cause significant harm to the qualifying features of internationally and nationally designated sites of nature conservation, priority habitats, priority species, or to species that are under threat.	Internationally, nationally, and locally important ornithological sites are considered in Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report of the Environmental Statement and Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement. This process of identifying designated ornithological sites of international, national, and local importance has been considered in section 4.4 of this chapter. In addition all species afforded extra protections under the Conservation of Habitats and Species Act 2017 (as amended) (formerly the EU Birds Directive Annex I), Schedule 1 of the Wildlife and Countryside Act, and Section 7 species of the Environment (Wales) Act 2016, are considered in Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report; and Volume 7, Annex 4.3: Onshore ornithology -breeding birds technical report of the Environmental Statement. This has been taken into consideration in the assessment in section 4.9 of this chapter. Measures adopted by the Mona Offshore Wind Project, including an Outline Code of Construction Practice (document reference: J26) and Outline Landscape and Ecology Management Plan (document reference: J22), which incorporates a Bird Protection Plan, are listed in section 4.8. In accordance with policy VOE 5 of the Adopted Local Development Plan 2006-2021 (Denbighshire County Council, 2013), a Biodiversity Benefit and Green Infrastructure Statement (document reference: J7) has been prepared and submitted in support of the Environmental Statement. The Biodiversity Benefit and Green Infrastructure Statement will set out how the Mona Offshore Wind

Policy	Key provisions	How and where considered in the Environmental Statement
		Project would comply with Denbighshire County Council's objectives for conserving, enhancing, and restoring biodiversity. This will have a beneficial impact on birds.
VOE 10	Development proposals which promote the provision of renewable energy technologies will be supported providing they…demonstrate no unacceptable impact upon the interests of nature conservation, wildlife, natural heritage…	The onshore and intertidal ornithological baseline has been established in section 4.5 of this chapter through desk top studies and by site specific survey. Mitigation measures are set out in 4.8 and an assessment of IEFs is conducted in section 4.9 of this chapter. Specifically, the surveys conducted included wintering and migratory bird surveys, intertidal waterbird surveys and breeding bird surveys. Further details of these surveys, including detailed methodology and results, can be viewed in Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report; and Volume 7, Annex 4.3: Onshore ornithology -breeding birds technical report of the Environmental Statement.

4.3 Consultation

4.3.1 Overview

4.3.1.1 A summary of the key issues raised during consultation activities undertaken to date specific to onshore and intertidal ornithology are shown in Table 4.7 below, together with how these issues have been considered in the production of this Environmental Statement chapter. Further detail is presented within Volume 7, Annex 4.1: Onshore ornithology – wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report; and Volume 7, Annex 4.3: Onshore ornithology – breeding birds technical report of the Environmental Statement. Additional information on consultation can be viewed in the Consultation Report (document reference: E3).

4.3.2 Evidence Plan process

4.3.2.1 The purpose of the Evidence Plan process is to agree the information the Mona Offshore Wind Project needs to supply to the Secretary of State, as part of the DCO application for Mona Offshore Wind Project, with NRW, the Welsh Government, Conwy County Borough Council, Denbighshire County Council, the Planning Inspectorate and the RSPB.

4.3.2.2 The Evidence Plan seeks to ensure compliance with the Habitat Regulations Assessment (HRA) and EIA Regulations. The development and monitoring of the Evidence Plan and its subsequent progress is being undertaken by the Steering Group. The Steering Group comprises of the Applicant, the Planning Inspectorate, NRW, Joint Nature Conservation Committee (JNCC) and the Marine Management Organisation (MMO). To inform the EIA and HRA process during the pre-application stage of the Mona Offshore Wind Project, EWGs were also set up to discuss and agree topic specific issues with the relevant stakeholders.

Table 4.7: Summary of key consultation issues raised during consultation activities undertaken for the Mona Offshore Wind Project relevant to onshore and intertidal ornithology.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
August 2021	NRW (email)	A technical note was prepared for NRW (Mona Offshore Wind Ltd, 2021) describing the proposed survey methodology for intertidal and nearshore coastal birds, including a map of the survey area, for review and comment. The proposed methodology included: • Desk based assessment of online resources (including a review of available designated sites citations and British Trust for Ornithology (BTO)/Wetland Bird Survey (WeBS) data) • Scoping walkover of each Mona Landfall option during August/early September 2021 to identify habitats requiring survey. Monthly intertidal and nearshore coastal bird surveys of the Mona Landfall areas and a buffer of at least 500 m in either direction along the coast and up to 1.5 km from the MHWS mark. It must be noted that at this stage of the Mona Offshore Wind Project multiple Mona Landfall options were being considered.	On 02 September 2021 NRW provided the following comments on the methodology via e-mail: • NRW advised that at least two contemporary years of core wintering bird surveys were required to account for interannual variation in use by bird features of designated sites • NRW welcomed the timing of the migratory passage and core wintering surveys being September 2021 to April 2022 inclusive, with the possibility of an extension into May, June, July • NRW welcomed the proposed 'Through-the-tidal-cycle' survey methodology which provides good coverage across the tidal cycle. NRW recommended contacting BTO for the latest WeBS and Non-Estuarine Waterbird Survey data as well as the most up-to-date high tide roost locations.
September 2021	NRW (Teams meeting)	NRW's comments were discussed in an online meeting (via Microsoft Teams) and the following actions were identified: • Whilst NRW highlighted that diurnal surveys alone should provide sufficient evidence required for assessment it was agreed that to be consistent with the Morgan Offshore Wind Project, where nocturnal surveys are being undertaken, that nocturnal surveys would also be undertaken for the Mona Offshore Wind Project. Specific methodology for these surveys would be documented and provided	The updated survey methodology was issued to NRW on 31 October 2021. NRW confirmed that their ornithologist was "*happy with the added content… and has no further comments to make.*" Confirmation was provided in an email from NRW to RPS dated 11 November 2021.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
		• NRW to review lessons learnt from previous Mona Landfall areas and advise in terms of ornithological constraints • NRW to share the relevant NRW conservation advice packages for the protected sites in the vicinity of the Mona Landfall options. The Mona Offshore Wind Project agreed to share initial survey results and progress with NRW as part of future EWGs.	
May 2022	NRW (Scoping response)	The Environmental Statement should include a description of all the existing natural resources and wildlife interests within, and in the vicinity of, the proposed development, together with a detailed assessment of the likely impacts and significance of those impacts. (Scoping Opinion (document reference: J8), Section 11 - Onshore biological environment, paragraph 169).	Baseline conditions within the relevant study areas (as described in section 4.4.4) have been ascertained through a combination of desk study and site-specific surveys. An assessment of the likely potential impacts and their significance is presented within section 4.9. Further details of the results of this desk study and site-specific survey effort can be viewed in Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report; and Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement.
	NRW (Scoping response)	NRW (A) advise that the EIA considers significance (both alone and in-combination) and where applicable, conservation status. In respect of conservation status, NRW (A) advise consideration is given to Current Conservation Status (CCS), and demonstration of no likely detriment to maintenance of Favourable Conservation Status (FCS) during construction, operation, and decommissioning phases of the scheme. (Scoping Opinion (document reference: J8), Section 11 - Onshore biological environment, paragraph 170).	The CCS of onshore and intertidal ornithological receptors has been considered in this assessment within section 4.5.6 and Table 4.17.
	NRW (Scoping response)	NRW (A) advise that the site is subject to assessment to determine the likelihood of protected species and that targeted species surveys are undertaken for all species	Protected species have been surveyed for with details relating to the specific methodologies followed and results gained provided within

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
		scoped in. These should comply with current best practice guidelines and in the event that the surveys deviate, or there are good reasons for deviation, that full justification for this is included within the Environmental Statement. (Scoping Opinion (document reference: J8), Section 11 - Onshore biological environment, paragraph 172).	Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report; and Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement.
	NRW (Scoping response)	Where a European Protected Species is identified and the development proposal is predicted to likely contravene the legal protection they are afforded, a licence should be sought from NRW's Species Licensing Team NRW/Species licensing. The Environmental Statement must include consideration of the requirement. s for a licence and set out how the works will satisfy the three requirements as set out in the Conservation of Habitats and Species Regulations 2017 (as amended). One of these requires that the development authorised will 'not be detrimental to the maintenance of the population of the species concerned at a FCS in their natural range'. These requirements are also translated into planning policy through PPW February 2021, Section 6.4.22 and 6.4.23 and Technical Advice Note (TAN) 5, Nature Conservation and Planning (September 2009). The relevant decision maker will take them into account when considering the EIA where a European Protected Species is present. (Scoping Opinion (document reference: J8), Section 11 - Onshore biological environment, paragraph 174).	Pre-construction site specific breeding bird surveys will ascertain whether protected species already identified are still present and if further mitigation is needed for breeding red kite and little ringed plover. This will be outlined in the Bird Protection Plan which will be delivered as part of the Outline Landscape and Ecology Management Plan (document reference: J22) (see Table 4.24).
	NRW (Scoping response)	NRW (A) recommend that the developer consults the local authority ecologists on the scope of the work to ensure that regional and local biodiversity issues are adequately considered, particularly those habitats and species listed in the relevant Local Biodiversity Action Plan, and areas that are considered important for the conservation of biological diversity in Wales.	Local authority ecologists were consulted as part of the Onshore Ecology EWGs, this included Denbighshire County Council and Conwy County Borough Council. Consultation involved discussions related to scope of study, survey methodologies and the findings of onshore and intertidal surveys.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
		(Scoping Opinion (document reference: J8), Section 11 - Onshore biological environment, paragraph 175).	
	NRW (Scoping response)	NRW (A) would expect the developer to contact other relevant people/organisations for biological information/records relevant to the site and its surrounds. These include the relevant Local Records Centre and any local ecological interest groups (e.g. bat groups, mammal groups). (Scoping Opinion (document reference: J8), Section 11 - Onshore biological environment, paragraph 176).	Local ecological interest groups including the Welsh Ornithological Society and Cofnod (local records centre - North Wales Environmental Information Service) records have been sought as part of the onshore and intertidal ornithology desk studies. WeBS data has been sought from the BTO. Details of desktop study are contained within sections 4.4.5 and 4.5.2. Further detail from the desktop study relevant to each aspect of onshore and intertidal ornithology are contained within Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report; and Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement.
June 2022	The Planning Inspectorate (Scoping response)	The Applicant should seek to agree study areas and receptors with relevant consultation bodies. The Environmental Statement should confirm whether the study area proposed aligns with relevant policy and guidance and provide justification for any divergences. The Environmental Statement should include figures to identify the final study area for each aspect and the location of any static receptors considered in the assessment. (Scoping Opinion (document reference: J8) ID 2.2.2 Part 1, Section 4.4.1).	Study areas, which include appropriate survey buffers, were added to the Mona Onshore Development Area and the Mona Landfall and presented at the Onshore Ecology EWGs as well as within the scoping report and PEIR. The design of these study areas followed latest evidence-based information and were mapped to take account of bird interests that may occur adjacent or close to the Mona Onshore Development Area and Landfall. The buffer distances were based on the maximum disturbance distances for key species expected to be found at the sites (Goodship and Furness, 2022).
	The Planning Inspectorate (Scoping response)	The Inspectorate acknowledges that data and knowledge regarding the baseline environment exists from surveys, assessments and post- construction monitoring for other proposed and existing offshore wind projects. The Inspectorate understands the benefits of utilising this	Robust data sets have been used to inform the assessment (Table 4.10 and Table 4.11) of this chapter.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
		information to supplement site specific survey data but advises that suitable care should be taken to ensure that the information in the Environmental Statement remains representative and fit for purpose. This should include taking into account the impact of more recent developments that have occurred subsequent to when the data was collected. Similarly, where data from other wind farms is used to support the assessment, the Environmental Statement should confirm that these are truly comparable, for example in terms of the size of foundations/wind turbines. The Applicant should make effort to agree the suitability of information used for the assessments in the Environmental Statement with relevant consultation bodies (e.g. NRW). (Scoping Opinion (document reference: J8) ID 2.2.3 Part 1, Section 4.4.3).	
	The Planning Inspectorate (Scoping response)	The impact of temporary and permanent habitat loss on protected habitats and species during operations and maintenance of the Mona onshore transmission assets. On the basis of the likely small scale and nature of habitat loss associated with the operations and maintenance of the Mona onshore transmission assets, the Inspectorate is content that this matter can be scoped out of the assessment. (Scoping Opinion (document reference: J8) ID 3.18.1 Part 3, Table 7.4).	In accordance with the Mona Offshore Wind Project Scoping Opinion (document reference: J8), the potential impact of temporary and permanent habitat loss on protected habitats and species during operations and maintenance of the Mona Onshore Development Area have been scoped out of the assessment reported in section 4.9 of this chapter.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
	The Planning Inspectorate (Scoping response)	The impact of pollution caused by accidental spills/contaminant release on protected habitats and species during operations and maintenance of the Mona onshore transmission assets. The Scoping Report proposes to scope out accidental spills/contaminant release from operations and maintenance activities for the Proposed Development. The Inspectorate agrees that these effects are capable of mitigation through standard management practices and can be scoped out of the assessment. The Environmental Statement should provide details of the proposed mitigation measures to be included in the Ecological Management Plan. The Environmental Statement should also explain how such measures will be secured. (Scoping Opinion (document reference: J8) ID 3.18.2 Part 3, Table 7.4).	In accordance with the Mona Offshore Wind Project Scoping Opinion (document reference: J8), the potential impact of pollution caused by accidental spills/contaminant release on protected habitats and species during operations and maintenance of the Mona Onshore Development Area have been scoped out of the assessment reported in section 4.9 of this chapter. Details of measures to be adopted are contained within Table 4.24.
	The Planning Inspectorate (Scoping response)	The Scoping Report confirms that the detailed scope, methodologies and extents of the site-specific surveys identified will be agreed with NRW in advance of survey commencement. The Environmental Statement should provide a clear rationale and a justification as to the approach undertaken to the surveys used to inform the assessment, including reference to agreements reached with relevant consultation bodies, such as NRW. (Scoping Opinion (document reference: J8) ID 3.18.4 Part 3, Paragraphs 7.1.3.4 to 7.1.3.5).	The intertidal survey methodologies were agreed with NRW during Onshore Ecology EWG meetings. The broad approach to survey methodology was introduced to the EWG in EWG meeting 01 (June 2022). Further detail, including daytime and nocturnal survey detail, was introduced in EWG meeting 02 (December 2022). The surveys have been conducted in line with the BTO recording protocols for Common Bird Census (CBC) and the WeBS, details of these methodologies are contained within section 4.4.7 of this chapter.
	The Planning Inspectorate (Scoping response)	Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable ecological features. Specific survey and assessment data relating to the presence and locations of species such as badgers, rare birds and plants that could be subject to disturbance, damage, persecution, or commercial exploitation resulting from publication of the information, should be provided in the Environmental Statement as a confidential Annex. All	Rare or endangered breeding birds (red kite and little ringed plover) which require are presented in a confidential Annex for the Environmental Statement.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
		other assessment information should be included in an Environmental Statement Chapter, as normal, with a placeholder explaining that a confidential Annex has been submitted to the Inspectorate and may be made available to request. (Scoping Opinion (document reference: J8) ID 3.18.6 Confidential Annexes).	
	The Planning Inspectorate (Scoping response)	The Inspectorate agrees that significant transboundary effects on the above aspects are unlikely and can be scoped out of the Environmental Statement with the following exceptions: • 'Other sea users' – Limited evidence and no quantified analysis has been provided to demonstrate that there would be 'lower levels of offshore cruising and racing' between the UK and Ireland; therefore, this matter should be scoped in. • 'Terrestrial ecology and intertidal birds' – the Scoping Report asserts that "due to the large distance between the Mona Onshore Transmission Infrastructure Search Area and Natura 2000 sites located outside the UK, it is not considered feasible that migratory birds directly associated with Natura 2000 sites in other states would be disturbed or suffer from loss of foraging or resting opportunities in any way that would result in likely significant effects on those Natura 2000 sites" (Part 4, Annex A, paragraph 1.4.3.5). The Inspectorate considers that there is insufficient evidence to predict that significant transboundary effects will not arise and does not agree that this matter can be scoped out of the assessment at this stage. Accordingly, the Environmental Statement should include an assessment of these matters or information demonstrating the absence of LSE. • The Inspectorate will undertake an initial transboundary screening exercise on behalf of the	Significant effects to internationally designated sites (Natural Site Network Sites formerly recognised as Natura 2000 sites) outside of the UK are assessed for the offshore generation and transmission assets in the Habitat Regulation Assessment, Stage 2: ISAA (document reference: E1.2) and Volume 5, Chapter 5.2: Transboundary screening of the Environmental Statement.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
		Secretary of State under Regulation 32 of the EIA regulations, following adoption of the Scoping Opinion.	
	Natural England (Scoping response)	Paragraph 4.6.2.3: We welcome the commitment to explore opportunities to develop enhancement measures and to create beneficial effects.	Measures adopted by the Mona Offshore Wind Project, including an Outline Code of Construction Practice (document reference: J26) and Outline Landscape and Ecology Management Plan (document reference: J22), which incorporates a Bird Protection Plan, are listed in section 4.8.
	Natural England (Scoping response)	Paragraph 4.7.2.2: Consideration of climate change impacts over the operational period of Mona Offshore Wind project should be considered. These impacts will become important if they cause an alteration in the baseline conditions and become detectable above natural inter-annual variations.	The implications of climate change with respect to onshore and intertidal ornithology has been considered as part of the future baseline scenario in section 4.5.7 of this chapter.
	NRW, Denbighshire County Council, Conwy County Borough Council, The Royal Society for the Protection of Birds (RSPB) (onshore ecology EWG 01)	Agreement on the Remit and Inputs to the EWG (as set out in the Evidence Plan Template). Agreement on Ways of Working Documents, including timescales. Agreement on broad approach to future surveys. Agreement on broad approach to baseline characterisation.	Details on survey methodologies, including survey timings are presented in section 4.4.7. Further details are contained within Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report and Volume 7, Annex 4.3: Onshore ornithology -breeding birds technical report of the Environmental Statement. The approach to baseline characterisation, and results of the characterisation process are contained within sections 4.4 and 4.5 respectively.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
December 2022	NRW, Conwy County Borough Council, RSPB (onshore ecology EWG 02)	• RPS provided a detailed note on bird survey methodology and coverage for the Year 1 survey, and presented peak intertidal survey counts for December 2021 to April 2022 and the distribution of waterbird species • Summary findings of the first year (2022) of breeding bird surveys was presented to the EWG • Details of proposed further surveys were also shared with the EWG, including daytime and nocturnal survey details • NRW requested that methodology considers Welsh Birds of Conservation Concern • No response from the EWG regarding intertidal ornithology was given.	Survey results are outlined in section 4.5 with further details presented within Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report; and Volume 7, Annex 4.3: Onshore ornithology -breeding birds technical report of the Environmental Statement. The criteria for identifying IEFs are set out in section 4.5.6, this criterion includes the Welsh Birds of Conservation Concern.
April 2023	NRW, Denbighshire County Council, Conwy County Borough Council, Welsh Government, RSPB, Amphibian and Reptile Conservation Trust (ARC) (onshore ecology EWG 03)	The findings of the PEIR were shared with the EWG, including: • A summary of the field surveys undertaken • Valued ornithological receptors (VORs) identified • Potential impacts considered • Proposed mitigation • Likely significant effects on VORs • Assessment of cumulative effects • The next steps between the PEIR and ES • No response from the EWG regarding intertidal ornithology was given.	Details of all survey methodologies and results of the conducted surveys are contained within sections 4.4 and 4.5 of this chapter respectively. Further detail is presented within Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report; and Volume 7, Annex 4.3: Onshore ornithology -breeding birds technical report of the Environmental Statement. The criteria for identifying IEFs are set out in section 4.5.6. An assessment of the significant effects on VORs from the Mona Offshore Wind Project is presented within section 4.9. A cumulative assessment of these effects and those of other projects and plans is presented within section 4.11. Mitigation measures adopted as part of the Mona Offshore Wind Project are presented in section 4.8.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
June 2023	NRW (S42 response)	NRW (A) welcome that site-specific, through the tidal cycle surveys of the intertidal study area related to the cable landfall have been undertaken. We understand these surveys began in December 2021 and are currently ongoing. However, clarification is required as to the intended end date of these surveys, as the information provided in Volume 3, Chapter 24 Onshore and Intertidal Ornithology and Volume 7, Annex 24.2 Intertidal Ornithology Technical Report, is not consistent	Clarification is provided within Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report that two full years-worth of data is to be collected (data collection ending in November 2023).
June 2023	NRW (S42 response)	In Annex 24.2, Table 1.1 Qualifying features of the SPAs located within 20 km of the Mona Landfall, it should be noted that: • The qualifying features of Liverpool Bay are non-breeding common scoter, red-throated diver, little gull; breeding little tern, common tern; and a waterbird assemblage. Cormorant and red-breasted merganser are not qualifying features in their own right but are part of the assemblage qualifying feature. • For the Dee Estuary Ramsar, the species included in the table as present in nationally important numbers are not qualifying features of the Ramsar site but are part of the waterbird assemblage which is a qualifying feature.	The listed qualifying features of SPAs located within 20 km of the Mona Landfall are amended for the ES (see Table 4.13).
June 2023	NRW (S42 response)	The approach to survey and assessment appears appropriate for the onshore (terrestrial) ornithological components given the habitats within the red line boundary and the nature of the scheme.	Response noted.
June 2023	NRW (S42 response)	NRW (A) recommend that a Bird Protection Plan (BBPP) should be submitted and agreed. This should detail mitigation and working practices to avoid impacts to the ornithological receptors identified, and breeding birds more widely. The BBPP should also provide specific information relating to working practices and 80 any mitigation to ensure no impacts on the two Schedule 1 species (red kite and little ringed plover).	The Bird Protection Plan will be submitted and secured as part of the Outline Landscape and Ecology Management Plan (document reference: J22) as outlined in Table 4.24 of this chapter.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
June 2023	NRW (S42 response)	NRW (A) recommend that vegetation clearance should be outside of the breeding season or preceded by pre-commencement surveys for breeding birds, with appropriate mitigation/protection put in place if nesting birds are found.	Such measures are considered in the Bird Protection Plan, which will be submitted with the Environmental Statement and secured as part of the Outline Landscape and Ecology Plan (document reference: J22) as outlined in Table 4.24 of this chapter.
June 2023	NRW (S42 response)	There is potential for enhancement measures for birds as part of this scheme, and details of potential measures should be brought forward.	Mitigation and enhancement measures with respect to landscape and ecology are set out the Outline Landscape and Ecology Management Plan (document reference: J22). In addition, the Bird Protection Plan will be submitted with the Environmental Statement and secured as part of the Outline Landscape and Ecology Management Plan (document reference: J22) as outlined in Table 4.24 of this chapter.
June 2023	NRW (S42 Response)	NRW note that surveys conducted within the intertidal ornithology study area commenced in December 2021 and are expected to conclude in November 2023 (two years of data)	Waterbird surveys on the intertidal zone and nearshore waters have commenced in December 2021 and concluded in November 2023.
June 2023	NRW (S42 Response)	NRW note that surveys started in December 2021 and have been ongoing with a proposed finish date of June 2023".	Waterbird surveys on the intertidal zone and nearshore waters have commenced in December 2021 and concluded in November 2023.
June 2023	RSPB (S42 Response)	Thank you for consulting the RSPB over the proposal to construct MonaOffshore Wind Farm (the Application). We limit the scope of our comments to ornithology and related matters.	Comment has been noted.
June 2023	RSPB (S42 Response)	Owing to the acknowledged limitation of ongoing ecological surveys including breeding bird surveys, we will reserve comment until the information is submitted in the ES to inform the assessment	Comment has been noted.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
June 2023	RSPB (S42 Response)	We note that the project avoids Pensarn Sites of Special Scientific Interest (SSSI) at cable landfall. Furthermore, HDD will be deployed under Llanddulas Limestone and Gwrych Castle Wood SSSI and HDD will be deployed under Ancient Woodland sites.	Comment has been noted.
June 2023	RSPB (S42 Response)	We trust our comments are of use and look forward to continuing to engage in the consenting processes of the MonaOffshore Wind Farm. The RSPB reserves the right to make further representations in relation to this matter.	Comment has been noted.
July 2023	NRW, Denbighshire County Council, Conwy County Borough Council, Welsh Government, RSPB, ARC (onshore ecology EWG 04)	• An update on survey progress to date was provided • No response from the EWG regarding intertidal ornithology was given • RPS requested that only one year's worth of wintering and migratory data be used for the assessment • RSPB requested to see maps of the findings before giving a response.	Details of all survey methodologies and results of the conducted surveys are contained within sections 4.4 and 4.5 of this chapter respectively. Further detail is presented within Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report; and Volume 7, Annex 4.3: Onshore ornithology -breeding birds technical report of the Environmental Statement.
September 2023	NRW, Denbighshire County Council, Conwy County Borough Council, Welsh Government, RSPB, ARC (onshore ecology EWG)	Technical Note sent to EWG to provide evidence that one year of survey data for wintering and migratory birds was sufficient for the purposes of the assessment of Onshore and Intertidal Ornithology for the Mona Offshore Wind Project.	The Mona Offshore Wind Project received no written response from the EWG regarding the technical note. However, no objections were raised to this approach during the subsequent EWG meeting (EWG 05).
October 2023	NRW, Denbighshire County Council, Conwy County Borough Council, Welsh Government, ARC, Woodland Trust (onshore ecology EWG 05)	• An update on survey progress was given • A summary of outstanding surveys was also presented • No response from the EWG regarding intertidal ornithology was given • RPS asked if the EWG were satisfied with one year of survey data for wintering passerines and raptors. NRW to provide an official response to the technical note provided on 18th September 2023.	Details of all survey methodologies and results of the conducted surveys are contained within sections 4.4 and 4.5 of this chapter respectively. Further detail is presented within Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report; Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report; and Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
December 2023	NRW, Denbighshire County Council, Conwy County Borough Council, Welsh Government, ARC, RSPB, Woodland Trust (onshore ecology EWG 06)	• A summary of field surveys up to this date was provided including timings and frequency of surveys. • The proposed content of the Bird Protection Plan as to be included within the Outline Landscape and Ecology Management Plan (document reference: J22) was presented to the EWG. • RPS asked if the EWG were satisfied with one year of survey data for wintering passerines and raptors.	No response from the EWG was provided regarding the quantity of wintering passerine and raptor data. No response from the EWG was provided regarding the Bird Protection Plan.

4.4 Baseline methodology

4.4.1 Relevant guidance

4.4.1.1 The collation of baseline data and the assessment presented within this chapter has taken into account the following guidance:

- Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines on ecological impact assessment (CIEEM, 2018)
- Offshore Wind Marine Environmental Assessments Best Practice Advice for Evidence and Data Standards Phase I: Expectations for pre-application baseline data for designated nature conservation and landscape receptors to support offshore wind applications (Natural England, 2022)
- Welsh Government guidance on developments of national significance and environmental impact assessments (Planning Inspectorate, 2019).

4.4.1.2 Guidance on which species are considered IEFs for assessment was defined by species listed in the following documents and legislation:

- Species listed in Schedule 1 of the Wildlife and Countryside Act 1981
- Species listed in Annex 1 of the Birds Directive, as transposed into UK law through the Conservation of Habitats and Species Regulations 2017 (as amended)
- Section 7 of the Environment Wales Act 2016
- Species listed as red or amber on the Birds of Conservation Concern 5 (BOCC5 UK list) (Stanbury *et al*., 2021)
- Species listed as red or amber on the Birds of Conservation Concern Wales 4 (BOCC4 Wales list) (Johnstone *et al*., 2022).

4.4.2 Scope of the assessment

4.4.2.1 The scope of this Environmental Statement has been developed in consultation with relevant statutory and non-statutory consultees as detailed in Table 4.7.

Table 4.8: Issues considered within this assessment.

Activity	Potential effects scoped into the assessment
Construction and decommissioning phases	
Construction and decommissioning of the Onshore Cable Corridor, 400 kV Grid Connection Cable Corridor, Temporary Construction Compounds, haul roads and Onshore Substation	Temporary and permanent habitat loss during construction and decommissioning of the Mona Offshore Wind Project.
	Habitat disturbance during construction and decommissioning of the Mona Offshore Wind Project.
	Spreading INNS during construction and decommissioning of the Mona Offshore Wind Project.
	Habitat fragmentation and species isolation during construction and decommissioning of the Mona Offshore Wind Project.
	Pollution caused by accidental spills/contaminant release during construction and decommissioning of the Mona Offshore Wind Project.
Operation and maintenance	

Activity	Potential effects scoped into the assessment
Operation and maintenance of the Onshore Substation and permanent access roads.	Permanent habitat loss during operation and maintenance of the Mona Offshore Wind Project.
	Habitat disturbance during operation and maintenance of the Mona Offshore Wind Project.
	Habitat fragmentation and species isolation during operation and maintenance of the Mona Offshore Wind Project.

4.4.2.2 Effects which are not considered likely to be significant have been scoped out of the assessment. A summary of the effects scoped out, together with justification for scoping them out and whether the approach has been agreed with key stakeholders through either scoping or consultation, is presented in Table 4.9.

Table 4.9: Impacts scoped out of the assessment for onshore and intertidal ornithology.

Potential impact	Justification
The impact of pollution caused by accidental spills/contaminant release on protected habitats and species during operations and maintenance of the Mona Offshore Wind Project.	Activities associated with the operations and maintenance of the Mona Offshore Wind Project are unlikely to result in accidental spills/contaminant release. Therefore, the potential impact of pollution on protected habitats and species arising from accidental spills/contaminant release during operations and maintenance of the Mona Offshore Wind Project is unlikely to be significant and is scoped out of the assessment for terrestrial ecology and intertidal birds. Agreement presented in The Planning Inspectorate scoping response, ID 3.18.2 Part 3, Table 7.4.
The impact of construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project on species not listed in the Mona Offshore Wind Project EIA Scoping Report (Mona Offshore Wind Limited, 2022).	As part of the site selection and route refinement process, the Mona Onshore Development Area is located and designed to avoid large parcels of woodland and main watercourses. Where the onshore export cable is required to cross larger watercourses, environmentally sensitive construction techniques would be used (e.g. trenchless crossing techniques) to avoid or reduce potential impacts on habitats and species. In addition, due to the limited extent and temporary nature of habitat disturbance associated with construction and decommissioning of the onshore export cable, and the requirement for land to be reinstated post- construction, significant impacts on species not listed in the Mona Offshore Wind Project EIA Scoping Report (Mona Offshore Wind Limited, 2022) are unlikely to occur and are scoped out of the assessment for terrestrial ecology and intertidal birds. However, should it not be feasible to utilise environmentally sensitive construction techniques (e.g. trenchless crossing techniques), the list of survey requirements and species to be considered in the assessment for terrestrial ecology and intertidal birds will be reassessed.
The impact of spreading INNS during construction and decommissioning of the Mona Offshore Wind Project.	Activities associated with the construction and decommissioning phases are unlikely to result in the accidental spreading of INNS. Therefore, it is concluded that there will be no significant effects arising from the Mona Offshore Wind Project during the construction, operations and maintenance or decommissioning phases.

4.4.3 Methodology to inform baseline

4.4.4 Study areas

4.4.4.1 The onshore and intertidal ornithology assessment is divided into three parts: intertidal ornithology, onshore ornithology breeding birds, and onshore ornithology wintering and migratory birds. The areas covered by the onshore ornithology breeding birds and the onshore ornithology wintering and migratory birds are identical in extent and thus referred to collectively as the onshore ornithology study area hereafter.

- The intertidal ornithology study area (Figure 4.1) comprises the Mona Onshore Development Area at Mona Landfall plus a 500 m buffer extending along the coast and 1.5 km extending offshore. This distance is based on potential maximum disturbance distances for waterbirds expected to be found in the area (Goodship and Furness, 2022). The intertidal ornithology study area extends offshore from the MHWS and consists of the intertidal zone (which features sandflats and shingles), and the nearshore marine waters. The intertidal ornithology study area is used to record primarily waterbirds and true seabirds using the nearshore marine waters
- The onshore ornithology study area (Figure 4.1) comprises the Mona Onshore Development Area plus a 250 m buffer. This distance is based on potential maximum disturbance distances for breeding birds expected to be found in the area (Goodship and Furness, 2022). The 250 m buffer was used as the survey boundary for both the breeding bird surveys (BBS), and subsequently the onshore wintering and migratory bird surveys.

4.4.4.2 As defined by the Ramsar Convention on Wetlands (1971): waterbirds include geese, swans, ducks, rails, cranes, grebes, waders, divers, cormorants, spoonbills, herons, gulls, terns, and kingfishers (Ramsar, 1971).

4.4.4.3 The onshore ornithology study area is used to record onshore breeding birds, and terrestrial wintering and migratory birds. For the purposes of this assessment these species will be assessed separately and according to their seasonality (e.g. breeding, and non-breeding), their habitat requirements, and their conservation status (which may differ between seasons). Wintering and migratory birds have been assessed as non-breeding (i.e. including the wintering and passage periods). Non-breeding birds are defined as birds found utilising the terrestrial habitats within the onshore ornithology study area that were not displaying breeding behaviour. All birds displaying breeding behaviours have been assessed as breeding birds.

4.4.4.4 The onshore ornithology study area falls within the local authority areas of both Conwy County Borough Council and Denbighshire County Council. The route starts at MHWS on the intertidal zone at the Mona Landfall, and travels across limestone hills. It is dominated by improved grassland used for sheep grazing and for intensive arable farming. There are small blocks of woodland, scrub and field boundaries comprised of hedgerows of various habitat quality suitable for breeding, wintering and migratory birds.

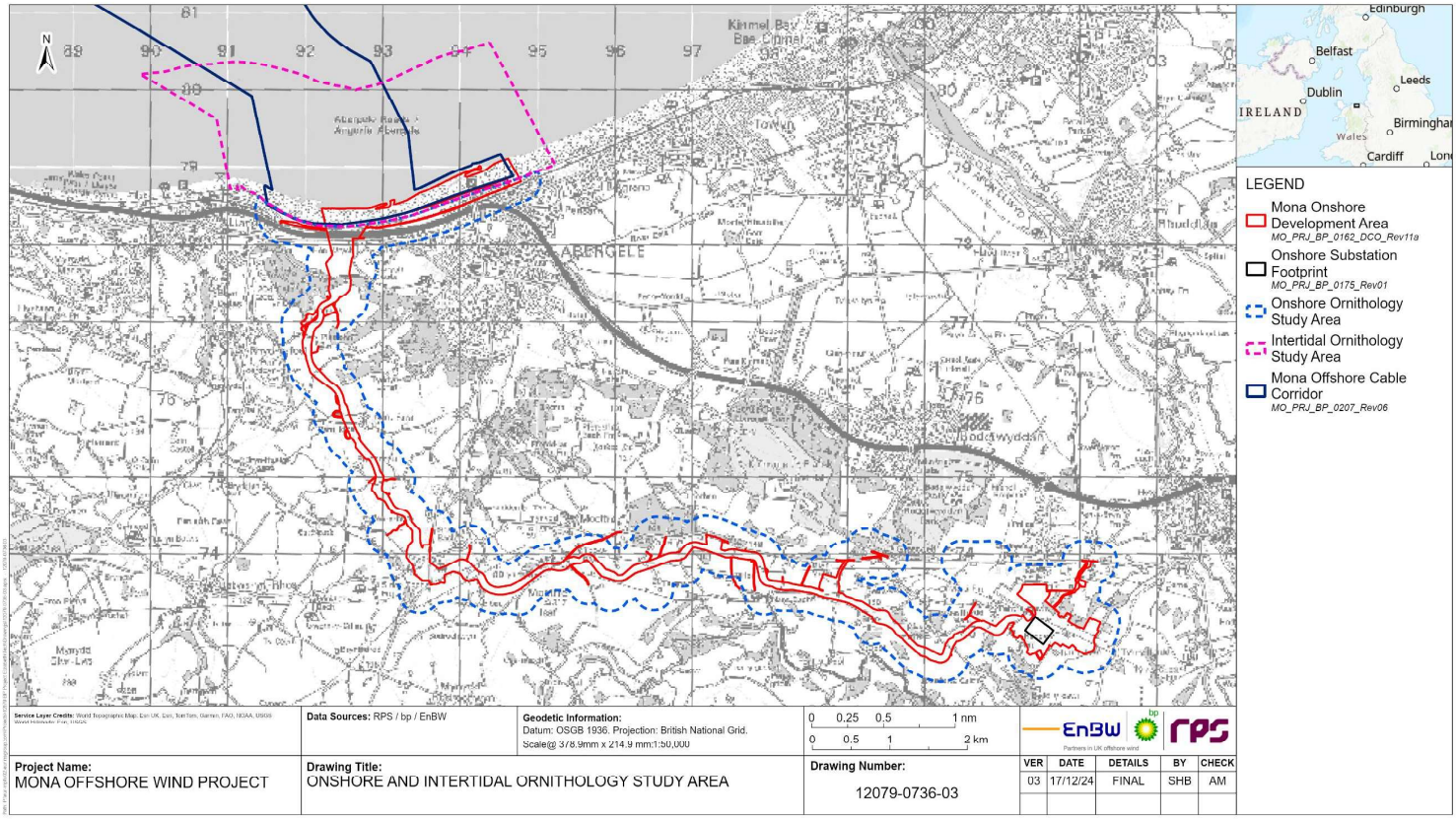

Figure 4.1: Intertidal and onshore ornithology study areas.

4.4.5 Desktop study

4.4.5.1 Information on onshore and intertidal ornithology within the onshore ornithology study area and intertidal ornithology study area was collected through a desktop review of existing studies and datasets. These are summarised in Table 4.10 and Table 4.11 below.

Table 4.10: Summary of key desktop reports used for the intertidal ornithology study area.

Title	Source	Year	Author
Densities of qualifying species within Liverpool Bay/Bae Lerpwl SPA: 2015 to 2020	Natural England	2023	HiDef Aerial Surveying Limited.
An assessment of the numbers and distributions of core wintering waterbirds and seabirds in Liverpool Bay area of search.	Joint Nature Conservation Committee (JNCC)	2016	Lawson, J., Kober, K., Win, I., Allcock, Z., Black, J., Reid, J.B., Way, L. and O'Brien, S.H.
An assessment of the numbers and distributions of inshore aggregations of waterbirds using Liverpool Bay during the non-breeding season in support of possible SPA identification.	JNCC	2006	Webb, A., McSorley, C.A., Dean, B.J., Reid, J.B., Cranswick, P.A., Smith, L. and Hall, C.
Predicting the displacement of common scoter from benthic feeding areas due to offshore windfarms.	Centre for Applied Marine Sciences, School of Ocean Studies, University of Wales, Bangor	2002	Kaiser, M., Elliot, A., Galanidi, M., Rees, E.I.S., Caldow, R., Stillman, R., Sutherland, W. and Showler, D.
Results of the third Non-Estuarine Waterbird Survey, including Population Estimates for Key Waterbird Species.	BTO Research Report	2017	Austin, G., Frost, T., Mellan, H. and Balmer, D.
Waterbirds in the UK 2021/22: The Wetland Bird Survey and Goose and Swan Monitoring Programme.	BTO/RSPB/JNCC/NatureScot.	2023	Austin, G.E., Calbrade, N.A., Birtles, G.A., Peck, K., Shaw, J.M. Wotton, S.R., Balmer, D.E. and Frost, T.M

Table 4.11: Summary of key desktop reports for the onshore ornithology study area.

Title	Source	Year	Author
Birds in Wales. Welsh Bird Report 2018.	Welsh Ornithological Society	2019	Welsh Ornithological Society. Edited by Hughes, J.
The status of our bird populations: the fifth Birds of Conservation Concern (BOCC) in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain.	British Birds	2021	Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I.
Birds of Conservation Concern Wales 4: the population status of birds in Wales	Milvus	2022	Johnstone, I.G.,Hughes, J., Balmer, D., Brenchley, A., Facey, R.J., Lindley, P.J., Noble, D.G., Taylor, R.
The Breeding Bird Survey 2021	BTO	2022	Harris, S.J., Massimino, D., Balmer, D.E., Kelly, L., Noble, D.G., Pearce-Higgins, J.W., Woodcock, P., Wotton, S. and Gillings, S.
Bird records for Mona Onshore Development Area plus 2 km buffer	North Wales Local Environmental Records Centre (LERC) (Cofnod)	2023	N/A
Bird Atlas 2007-11	The British Trust for Ornithology (BTO)	2013	Balmer, D., Gillings, S., Caffrey, B., Swann, B., Downie, I., Fuller, R.

4.4.6 Identification of designated sites

4.4.6.1 All designated sites within the onshore ornithology study area and intertidal ornithology study area with qualifying interest features that could be affected by the construction, operations and maintenance and decommissioning phases of the Mona Offshore Wind Project were identified using the three-step process described below:

- Step 1: All designated sites of international, national and local importance within the onshore ornithology and intertidal study areas were identified using the Multi Agency Geographic Information for the Countryside (MAGIC) website (Defra, 2023), Conwy County Borough Council website and Denbighshire County Council website. International sites within 20 km, national sites within 5 km and locally important sites within 2 km were included
- Step 2: Information was compiled on the relevant ornithological qualifying interests for each of these sites as follows; Liverpool Bay/Bae Lerpwl SPA, Dee Estuary SPA, Dee Estuary Ramsar, Dee Estuary Site of Special Scientific Interest (SSSI), Coedydd Derw Elwy SSSI, Gronant Dunes and Talacre warren SSSI, Chwythlyn SSSI, Mynydd Hiraethog SSSI, Aber Afon Conwy SSSI, Llyn Creiniog SSSI, Coedd LLys-Aled SSSI, Morfa Uchaf, Dyffryn Conwy SSSI and Creigiau Rhiwledyn SSSI
- Step 3: Using the above information and expert judgement, sites were included for further consideration if:
  - They had connectivity with the Mona onshore development area

– Qualifying interests associated with designated sites are located within the potential Zone of Influence (ZoI) for potential impacts associated with the Mona Onshore Development Area (listed within Table 4.8).

4.4.7 Site specific surveys

4.4.7.1 To inform this chapter, site-specific surveys were undertaken, as agreed within the Evidence Plan process (see Table 4.7 for further details). A summary of the surveys undertaken to date to inform the onshore and intertidal ornithology Environmental Statement is outlined in Table 4.12 below.

Table 4.12: Summary of site-specific survey data.

Title	Extent of survey	Overview of survey	Survey contractor	Date	Reference to further information
Onshore wintering and migratory bird surveys	Mona Onshore Development Area plus a 250 m buffer	A programme of wintering and migratory surveys to identify any terrestrial wintering and migratory receptors that may be present in the onshore ornithology study area	Enfys and AMC Ecological	November 2022 and March 2023	Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report of the Environmental Statement.
Intertidal wintering and migratory bird surveys	Landfall plus a 500 m buffer either side along the shore and 1.5 km offshore	A programme of intertidal waterbird surveys to characterise the abundance and distribution of species within the intertidal ornithology study area.	Enfys	December 2021 to November 2023	Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report of the Environmental Statement.
Onshore breeding bird surveys	Mona Onshore Development Area plus a 250 m buffer	A programme of BBSs to characterise the abundance and distribution of species within the onshore ornithology study area.	Enfys and AMC Ecological	April 2022 to July 2022 March 2023 to July 2023	Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement.

4.5 Baseline environment

4.5.1 Designated sites

4.5.1.1 Designated sites identified under step 3 in section 4.4 of this chapter are described below in Table 4.13. Qualifying interests are reported as they are given in the citations:

- **Breeding –** Indicates the species breeds within the area

- **Passage** – Indicates that birds use the area as a stop off on their migrations to/from breeding/wintering grounds
- **Wintering** – Indicates that the birds spend the core winter period (November – March) within the area
- **Non-breeding** – Indicates that birds use the area during one or both of the passage and wintering periods.

Table 4.13: Designated sites and relevant qualifying interests for the onshore and intertidal ornithology search areas.

Designated site	Distance to the Mona Landfall (km)	Distance to the Mona Onshore Development Area (km)	Relevant qualifying interest
The Liverpool Bay/Bae Lerpwl SPA	0.0 km	0.3 km	Non-Breeding: • Common scoter • Red-throated diver *Gavia stellata* • Little gull *Hydrocoloeus minutus*
			Breeding: • Little tern *Sternula albifronds* • Common tern *Sterna hirundo*
Dee Estuary SPA	13.1 km	10.6 km	Wintering: • Common shelduck *Tadorna tadorna* • Eurasian teal *Anas crecca* • Northern pintail *Anas acuta* • Eurasian oystercatcher *Haematopus ostralegus* • Grey plover *Pluvialis squatarola* • Red knot *Calidris canutus* • Dunlin *Calidris alpina* • Eurasian curlew *Numenius arquata* • Bar-tailed godwit *Limosa lapponica* • Black-tailed godwit *Limosa limosa* • Common redshank *Tringa totanus*
			Passage (migratory): • Common redshank • Sandwich tern *Sterna sandvicensis*
			Breeding: • Little tern • Common tern
Dee Estuary Ramsar – In addition to the species mentioned in the SPA citation	13.1 km	10.6 km	Wintering • Eurasian wigeon Anas penelope • Great crested grebe Podiceps cristatus • Great cormorant Phalocrocorax carbo carbo • Sanderling Calidris alba

Designated site	Distance to the Mona Landfall (km)	Distance to the Mona Onshore Development Area (km)	Relevant qualifying interest
			Passage • Common ringed plover *Charadrius hiaticula* Breeding • Common redshank
Dee Estuary SSSI – In addition to the species mentioned in the SPA and Ramsar citations	13.1 km	10.6 km	Passage • Black-tailed godwit Breeding • Common reed warbler *Acrocephalus scirpaceus*
Coedydd Derw Elwy SSSI	Greater than 5 km	3.9 km	Breeding • European pied flycatcher *Ficedula hypoleuca*, • Common redstart *Phoenicurus phoenicurus* • Wood warbler *Philoscopus sibilitrix*

4.5.2 Desktop studies

Intertidal ornithology desktop study

4.5.2.1 The Liverpool Bay/Bae Lerpwl SPA is a marine SPA that extends to MLWS and therefore overlaps with the nearshore of the intertidal ornithology study area (Figure 4.1). Recent studies by Webb *et al*. (2006) and Lawson *et al*. (2016), to inform the creation and extension (respectively) of the Liverpool Bay/Bae Lerpwl SPA, found concentrations of both red-throated diver and common scoter along the North Wales coast. Webb *et al*. (2006) found three concentrations of red-throated diver: one in Conwy Bay, one of off the Dee Estuary, and one between Colwyn and Rhyl. Lawson *et al*. (2016) corroborated these findings. The highest concentrations of common scoter in these studies were recorded on the nearshore waters between the Dee Estuary and Colwyn Bay where the intertidal ornithology study area is located. Updated data from HiDef Aerial Survey Limited (2023) showed peak densities of common scoter to be 56.51 birds per km^2 across the Liverpool Bay/Bae Lerpwl SPA. Records of red-throated diver in the Liverpool Bay/Bae Lerpwl SPA show that density varies between zero and 1.22 birds per km^2 during the winter months (HiDef Aerial Survey Limited, 2023), with consistent high densities occurring along the shoreline.

4.5.2.2 In addition to these, Kaiser *et al*. (2006) collected data on the distribution and behaviour of common scoter to help model the predicted effects that offshore wind farms might have on the species. They collected data on common scoter distribution using aerial surveys and found concentrations of common scoter in the nearshore waters off the coast of Abergele. For the collection of behavioural data, they chose a location at Llandulas (SH 906786) as at this point "*it was possible to observe consistently between 200 and 2000 Common Scoter*". This is at the east extent of the intertidal ornithology study area. Kaiser *et al*. (2006) found that all common scoters had left the Liverpool Bay area for their breeding grounds by May.

4.5.2.3 Kaiser *et al*. (2006) also used bathymetry to model the seafloor and collected data on prey distribution. They found that the North Wales seafloor falls away relatively steeply and that the highest prey densities along this coastline were located at a depth of 7.88 m. Common scoter were most frequently found in water between 7 to 15 m deep and it is widely accepted that they forage in water less than 20 m deep.

4.5.2.4 These studies highlighted above all indicated that both common scoter and red-throated diver congregate in high (i.e., above 1% of their SPA populations) densities in the nearshore waters adjacent to the intertidal ornithology study area.

4.5.2.5 Further data from the Colwyn Bay and the North Clwyd Coast WeBS site (2016/2017 to 2020/2021) highlighted the importance of the area for common scoter, the most abundantly recorded species with a peak of 5,278 individuals and a peak of 14 red-throated diver. In addition, the WeBS counts highlighted the presence of several wader species, including Eurasian oystercatcher and Eurasian curlew, ruddy turnstone *Araneria interpres,* and common redshank. European herring gull *Larus argentus* and black-headed gull *Chroicocephalus ridibundus* were the most frequently recorded gull species with relatively low numbers. This site is approximately twice the length of the intertidal ornithology study area and extends much further to the east hence any comparisons must take the extent of the area covered into account.

4.5.2.6 A full review and analysis of seabird and waterbird assemblages identified from a desktop review of available data and the data sources are detailed in Volume 7, Annex 4.2: Intertidal ornithology - wintering and migratory birds technical report of the Environmental Statement.

Onshore ornithology - breeding birds desktop study

4.5.2.7 To assess potential breeding bird species within the onshore ornithology study area, records from Cofnod, the BTO Bird Atlas (Balmer *et al*., 2013) and the Welsh Ornithological Society (WOS) (Birds in Wales, 2018) were reviewed and a number of species of high conservation status that could potentially breed within the onshore ornithology study area were identified. A full list of these species and their recorded abundances are detailed in Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement.

Onshore ornithology - wintering and migratory birds desktop study

4.5.2.8 To assess potential wintering and migratory bird species within the onshore ornithology study area, records from Cofnod, the BTO, and WOS were reviewed. The review identified a number of species of high conservation status that could potentially be present within the onshore ornithology study area. A full list of these species can be found in Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report of the Environmental Statement.

4.5.3 Onshore ornithology – wintering and migratory birds site specific survey baseline characterisation

4.5.3.1 A total of 65 species were recorded within the onshore ornithology study area split over two walkover surveys undertaken between November/December 2022 and February/March 2023 (Table 4.14). The most abundant taxonomic group were passerines, with 46 species recorded.

4.5.3.2 Curlew and oystercatcher were found in low numbers in the coastal fields indicating that there are no noteworthy high tide wader roosts within the onshore ornithology

study area, with most roosting waterbirds found within the intertidal ornithology study area.

4.5.3.3 The onshore ornithology study area does not appear to be used by short-distance migratory raptors such as hen harrier *Circus cyaneus* or merlin *Falco columbarius* that often migrate from upland breeding grounds to coastal areas over the winter, nor were any populations of wintering woodlark *Lullula arborea* found as the literature suggested might be. The most notable species found was common crossbill *Loxia curvirostra*, although this species is known as an early breeder it was not noted as displaying breeding characteristics during the walkover surveys.

4.5.3.4 The onshore ornithology study area during the winter period can be characterised as of importance for a mostly common and widespread assemblage of farmland and woodland birds.

Table 4.14: Summary of winter bird survey results conducted within the onshore ornithology study area identified by species group in 2022/2023

Species group	Species	Peak count
Ducks, geese and swans	Mallard *Anas platyrhynchos*	23
	Teal	9
Gamebirds	Pheasant *Phasianus colchicus*	19
Cormorants	Cormorant	1
Herons	Grey heron *Ardea cinerea*	1
	Little egret *Egretta garzetta*	1
Raptors	Buzzard *Buteo buteo*	16
	Sparrowhawk *Accipter nisus*	6
Rails	Coot *Fulica atra*	7
	Moorhen *Gallinula chloropus*	7
Waders	Curlew	11
	Oystercatcher	3
	Snipe *Gallinago gallinago*	8
	Woodcock *Scolopax rusticola*	2
Gulls and terns	Black-headed gull	72
	Common gull *Larus canus*	77
	Great black-backed gull *Larus marinus*	1
	Herring gull	147
Passerines	Great spotted woodpecker *Dendrocopus major*	8
	Blackbird *Turdus merula*	121
	Blue tit *Cyanistes caeruleus*	83
	Bullfinch *Pyrrhula pyrrhula*	23
	Carrion crow *Corvus corone*	79
	Chaffinch *Fringilla coelebs*	93
	Chiffchaff *Phylloscopus collybita*	51

Species group	Species	Peak count
	Coal tit *Periparus ater*	3
	Collared dove Streptopelia decaocto	3
	Common crossbill	1
	Dunnock *Prunella modularis*	118
	Feral pigeon *Columba livia domestica*	27
	Fieldfare	32
	Goldcrest *Regulus regulus*	27
	Goldfinch *Carduelis carduelis*	37
	Great tit *Parus major*	77
	Greenfinch *Chloris chloris*	16
	Grey wagtail *Motacilla cinerea*	1
	House martin *Delichom urbicum*	5
	House sparrow *Passer domesticus*	111
	Jackdaw *Corvus monedula*	260
	Jay *Garrulus glandarius*	6
	Linnet *Linaria cannabina*	3
	Long-tailed tit *Aegithalos caudatus*	36
	Magpie *Pica pica*	121
	Meadow pipit *Anthus pratensis*	101
	Mistle thrush *Turdus viscivorus*	18
	Nuthatch *Sitta europaea*	7
	Pied wagtail *Motacilla alba*	8
	Raven *Corvus corax*	6
	Redwing	271
	Robin *Erithacus rubecula*	128
	Rook *Corvus frugilegus*	44
	Siskin *Spinus spinus*	1
	Skylark *Alauda arvensis*	3
	Song thrush *Turdus philomelos*	31
	Starling *Sturnus vulgaris*	343
	Stock dove *Columba oenas*	16
	Stonechat *Saxicola rubicola*	2
	Swallow *Hirundo rustica*	1
	Tree sparrow *Passer montanus*	1
	Treecreeper *Certhia familiaris*	3
	Wheatear *Oenanthe oenanthe*	2

Species group	Species	Peak count
	Willow warbler *Phylloscopus trochilus*	1
	Woodpigeon *Columba palumbus*	234
	Wren *Troglodytes troglodytes*	66
	Yellowhammer *Emberiza citrinella*	1

4.5.4 Intertidal ornithology – wintering and migratory birds site specific survey baseline characterisation

4.5.4.1 A total of 36 species (Table 4.15) were recorded in the intertidal ornithology study area between December 2021 and June 2023 during the site-specific surveys, with a minimum of 5,132 individual waterbirds recorded using the intertidal ornithology study area over this period. Surveys continued until November 2023, however in order to meet the submission deadline June 2023 was taken as a cut off for data. The results of the intertidal ornithological surveys are further detailed in Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report of the Environmental Statement.

4.5.4.2 A total of nine SPA and Ramsar qualifying species were recorded during the intertidal ornithological surveys that were named features of either the Liverpool Bay/Bae Lerpwl SPA or Dee Estuary SPA and Ramsar.

4.5.4.3 A total of four species recorded are features of the Liverpool Bay/Bae Lerpwl SPA, which included a peak count of 2,250 common scoter, the most abundant species recorded. Along with common scoter, three other seabird features (or part of the assemblage) of the Liverpool Bay/Bae Lerpwl SPA were recorded foraging or loafing in nearshore waters. These included a peak count of 65 red-throated diver, 15 red-breasted merganser *Mergus serrator* and 42 great cormorants. Density mapping illustrating spatial use within the intertidal ornithology study area are shown in Volume 7, Annex 4.2: Intertidal ornithology – wintering and migratory birds technical report of the Environmental Statement.

4.5.4.4 The nearshore presence of common scoter and red-throated diver within the intertidal ornithology study area, which lies between the Dee Estuary and Colwyn Bay, is consistent with the findings of digital aerial surveys undertaken by Webb *et al*. (2006) and Lawson *et al.* (2016) which informed the creation and subsequent extension of the Liverpool Bay/Bae Lerpwl SPA.

4.5.4.5 Five species which are features of the Dee Estuary SPA and Ramsar site were recorded within the intertidal ornithology study area. This included three wintering waders, oystercatcher, curlew and common redshank. Monthly peak counts were 188 oystercatcher, 71 curlew and 37 common redshank. Additionally, 33 sandwich tern, which are a passage feature of the SPA, were recorded, and 11 common ringed plover, were also recorded in February 2022. Common ringed plover were also recorded as breeding on the upper beach during 2023.

4.5.4.6 In addition to the waterbirds, one barn owl, a Schedule 1 listed species, was recorded hunting along the strand line in March 2022.

Table 4.15: Peak monthly counts for the diurnal intertidal surveys (December 2021 to June 2023) and comparison with the Liverpool Bay/Bae Lerpwl SPA and Dee Estuary SPA cited populations and current Dee Estuary 5-year annual peak mean (2015/2016 to 2019/2020) WeBS site data (Dee Estuary WeBS site).

* % of 5-year annual peak mean based on 2017/18 to 2021/22 Dee Estuary WeBS site.

** The percentages highlighted in bold are for SPA features/assemblage qualifiers that were found to exceed 1% of the SPA citation or current population estimate.

N/A The current Dee Estuary population is not a reliable estimate for these seabird species as the WeBS Dee Estuary site does not cover the Liverpool Bay SPA and as counts are taken from onshore they would miss birds beyond 2 km from the shore.

Species group	Species	Maximum Peak count	Liverpool Bay/Bae Lerpwl SPA citation	Dee Estuary SPA citation count	% Of SPA citation population	5-year annual peak mean WeBS count for the Dee Estuary*	% Of 5-year annual peak mean WeBS count*
Ducks, geese and swans	Mute swan Cygnus olor	1	-	-	-	83	1.20
	Tufted duck Anthya fuligula	2	-	-	-	275	0.73
	Common scoter	2,225	56,679	-	3.93**	7,870	N/A
	Eider Somateria mollissima	1	-	-	-	4	N/A
	Goosander Mergus merganser	2	-	-	-	11	18.18
	Red-breasted merganser	15	-	-	-	24	N/A
Cormorants	Cormorant	42	-	-	-	1,361	3.09**
	Shag Phalacrocorax aristotles	11	-	-	-	1	N/A
Loons	Red-throated diver	65	1,171	-	5.55**	20	N/A
Grebes	Great crested grebe	98	-	-	-	284	34.51**
Auks	Guillemot Uria aalge	1	-	-	-	-	-
	Razorbill Alca torda	6	-	-	-	-	-
Seabirds	Gannet Morus bassanus	2	-	-	-	-	-
Gulls and terns	Black-headed gull	535	-	-	-	11,009	4.86
	Common gull	713	-	-	-	2290	31.14
	Mediterranean gull	1	-	-	-	12	8.33
	Herring gull	915	-	-	-	9,671	9.46
	Yellow-legged gull Larus michahellis	1	-	-	-	1	100.00
	Lesser black-backed gull Larus fuscus	2	-	-	-	700	0.29
	Great black-backed gull	24	-	-	-	281	8.54
	Sandwich tern	33	-	957	3.45**	1,402	2.35**
Waders	Oystercatcher	188	-	22,677	0.83	28,033	0.67
	Ringed plover	11	-	-	-	1,606	0.68
	Golden plover Pluvialis apricaria	1	-	-	-	256	0.39
	Dunlin	44	-	27,769	0.16	16,864	0.26
	Sanderling	5	-	-	-	824	0.61
	Turnstone	54	-	-	-	227	23.79
	Common Sandpiper Actitis hypoleucos	1	-	-	-	8	12.50

Species group	Species	Maximum Peak count	Liverpool Bay/Bae Lerpwl SPA citation	Dee Estuary SPA citation count	% Of SPA citation population	5-year annual peak mean WeBS count for the Dee Estuary*	% Of 5-year annual peak mean WeBS count*
	Redshank	37	-	8,795	0.42	10,724	0.35
	Bar-tailed godwit	1	-	1,150	0.09	475	0.21
	Curlew	71	-	3,899	1.82**	3,439	2.06**
	Whimbrel Numenius phaeopus	8	-	-	-	129	6.20
	Unidentified wader	5	-	-	-	-	-
Herons	Grey heron	2	-	-	-	76	2.63
	Little egret	8	-	-	-	348	2.30
Kingfishers	Kingfisher	1	-	-	-	3	33.33
Total waterbirds		**5,132**	**-**	**-**	**-**	**-**	**-**

4.5.5 Onshore ornithology - breeding birds site specific survey baseline characterisation

4.5.5.1 Analysis of recorded data was conducted to map potential breeding territories of all observed species. Territories were assigned following the CBC method described in Marchant (1983) and Bibby *et al*., (2000). This involved the identification of clusters of registrations of birds of the same species displaying behaviours associated with breeding (e.g. singing, alarm calling, nest building, mating) in the same general area over successive survey visits. A breeding territory is defined as at least two registrations conforming to the above criteria recorded on separate survey visits. The registrations indicate the putative territory centre and not the location of a nest. Territories are indicative of a likely breeding attempt and do not confirm successful nesting.

4.5.5.2 A total of 90 species were recorded during the 2022 and 2023 surveys (Table 4.16). Of these 53 were classed as probably breeding within the onshore ornithology study area. Some species were found displaying territorial behaviour during the first year but not again in the second year (e.g. little ringed plover *Charadrius dubious)*. Where these species met the screening criteria outlined in section 4.5.6 they were considered for the purpose of the assessment.

4.5.5.3 None of the breeding tern and wader features from the Liverpool Bay/Bae Lerpwl SPA and Dee Estuary SPA and Ramsar, as identified in section 4.5.1, were identified as breeding. One species, red kite is listed as an Annex 1 species of the EU Birds Directive and is a species of national importance with three possible breeding territories identified within the onshore ornithology study area in 2022 but only one possible in 2023. One breeding territory of little ringed plover was found in 2022. The species is protected under Schedule 1 of the Wildlife and Countryside Act (1981) as amended. During the 2023 surveys the species was not present and the habitat where they had been in 2022, was noted as looking overgrown and therefore unsuitable for this species.

Table 4.16: Summary of breeding bird territories identified by species in 2022/2023 and their breeding status.

Taxonomic group	*Species*	Number of breeding bird territories within onshore ornithology study area		Breeding status within onshore ornithology study area
		2022 survey results	2023 survey results	
Swans, geese and ducks	Canada goose *Branta canadensis*	0	0	Non-breeding
	Goosander	0	0	Non-breeding
	Mallard	0	1	Probable
	Mandarin duck *Aix galericulata*	0	0	Non-breeding
	Mute swan	0	0	Non-breeding
	Teal	0	0	Non-breeding
	Tufted duck	0	0	Non-breeding

Taxonomic group	*Species*	Number of breeding bird territories within onshore ornithology study area		Breeding status within onshore ornithology study area
		2022 survey results	2023 survey results	
Grebes	Little grebe *Tachybaptus ruficollis*	0	0	Non-breeding
Partridges and pheasants	Pheasant	0	4	Probable
Herons and storks	Grey heron	0	0	Non-breeding
	Little egret	0	0	Non-breeding
Raptors	Buzzard	0	2	Probable
	Goshawk	0	0	Non-breeding
	Hobby	0	0	Non-breeding
	Honey buzzard	0	0	Non-breeding
	Kestrel *Falco tinnunculus*	0	1	Probable
	Osprey	0	0	Non-breeding
	Peregrine	0	0	Non-breeding
	Red kite	3	1	Probable
	Sparrowhawk	1	2	Probable
Rails, crakes and coots	Coot	0	0	Non-breeding
	Moorhen	0	1	Probable
Waders	Curlew	0	0	Non-breeding
	Oystercatcher	0	0	Non-breeding
	Little ringed plover	1	0	Confirmed
	Ringed plover	0	2	Probable
	Snipe	0	2	Probable
	Whimbrel	0	0	Non-breeding
Gulls and terns	Great black-backed gull	0	0	Non-breeding
	Herring gull	0	0	Non-breeding
Woodpeckers	Great spotted woodpecker	0	21	Probable
	Green woodpecker *Picus viridis*	0	0	Non-breeding
Passerines	Blackbird	0	77	Probable
	Blackcap *Sylvia atricapilla*	0	48	Probable
	Blue tit	0	38	Probable

Taxonomic group	Species	Number of breeding bird territories within onshore ornithology study area		Breeding status within onshore ornithology study area
		2022 survey results	2023 survey results	
	Bullfinch	9	16	Probable
	Carrion crow	0	3	Probable
	Chaffinch	0	44	Probable
	Chiffchaff	0	117	Probable
	Chough	0	0	Non-breeding
	Coal tit	0	7	Probable
	Collared dove	0	2	Probable
	Common crossbill	0	0	Non-breeding
	Cuckoo *Cuculus canorus*	2	1	Probable
	Dipper *Cinclus cinclus*	0	0	Non-breeding
	Dunnock	0	84	Probable
	Garden warbler *Sylvia borin*	0	5	Probable
	Goldcrest	0	23	Probable
	Golden oriole *Oriolus oriolus*	0	0	Non-breeding
	Goldfinch	0	12	Probable
	Grasshopper warbler *Locustella naevia*	0	0	Non-breeding
	Great tit	0	52	Confirmed
	Greenfinch	2	11	Probable
	Grey wagtail	2	2	Probable
	House martin	9	5	Confirmed
	House sparrow	75	39	Probable
	Jackdaw	0	0	Non-breeding
	Jay	0	6	Probable
	Lesser redpoll *Acanthis flammea*	0	0	Non-breeding
	Lesser whitethroat *Sylvia curruca*	0	3	Probable
	Linnet	6	8	Probable
	Long-tailed tit	0	11	Probable
	Magpie	0	9	Probable

Taxonomic group	*Species*	Number of breeding bird territories within onshore ornithology study area		Breeding status within onshore ornithology study area
		2022 survey results	2023 survey results	
	Marsh tit *Poecile palustris*	0	0	Non-breeding
	Meadow pipit	1	10	Probable
	Mistle thrush	10	17	Probable
	Nuthatch	0	13	Probable
	Pied wagtail	0	11	Probable
	Raven	0	0	Non-breeding
	Redstart	16	13	Probable
	Redwing	0	0	Non-breeding
	Robin	0	71	Probable
	Rook	0	0	Non-breeding
	Sand martin *Riparia riparia*	0	0	Non-breeding
	Siskin	0	1	Probable
	Skylark	4	7	Probable
	Song thrush	30	39	Probable
	Spotted flycatcher *Muscicapa striata*	2	1	Probable
	Starling	1	1	Probable
	Stock dove	4	0	Probable
	Stonechat	0	5	Probable
	Swallow	0	17	Probable
	Swift	0	0	Non-breeding
	Treecreeper	0	14	Probable
	Wheatear	0	0	Non-breeding
	Whitethroat *Sylvia communis*	7	22	Probable
	Willow warbler	10	13	Probable
	Woodpigeon	0	5	Probable
	Wren	0	20	Probable
	Yellowhammer	0	0	Non-breeding

4.5.6 Important Ecological Features (IEFs)

4.5.6.1 In accordance with the CIEEM guidelines on Ecological Impact Assessment (CIEEM, 2018), the assessment of the likely ecological effects of the Mona Offshore Wind Project and identification of important ecological features has focused on IEFs. IEFs are species classed as being moderate or above ecological value, present within the ZoI of the Mona Onshore Development Area, that any potential impact upon them as a result of the Mona Offshore Wind Project would be considered to be significant.

4.5.6.2 In order to screen species to take forward for assessment their conservation status was assessed:

- **Very high –** Those species that are named as SPA or Ramsar features
- **High –** Those species that are named on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) or on the Annex 1 of the Birds' Directive, as transposed into UK law through the Conservation of Habitats and Species Regulations 2017 (as amended)
- **Moderate –** Those species named as red or amber-listed on either the BOCC5 UK list or the BOCC4 Welsh list and those species named on Section 7 of the Environment (Wales) Act 2016
- **Low –** Those species that do not fit into any of the categories described above.

4.5.6.3 Species with conservation status of low were screened out for assessment as they are deemed to be common and widespread, and any impacts will therefore be not significant in EIA terms. However, as all birds and their nests are protected under the Wildlife and Countryside Act 1981 (as amended), any breeding bird mitigation applied to species of higher conservation concern must also be applied to these species.

4.5.6.4 Table 4.17 shows the results of the IEF screening stage. In addition, it identifies during which season the species was present (passage is included as non-breeding) and identifies the point along the route the species was recorded as present (i.e. Mona Landfall, Onshore Cable Corridor, Onshore Substation, these areas are defined within section 4.6.4).

4.5.6.5 For the purposes of the assessment, the IEF species that were considered for the purposes of the assessment have been split into season specific groups (breeding or non-breeding as defined in section 4.5.1) and the areas in which they were found.

Table 4.17: Showing the screening of ornithological IEFs for assessment.

[1] = Listed as assemblage features of the Dee Estuary SPA.

[2] = Listed as assemblage features of the Liverpool Bay/Bae Lerpwl SPA.

Areas are: 1 = Mona intertidal ornithology study area, 2 = Mona onshore ornithology study area, 3 = Onshore Substation

Species	Dee Estuary SPA	Liverpool Bay/Bae Lerpwl SPA	Dee Estuary Ramsar	Annex 1	Schedule 1	UK BoCC Red List	BoCC Wales Red List	Section 41	Section 7	UK BoCC Amber List	BoCC Wales Amber List	Highest conservation status	IEF to be assessed	Breeding/Non-breeding	Area found*
Ducks, geese and swans															
Mute swan	no	no	no	no	no	no	no	no	no	no	no	Low	No	Non-breeding	1
Canada goose	no	no	no	no	no	no	no	no	no	no	no	Low	No	Non-breeding	2
Mallard	no	no	no	no	no	no	no	no	no	yes	no	Moderate	Yes	Breeding	1, 2
Mandarin duck	no	no	no	no	no	no	no	no	no	no	no	Low	No	Non-breeding	2
Teal	yes	no	yes	no	no	no	no	no	no	yes	yes	Very High	Yes	Non-breeding	2
Tufted duck	no	no	no	no	no	no	no	no	no	no	no	Low	No	Non-breeding	1
Common scoter	no	yes	no	no	yes	yes	no	yes	yes	no	yes	Very High	Yes	Non-breeding	1
Eider	no	no	no	no	no	no	no	no	no	yes	yes	Moderate	Yes	Non-breeding	1
Goosander	no	no	no	no	no	no	no	no	no	no	no	Low	No	Non-breeding	1
Red-breasted Merganser2	no	yes	no	no	no	no	yes	no	no	yes	no	Very High	Yes	Non-breeding	1
Gamebirds															
Pheasant	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2
Cormorants and shags															
Cormorant[1 2]	yes	yes	no	no	no	no	no	no	no	no	no	Very High	Yes	Non-breeding	1
Shag	no	no	no	no	no	yes	no	no	no	no	yes	Moderate	Yes	Non-breeding	1
Divers															

Species	Dee Estuary SPA	Liverpool Bay/Bae Lerpwl SPA	Dee Estuary Ramsar	Annex 1	Schedule 1	UK BoCC Red List	BoCC Wales Red List	Section 41	Section 7	UK BoCC Amber List	BoCC Wales Amber List	Highest conservation status	IEF to be assessed	Breeding/Non-breeding	Area found*
Red-throated Diver	no	yes	no	yes	no	no	no	no	no	no	yes	Very High	Yes	Non-breeding	1
Grebes															
Great crested Grebe[1]	yes	no	no	no	no	no	no	no	no	no	no	Very High	Yes	Non-breeding	1
Little grebe	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2
Auks and seabirds															
Guillemot	no	no	no	no	no	no	no	no	no	yes	yes	Moderate	Yes	Non-breeding	1
Razorbill	no	no	no	no	no	no	no	no	no	yes	yes	Moderate	Yes	Non-breeding	1
Gannet	no	no	no	no	no	no	no	no	no	yes	yes	Moderate	Yes	Non-breeding	1
Herons															
Grey heron	no	no	no	no	no	no	no	no	no	no	yes	Moderate	Yes	Non-breeding	1, 2
Little egret	no	no	no	yes	no	no	no	no	no	no	no	High	Yes	Non-breeding	1. 2
Rails															
Coot	no	no	no	no	no	no	no	no	no	no	yes	Moderate	Yes	Non-breeding	2
Moorhen	no	no	no	no	no	no	no	no	no	yes	no	Moderate	Yes	Breeding	2
Raptors															
Osprey	no	no	no	yes	yes	no	no	no	no	yes	yes	High	Yes	Non-breeding	1
Red kite	no	no	no	yes	yes	no	no	no	no	no	no	High	Yes	Breeding	2
Buzzard	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2
Honey buzzard	no	no	no	no	yes	no	yes	no	no	no	no	High	Yes	Non-breeding	2
Goshawk	no	no	no	no	yes	no	no	no	no	no	yes	High	Yes	Non-breeding	2
Sparrowhawk	no	no	no	no	no	no	no	no	no	yes	no	Moderate	Yes	Breeding	2

Species	Dee Estuary SPA	Liverpool Bay/Bae Lerpwl SPA	Dee Estuary Ramsar	Annex 1	Schedule 1	UK BoCC Red List	BoCC Wales Red List	Section 41	Section 7	UK BoCC Amber List	BoCC Wales Amber List	Highest conservation status	IEF to be assessed	Breeding/Non-breeding	Area found*
Kestrel	no	no	no	no	no	no	yes	no	yes	yes	no	Moderate	Yes	Breeding	2
Hobby	no	no	no	no	yes	no	no	no	no	no	no	High	Yes	Non-breeding	2
Peregrine	no	no	no	yes	yes	no	no	no	no	no	no	High	Yes	Non-breeding	2
Gulls and terns															
Black-headed Gull	no	no	no	no	no	no	yes	no	yes	yes	no	Moderate	Yes	Non-breeding	1, 2
Common gull	no	no	no	no	no	no	no	no	no	yes	yes	Moderate	Yes	Non-breeding	1, 2
Mediterranean gull	no	no	no	yes	yes	no	no	no	no	yes	yes	High	Yes	Non-breeding	1
Herring gull	no	no	no	no	no	yes	yes	yes	yes	no	no	Moderate	Yes	Non-breeding	1, 2
Yellow-legged gull	no	no	no	no	no	no	no	no	no	yes	yes	Moderate	Yes	Non-breeding	1
Lesser black-backed gull	no	no	no	no	no	no	yes	no	no	yes	no	Moderate	Yes	Non-breeding	1
Great black-backed gull	no	no	no	no	no	no	no	no	no	yes	yes	Moderate	Yes	Non-breeding	1
Sandwich tern	yes	no	no	yes	no	no	no	no	no	yes	yes	Very High	Yes	Non-breeding	1
Waders															
Oystercatcher	yes	no	yes	no	no	no	no	no	no	yes	yes	Very High	Yes	Non-breeding	1, 2
Ringed plover	no	no	no	no	no	yes	yes	no	yes	no	no	Moderate	Yes	Breeding & non-breeding	1
Little ringed plover	no	no	no	no	yes	no	no	no	no	no	no	High	Yes	Breeding	2
Golden plover	no	no	no	yes	no	no	yes	no	yes	no	no	High	Yes	Non-breeding	1
Dunlin	yes	no	yes	no	no	yes	yes	no	no	no	no	Very High	Yes	Non-breeding	1
Sanderling1	yes	no	no	no	no	no	no	no	no	yes	no	Very High	Yes	Non-breeding	1

Species	Dee Estuary SPA	Liverpool Bay/Bae Lerpwl SPA	Dee Estuary Ramsar	Annex 1	Schedule 1	UK BoCC Red List	BoCC Wales Red List	Section 41	Section 7	UK BoCC Amber List	BoCC Wales Amber List	Highest conservation status	IEF to be assessed	Breeding/Non-breeding	Area found*
Turnstone	no	no	no	no	no	no	no	no	no	yes	yes	Moderate	Yes	Non-breeding	1
Common Sandpiper	no	no	no	no	no	no	no	no	no	yes	yes	Moderate	Yes	Non-breeding	1
Redshank	yes	no	yes	no	no	no	yes	no	no	yes	no	Very High	Yes	Non-breeding	1
Bar-tailed godwit	yes	no	yes	yes	no	no	yes	no	yes	yes	no	Very High	Yes	Non-breeding	1
Curlew	yes	no	yes	no	no	yes	yes	yes	yes	no	no	Very High	Yes	Non-breeding	1, 2
Whimbrel	no	no	no	no	yes	yes	no	no	no	no	yes	High	Yes	Non-breeding	1
Snipe	no	no	no	no	no	no	no	no	no	yes	yes	Moderate	Yes	Non-breeding	2
Woodcock	no	no	no	no	no	yes	yes	no	no	no	no	Moderate	Yes	Non-breeding	2
Owls															
Barn owl	no	no	no	no	yes	no	no	no	no	no	no	High	Yes	Non-breeding	1
Passerines															
Collared dove	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2
Feral pigeon	no	no	no	no	no	no	no	no	no	no	no	Low	No	Non-breeding	2
Stock dove	no	no	no	no	no	no	no	no	no	yes	no	Moderate	Yes	Breeding	2
Woodpigeon	no	no	no	no	no	no	no	no	no	yes	no	Moderate	Yes	Breeding	2
Cuckoo	no	no	no	no	no	yes	yes	no	yes	no	no	Moderate	Yes	Breeding	2
Swift	no	no	no	no	no	yes	yes	no	no	no	no	Moderate	Yes	Non-breeding	2
Kingfisher	no	no	no	yes	yes	no	no	no	no	no	no	High	Yes	Non-breeding	1
Great spotted woodpecker	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2
Green woodpecker	no	no	no	no	no	no	no	no	no	no	yes	Moderate	Yes	Non-breeding	2

Species	Dee Estuary SPA	Liverpool Bay/Bae Lerpwl SPA	Dee Estuary Ramsar	Annex 1	Schedule 1	UK BoCC Red List	BoCC Wales Red List	Section 41	Section 7	UK BoCC Amber List	BoCC Wales Amber List	Highest conservation status	IEF to be assessed	Breeding/Non-breeding	Area found*
Skylark	no	no	no	no	no	yes	no	no	yes	no	yes	Moderate	Yes	Breeding	2
House martin	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2
Sand martin	no	no	no	no	no	no	no	no	no	no	no	Low	No	Non-breeding	2
Swallow	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2
Meadow pipit	no	no	no	no	no	no	yes	no	no	yes	no	Moderate	Yes	Breeding	2
Grey wagtail	no	no	no	no	no	no	no	no	no	yes	yes	Moderate	Yes	Breeding	2
Pied wagtail	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2
Wren	no	no	no	no	no	no	no	no	no	yes	no	Moderate	Yes	Breeding	2
Dipper	no	no	no	no	no	no	no	no	no	yes	no	Moderate	Yes	Non-breeding	2
Dunnock	no	no	no	no	no	no	no	yes	yes	yes	yes	Moderate	Yes	Breeding	2, 3
Robin	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2, 3
Blackbird	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2, 3
Song thrush	no	no	no	no	no	no	no	yes	yes	yes	no	Moderate	Yes	Breeding	2, 3
Redwing	no	no	no	no	yes	no	no	no	no	yes	no	High	Yes	Non-breeding	2
Mistle thrush	no	no	no	no	no	yes	no	no	no	no	yes	Moderate	Yes	Non-breeding	2, 3
Fieldfare	no	no	no	no	yes	yes	no	no	no	no	yes	High	Yes	Non-breeding	2
Stonechat	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2
Common redstart	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2, 3
Wheatear	no	no	no	no	no	no	no	no	no	yes	yes	Moderate	Yes	Non-breeding	2
Whitethroat	no	no	no	no	no	no	yes	no	no	no	no	Moderate	Yes	Breeding	2
Lesser whitethroat	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2, 3

Species	Dee Estuary SPA	Liverpool Bay/Bae Lerpwl SPA	Dee Estuary Ramsar	Annex 1	Schedule 1	UK BoCC Red List	BoCC Wales Red List	Section 41	Section 7	UK BoCC Amber List	BoCC Wales Amber List	Highest conservation status	IEF to be assessed	Breeding/Non-breeding	Area found*
Blackcap	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2, 3
Garden warbler	no	no	no	no	no	no	no	no	no	no	yes	Moderate	Yes	Breeding	2
Grasshopper warbler	no	no	no	no	no	yes	yes	yes	yes	no	no	Moderate	Yes	Non-breeding	2
Chiffchaff	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2, 3
Willow warbler	no	no	no	no	no	no	yes	no	no	yes	no	Moderate	Yes	Breeding	2
Goldcrest	no	no	no	no	no	no	yes	no	no	no	no	Moderate	Yes	Breeding	2
Spotted flycatcher	no	no	no	no	no	yes	yes	yes	yes	no	no	Moderate	Yes	Breeding	2, 3
Blue tit	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2, 3
Great tit	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2, 3
Coal tit	no	no	no	no	no	no	no	no	no	no	yes	Moderate	Yes	Breeding	2
Marsh tit	no	no	no	no	no	yes	yes	yes	yes	no	no	Moderate	Yes	Non-breeding	2
Long-tailed tit	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2
Nuthatch	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2
Treecreeper	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2, 3
Jay	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2
Magpie	no	no	no	no	no	no	no	no	no	no	yes	Moderate	Yes	Breeding	2
Jackdaw	no	no	no	no	no	no	no	no	no	no	no	Low	No	Non-breeding	2, 3
Carrion crow	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2, 3
Rook	no	no	no	no	no	no	yes	no	no	yes	no	Moderate	Yes	Non-breeding	2
Chough	no	no	no	yes	yes	no	no	no	yes	no	yes	High	Yes	Non-breeding	2
Raven	no	no	no	no	no	no	no	no	no	no	no	Low	No	Non-breeding	2

Species	Dee Estuary SPA	Liverpool Bay/Bae Lerpwl SPA	Dee Estuary Ramsar	Annex 1	Schedule 1	UK BoCC Red List	BoCC Wales Red List	Section 41	Section 7	UK BoCC Amber List	BoCC Wales Amber List	Highest conservation status	IEF to be assessed	Breeding/Non-breeding	Area found*
Starling	no	no	no	no	no	yes	yes	yes	yes	no	no	Moderate	Yes	Breeding	2
Golden oriole	no	no	no	no	yes	no	no	no	no	no	no	High	Yes	Non-breeding	2
House sparrow	no	no	no	no	no	yes	no	yes	yes	no	yes	Moderate	Yes	Breeding	2
Tree sparrow	no	no	no	no	no	yes	yes	yes	yes	no	no	Moderate	Yes	Non-breeding	2
Chaffinch	no	no	no	no	no	no	no	no	no	no	yes	Moderate	Yes	Breeding	2, 3
Lesser redpoll	no	no	no	no	no	no	no	yes	yes	no	yes	Moderate	Yes	Non-breeding	2
Linnet	no	no	no	no	no	yes	yes	yes	yes	no	no	Moderate	Yes	Breeding	2
Goldfinch	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2, 3
Greenfinch	no	no	no	no	no	yes	yes	no	no	no	no	Moderate	Yes	Breeding	2
Siskin	no	no	no	no	no	no	no	no	no	no	no	Low	No	Breeding	2
Bullfinch	no	no	no	no	no	no	no	yes	yes	yes	yes	Moderate	Yes	Breeding	2, 3
Common crossbill	no	no	no	no	yes	no	no	no	no	no	no	High	Yes	Non-breeding	2
Yellowhammer	no	no	no	no	no	yes	yes	yes	yes	no	no	Moderate	Yes	Non-breeding	2

4.5.7 Future baseline scenario

4.5.7.1 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 requires that "*an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge*" is included within the Environmental Statement.

4.5.7.2 In the event that Mona Offshore Wind Project does not come forward, an assessment of the future baseline conditions has been carried out and is described within this section.

4.5.7.3 For migratory birds, many of the current and future threats relate to changing availability of wintering, stopover and breeding locations along their migratory pathways. Migratory species differ from other species because individuals depend on multiple locations that may be spread over continents, and individual sites can support substantial proportions of entire populations during the course of annual migrations. The loss of key locations at any point on migratory routes can therefore have far-reaching consequences for whole populations. As such, environmental changes taking place on the breeding grounds (e.g. in the Arctic and the sub-Arctic regions for wader species) can impact population size on the wintering grounds (e.g. in the temperate and tropic regions).

4.5.7.4 There are a number of short-term or persistent processes that are likely to affect population significantly. Sutherland *et al*. (2012) in a horizon scanning of current and potential future threats to migratory waders listed punctuated threats (e.g. volcanoes eruption), gradual threats (e.g. climate change) and future threats (e.g. microplastic). The biggest threat to waterbirds is habitat loss, be it by destruction or degradation, including, intertidal reclamation in estuaries, changes in agricultural practices, drainage, pollution, disturbance, dredging, river management and ploughing up of grasslands. In addition, sea-level rise due to climate change is predicted to reduce the availability of intertidal habitats used by foraging waterbirds. Climate change may also lead to a shift in the distribution of all breeding and wintering birds. Therefore, the combined effect of land use change and climate change may result in population changes at the medium to long-term scale.

4.5.7.5 Lastly, the prevalence of Highly Pathogenic Avian Influenza (HPAI) in wild bird populations may impact abundance and vital rates (e.g. productivity and survival) of birds in the short, medium and long-term. Although the impact and spread across bird taxa is unclear, there is the risk that in the future the vital rates of seabirds and waterbirds may be affected.

4.5.8 Data limitations

4.5.8.1 Baseline characterisation of the onshore and intertidal ornithology study areas and initial assessments of significance have used site-specific data from surveys conducted to date over two years (December 2021 to June 2023). This has included two breeding seasons (2022 and 2023) and one winter season (2022 and 2023).

4.5.8.2 All surveys conducted have been undertaken following accepted industry standard methodologies, further detail of which can be seen within Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report, Volume 7, Annex 4.2: Intertidal ornithology - wintering and migratory birds technical report and Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report.

4.5.8.3 The surveys conducted are representative, and whilst capable of determining individual species presence and estimates of abundance they can never be definitive. However, the sampling regimes adopted, and methodologies followed are considered appropriate to this assessment and have been previously agreed by SNCBs as suitable for baseline characterisation.

4.5.8.4 Where temporal coverage was limited to only one or two surveys (due to issues arising from access to privately owned land), records with one registration of breeding behaviour (singing, carrying food, etc) were classed precautionarily as sufficient evidence of a species breeding in the territory analysis. As a result of these measures the detection of individual species breeding presence is managed to an acceptable level and of sufficient certainty for this assessment.

4.5.8.5 Previous outbreaks of HPAI have tended to hit wintering waterfowl, subsiding as wintering flocks disperse. As the baseline (first year of surveys) was characterized during the outbreak, there is potential that the baseline is not representative of a typical year.

4.5.8.6 It must be noted that bird populations are subject to natural fluctuations in response to a range of environmental conditions (e.g. weather) and this may cause inter-annual variations in abundance. The extent of any potential negative impacts of HPAI on population sizes has not yet been quantified. Increase coordinated seabird monitoring in 2022 and 2023 (Pearce-Higgins *et al*., 2022) and reporting might contribute to greater quantitative evidence for individual species at a population level.

4.6 Impact assessment methodology

4.6.1 Overview

4.6.1.1 The onshore and intertidal ornithology impact assessment has followed the methodology set out in Volume 1, Chapter 5: EIA methodology of the Environmental Statement. Specific to the onshore and intertidal ornithology impact assessment, the following guidance documents have also been considered:

- Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards. Phase I: Expectations for pre-application baseline data for designated nature conservation and landscape receptors to support offshore wind applications (Natural England, 2022)
- Guidelines on Ecological Impact Assessment (CIEEM, 2018)
- Welsh Government guidance on developments of national significance and environmental impact assessments (The Planning Inspectorate, 2019).

4.6.1.2 In addition, this chapter has considered the legislative framework as defined by:

- The Conservation of Habitats and Species Regulations 2017 (as amended)
- The Wildlife and Countryside Act 1981 (as amended)
- European Commission ('EC') Directive 2009/147/EC (codified version of 79/409/EC) on the Conservation of Wild Birds (the 'Birds Directive')
- Ramsar Convention on Wetlands of International Importance 1971
- Section 7 of the Environment (Wales) Act 2016.

4.6.2 Impact assessment criteria

4.6.2.1 The assessment process considers the best practice set out in Guidelines for Ecological Impact Assessment (CIEEM, 2018).

4.6.2.2 The criteria for defining magnitude in this chapter are outlined in Table 4.18 below. This set of definitions has been determined on the basis of changes to bird populations.

Table 4.18: Definition of terms relating to the magnitude of an impact.

Magnitude of impact	Definition
High	A change in the size or extent of distribution of the relevant biogeographic population or the population that is the interest feature of a specific protected site that is predicted to irreversibly alter the population in the short to long term and to alter the long-term viability of the population and/or the integrity of the protected site. Impacts felt long-term. Impacts predicted to be reversed in the long-term (i.e. more than five years) following cessation of the project activity.
Medium	A change in the size or extent of distribution of the relevant biogeographic population or the population that is the interest feature of a specific protected site that occurs in the short and long-term, but which is not predicted to alter the long-term viability of the population and/or the integrity of the protected site. Impacts felt medium to long term. Impacts predicted to be reversed in the medium-term (i.e. no more than five years) following cessation of the project activity.
Low	A change in the size or extent of distribution of the relevant biogeographic population or the population that is the interest feature of a specific protected site that is sufficiently small-scale or of short duration to cause no long-term harm to the feature/population. Impacts present for a short to medium duration. Impacts predicted to be reversed in the short-term (i.e. no more than one year) following cessation of the project activity.
Negligible	Very slight change from the size or extent of distribution of the relevant biogeographic population or the population that is the interest feature of a specific protected site. Impacts present for a short duration. Impacts predicted to be reversed rapidly (i.e. no more than circa six months) following cessation of the project related activity.
No change	No loss or alteration of characteristics, features or elements; no observable impact either adverse or beneficial.

4.6.2.3 The criteria for defining recoverability and sensitivity in this chapter are outlined in Table 4.19 and Table 4.20 below. The definition of sensitivity considers the vulnerability and recoverability of a receptor as well as taking into account the conservation importance of each receptor.

Table 4.19: Definition of sensitivity of the receptor.

Sensitivity	Definition
Very High	Bird species has high or very high conservation importance, high vulnerability to impact and has no ability to recover.
	Bird species has very high conservation importance, high vulnerability to impact and has low recoverability.
High	Bird species has high or very high conservation importance, medium or high vulnerability to impact and has medium recoverability.
	Bird species has high conservation importance, medium vulnerability to impact and has low recoverability.
	Bird species has medium conservation importance, high vulnerability to impact and has low recoverability.

Sensitivity	Definition
Medium	Bird species has high conservation importance, low vulnerability to impact and has low to medium recoverability.
	Bird species has medium conservation importance, low, medium or high vulnerability to impact and has medium recoverability.
Low	Bird species has medium conservation importance, medium vulnerability to impact and high recoverability.
	Bird species has low conservation importance, medium or high vulnerability to impact and medium or high recoverability.
Negligible	Bird species has low conservation importance, low vulnerability to impact and medium or high recoverability.
	Bird species is not vulnerable to impacts.

Table 4.20: Definition of recoverability.

Recoverability	Definition
High	A species with a low to medium reproductive success and a stable or increasing UK trend in breeding abundance and productivity.
Medium	A species with a low reproductive success and a stable or increasing UK long-term trend in breeding abundance and productivity.
Low	A species with a low reproductive success and a declining UK long-term trend in breeding abundance and productivity or uncertainty regarding the long-term trend (due to data availability).

4.6.2.4 It should be noted that high vulnerability and/or low recoverability are not necessarily associated with high conservation importance for a particular potential impact. A receptor could be categorised as being of high conservation importance (e.g. an interest feature of a SPA) but have a low or negligible physical/ecological vulnerability to an effect and vice versa. Determination of sensitivity takes these differing aspects into consideration.

4.6.2.5 The conservation importance of onshore and intertidal ornithological receptors is based on the population from which individuals are predicted to be drawn. This reflects current understanding of the movements of species, with site-based protection (e.g. SPAs) generally limited to specific periods of the year (e.g. the breeding season). Therefore, conservation importance can vary through the year depending on the relative sizes of the number of individuals predicted to be at risk of potential impact and the population from which they are estimated to be drawn. Conservation importance also considers species of national importance, regional importance and local importance, for which further criteria are defined in Table 4.21.

Table 4.21: Definition of conservation importance of the receptor.

Conservation importance	Definition
Very High	Species of international/European importance: • Cited interest feature of SPA or Ramsar • Population present within survey area exceeds 1 % threshold of international importance.
High	Species of national importance: • Species listed on Annex 1 of the EU Birds Directive • Species that contribute to the assemblage of a SSSI • Species listed on Schedule 1 of the Wildlife and Countryside Act (1981) as amended • Population present within survey area exceeds 1 % threshold of National Importance.
Medium	Species of regional importance: • Species listed on the UK BOCC5 Red list or BOCC4 Wales Red list • Species listed on the UK BOCC5 Amber list or BOCC4 Wales Amber list • Species listed in Section 7 of the Environment (Wales) Act, 2016 • Species considered to be of regional significance due to population size or distribution restrictions.
Low	Species of local importance: • All species of lowest conservation importance (e.g. species listed on the UK BOCC5 Green list or BOCC4 Green list.
Negligible	• None of the above.

4.6.2.6 The significance of the effect upon ornithological receptors is determined by correlating the magnitude of the potential impact and the sensitivity of the receptor. The method employed for this assessment is presented in Table 4.22. Where a range of significance of effect is presented in Table 4.22 (e.g. negligible or minor), the final assessment for each effect is based upon expert judgement and one of the possible options was selected.

4.6.2.7 For the purposes of this assessment, any effects with a significance level of minor or less have been concluded to be not significant in terms of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

Table 4.22: Matrix used for the assessment of the significance of the effect.

Sensitivity of Receptor	Magnitude of Potential Impact				
	No Change	Negligible	Low	Medium	High
Negligible	No change	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	No change	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	No change	Negligible or Minor	Minor	Moderate	Moderate or Major
High	No change	Minor	Minor or Moderate	Moderate or Major	Major
Very High	No change	Minor	Moderate or Major	Major	Major

4.6.3 Designated sites

4.6.3.1 Where National Site Network sites (i.e. internationally designated sites) are considered, this chapter summarises the assessments made on the interest features of internationally designated sites as described within section 4.5 of this chapter (with the assessment on the site itself deferred to the Habitat Regulation Assessment, Stage 2: ISAA, document reference: E1.1 to E1.5). With respect to nationally and locally designated sites, where these sites fall within the boundaries of an internationally designated site (e.g. SSSIs which have not been assessed within the ISAA), only the international site has been taken forward for assessment. This is because potential effects on the integrity and conservation status of the nationally designated site are assumed to be inherent within the assessment of the internationally designated site (i.e. a separate assessment for the national site is not undertaken).

4.6.3.2 The ISAA has been prepared in accordance with Advice Note Ten: Habitats Regulations Assessment Relevant to Nationally Significant Infrastructure Projects (Planning Inspectorate, 2022) and has been submitted alongside the Environmental Statement.

4.6.4 Areas used for assessment

4.6.4.1 As the potential impacts within different areas will affect species groups differently, the assessment has been split to account for this. Three areas have been used to assess the potential impacts upon IEFs, these are:

- **Mona Landfall** – This area is primarily concerned with the cable landfall and associated vessel and vehicle movements. The ornithological IEFs that will be affected are primarily those waterbird and seabird species identified within the Mona intertidal ornithology study area (for a full list of IEFs identified for assessment at this location see Table 4.17) and includes non-breeding species such as common scoter and red-throated diver in the nearshore waters alongside waders such as redshank and curlew that were found only on the intertidal. The only breeding species found in this location was ringed plover
- **Mona Onshore Cable Corridor and 400 kV Grid Connection Cable Corridor** – This area is primarily concerned with the temporary activities of the onshore cable installation and associated temporary infrastructure and vehicle

movements. The ornithological IEFs that will be affected are primarily those terrestrial breeding and non-breeding species identified within the Mona onshore ornithology study area (for a full list of IEFs identified for assessment at this location see Table 4.17) and includes breeding species such as red kite and little ringed plover, and non-breeding species such as crossbill and goshawk

- **Onshore Substation** – This area is primarily concerned with the permanent habitat loss and associated infrastructure (permanent access road) and associated disturbance at the Onshore Substation. The ornithological IEFs that will be affected are primarily those terrestrial breeding and non-breeding species identified within the Mona onshore ornithology study area (for a full list of IEFs identified for assessment at this location see Table 4.17) and includes breeding species such as spotted flycatcher and bullfinch, and non-breeding species such as mistle thrush.

4.7 Key parameters for assessment

4.7.1 Maximum design scenario

4.7.1.1 The Maximum Design Scenario (MDS) identified in Table 4.23 below have been selected as those having the potential to result in the greatest effect on an identified ornithological receptor or receptor group. These scenarios have been selected from the Project Design Envelope provided in Volume 1, Chapter 3: Project description of the Environmental Statement. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope.

Table 4.23: Maximum design scenario considered for the assessment of potential impacts on the Mona Offshore Wind Project.

[a] C=construction, O=operations and maintenance, D=decommissioning

Potential impact	Phase[a]			Maximum Design Scenario	Justification
	C	O	D		
The impact of temporary and permanent habitat loss during construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project.	✓	✓	✓	**Construction phase** <u>Trenchless techniques at the Mona Landfall:</u> • Up to four cable ducts will be installed using trenchless techniques between MHWS and the punch out location located below MLWS within the sub tidal zone. The cables will be buried between 5 m and 25 m depth. • The trenchless works will be supported offshore by a jack-up vessel and other support vessels, with up to eight vessel trips over the winter period in support of trenchless technique installation. • The trenchless works at the Mona Landfall are expected to take nine months to complete and this will be spread over 15 months in total. <u>Open cut trenching along the Onshore Cable Corridor:</u> • The area of the permanent Onshore Cable Corridor is up to 450,000 m^2 based on a corridor measuring 30 m wide and 15 km in length. The temporary working corridor requires an additional 44 m wide corridor (making the total width of the Onshore Cable Corridor (temporary and permanent requirements) 74 m wide representing an area of up to 1,110,000 m^2. In localised stretches of the route, the total width of the Onshore Cable Corridor may increase to 100 m (e.g. trenchless technique crossings). • There are up to four cable trenches within the permanent Onshore Cable Corridor, each trench measures up to 2.5 m wide at the top, 1.5 m at the base and the depth is 1.8 m • The maximum number of joint bays along the Onshore Cable Corridor is 80 (based on a minimum distance of 750 m between each joint bay on up to four trenches). The area of each joint bay is up to 200 m^2 and each joint	Construction, operation and decommissioning of the Mona Offshore Wind Project may result in the temporary (e.g. area within the Onshore Cable Corridor) or permanent (e.g. Onshore Substation) loss of habitat, which may support IEFs. There is a commitment from the applicant to use trenchless methods at the Mona Landfall therefore there is no potential for permanent and temporary habitat loss within the intertidal zone. There will be no permanent infrastructure within the intertidal and nearshore waters between MHWS and MLWS, therefore there is no potential for permanent habitat loss at the Mona Landfall. However, there is the potential loss of temporary subtidal habitats associated with the jack up vessel footprint (e.g. legs of jack-up rig) and ducts installation during the trenchless technique operation. The use of open cut trenching methods along the Onshore Cable Corridor and 400 kV Grid Connection Cable Corridor represent the potential for temporary loss of habitats. The maximum area required for the construction of the Onshore Cable Corridor, 400 kV Grid Connection Cable Corridor, and the associated infrastructure represents the maximum area of habitat that will be temporarily lost during the 33-month construction of the Mona Offshore Wind Project. The maximum construction area of the Onshore Substation and access road represents the maximum area of habitat that will be temporarily lost during the 33-month construction of the Mona Offshore Wind Project. The maximum area of the Onshore Substation and permanent access road represents the maximum area of habitat that will be permanently lost during the 35-year lifespan of the Mona Offshore Wind Project. The Onshore Cable and 400 kV Grid Connection Cable shall remain in situ in decommissioning phase with only the link boxes and substation needing removal. The maximum area of

Potential impact	Phase[a] C	O	D	Maximum Design Scenario	Justification
				bay is 2 m deep; the volume of material excavated per joint bay is 400 m^3 (a total of 32,000 m^3 of material excavated for the joint bays)	these plus the area of the haul road (assumed for access) represents the maximum area of habitat that will be temporarily lost during decommissioning of the project.
The impact of habitat disturbance during construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project.	✓	✓	✓	• The maximum number of link boxes along the Onshore Cable Corridor is 80 (based on 750 m between each link box on up to four trenches). The area of each link box is up to 6 m^2 and each link box is 1 m deep; the volume of material excavated per link box is 6 m^3 (a total of 480 m^3 of material excavated for the link boxes). • Works are expected to take 33-months to complete. <u>Open cut trenching along the 400 kV Grid Connection Cable Corridor:</u> • The area of the permanent 400 kV Grid Connection Cable Corridor is up to 16,000 m^2 based on a corridor measuring 16 m wide and 1 km in length. The temporary working corridor requires an additional 32 m wide corridor, making the total width of the route to grid connection (temporary and permanent requirements) 48 m wide. The total area of temporary disturbance for the 400 kV Grid Connection Cable Corridor is up to 48,000 m^2 • There are up to two cable trenches within the permanent 400 kV Grid Connection Cable Corridor, each trench measures up to 2.5 m wide at the top, 1.5 m at the base and the depth is 1.8 m • The maximum number of joint bays along the 400 kV Grid Connection Cable Corridor is two (based on one joint bay on up to two trenches). The area of each joint bay is up to 200 m^2 and each joint bay is 2 m deep; the volume of material excavated per joint bay is 400 m^3 (a total of 800 m^3 of material excavated for the joint bays) • The maximum number of link boxes along the 400 kV Grid Connection Cable Corridor is two (based on one link	Construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project may result in the disturbance of habitat (e.g. movement, noise, light spill, vibration), which may support IEFs. The use of trenchless techniques at the Mona Landfall represents the greatest potential for disturbance in the intertidal zone. The maximum area required for the construction of the Mona Landfall plus the largest accepted ZoI for the species present represents the greatest area that will be subject to disturbance during the nine-month construction of the project. The use of open cut trenching methods along the onshore cable route and 400 kV grid connection cable route represents the greatest potential for disturbance. The maximum area required for the construction of the Onshore Cable Corridor, 400 kV Grid Connection Cable Corridor, the Onshore Substation, the permanent access road, and the associated infrastructure represents the maximum area that will be subject to disturbance to onshore wintering and breeding birds during the 33-month construction period. Maintenance during the operational phase represents potential for disturbance, although this will be minimal and will be comparable to current background agricultural operations. The Onshore Cable and 400 kV Grid Connection Cable will remain in situ, however some of the other infrastructure (e.g. link boxes) may be removed. The Onshore Substation and access road will be removed. The maximum area of the Onshore Cable Corridor, 400 kV Grid Connection Cable and permanent access road, represents the maximum area that will be subject to disturbance during decommissioning of the project.

Potential impact	Phase[a] C	O	D	Maximum Design Scenario	Justification
The impact of habitat fragmentation and species isolation during construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project.	✓	✓	✓	box on up to two trenches). The area of each link box is up to 6 m^2 and each link box is 1 m deep; the volume of material excavated per link box is 6 m^3 (a total of 12 m^3 of material excavated for the link boxes) • Works are expected to take 33-months to complete. <u>Haul road</u> • There is one haul road within the Onshore Cable Corridor and 400 kV Grid Connection Cable Corridor along the length of the corridor; it is 6 m wide excluding passing places. It will be constructed using imported engineered granular fill with geotextile layers with a nominal thickness of 400 mm and a maximum thickness of up to 1,000 mm. <u>Trenchless techniques:</u> • The maximum number of trenchless crossing technique locations along the Onshore Cable Corridor is 45 and 3 along the 400 kV Grid Connection Cable Corridor. The temporary works areas for trenchless works will measure up to 50 m x 50 m and will be located within the 74 m temporary construction corridor. <u>Construction compounds:</u> • One primary construction compound (measuring 150 m x 150 m) and up to four secondary construction compounds (each measuring 150 m x 100 m) will be located within the Mona Onshore Development Area. Soils will be removed and stored; crushed stone or other suitable material will be used to create hardstanding • These will be in place for the duration of the works (33-months).	Construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project may result in the fragmentation of habitat, which may limit population movements and isolate ornithological IEFs. The use of trenchless techniques at the Mona Landfall represents the greatest potential for habitat fragmentation. These works are likely to cause temporary displacement but as they are not linear any barrier effects to ornithological IEFs will be minimal. The use of open cut trenching methods along the Onshore Cable Corridor and 400 kV Grid Connection Cable Corridor represent the greatest potential for habitat fragmentation. The Onshore Cable Corridor and 400 kV Grid Connection Cable Corridor will represent a potential temporary linear barrier along the corridor route across which some species may not cross. The maximum area of the Onshore Substation represents the greatest potential for permanent fragmentation of habitats during the operational phase of the Mona Offshore Wind Project. Works to decommission the Onshore Cable Corridor, 400 kV Grid Connection Cable Corridor, Onshore Substation are based upon the permanent access road being used. This will represent potential for a temporary linear barrier along the corridor route.
The impact of spreading Invasive and Non-native Species (INNS) during construction and decommissioning of the Mona Offshore Wind Project.	✓	×	✓	<u>Onshore Substation</u> • The maximum duration of the construction phase for the Mona Onshore Substation is 33 months • The maximum footprint of the Onshore Substation will measure 65,000 m^2 and will include the substation buildings. The earthworks to create the platform which will	Activities required for the construction and decommissioning of the Mona Offshore Wind Project may cause the spread of INNS, which could adversely affect the status of native IEF habitats and species. The use of trenchless techniques at the Mona Landfall represent the greatest chance for INNS to be released and/or spread at the Mona Landfall by vessels and/or equipment. The use of open cut trenching along the Onshore Cable Corridor and 400 kV Grid Connection Cable Corridor represents the greatest area for construction and therefore also represents the greatest threat of release/spread of INNS.

Potential impact	Phase[a] C	O	D	Maximum Design Scenario	Justification
				measure up to 75,000 m^2. The Onshore Substation will comprise up to four buildings. The maximum dimensions of the main building are 15 m high, 40 m wide and 90 m long • A piled foundation solution will be required • Access to the Onshore Substation will be via a new permanent access road measuring up to 8 m wide (up to 15 m wide including drainage) and 800 m in length • The area of temporary works (including construction compounds) will extend up to 150,000 m^2 • The maximum area for the attenuation pond is 10,000m^2 • The maximum area for landscape planting, including woodland planting and habitat creation at the Mona Onshore Substation is 129,000 m^2. **Operations and maintenance phase** <u>Onshore Substation</u> • The maximum footprint of the Onshore Substation will measure 65,000 m^2 and will include the substation buildings. The earthworks to create the platform which will measure up to 75,000 m^2. The Onshore Substation will comprise up to four buildings. The maximum dimensions of the main building are 15 m high, 40 m wide and 90 m long • Access to the Onshore Substation will be via a new permanent access road measuring up to 8 m wide (up to 15 m wide including drainage) and 800 m in length • The maximum area for landscape planting, including woodland planting and habitat creation at the Mona Onshore Substation is 129,000 m^2 • The expected lifetime of the Mona Offshore Wind Project is 35 years.	The maximum construction area of the Onshore Substation, permanent access road, and Temporary Construction Compounds represent the greatest area for potential release/spread of INNS. The Onshore Cable and 400 kV Grid Connection Cable will be removed from the link boxes. The Onshore Substation and access road will be removed. The maximum area of the Onshore Cable Corridor, 400 kV Grid Connection Cable and permanent access road, represents the maximum area represents the greatest area for potential release/spread of INNS.

Potential impact	Phase[a] C	O	D	Maximum Design Scenario	Justification
				Decommissioning phase • The Onshore Cable and 400kV Grid Connection Cable will remain in situ, however some of the other onshore infrastructure (e.g. link boxes) may be removed. The Onshore Substation and access road will be removed.	

4.8 Measures adopted as part of the Mona Offshore Wind Project

4.8.1.1 For the purposes of the EIA process, the term 'measures adopted as part of the project' is used to include the following measures (adapted from IEMA, 2016):

- Measures included as part of the project design. These include modifications to the location or design of the Mona Offshore Wind Project which are integrated into the application for consent. These measures are secured through the consent itself through the description of the development and the parameters secured in the DCO and/or marine licences (referred to as primary mitigation in IEMA, 2016)
- Measures required to meet legislative requirements, or actions that are generally standard practice used to manage commonly occurring environmental effects and are secured through the DCO requirements and/or the conditions of the marine licences (referred to as tertiary mitigation in IEMA, 2016).

4.8.1.2 A number of measures (primary and tertiary) have been adopted as part of the Mona Offshore Wind Project to reduce the potential for impacts on onshore and intertidal ornithology. These are outlined in Table 4.24 below. As there is a commitment to implementing these measures, they are considered inherently part of the design of the Mona Offshore Wind Project and have therefore been considered in the assessment presented in section 4.9 below (i.e. the determination of magnitude and therefore significance assumes implementation of these measures).

Table 4.24: Measures adopted as part of the Mona Offshore Wind Project to meet legislative requirements or standard industry practice.

Measures adopted as part of the Mona Offshore Wind Project	Justification	How the measure will be secured
Primary measures: Measures that include a change in design to avoid potential impacts		
Commitment to use trenchless techniques through the intertidal area (between MLWS and MHWS). This designed-in measure will ensure that direct impacts (e.g. habitat loss) to the ecologically sensitive IEF will not occur.	To avoid potential impact upon ecologically sensitive IEFs.	To be secured as part of the stand alone NRW marine licence.
Commitment to trenchless technique under woodland, wherever practicable.	To minimise potential impacts upon trees and woodland habitats, where practicable.	The locations for which the Mona Offshore Wind Project has committed to the utilisation of trenchless techniques are set out in Volume 5, Chapter 4.3: Onshore crossing schedule (document reference: F5.4.3), which will be secured as a requirement of the DCO.
Tertiary measures: Measures required to meet legislative requirements, or adopted standard industry practice		
Development of an Offshore Environmental Management Plan, covering the intertidal area, which will include a spillage and emergency plan to minimise the risk of releasing pollutants into the environment and an action plan for accidental spills, potential contaminant release and key emergency details. Measures are likely to include: • designated areas for refuelling where spillages can be easily contained • storage of chemicals in secure designated areas in line with appropriate regulations and guidelines • double skinning of pipes and tanks containing hazardous substances, and storage of these substances in impenetrable bunds.	The measures are designed to minimise the potential for contaminant release in nearshore waters that may adversely affect the intertidal study area.	To be secured as a requirement of the stand alone NRW marine licence.
Actions to minimise INNS included in the biosecurity protocol aim to limit the spread and introduction of INNS. These measures will aim to manage and reduce the risk of potential introduction and spread of INNS so far as reasonably practicable to best protect the biological integrity of the local natural environment and communities.	The measures are designed to minimise the potential for INNS to be released on terrestrial habitats and intertidal habitats.	The preparation of a detailed Biosecurity Protocol in general accordance with the Outline Biosecurity Protocol (document reference: J26.11), which is included as part of the Outline Code of Construction Practice (Document reference: J26) and will be secured as a requirement of the DCO.
Development of, and adherence to, an Offshore EMP. This will include a	The plan will outline measures to ensure vessels comply with the	The Offshore EMP is secured within the deemed marine licence in

Measures adopted as part of the Mona Offshore Wind Project	Justification	How the measure will be secured
Biosecurity Risk Assessment and an INNS Management Plan, including actions to minimise INNS.	International Maritime Organisation ballast water management guidelines, it will consider the origin of vessels and contain standard housekeeping measures for such vessels as well as specific measures to be adopted in the event that a high alert species is recorded (e.g. carpet sea squirt *Didemnum vexillum*).	Schedule 14 of the draft DCO and expected to be secured within the standalone NRW marine licence.
Development of an Outline Landscape and Ecology Management Plan (document reference: J22) to include a Bird Protection Plan. This will describe the following measures to minimise potential for adverse impacts on birds and include, but may not be limited to: • The deployment and role of a suitably qualified Ecological Clerk of Works (ECoW) during construction activities • Pre-commencement bird check to specifically identify the potential presence of IEFs where works are taking place within the onshore ornithology study area via walkover surveys • Appropriate timing of works • Bird protection zones • Dissuasion techniques.	These measures are designed to prevent any adverse effect on important IEFs wherever possible during the construction phase, and minimise any impacts where avoidance cannot be met.	The preparation of a detailed Landscape and Ecology Management Plan in general accordance with the Outline Landscape and Ecology Management Plan (document reference: J22), which will be secured as a requirement of the DCO.

4.8.1.3 Where significant effects have been identified, further mitigation measures (referred to as secondary mitigation in IEMA, 2016) have been identified to reduce the significance of effect to acceptable levels following the initial assessment. These are measures that could further prevent, reduce and, where possible, offset any adverse effects on the environment. These measures are set out, where relevant, in section 4.9 below.

4.9 Assessment of significant effects

4.9.1 Overview

4.9.1.1 The potential impacts of the construction, operations and maintenance, and decommissioning phases of the Mona Offshore Wind Project have been assessed for onshore and intertidal ornithology. The potential impacts arising from the construction, operations and maintenance and decommissioning phases of the Mona Offshore Wind Project are listed in Table 4.23, along with the MDS against which each potential impact has been assessed.

4.9.1.2 A description of the potential effect on onshore and intertidal ornithology caused by each identified impact is given below.

4.9.1.3 The IEFs have been assessed according to species groups and seasonal occurrence in the Mona Landfall, Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor and Onshore Substation as previously outlined in section 4.6.4 of this chapter. As the nature of potential impacts within each area varies, this requires a separate assessment.

4.9.2 The potential impact of temporary and permanent habitat loss during construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project

4.9.2.1 The construction, operations and maintenance, and decommissioning of the Mona Offshore Wind Project may result in the temporary (e.g. Onshore Cable Corridor) or permanent (Onshore Substation) loss of habitat, which may support IEFs. The MDS is represented by the maximum surface area of habitat loss and disturbance and is summarised in Table 4.23.

4.9.2.2 Construction has the potential to impact waterbirds in the nearshore waters and intertidal zone at the Mona Landfall, and non-breeding and breeding terrestrial birds in the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor (not including the Onshore substation).

4.9.2.3 During operation and maintenance, permanent habitat loss at the Onshore Substation has the potential to impact terrestrial breeding and non-breeding birds (e.g., passerines and bird of prey).

4.9.2.4 Therefore, there is only potential for temporary habitat loss at the Mona Landfall (in the subtidal zone) and Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor whereas the Onshore Substation represents an area of permanent habitat loss. The IEFs found in each location have been assessed accordingly.

Mona Landfall

Non-breeding waterbird IEFs

4.9.2.5 Temporary loss of subtidal habitat at the Mona Landfall may result in the temporary loss of a food and/or roosting resource to birds, including species such as common scoter and red-throated diver (see Volume 7, Annex 4.2: Onshore Ornithology – Intertidal Ornithology Technical Report of the Environmental Statement). As a result, displaced birds may move to areas already occupied by other birds and thus face higher intra/inter-specific competition due to a higher density of individuals competing for the same resource. Alternatively, displaced birds may be forced to move into areas

of lower quality (e.g. areas of lower prey availability, or roosting sites with higher disturbance and/or predation risk). Temporary habitat loss may lead to a short-term avoidance of affected areas that support the non-breeding waterbird IEFs at the Mona Landfall.

4.9.2.6 The subtidal habitats available at the Mona Landfall, as outlined within Volume 7, Annex 4.2: Intertidal ornithology - wintering and migratory birds technical report, are of importance for a number of species regularly seen roosting and/or foraging in the area during surveys, including:

- Common scoter, with a peak of 2,250 which represents 3.93% of the Liverpool Bay/Bae Lerpwl SPA population for which it is an interest feature
- Red-throated diver, with a peak of 65 which represents 5.55% of the Liverpool Bay/Bae Lerpwl SPA population for which it is an interest feature
- Cormorant, with a peak of 42, which represents 3.09% of the Dee Estuary SPA population for which it is an assemblage component. Count was taken from the WeBS Dee Estuary count 2017/18 to 2021/22
- Great crested grebe, with a peak of 98 or 34.51% of the Dee Estuary SPA population for which it is an assemblage component. Count was taken from the WeBS Dee Estuary count 2017/18 to 2021/22
- Sandwich tern, with a peak count of 33, or 2.35% of the Dee Estuary population for which it is an interest feature. Count was taken from the WeBS Dee Estuary count 2017/18 to 2021/22.

4.9.2.7 All non-breeding waterbird IEFs that will be potentially affected by the Mona Offshore Wind Project are listed in 4.5.6.5 of this chapter above.

4.9.2.8 No temporary or permanent loss of habitat is predicted on the intertidal zone at the Mona Landfall due to the commitment to trenchless techniques as highlighted in Table 4.24. Negligible loss of subtidal habitats are expected to occur from trenchless technique installation.

Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor

Onshore breeding bird IEFs

4.9.2.9 The terrestrial habitats available within the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor support a diverse assemblage of breeding birds dominated by woodland and farmland passerines, most of which are tree and scrub nesting species (see Volume 7, Annex 4.3: Onshore Ornithology - Breeding Birds technical report of the Environmental Statement).

4.9.2.10 In addition to this assemblage of mostly common and widespread species, red kite were noted as possibly breeding within the onshore ornithology study area (although no nest sites were located) and little ringed plover were confirmed as breeding in 2022 (although they were not present in 2023).

4.9.2.11 Temporary habitat loss caused through construction may force these birds to find breeding sites outside of the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor which may cause higher intra/inter-specific competition due to a higher density of individuals competing for the same resource.

4.9.2.12 The species that are most likely to be impacted are IEFs of high conservation concern which have specific habitat requirements. These are:

- Red kite, with up to three territories within the onshore ornithology study area. Although no nest sites have been found to date, this species is listed on Schedule 1 of the Wildlife and Countryside Act 1981, as well as being listed on Annex 1 of the Birds Directive. Red kite breed in woodlands of varying sizes and can even be found nesting in small copses
- Little ringed plover had one confirmed breeding site within the onshore ornithology study area in 2022, as this species is protected under Schedule 1 of the Wildlife and Countryside Act, as amended (1981) the location is provided within a confidential annex. Although the site was found to be overgrown and therefore unsuitable for the species in 2023, if the site is cleared then little ringed plover may breed at this location again in the future. Little ringed plover traditionally breed on stony banks of freshwater bodies although they are increasingly found breeding on industrial wasteland which is where this pair were located.

4.9.2.13 All onshore breeding bird IEFs that will be potentially affected are listed in 4.5.6.5 of this chapter above.

Onshore non-breeding bird IEFs

4.9.2.14 Terrestrial habitats may provide different functions for over wintering passerines and raptors (see Volume 7, Annex 4.1: Onshore ornithology – wintering and migratory birds technical Report of the Environmental Statement). There is a potential for the abundance and distribution of onshore non-breeding bird IEFs to be locally affected by habitat loss. Although birds may continue to forage in the area, temporary habitat loss of areas known to non-breeding birds could ultimately affect food availability which in turn may affect survival rates and demographic fitness. Displacement of these birds may affect other bird species, as this may cause higher intra/inter-specific competition due to a higher density of individuals competing for the same resource.

4.9.2.15 IEFs that are most likely to be affected are those of high conservation which have specific habitat requirements. These are:

- Species that are woodland specialists such as goshawk and common crossbill. These species have both been recorded within the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor, but neither were recorded as displaying breeding behaviours. Both species prefer conifer woodland with low levels of disturbance and as such are susceptible to habitat loss
- Waders such as curlew and oystercatcher which were recorded utilising the wet fields adjacent to the intertidal area, within the onshore ornithology study area, for roosting at high water (albeit in low numbers). Although they will relocate to other roosts if habitat is lost temporarily there may be an increased energy cost associated with travelling further between roost sites and foraging areas.

4.9.2.16 All onshore non-breeding bird IEFs that will be affected are listed in listed in 4.5.6.5 of this chapter above.

Onshore Substation

Onshore breeding bird IEFs

4.9.2.17 The terrestrial habitats available within the Onshore Substation support a limited assemblage of breeding birds, most of which are common and widespread species (see Table 4.14 of this chapter). In addition, red kite were noted as possibly breeding

close by (although no nest sites were observed in the area of the Onshore Substation). Habitat loss caused through construction may force these birds to find breeding sites outside of the Mona Substation area which may cause higher intra/inter-specific competition due to a higher density of individuals competing for the same resource. Thus, permanent habitat loss at the Onshore Substation may limit nest site resources to the biogeographic population which may in turn reduce carrying capacity in the long term.

4.9.2.18 Those IEFs that stand to permanently lose breeding territories are redstart and whitethroat.

Onshore non-breeding bird IEFs

4.9.2.19 Limited species were recorded during site-specific surveys as using the Onshore Substation during the non-breeding period. However, it may be reasonably assumed that those species present within the wider area such as gulls, corvids and winter thrushes may utilise the pasture at the Onshore Substation for foraging at some point throughout the non-breeding season, and those species that are reliant upon hedgerows, such as dunnock and greenfinch may utilise the hedgerows for foraging and/or roosting.

4.9.2.20 For migratory IEFs that are just passing through, such as wheatear and grasshopper warbler the potential impact will be lower as they are more mobile during this period and less tied to certain areas of habitat.

4.9.2.21 Permanent loss of habitat at this location will permanently reduce the overall area available for foraging and/or roosting at the population scale. This limiting of non-breeding resources may in turn reduce carrying capacity in the long term.

Construction phase

Magnitude of impact

Mona Landfall

Non-breeding waterbird IEFs

4.9.2.22 In the absence of quantitative published evidence which would be required to examine the potential impact of displacement on individual waterbirds survival and/or productivity, the magnitude of the potential impact is considered qualitatively for non-breeding waterbird IEFs, based on professional judgement.

4.9.2.23 Whilst temporary habitat loss as the result of the construction and decommissioning of the Mona Offshore Wind Project (e.g. Onshore Cable) is not expected to occur on the intertidal zone due to commitment to trenchless technique, negligible loss of subtidal habitats are expected to occur. Whilst the this may lead to a temporary avoidance of the affected areas, the impact at the population-level is undetectable given that displaced birds may re-locate to other areas to meet their daily energy requirement. Furthermore, it is anticipated that the effects of the construction and decommissioning phases upon the supporting habitats will be reversible.

4.9.2.24 Moreover, the temporary loss of subtidal habitats for nearshore species is considered to be negligible in context of the habitats available to support the common scoter and red-throated diver in the Liverpool Bay/Bae Lerpwl SPA.

4.9.2.25 The potential impact is therefore predicted to be of local spatial extent, short term duration, intermittent and highly reversible. It is predicted that the potential impact will affect the receptor directly. The magnitude is therefore, considered to be **negligible**.

Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor

Onshore breeding bird IEFs

4.9.2.26 The onshore breeding bird assemblage found within the onshore ornithology study area is composed mostly of common and widespread farmland and woodland bird species based on the results of site-specific surveys and review of desktop sources.

4.9.2.27 In addition, all potential impacts will be temporary (permanent habitat loss at the Onshore Substation is dealt with in section 4.9.2.43) and reversible in the short term.

4.9.2.28 As many of the wooded areas are due to be left intact with trenchless methods employed to drill underneath them, the potential impacts upon breeding bird IEFs will be mostly limited to ground nesting species, such as meadow pipit, skylark and snipe and hedge nesting species.

4.9.2.29 Whilst temporary habitat loss as the result of cable construction and decommissioning may lead to a temporary avoidance of the affected areas, as the reference populations for the onshore breeding bird IEFs is large and widespread, the potential impact at the population-level is undetectable for the breeding IEFs with the adoption of tertiary measures outlined in Table 4.24.

4.9.2.30 As many of the woodland and hedgerows are to be left intact, and/or restored after construction (see Table 4.24), the potential impact of habitat loss upon onshore breeding birds can be viewed as local and temporary with only a very slight change in the size and extent of biogeographic population size or distribution. Any impacts are also predicted to be reversible in the short-term (i.e. less than six months after the cessation of construction). The magnitude of impact upon onshore breeding bird IEFs within the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor (excluding the Onshore Substation) is therefore predicted to be **negligible**.

Onshore non-breeding bird IEFs

4.9.2.31 The onshore non-breeding bird assemblage found within the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor is composed mostly of common and widespread farmland and woodland bird species.

4.9.2.32 In addition, all potential impacts will be temporary (permanent habitat loss at the Onshore Substation is dealt with in section 4.9.2.43) and reversible in the short term.

4.9.2.33 As many of the wooded areas are due to be left intact with trenchless methods employed to drill underneath them, the potential impacts upon non-breeding bird IEFs will be mostly limited to those species that forage within pasture and arable such as gulls, corvids and winter thrushes (fieldfare and redwing).

4.9.2.34 Whilst temporary habitat loss as the result of cable construction and decommissioning may lead to a temporary avoidance of the affected areas, as the reference populations for the onshore non-breeding bird IEFs are large and widespread, the impact at the population-level is undetectable for the terrestrial non-breeding IEFs with the adoption of tertiary measures outlined in Table 4.24.

4.9.2.35 As many of the woodland and hedgerows are to be left intact, and/or restored after construction, (Table 4.24), the potential impact of habitat loss upon onshore non-breeding birds can be viewed as local and temporary with only a very slight change in

the size and extent of biogeographic population size or distribution. Any potential impacts are also predicted to be reversible in the short-term (i.e. less than six months after the cessation of construction). The magnitude of impact upon onshore non-breeding bird IEFs within the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor (not including the Onshore Substation) is therefore predicted to be **negligible**.

Sensitivity of the receptor

Mona Landfall

Non-breeding waterbird IEFs

4.9.2.36 Although most waterbirds are flexible in their habitat use during the non-breeding season, they are considered to be very vulnerable to the loss of foraging grounds (e.g. inshore waters for common scoter or wet grassland and salt marsh for waders, amongst other types).

4.9.2.37 Non-breeding waterbird IEFs are deemed to be of high vulnerability, medium recoverability and high to very high conservation importance. The sensitivity of the receptor is therefore, considered to be **high**.

Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor

Onshore breeding bird IEFs

4.9.2.38 Habitat loss is one of the greatest threats to breeding birds and the onshore breeding bird IEFs are considered to be highly vulnerable to the loss of suitable nesting habitat.

4.9.2.39 Onshore breeding bird IEFs are deemed to be of high vulnerability, medium recoverability and high conservation importance. The sensitivity of the receptor is therefore, considered to be **high**.

Onshore non-breeding bird IEFs

4.9.2.40 Habitat loss is one of the greatest threats to non-breeding birds and the onshore non-breeding bird IEFs are considered to be highly vulnerable to the loss of suitable foraging and/or roosting habitat.

4.9.2.41 Terrestrial non-breeding IEFs are deemed to be of high vulnerability, medium recoverability and high conservation importance. The sensitivity of the receptor is therefore, considered to be **high**.

Significance of the effect

4.9.2.42 The significance of effect for each identified potential impact is assessed by correlating the magnitude of the impact and the sensitivity of the receptor. For each of the IEF groupings the significance of effect is detailed in Table 4.25.

Table 4.25: Table summarising the significance of effect during construction of temporary or permanent habitat loss on IEFs.

Area	IEF	Magnitude of impact	Sensitivity of receptor	Significance of effect
Landfall	Non-breeding waterbird IEFs	Negligible	High	**Minor adverse,** not significant in EIA terms
Onshore Cable Corridor and 400 kV Grid Connection Corridor	Terrestrial breeding IEFs	Negligible	High	**Minor adverse,** not significant in EIA terms
	Terrestrial non-breeding IEFs	Negligible	High	**Minor adverse**, not significant in EIA terms

Operation and maintenance

Magnitude of impact

Onshore Substation

Onshore breeding bird IEFs

4.9.2.43 There is limited high quality breeding habitat within the Onshore Substation which is dominated by grazed pasture. As such, there are limited species that may be affected by the permanent loss of habitat at this location. The magnitude is therefore, considered to be **negligible**.

Onshore non-breeding bird IEFs

4.9.2.44 The loss of grazed pasture habitats will cause a reduction in the amount of available foraging for species such as gulls, corvids and winter thrushes. However, the habitat that will be lost is of relatively low value for birds. Additionally, the amount of habitat to be lost is a fraction that which is available within the wider area. The magnitude is therefore considered to be **negligible**.

Sensitivity of the receptor

Onshore Substation

Onshore breeding bird IEFs

4.9.2.45 Habitat loss is one of the greatest threats to birds and the onshore breeding bird IEFs are considered to be highly vulnerable to the loss of suitable nesting habitat.

4.9.2.46 Onshore breeding bird IEFs are deemed to be of high vulnerability, medium recoverability, and high value. The sensitivity of the receptor is therefore, considered to be **high**.

Onshore non-breeding bird IEFs

4.9.2.47 Habitat loss is one of the greatest threats to birds and the onshore non-breeding bird IEFs are considered to be highly vulnerable to the loss of foraging and/or roosting habitat.

4.9.2.48 Onshore non-breeding bird IEFs are deemed to be of high vulnerability, medium recoverability, and high value. The sensitivity of the receptor is therefore, considered to be **high**.

Significance of the effect

Onshore Substation

4.9.2.49 The significance of effect for each identified potential impact is assessed by correlating the magnitude of the impact and the sensitivity of the receptor. For each of the IEF groupings the significance of effect is detailed in Table 4.26.

Table 4.26: Table summarising the significance of effect during operation and maintenance of temporary or permanent habitat loss on onshore breeding bird IEFs.

Area	IEF	Magnitude of impact	Sensitivity of receptor	Significance of effect
Onshore Substation	Onshore breeding bird IEFs	Negligible	High	**Minor adverse,** not significant in EIA terms
	Onshore non-breeding bird IEFs	Negligible	High	**Minor adverse,** not significant in EIA terms

4.9.3 The potential impact of habitat disturbance during construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project.

4.9.3.1 For ornithological receptors the potential impact of habitat disturbance has been considered to be the disturbance of habitats used by birds throughout their daily cycle (i.e. resting and foraging etc) and life cycle (i.e. breeding and non-breeding). This disturbance impact may arise from physical, visible and audible stimuli which are considered in the below assessment.

4.9.3.2 Construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project may result in the disturbance of habitat (e.g. movement, noise, light spill, vibration), which may support protected or notable species. The MDS is represented by the maximum number of vehicles (including heavy machinery) and personnel that could cause the greatest impact and is summarised in Table 4.23.

4.9.3.3 Construction at the Mona Onshore Development Area has the potential to impact waterbirds foraging or loafing in the nearshore waters and intertidal zone at the Mona Landfall, and non-breeding and breeding terrestrial birds in the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor.

Mona Landfall

Non-breeding waterbird IEFs

4.9.3.4 Non-breeding waterbirds may be indirectly disturbed and displaced during the construction and decommissioning phase of the Mona Offshore Wind Project (see Volume 7, Annex 4.1: Onshore ornithology – intertidal ornithology technical report of the Environmental Statement). The potential for displacement of individual birds either foraging or loafing in nearshore waters may result from the physical presence and/or noise disturbance associated with construction works and the presence of machinery and personnel where work is occurring, including construction works in the subtidal zone. Displaced birds may move to areas already occupied by other individuals and thus face higher intra/inter-specific competition due to a higher density of individuals competing for the same resource. Alternatively, displaced birds may be forced to move into areas of lower quality (e.g. areas of lower prey availability).

4.9.3.5 The temporary habitat loss may lead to a short-term avoidance of affected areas that support fish and shellfish species on which non-breeding waterbird IEFs prey upon. Such disturbance and resulting displacement could ultimately affect their demographic fitness (i.e. survival rates and breeding productivity) as well as potentially impacting on other birds in areas that displaced birds move to.

4.9.3.6 The potential impact of construction, operations and maintenance and decommissioning is likely to result in habitat disturbance in areas that support foraging waterbirds which have been recorded in the intertidal and subtidal habitats of the intertidal ornithology study area (see Volume 7, Annex 4.2: Intertidal ornithology - wintering and migratory ornithology technical report of the Environmental Statement), including:

- Common scoter, with a peak of 2,250 which represents 3.93% of the Liverpool Bay/Bae Lerpwl SPA population for which it is an interest feature
- Red-throated diver, with a peak of 65 which represents 5.55% of the Liverpool Bay/Bae Lerpwl SPA population for which it is an interest feature
- Cormorant, with a peak of 42, which represents 3.09% of the Dee Estuary SPA population for which it is an assemblage component. Count was taken from the WeBS Dee Estuary count 2017/18 to 2021/22
- Great crested grebe, with a peak of 98 or 34.51% of the Dee Estuary SPA population for which it is an assemblage component. Count was taken from the WeBS Dee Estuary count 2017/18 to 2021/22
- Sandwich tern, with a peak count of 33, or 2.35% of the Dee Estuary population for which it is an interest feature. Count was taken from the WeBS Dee Estuary count 2017/18 to 2021/22
- Curlew with a peak count of 71, or 2.06% of the Dee Estuary SPA population for which it is an interest feature. Count was taken from the WeBS Dee Estuary count 2017/18 to 2021/22.

Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor

Onshore breeding bird IEFs

4.9.3.7 Breeding birds may be directly or indirectly disturbed and displaced during the construction, operation and maintenance and decommissioning phase of the Mona

Offshore Wind Project. There is the potential for birds at various stages of the breeding cycle (i.e. pairing, nest building, egg laying and chick rearing) to be disturbed either by the physical presence and/or noise disturbance associated with the construction works and the presence of machinery and personnel where work is occurring.

4.9.3.8 Disturbance resulting from noise may impact birds' ability to pair during courtship, for example, if the noise created inhibits the song of singing males being audible to potential female mates. Disturbance events also have the potential to cause breeding birds to abandon nesting attempts and/or similarly reduce the foraging habitat available if they avoid and are displaced from those habitats and thereby reduce the potential food resources available for both adult breeding birds and the feeding of chicks. Disturbance and displacement therefore have the potential to impact breeding birds' productivity, if alternate nesting and foraging habitats are not available or are occupied by other breeding individuals at sufficiently high-density levels which limit the support of additional breeding pairs.

4.9.3.9 All onshore breeding bird IEFs that are likely to be affected are listed in section 4.5.6.5 of this chapter and further details can be found in Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement. At particular risk are IEFs of high conservation concern which have specific habitat requirements. These are:

- Red kite with up to three territories within the onshore ornithology study area. Although no nest sites have been found to date this species is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), as well as being listed on Annex 1 of the Birds Directive. Red kite breed in woodlands of varying sizes and can even be found nesting in small copses
- Little ringed plover had one confirmed breeding site within the onshore ornithology study area in 2022. Although the site was found to be overgrown and unsuitable in 2023, if the site is cleared then little ringed plover may breed at this location again in the future. Little ringed plover traditionally breed on stony banks of freshwater bodies although they are increasingly found breeding on industrial wasteland which is where this pair was located.

Onshore non-breeding bird IEFs

4.9.3.10 As discussed in 4.9.2.14, terrestrial habitats may provide different functions for over wintering passerines and raptors (see Volume 7, Annex 4.1: Onshore ornithology – wintering and migratory birds technical report of the Environmental Statement). There is a potential for habitat disturbance to affect the abundance and distribution of onshore non-breeding bird IEFs.

4.9.3.11 Displacement of these birds due to habitat disturbance may affect a range of bird species, as this may cause higher intra/inter-specific competition due to a higher density of individuals competing for the same resource as birds move into alternative areas.

4.9.3.12 The species that are most likely to be affected are those of high conservation concern and those that have specific habitat requirements, as highlighted for the potential impact of habitat loss. These are:

- Species that are woodland specialists such as goshawk and common crossbill. These species have both been recorded within the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor, but neither were recorded as displaying breeding behaviours. Both species prefer stands with conifers and low levels of disturbance and as such are susceptible to habitat disturbance

- Waders such as curlew and oystercatcher which were recorded utilising the wet fields adjacent to the intertidal for roosting at high water (albeit in low numbers). Although they will relocate to other roosts if habitat is lost temporarily there may be an increased energy cost associated with travelling further between roost sites and foraging areas.

4.9.3.13 All onshore non-breeding bird IEFs that will be affected are listed in section 4.5.6.5 of this chapter.

Onshore Substation

Terrestrial breeding and non-breeding bird IEFs

4.9.3.14 As noted in sections 4.9.2.17 to 4.9.2.21 the area of land for the Onshore Substation is used by a limited range of terrestrial breeding and non-breeding bird IEFs, primarily common and widespread species.

4.9.3.15 The habitats at the Onshore Substation will be permanently lost, as such potential impacts within this area relating to habitat changes are addressed in section 4.9.2. Disturbance to the remaining habitat through the presence of people and vehicles may prevent roosting and foraging behaviours from taking place and force individuals to find alternative habitat and breeding at sites outside of the Mona Onshore Development Area. This may cause higher intra/inter-specific competition due to a higher density of individuals competing for the same resource.

Construction phase

Magnitude of impact

Mona Landfall

Non-breeding waterbird IEFs

4.9.3.16 Assuming a seaward ZoI of 1,000 m for red-throated diver and common scoter (Goodship and Fellows, 2022), 314.16 ha of habitat will be subject to potential disturbance. In the context of Liverpool Bay/Bae Lerpwl SPA which is designated for common scoter and red-throated diver, the SPA covers 252,757.73 ha so this represents 0.1% of the total available habitat within the SPA. In the absence of quantitative information available the magnitude of the potential impact is considered qualitatively for seabirds for which change at a population level, resulting from temporary displacement is not considered to be detectable. This area of construction and works associated with the Mona Landfall is contiguous to the Liverpool Bay/Bae Lerpwl SPA and the work is considered to be of local spatial extent and short-term duration.

4.9.3.17 Assuming a ZoI of 300 m for waders (Goodship and Furness, 2022; Cutts, *et. al*., 2013; Laursen *et al.,* 2005), 976,500 m² of habitat will be subject to potential disturbance.

4.9.3.18 Waders recorded in the intertidal ornithology study area are likely to be faithful to foraging and roosting habitats. Whilst the disturbance has the potential to affect survival during the non-breeding season, the overall potential impacts of the construction work are undetectable at a population level. Indeed, habitat disturbance will be localised and displaced birds from the construction work activity will be able to feed in other areas within the intertidal ornithology study area.

4.9.3.19 Increasing evidence has shown that wader species will feed both diurnally and nocturnally and throughout the tidal cycle to maximise their daily food intake and take advantage of foraging opportunities, night, or day (Dugan *et al*., 1981; Mander *et al.*, 2022). Evidence of nocturnal foraging has been observed in the intertidal ornithology study area during nocturnal surveys undertaken and detailed in Volume 7, Annex 4.2: Intertidal ornithology - wintering and migratory birds technical report of the Environmental Statement.

4.9.3.20 Given the evidence available it is anticipated wader species foraging or loafing in the intertidal area will be displaced during construction activity, however that this displacement will be local in extent and limited to within around 300 m of any activity (Goodship & Furness, 2022; Cutts, *et. al*., 2013; Laursen *et al.,* 2005). Furthermore, the resulting disturbance from construction activity is only anticipated to occur whilst construction works are actively being undertaken, therefore limiting the magnitude and extent of any potential impact of disturbance and displacement.

4.9.3.21 The potential impact is predicted to be of local spatial extent, short/medium term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **negligible** non-breeding waterbirds.

Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor

Onshore breeding bird IEFs

4.9.3.22 The three red-kite territory locations are all contained within discrete woodland areas, each outside the immediate Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor. To lower the potential impact upon this species, pre-commencement breeding bird checks will be undertaken, and a Bird Protection Plan drafted, contained within the Outline Landscape and Ecology Management Plan (document reference: J22), as detailed within section 4.8.

4.9.3.23 The single little ringed plover nest recorded is sited on disused open ground. The broken ground, gravel and low-lying vegetation provided by this former industrial area offers ideal habitat for little ringed plover to nest. The area used to nest is outside of the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor, but within the 250 m buffer of the onshore ornithology study area. To lower the potential impact upon this species, pre-commencement breeding bird checks will be undertaken.

4.9.3.24 For red kite and little ringed plover, the potential impact is predicted to be of local spatial extent, short/medium term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **negligible**.

Onshore non-breeding bird IEFs

4.9.3.25 The onshore non-breeding bird assemblage within the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor comprises primarily of common and widespread species of farmland and woodland.

4.9.3.26 In addition, all potential impacts will be temporary and reversible in the short term at the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor.

4.9.3.27 As many of the wooded areas are due to be left intact with trenchless methods employed to drill underneath them, the potential impacts upon non-breeding bird IEFs will be mostly limited to those species that forage within pasture and arable such as gulls, corvids and winter thrushes (fieldfare and redwing).

4.9.3.28 Whilst temporary habitat disturbance as the result of cable construction and decommissioning may lead to a temporary avoidance of the affected areas, as the reference populations for the onshore non-breeding bird IEFs are large and widespread, the impact at the population-level is undetectable for the terrestrial non-breeding IEFs with the adoption of tertiary measures outlined in Table 4.24.

4.9.3.29 As many of the woodland and hedgerows are to be left intact, and/or restored after construction, (Table 4.24), the potential impact of habitat disturbance upon onshore non-breeding birds can be viewed as local and temporary with only a very slight change in the size and extent of biogeographic population size or distribution. Any impacts are also predicted to be reversible in the short-term (i.e., less than six months after the cessation of construction). The magnitude of impact upon onshore non-breeding bird IEFs within the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor (not including the Onshore Substation) is therefore predicted to be **negligible**.

Onshore Substation

Terrestrial breeding and non-breeding bird IEFs

4.9.3.30 As identified in section 4.9.3.13, the habitat within and around the Onshore Substation is primarily grazed pasture and supports species of low ornithological value that would be disturbed during construction. Although individuals may be displaced, the construction of the onshore substation and permanent access road will pose a low risk of disturbance to the highly mobile IEFs which show flexibility in habitat use. The magnitude of impact upon terrestrial breeding and non-breeding birds is therefore predicted to be **negligible** for both groupings.

Sensitivity of the receptor

Mona Landfall

Non-breeding waterbird IEFs

4.9.3.31 Of the non-breeding waterbird IEFs red-throated diver and common scoter are highly sensitive to disturbance and known to be displaced by various marine industry activities, including construction and operation of offshore wind farms and/or marine vessels (Heinenan *et al*., 2020, Wade *et al*., 2016). Whilst red-throated diver and common scoter are known to be sensitive to disturbance their vulnerability and their recoverability to the potential impact of disturbance either individually or at a population level is not known. Therefore, the consequences of displacement for individuals and impact on the population are unknown (Dierschke *et al*., 2017).

4.9.3.32 Whilst red-throated divers appear capable of utilising a range of marine habitats and prey species, they also tend to occur at relatively low densities and not in large aggregations. Consequently, reduced prey intake caused by increased density-dependent competition or interference would seem unlikely. Red-throated divers are highly mobile in winter which may mean they are able to find alternative foraging sites following displacement. However, individuals tend to be relatively site faithful in winter and in their choice of staging/moulting areas (even though there is large variation among individuals in choice of site).

4.9.3.33 For the purposes of this assessment and on a precautionary basis the vulnerability for red-throated diver, common scoter, and red-breasted merganser has been considered

to be high and the vulnerability of great cormorant which is relatively less sensitive to disturbance than the rest of the IEFs has been considered to be medium.

4.9.3.34 The receptors are considered to have medium recoverability based on their relatively low reproductive success and a stable or slightly decreasing trend in the numbers of wintering birds. The receptors are considered to be of high conservation importance.

4.9.3.35 Wader species are known to be sensitive to disturbance events resulting from either noise or visual activity and the presence of humans (Cutts *et al.*, 2009; Wright *et al*., 2010).

4.9.3.36 Visual stimuli tend to generate behavioural responses in waterbirds before audible noise stimuli can take an effect, since the Flight Initiation Distance (FID) in most species to a visual disturbance cue, is often between 75 m and 150 m (Cutts and Hemmingway, 2021). However, some species are more sensitive than others to disturbance with flight response (escape) distances described by Laursen et al. (2005), varying from 300 m for Eurasian curlew at the upper end to 42 m for ringed plover at the lower end. Therefore, as a precaution a 300 m radius has been used for visual stimuli (e.g. based on a broadly worst-case FID range for waterbirds (Cutts et al., 2008)). In relation to audible Sound Pressure Levels (SPL) Cutts & Hemingway (2012) concluded that as a precautionary value, a 70 dB(A) at receptor threshold would be appropriate in most instances, with few behavioural responses noted below this level, and indeed many species tolerant of levels well above this.

4.9.3.37 Red-throated diver, common scoter and red-breasted merganser are of high vulnerability, medium recoverability and very high conservation importance. Great cormorant are less sensitive to disturbance and therefore of medium vulnerability, medium recoverability and very high conservation importance. The sensitivity of these receptors, if assessed at a species level would therefore be considered to be high.

4.9.3.38 Eurasian Oystercatcher, Eurasian curlew, common redshank and common ringed plover are deemed to be of high vulnerability, medium recoverability and very high conservation importance. The sensitivity of these receptors, if assessed at a species level would therefore be considered to be high**.**

4.9.3.39 The overall sensitivity of non-breeding waterbird IEFs is therefore considered to be **high** based on their collective high vulnerability, medium recoverability and very high conservation importance.

Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor

Onshore breeding bird IEFs

4.9.3.40 Despite red kites' apparent tolerance to humans, red kites are still potentially sensitive to disturbance. Goodship and Fellows (2022) assessed red kite as being of medium sensitivity to disturbance, with a suggested ZoI of up to 300 m from the nest site.

4.9.3.41 Red kite have seen a 376% increase over 25 years in Wales (Harris *et al*., 2022) and are therefore considered of medium recoverability. Red kites are both a listed Annex 1 species of the EU Birds Directive and a Schedule 1 Species of the Wildlife and Countryside Act (1981) as amended. The species is therefore considered to be of national importance and of high conservation importance.

4.9.3.42 Like other ground nesting wader species little ringed plover is sensitive to disturbance during breeding (Hockin *et al*., 1992). Whilst there is no data available on disturbance distances for little ringed plover, Goodship and Fellows (2022) classified common ringed plover as of high sensitivity to disturbance with a suggested ZoI of up to 200 m.

4.9.3.43 Little ringed plover is considered to have medium recoverability based on their relatively low reproductive success and a stable or increasing UK long-term trend in breeding abundance and productivity. Little ringed plover are a Schedule 1 species of the Wildlife and Countryside Act (1981) as amended. The species is therefore considered to be of national importance and of high conservation importance.

4.9.3.44 Red kite is deemed to be of high vulnerability, medium recoverability and high conservation importance. The sensitivity of the receptor is therefore, considered to be high**.** Little ringed plover is deemed to be of high vulnerability, medium recoverability and high conservation importance. The sensitivity of the receptor is therefore, considered to be **high**.

4.9.3.45 The overall sensitivity of onshore breeding bird IEFs is therefore determined to be **high** based on the high vulnerability, medium recoverability and high conservation importance of the most sensitive species within the grouping.

Onshore non-breeding bird IEFs

4.9.3.46 Habitat disturbance is one of the greatest threats to non-breeding birds and the onshore non-breeding bird IEFs are considered to be highly vulnerable to disturbance close to suitable foraging and/or roosting habitat.

4.9.3.47 Onshore non-breeding bird IEFs are deemed to be of high vulnerability, medium recoverability and high conservation importance. The sensitivity of this receptor is therefore, considered to be **high**.

Onshore Substation

Terrestrial breeding and non-breeding bird IEFs

4.9.3.48 Habitat disturbance is one of the greatest threats to birds and the terrestrial breeding and non-breeding bird IEFs are considered to be highly vulnerable to the disturbance of habitat for breeding, roosting and foraging. Terrestrial breeding and non-breeding bird IEFs are deemed to be of high vulnerability, medium recoverability, and high value. The sensitivity of the receptor groups is therefore, considered to be **high**.

Significance of the effect

All areas

All receptors

4.9.3.49 The significance of effect for each identified potential impact is assessed by correlating the magnitude of the impact and the sensitivity of the receptor. For each of the species IEFs groupings, non-breeding waterbirds, onshore breeding birds and onshore non-breeding birds, the significance of effect for each species is detailed Table 4.27.

Table 4.27: Table summarising the significance of effect during construction of habitat disturbance on IEFs.

Area	IEF	Magnitude of impact	Sensitivity of receptor	Significance of effect
Mona Landfall	Non-breeding waterbirds	Negligible	High	**Minor adverse,** not significant in EIA terms
Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor	Onshore breeding birds	Negligible	High	**Minor adverse,** not significant in EIA terms
	Onshore non-breeding birds	Negligible	High	**Minor adverse,** not significant in EIA terms
Onshore Substation	Onshore breeding birds	Negligible	High	**Minor adverse,** not significant in EIA terms
	Onshore non-breeding birds	Negligible	High	**Minor adverse,** not significant in EIA terms

Operations and maintenance

4.9.3.50 The potential impacts from the operations and maintenance activities within the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor will be sporadic and not above normal background disturbance levels as defined in Volume 3, Chapter 9: Noise and vibration of the Environmental Statement, excluding at the Onshore Substation. At the Onshore Substation there will be limited but regular maintenance taking place which will represent a slight increase upon background. Further detail relating to noise levels can be seen in Volume 3, Chapter 9: Noise and vibration of the Environmental Statement.

Magnitude of impact

Mona Landfall and Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor

All receptors

4.9.3.51 The potential impacts from the operations and maintenance activities within the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor will be sporadic and not above normal background disturbance levels, as defined in Volume 3, Chapter 9: Noise and vibration of the Environmental Statement. Therefore, the disturbance caused at these locations during the operation and maintenance phase will be **no change**.

Onshore Substation

All terrestrial receptors

4.9.3.52 At the Onshore Substation there will be limited but regular maintenance taking place which will represent a slight increase upon background. The impact is predicted to be of local spatial extent, short-duration, intermittent and reversible. Therefore, the magnitude of disturbance at the Onshore Substation will be **negligible**.

Sensitivity of the receptor

All receptors

4.9.3.53 As discussed in section 4.9.3.31 to 4.9.3.48 of this chapter, the sensitivity of all receptors to disturbance can be considered **high.**

Significance of the effect

Mona Landfall and Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor

All receptors

4.9.3.54 Overall, the magnitude of potential impact during the operation and maintenance phase is deemed to be no change and the sensitivity of receptors is high. Therefore, the significance of effect will be **no change**.

Onshore Substation

All terrestrial receptors

4.9.3.55 Overall, the magnitude of the potential impact during operations and maintenance is deemed to be negligible and the sensitivity of the receptors is high (Table 4.28). The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Table 4.28: Table summarising the significance of effect during operations and maintenance of habitat disturbance on IEFs.

Area	IEF	Magnitude of impact	Sensitivity of receptor	Significance of effect
Mona Landfall	Non-breeding waterbirds	No change	High	**No change,** not significant in EIA terms
Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor	Onshore breeding birds	No change	High	**No change,** not significant in EIA terms
	Onshore non-breeding birds	No change	High	**No change,** not significant in EIA terms
Onshore Substation	Onshore breeding birds	Negligible	High	**Minor adverse,** not significant in EIA terms
	Onshore non-breeding birds	Negligible	High	**Minor adverse,** not significant in EIA terms

Decommissioning

4.9.3.56 Decommissioning activities within the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor are equal to or less than those carried out during the construction phase. Therefore, for the purpose of this assessment it is assumed that the level of disturbance is likely to be similar and the potential impact on each species is deemed to be reversible in the short-term as birds are likely to return when activities have been completed.

Significance of the effect

All areas

All receptors

4.9.3.57 Overall, the magnitude of the potential impact during decommissioning is deemed to be negligible and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Table 4.29: Table summarising the significance of effect during decommissioning of habitat disturbance on IEFs.

Area	IEF	Magnitude of impact	Sensitivity of receptor	Significance of effect
Mona Landfall	Non-breeding waterbirds	Negligible	High	**Minor adverse,** not significant in EIA terms
Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor	Onshore breeding birds	Negligible	High	**Minor adverse,** not significant in EIA terms
	Onshore non-breeding birds	Negligible	High	**Minor adverse,** not significant in EIA terms
Onshore Substation	Onshore breeding birds	Negligible	High	**Minor adverse,** not significant in EIA terms
	Onshore non-breeding birds	Negligible	High	**Minor adverse,** not significant in EIA terms

4.9.4 The potential impact of habitat fragmentation and species isolation during construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project.

4.9.4.1 The construction, operation and maintenance and decommissioning of the Mona Offshore Wind Project has the potential to result in habitat fragmentation and species isolation through creating changes to habitat configuration at a landscape scale. The MDS is based upon the largest footprint of disturbed land and is summarised in Table 4.23.

4.9.4.2 Changes which cause existing habitat to become broken up or fragmented can lead to the isolation of individual species and reduce the individual patch size in which they forage and are ecologically dependent upon, and therefore potentially affect their population size and viability.

4.9.4.3 Birds are mobile species with some species able to cover vast distances on a daily basis. Species that are more susceptible to this potential impact are those species that are habitat specialists and are dependent upon specific types of habitats such as woodland specialists. However, of the IEFs identified in section 4.5.6, none of the species are highly specialist and therefore considered to be highly vulnerable to this potential impact during the construction phase.

4.9.4.4 Whilst construction may cause displacement of species from the disturbed area this potential impact has already been considered within the impact of habitat loss.

4.9.4.5 Therefore, as all IEFs (whether non-breeding waterbirds at the Mona Landfall or onshore breeding bird IEFs within the Mona Onshore Cable Corridor and 400 kV Grid

Connection Corridor) are considered to be similarly impacted by fragmentation, the assessment of this potential impact has considered all receptors equally.

Construction phase

Magnitude of impact

All areas

All receptors

4.9.4.6 The proposed construction of the Mona Offshore Wind Project is planned to occur across predominantly grassland/pasture, intertidal habitats, and areas of woodland habitat. As a result of construction works, these habitats will not be broken up or changed in their spatial extent and/or distribution and will if necessary be restored. The proportion and location of each habitat will be maintained except at the Onshore Substation where primarily grazed pasture of low ornithological value is to be lost.

4.9.4.7 The potential impact is predicted to be of local spatial extent, short term duration, intermittent and high reversibility. The magnitude is therefore considered to result in **no change**.

Sensitivity of the receptor

All areas

All receptors

4.9.4.8 Habitat fragmentation on a landscape scale can be significant if a species population is small and therefore more vulnerable to change locally, and/or if a species population is already fragmented and vulnerable to a loss of connectivity. A loss of connectivity between individuals of a species may affect their ability to pair, breed and be reproductively successful. This vulnerability is increased if a species is relatively immobile, occupies small territories and is unable to move increased distances created between individual patch sizes or territories (Andren, 1994).

4.9.4.9 The ornithological receptors identified within the onshore and intertidal ornithology study areas are of high conservation importance, but all relatively widely distributed species. Each species is relatively mobile throughout both its annual range (i.e., migratory movements, and/or wintering foraging ranges and/or breeding home range). Consequently, the receptors are not considered to be particularly vulnerable to habitat fragmentation and species isolation at a local scale.

4.9.4.10 The receptors identified are deemed to be of low vulnerability, high recoverability, and high value. The sensitivity of the receptor is therefore, considered to be **medium**.

Construction phase

Significance of the effect

All areas

All receptors

4.9.4.11 Birds are highly mobile so although construction activities may displace some individuals, populations will still be able to reconnect. Therefore, the overall, the

magnitude of the potential impact is deemed to cause no change, and the sensitivity of the receptor is medium. The effect will, therefore, be **no change** and not significant in EIA terms.

Table 4.30: Table summarising the significance of effect during construction of habitat fragmentation and species isolation.

Area	Species	Magnitude of impact	Sensitivity of receptor	Significance of effect
All areas	All receptors	No change	Medium	**No change,** not significant in EIA terms

Operation and maintenance

Magnitude of impact

All areas

All receptors

4.9.4.12 At the Onshore Substation, primarily grazed pasture of low ornithological value is to be lost. Although individuals may be displaced, the presence of the substation and permanent access road will pose no risk of fragmentation to the highly mobile IEFs found at the substation area such as spotted flycatcher which spend their winters in Africa and cross oceans on their migration. Others such as dunnock, song thrush, mistle thrush, and bullfinch may be sedentary or migratory but are also mobile and widespread so the risk of population level impacts from localised habitat fragmentation on these species is non-existent.

4.9.4.13 The potential impact is predicted to be of highly localised spatial extent. The magnitude is therefore considered to result in **no change**.

Sensitivity of the receptor

All areas

All receptors

4.9.4.14 The sensitivity of the IEFs remains unchanged from that discussed in the construction phase. The sensitivity of the receptor is therefore, considered to be **medium**.

Significance of the effect

All areas

All receptors

4.9.4.15 Overall, the magnitude of the potential impact during operation and maintenance is deemed to be no change and the sensitivity of the receptor is medium. The effect will, therefore, be **no change** and not significant in EIA terms.

Table 4.31: Table summarising the significance of effect during operation and maintenance of habitat fragmentation and species isolation.

Area	Species	Magnitude of impact	Sensitivity of receptor	Significance of effect
All areas	All receptors	No change	Medium	**No change,** not significant in EIA terms

Decommissioning

Magnitude of impact

All areas

All receptors

4.9.4.16 Decommissioning activities within Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor are to be less than those carried out during the construction phase with only the link boxes and the Onshore Substation being removed with all cable being pulled through these as well. Therefore, for the purpose of this assessment it is assumed that the risk of habitat fragmentation and species isolation is likely to be similar and the potential impact is deemed result in **no change**.

Sensitivity of the receptor

All areas

All receptors

4.9.4.17 The sensitivity of the IEFs remains unchanged from that discussed in the construction phase. The sensitivity of the receptor is therefore, considered to be **medium**.

Significance of the effect

All areas

All receptors

4.9.4.18 Overall, the magnitude of the potential impact during decommissioning is deemed to be no change and the sensitivity of the receptor is medium. The effect will, therefore, be **no change** and not significant in EIA terms.

Table 4.32: Table summarising the significance of effect during decommissioning of habitat fragmentation and species isolation.

Area	Species	Magnitude of impact	Sensitivity of receptor	Significance of effect
All areas	All receptors	No change	Medium	**No change,** not significant in EIA terms

4.9.5 The potential impact of spreading INNS during construction and decommissioning of the Mona Offshore Wind Project

4.9.5.1 Construction and decommissioning of the Mona Offshore Wind Project may cause the spread of INNS, which could adversely affect the status of native habitats and species that bird species rely on. The MDS is represented by the greatest amount of land that will be disturbed and is summarised in Table 4.23.

4.9.5.2 Construction and decommissioning activities potentially involve the introduction and/or spread of INNS through the movement of earth during works, including the digging of trenches and the use of machinery and presence of operating personnel. Both machinery and operating personnel have the potential to carry on their equipment (e.g. heavy machinery tracks or vehicle tyres or working clothing, e.g. boots) seeds, or spores of INNS from either within or outside the Mona Onshore Development Area.

4.9.5.3 The introduction, or unintentional spread of seeds, spores or other parts of plant material may result in the spread of plant species (e.g. Himalayan balsam *Impatiens glandulifera*, giant hogweed *Heracleum mantegazzianum* and water primrose *Ludwigia peploides*). These species have the potential to displace native species and to potentially replace or become dominant in those areas of habitat and change the community composition and structure.

4.9.5.4 If wide scale habitat changes result from the spread of INNS there is the potential to replace existing valuable habitat and supporting ecosystems that are used by birds for foraging or nesting with less valuable habitats which could limit the bird's ability to survive or be productive.

4.9.5.5 Further detail on the presence of INNS, and related measures adopted to mitigate the potential impact of the Mona Offshore Wind Project can be viewed in Volume 3, Chapter 3: Onshore ecology and Volume 7, Annex 3.14: National vegetation classification and invasive and non-native species technical report.

Construction phase

Magnitude of impact

All areas

All receptors

4.9.5.6 The Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor is dominated by ornithologically impoverished habitats of grassland/pasture, arable land, built environment, as described in Volume 7, Annex 4.1: Onshore ornithology - wintering and migratory birds technical report and Volume 7, Annex 4.3: Onshore ornithology - breeding birds technical report of the Environmental Statement. These habitats are not likely to be vulnerable to large scale habitat change resulting from changes in plant species composition as a consequence of the spread of native or non-native plant species.

4.9.5.7 Water courses or bodies are more susceptible to the spread of INNS, including curly waterweed *Lagarosiphon major* and floating pennywort *Hydrocotyle ranunculoides*, however these habitats are far less abundant in the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor.

4.9.5.8 The potential impact is predicted to be of local spatial extent, short/medium term duration, and high reversibility. It is predicted that the potential impact will affect the receptor indirectly. The magnitude is therefore, considered to be **negligible**.

Sensitivity of receptors

All areas

All receptors

4.9.5.9 Many of the IEFs are of high conservation importance and are vulnerable to the habitat loss or change that may occur from the spread of plant INNS.

4.9.5.10 The receptors are deemed to be of medium to vulnerability, medium recoverability and high value. The sensitivity of the receptor is therefore, considered to be **medium**.

Significance of the effect

All areas

All receptors

4.9.5.11 The correlation of negligible magnitude and medium sensitivity of the receptor concludes a negligible/minor significance of the potential impact when described in Table 4.22. Whilst the magnitude of the potential impact is predicted to be local spatial extent, short/medium term duration, and high reversibility, there is no evidence considering the impact of spreading INNS on bird populations at this scale. Therefore, on a precautionary basis and in the absence of evidence the significance of the potential impact has been deemed **minor**.

Table 4.33: Table summarising the significance of effect during construction caused by the spreading of INNS.

Area	Species	Magnitude of impact	Sensitivity of receptor	Significance of effect
All areas	All receptors	Negligible	Medium	**Minor adverse,** not significant in EIA terms

Decommissioning

Magnitude of impact

All areas

All receptors

4.9.5.12 Decommissioning activities within the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor are to be less than those carried out during the construction phase with only the link boxes and the Onshore Substation being removed whilst all cable will be left underground. Therefore, taking a precautionary approach, for the purpose of this assessment it is assumed that the risk of the spread of INNS during the decommissioning phase is equal to that during the construction phase.

Significance of the effect

All areas

All receptors

4.9.5.13 Overall, the magnitude of the potential impact during decommissioning is deemed to be negligible and the sensitivity of the receptor is considered to be medium to high, depending on the species. The effect will, therefore, be of **negligible or minor** adverse significance, which is not significant in EIA terms.

Table 4.34: Table summarising the significance of effect during construction caused by the spreading of INNS.

Area	Species	Magnitude of impact	Sensitivity of receptor	Significance of effect
All areas	All receptors	Negligible	Medium	**Minor adverse,** not significant in EIA terms

4.10 Cumulative effect assessment methodology

4.10.1 Methodology

4.10.1.1 The Cumulative Effects Assessment (CEA) takes into account the potential impact associated with the Mona Offshore Wind Project together with other projects and plans. The projects and plans selected as relevant to the CEA presented within this chapter are based upon the results of a screening exercise (see Volume 5, Chapter 5.1: CEA screening matrix). Each project has been considered on a case-by-case basis for screening in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.

4.10.1.2 The onshore and intertidal ornithology CEA methodology has followed the methodology set out in Volume 1, Chapter 5: EIA methodology of the Environmental Statement. As part of the assessment, all projects and plans considered alongside the Mona Offshore Wind Project have been allocated into 'tiers' reflecting their current stage within the planning and development process, these are listed below.

4.10.1.3 A tiered approach to the assessment has been adopted using the following categories:

- Tier 1: the Mona Offshore Wind Project considered alongside:
  - Under construction
  - Permitted application
  - Submitted application
  - Those currently operational that were not operational when baseline data were collected, and/or those that are operational but have an evidenced ongoing impact
- Tier 3: the Mona Offshore Wind Project considered alongside Tier 1 project, as well as projects where the:
  - Scoping report has been submitted and is in the public domain
- Tier 3: the Mona Offshore Wind Project considered alongside Tier 1 and Tier 3 projects, as well as projects where the:

- Scoping report has not been submitted
- Identified in a relevant development plan
- Identified in other plans and programmes.

4.10.1.4 This tiered approach is adopted to provide a clear assessment of the Mona Offshore Wind Project alongside other projects, plans and activities.

4.10.1.5 The specific projects, plans and activities scoped into the CEA, are outlined in Table 4.35.

4.10.1.6 Where the potential significant effect for the Mona Offshore Wind Project alone is assessed as negligible, or where a potential impact is predicted to be highly localised, these have not generally been considered within the CEA, as there is not considered to be a potential for cumulative effects with other plans, projects or activities.

4.10.1.7 The 1 km study area distance used for the purposes of the CEA was based on the approach adopted for other NSIPs, including Awel y Môr Offshore Wind Farm and Hornsea 3 Offshore Wind Farm. Awel y Môr Offshore Wind Farm adopted a 500 m study area for the CEA and was selected as this project is located within a similar geographical area. Hornsea 3 Offshore Wind Farm adopted a 1 km study area for the CEA and was selected as this project coincided with onshore habitats likely to support similar assemblages of intertidal and onshore birds. Based on the information presented in the Environmental Statements for these projects, the 1 km study area distance was considered appropriate for the CEA of the Mona Offshore Wind Project.

4.10.1.8 Ten Tier 1 projects/plans have been identified as having potential cumulative impact pathways with the Mona Offshore Wind Project. However, Major Development 0/48393 is an alteration to the planning application for Major Development 0/47217 and so will be considered as one project for the purposes of this assessment and referred to under the title Major Development 0/47217. Details of these projects can be viewed within Table 4.36 and descriptions of the impact from each project within sections 4.11.2 and 4.11.3 below.

4.10.1.9 None of the identified Tier 1 projects have assessed the impacts listed below:

- Habitat fragmentation and species isolation
- Pollution caused by accidental spills/ contaminant release
- Spreading INNS.

4.10.1.10 Therefore, there is no data with which to assess the cumulative effects of these impacts and they have been omitted from this CEA.

4.10.1.11 The impacts of temporary or permanent habitat loss and habitat disturbance are assessed, to differing extents for onshore birds in the Awel y Môr Offshore Windfarm Environmental Statement, Volume 3, Chapter 3.5: Onshore Biodiversity and Nature Conservation (RWE Renewables UK, 2022) and project 46/2021/0159 Ecological Assessment: Birch, 2021. A review of these assessments, even if only initial, has enabled the significance of cumulative impacts to be assessed for both temporary or permanent habitat loss and habitat disturbance.

4.10.1.12 No Tier 2 projects and plans have been identified in the screening process for this chapter's assessment which effect-receptor pathways (Table 4.35).

4.10.1.13 Four Tier 3 projects and plans have been identified in the screening process for this chapter's assessment which effect receptor pathways (Table 4.35).

4.10.1.14 As none of the projects identified within the CEA affect intertidal habitats within 1 km of the Mona Onshore Development Area there will be no additional impacts to the non-

breeding waterbirds located at the Mona Landfall. Therefore, no CEA of the non-breeding waterbirds at the Mona Landfall area is deemed necessary for any of the impacts.

Table 4.35: List of other projects, plans and activities considered within the CEA.

Project/Plan	Status	Distance from the Mona Onshore Development Area (km)	Description of project/plan	Dates of construction (if applicable)	Dates of operation (if applicable)	Overlap with the Mona Offshore Wind Project
Tier 1						
Awel y Môr Offshore Windfarm	Application determined	0.00	Awel y Môr Offshore Wind Farm is a project being developed by RWE Renewables UK (RWE) to the west of the existing Gwynt y Môr Offshore Wind Farm. It is located approximately 10.5 km off the Welsh coast in the Irish Sea, with a maximum total area of 78 square kilometres (km^2).	2024 to 2027	2030 to 2055	Yes
Major Development: 0/42900	Approved	0.32	Erection of 156 dwellings, access works and landscaping.	Not provided but assumed to overlap with the Mona Offshore Wind Project	N/A	Yes
Major Development: 0/44621	Approved	0.98	Demolition of single-story extensions to and the remodelling and refurbishment of the Fair View Inn into a house. The construction of 24 new build apartments	Not provided but assumed to overlap with the Mona Offshore Wind Project	N/A	Yes
Major Development: 0/47217	Approved	0.89	Residential housing estate consisting of 14 dwellings.	Not provided but assumed to overlap with the Mona Offshore Wind Project	N/A	Yes
Major Development: 0/48393	Approved	0.90	Details of the appearance of the development 0/47217 and the landscaping to the development site.	Not provided but assumed to overlap with the Mona Offshore Wind Project	N/A	Yes
Major Development: 0/49141	Approved	0.96	Demolition of existing buildings and erection of an over 55s affordable housing development, access, parking, landscaping, drainage infrastructure and associated development.	Not provided but assumed to overlap with the Mona Offshore Wind Project	N/A	Yes

Project/Plan	Status	Distance from the Mona Onshore Development Area (km)	Description of project/plan	Dates of construction (if applicable)	Dates of operation (if applicable)	Overlap with the Mona Offshore Wind Project
Major Development 40/2017/1232	Approved	0.64	Erection of seven industrial units with associated parking, landscaping, access road and external storage areas.	Not provided but assumed to overlap with the Mona Offshore Wind Project	N/A	Yes
Major Development: 46/2021/0159	Approved	0.23	Redevelopment of a brownfield site for the erection of a commercial vehicles sales unit, associated parking area, landscaping and associated works.	Not provided but assumed to overlap with the Mona Offshore Wind Project	N/A	Yes
Major Development: 40/2021/0309	Approved	0.01	Erection of a 198 bed Registered Care Home (Use Class C2), landscaping, parking facilities and associated works (Resubmission)	Not provided but assumed to overlap with the Mona Offshore Wind Project	N/A	Yes
Major Development: 0/43877	Approved	0.97	Demolition of derelict dwelling and outbuildings, proposed residential development of 15 dwellings including road widening (outline planning permission) (Approval of Matters Reserved for Subsequent Approval Under Code reference: 0/37619)	Not provided but assumed to overlap with the Mona Offshore Wind Project	N/A	Yes
Tier 3						
St Asaph Solar Farm	Pre-application	0.00	The proposed development includes the construction, operation and decommissioning of a solar farm with a potential generating capacity of between 10 MW and 350 MW.	Not provided but assumed to overlap with the Mona Offshore Wind Project.	Not provided but assumed to overlap with the Mona Offshore Wind Project.	Yes
National Grid Electricity Transmission (NGET) 31/2023/0525	Pre-application (EIA screening request)	0.00	Extension to the existing Bodelwyddan electricity substation (EIA Screening Opinion request).	NGET 31/2023/0525	Pre-application (EIA screening request)	0.00

Project/Plan	Status	Distance from the Mona Onshore Development Area (km)	Description of project/plan	Dates of construction (if applicable)	Dates of operation (if applicable)	Overlap with the Mona Offshore Wind Project
NGET	Pre-application	0.00	Application under section 37 of the Electricity Act 1989 for the installation of new overhead lines.	Not provided but assumed to overlap with the Mona Offshore Wind Project.	Not provided but assumed to overlap with Mona Offshore Wind Project	Yes
NGET	Pre-application	0.00	Permitted development comprising extension to the GIS hall required to facilitate the extension to the existing Bodelwyddan electricity substation	Not provided but assumed to overlap with the Mona Offshore Wind Project.	Not provided but assumed to overlap with Mona Offshore Wind Project	Yes

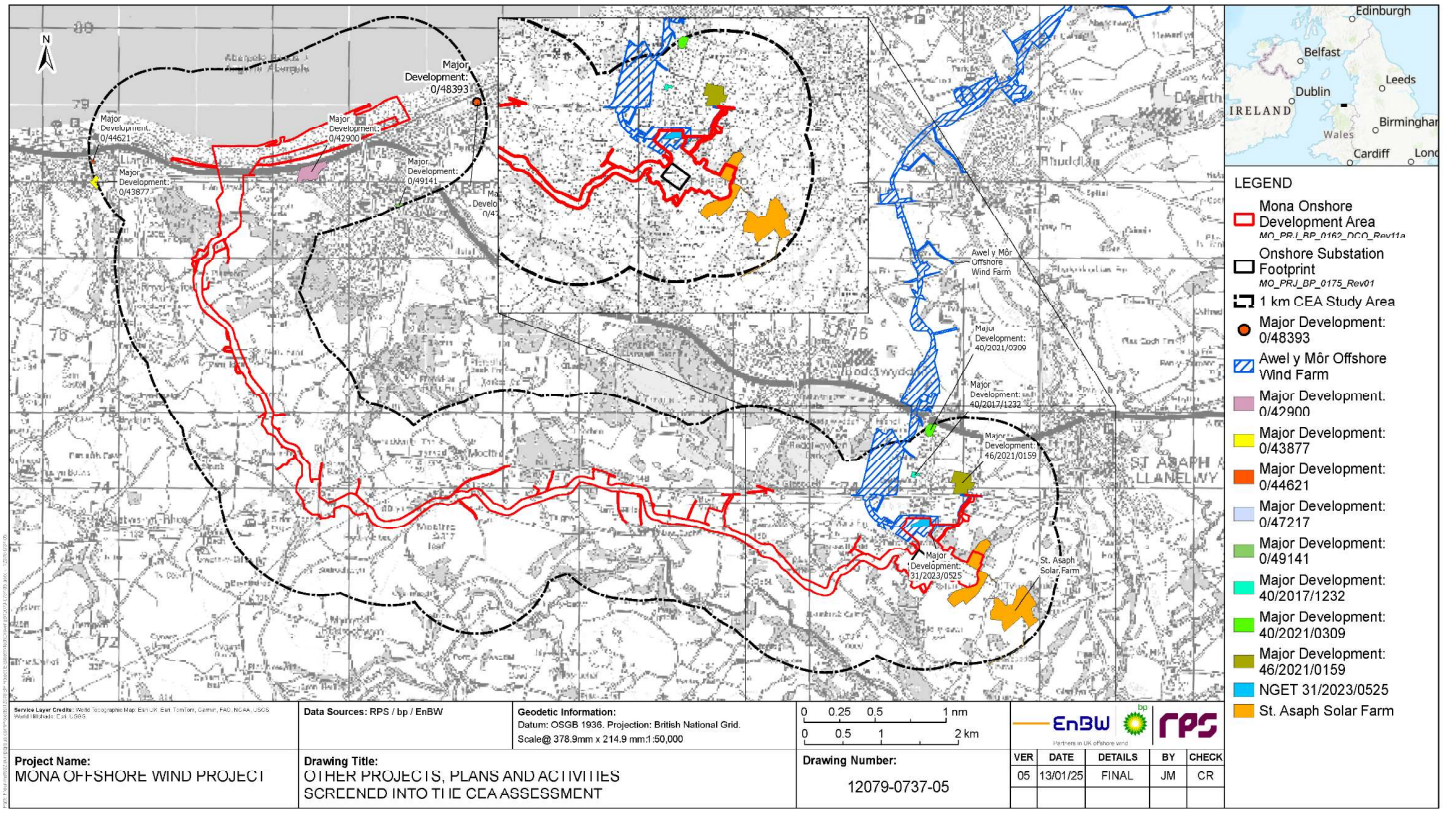

Figure 4.2: Other projects, plans and activities screened into the cumulative effects assessment.

4.10.2 Maximum design scenario

4.10.2.1 The MDSs identified in Table 4.36 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. The cumulative effects presented and assessed in this section have been selected from the Project Design Envelope provided in Volume 1, Chapter 3: Project Description, of the Environmental Statement as well as the information available on other projects and plans, in order to inform a 'MDS'. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope (e.g. different turbine layout) to that assessed here, be taken forward in the final design scheme.

4.10.2.2 The CEA has considered the Mona Offshore Wind Project, alongside the National Grid Bodelwyddan substation extension proposal. The information publicly available up to three months before application (see Volume 1, Chapter 3: Environmental Impact Assessment Methodology of the Environmental Statement) was considered in this CEA. The CEA has therefore been undertaken based on the latest available information in the public domain up to the 21 November 2023, which is the Autumn 2023 consultation material (National Grid, 2023). If further information is available for the proposal before the Mona Offshore Wind Project receives Development Consent, the Applicant will review the information and provide any update needed to the CEA.

4.10.2.3 The MARES Connect project is proposing to submit a planning application in 2024 for an interconnector cable, landfall and onshore substation with connection to the National Grid. The project has identified several landfall zones and zones for its onshore substation and there is the potential for overlap with the Mona Offshore Wind Project, alongside the MARES Connect project as insufficient information was publicly available prior to the Mona Offshore Wind Project DCO submission (see Volume 1, Chapter 3: Environmental Impact Assessment Methodology of the Environmental Statement). However, if further information becomes available for the proposal before the Mona Offshore Wind Project receives Development Consent, the Applicant will review the information and provide any update needed to the CEA.

Table 4.36: Maximum design scenario considered for the assessment of potential cumulative effects on intertidal on onshore ornithology.

[a] C=construction, O=operation and maintenance, D=decommissioning

Potential cumulative effect	Phase[a]			Maximum Design Scenario	Justification
	C	O	D		
The potential impact of temporary and permanent habitat loss during construction, operation and maintenance and decommissioning of the Mona Offshore Wind Project.	✓	✓	✓	Maximum design scenario as described for the Mona Offshore Wind Project (Table 4.23) assessed cumulatively with the following other projects/plans: **Tier 1** • Awel Y Môr Offshore Windfarm • Major Development: 0/42900 • Major Development: 0/44621 • Major Development: 0/47217 • Major Development: 0/48393 • Major Development: 0/49141 • Major Development: 40/2021/0309 • Major Development 40/2017/1232 • Major Development: 46/2021/0159 • Major Development: 0/43877 • **Tier 3** • St Asaph Solar Farm • NGET 31/2023/0525 • NGET (new overhead lines)	Outcome of the CEA will be greatest when the greatest number of other projects are considered. Only Tier 1 schemes within 1 km of the Mona Onshore Development Area that involve building upon undisturbed land (greenfield) have been included, those projects which involve demolition of existing buildings (brownfield) to create the footprint for new development are not considered to impact upon cumulative habitat loss. No projects involve temporary or permanent intertidal habitat loss within 1 km of the Mona Landfall. Therefore, this CEA should only be considered for the potential cumulative effects within the onshore ornithology study area.
The potential impact of habitat disturbance during construction, operation and maintenance and decommissioning of the Mona Offshore Wind Project.	✓	✓	✓		Outcome of the CEA will be greatest when the greatest number of other projects are considered. All Tier 1 and Tier 3 projects within 1 km of the Mona Onshore Development Area are considered as disturbance travels beyond the source point and is dependent upon the ZoI of the IEFs involved. No projects involve disturbance of the intertidal zone within 1 km of the Mona Landfall. Therefore, this CEA should only be considered for the onshore ornithology study area.
The potential impact of habitat fragmentation and species isolation during construction, operation and maintenance and decommissioning of the Mona Offshore Wind Project.	✓	✓	✓		Outcome of the CEA will be greatest when the greatest number of other projects are considered. Only greenfield Tier 1 schemes within 1 km of the Mona Proposed Onshore Development have been included, brownfield plans are not considered to impact upon cumulative habitat fragmentation and species isolation. All Tier 3 projects have been considered as the CEA will be greatest if all of this land is lost to development. No projects involve temporary or permanent intertidal habitat fragmentation within 1 km of the Mona Landfall. Therefore, this CEA should only be considered for the onshore ornithology study area.

Potential cumulative effect	Phase[a]			Maximum Design Scenario	Justification
	C	O	D		
The potential impact of spreading Invasive and Non-native Species (INNS) during construction and decommissioning of the Mona Offshore Wind Project.	✓	×	✓	• NGET (extension to the GIS hall)	Outcome of the CEA will be greatest when the greatest number of other projects are considered. All Tier 1 and Tier 3 projects within 1 km of the Mona Onshore Development Area are considered as all projects (brownfield as well as greenfield) run the risk of spreading INNS. No projects involve works on the intertidal zone within 1 km of the Mona Landfall. Therefore, this CEA should only be considered for the onshore ornithology study area.

4.11 Cumulative effects assessment

4.11.1 Introduction

4.11.1.1 A description of the significance of cumulative effects upon onshore and intertidal ornithological receptors for all potential impacts identified in this project has been considered.

4.11.2 Temporary or permanent habitat loss

Tier 1 and tier 3 projects

4.11.2.1 Construction, operations, and maintenance and decommissioning of the Mona Offshore Wind Project may result in the temporary (e.g. onshore cable) or permanent (e.g. Onshore Substation) loss of habitat, which may support protected or notable species. The MDS is represented by the maximum surface area of habitat loss and disturbance and is summarised in Table 4.23. Cumulatively these impacts have the potential to be greater when combined with impacts from projects and plans identified with impact pathways (Awel y Môr Offshore Windfarm, project 46/2021/0159, Major Development: 0/49141, St Asaph Solar Farm and Major Development 31/2023/0525).

Available data

4.11.2.2 The construction of project 46/2021/0159 is planned to be located on a brownfield site at St Asaph Business Park and covers an area of approximately 6.9 ha. This development area comprises diverse habitats that have formed over hardcore and made ground, including broad-leaved woodland, species rich-neutral grassland and scattered scrub. The main body of the site provides nesting habitat for common nesting birds however no species list was provided within project 46/2021/0159 Ecological Assessment (Birch, 2021). In considering key ecological receptors the site is considered of moderate value for nesting birds with lots of nesting opportunities in the woodland and scrub on the site and is of local value to birds.

4.11.2.3 The construction of Awel y Môr Offshore Windfarm includes the construction of a Cable Corridor in the intertidal area east of Rhyl, then routing south to Pentre-mawr and incorporating permanent sub-stations (ref: Awel y Môr Offshore Windfarm Environmental Statement, Volume 3, Chapter 3.5: Onshore Biodiversity and Nature Conservation). A full assessment of potential impacts on important ecological features has not yet been completed with surveys ongoing and full findings not presented in the Environmental Statement, albeit the Environmental Statement does present an initial assessment based upon desk-based studies of the potential impact of habitat loss, temporary or permanent on breeding and wintering birds.

4.11.2.4 Proposals for Major Development 0/42900 involve the development of an area of land at Abergele Business Park into a residential site consisting of 156 dwellings, access works and associated landscaping. Prior to development the area contained grassland, scrub and a large pond that would be lost through the works. An environmental assessment of the site concluded that the area may be used by breeding skylark and whitethroat.

4.11.2.5 Major Development: 40/2021/0309 of the erection of a 198 bed Registered Care Home (Use Class C2), landscaping, parking facilities and associated works. Prior to development, the PEA found the site to be of limited potential for ground nesting birds given the majority of the site is dominated by low-growing habitat / bare ground. As the majority of the wooded and scrub habitat on the boundaries of the site was likely to be

maintained, the only permanent loss of habitat was limited to ephemeral / short perennial habitat which was of limited value to nesting birds and moderate value for foraging and was therefore considered to be minor impact.

4.11.2.6 Major Development 0/44621 involves the demolition of single storey extensions to, and the remodelling of an existing building into a 4-bedroom dwelling. The proposal also includes the construction of 24 new apartments with associated car parking. Prior to works the site comprised of existing buildings, a residential flat, car park and private garden. A preliminary ecological appraisal of the site found it to be of negligible ecological value.

4.11.2.7 Major Development 0/49141 involves the demolition of existing buildings, a former residential care home with three small outbuildings. The surrounding landscape prior to works commencing were private gardens supporting mature trees and shrubs. The wider area is dominated by residential and commercial properties and green spaces. The works would require the removal of four mature trees.

4.11.2.8 Major Development 0/47217 involves the demolition of an existing building and erection of a residential housing estate consisting of 14 new buildings and gardens. The area, prior to works, consists of existing dwellings and associated gardens. A biodiversity/bat/bird report provided with the planning application concluded that prior to works commencing the site was of moderate value to breeding birds.

4.11.2.9 Major Development 40/2017/1232 involves the development of the site into commercial units with associated parking. The site forms a plot within the wider partially constructed St Asaph Business Park. Prior to works commencing the site comprised of unmanaged grassland with boundary hedgerows and ditches. The hedgerows were identified as “important” and must be retained during development.

4.11.2.10 The proposed construction of the St Asaph Solar Farm is at an early stage, with no information available in the public domain. A desktop assessment of the site indicates the area that would be used comprises primarily arable land bordered by woodland, hedgerows and scrub.

4.11.2.11 The proposed extension to the National Grid Bodelwyddan substation, Major Development 31/2023/0525, would cover a total of approximately 3 ha temporarily during the construction phase, with a permanent area of 0.9 ha covered by the extension upon completion of the works. There will be no increase in personnel working at the site during operation. The proposed development area comprises of buildings, grassland, hedgerows, arable fields, scrub and mixed woodland, these are habitats that may provide foraging and nesting opportunities to birds. A full assessment of the potential impacts is not presented due to the early stage of the proposal.

4.11.2.12 The proposed new overhead lines (NGET) associated with National Grid Bodelwyddan substation has not presented a detailed study of potential collision risk to birds.

Construction and decommissioning phase

Magnitude of impact

Mona Onshore Development Area

All terrestrial receptors

4.11.2.13 For the assessment of potential impacts for the Mona Offshore Wind Project, temporary habitat loss within the Mona Onshore Development Area as the result of cable construction and decommissioning was identified as potentially leading to

temporary avoidance of the affected areas. However, for each IEF the potential impact at the population-level is undetectable given that displaced birds may re-locate to other areas to meet their daily energy requirement and that birds will return to the lost habitats following completion of the work and the restoration of habitats. For all IEFs the magnitude of potential impact was determined to be **negligible**.

4.11.2.14 Similarly, an initial assessment of habitat loss, either temporary or permanent, for the Awel y Môr Offshore Windfarm for breeding birds is that there would be **no significant impact**.

4.11.2.15 For project 46/2021/0159 it was concluded that the area of woodland and scrub to be lost was of local importance for birds. The magnitude of potential impact upon the breeding bird IEFs can therefore be considered **negligible**.

4.11.2.16 Major Development 0/42900 would involve the loss of grassland, scrub and a large pond. It was concluded that these habitats are of local importance to birds, in particular breeding bird IEFs. The magnitude of potential impact upon the breeding bird IEFs can therefore be considered **negligible**.

4.11.2.17 Major Development 0/44621 would involve the redevelopment of habitats assessed as being of negligible value to birds. The magnitude of impact upon bird IEFs is there considered to be of **negligible.**

4.11.2.18 Major Development: 40/2021/0309 would the erection of a 198 bed Registered Care Home (Use Class C2), landscaping, parking facilities and associated works. The PEA found the site to be of limited potential for ground nesting birds and therefore the magnitude of impact up bird IEFs is therefore considered to be of **negligible**.

4.11.2.19 For Major Development 0/49141 it was concluded that the existing buildings and four trees that are to be lost in the redevelopment are of local importance to birds. The proposed landscaping at the development would involve the planting of a minimum of five trees. The magnitude of impact upon IEFs can therefore be considered **negligible**.

4.11.2.20 Major Development 0/47217 would involve the redevelopment of private gardens deemed to be of moderate value to breeding birds. This habitat would be replaced with the gardens of new dwellings, therefore the magnitude of impact upon IEFs can therefore be considered **negligible**.

4.11.2.21 An ecological assessment of the site for Major Development 40/2017/1232 identified the hedgerows on site as being important. These hedgerows are to be retained and protected throughout development, therefor the magnitude of impact upon IEFs from this development can be considered to be of **negligible.**

4.11.2.22 For the proposed St Asaph Solar Farm, it was concluded that the arable land and bordering woodland, scrub and hedgerow habitat that would be lost was of local importance to birds. The magnitude of impact upon IEFs can therefore be considered **negligible**.

4.11.2.23 For the proposed Major Development 31/2023/0525 it was concluded that the woodland, scrub, hedgerows and grassland that would be lost was of local importance to birds. The magnitude of impact upon IEFs can therefore be considered **negligible**.

4.11.2.24 The cumulative effect is predicted to be of local spatial extent, short/medium term duration, intermittent and high reversibility. It is predicted that the potential impact will affect the receptor indirectly. The magnitude is therefore, considered to be **negligible**.

Sensitivity of the receptor

Mona Onshore Development Area

All terrestrial receptors

4.11.2.25 Breeding and non-breeding birds are vulnerable to habitat loss, which is one of the greatest threats to birds' survival and productivity and therefore each IEF is highly vulnerable to the loss of habitats.

4.11.2.26 All terrestrial ornithological IEFs are deemed to be of high vulnerability, medium recoverability, and high value. The sensitivity of the receptor is therefore, considered to be **high**.

Significance of effect

Mona Onshore Development Area

All terrestrial receptors

4.11.2.27 Overall, the magnitude of the potential cumulative impact is deemed to be negligible, and the sensitivity of the receptor is high. The cumulative effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.

Table 4.37: Table summarising the CEA significance of effect during construction caused by temporary habitat loss within the Mona Onshore Development Area.

Area	Species	Magnitude of impact	Sensitivity of receptor	Significance of effect
Mona Onshore Development Area	All terrestrial receptors	Negligible	High	**Minor adverse,** not significant in EIA terms

Operation and maintenance phase

Magnitude of impact

Onshore Substation

All terrestrial receptors

4.11.2.28 The only area of permanent habitat loss will occur at the Onshore Substation and permanent access road.

4.11.2.29 For the assessment of potential impacts for the Mona Offshore Wind Project, permanent habitat loss of mostly grazed pasture and hedgerow habitats as the result of the construction of the Onshore Substation was considered to be **negligible** for both breeding and non-breeding birds.

4.11.2.30 An initial assessment of habitat loss, either temporary or permanent, for the Awel y Môr Offshore Windfarm for breeding birds is that there would be **no significant impact**.

4.11.2.31 For project 46/2021/0159 it was concluded that the area of woodland and scrub to be lost was of local importance for birds. For Major Development 31/2023/0525 it was concluded that the woodland, scrub, hedgerows and grassland that would be lost is of

local importance to birds. For the proposed St Asaph Solar Farm it was concluded that the arable land and bordering woodland, scrub and hedgerow habitat that would be lost was of local importance to birds. For Major Development: 0/49141 it was concluded that the existing buildings and four trees that are to be lost in the redevelopment are of local importance to birds. The proposed landscaping at the development would involve the planting of a minimum of five trees. The grassland, pond and scrub habitat that would be lost at Major Development 0/42900 is deemed to be of local importance to birds. Major Development 0/47217 would involve the redevelopment of private gardens; however, these would be replaced with the gardens of new dwellings. The magnitude of potential impact upon IEFs for these six proposed projects can therefore be considered **negligible**.

4.11.2.32 Major Development 40/2017/1232 does not involve the loss of any important habitat for IEFs, as hedgerows are to be retained. Major Development 0/44621 involves the redevelopment of habitats deemed to be of negligible value to birds. Therefore, for both of these projects the magnitude of potential impact upon IEFs can be considered to be **negligible**.

4.11.2.33 The cumulative effect is predicted to be of local spatial extent, short/medium term duration, intermittent and high reversibility. It is predicted that the potential impact will affect the receptor indirectly. The magnitude is therefore, considered to be **negligible**.

Sensitivity of the receptor

Onshore Substation

All terrestrial receptors

4.11.2.34 As discussed in paragraph 4.11.2.26, all ornithological IEFs are deemed to be of high vulnerability, medium recoverability, and high value. The sensitivity of the receptor is therefore, considered to be **high**.

Significance of effect

Onshore Substation

All terrestrial receptors

4.11.2.35 Overall, the magnitude of the potential cumulative impact is deemed to be no change, and the sensitivity of the receptor is high. The cumulative effect will, therefore, be **minor adverse**.

Table 4.38: Table summarising the CEA significance of effect during operation and maintenance caused by permanent habitat loss within the Onshore Substation.

Area	Species	Magnitude of impact	Sensitivity of receptor	Significance of effect
Onshore Substation	All receptors	Negligible	High	**Minor adverse,** not significant in EIA terms

4.11.3 Habitat disturbance

Tier 1 and tier 3 projects

4.11.3.1 Construction and decommissioning of the Mona Offshore Wind Project may result in the disturbance of habitat (e.g. movement, noise, light spill, vibration), which may support protected or notable species. The MDS is represented by the maximum number of vehicles (including heavy machinery) and personnel that could cause the greatest potential impact and is summarised in Table 4.23. Cumulatively these impacts have the potential to be greater when combined with impacts from projects and plans identified with impact pathways (Awel y Môr Offshore Windfarm, project 46/2021/0159, Major Development: 0/49141, Major Development 0/42900, Major Development 0/44621, Major Development 0/47217, Major Development 40/2017/1232, St Asaph Solar Farm and Major Development 31/2023/0525). There is the potential for impacts to breeding and non-breeding birds nesting and/or foraging on the terrestrial habitats within the Mona Onshore Development Area by displacing them from suitable nesting and/or foraging habitat and thereby affecting their food resource availability and ability to be reproductively successful.

Available data

4.11.3.2 The construction of project 46/2021/0159 is planned to be located on a brownfield site at St Asaph Business Park and covers an area of approximately 6.9 ha. This development area comprises diverse habitats that have formed over hardcore and made ground, including broad-leaved woodland, species rich-neutral grassland and scattered scrub. The main body of the site provides nesting habitat for common nesting birds however no species list was provided within project 46/2021/0159 Ecological Assessment (Birch, 2021). In considering key ecological receptors the site is considered of moderate value for nesting birds with lots of nesting opportunities in the woodland and scrub on the site and is of local value to birds.

4.11.3.3 The construction of Awel y Môr Offshore Windfarm includes the construction of a Cable Corridor in the intertidal area east of Rhyl, then routing south to Pentre-mawr and incorporating permanent sub-stations (ref: Awel y Môr Offshore Windfarm Environmental Statement, Volume 3, Chapter 3.5: Onshore Biodiversity and Nature Conservation). A full assessment of potential impacts on important ecological features has not yet been completed with surveys ongoing and full findings not presented in the Environmental Statement, albeit the Environmental Statement does present an initial assessment based upon desk-based studies of the potential impact of habitat loss, temporary or permanent on breeding and wintering birds.

4.11.3.4 Proposals for Major Development 0/42900 involve the development of an area of land at Abergele Business Park into a residential site consisting of 156 dwellings, access works and associated landscaping. Prior to development the area contained grassland, scrub and a large pond that would be lost through the works. An environmental assessment of the site concluded that the area may be used by breeding skylark and whitethroat.

4.11.3.5 Major Development: 40/2021/0309 of the erection of a 198 bed Registered Care Home (Use Class C2), landscaping, parking facilities and associated works. Prior to development, the PEA found the site to be of limited potential for ground nesting birds given the majority of the site is dominated by low-growing habitat / bare ground. As the majority of the wooded and scrub habitat on the boundaries of the site was likely to be maintained, the only permanent loss of habitat was limited to ephemeral/short perennial habitat which was of limited value to nesting birds and moderate value for foraging and was therefore considered to be minor impact.

4.11.3.6 Major Development 0/44621 involves the demolition of single storey extensions to, and the remodelling of an existing building into a 4-bedroom dwelling. The proposal also includes the construction of 24 new apartments with associated car parking. Prior to works the site comprised of existing buildings, a residential flat, car park and private garden. A preliminary ecological appraisal of the site found it to be of negligible ecological value.

4.11.3.7 Major Development 0/49141 involves the demolition of existing buildings, a former residential care home with three small outbuildings. The surrounding landscape prior to works commencing were private gardens supporting mature trees and shrubs. The wider area is dominated by residential and commercial properties and green spaces. The works would require the removal of four mature trees.

4.11.3.8 Major Development 0/47217 involves the demolition of an existing building and erection of a residential housing estate consisting of 14 new buildings and gardens. The area, prior to works, consists of existing dwellings and associated gardens. A biodiversity/bat/bird report provided with the planning application concluded that prior to works commencing the site was of moderate value to breeding birds.

4.11.3.9 Major Development 40/2017/1232 involves the development of the site into commercial units with associated parking. The site forms a plot within the wider partially constructed St Asaph Business Park. Prior to works commencing the site comprised of unmanaged grassland with boundary hedgerows and ditches. The hedgerows were identified as “important” and must be retained during development.

4.11.3.10 The proposed construction of the St Asaph Solar Farm is at an early stage, with no information available in the public domain. A desktop assessment of the site indicates the area that would be used comprises primarily arable land bordered by woodland, hedgerows and scrub.

4.11.3.11 The proposed extension to the National Grid Bodelwyddan substation, Major Development 31/2023/0525, would cover a total of approximately 3 ha temporarily during the construction phase, with a permanent area of 0.9 ha covered by the extension upon completion of the works. There will be no increase in personal working at the site during operation. The proposed development area comprises of buildings, grassland, hedgerows, arable fields, scrub and mixed woodland, these are habitats that may provide foraging and nesting opportunities to birds. A full assessment of the potential impacts is not presented due to the early stage of the proposal.

4.11.3.12 The proposed new overhead lines (NGET) associated with National Grid Bodelwyddan substation has not presented a detailed study of potential collision risk to birds.

Construction phase

Magnitude of impact

Mona Onshore Development Area

All terrestrial receptors

4.11.3.13 For the assessment of potential impacts for the Mona Offshore Wind Project, habitat disturbance caused during construction and decommissioning was identified as potentially leading to temporary avoidance of the affected areas. However, for each IEF the potential impact at the population-level is undetectable given that displaced birds may re-locate to other areas to meet their daily energy requirement and that birds

will return to the disturbed habitat following completion of the work. For all IEFs the magnitude of potential impact was determined to be negligible.

4.11.3.14 The initial assessment of habitat disturbance for the Awel y Môr Offshore Windfarm does not include an assessment of the magnitude of impacts but determines the significance of the potential impact to be not significant at Mona Landfall for intertidal waterbirds. Cumulatively, the potential impact is therefore also unlikely to be detectable at the population level for each intertidal IEF.

4.11.3.15 Similarly, an initial assessment of disturbance for the Awel y Môr Offshore Windfarm for breeding birds concludes that there would be **no significant impact**.

4.11.3.16 For project 46/2021/0159, Major Development 0/49141, Major Development 31/2023/0525, Major Development 0/42900, Major Development 0/44621, Major Development 0/47217, Major Development 40/2017/1232, and the St Asaph Solar Farm, it was concluded that disturbance caused during construction and decommissioning was identified as potentially leading to temporary avoidance of the affected areas, as for the Mona Offshore Wind Project. The potential impact at the population-level for each IEF is determined to be undetectable given that displaced birds may re-locate to other areas to meet their daily energy requirement and that birds will return to the disturbed habitat following completion of the work. The magnitude of potential impact upon the breeding bird IEFs can therefore be considered **negligible**.

4.11.3.17 The cumulative effect is predicted to be of local spatial extent, short/medium term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore, considered to be **negligible**.

Sensitivity of the receptor

Mona Onshore Development Area

All terrestrial receptors

4.11.3.18 In the project alone assessment all terrestrial IEFs were deemed to be of high vulnerability, medium recoverability, and high value. The sensitivity of the receptor is therefore, considered to be **high**.

Significance of effect

Mona Onshore Development Area

All terrestrial receptors

4.11.3.19 Overall, the magnitude of the potential cumulative impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The cumulative effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.

Table 4.39: Table summarising the CEA significance of effect during construction caused by permanent habitat disturbance within the Onshore Substation.

Area	Species	Magnitude of impact	Sensitivity of receptor	Significance of effect
Mona Onshore Development Area	All terrestrial receptors	Negligible	High	**Minor adverse,** not significant in EIA terms

Operation and maintenance phase

4.11.3.20 The potential impacts from the operations and maintenance activities within the Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor will be sporadic and not above normal background disturbance levels, as defined in Volume 3, Chapter 9: Noise and vibration of the Environmental Statement. At the Onshore Substation there will be limited but regular maintenance taking place which will represent a slight increase upon background.

4.11.3.21 The operational impacts from Awel y Mor Offshore Windfarm will be of a similar nature with only regular maintenance planned for the Onshore Substation. Project 46/2021/0159 made no assessment on the operational impacts of the project.

4.11.3.22 The operational impacts from the NGET extension will be the presence of overhead power cables. However, there is no data yet to quantify these impacts.

Magnitude of impact

Onshore Substation

All terrestrial receptors

4.11.3.23 Due to the limited increase in operational disturbance levels arising from either the Mona Offshore Windfarm or the Awel y Mor offshore windfarm, it is concluded that the potential CEA impact of habitat disturbance during the operation and maintenance phase will be **negligible**.

Sensitivity of the receptors

Onshore Substation

All terrestrial receptors

4.11.3.24 As discussed in 4.11.3.18 the sensitivity of the terrestrial IEFs was deemed to be **high**.

Significance of the effect

Onshore Substation

All terrestrial receptors

4.11.3.25 Overall, the magnitude of the potential impact during decommissioning is deemed to be negligible and the sensitivity of the receptor is high. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.

Table 4.40: Table summarising the CEA significance of effect during operation and maintenance caused by permanent habitat disturbance within the Onshore Substation.

Area	Species	Magnitude of impact	Sensitivity of receptor	Significance of effect
Onshore Substation	All terrestrial receptors	Negligible	High	**Minor adverse,** not significant in EIA terms

4.11.4 Future monitoring

4.11.4.1 No onshore and intertidal ornithology monitoring to test the predictions made within the cumulative impact assessment is considered necessary.

4.12 Transboundary effects

4.12.1 Overview

4.12.1.1 A screening of transboundary impacts has been carried out and has identified that there was no potential for significant transboundary effects with regard to onshore and intertidal ornithology from the Mona Offshore Wind Project upon the interests of other states.

4.12.2 Inter-related effects

4.12.2.1 Inter-relationships are the impacts and associated effects of different aspects of the proposal on the same receptor. These are considered to be:

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the Mona Offshore Wind Project (construction, Operations and maintenance, and decommissioning), to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three phases
- Receptor led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor. As an example, all effects on onshore and intertidal ornithology, such as habitat loss and disturbance may interact to produce a different, or greater effect on this receptor than when the effects are considered in isolation. Receptor-led effects may be short term, temporary or transient effects, or incorporate longer term effects.

4.12.2.2 A description of the likely interactive effects arising from the Mona Offshore Wind Project on onshore and intertidal ornithology is provided in Volume 3, Chapter 11: Inter-related effects – onshore of the Environmental Statement.

4.13 Summary of impacts, mitigation measures and monitoring

4.13.1.1 Information on onshore and intertidal ornithology within the onshore ornithology study area and the intertidal ornithology study area was collected through review of available literature, other assessments, UK statutory guidance, detailed analysis of the data collected during site-specific surveys, and consultation with relevant stakeholders.

- Table 4.41 presents a summary of the potential impacts, measures adopted as part of the project and residual effects in respect onshore and intertidal ornithology. The potential impacts assessed include temporary and permanent habitat loss, habitat disturbance, habitat fragmentation and species isolation, pollution caused by accidental spills/contaminant and the spread of INNS. Overall, it is concluded that there will be no significant effects arising from the Mona Offshore Wind Project during the construction, operations and maintenance or decommissioning phases
- Table 4.42 presents a summary of the potential cumulative impacts, mitigation measures and residual effects. The cumulative impacts assessed include temporary and permanent habitat loss, habitat disturbance, habitat fragmentation and species isolation, pollution caused by accidental spills/contaminant and the spread of INNS. Overall, it is concluded that there are no significant cumulative effects to any species from the Mona Offshore Wind Project alongside other projects/plans
- Potential transboundary impacts have been identified in relation to onshore and intertidal ornithology. Overall, it is concluded that there will be no significant transboundary effects arising from the Mona Offshore Wind Project.

Table 4.41: Summary of potential environmental effects, mitigation and monitoring for the project alone.

[a] C=construction, O=operations and maintenance, D=decommissioning

Description of impact	Phase[a] C	O	D	Measures adopted as part of the project	Area	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
The potential impact of temporary and permanent habitat loss during construction, operation and maintenance and decommissioning of the Mona Offshore Wind Project.	✓	✓	✓	Commitment to use trenchless techniques through the intertidal area (between MLWS and MHWS) and under woodland wherever possible. Development of an Offshore Environmental Management Plan covering the intertidal area. Development of an Outline biosecurity protocol (Document J26.11) contained within the Outline Code of Construction Practice (Document J.26). Development of a Bird Protection Plan to be contained within the Outline Landscape and Ecology Management Plan of (document reference: J22).	Mona Landfall	Non-breeding waterbirds C: Negligible D: Negligible	Non-breeding waterbirds C: High D: High	Non-breeding waterbirds C: Minor adverse D: Minor adverse	Pre-construction checks will ascertain if further mitigation is needed for breeding red kite and little ringed plover. This will be outlined in the Bird Protection Plan which will be delivered as part of an Outline Landscape and Ecology Management Plan (document reference: J22) (see Table 4.24).	Non-breeding waterbirds C: Minor adverse D: Minor adverse	As outlined within the Bird Protection Plan, ongoing bird checks throughout the construction phase will be conducted by a suitably qualified ECoW.
					Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor	Onshore breeding birds C: Negligible D: Negligible	Onshore breeding birds C: High D: High	Onshore breeding birds C: Minor adverse D: Minor adverse		Onshore breeding birds C: Minor adverse D: Minor adverse	
						Onshore non-breeding birds C: Negligible D: Negligible	Onshore non-breeding birds C: High D: High	Onshore non-breeding birds C: Minor adverse D: Minor adverse		Onshore non-breeding birds C: Minor adverse D: Minor adverse	
					Onshore Substation	Onshore breeding birds O: Negligible	Onshore breeding birds O: High	Onshore breeding birds O: Minor adverse		Onshore breeding birds O: Minor adverse	

Description of impact	Phase[a] C	O	D	Measures adopted as part of the project	Area	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
						Onshore non-breeding birds O: Negligible	Onshore non-breeding birds O: High	Onshore non-breeding birds O: Minor adverse		Onshore non-breeding birds O: Minor adverse	
The potential impact of habitat disturbance during construction, operation and maintenance and decommissioning of the Mona Offshore Wind Project.	✓	✓	✓		Mona Landfall	Non-breeding waterbirds C: Negligible O: No change D: Negligible	Non-breeding waterbirds C: High O: High D: High	Non-breeding waterbirds C: Minor adverse O: No change D: Minor adverse	Measures described within the Bird Protection Plan which will be delivered as part of an of the Outline Landscape and Ecology Management Plan (document reference: J22) such as: • The deployment of a suitably qualified EcoW during construction activities • Dissuasion techniques	Non-breeding waterbirds C: Minor adverse O: No change D: Minor adverse	As outlined within the Bird Protection Plan, ongoing bird checks throughout the construction phase will be conducted by a suitably qualified ECoW.
					Mona Onshore Cable Corridor and 400 kV Grid Connection Corridor	Onshore breeding birds C: Negligible O: No change D: Negligible	Onshore breeding birds C: High O: High D: High	Onshore breeding birds C: Minor adverse O: No change D: Minor adverse		Onshore breeding birds C: Minor adverse O: No change D: Minor adverse	

Description of impact	Phase[a] C	O	D	Measures adopted as part of the project	Area	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
						Onshore non-breeding birds C: Negligible O: No change D: Negligible	Onshore non-breeding birds C: High O: High D: High	Onshore non-breeding birds C: Minor adverse O: No change D: Minor adverse	• Appropriate timing of works • Pre-commencement bird check.	Onshore non-breeding birds C: Minor adverse O: No change D: Minor adverse	
					Onshore Substation	Onshore breeding birds C: Negligible O: Negligible D: Negligible	Onshore breeding birds C: High O: High D: High	Onshore breeding birds C: Minor adverse O: Minor adverse D: Minor adverse		Onshore breeding birds C: Minor adverse O: Minor adverse D: Minor adverse	
						Onshore non-breeding birds C: Negligible O: Negligible D: Negligible	Onshore non-breeding birds C: High O: High D: High	Onshore non-breeding birds C: Minor adverse O: Minor adverse D: Minor adverse		Onshore non-breeding birds C: Minor adverse O: Minor adverse D: Minor adverse	

Description of impact	Phase[a] C	O	D	Measures adopted as part of the project	Area	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
The potential impact of habitat fragmentation and species isolation during construction, operation and maintenance and decommissioning of the Mona Offshore Wind Project.	✓	✓	✓		All areas	All receptors C: No change O: No change D: No change	All receptors C: Medium O: Medium D: Medium	All receptors C: No change O: No change D: No change	None	All receptors C: No change O: No change D: No change	None
The potential impact of spreading INNS during construction and decommissioning of the Mona Offshore Wind Project.	✓	×	✓		All areas	All receptors C: Negligible D: Negligible	All receptors C: Medium D: Medium	All receptors C: Minor adverse D: Minor adverse	Measures to minimise the potential for INNS release in the nearshore waters that may adversely affect the intertidal study area.	All receptors C: Minor adverse D: Minor adverse	None

Table 4.42: Summary of potential cumulative environmental effects, mitigation and monitoring.

[a] C=construction, O=operations and maintenance, D=decommissioning

Description of effect	Phase[a] C	O	D	Measures adopted as part of the project	Area	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
The potential impact of temporary and permanent habitat loss during construction, operation and maintenance and decommissioning of the Mona Offshore Wind Project.	✓	✓	✓	Outline Code of Construction Practice (document reference: J.26). The deployment of a suitably qualified ECoW during construction activities.	Mona Onshore Development Area	All receptors C:Negligible D:Negligible	All receptors C:High D:High	All receptors C:Minor D:Minor	Pre-construction checks will ascertain if further mitigation is needed for breeding red kite and little ringed plover. This will be outlined in the Bird Protection Plan which will be delivered as part of the Outline Landscape and Ecology Management Plan (document reference: J22) (see Table 4.24).	All receptors C:Minor D:Minor	As outlined within the Bird Protection Plan, ongoing bird checks throughout the construction phase will be conducted by a suitably qualified ECoW.
					Onshore Substation	All receptors O:Negligible	All receptors O:High	All receptors O:Minor		All receptors O:Minor	
The potential impact of habitat disturbance during construction, operation and maintenance and decommissioning of the Mona Offshore Wind Project.	✓	✓	✓	Outline Landscape and Ecology Management Plan (document reference: J22) including the Bird Protection Plan.	Mona Onshore Development Area	All receptors C:Negligible D:Negligible	All receptors C:High D:High	All receptors C:Minor D:Minor	Measures described within the Bird Protection Plan of the Outline Landscape and Ecology Management Plan (document reference: J22) such as: • The deployment of a suitably qualified EcoW during construction activities • Dissuasion techniques • Appropriate timing of works • Pre-commencement bird check.	All receptors C:Minor D:Minor	
					Onshore Substation	All receptors O:Negligible	All receptors O:High	All receptors O:Minor		All receptors O:Minor	

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