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Morlais Project Environmental Statement

Chapter 19: Onshore Ecology

Volume I

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GLOSSARY OF ABBREVIATIONS

AWS	Ancient Woodland Site
BAP	Biodiversity Action Plan
BCT	Bat Conservation Trust
CIA	Cumulative Impact Assessment
CIEEM	Chartered Institute of Ecology and Environmental Management
CIRIA	Construction Industry Research and Information Association
CoCP	Code of Construction Practice
Cofnod	North Wales Environmental Information Service
CRoW	Countryside and Rights of Way Act 2000
Db	Decibel
DECC	Department for Environment and Climate Change
DMP	Dust Management Plan
EAP	Ecological Action Plan
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
eDNA	Environmental Deoxyribonucleic Acid
EAP	Ecological Action Plan
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EMF	Electromagnetic Field
EP1HS	Extended Phase 1 Habitat Survey
EPS	European Protected Species
ES	Environmental Statement
GCN	Great Crested Newt
GPP	Guidance for Pollution Prevention
Ha	Hectare
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicle
HRA	Habitats Regulation Assessment
HSI	Habitat Suitability Index
IAQM	Institute of Air Quality Management
ILE	Institution of Lighting Engineers
IoACC	Isle of Anglesey County Council
IPC	Infrastructure Planning Commission
IROPI	Imperative Reason of Overriding Public Interest
JLDP	Joint Local Development Plan
JNCC	Joint Nature Conservation Committee
KM	Kilometre
LBAP	Local Biodiversity Action Plan

LDP	Local Development Plan
LNR	Local Nature Reserves
LWS	Local Wildlife Site
M	metre
Mm	millimetre
MMO	Marine Management Organisation
MW	Mega Watt
NERC	Natural Environment and Rural Communities
NPS	National Policy Statements
NRW	Natural Resources Wales
OMH	Open Mosaic Habitat
PPG	Pollution Prevention Guidelines
PPS	Planning Policy Statements
PPW	Planning Policy Wales
PRoW	Public Rights of Way
pSPA	Potential Special Protection Areas
RIGS	Regionally Important Geological / Geomorphologic Site
RSPB	Royal Society of Protection of Birds
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
TAN	Technical Advice Note
UK	United Kingdom
UKBAP	United Kingdom Biodiversity Action Plan
WADZ	West Anglesey Demonstration Zone
WCA	Wildlife and Countryside Act 1981
WS	Wildlife Site

GLOSSARY OF TERMINOLOGY

Cloddiau	Vegetated stone wall
Desk Study Area	The Onshore Development Area plus a 1 km buffer
GCN Study Area	The Onshore Development Area plus a 250 m buffer
Onshore Study Area	The Onshore Development Area plus a 50 m buffer
Sett	Resting place (den) for badgers
Survey Study Area	A much wider area than the Onshore Development Area which was originally surveyed in the early phase of project development. This encompasses the GCN and Onshore Study Areas and additional surrounding land (See Appendix 19.1, Volume III for details).

19. ONSHORE ECOLOGY

19.1. INTRODUCTION

1. This chapter of the Environmental Statement (ES) considers the potential impacts of the proposed Morlais Project (the Project) on onshore ecology. Potential impacts on terrestrial birds are considered within this chapter; however, marine and coastal birds are discussed in full in **Chapter 11, Offshore Ornithology**.
2. This chapter provides an overview of the existing baseline environment with respect to onshore ecology within a study area (see **Section 19.4.1**) around the Project's onshore infrastructure (**Figure 19.1, Volume II**). This chapter provides the findings from an Ecological Impact Assessment (EclA) that has been undertaken of the potential impacts of construction, operation and decommissioning of the Project based on this baseline environment. This EclA also considers transboundary impacts, and cumulative impacts of existing and proposed projects in respect of onshore ecology.
3. It should be noted that the Project also has the potential to impact on marine and coastal ecology including ornithology and marine mammals. The impacts associated with these receptors are covered in **Chapter 9, Benthic and Intertidal Ecology**, **Chapter 10, Fish and Shellfish Ecology**, **Chapter 11, Offshore Ornithology** and **Chapter 12, Marine Mammals**.
4. This chapter has been prepared by Royal HaskoningDHV, using information obtained from a suite of ecological field surveys that have been undertaken by BSG Ecology. The assessment follows guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018).

19.2. POLICY, LEGISLATION AND GUIDANCE

19.2.1. Legislation

5. There are a number of pieces of legislation applicable to onshore ecology. Further detail on legislation and policy in relation to the wider Project is provided in **Chapter 2, Policy and Legislation**. The following key pieces of International and UK legislation are relevant to this chapter (and are detailed within **Chapter 2, Policy and Legislation**):
 - Habitats Directive - Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora;
 - Birds Directive - Council Directive 2009/147/EC on the Conservation of Wild Birds;
 - Wildlife and Countryside Act 1981 (as amended);
 - The Conservation of Habitats and Species Regulations 2017;
 - Natural Environment and Rural Communities (NERC) Act 2006;
 - The Environment (Wales) Act 2016;
 - The Commons Act 2006; and
 - Countryside and Rights of Way Act 2000 (CRoW).

6. **Table 19-1** sets out national and regional policies relevant to onshore ecology.

Table 19-1 National and Regional Policy Requirements Relevant to Onshore Ecology

Policy Description	Reference	ES Reference
Planning Policy Wales		
The Environment (Wales) Act 2016 introduced an enhanced biodiversity and resilience of ecosystems duty (Section 6 Duty). This duty applies to public authorities in the exercise of their functions in relation to Wales and will help maximise contributions to achieving the well-being goals. The Nature Recovery Action Plan supports this legislative requirement to reverse the decline in biodiversity, address the underlying causes of biodiversity loss by putting nature at the heart of decision-making and increasing the resilience of ecosystems by taking specific action focused around the 6 objectives for habitats and species.	6.4.2	Chapter 3, Site Selection and Consideration of Alternatives discusses how the Project has avoided sensitive ecological features where possible. Opportunities for habitat enhancement is discussed in Section 19.6.5
A proactive approach towards facilitating the delivery of biodiversity and resilience outcomes should be taken by all those participating in the planning process. In particular, planning authorities must demonstrate that they have sought to fulfil the duties and requirements of Section 6 of the Environment Act by taking all reasonable steps to maintain and enhance biodiversity in the exercise of their functions.	6.4.8	As above
The presence of a species protected under European or UK legislation, or under Section 7 of the Environment (Wales) Act 2016 is a material consideration when a planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat and to ensure that the range and population of the species is sustained. Planning authorities should advise anyone submitting a planning application that they must conform with any statutory species protection provisions affecting the site, and potentially the surrounding area, concerned. An ecological survey to confirm whether a protected species is present and an assessment of the likely impact of the development on a protected species may be required in order to inform the development management process. It is considered best practice that screening to determine the presence of protected species should be carried out by a competent ecologist on the basis of data provided by the relevant Local Environmental Record Centre.	6.4.22	Impacts to European designated sites are considered within the Information to Support HRA (Document MOR/RHDHV/DOC/0067) and Chapter 11, Offshore Ornithology . Impacts to SSSIs are considered within Section 19.6.5 of this chapter. Habitats and species of principal importance are discussed in Sections 19.5 and 19.6
Anglesey and Gwynedd Joint Local Development Plan (JLDP)		
1. All impacts on landscape character, heritage assets and natural resources have been adequately mitigated, ensuring that the special qualities of all locally, nationally and internationally important landscape, biodiversity and heritage designations, including, where appropriate, their settings are conserved or enhanced; 3. That the proposal is mitigated to ensure that there aren't any significant unacceptable effects on sensitive uses located nearby;	Policy ADN 3: Other Renewable Energy and Low Carbon Technologies	The impact assessment for construction, operation and decommissioning of the Project, including proposed mitigation measures can be found in Section 19.6 .

Policy Description	Reference	ES Reference
The Councils will manage development so as to conserve and where appropriate enhance the Plan area's distinctive natural environment, countryside and coastline, and proposals that have a significant adverse effect on them will be refused unless the need for and benefits of the development in that location clearly outweighs the value of the site or area and national policy protection for that site and area in question.	Strategic Policy PS 19: Conserving and Where Appropriate Enhancing the Natural Environment	As above.
In considering a proposal on the coast, including the Heritage Coast, there will be a need to ensure that the proposal conforms to certain criteria	Policy AMG 4: Coastal Protection	Impacts to the Heritage Coast are considered in Chapter 20, Onshore Archaeology and Chapter 24, SLVIA .
Proposals must protect and, where appropriate, enhance biodiversity that has been identified as being important to the local area	Policy AMG 5: LOCAL Biodiversity Conservation	Compensation or enhancement of habitat is proposed where work is carried out within a site of European importance (Section 19.6.5.1)
Proposals that are likely to cause direct or indirect significant harm to Local Nature Reserves (LNR), Wildlife Sites (WS) 1 or regionally important geological / geomorphologic sites (RIGS) must have overriding economic and social benefit and not cause unacceptable harm	Policy AMG 6: Protecting Sites of Regional or Local Significance	An assessment of potential impacts to locally designated sites is included in Section 19.6.5 . Impacts to geological sites are assessed in Chapter 18, Ground Conditions and Contamination .

7. In addition, the following policy, legislation and guidance is also relevant to onshore ecology.

19.2.1.1. The Protection of Badgers Act 1992

8. The Protection of Badgers Act 1992 makes it an offence to wilfully kill, injure or take, or attempt to kill, injure or take a badger *Meles meles*; and to cruelly ill-treat a badger.
9. The Act also makes it an offence to intentionally or recklessly damage, destroy or obstruct a badger sett, or to disturb a badger whilst in a sett.

19.2.1.2. The Hedgerow Regulations 1997

10. The Regulations make it an offence to remove or destroy certain hedgerows without permission from the local planning authority and the local planning authority is the enforcement body for such offences.

19.2.2. Guidance

11. The impact assessment has been based upon the following guidance and standards:

- Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018);
- British Standard 42020:2013 – Biodiversity. Code of Practice for planning and development (British Standard, 2013);
- Construction Industry Research and Information Association (CIRIA) C648 (2006) Control of water pollution from linear construction projects (CIRIA, 2006); and
- CIRIA Guidance note C692 Environmental Good Practice on Site Guide (3rd Edition) (CIRIA, 2016).

12. The following species-specific guidance and standards have been used during the assessment process. Natural England guidance is considered in lieu of a Welsh equivalent where appropriate:

- Biggs et al (2014) Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical Advice Note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA;
- Creswell et al (2004) An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt;
- Maddock (2011) UK Biodiversity Action Plan; Priority Habitat Descriptions;
- Natural England (2014) Otters: surveys and mitigation for development projects. Natural England Standing Advice;
- Natural England (2015a) Badgers: surveys and mitigation for development projects. Natural England Standing Advice;
- Natural England (2015b) Bats: surveys and mitigation for development projects. Natural England Standing Advice;
- Natural England (2015c) Great crested newts: surveys and mitigation for development projects. Natural England Standing Advice;
- Natural England (2015d) Invertebrates: surveys and mitigation for development projects. Natural England Standing Advice;
- Natural England (2015e) Reptiles: surveys and mitigation for development projects. Natural England Standing Advice;
- Natural England (2015f) Water voles: surveys and mitigation for development projects. Natural England Standing Advice;
- Oldham et al (2000) Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*); and
- Williams (2013) How to collect a water sample to detect Great Crested Newt eDNA.
- Natural England and Forestry Commission (2018) Ancient woodland and veteran trees: protecting them from development. Natural England and Forestry Commission Standing Advice;

- British Standard 5837: 2012 – Trees in relation to design, demolition and construction (British Standard, 2012);
- Bat Conservation Trust and Institute of artificial Lighting Engineers (2018) Bats and Lighting in the UK;
- Dean et al. (2016) The Water Vole Mitigation Handbook (The Mammal Society Guidance Series);
- Edgar et al. (2010). Reptile Habitat Management Handbook;
- English Nature (2001) Great Crested Newt Mitigation Guidelines;
- Joint Nature Conservation Committee (JNCC) (2003) Herpetofauna Worker's Manual;
- Environment Agency (2006) Managing Japanese knotweed on development sites: the knotweed code of practice;
- Strachan and Moorhouse (2011) Water Vole Conservation Handbook, 3rd Edition; and
- GB Non-native Species Secretariat (2015) Species Information.

19.2.3. Policies and Plans

13. The policies and plans outlined below have also been reviewed for their relevance to onshore ecology.

19.2.3.1. Planning Policy Wales

14. The Welsh Government publishes Planning Policy Wales (PPW), which is amended periodically.
15. The Welsh Government's objectives for conserving and improving the natural environment are as follows:
- *"Promote the conservation of landscape and biodiversity, in particular the conservation of native wildlife and habitats;*
 - *Ensure that action in Wales contributes to meeting international responsibilities and obligations for the natural environment;*
 - *Ensure that statutorily designated sites are properly protected and managed;*
 - *Safeguard protected species; and*
 - *Promote the functions and benefits of soils, and in particular their function as a carbon store."*
16. There is a clear requirement within PPW for pre-planning consent consultation with Natural Resources Wales (NRW) where a planning application or proposal may be *"likely to have a significant effect on sites of more than local importance or on a designated area'* or would be *'likely to result in disturbance or harm to a protected species."*
17. PPW requires local planning authorities to *"have regard to the relative significance of international, national and local designations in considering the weight to be attached to nature conservation interests and should take care to avoid placing unnecessary constraints on development."* Statutory designations do not necessarily prohibit development taking place,

however, PPW states that development proposals “*must be carefully assessed for their effect*” on the interests for which the designation is made.

18. Species protected under European or UK legislation are identified as a material consideration when considering a development proposal where protected species are present and if the development would “*be likely to result in disturbance or harm to the species or its habitat.*” The potential need for ecological survey and assessment of likely impact of a proposed development on a protected species to inform planning decisions is highlighted in paragraph 5.5.11 of PPW.
19. Trees, woodlands and hedgerows are identified as being of great importance and that local planning authorities should seek their protection where they have natural heritage value. Ancient and semi-natural woodlands are specifically highlighted as “*irreplaceable habitats of high biodiversity value which should be protected from development that would result in significant damage.*” Consultation with NRW and/or the Forestry Commission is required if a site is recorded on the inventory of ancient woodland before authorising potentially damaging operations.

19.2.3.2. TAN-5: Nature Conservation and Planning (Wales only)

20. Technical Advice Note (TAN) 5 supplements PPW (**Section 19.2.3.1**) and provides advice about how the land use planning system in Wales “*should contribute to protecting and enhancing biodiversity and geological conservation.*”
21. TAN5 has been reviewed to inform the approach to this chapter. The TAN provides guidance to local planning authorities on: “*the key principles of positive planning for nature conservation; nature conservation and Local Development Plans; nature conservation in development management procedures; development affecting protected internationally and nationally designated sites and habitats; and, development affecting protected and priority habitats and species.*”
22. The TAN states that when deciding planning applications that may affect nature conservation, “*Local Authorities should:*
 - *Contribute to the protection and improvement of the environment...seeking to avoid irreversible harmful effects on the natural environment;*
 - *Ensure that appropriate weight is attached to designated sites of international, national and local importance;*
 - *Protect wildlife and natural features in the wider environment, with appropriate weight attached to priority habitats and species in Biodiversity Action Plans (BAP);*
 - *Ensure that all material considerations are taken into account and decisions are informed by adequate information about the potential effects of a development on nature conservation;*
 - *Ensure that the range and population of protected species is sustained;*
 - *Adopt a stepwise approach to avoid harm to nature conservation, minimise unavoidable harm by mitigation measures, offset residual harm by compensation measures and look for new opportunities to enhance nature conservation; where there may be significant*

harmful effects local planning authorities will need to be satisfied that any reasonable alternative sites that would result in less or no harm have been fully considered."

19.2.3.3. Renewable Energy Policy Wales

23. This Policy is discussed in **Chapter 2, Policy and Legislation**.

19.2.3.4. Natural Environment White Paper 2011 (as amended)

24. The paper was the first White Paper produced by the government in 20 years. The paper contains plans to reconnect nature, connect people and nature for better quality of life and capture and improve the value of nature.

19.2.3.5. A Green Future: Our 25 Year Plan to Improve the Environment 2018

25. The plan sets out ten goals and a range of high-level policies aimed at helping "*the natural world regain and retain good health*".

26. The key policies within the plan relevant for this chapter are:

- Embedding an environmental net gain principle for development, including housing and infrastructure;
- Focusing on woodland to maximise its many benefits; and
- Protecting and recovering nature (including improving biosecurity to protect and conserve nature).

19.2.3.6. National Policy Statements

27. The assessment of potential impacts upon terrestrial ecology has been made with specific reference to the relevant National Policy Statements (NPS). Those relevant to the project are:

- Overarching NPS for Energy (EN-1) (Department of Energy and Climate Change (DECC), 2011a);
- NPS for Renewable Energy Infrastructure (EN-3) (DECC, 2011b); and
- NPS for Electricity Networks Infrastructure (EN-5) (DECC, 2011c).

28. The specific assessment requirements for terrestrial ecology, as detailed in the NPSs, are summarised in **Table 19-2**, together with an indication of the paragraph numbers of where within this ES chapter it has been addressed. Where any part of the NPS has not been followed within the assessment, an explanation as to why the requirement was not deemed relevant, or has been met in another manner, is provided.

Table 19-2 NPS Assessment Requirements

NPS Requirements	NPS Reference	ES Reference
EN-1 Overarching NPS for Energy		
'Where the development is subject to EIA [Environmental Impact Assessment] the applicant should ensure that the ES [Environmental Statement] clearly sets out any effects on	Section 5.3.3	Impacts to designated sites are discussed in

NPS Requirements	NPS Reference	ES Reference
internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The applicant should provide environmental information proportionate to the infrastructure where EIA is not required to help the Infrastructure Planning Commission (IPC) consider thoroughly the potential effects of a proposed project.'		Impacts 1 and 2, Section 19.6.5
'The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.'	Section 5.3.4	Chapter 3, Site Selection and Consideration of Alternatives discusses how the Project has avoided sensitive ecological features where possible. Opportunities for habitat enhancement is discussed in Section 19.6.5
<p>'When considering the application, the IPC will have regard to the Government's biodiversity strategy as (sic) set out in 'Working with the grain of nature', which aims to halt or reverse declines in priority habitats and species; accept the importance of biodiversity to quality of life. The IPC will consider this in relation to the context of climate change.</p> <p>As a general principle, and subject to the specific policies below, development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives (as set out in section 4.4 above); where significant harm cannot be avoided, then appropriate compensation measures should be sought.</p> <p>In taking decisions, the IPC 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.'</p>	Sections 5.3.5 – 5.3.8	Sections 19.6.5 and 19.6.6 discuss the mitigation measures proposed to avoid significant harm to biodiversity interests. Geology is discussed in Chapter 18, Ground Conditions and Contamination
'The IPC will have the same regard to potential Special Protection Areas (pSPAs) and Ramsar sites as those sites identified through international conventions and European Directives.'	Section 5.3.9	Impacts to pSPAs and Ramsar sites are discussed in Chapter 11, Offshore Ornithology
'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.'	Section 5.3.11	Impacts to SSSIs are discussed in Impact 2 in Section 19.6.5
<p>'Where a proposed development on land within or outside an SSSI is likely to have an adverse effect on an SSSI (either individually or in combination with other developments), development consent should not normally be granted.</p> <p>Where an adverse effect, after mitigation, on the site's notified special interest features is likely, an exception should only be made where the benefits (including need) of the development at this site,</p>	Section 5.3.11	Impacts to SSSIs are discussed in Impact 2 in Section 19.6.5

NPS Requirements	NPS Reference	ES Reference
clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs.'		
'The IPC will have regard to sites of regional and local biodiversity and geological interest, which include Regionally Important Geological Sites, Local Nature Reserves and Local Sites when considering applications since they are recognised to have a fundamental role in meeting overall national biodiversity targets.'	Section 5.3.13	Impacts to regional and local sites are discussed in Impact 2 in Section 19.6.5 . Geology is discussed in Chapter 18, Ground Conditions and Contamination
<p>'Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Once lost it cannot be recreated.</p> <p>The IPC should not grant development consent for any development that would result in its loss or deterioration unless the benefits (including need) of the development, in that location outweigh the loss of the woodland habitat.</p> <p>Aged or 'veteran' trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided.</p> <p>Where such trees would be affected by development proposals the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons why.'</p>	Section 5.3.14	Ancient woodlands have been avoided by the Project infrastructure. They are further discussed in Section 19.6.5.2.1 .
The IPC will aim to maximise opportunities to build in beneficial biodiversity features when considering proposals as part of good design.	Section 5.3.15	Opportunities for habitat enhancement are discussed in Section 19.6.5
<p>The IPC shall have regard to the protection of legally protected species and habitats and species of principal importance for nature conservation.</p> <p>'The IPC shall refuse consent where harm to the habitats or species and their habitats would result, unless the benefits (including need) of the development outweigh that harm. In this context the IPC should give substantial weight to any such harm to the detriment of biodiversity features of national or regional importance which it considers may result from a proposed development.'</p>	Sections 5.3.16 – 5.3.17	Habitats and species of principal importance are discussed in Sections 19.5 and 19.6
<p>The applicant should include appropriate mitigation measures as an integral part of the proposed development and demonstrate that:</p> <ul style="list-style-type: none"> ▪ During construction, they will seek to ensure that activities will be confined to the minimum areas required for the works; ▪ During construction and operation best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised, including as a consequence of transport access arrangements; ▪ Habitats will, where practicable, be restored after construction works have finished; and 	Section 5.3.18	These measures are embedded in the project design and are discussed in Sections 19.6.3, 19.6.4 and 19.6.5 .

NPS Requirements	NPS Reference	ES Reference
<ul style="list-style-type: none"> Opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping proposals. 		
'The IPC will need to take account of what mitigation measures may have been agreed between the applicant and Natural England has granted or refused or intends to grant or refuse, any relevant licences, including protected species mitigation licences.'	Section 5.3.20	Mitigation is discussed in Sections 19.6.3, 19.6.4, 19.6.5 and 19.6.6
EN-3 NPS for Renewable Energy Infrastructure		
'Proposals for renewable energy infrastructure should demonstrate good design in respect of landscape and visual amenity, and in the design of the project to mitigate impacts such as noise and effects on ecology.'	Section 2.4.2	Landscape and visual amenity is discussed in Chapter 24, Seascape, Landscape and Visual Impact Assessment , noise is discussed in Chapter 21, Noise and Vibration and Sections 19.5, 19.6.3 and 19.6.5 discuss how the design of the project has mitigated impacts on ecology
'Ecological monitoring is likely to be appropriate during the construction and operational phases to identify the actual impact so that, where appropriate, adverse effects can then be mitigated and to enable further useful information to be published relevant to future projects.'	Section 2.6.70	Proposals for ecological monitoring are discussed in Sections 19.6.3, 19.6.4, 19.6.5 and 19.6.6
'There may be some instances where it would be more harmful to the ecology of the site to remove elements of the development, such as the access tracks or underground cabling, than to retain them.'	Section 2.7.15	Decommissioning is discussed in Chapter 4, Project Description and Section 19.6.8

19.2.3.7. Anglesey and Gwynedd Joint Local Development Plan

29. **Table 19-3** below provides details on the policies of the Joint Local Development Plan (JLDP) which are relevant to onshore ecology.
30. Designated areas which these policies may refer to are shown on **Figure 19.2 (Volume II)** and **Figure 19.3 (Volume II)**. A number of policies which primarily relate to the management of water resources, and which are inter-linked with onshore ecology are discussed in **Chapter 17, Water Resources and Flood Risk**.

Table 19-3 Relevant Local Planning Policies of the Joint Local Development Plan

Policy/Guidance	Policy/Guidance Purpose
Policy ISA 4: Safeguarding Existing Open Space	To protect open spaces as an invaluable amenity resource
Policy AND 3: Other Renewable Energy	Proposals for renewable and low carbon energy technologies, other than wind or solar, which contribute a low carbon future will be permitted, provided that the proposal conforms to the following criteria... <i>"All impacts on landscape character,</i>

Policy/Guidance	Policy/Guidance Purpose
and Low Carbon Technologies	<i>heritage assets and natural resources have been adequately mitigated, ensuring that the special qualities of all locally, nationally and internationally important landscape, biodiversity and heritage designations, including, where appropriate, their settings are conserved or enhanced</i> '.
Strategic Policy PS 19: Conserving and where appropriate enhancing the Natural Environment	<p>The Councils will manage development so as to conserve and where appropriate enhance the Plan area's distinctive natural environment, countryside and coastline, and proposals that have a significant adverse effect on them will be refused unless the need for and benefits of the development in that location clearly outweighs the value of the site or area and national policy protection for that site and area in question. When determining a planning application, consideration will need to be given to the following:</p> <ol style="list-style-type: none"> 1. Safeguard the Plan area's habitats and species, geology, history, the coastline and landscapes; 2. Protect or where appropriate enhance sites of international, national, regional and local importance and, where appropriate, their settings in line with National Policy; 3. Have appropriate regard to the relative significance of international, national or local designations in considering the weight to be attached to acknowledged interests, ensuring that any international or national responsibilities and obligations are fully met in accordance with National Policy; 4. Protect or enhance biodiversity within the Plan area and enhance and/or restore networks of natural habitats in accordance with the Local Biodiversity Action Plans and Policy AMG 5; 5. Protect or enhance biodiversity through networks of green/ blue infrastructure; 6. Safeguard internationally, nationally and locally protected species; 7. Protect, retain or enhance the local character and distinctiveness of the individual Landscape Character Areas (in line with Policy AMG 2) and Seascape Character Areas (in line with Policy AMG 4); 8. Protect, retain or enhance trees, hedgerows or woodland of visual, ecological, historic cultural or amenity value
Policy AMG 4: Coastal Protection	<p>In considering a proposal on the coast, including the Heritage Coast, there will be a need to ensure that the proposal conforms to the following criteria:</p> <p>It does not cause unacceptable harm to: "...the area's biodiversity interests (including European Protected Areas such as marine Special Areas of Conservation and Special Protected Areas) due to their location, scale, form, appearance, materials, noise, or emissions or due to an unacceptable increase in traffic..."</p>
Policy AMG 5: Local Biodiversity Conservation	<p>Proposals must protect and, where appropriate, enhance biodiversity that has been identified as being important to the local area by:</p> <p>Avoiding significant harmful impacts through the sensitive location of development. Considering opportunities to create, improve and manage wildlife habitats and natural landscape including wildlife corridors, stepping stones, trees, hedges, woodlands and watercourses.</p> <p>A proposal affecting sites of local biodiversity importance will be refused unless they can conform with all of the following criteria:</p> <ol style="list-style-type: none"> 1. That there are no other satisfactory alternative sites available for the development. 2. The need for the development outweighs the importance of the site for local nature conservation; 3. That appropriate mitigation or compensation measures are included as part of the proposal. <p>Where necessary, an Ecological Assessment which highlights the relevant local biodiversity issues should be included with the planning application.</p>

Policy/Guidance	Policy/Guidance Purpose
Policy AMG 6: Protecting Sites of Regional or Local Significance	Proposals that are likely to cause direct or indirect significant harm to Local Nature Reserves (LNR), Wildlife Sites (WS) or regionally important geological / geomorphologic sites (RIGS) will be refused, unless it can be proven that there is an overriding social, environmental and/or economic need for the development, and that there is no other suitable site that would avoid having a detrimental impact on sites of local nature conservation value or local geological importance. When a development is granted, it will be necessary to ensure that there are appropriate mitigation measures in place. It will be possible to use planning conditions and/or obligations in order to safeguard the site's biodiversity and geological importance.

19.2.3.8. Biodiversity Action Plan

31. At the Rio summit in 1992 world leaders pledged to fight against wildlife's extinction and strive to protect the variety of living nature on earth and the Convention on Biological Diversity was signed.
32. The UK generated the UK Biodiversity Action Plan (UKBAP) in response to this agreement. Local Biodiversity Action Plans (LBAP) were adopted at the county level to generate action on the ground and help meet UK targets.
33. Anglesey's LBAP was written to help secure partnership work between local people and organisations to ensure these local resources are valued and looked after in the future. The action plan set out work to help important habitats and species on Anglesey.

19.3. CONSULTATION

34. To inform the ES, Mentor Môn has undertaken a thorough pre-application consultation process, which has included the following key stages:
 - Scoping Reports submitted to the Planning Inspectorate (Royal HaskoningDHV 2015, 2017, 2018); and
 - Scoping Opinions (2015, 2017, 2018) received from the Planning Inspectorate (2018).
35. To aid the assessment of onshore ecology, comments on the scope of the ecological survey was provided by the Isle of Anglesey Council (IoACC) Ecological Advisor during pre-application consultation outlined in **Chapter 6, Consultation**. Full details of the ecological surveys that have been undertaken to inform this EclA are provided in **Appendix 19.1 (Volume III)**.
36. NRW (Protected Species Officer and Development Planning Advisor) was contacted to discuss the strategy for survey and assessing impacts on great crested newt (GCN) on 11 June 2018. A copy of the Spatial Action Plan for GCNs in Anglesey was provided to BSG Ecology by NRW.
37. The Project is in the vicinity of important habitat for chough, a Schedule 1 species and feature of a number of designated sites in the area. Information on chough nesting sites was obtained from Adrienne Stratford (of the Cross and Stratford Chough Project) on 27 January 2019. The Royal Society for the Protection of Birds (RSPB) provided chough information and data including records of foraging birds from transect surveys of land parcels within and close to the South

Stack RSPB reserve. Further information and figures showing locations of chough nest and roost sites and feeding areas/records are included in **Confidential Appendix 19.2 (Volume III)**.

38. Full details of the project consultation process to date is presented within **Chapter 6, Consultation**.
39. A summary of the consultation carried out at key stages throughout the Project, of particular relevance to onshore ecology, is presented in **Table 19-4**.



Table 19-4 Consultation Responses

Consultee	Date/ Document	Comment	Response / Where addressed in the ES
NRW	Scoping Opinion (2015)	The Habitats Regulations Assessment (HRA) is a two stage process, the first stage being a 'Test of Likely Significant Effect' to establish whether the proposals are likely to result in significant effects on any European sites (and Ramsar sites). If this establishes that significant effects are likely, or there is uncertainty whether significant effects are likely to result, then an appropriate assessment of the effects of the activity in view of the conservation objectives of the site(s) is required. The HRA also needs to consider in-combination effects of the proposed Project with other projects.	Noted, the HRA Screening document and information to inform an Appropriate Assessment are presented in Document MOR/RHDHV/DOC/0067, Information to Support HRA
NRW	Scoping Opinion (2015)	The process of the consideration of development proposals likely to affect European Sites (and Ramsar sites) takes into account the conservation objectives of the site(s) concerned. It is undertaken by the Competent Authority, which in the case of the Marine Licence is NRW's Marine Licensing Team and is an additional requirement to EIA. However, the information contained within the ES may be of relevance and be used in the HRA. We therefore recommend that the ES includes 'Information to inform the Habitats Regulations Assessment (HRA)'. Competent Authorities may only permit proposals that will adversely affect the integrity of European Sites (and Ramsar sites) if there are no alternative solutions, there are Imperative Reasons of Overriding Public Interest (IROPI) for the development and compensatory measures have been secured	Noted, the HRA Screening document and information to inform an Appropriate Assessment are presented in Document MOR/RHDHV/DOC/0067, Information to Support HRA
NRW	Scoping Opinion (2015)	Without prejudice to the HRA or consenting process, a package of measures that would avoid or mitigate the effects of the proposed scheme and avoid adverse effects on the integrity of the European Sites (and Ramsar Sites), would appear challenging to achieve in this case. If this is the case it may be necessary to consider the scheme under Regulation 62 of the Habitats Regulations, where the possibility of alternatives to the Project that would not give rise to adverse effects on the integrity of the European Sites are considered.	Noted, the HRA Screening document and information to inform an Appropriate Assessment are presented in Document MOR/RHDHV/DOC/0067, Information to Support HRA
NRW	Scoping Opinion (2015)	It is difficult to determine from the information provided in the scoping report the potential impacts and the significance of potential impacts, for protected sites. The EIA should concentrate on impacts both direct and indirect on marine and coastal sites and those adjacent to the cable route and any land-based infrastructure.	Designated sites are considered in Section 19.6.5.



Consultee	Date/ Document	Comment	Response / Where addressed in the ES
NRW	Scoping Opinion (2015)	Certain species listed under Schedule 5 of the Wildlife and Countryside Act 1981 (WCA, 1981), as amended by the Countryside and Rights of Way Act 2000 (CRoW, 2000) are legally protected from 'reckless or intentional disturbance. In addition, certain species listed in Annex IV(a) of the Habitats Directive and whose natural range includes any area in Great Britain are legally protected under the Conservation of Habitats and Species Regulations 2010 (as amended) (the 'Habitats Regulations') (<i>this was updated in 2017</i>) and Offshore Marine Conservation (Natural Habitats &c) Regulations 2010 (Offshore Marine Regulations). The Regulations prohibit the deliberate capture, injury, killing or disturbance of any wild animal of an EPS. The ES must consider the impact of the project on species protected under UK and European legislation, including those which are features of protected sites. Further information on protected species of particular relevance to the WADZ and guidance on the requirements of legislation can be found in NRW's 'Natural heritage checklist for the demonstration zone' and NRW Advisory's 'Advice on scoping an Environmental Impact Assessment for marine renewable energy developments'.	Protected species are considered in Section 19.6.5 .
NRW	Scoping Opinion (2015)	If the EIA identifies the presence of European or nationally protected species appropriate mitigation and/or compensation and reasonable avoidance measures must be proposed to ensure the Favourable Conservation Status of the species is maintained where necessary.	Mitigation is detailed in Section 19.6.5 .
NRW	Scoping Opinion (2015)	Menter Môn may also wish to consider whether an EPS Licence under the Conservation of Habitats and Species Regulations 2010 (<i>this was updated in 2017</i>) will be required, as it is an offence to deliberately disturb capture, injure or kill or damage or destroy a breeding site or resting place of EPS. Further details on the EPS can be found in Annex 2 of this document. The need for EPS licence(s) should be determined as part of the EIA process	EPS are discussed in Section 19.6.5 .
NRW	Scoping Opinion (2015)	SSSI, which are nationally important sites, notified under the Wildlife and Countryside Act, 1981, (WCA) as amended by the Countryside and Rights of Way Act, 2000 (CRoW), which could be impacted by the project and therefore should be included in the ES include: <ul style="list-style-type: none"> ▪ Rhosneigr Reefs Site of SSSI; ▪ Beddmanarach and the Cymyran SSSI; ▪ Glannau Rhoscolyn SSSI; and ▪ Ynys Feurig SSSI 	Impacts to SSSI are discussed in Section 19.6.5 .
NRW	Scoping Opinion (2015)	The EIA should take into consideration any potential impacts of onshore development associated with the Morlais Demo zone. The EIA should include appropriate ecological surveys to assess the likely impact of the scheme on protected sites and/or species.	Baseline ecological surveys have been undertaken and impacts to onshore ecology



Consultee	Date/ Document	Comment	Response / Where addressed in the ES
			are discussed in Section 19.6.
NRW	Scoping Opinion (2015)	The proposed development is approximately 950m away from the boundary of the Beddmanarch Cymyran SSSI. The EIA should give full consideration to the potential impacts the scheme may have on this designated site.	Beddmanarch Cymyran SSSI is considered in Section 19.6.5.
NRW	Scoping Opinion (2015)	There is a record of otter and great crested newts in the vicinity of the proposed development. Otters and great crested newts are protected under the WCA, 1981 (as amended) and the Conservation of Habitats and Species Regulations (2010). The EIA should assess the scheme's potential impact on the maintenance of the otter population at a favourable conservation status.	Otter and GCN are considered in Section 19.6.5.
NRW	Scoping Opinion (2015)	EIA baseline characterisation strategy points: We agree with the proposal to gather existing and new data. We note that a large amount of relevant material has been gathered from recent survey work for other proposals/ cases in the area (particularly Lateral Power and Land and Lakes), if available would be useful to inform the baseline characterisation.	Site-specific surveys were commissioned, and baseline characterisation is undertaken in Section 19.5
NRW	Scoping Opinion (2015)	We have been made aware that common lizards are present in the area, although not EPS, reptiles have partial protection under the WCA, 1981, and should be covered in the EIA.	Common lizards are discussed in Section 19.5.2.2.
IoACC	Scoping Opinion (2017)	<ul style="list-style-type: none"> Local Wildlife sites not included; Not statutory but are a feature in current LDP process and referred to in planning cases; Advise proportional consideration in EIA: Local Wildlife Sites Protected species, incl. Cofnod (North Wales Environmental Information Service) Survey detail (certain species/groups) and clarity on preferred routes. Suggests appropriate workshop meeting for relevant council staff and stakeholders. See Appendix 1 for further detail.	LWS have been considered in Section 19.5 and 19.6.5.
IoACC	Scoping Opinion (2017)	<ul style="list-style-type: none"> Anglesey Terns SPA was not included in Scoping Report, should be considered as part of subsequent planning application, along with other identified sites Extra attention given to ornithological receptors, further advise for ES detailed in Appendix 3 Section on habitat/species connectivity in order to prevent habitat fragmentation and indirect impacts upon receptors, habitats and designated sites. Scoping area B poses least disruption (largely urban and small area of designated sites) 	Connectivity is considered in Section 19.6.5.



Consultee	Date/ Document	Comment	Response / Where addressed in the ES
IoACC	Scoping Opinion (2017)	<ul style="list-style-type: none"> Reference local wildlife sites Badgers present in the area, ecology reports in relation to Parc Cybi development Impacts on ancient woodland (Penrhos Coastal Park) 	These features are all discussed in Section 19.5 and considered in Section 19.6.5 .
IoACC	Scoping Opinion (2017)	<ul style="list-style-type: none"> Consider impact on protected species and demonstrate will not impact on Favourable Conservation Status of European and Nationally protected species Propose and deliver appropriate mitigation /compensation schemes to ensure favourable conservation status. Be aware that the development may only proceed under derogation licence should surveys confirm presence of species that are protected 	Impacts to protected species are assessment in Section 19.6.5 .
IoACC	Scoping Opinion (2017)	All works at the site must be carried out in accordance with GPP5 and PPG6: 'Works in, near or over watercourses' and 'Working at construction and demolition sites'	Works will be undertaken in accordance with GPP5 and PPG6.
IoACC	Scoping Opinion (2017)	Welcomes HRA assessment and applicant should liaise with statutory and other consultees as part of this screening process.	The HRA is presented in Document MOR/RHDHV/DOC/0067, Information to Support HRA .
Planning Inspectorate	Scoping Opinion (2018)	In some circumstances it will be appropriate for information to be kept confidential. In particular, this may relate to information about the presence and locations of rare or sensitive species such as badgers, rare birds and plants where disturbance, damage, persecution or commercial exploitation may result from publication of the information. Where documents are intended to remain confidential the Applicant should provide these as separate paper and electronic documents with their confidential nature clearly indicated in the title and watermarked as such on each page. The information should not be incorporated within other documents that are intended for publication or which the Welsh Ministers would be required to disclose under the Environmental Information Regulations 2014.	Badger data is provided in Confidential Appendix 19.3 . Chough data is provided in Confidential Appendix 19.2 .
Planning Inspectorate	Scoping Opinion (2018)	Study areas: It is recommended that the Applicant makes efforts to agree the relevant study areas with NRW and that they are appropriate to ensure any likely significant effects are identified in the ES.	Surveys have been agreed with NRW and IoACC (see Section 19.3).



Consultee	Date/ Document	Comment	Response / Where addressed in the ES
Planning Inspectorate	Scoping Opinion (2018)	Habitats Regulations: The Applicant should note that the Habitat Regulations referred to in the Scoping Report were consolidated and replaced in 2017.	Information on HRA is presented in Document MOR/RHDHV/DOC/0067, Information to Support HRA.
Planning Inspectorate	Scoping Opinion (2018)	Designated Sites: There are number of errors in the Table 8-1 including incorrectly named designated sites and features. The Applicant should ensure that any such errors are omitted from information in the ES. There are a greater number of designated sites listed in Table 8-1 of the Scoping Report than shown on Figure 8-1. The ES should include figures identifying the location of all designated sites discussed in the text and also identify the distance of the designated sites from the Proposed Works	Terrestrial Ecology designated sites are discussed in Section 19.5.1 and assessed in Section 19.6.5.
Planning Inspectorate	Scoping Opinion (2018)	Potential Impacts: It is unclear how habitat loss will affect some designated sites located far away from the Proposed Works e.g. Dee Estuary SAC. This should be clarified in the ES.	Terrestrial Ecology designated sites are discussed in Section 19.5.1 and assessed in Section 19.6.5.
Planning Inspectorate	Scoping Opinion (2018)	Potential Impacts: The potential impacts are duplicated in Table 8-2, although do not always correlate with the potential impacts identified in Table 8-1 (e.g. effects of lighting are noted in Table 8-1 but not Table 8-2). Where relevant the Applicant should ensure consistency between information presented in the ES.	Potential Impacts are discussed in Section 19.6
Planning Inspectorate	Scoping Opinion (2018)	Potential Impacts: Tables 8-1 and 8-2 of the Scoping Report identify a number of potential impacts for which it is assumed modelling could be required e.g. noise impacts, collision risk, electro-magnetic field ('EMF'). The Scoping Report does not explain the intended approach to predicting these potential impacts. The ES should provide details of any models used, the input parameters and any assumptions made in the models. Any guidance used to inform the assessment should be detailed within the ES. This comment also applies to the Benthic Ecology and Terrestrial and Coastal Ecology aspects.	No models have been used for the assessment of impacts to terrestrial ecology. Noise is discussed in Chapter 21, Noise and Vibration . Collision Risk and EMF is discussed in Chapter 10, Fish and Shellfish Ecology, Chapter 11, Offshore Ornithology and Chapter 12, Marine Mammals Impacts to benthic ecology are covered



Consultee	Date/ Document	Comment	Response / Where addressed in the ES
			in Chapter 9, Benthic and Intertidal Ecology
Planning Inspectorate	Scoping Opinion (2018)	Ancient Woodland: Isle of Anglesey County Council's (IoACC) comment in Table 11-1 of the Scoping Report is noted, along with the need to consider ancient woodland at and around Penrhos Coastal Park. The Applicant's response indicates intent to consider ancient woodland in the assessment, however there is no further reference to ancient woodland in the Scoping Report. The potential impacts to ancient woodland should be assessed within the ES.	Ancient woodland is assessed in Section 19.5.1 and 19.6.5 .
Planning Inspectorate	Scoping Opinion (2018)	Barn owls: NRW's comments in Table 11-1 of Appendix A1 of the Scoping Report, identify potential impacts on barn owls, however this species has not been identified as a relevant species for assessment in the baseline of the Scoping Report. The potential impacts on barn owls should be assessed in the ES.	Barn owls are discussed in in Sections 19.5.2 and 19.6.5 .
Planning Inspectorate	Scoping Opinion (2018)	Focus on the ecology on Holy Island: The Scoping Report has focused on the ecology on Holy Island only. It is noted that one grid connection option is located in Valley, which is not on Holy Island. The ES should encompass the entire application site and the study area for the assessment should be defined according to the relevant receptors that may experience impacts by the Proposed Works.	All onshore works will now be on Holy Island and Valley is no longer considered. See Sections 19.5 and 19.6
Planning Inspectorate	Scoping Opinion (2018)	Designated sites on Holy Island: Only designated sites on Holy Island have been considered in terms of terrestrial ecology. In addition to the comments above, consideration should be given to sites outside of Holy Island that have mobile species.	All onshore works will be on Holy Island. Study areas are discussed in Section 19.4.1 .
Planning Inspectorate	Scoping Opinion (2018)	"The impact on coastal SACs and SSSIs in terms of changes to sediment processes and receptor food resource would be assessed in the EIA and specific impacts on SAC and SSSI interest features would be addressed separately": This statement is not understood. The ES should assess all potential impacts to designated sites.	Impacts to designated sites relevant to onshore ecology are considered in Section 19.6.5 . See also Chapter 10, Fish and Shellfish Ecology, Chapter 11, Offshore Ornithology and 12, Marine Mammals for further impacts to designated sites.



Consultee	Date/ Document	Comment	Response / Where addressed in the ES
Planning Inspectorate	Scoping Opinion (2018)	Surveys: The Scoping Report does not identify what site specific surveys would be undertaken. It is recommended that the scope of the surveys is discussed and agreed with relevant consultees including NRW.	Consultation regarding the surveys is discussed in Section 19.3
Planning Inspectorate	Scoping Opinion (2018)	Lighting: The Scoping Report identifies the potential presence of species which could be affected by artificial lighting e.g. bats. The ES should assess the potential impacts of onshore lighting including temporary lighting during construction and any permanent lighting at the substation where significant effects are likely.	Lighting is discussed in Section 19.6.5 and 19.6.6 .
Planning Inspectorate	Scoping Opinion (2018)	Protected Species: The Applicant should demonstrate that the favourable conservation status of protected species would be maintained.	Impacts to protected species are discussed in Section 19.6.5 .
Planning Inspectorate	Scoping Opinion (2018)	Impacts to ecological receptors: The results of the noise and vibration assessment should be used to inform the assessment of impacts on ecological receptors.	Noise and vibration is considered in Chapter 21, Noise and Vibration , and discussed in Section 19.6.5 .
NRW (for PINS)	Scoping Opinion (2018)	Certain species listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) are legally protected from 'reckless or intentional disturbance' Species listed in Annex IV(a) of the Habitats Directive, and whose natural range includes any area in Great Britain, are legally protected under the Habitats Regulations (above) and the Conservation of Offshore Marine Habitats and Species Regulations 2017. The Regulations prohibit the deliberate capture, injury, killing or disturbance of any 'European Protected Species (EPS)'. An EPS licence may be required for activities depending on the significance of any disturbance; this should be determined as part of the EIA process and documented in the ES.	EPS relevant to onshore ecology are considered in Section 19.6.5 . Other EPS are discussed in Chapter 10, Fish and Shellfish Ecology and Chapter 12, Marine Mammals
NRW (for PINS)	Scoping Opinion (2018)	In our previous EIA scoping responses to Anglesey County Council and NRW's Marine Licensing Team we stated that we agreed with the designated sites, species and receptors identified within section 7 of the scoping report (table 8.1 in current EIA scoping report) to be included within the EIA and HRA. We noted that the Anglesey Terns SPA was not included within the scoping report and should be considered as part of any subsequent ES. Table 8.1 has since been changed and now contains numerous errors. We strongly advise that these are rectified prior to the submission of any ES.	Designated sites are considered in Section 19.5.1 and Section 19.6.5 .



Consultee	Date/ Document	Comment	Response / Where addressed in the ES
NRW (for PINS)	Scoping Opinion (2018)	A number of the designated sites included in table 8.1 (and throughout the report) are incorrectly named and there are several examples of duplication, possibly stemming from the fact that some sites have both a Welsh and an English name. Where sites are duplicated, such as is the case for Llyn Dinam SAC, Glannau Ynys Gybi/Holy Island Coast SPA, Glannau Rhoscolyn/Rhoscolyn Coast SSSI and Porth Diana SSSI to name a few, differing (conflicting) levels of potential impacts are often reported.	Designated sites are considered in Section 19.5.1 and Section 19.6.5 .
NRW (for PINS)	Scoping Opinion (2018)	The entries under the 'features' column of table 8.1 are inconsistent and often incorrect. We advise that the column is carefully checked, and the features communicated in a consistent format that is easy for the reader to understand.	This has been corrected. Designated sites and their features are considered in Section 19.5.1 and 19.6.5
NRW (for PINS)	Scoping Opinion (2018)	In table 8.1 the statement provided regarding drainage in Llyn Padrig SSSI is incorrect; the water table has been artificially lowered across the whole site and there is clear evidence of this in the surrounding fields.	This site is no longer within the study area. In addition, no impacts are anticipated to this site and it is not considered further
NRW (for PINS)	Scoping Opinion (2018)	Impacts to terrestrial ecological protected sites (table 8.2) are dismissed as being minimal on the grounds of being localised. We note, however, that the cable landfall will cross the Glannau Ynys Gybi / Holy Island Coast SAC, SPA and SSSI and therefore impacts have the potential to be significant in the areas affected.	The Glannau Ynys Gybi / Holy Island Coast SAC, SPA and SSSI is considered in Section 19.6.5 .
NRW (for PINS)	Scoping Opinion (2018)	The proposed scoping area overlaps with the Glannau Ynys Gybi / Holy Island SPA. We advise that sufficient information should be provided on the impacts on breeding and nonbreeding chough, a qualifying feature of the SPA. The ES should propose and deliver appropriate mitigation to ensure that the works do not have adverse effects on the site integrity of the Glannau Ynys Gybi / Holy Island SPA. The ES should assess the likely impacts from disturbance and/or loss of chough foraging areas (both within and beyond site boundaries) and, where required, detail proposed mitigation measures.	Chough are discussed in Section 19.5 and 19.6.5 .
IACC 2018	Scoping Opinion (2018)	Adequate information on the S7 species and habitats (as listed under the 2016 Act) should be included for consideration.	Section 7 species and habitats are assessed in Section 19.6.5 .
IACC 2018	Scoping Opinion (2018)	There should be a clear commitment to undertake survey for species.	Surveys have been undertaken and discussed in Section 19.4.3 and 19.5



Consultee	Date/ Document	Comment	Response / Where addressed in the ES
IACC (2017)	Scoping Opinion (2018)	Badgers are known to be present in the area and ecology reports in relation to the development of Parc Cybi for example may provide useful information.	Badger data has been provided in Confidential Appendix 19.3 (Volume III) .
IACC (2017)	Scoping Opinion (2018)	Consideration should be given to any impacts on ancient woodland present at and around Penrhos Coastal Park (paragraph 7.3.4).	Ancient woodland is discussed in Section 19.5.1 and Section 19.6.5 .
IACC 2017 revised scheme	Scoping Opinion (2018)	In Chapter 8 (Biological Environment), Figure 8-1 which depicts Designations around Holy Island and the wider Anglesey area, the figure does not include local Wildlife Sites. These are now protected under Joint Local Development Plan (JLDP) Policy AMG6. As such, these sites should be added to the figure.	Local Wildlife Sites are included under non-statutory sites in Section 19.6.5 and shown on Figure 19.2 (Volume II)
IACC 2017 revised scheme	Scoping Opinion (2018)	In paragraph 8.1.1.1 (Onshore), this paragraph is mainly about HRA, with no mention of the SSSI or Local Wildlife Sites. It is suggested that the applicant considers changing title or adding reference to these designations.	SSSI and LWS are assessed in Section 19.6.5 .
IACC 2017 revised scheme	Scoping Opinion (2018)	In paragraph 8.6 (Terrestrial and Coastal Ecology), on page 106 specifically, the third from last paragraph states 'Impacts to EPS species and species protected under the Wildlife and Countryside Act (1981) will be fully considered within the EIA.' This commitment is duly noted.	These species are assessed in Section 19.6.5 .
IACC 2017 revised scheme	Scoping Opinion (2018)	In the final paragraph of page 106, it is stated that '...a full review of impacts on terrestrial designated habitats suggested by NRW will be undertaken for the EIA and HRA...'. We query whether this refers to habitats within protected sites only. It continues '...however, for this scoping survey, only designated sites on Holy Island have been considered in terms of terrestrial ecology.' It is unclear whether this included Local Wildlife Sites, and why other areas have not been considered. We are concerned that, where relevant, there will be clear coverage of habitats listed under S7 of the Environment Wales Act 2016. The reasoning behind this is that there should be a means to ensure that adequate information on the S7 species and habitats as listed under the Act is included for consideration, in view of the duty to seek to conserve and enhance biodiversity under S6 of this recent Act.	S7 habitats and species are discussed in Section 19.6.5 .
IACC 2017 revised scheme	Scoping Opinion (2018)	On page 107, the final paragraph of 8.6.1.1 (following the list of various species) states 'The EIA will consider sensitive flora and fauna in further detail once preferred infrastructure options have been refined.' We query whether this refers to the species listed on p107. As noted above, the means of covering S7 species and habitats is required, whether on protected sites or not.	S7 habitats and species are discussed in Section 19.6.5 .



Consultee	Date/ Document	Comment	Response / Where addressed in the ES
IACC 2017 revised scheme	Scoping Opinion (2018)	Table 8-10 refers to potential impacts on certain species. We would advise that there are potential direct impacts on some species which can be mitigated for with appropriate methodology.	Impacts to species are discussed in Section 19.6.5 .
IACC 2017 revised scheme	Scoping Opinion (2018)	In paragraph 8.6.2 (EIA Baseline Characterisation) it states that to inform the EIA baseline, data is to be gathered on terrestrial and coastal habitats through site survey and review of data including Cofnod records. It also states (2nd bullet) that information on UK and local priority species, and EPS 'would be needed' and it is proposed to gather this through literature reviews and phase one habitat surveys. There should be a clear commitment here to undertake survey for species to establish details of presence, particularly for EPS for example, and also for reptiles.	Surveys have been undertaken and are discussed in Section 19.4.3 and 19.5
NRW	Scoping Opinion (2018)	Figure 8-1 which depicts designations around Holy Island and the wider Anglesey area needs to be updated. It does not include Anglesey terns SPA, North Anglesey Marine cSAC, or local Wildlife Sites. Local Wildlife Sites are now protected under Joint Local Development Plan (JLDP) Policy AMG6. These sites should be added to the figure and assessed in the ES.	Sites designated for terrestrial ecology (including LWS) are discussed in Section 19.5.1 and 19.6.5 . Anglesey terns SPA is discussed in Chapter 11, Offshore Ornithology . North Anglesey cSAC is discussed in Chapter 9, Benthic and Intertidal Ecology
NRW	Scoping Opinion (2018)	Paragraph 8.1.1.1 (Onshore) is mainly about HRA designations, with no mention of the SSSI or Local Wildlife Sites. The title to this section should be changed or reference to these other designations should be included.	SSSI and LWS are considered in Section 19.6.5 .
NRW	Scoping Opinion (2018)	A number of the designated sites included in table 8.1 (and throughout the report) are incorrectly named and there are several examples of duplication, possibly stemming from the fact that some sites have both a Welsh and an English name. Where sites are duplicated, such as is the case for Llyn Dinam SAC, Glannau Ynys Gybi/Holy Island Coast SPA, Glannau Rhoscolyn/Rhoscolyn Coast SSSI and Porth Diana SSSI, differing (conflicting) levels of potential impacts are often reported. This must be corrected in the ES.	Sites designated for terrestrial ecology are discussed in Section 19.5.1 and 19.6.5 .
NRW	Scoping Opinion (2018)	The entries under the 'features' column of table 8.1 are inconsistent and often incorrect. This column should be carefully checked, and in the ES the features should be communicated in a consistent format that is easy for the reader to understand.	Sites designated for terrestrial ecology are discussed in Section 19.5.1 and 19.6.5 .



Consultee	Date/ Document	Comment	Response / Where addressed in the ES
NRW	Scoping Opinion (2018)	Certain species listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) are legally protected from 'reckless or intentional disturbance' Species listed in Annex IV(a) of the Habitats Directive, and whose natural range includes any area in Great Britain, are legally protected under the Habitats Regulations and the Conservation of Offshore Marine Habitats and Species Regulations 2017. The Regulations prohibit the deliberate capture, injury, killing or disturbance of any 'European Protected Species (EPS)'. An EPS licence may be required for activities depending on the significance of any disturbance; this should be determined as part of the EIA process and documented in the ES. In reference to paragraph 5.1, it should be noted that NRW is the authority that determines EPS licences in welsh waters, not the MMO.	Protected species are discussed in Section 19.5.2 and 19.6.5.
NRW	Scoping Opinion (2018)	Section 8.6.1.1 states that the proposed scoping area overlaps with the Holy Island SAC and SSSI but fails to mention the Glannau Ynys Gybi / Holy Island SPA. This omission should be rectified in the ES.	Sites designated for terrestrial ecology are discussed in Section 19.5.1 and 19.6.5.
NRW	Scoping Opinion (2018)	According to the EIA scoping report the landfall and substation will be mainly situated in areas of agricultural land of limited interest (section 8.6.1.1). This may be true for the substation, however, without seeing location maps this statement cannot be confirmed. It should be noted that agricultural land can provide valuable feeding ground for chough and the landfall will have to cross the Glannau Ynys Gybi / Holy Island SAC / SPA and SSSI.	Sites designated for terrestrial ecology are discussed in Section 19.5.1 and 19.6.5.
NRW	Scoping Opinion (2018)	Section 8.6.1.2 states that "The central areas of Holy Island are largely rural pastoral land and coastal grassland, with upland areas of heath around Holyhead Mountain. These areas would be expected to be of low to moderate importance to terrestrial ecology receptors". As these are areas of SAC heathland and SPA habitat the assessment of 'low to moderate importance' may need to be reconsidered.	Habitats and designated sites are discussed in Section 19.5.2 and 19.6.5.
NRW	Scoping Opinion (2018)	There are various records of great crested newts, bats, otters and water voles within the scoping zone. The ES will need to consider the impact of the proposal on protected species and demonstrate that the proposal will not impact on the Favourable Conservation Status of European and nationally protected species.	Protected species are discussed in Section 19.5.2 and 19.6.5.
NRW	Scoping Opinion (2018)	In paragraph 8.6.2 (EIA Baseline Characterisation) it states that to inform the EIA baseline, data is to be gathered on terrestrial and coastal habitats through site survey and review of data including Cofnod records. It also states (2nd bullet) that information on UK and local priority species, and EPS 'would be needed' and it is proposed to gather this through literature reviews and phase one habitat surveys. We strongly recommend that surveys are undertaken to establish details of presence for EPS and reptiles.	Surveys have been undertaken and are discussed in Section 19.4.3 and 19.5.



Consultee	Date/ Document	Comment	Response / Where addressed in the ES
NRW	Scoping Opinion (2018)	In consideration of the impacts of the proposed development on birds and animals (table 8.10) it is important that consideration is given to the seasonality of works e.g. certain elements of construction for example may be more disruptive or damaging if they were to occur during breeding periods or periods of hibernation etc. Attention will also be required to the issue of habitat and species connectivity in order to avoid habitat fragmentation and indirect impacts up sensitive receptors. In addition, the ES should consider any hydrological effects which could arise and impact receptors within hydrological connectivity of the proposed development.	Seasonality is considered in Section 19.5 and 19.6.5 . Hydrological effects are considered in Chapter 17, Water Resources and Flood Risk and discussed in Section 19.6.5 .
NRW	Scoping Opinion (2018)	If surveys conclude the presence of protected species, the ES must include appropriate mitigation and / or compensation schemes along with Reasonable Avoidance Measures, to ensure that the favourable conservation status of the species is maintained. Please be aware that the development may only proceed under derogation licence should surveys confirm presence of species that are protected.	Protected species are considered in Section 19.5 and 19.6.5 .
NRW	Scoping Opinion (2018)	In the final paragraph of page 106, it is stated that '...a full review of impacts on terrestrial designated habitats suggested by NRW will be undertaken for the EIA and HRA...'. We query whether this refers to habitats within protected sites only. It continues '...however, for this scoping survey, only designated sites on Holy Island have been considered in terms of terrestrial ecology.' It is unclear whether this included Local Wildlife Sites, and why other areas have not been considered. In addition, the ES must include clear coverage of habitats listed under S7 of the Environment Wales Act 2016. On page 107, the final paragraph of 8.6.1.1 (following the list of various species) states 'The EIA will consider sensitive flora and fauna in further detail once preferred infrastructure options have been refined.' We query whether this refers to the species listed on p107. As noted above, Environment Act S7 species and habitats should be assessed in the ES, whether in protected sites or not.	Designated sites, including LWS are considered in Section 19.5.1 and 19.6.5 . S7 habitats and species are considered in Section 19.5.2 and 19.6.5 .

19.4. METHODOLOGY

19.4.1. Study Area

40. At the time the ecological field surveys were commissioned, a wide area (the ‘Survey Study Area’) was surveyed to capture desk and field data as there were a number of landfall locations and grid connection options being considered at that time. As discussed in **Chapter 3, Site Selection and Consideration of Alternatives**, the Onshore Development Area has since been further refined, taking into account a number of constraints including ecology and nature conservation designated sites.
41. The Project’s Onshore Study Area, and in turn for this chapter, is the Onshore Development Area (**Figure 19.1, Volume II**) with appropriate buffers for different receptors depending on their sensitivities and habitat preferences, as detailed in **Table 19-5**. These study areas were determined by consultation with stakeholders (see **Section 19.3**) and professional judgement.
42. The Onshore Study Area takes in all areas within the Onshore Development Area, which includes:
- Landfall works Including transition pits / berths;
 - Cable installation from landfall to the landfall substation at Ty-Mawr (hereafter referred to as the landfall substation);
 - Cable installation from landfall substation to the grid connection substation at Orthios (hereafter referred to as the grid connection substation), including cable junction boxes, draw pits and one HDD crossing;
 - Temporary road and right of way closures;
 - Landfall substation;
 - Switchgear building at Parc Cybi (hereafter referred to as the switchgear building);
 - Grid connection substation;
 - Temporary laydown and construction areas, including fencing / walls, and accommodation;
 - Levelling works; and
 - Parking areas (including electric vehicle charging points) and site access.
43. For most species and habitats, a 50 m wide buffer was applied around the Onshore Development Area (the “Onshore Study Area”). An additional 250 m buffer has also been applied to the Onshore Development Area to allow possible impacts on GCN *Triturus cristatus* to be considered; this area (the “GCN Study Area”) is shown on **Figure 19.4 (Volume II)**. Statutory and non-statutory terrestrial designated sites within 2 km of the Onshore Development Area have also been considered.
44. The “Desk Study Area” incorporates the Onshore Development Area and an additional 1 km buffer. The original Desk Study Area was identified and subsequently surveyed prior to the finalisation of the Onshore Development Area. Therefore, the data obtained encompasses a

larger area and includes the multiple route options that were under consideration at that time. The findings of the desk study informed the decisions made to finalise the Onshore Development Area, avoiding sensitive ecological features where possible. Details on the original Desk Study Area are provided in **Appendix 19.1 (Volume III)**. This chapter discusses features within the 1 km buffer.

45. A full description of, and associated information for, the onshore infrastructure is provided in **Chapter 4, Project Description**.

Table 19-5 Study areas for different onshore ecology receptors used for the EclA (desk study and field survey)

Data / survey	Study area
Desk study area	Within 1 km of the Onshore Development Area
Statutory designated sites	Within 2 km of the Onshore Development Area (Figure 19.2, Volume II).
Non-statutory designated sites, including LWS and Ancient Woodland Sites (AWS)	Within 2 km of the Onshore Development Area (Figure 19.3, Volume II).
UKHPI and Anglesey LBAP Habitats	Within 50 m of the Onshore Development Area (Figure 19.5, Volume II).
Protected and notable species survey (except great crested newts <i>Triturus cristatus</i>)	Within 50 m of the Onshore Development Area (Figure 19.6a, 19.6b, 19.6c, 19.6d, 19.6e, 19.6f 19.7, 19.8, Volume II).
Great crested newt survey	Within 250 m of the Onshore Development Area (Figure 19.4, Volume II).

19.4.2. Data Sources – Desk Study

46. A detailed desk study has been undertaken of the area within the Desk Study Area (**Appendix 19.1**). This has involved:
- A review of aerial photographs (Google Earth and Bing Maps, accessed during April and November 2018), and Google Street View imagery was used to help identify and accurately map habitats and to identify ponds within the GCN Study Area;
 - A detailed review of 1:25000 Ordnance Survey Maps, to identify ponds and public rights of way within the GCN Study Area;
 - The UK Government's MAGIC website (www.magic.gov.uk) has been used to identify statutory designated sites within 2 km of the Onshore Development Area; and
 - Cofnod (the local biological record centre for North Wales) was contacted to supply data within 2 km of the Onshore Development Area on any protected/notable species records or non-statutory sites of conservation value, including Local Wildlife Sites (LWS) and ancient woodland sites (AWS). Data were supplied on 19 April 2018. Cofnod supplied further data on 19 July 2018 which extended coverage into the Trearddur Bay area as the route options were refined.

19.4.3. Data Sources – Site-Specific Surveys and Reports

47. A number of dedicated field surveys were commissioned to characterise the ecology of the Survey Study Area (**Appendix 19.1, Volume III**) and to ascertain presence of protected or other

notable species or habitats. The Survey Study Area was established and surveyed prior to the Onshore Development Area being finalised, and therefore encompasses a much greater area, when multiple route options were under considerations.

48. The findings of the field surveys informed the decisions made to finalise the Onshore Development Area, avoiding sensitive ecology features where possible. Details on the Survey Study Area are provided in **Appendix 19.1 (Volume III)**. This chapter discusses findings from the Survey Study Area within the Onshore Study Area and the GCN Study Area, both of which are encompassed within the Survey Study Area.
49. The field survey work was carried out over multiple visits between April and November 2018. Initial Phase 1 habitat survey work (not 'extended') was carried out in April and May. This was followed by more detailed survey of ponds for GCN, and Extended Phase 1 Habitat Survey (EP1HS) as the route became more refined and access to the various areas requiring survey was agreed. Methodologies of the surveys are detailed in the following sections.

19.4.3.1. Initial Phase 1 Habitat Survey

50. Principal Ecologist Guy Miller CEcol CIEEM and Ecologist Emily Moore Grad CIEEM undertook the initial field survey over four days in late April/early May 2018 (26-27 April, 30 April-1 May 2018). This was not considered to be an EP1HS.
51. The review of aerial photographs and mapping was used to inform the field survey and identify habitats which required ground truthing.
52. During the survey the proposed onshore cabling routes within the Survey Study Area were driven in a slow-moving car with regular stops to record vegetation in habitats in the adjacent land. Public rights of way (PRoW) were used to obtain vantage points and view adjacent habitats. The habitats were described using the Joint Nature Conservation Committee (JNCC) Phase 1 habitat survey methodology (JNCC, 2010).
53. Habitats within the Survey Study Area were subject to an initial assessment for their suitability for protected species, including reptiles and amphibians (including GCN), badger *Meles meles*, water vole *Arvicola amphibius*, otter *Lutra lutra* and bats. Potential nesting habitats for breeding birds (common and Schedule 1 species) were identified. Detailed searches for evidence of protected species were not carried out during the initial assessment due to access constraints.
54. The Survey Study Area was also searched for the presence of invasive non-native plants including, but not limited to, Japanese knotweed *Fallopia japonica*.

19.4.3.2. Habitat Suitability Index (HSI) Assessment for Great Crested Newt

55. Where possible, any ponds that were accessible or visible from PRoW (using binoculars) were visited or viewed during the initial Phase 1 habitat survey (**Section 19.4.3.1**), described and subject to a Habitat Suitability Index (HSI) assessment for GCN. This involved recording a variety of environmental and ecological characteristics (such as water quality, shade, presence of aquatic plants, fish and wildfowl) and using a model to calculate a score between 0 and 1; scores closer to 1 represent ponds of high suitability for GCN; scores below 0.5 and closer to 0

represent ponds of lower suitability for GCN. The method followed the approach described in Oldham *et al.* 2000.

56. During the scoping process, ponds over 250 m from the GCN Study Area were excluded from the assessment, ponds that are shown on OS 1:25,000 map but not found to be present were excluded, and ponds that are brackish were excluded. Following this process, 19 ponds are within the GCN Study Area (i.e. within 250 m of the Onshore Development Area), 13 of which were subject to HSI assessment.

19.4.3.3. eDNA Survey for Great Crested Newt

57. The results of the HSI assessment (**Section 19.4.3.2**) were used to determine which of the ponds within the Survey Study Area were assessed to be suitable for GCN (**Appendix 19.1, Volume III**).
58. In total, 19 ponds/waterbodies were identified during the GCN Study Area (from 1:25,000 OS maps and aerial photographs, Bing Maps and Google Earth) and initial Phase 1 habitat survey.
59. As agreed with IOACC, many of these ponds/waterbodies were subsequently scoped out of the assessment either due to: a) the distance from the Onshore Development Area (over 250 m), b) being no longer present, although they are shown on the OS 1:25,000 map, or c) a low HSI score (<0.5: poor suitability) or brackish nature. Some ponds were found to be dry during the survey. Where there was a lack of evidence of aquatic or wetland vegetation presence (which indicates that they hold water at certain times of year), they were also scoped out of the assessment.
60. The findings, following the review of the 13 HSI results in combination with the criteria outlined above, resulted in a total of 11 ponds being identified as requiring an Environmental Deoxyribonucleic Acid (eDNA) survey within the GCN Study Area. Samples from these ponds were collected in June 2018; however, ponds which were found to be dry were not sampled. The survey work was led by Ecologist Emily Moore GradCIEEM who holds a survey licence for GCN (Licence no. 2015-17866-CLS-CLS), with assistance from Ecologist Sophie Olejnik and Principal Ecologist Guy Miller, who also holds a survey licence for GCN (Licence no. 2015-18702-CLS-CLS). The industry protocol for collecting GCN eDNA was followed (Williams, 2013; Biggs *et al.*, 2014). Water samples were sent to NatureMetrics for analysis; the results of the lab analysis were returned on 20 July 2018.

19.4.3.4. Extended Phase 1 Habitat Survey (EP1HS)

61. A more detailed Extended Phase 1 Habitat Survey (EP1HS) was carried out between September and November 2018, when full survey access had been arranged. The survey was carried out by Emily Moore, Guy Miller and Sophie Olejnik. The purpose of the survey was to carry out more detailed survey of vegetation, to confirm the assessment made during the initial Phase 1 Habitat survey where full access was not previously granted, and to carry out survey for evidence of use by protected species.

19.4.3.4.1. Badger Survey

62. During the EP1HS, searches for evidence of badger activity were carried out within the Onshore Study Area. Setts and other evidence of badger activity (such as latrines, tracks and evidence of feeding activity) were recorded. Any setts located were assessed for signs of activity and where possible were classified as a main sett, an annex sett or an outlier sett (Neal & Cheeseman, 1998).
63. Dense scrub vegetation affected the ability to search for badger setts in parts of the Onshore Study Area. The significance of this constraint is considered to be small and is discussed in more detail in **Confidential Appendix 19.3 (Volume III)**.
64. An embankment between the railway and the A55 dual carriageway, to the south of the former aluminium works, was not accessible and was therefore not surveyed; although, it was viewed at certain points from the aluminium works where possible to do so (where breaks in scrub allow views through the fence). The significance of this constraint is considered to be small; however, the possible presence of a badger sett in this area cannot be ruled out. Although HDD will be undertaken under the railway and A55, construction works may still take place within 30 m of this embankment and therefore if so, this area will be included in the pre-construction survey areas.

19.4.4. Impact Assessment Methodology

19.4.4.1. EclA Methodology

65. General methods for EIA are discussed in **Chapter 5, EIA Methodology**. The EclA methodology proposed in relation to onshore ecology is based on the Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal and Marine (CIEEM, 2018). These guidelines aim to predict the residual impacts on important ecological features affected, either directly or indirectly by a development, once all the appropriate mitigation has been implemented.
66. The approach to determining the significance of an impact follows a systematic process for all impacts. This involves identifying, qualifying and, where possible, quantifying the sensitivity, value and magnitude of all ecological receptors which have been scoped into this assessment. Using this information, a significance of each potential impact has been determined. Each of these steps is set out in the remainder of this section (**Section 19.4.4.2, Section 19.4.4.3**).
67. The EclA has used professional judgement to ensure the assessed significance level is appropriate for each individual receptor, taking account of local values for biodiversity to avoid a subjective assessment wherever possible as per the CIEEM guidelines. As a result, the assessed significance level may not always be directly attributed to the guidance matrix detailed below.

19.4.4.1.1. Importance

68. The first stage of an EcIA is determining the ‘importance’ of ecological features or ‘receptors’. CIEEM identifies the important ecological features as those key sites, habitats and species which have been identified by European, national and local governments and specialist organisations as a key focus for biodiversity conservation in the UK. These include:
- Statutory and non-statutory designated sites for nature conservation;
 - Species occurring on national biodiversity lists;
 - UK Habitats of Principal Importance; and
 - Red listed, rare or legally protected species.
69. Importance is also qualified by the geographic context of an ecological receptor, i.e. a species which may be not recognised on a national biodiversity list may be locally in decline, and therefore its local importance is greater than its national importance.
70. For this EcIA, the guidelines outlined in **Table 19-6** will be followed to provide the relative importance of different ecological features.

Table 19-6 Definitions of importance levels for onshore ecology

Importance	Definition
High	<ul style="list-style-type: none"> ▪ An internationally designated site or candidate site or an area which the statutory nature conservation organisation has determined meets the published selection criteria for such designation, irrespective of whether or not it has yet been notified; ▪ A nationally designated site or a discrete area, including ancient woodlands, which the statutory nature conservation organisation has determined meets the published selection criteria for national designation (e.g. SSSI selection guidelines) irrespective of whether or not it has yet been notified; ▪ A viable area of a habitat type listed in Annex I of the Habitats Directive, or smaller areas of such habitat which are essential to maintain the viability of a larger whole; ▪ A viable area of a UK Habitat of Principal Importance or smaller areas of such habitat which are essential to maintain the viability of a larger whole; ▪ A European protected species listed in The Conservation of Habitats and Species Regulations 2017; or ▪ A regularly occurring, nationally significant population / number of any internationally important species.
Medium	<ul style="list-style-type: none"> ▪ County Council / Unitary Authority designated sites and other sites which the designating authority has determined meet the published ecological selection criteria for designation, including Local Nature Reserves selected on defined ecological criteria and Wildlife Trust sites; ▪ Viable areas of habitat identified in a Local Biodiversity Action Plan (LBAP); ▪ Semi-natural woodland greater than 0.5 hectares (ha) which is considered to be in ‘good condition’; ▪ Any regularly occurring population of a nationally important species which is threatened or rare in the region; or

Importance	Definition
	<ul style="list-style-type: none"> A regularly occurring, locally significant number of a species identified as important on a regional basis.
Low	<ul style="list-style-type: none"> Semi-natural woodland greater than 0.25 ha which is considered to be in 'good condition' or greater than 0.5 ha in unfavourable condition; Network of inter-connected hedgerows including some species-rich hedgerows; Individual Important hedgerows or other ancient-countryside linear features; Viable areas of habitat identified in a sub-county (District / Borough) BAP; Any regularly occurring population of a nationally important species which is not threatened or rare in the region or county; Sites / features that are scarce within the District / Borough or which appreciably enrich the District / Borough habitat resource; or Other features identified as wildlife corridors or migration routes.
Negligible	<ul style="list-style-type: none"> Features of value to the immediate area only e.g. within the site.

71. In addition to the features listed in **Table 19-6**, ecological features which play a key functional role in the landscape or are locally rare have been considered. The importance of such features has been determined by professional judgement.

72. CIEEM places the emphasis on using professional judgement when considering importance of ecological receptors, based on available guidance, information and expert advice (CIEEM, 2018). Different aspects of ecological importance should be taken into account, including designations, biodiversity value, potential value, secondary or supporting value, social value, economic value, legal protection and multi-functional features.

19.4.4.1.2. Magnitude

73. The magnitude of the impact is assessed according to:

- The extent of the area subject to a predicted impact;
- The duration the impact is expected to last prior to recovery or replacement of the resource or feature;
- Whether the impact is reversible, with recovery through natural or spontaneous regeneration, or through the implementation of mitigation measures or irreversible, when no recovery is possible within a reasonable timescale or there is no intention to reverse the impact; and
- The timing and frequency of the impact, i.e. conflicting with critical seasons or increasing impact through repetition.

74. **Table 19-7** summarises the definitions of magnitude that have been used for the onshore ecology receptors.

Table 19-7 Definitions of magnitude levels for onshore ecology

Magnitude	Definition
High	Major impacts on the feature / population, which would have a sufficient effect to alter the nature of the feature in the short to long term and affect its long-term viability. For example, more than 20 % habitat loss or damage.

Magnitude	Definition
Medium	Impacts that are detectable in short and long-term, but which should not alter the long-term viability of the feature / population. For example, between 10 – 20 % habitat loss or damage.
Low	Minor impacts, either of sufficiently small-scale or of short duration to cause no long-term harm to the feature / population. For example, less than 10 % habitat loss or damage.
Negligible / No impact	A potential impact that is not expected to affect the feature / population in any way, therefore no effects are predicted.

19.4.4.1.3. Duration

75. The definitions of duration used within this EclA are dependent on the individual ecological receptor, and how sensitive it is to effects over different timescales. However, in general terms the following definitions have been used:

- **Short term:** effects which at most occur over a part of, or over a part of a key period of, a species' active season or a habitat's growing season, i.e. typically effects which occur over a matter of days or weeks;
- **Medium term:** effects which occur over the full duration of a species' active season or a habitat's growing season, i.e. typically effects which occur over a matter of months or one year; and
- **Long term:** effects which occur over the multiple active or growing seasons, i.e. typically effects which occur over more than one year.

76. Where deviations from these definitions are used within **Section 19.6**, this is explained within the text.

19.4.4.1.4. Impact Significance

77. Following the identification of receptor importance and magnitude of the effect, it is possible to determine the significance of the impact.

78. Ecologically significant impacts are defined as:

79. *"...impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution)"* (CIEEM, 2018).

80. Impacts are unlikely to be significant where features of low importance are subject to small scale or short-term effects. If an impact is found not to be significant at the level at which the resource or feature has been valued, it may be significant at a more local level.

81. CIEEM recommend that the following factors are taken into account when determining significance for selected ecological receptors (**Section 19.4.4.2** and **19.4.4.3**).

19.4.4.2. Designated/Defined Sites and Ecosystems

- **Designated sites:** is the Project and associated activities likely to undermine the site's conservation objectives, or positively or negatively affect the conservation status of

species or habitats for which the site is designated, or may it have positive or negative effects on the condition of the site or its interest/qualifying features?

- **Ecosystems:** is the Project likely to result in a change in ecosystem structure and function?

19.4.4.3. Habitats and Species

- **Habitats:** conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area.
- **Species:** conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area (CIEEM, 2018).

82. Following the identification of receptor importance and magnitude of effect, the significance of the impact has been considered using the matrix presented in **Table 19-8** below and knowledge of the ecological features affected.
83. The assessment of potential impacts has been undertaken assuming implementation of embedded mitigation and commitments for the project. Residual impacts include any additional mitigation measures required. An assessment of residual impacts is then made, after assuming implementation of additional mitigation measures where required, i.e. the significance of the effects that are predicted to remain after the implementation of all committed mitigation measures.

Table 19-8 Impact significance matrix

		Negative Magnitude				Beneficial Magnitude			
		High	Medium	Low	Negligible	Negligible	Low	Medium	High
Sensitivity	High	Major	Major	Moderate	Minor	Minor	Moderate	Major	Major
	Medium	Major	Moderate	Minor	Minor	Minor	Minor	Moderate	Major
	Low	Moderate	Minor	Minor	Negligible	Negligible	Minor	Minor	Moderate
	Negligible	Minor	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Minor

84. The impact significance categories are defined as shown in **Table 19-9**.

Table 19-9 Impact significance definitions

Impact Significance	Definition
Major	Very large or large change in receptor condition, both adverse or beneficial, which are likely to be important considerations at a regional or district level because they contribute to achieving national, regional or local objectives, or, could result in exceedance of statutory objectives and / or breaches of legislation.
Moderate	Intermediate change in receptor condition, which are likely to be important considerations at a local level.
Minor	Small change in receptor condition, which may be raised as local issues but are unlikely to be important in the decision making process.
Negligible	No discernible change in receptor condition.
No change	No impact, therefore no change in receptor condition.

85. Note that for the purposes of the EIA, major and moderate impacts are deemed to be significant. In addition, whilst minor impacts are not significant in their own right, it is important to distinguish these from other non-significant impacts as they may contribute to significant impacts cumulatively or through interactions.
86. Embedded mitigation has been referred to and included in the initial assessment of impact. If the impact does not require mitigation (or none is possible) the residual impact remains the same. However, if mitigation is required, an assessment of the post-mitigation residual impact is provided.

19.4.4.3.1. Cumulative Impact Assessment

87. For an introduction to the methodology used for the Cumulative Impact Assessment (CIA), please refer to **Chapter 5, EIA Methodology**. This chapter includes those cumulative impacts that are specific to onshore ecology.
88. The key consideration used in relation to linear developments such as the onshore infrastructure is whether there is spatial or temporal overlap of effects from projects on the same receptors. Therefore, for habitats and non-mobile species, unless there is a spatial overlap there is no pathway for cumulative impact between spatially separated projects. There is however a potential for a cumulative impact upon the overall habitat resource at a regional or national level. Where potential regional or national level impacts are identified and considered to be relevant they are highlighted in the CIA.
89. For mobile species there is only a pathway for cumulative impact if there is spatial overlap of potential receptor ranges in addition to temporal overlap with the activity or its resultant impact i.e. where developments follow on from one another before the species has recovered from displacement or other impact. In addition, whilst it is assumed that any consented development would be subject to mitigation and management measures which would reduce impacts to non-significant unless there were exceptional circumstances, it is accepted that such projects may contribute to a wider cumulative impact.
90. Finally, in cases where the Project has negligible or no impact on a receptor (through for example avoidance of impact through routeing or construction methodology) it is considered that there is no pathway for a cumulative impact.

19.4.4.3.2. Habitats Regulations Assessment

91. Information to support an HRA is presented in **Document MOR/RHDHV/DOC/0067, Information to Support HRA**. The HRA assesses whether or not the Project is likely to give rise to a likely significant effect upon a European site (SPA, SAC or Ramsar sites), either alone or in combination with other projects.
92. This chapter refers to and draws on the HRA when discussing potential impacts upon ecological receptors which are European sites or are associated with European sites. With regards to terrestrial ecology features, the HRA considers chough from the Glannau Ynys Gybi / Holy Island Coast SPA and the Vegetated sea cliffs of the Atlantic (and Baltic) Coasts feature from the Glannau Ynys Gybi / Holy Island Coast SAC.

19.5. EXISTING ENVIRONMENT

19.5.1. Designated Sites

19.5.1.1. Statutory Nature Conservation Designated Sites

93. Statutory designated sites, such as SPAs, Ramsar sites, SACs and SSSIs, protect areas of national and international importance and therefore are considered to be of high conservational value.
94. There is one SAC/SPA and two SSSIs within 2 km of the Onshore Development Area, and areas covered by the designations are afforded multiple levels of protection. These are summarised within **Table 19-10** below and shown on **Figure 19.2 (Volume II)**. Due to the site selection process, Porth Diana SSSI is no longer within 2 km of the Onshore Development Area and there is no pathway for impact with this site. This site is therefore not considered further.

Table 19-10 Statutory Designated Sites within 2 km of the Desk Study Area

Site name	Designation	Distance from Onshore Development Area	Description ¹
Glannau Ynys Gybi / Holy Island Coast	Special Protection Area (SPA)	Within the footprint of the landfall works within the Onshore Development Area.	Sea cliffs with cliff top grassland, offshore stacks and islets and maritime heath. The SPA supports a resident population of chough <i>Pyrhacorax pyrrhacorax</i> , which depends on the diverse mix of habitats and their low intensity agricultural management. <u>Qualifying species:</u> Chough <i>Pyrhacorax pyrrhacorax</i> , 18 pairs representing at least 5.3% of the breeding population and at least 2.6 % of the wintering population in Great Britain.
	Special Area of Conservation (SAC)	Within the footprint of the landfall works within the Onshore Development Area.	<u>Annex I habitats that are a primary reason for selection of this site:</u> Vegetated sea cliffs of the Atlantic (and Baltic) Coasts: maritime heath with spotted rock rose <i>Tuberaria guttata</i> and extensive cliff-crevice and grassland communities. European dry heaths: the most important site in North Wales for maritime dry heaths. The main NVC types are H7 <i>Calluna vulgaris</i> – <i>Scilla verna</i> heath and H8 <i>Calluna vulgaris</i> – <i>Ulex gallii</i> heath Small areas of wet

¹ Information source: jncc.defra.gov.uk and <https://naturalresources.wales> (SPA and SAC citations)

Site name	Designation	Distance from Onshore Development Area	Description ¹
			heath; grassland, heath, bracken and bramble scrub zonation. The heath is an important locus for spotted rock-rose <i>Tuberaria guttata</i> . <u>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</u> Northern Atlantic wet heaths with <i>Erica tetralix</i> .
	Site of Special Scientific Interest (SSSI) (and component of Glannau Ynys Gybi / Holy Island Coast SPA/SAC)	Within the footprint of the landfall works within the Onshore Development Area.	Heathland, maritime grassland, coastal cliffs and ledges, a variety of vascular plants (heathland and maritime species), birds (seabirds, peregrine, chough and heathland species), invertebrates and geology.
Tre Wilmot	SSSI (and component of Glannau Ynys Gybi / Holy Island Coast SPA/SAC)	36 m	Lowland heath and rocky ridges with intervening depressions with a range of heathland vegetation communities, including wet heath and peatland communities, and small open water areas.
Beddmanarch-Cymyran	SSSI	59 m	Supports a variety of coastal habitats including sandbank, mudflat, saltmarsh, dune heath. Important for overwintering and breeding birds and saltmarsh plant species and eel grass.

95. The site description (as detailed in the Core Management Plan, Countryside Council for Wales (CCW), 2008) relevant to terrestrial ecology for the Glannau Ynys Gybi (South Stack) area of the Glannau Ynys Gybi / Holy Island Coast SAC which overlaps with the Project is detailed in **Box 19.1**.

Box 19.1 Site Description of terrestrial ecology features for Glannau Ynys Gybi (South Stack) area of the Glannau Ynys Gybi / Holy Island Coast SAC (CCW, 2008)

<p>This site is of special interest for its geological and biological features, including heathland and maritime grassland communities, coastal cliffs and ledges, its assemblages of vascular plants and birds, invertebrates and its solid geology. The site lies on the north west corner of Holy Island and includes the most westerly point on Anglesey. Holyhead lies immediately to the east.</p> <p>An extensive area of dry lowland heath of heather <i>Calluna vulgaris</i> and western gorse <i>Ulex gallii</i> covers the flanks of Holyhead Mountain. Scree along the western edge of the mountain supports a more diverse bilberry <i>Vaccinium myrtillus</i> subcommunity of this heather/ western gorse heath. Around the coastal margins heather /western gorse heath of the spring squill <i>Scilla verna</i> subcommunity grades into heather <i>Calluna vulgaris</i> /spring squill <i>Scilla verna</i> maritime heath. In</p>
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wetter areas cross-leaved heath *Erica tetralix*, bogmoss *Sphagnum compactum* and deergrass *Scirpus cespitosus* dominate cross-leaved heath *Erica tetralix* wet heathland.

On rocky ledges and at the top of the cliffs the vegetation comprises the thrift *Armeria maritima* - common mouseear *Cerastium diffusum* maritime therophyte community. This generally forms rather sparse open turf with much bare ground; associated species include buckshorn plantain *Plantago coronopus* and kidney vetch *Anthyllis vulneraria*. On deeper soils above the cliffs is the cocksfoot *Dactylis glomerata* subcommunity of the red fescue - *Festuca rubra* Yorkshire fog *Holcus lanatus* grassland. These areas are characterised by a very thick sward with associated Spring squill, wild carrot *Daucus carota* and sorrel *Rumex acetosella*.

The cliffs support important seabird colonies; guillemots, razorbills and puffins combine to create one of the largest colonies of breeding auks in North Wales. Fulmar and kittiwake also nest on these cliffs together with peregrine and chough, the latter using the heathland and adjacent areas extensively for feeding. Within the heathland stonechat, skylark, linnet and whitethroat all breed regularly.

The site supports a good range of invertebrates including the silver studded blue *Plebejus argus*. Marsh fritillary *Eurodryas aurinia* has been recorded here in the past.

19.5.1.2. Non-Statutory Nature Conservation Designated Sites

96. There are five non-statutory Local Wildlife Sites (LWS) and ten Ancient Woodland Sites (AWS) within the Desk Study Area. The Onshore Development Area also borders South Stack Cliffs RSPB reserve, and marginally overlaps its boundary where the temporary construction buffer extends past the road where the cables will be laid. One AWS is located within the onshore development area, one is adjacent to the boundary and one is located 25 m away. Breakwater Country Park is located 1,270m to the north of the landfall. The location, designation and summary description for each site are described in **Table 19-11**. The location of these Sites is shown in **Figure 19.3 (Volume II)**, which also shows one further LWS that lies just outside the Desk Study Area.
97. These non-statutory designated sites are of local ecological importance and have protection from development under Joint Local Development Plan (JLDP) Policy AMG6. As such they are considered to be of medium value.

Table 19-11 Non-Statutory Designated Sites

Local Wildlife Site / Ancient Woodland Site	Grid reference	Distance from Onshore Development Area	Description
Cors Tre Wilmot LWS	SH222816	7.35 m	Valley wetland with herb rich, rush dominated fen meadows. With reedbed, purple moor-grass and bog vegetation.
Arfordir Bwth Corwgl – Bae Trearddur LWS	SH242794	721.2 m	Rocky coast with grassland and heath.
Rhostir Mynydd Celyn LWS	SH237813	358.9 m	Enclosed pastures and low rock outcrops, grassland and dry and wet heath.

Local Wildlife Site / Ancient Woodland Site	Grid reference	Distance from Onshore Development Area	Description
Chwarel Morglawdd, Caergybi LWS	SH227832	807.8 m	Disused quarry, heathland.
Cors Pont Hwfa LWS	SH238822	1202.7 m	Reedbed, fen vegetation and marshy grassland.
South Stack Cliffs RSPB Reserve	SH216819	Within the footprint of the Onshore Development Area	Heathland, farmland, sea cliffs, chough and breeding guillemots, razorbill and puffin
Breakwater Country Park	SH229835	1,270 m	Heathland, barn owl, peregrine falcon, quarry
AWS: 26037	SH273805	25 m	Ancient Semi Natural Woodland.
AWS: 26041	SH270809	93.8 m	Ancient Semi Natural Woodland.
AWS: 26042	SH272811	54.6 m	Ancient Semi Natural Woodland.
AWS: 26043	SH268813	492.3 m	Ancient Semi Natural Woodland.
AWS: 26044	SH267815	683.2 m	Ancient Semi Natural Woodland.
AWS: 26066	SH270804	0 m	Restored Ancient Woodland Site.
AWS: 26067	SH274806	79.1 m	Restored Ancient Woodland Site.
AWS: 43665	SH272805	0 m	Plantation on Ancient Woodland Site.
AWS: 43667	SH268812	0 m	Plantation on Ancient Woodland Site.
AWS: 43668	SH274810	295.1 m	Plantation on Ancient Woodland Site.

98. As part of embedded mitigation within the design phase, all LWS have been avoided. Given the distance and geographical separation from the Onshore Development Area, direct or indirect impacts on LWS are not anticipated from the development. As such, there will be no impact on LWS.

99. Impacts to the RSPB reserve, Country Park and AWS are considered in **Section 19.6.3 and 19.6.5.**

19.5.2. Protected Habitats and Species

19.5.2.1. Habitats

100. Habitats which fall within the boundaries of the designated sites are discussed within **Section 19.5.1** above. The HRA Screening and information to inform an Appropriate Assessment is presented in **Document MOR/RHDHV/DOC/0067, Information to Support HRA.**

101. The Onshore Study Area incorporates a wide range of habitats. Habitats recorded during the EP1HS are shown on **Figure 19.6 (Volume II)** and described below.

19.5.2.1.1. Grassland

102. A variety of grassland types are present within the Onshore Study Area.
103. Unimproved grassland is uncommon and generally limited to small patches of maritime grassland on steeper slopes and along the top of cliffs in the west part of Holy Island (Abraham's Bosom, where landfall will take place) and at the top of the small cliffs to the south of the road between South Stack and Trearddur Bay. This unimproved grassland has the character of maritime grassland, supporting cock's-foot *Dactylis glomerata*, Yorkshire fog *Holcus lanatus* and red fescue *Festuca rubra*, with occasional sorrel *Rumex acetosa*, bladder campion *Silene vulgaris*, spring squill *Scilla verna*, primrose *Primula vulgaris*, common scurvy grass *Cochlearia officinalis*, and wild carrot *Daucus carota*.
104. The majority of grassland within the Onshore Study Area is either grazed species-poor semi-improved grassland or improved grassland. Many of the fields are improved, supporting a high proportion of perennial rye grass *Lolium perenne* and few other species.
105. The low-input short-sward semi-improved pasture fields provide suitable foraging habitat for chough. Some of these fields in the western part of the Onshore Study Area are managed by the RSPB to provide habitat for chough, which nests in the Holy Island SPA, immediately adjacent to the Onshore Development Area. Chough are discussed in **Section 19.5.2.2.7**.
106. Marshy grassland is a common feature on Holy Island, with damper ground supporting abundant growth of soft rush *Juncus effusus*, with occasional cuckooflower *Cardamine pratensis*, tufted hair-grass *Deschampsia caespitosa* and purple moor-grass *Molinia caerulea*. The onshore cable corridor passes through an area of marshy grassland south west of the leisure centre.
107. Small patches of dry open grassland occur in the land surrounding the former aluminium works, forming part of a mosaic of scrub, carr woodland and grassland in this area.
108. Amenity grassland is also occasionally present within the Onshore Study Area, mainly in the form of campsites, lawns and managed recreational areas (e.g. sports pitches).

19.5.2.1.2. Heathland

109. Extensive areas of heathland are present in the western part of Holy Island, these occur primarily within the Glannau Ynys Gybi / Holy Island Coast SSSI/SAC and Tre Wilmot SSSI. Heathland habitat has been avoided by the Onshore Development Area. Small areas of coastal heath occur on the various small headlands between South Stack and Trearddur Bay, in amongst areas of maritime grassland.
110. These areas of heathland are dominated by heather *Calluna vulgaris* and western gorse *Ulex gallii* with occasional cross-leaved heath *Erica tetralix*, bilberry *Vaccinium myrtillus*, purple moor-grass, spring squill, and deer grass *Trichophorum cespitosum*.

19.5.2.1.3. Scrub

111. Patches of dense and scattered scrub vegetation are common features within the landscape. In the western part of Holy Island, the scrub is interspersed with areas of pasture, often where low rocky outcrops occur. These patches of scrub are typically dominated by gorse, with patches of bracken *Pteridium aquilinum* and bramble *Rubus fruticosus agg.* Scrub habitat mosaic borders much of the road that the Onshore Cable Route will be located within in the west of the Onshore Development Area, between landfall and the leisure centre (TN 1). Scrub is also present within the Grid Connection Substation location. Heather does occur but is less frequent than on the SSSI heathland. Ground flora more typically characteristic of woodland, including bluebell *Hyacinthoides non-scripta*, wood sorrel *Oxalis acetosella*, primrose, honeysuckle *Lonicera periclymenum* and red campion *Silene dioica*, occurs occasionally in the more sheltered areas, typically between rocky outcrops, under a low canopy formed by gorse.

19.5.2.1.4. Cliff Vegetation

112. The sea cliffs around South Stack and the Range in the western part of Holy Island support a diverse vegetation community including thrift *Armeria maritima*, primrose, sea beat, sea squill, common scurvy grass, bladder campion, kidney vetch *Anthyllis vulneraria*, buck's-horn plantain *Plantago coronopus*, western gorse, and blackthorn *Prunus spinosa* scrub.
113. A number of nationally rare plant species are known to occur on these cliffs (NRW, 2018), as described in the Glannau Ynys Gybi / Holy Island Coast SSSI citation, including South Stack fleawort *Tephrosia integrifolia* sp. *maritima*, spotted rock rose *Tuberaria guttata* and rock sea lavender *Limonium britannicum* sp. *celticum* and also various bryophytes and ferns. Exposed rock is frequent on the cliffs.

19.5.2.1.5. Wetland Vegetation

114. Wetland vegetation is present in several parts of the Onshore Study Area. In the western part of Holy Island is Cors Tre Wilmot, a LWS, which is an extensive valley wetland with herb-rich, rush dominated fen meadows, with areas of reedbed, purple moor-grass and bog vegetation. This area has been avoided by the Onshore Development Area.
115. An area of reedbed and fen vegetation is present to the north and west of Holyhead Leisure Centre, shown on **Figure 19.5 (Volume II)** as swamp and marshy grassland habitat (TN1). The Onshore Development Area has been widened around this section of route to allow for micro-siting to avoid this area if possible, however the Onshore Cable Route may potentially pass through this wetland vegetation. It supports damp grassland tussocks, soft rush, sedge *Carex* sp., common reed *Phragmites australis*, cuckooflower, horsetail *Equisetum* sp., great willowherb *Epilobium hirsutum* and patches of willow *Salix* sp. and bramble scrub. This area is shown on **Figure 19.5 (Volume II)**.

19.5.2.1.6. Ponds/Waterbodies

116. There are 45 ponds/waterbodies on Holy Island, 19 of which were within the GCN Study Area. These range from small reservoirs in the western part of Holy Island, to field ponds in pasture, heathland pools, a balancing pond by the new Roadking Truckstop at Parc Cybi, and the woodland ponds in Penrhos Coastal Park.

117. Many of the ponds support vegetation. This varies considerably between ponds, frequently occurring species include yellow flag, common reed, floating sweet-grass *Glyceria fluitans*, soft rush, marsh marigold *Caltha palustris*, fool's water cress, and great willowherb.

19.5.2.1.7. Woodland

118. Woodland habitats occur infrequently on Holy Island. The most extensive area of woodland occurs on either side of the A5 in the vicinity of the Grid Connection Substation, between the former aluminium works and Penrhos Coastal Park. This area supports blocks of ancient woodland and plantation on ancient woodland, and also patches of secondary woodland. Sycamore *Acer pseudoplatanus* is the dominant tree species in the ancient woodland, with hazel *Corylus avellana* common in the understorey. Beech *Fagus sylvatica* and various conifers are also present. Ground flora includes a variety of typical woodland species including bluebell, ramsons *Allium ursinum*, dog's mercury *Mercurialis perennis*, primrose, pendulous sedge *Carex pendula*, and various ferns including male fern *Dryopteris filix-mas*, common polypody *Polypodium vulgare* and hart's tongue *Asplenium scolopendrium*, with patches of ivy *Hedera helix* and bramble. One AWS is located within the Onshore Development Area (**Table 19-11** and **Figure 19.3, Volume II**): a restored AWS within the HDD area for crossing the railway and A55. A plantation on AWS is located adjacent to the Grid Connection Substation.
119. Further blocks of mainly mixed woodland and scrub are present to the south of the A55, on the far side of the dual carriageway from the Grid Connection Substation. These woodland areas are mainly of relatively recent origin and include a mixture of broadleaved (sycamore, sweet chestnut *Castanea sativa*, silver birch, oak *Quercus* sp., willow *Salix* sp., cherry *Prunus* sp.) and coniferous species (*Pinus* sp. and *Picea* sp.), and extensive patches of hawthorn scrub, gorse and bramble scrub. Small pockets of semi-natural broadleaved woodland are present on the eastern side of the track between to corner of Lon Towyn Capel and the A55 including a small area of ancient woodland at TN2.
120. Broadleaved plantation woodland (sycamore and Scot's pine *Pinus sylvestris*), and small patches of willow and alder carr woodland are present in the land to the west of the Grid Connection Substation.
121. Away from these areas, woodland cover is generally very limited with occasional small copses of trees and shrubs close to properties or occurring within other habitat types.

19.5.2.1.8. Field Boundaries

122. The field boundaries on Holy Island vary. Many are formed by mortared stone walls (particularly adjacent to wider roads) and dry-stone walls. There are traditional vegetated stone walls/earth banks (cloddiau) within the Onshore Development Area (**Figure 19.5, Volume II**). These occur more frequently beside minor roads and internal field boundaries, mainly in the west part of Holy Island, including the footprint of the landfall. Post and wire/rail fences, natural banks and rocky outcrops, and occasionally hedgerows also form some of the field boundaries (**Figure 19.6, Volume II**).
123. Cloddiau can support a wide variety of plant species (such as primrose, red campion, wild carrot, Alexanders, yarrow *Achillea millefolium*, foxglove *Digitalis purpurea*, scurvy grass, creeping

thistle *Cirsium arvense*, wood sage *Teucrium scorodonia*, bluebell, gorse, bracken and bramble). A number of Cloddiau are within the Onshore Development Area in the vicinity of the landfall area.

124. Hedgerows are classed as species poor and are both continuous and defunct in structure within the Onshore Study Area.

19.5.2.1.9. Urban/Built-Up Areas

125. The majority of the Onshore Cable Route will be located within the existing road network, which passes through rural settlements. The onshore cable route passes Holyhead Leisure Centre before Horizontal Directional Drilling (HDD) transports it under the railway and A55 to the former aluminium works where the Grid Connection Substation will be located.
126. There are several discrete areas of vegetation, or undeveloped fields, adjacent to the roads within the western part of Holyhead, including a small area of secondary woodland at TN3, and an area of derelict land and a former paddock with patches of woodland ground flora at TN4.
127. Landscaping, including drains with grass margins and banks planted with trees and scrub, occur around the business park currently being developed on either side of Parc Cybi, at the eastern edge of Holyhead, where the Switchgear Building will be located.
128. The former aluminium works at Penrhos, supports large industrial buildings and hard-standing (approximately 40 ha in area), set in grounds which include approximately 40 ha of habitats including grassland, scrub, woodland and wetland vegetation.
129. This site also supports a small area of open mosaic habitat (OMH). Approximately 1.0 ha of this habitat type is present to the south of the aluminium works buildings, which borders and slightly overlaps into the Onshore Study Area (**Figure 19.5, Volume II**). This area supports patches of marshy grassland with areas of bare ground, inundated areas and ditches. Species present include soft rush, silverweed *Potentilla anserina*, creeping cinquefoil *Potentilla reptans*, knapweed, a hawkbit sp. *Leontodon*, common centuary *Centaureum erythraea*, knapweed and common mouse-ear *Cerastium fontanum*.
130. There are no extensive areas of urban and built up areas in other parts of the Onshore Study Area. Very small plots (<0.25 ha) supporting waste ground or vacant plots are considered to have low ecological value and have been excluded from the assessment.

19.5.2.1.10. Habitats of Principal Importance

131. The Onshore Study Area supports small areas of various habitat types which are habitats of principal importance (see **Table 19-12** below and **Figure 19.5, Volume II**); these habitats are listed in response to Section 7 of the Environment (Wales) Act 2016.
132. The criteria set out in Maddock (2011) have been used to identify these habitat types, which are summarised in **Table 19-12** below, together with identification of potential impacts:

Table 19-12 Impacts to habitats of principal importance. * Habitats with a similar or corresponding category in the Anglesey BAP

Habitat of Principal Importance	Status and location within Onshore Study Area (See Figure 19.5, Volume II)	Potential impacts
Coastal saltmarsh	Coastal saltmarsh is present just to the south of the west end of the A55 bridge (forming part of the Beddmanarch-Cymyran SSSI); a small area of saltmarsh has also formed at the east (Valley) end of the lagoon between the A5 and A55 bridges (again also within the boundary of the SSSI). Further saltmarsh vegetation (also part of the SSSI) is present on the east side of Lon Towyn Capel (SH 261794) and to the east of private track that runs between to corner of Lon Towyn Capel and the A55 (at SH264797).	This habitat has been avoided and there is no pathway for impacts to this habitat.
Coastal vegetated shingle	This habitat is present on the shores of the Beddmanarch-Cymyran SSSI at either end of the A5 and A55 bridges (within the boundary of the SSSI).	This habitat has been avoided and there is no pathway for impacts to this habitat.
Eutrophic standing waters*	There are three reservoirs in the west part of Holy Island (referred to as 'ponds' 1, 2 and 3, elsewhere within the report). These have not been subject to detailed survey but may meet the criteria for inclusion within this habitat type.	These reservoirs have been avoided and there is no pathway for impacts to this habitat.
Hedgerows*	Few hedgerows are present in the west part of Holy Island. Those that are present are species poor and a number are defunct. NB: Although not included in the definition in Maddock (2011) cloddiau (vegetated walls) are included in the hedgerow section of the Anglesey Biodiversity Action Plan (these are considered below).	There is potential for disturbance for up to four species poor hedgerows at landfall. Along the cable route there is potential for disturbance of up to 14 species poor intact or defunct hedgerows. These hedgerows are considered to be of medium value.
Inland rock outcrops and scree habitats	Small inland rock outcrops occur in several areas across the island, occurring frequently on either side of Porthdafarch Road and on either side of Lon Isallt. These rocky areas typically occur in association with scrub and heathland.	This habitat has been avoided and there is no pathway for impacts to this habitat.
Intertidal mudflats	Extensive intertidal mudflats occur within Beddmanarch-Cymyran SSSI on either side of the A5 and A55 bridges.	This habitat has been avoided and there is no pathway for impacts to this habitat.
Lowland dry acid grassland	Small patches of this habitat type occur in association with more extensive areas of heathland; the majority of this habitat type in Holy Island is beyond the Onshore Study Area.	This habitat has been avoided and there is no pathway for impacts to this habitat.
Lowland fen*	The west and southern tip of Cors Tre Wilmot Local Wildlife Site, which includes fen vegetation, north of the Onshore Development Area at SH 22085 81824 and SH 21873 81133, respectively. There is also include some fen vegetation is present to the north and west of Holyhead Leisure Centre.	The LWS has been avoided and there will be no impact to this habitat. The Onshore Cable Route passes through the lowland fen habitat west of the

Habitat of Principal Importance	Status and location within Onshore Study Area (See Figure 19.5, Volume II)	Potential impacts
		Holyhead Leisure Centre. This habitat is considered to be of medium value.
Lowland heathland	<p>Heathland occurs extensively in the Holy Island Coast SSSI and Tre Wilmot SSSI (both parts of the Holy Island Coast SAC).</p> <p>Away from the SSSI smaller patches of heathland/scrub vegetation are common features within the landscape interspersed with areas of pasture, frequently where low rocky outcrops occur.</p>	This habitat is not within the Onshore Development Area and has been avoided. There is no pathway for impacts to this habitat.
Lowland meadows	<p>This habitat type includes a wide range of lowland grasslands, including most forms of unimproved neutral grassland.</p> <p>The grassland habitats identified during the survey are not assessed to meet the habitat criteria set out in Maddock (2011), being either improved or semi-improved.</p> <p>(See also Maritime Cliff and Slopes for maritime grassland).</p>	The grassland habitats within the footprint are considered to be of low ecological value and not classed as Habitats of Principal importance.
Lowland mixed-deciduous woodland*	<p>This habitat type occurs on either side of the A5 between the former aluminium works and Penrhos Coastal Park, where a combination of ancient woodland, plantation on ancient woodland, and also patches of secondary woodland occur.</p> <p>Several small pockets of semi-natural deciduous woodland are also present on either side (although primarily on the east side) of the private track that runs northwards between Lon Towyn Capel and the bridge over the A55.</p> <p>No other significant blocks of ancient woodland occur.</p> <p>Other blocks of woodland are present but appear to be more recently planted/secondary woodland and are therefore considered less likely to meet the Priority Habitat criteria in Maddock (2011).</p>	Woodland within the Onshore Development Area will be avoided and fenced off as part of embedded mitigation therefore this habitat has been avoided and there is no pathway for impacts to this habitat.
Maritime cliff and slopes*	<p>This habitat type is extensive on the sea cliffs around South Stack and the Range in the west part of the Study Area. All areas of higher cliff have been avoided, under a worst case scenario there will be temporary disturbance should the cables be trenched through this habitat at landfall.</p> <p>Areas of cliff top maritime grassland occur in several areas to the south of Lon Isallt between the Range and Trearddur.</p>	<p>The preference is for cables to be installed under the cliffs using HDD technology.</p> <p>Under this scenario, the cliff habitat and associated vegetation will be avoided and there will be no impact to maritime cliff and slope habitat. Under a worst case scenario, the cables will be trenched at landfall and installed in J-tubes up the cliff. This habitat is assessed to be of high value and is part of the SAC designation.</p>
Open mosaic habitat on	This habitat type occurs in the land surrounding the former aluminium works.	The Onshore Cable Route utilises the corridor between

Habitat of Principal Importance	Status and location within Onshore Study Area (See Figure 19.5, Volume II)	Potential impacts
previously developed land (OMH)	This habitat type is present to the south of the aluminium works buildings, which is within the Onshore Development Area. Other patches of OMH are present nearby but these are outside the Onshore Development Area.	the south side of aluminium works and the railway line and there is potential for an impact on this habitat. This habitat is considered to be of low value as it is currently subject to scrub encroachment.
Ponds*	The pond priority habitat classification relates to ponds which support species and assemblages of conservation importance. Not all the ponds within the GCN Study Area are considered likely to meet these criteria set out in Maddock (2011). For guidance, if great crested newt was present the pond would meet the criteria. The results of the surveys for this species in 2018 were negative.	GCN were not found to be established in any pond habitat. Ponds have been avoided as part of the embedded mitigation and any which lie within the Onshore Development Area will be fenced off, therefore there is no pathway for impacts to this habitat.
Purple moor-grass and rush pastures*	The southern tip of Cors Tre Wilmot Local Wildlife Site includes purple moor grass vegetation	This habitat has been avoided and there is no pathway for impacts to this habitat.
Reedbed* (marked as swamp on the Phase 1 habitat survey plan)	The southern tip of Cors Tre Wilmot Local Wildlife Site includes reedbed (swamp) vegetation. An area of wetland vegetation, which primarily includes swamp (reedbed), is present to the north and west of Holyhead Leisure Centre (at SH 245808). Areas of swamp and marshy grassland occur in the habitats to the north of the former aluminium works at (SH 26267 81343) and just to between the A5 and Penrhos Beach Road (at SH 26040 81537). Small patches of reedbed and swamp also occur adjacent to Lon Towyn Capel and at the corner of Lon Isallt and Parc Isallt in Trearddur Bay	Cors Tre Wilmot LWS has been avoided and there is no pathway for impacts to this habitat here. The Onshore Cable Route passes through the lowland fen habitat west of the Holyhead Leisure Centre. This habitat is considered to be of medium value. All other areas of swamp and marshy grassland have been avoided and there is no pathway for impacts to this habitat.

* Habitats with a similar or corresponding category in the Anglesey Biodiversity Action Plan

19.5.2.2. Species

19.5.2.2.1. Great Crested Newt

133. There are 18 previous records of GCN from Holy Island. A cluster of records was provided by Cofnod for an area immediately to the west of Holyhead that includes several ponds (Ponds 7-12) and this area has been avoided. The Onshore Development Area does not fragment this habitat and, should GCN be present in these ponds, the Project will have no impact to them or the connective habitat between the ponds. These records are not considered further. A single record was provided from the vicinity of the golf course (from a location near to Pond 19). This is a historic record and is 384 m from the Onshore Development Area, outside the GCN Study Area. A number of records were also provided from the area around Valley on Anglesey; however, this area has also been avoided during route design.

134. Pond 19b was surveyed for GCN in 2007; however, none were recorded (Cofnod, pers. comm., 4 May 2018). No data relating to any other previous pond survey are held by Cofnod. It is therefore assumed that the remaining ponds within the Onshore Study Area have not previously been surveyed for GCN.
135. A scoping process was undertaken for HSI Assessment. Methodology for HSI is discussed in **Section 19.4.3**. A summary of the HSI assessment is provided in **Table 19-13** below, and more details are provided in **Appendix 19.1 (Volume III)**.

Table 19-13 Great crested newt HSI results summary (ponds within GCN Study Area).

HSI Category	Score	Pond	eDNA survey
Excellent	>0.8	N/A	N/A
Good	0.7-0.79	17, 18a, 19, 21,	Yes
Average	0.6-0.69	15b, 19a, 42	Yes
Below average	0.5-0.59	16a, 16b, 16c, 19b,	Yes
Poor	<0.5	3, 20,	No
Ponds within 250 m but scoped out of assessment	Scoped out (as agreed with IoACC)	Dry/Not present: 14, 15, 18b, 40, 41 Not a pond, part of a stream/watercourse: 16	No
Ponds beyond 250 m	Scoped out	All other ponds scoped out of the assessment.	N/A

136. While it's not possible to categorically state that ponds with a low HSI score will not support GCN, the HSI approach was designed to be proportionate to the level of risk, and this approach was agreed with IoACC. During the GCN surveys, suitable ponds within the GCN Study Area were surveyed using eDNA sampling, which is a reliable method for identifying presence. The relationship is not sufficiently strong, however, to allow estimations of the numbers of GCN in any particular pond. Given that the results for the ponds with higher HSI scores in proximity to the route were negative, it follows that those with low suitability (poor <0.5 HSI) are also unlikely to be used by GCN, although this is not 100 % accurate.
137. As agreed with IoACC, all ponds with HSI scores of 0.5 (classed as 'below average') and above were subject to eDNA survey during the GCN surveys (**Appendix 19.1, Volume III**). Eleven of these ponds were within 250 m of the Onshore Development Area. The results of the eDNA survey are summarised in **Table 19-14** below.

Table 19-14 Results of eDNA survey

Pond	Sample successfully tested (Y/N)	eDNA Survey result
15b	Y	Negative
16a	Y	Negative
16b	Y	Negative
16c	Y	Negative
17	Y	Negative
18a	Y	Negative

Pond	Sample successfully tested (Y/N)	eDNA Survey result
19	Y	Negative
19a	Y	Negative
19b	Y	Negative
21	Y	Negative
42	Y	Negative

138. The ponds that were sampled in the west part of the GCN Study Area are not near any previously identified GCN populations.
139. GCN are EPS, listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended). They are subject to the provisions of Regulation 43 of those Regulations. All EPS are also protected under the Wildlife and Countryside Act 1981 (as amended) and listed on the Anglesey LBAP and Section 7 of the Environment Wales Act. As such, GCN are considered to be of high importance.

19.5.2.2.2. Otter

140. Twenty seven records of otter were provided by Cofnod within the Desk Study Area (as shown on **Figure 19.7, Volume II**). The majority of these records were from Anglesey. Five of these were from Holy Island and one is within the Onshore Study Area but outwith the boundary of the Onshore Development Area, at the south east extent of the old aluminium works.
141. The coastal areas provide extensive areas of habitat suitable for foraging and resting sites. There is limited habitat potential for otter across the Onshore Study Area and habitat fragmentation is not anticipated to occur. There are no freshwater watercourses at landfall to provide habitat for otters to clean their fur or shelter, and no other suitable watercourses within the Onshore Development Area. No signs of otter were recorded during the field surveys.
142. Otter are EPS, listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are subject to the provisions of Regulation 43 of those Regulations. All EPS are also protected under the Wildlife and Countryside Act 1981 (as amended) and listed on the Anglesey LBAP. They are also listed on section 7 of the Environment Wales Act 2016. As such, otter are considered to be of high importance.

19.5.2.2.3. Bats

143. Numerous (133) bat records were provided by Cofnod for the Desk Study Area (**Figure 19-8, Volume II**). These include common pipistrelle *Pipistrellus pipistrellus* (the majority of records), soprano pipistrelle *Pipistrellus pygmaeus*, Daubenton's bat *Myotis daubentonii*, whiskered/Brandt's bat *Myotis mystacinus/brandtii*, Natterer's bat *Myotis nattereri*, Leisler's *Nyctalus leisleri*, noctule *Nyctalus noctula*, Nathusius' pipistrelle *Pipistrellus nathusii*, and brown long-eared bat *Plecotus auritus*. A historic record from 2012 for at least one single common pipistrelle roost has been recorded in the Onshore Study Area close to landfall within the 50 m buffer at buildings at Ty'n Nant, 27 m west of the Onshore Development Area. No other known roosts are present within the Onshore Study Area.

144. The majority of bat records are associated with houses within Holyhead and in residential properties around South Stack. Records were also provided from the woodland area around Penrhos Park; few records were provided from other areas.
145. There is little woodland on Holy Island; however, since the island is exposed with little woodland, much of the Onshore Study Area does not offer extensive areas of optimal habitat for bats. There are, however, localised patches of good foraging habitat (dense scrub, ponds, ditches and wet grassland around waterbodies). The woodland habitat that is present is likely to offer suitable foraging habitat for bats. Hedgerows in the Onshore Study Area are recorded as species poor and often defunct, offering limited foraging suitability for bats.
146. Given the lack of woodland in the Onshore Study Area, buildings are considered likely to offer the main opportunities for roosting bats. There are no significant bridge structures which may provide roost habitat and no buildings will be removed during the construction works. It is possible that suitable tree roosts occur in the small areas of woodland that do exist, such as the woodland areas around Penrhos Country Park, which extend into the Onshore Study Area in the vicinity of the Grid Connection Substation.
147. Bats have protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and as a EPS under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) and Section 7 of the Environment Wales Act 2016. Some species of bats are UK BAP priority species and Anglesey LBAP species.
148. The bat species recorded to be using the onshore site for foraging and commuting purposes are considered to have medium ecological value. The habitat within the Onshore Development Area is of low importance for roosting bats.

19.5.2.2.4. Red Squirrel

149. Three records of red squirrel *Sciurus vulgaris* were provided by Cofnod (as shown on **Figure 19.7, Volume II**) from dates between 2010 and 2017. Three are from the Penrhos Coastal Park area, which supports a mixture of ancient and plantation woodland. None are within the Onshore Study Area.
150. The woodland within and close to Penrhos Coastal Park, and some of the nearby woodland on the south side of the A55, offer suitable habitat for this species. The lack of woodland cover or ecological connectivity elsewhere means that the majority of the Onshore Study Area is unlikely to be suitable for red squirrel.
151. Red squirrels have protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is listed on Section 7 of the Environment Wales Act 2017. Red squirrel is also a UK BAP priority species and Anglesey LBAP species. Overall, red squirrels are considered to be of high value.

19.5.2.2.5. Water Vole

152. A total of 113 records of water vole were provided by Cofnod for the Desk Study Area. The majority of these are from ditches to the south and east of Valley, outwith the Onshore Study Area. Four of these records were on Holy Island, one of which was within the Onshore Study

Area, from a ditch with within the former aluminium works. A small cluster of records was provided from a ditch to the west of Holyhead as shown on **Figure 19.7 (Volume II)**.

153. During the EP1HS, no ditches were recorded in the Onshore Study Area that could provide suitable habitat for this species. No field signs were recorded during the EP1HS.
154. Water vole is protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to kill, injure or take any water vole, damage, destroy or obstruct access to any place of shelter or protection that the animals are using, or disturb voles while they are using such a place. Water vole is listed as a Species of Principal Importance under the provisions of the NERC Act 2006 in England and under the provisions of the Environment (Wales) Act 2016. Water voles and water vole habitat is considered overall to be of medium ecological value.

19.5.2.2.6. Badger

155. Badgers are Protected by the Protection of Badger Act 1992 and due to the sensitivity of this species and their risk to persecution, the location of badger setts are confidential. Details on the baseline environment from the desk study and EP1HS are provided in **Confidential Appendix 19.3 (Volume III)** and shown on **Confidential Figure A19.3.1 (Volume III)**.

19.5.2.2.7. Birds

156. Habitats suitable for nesting birds (both common species and Schedule 1 species) occur throughout the Onshore Study Area including the sea cliffs, heathland, scrub, wetland areas, and woodland. The estuarine habitats between Holy Island and the Anglesey mainland are also important for passage and wintering birds.
157. The cliffs support a variety of cliff nesting sea birds, such as herring gull *Larus argentatus*, fulmar *Fulmarus glacialis*, kittiwake *Rissa tridactyla*, razorbill *Alca torda*, guillemot *Uria aalge*, puffin *Fratercula artica*, kestrel *Falco tinnunculus* and peregrine falcon *Falco peregrinus*. Seabirds are assessed in **Chapter 11, Offshore Ornithology** and are not considered further here.
158. The cliff vegetation in the western part of the Onshore Study Area forms part of the SPA for chough. Chough nest in caves in the cliffs and forage on low-input short sward grassland at the top of the cliffs. The Onshore Study Area includes numerous suitable fields. Where these occur close to nest sites, they are potentially important during the breeding season for foraging adults and fledged juveniles; birds range more widely in the winter and use a wider range of foraging habitat. Chough records for the Study Area are included in **Confidential Appendix 19.2 (Volume III)** and shown on **Figures A19.2.1 – A19.2.6 (Volume III)**.
159. Peregrine falcon *Falco peregrinus* is resident in the Holy Island SPA and is a Schedule 1 listed breeding species protected under the Wildlife and Countryside Act 1981. Peregrine falcon is most commonly recorded in the coastal strip, particularly around nesting seabird colonies on the cliffs. Barn owl *Tyto alba* is also listed on Schedule 1 and known to be present on Holy Island. Peregrine and barn owl records for the Study Area, supplied during the desk study, are included in **Confidential Appendix 19.2 (Volume III)** and shown on **Figures A19.2.7 – A19.2.8 (Volume III)**.

160. The heathland and scrub areas support linnet *Linaria cannabina*, whitethroat *Sylvia communis*, skylark *Alauda arvensis*, and stonechat *Saxicola rubicola*. The small patches of wetland vegetation are used by other species such as sedge warbler *Acrocephalus schoenobaenus* and reed bunting *Emberiza schoeniclus*, and, where scrub occurs, grasshopper warbler *Locustella naevia*. Marshy grassland provides suitable nesting habitat for lapwing *Vanellus* and curlew *Numenius arquata*.
161. Other areas of trees, scrub and shrubs provide nesting habitat for a variety of common and widespread species of nesting birds such as blue tit *Cyanistes caeruleus*, great tit *Parus major*, long-tailed tit *Aegithalos caudatus*, wren *Troglodytes*, robin *Erithacus rubecula*, dunnoek *Prunella modularis*, blackbird *Turdus merula*, song thrush *Turdus philomelos*, and chaffinch *Fringilla coelebs*. The buildings may also offer opportunities for nesting birds such as starling *Sturnus vulgaris* and house sparrow *Passer domesticus*.
162. All nesting birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for some rarer species (listed on Schedule 1 of the Act), it is an offence to disturb them whilst they are nest building or at or near a nest with eggs or young, or to disturb the dependent young of such a bird. Breeding birds and supporting habitat are considered to be of medium value. Due to their listing on Schedule 1 and/or association with internationally designated sites. chough, peregrine falcon and barn owl, and habitat which supports these species is considered to be of high value.

19.5.2.2.8. Reptiles

163. Records of three common reptile species (namely adder *Vipera berus*, common lizard *Lacerta vivipara* and slow worm *Anguis fragilis*) were provided by Cofnod. Numerous adder records were provided from the heathland habitats around South Stack, The Range and Tre Wilmot, in the western part of Holy Island. Common lizard and slow worm records were also provided for these areas, but also with a few records of both species occurring more widely across the Desk Study Area. Four records of common lizard are present within the Onshore Study Area, three in the vicinity of landfall (two of which are within the Onshore Development Area) and one in the vicinity of the Grid Connection Substation. Reptile records are shown on **Figure 19.9 (Volume II)**.
164. The heathland, scrub and grassland mosaic which occurs patchily across Holy Island provides a good habitat for reptiles and it is likely that these species occur more widely across the Onshore Study Area.
165. Reptiles have protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). All native reptiles are UK BAP priority species and listed on Section 7 of the Environment Wales Act (2016). Reptiles are considered to have medium ecological value.

19.5.2.2.9. Plants

166. A large number of plant records were provided by Cofnod. Records summarised below relate to species listed on Schedule 8 of the Wildlife & Countryside Act, 1981 (as amended) and those

listed in response to Section 7 of the Environment (Wales) Act 2016 (Species of Principal Importance).

167. Spatulate (South Stack) fleawort *Tephrosieris integrifolia* ssp. *maritima* is endemic to Holy Island and occurs along the cliff top vegetation between South Stack and the Range. This plant is listed on Schedule 8 of the Wildlife and Countryside Act, 1981 (as amended). Records of this species are shown on **Figure 19.10 (Volume II)**. Some of these records are from the section of coastline around Abraham's Bosom, outwith the Onshore Development Area but in the general vicinity of the proposed landfall points.
168. Records of golden hair lichen *Teloschistes flavicans* were provided for Porth Dafarch, south of the Onshore Development Area. These locations are close to but outside of the Onshore Development Area. This lichen is also listed on Schedule 8 of the Wildlife and Countryside Act, 1981 (as amended).
169. Records of the following plant species, which are listed in response to Section 7 of the Environment (Wales) Act 2016 (Species of Principal Importance), were provided by Cofnod:
 - Several records of pillwort *Pilularia globulifera* and three-lobed crowfoot *Ranunculus tripartitus* were provided from Tre Wilmot SSSI. There are no records of this species from the Onshore Development Area;
 - Pale dog violet *Viola lactea* occurs in several locations on The Range, part of the Glannau Ynys Gybi/ Holy Island Coast SSSI. There are no records of this species from the Onshore Development Area; and
 - A historical record (1988) of small-flowered catchfly *Silene gallica* was provided from Bodwarren Farm (SH217811), in the west part of the Study Area. This record is however stated as a casual record, likely to have been introduced with grass seed.
170. There are other notable plant species/Welsh Red Data book plants (BSBI, 2018) which occur within the Study Area, including:
 - Spotted rock-rose *Tuberia guttata*, which has a restricted UK distribution and a strong hold locally, occurs in several locations from the heathland around South Stack and The Range, and three records from the patchy heathland and scrub to the south of Lon Isallt; and
 - A leek *Allium ampeloprasum* occurs in three locations in a road verge/field boundary near Ty Mawr (South Stack). This is within the Onshore Development Area at landfall.
171. Records of these species are shown on **Figure 19.10 (Volume II)**.
172. These species are considered to be of medium value. Spatulate fleawort is considered to be of high ecological value as it is endemic to the area.

19.5.2.2.10. Invertebrates

173. Records of invertebrate species listed in response to Section 7 of the Environment (Wales) Act 2016 (Species of Principal Importance) provided by Cofnod included various butterflies (small pearl-bordered fritillary *Boloria selene*, silver studded blue *Plebejus argus*, wall *Lasiommata megera*, grayling *Hipparchia semele* and small heath *Coenonympha pamphilus*) and a very wide

range of moth species. These records are predominantly from the heathland areas around South Stack, the Range, Tre Wilmott (mainly from areas within the SSSIs) and also from the large area of grassland, scrub and woodland habitat immediately to the south of the former aluminium works on the south side of the A55, which, given the number of records provided, appears to have been regularly surveyed for moths.

174. The majority of high value invertebrate habitat detailed above has been avoided through the site selection process, however due to the range of invertebrates recorded on Holy Island, which are rare according to the Red Data Book, or nationally scarce, the assemblage of invertebrates within the Onshore Development Area are considered to be of medium ecological value. The habitat within the Onshore Development Area is considered to be of low ecological value for invertebrates.

19.5.2.2.11. Invasive Species

175. The invasive plant Japanese knotweed was recorded from four locations on Holy Island locations during the EP1HS, two of which are located within the Onshore Development Area, as shown in **Table 19-15** below and shown on **Figure 19-10 (Volume II)**. No other records of invasive non-native species have been made in the area. Japanese knotweed is listed under Schedule 9 Part I of the Wildlife and Countryside Act 1981 (as amended). Invasive non-native species are considered to be of medium importance.

Table 19-15 Japanese knotweed locations

Reference (Figure 19-10, Volume II)	Location	OS Grid reference	Description
a	141 m from the Onshore Development Area, (adjacent to reservoir access track. Just inside the Glannau Ynys Gybi / Holy Island Coast SSSI heathland.	SH 22021 82089	A large stand of Japanese knotweed near the base of a steep area of heathland, just inside the Glannau Ynys Gybi / Holy Island Coast SSSI
b	Within the Onshore Development Area, within a small enclosed field at Ty Mawr, South Stack Road.	SH 21702 81798	A few plants around the perimeter of the field.
c	Within the Onshore Development Area, in western part of survey area, near Penrhosfeilw.	SH 21945 80590	Small clump in the road verge; likely to be very close to working area.
d	600 m from the Onshore Development Area, in woodland approximately 50 m to the west of access track.	SH 26464 79931	A large clump at the base of a spoil mound.

19.6. IMPACT ASSESSMENT

19.6.1. Overview of Potential Impacts

176. Impacts from the development could arise from the following activities:

- Vegetation removal;
- Excavation of trenches;
- Storage of arisings;
- Storage of other materials;
- Creation of site compounds;
- HDD compounds and other above ground infrastructure;
- Temporary removal of field boundaries; and
- Creation of ditch crossing points.

177. At worst case, these potential impacts are anticipated to be greatest during construction and decommissioning activities, with less disturbance anticipated during the operational phase of the Project.

178. This work has the potential to give rise to impacts on habitats through:

- Direct permanent or temporary loss or fragmentation of habitat features;
- Temporary disturbance of habitats (such as light, dust, noise or pollution events);
- Spread of non-native invasive species; and
- Localised changes in hydrology.

179. The work also has potential to give rise to the mortality or disturbance to individuals of certain species.

180. Impact risk is considered below in **Section 19.6.5** and **Section 19.6.6** with respect to designated sites, habitats and protected species, with recommendations for mitigation or further pre-construction survey where appropriate and proportionate to do so.

19.6.2. Worst Case Scenario

181. Full project details are discussed in **Chapter 4, Project Description**. With regards to onshore ecology, the worst-case scenario is outlined below.

19.6.2.1. Landfall

182. Two options are being considered for landfall of the subsea cable and connection to the shoreside cable (**Table 19-16**). Option 1 is for HDD landfall and Option 2 is for trenched landfall.

Table 19-16 Landfall Options

Parameter	Option 1 (HDD at landfall – preferred)	Option 2 (trenched landfall – worst case)
Max number of cables	9	9
Max. length of each drill / trench	550 m	480m – 740 m
Drill / trench dimensions	Nominally 450 mm	Nine x individual trench widths up to 600mm, or single trench up to 10m width; 0.5 to 1.2m deep
Separation distances	10m between HDD entry points and 20m between HDD exit points	Individual trench widths of up to 600 mm. Or a single trench with all nine cables laid within it of approximately 10 m width and 0.5 to 1.2 m deep
Beach crossing method	Underground	Trench across foreshore using an excavator and rock cutter
Cliff crossing method	Underground	Up to nine shallow trenches would be created using a rock cutter and the cables would be 'surface laid' over the cliff using a split pipe or J-tube. Nominal 500mm separation between J-tube centres is proposed. Therefore, total width of grouped J-tubes c.30m (0.5m x 8 for spacing + 0.35m x 9 for tubes themselves).
Material removed	Up to 900m ³ (spoil reused in substation build)	Up to 8,880m ³ (majority of the material excavated will be replaced as backfill)
Temporary working corridor	Underground	30m
Temporary works area	Up to 120m x 70m	Up to 100m x 50m
Culvert	A precast concrete box culvert will be installed beneath the Ty-Mawr Access Road to allow the onshore ducts to pass through the landfall substation with minimal disruption to existing access	
Transition pits	There will be one transition pit, up to 15 m x 85 m x 1.5 m deep, equating to a footprint of 1,275 m ² , excavated volume 1,912.5 m ³ in addition to trenching excavation or HDD cutting volumes (Worst case 36 ducts).	Up to 9, each up to 15m x 3m x 1.5m deep (spoil material removed)
Transition pits (post construction)	All transition pits will be buried upon completion of the works and covered by a depth of approximately 200mm topsoil (recovered from excavated materials) and seeded with grass mix	

183. There are currently two HDD scenarios to installing the export and onshore cables that may be possible:

- Scenario 1: HDD boreholes, onshore cable ducts and infrastructure are installed and subsequently pull through export and onshore cables. This work would take place during the construction phase; or

- Scenario 2: HDD boreholes, onshore cable ducts and infrastructure are installed during the construction phase. Each developer will pull through their export and onshore cables and therefore these operations will be staggered during the service life of the facility.

184. Scenario 1 represents the worst case scenario for cumulative noise, visual and disturbance impacts and therefore is assessed as such in the assessments within this chapter,

19.6.2.2. Landfall Substation

185. The landfall substation will have capacity of 240 MW (**Table 19-17**). The landfall substation will be enclosed within a boundary fence/wall and where necessary include screening to minimise the effect of visual impact.

Table 19-17 Landfall Substation

Parameter	Value (outdoor plant)
Footprint	The design would consist of a fenced site compound of an area equivalent to 80 m by 80 m. Within this would be three separate buildings of approximately: the first to 62 m by 22.5 m by 7 m high (or equivalent area); the second to 28 m by 10 m by 7 m high (or equivalent area); and the third to 8 by 8 by 7 m high (or equivalent area). The third building will be wholly within an external transformer compound of approximately 28 m by 36 m by 7 m high (or equivalent area).
Peak height	7m
Temporary construction compound and laydown area	50m x 70m (or equivalent area)
Screening	Positioned within a recessive location in the landscape within a valley and uses the landform to help integrate the substation into the landscape. Some screening may be incorporated into final design (see Chapter 24, SLVIA)
Surfaces	Hard standing will hard core or tarmac surfaces. Footpaths may be poured concrete. Outdoor areas within the compound; crushed rock or gravel.
Lighting	Minimum of 110 lux directed lighting around entrance and electrical plant. Only be turned on when needed, as well as equipped with motion sensors.

19.6.2.3. Onshore Cable Route

186. As much as possible, it is proposed that the Onshore Cable Route from landfall to Grid Connection Substation will be trenched into the local road network. As the worst case, there will be the possibility that the verge or field areas will be used to install the final cable route and pit transition areas required for cable section installation (**Table 19-18**). The proposed cable corridor follows South Stack Road, Porthdafarch Road and Mill Road towards the Switchgear Building. The cable will be trenched from the Switchgear Building to the Grid Connection Substation, with a section installed via Horizontal Directional Drilling (HDD) beneath the A55 and the Holyhead to Bangor rail line.

Table 19-18 Onshore Cable Route

Cable route parameter	Landfall Substation to Switchgear Building	Switchgear Building to Grid Connection Substation
Circuit	132kv	33kv
Number of cables	6 power cables plus 2 fibre optic cables (2 circuits)	

Cable route parameter	Landfall Substation to Switchgear Building	Switchgear Building to Grid Connection Substation
Trench depth	1620mm	1620mm
Trench width	1400mm	2000mm
Length	6675m	1420m
Joint bays (No.)	18	2
Joint bay chamber depth	1.65m	1.65m
Joint bay chamber width	2m	3m
Joint bay chamber length	12.5m	5m
Draw pits (to be fully reinstated following works) (No.)	35	7
Draw pit depth	1.65m	1.65m
Draw pit width	3m	5m
Draw pit length	8m	8m
Temporary works area	6m up to 30m width. Space for cable pulling of up to 20m by 7m around each joint box (hardstanding)	
HDD Crossing	The two transition pits (entry and exit pits) will be 80m x 15m x 1.5x deep.	

19.6.2.4. Switchgear Building

187. The infrastructure at Parc Cybi will consist of a 33kV switchboard room and metering room. The existing road will be used to access this location, during both construction and operation of the switch. Dimensions of the switchgear building are detailed in **Table 19-19**.

Table 19-19 Switchgear Building

Parameter	Value (outdoor plant)
Footprint	9.4m x 5m
Peak height	4m
Temporary construction area and laydown	None
Screening	Screening influence of existing buildings and vegetation, with potentially additional screening (see Chapter 24, SL VIA)
Surfaces	Hard standing will hard core or tarmac surfaces.
Foundations	Concrete slab
Lighting	Minimum of 110 lux directed lighting around entrance and electrical plant. Only be turned on when needed, as well as equipped with motion sensors.

19.6.2.5. Grid Connection Substation

188. A separate substation will be required to achieve connection at the grid connection point. The location of the Grid Connection Substation will be the Orthios site, the location of the former Anglesey Aluminium works to the north east of Holy Island. This will require access under the A55 and railway, which will be crossed by HDD. Dimensions of the Grid Connection Substation are detailed in **Table 19-20**.

Table 19-20 Grid Connection Substation

Parameter	Value (outdoor plant)
Footprint	104m x 62m
Peak height	9m
Appearance	External plan equipment plus four buildings.
Temporary construction compound and laydown area	50m x 100m or equivalent area
Screening	Screening influence of existing buildings and vegetation. Further screening may be incorporated (see Chapter 24, SL VIA)
Surfaces	Hard standing will hard core or tarmac surfaces. Outdoor areas within the compound; crushed rock or gravel.
Foundations	Concrete slab.
Lighting	Minimum of 110 lux directed lighting around entrance and electrical plant. Only be turned on when needed, as well as equipped with motion sensors.

19.6.3. Mitigation

189. Options for reducing or avoiding the significance of these impacts include:

- Localised micro-siting of the route within the Onshore Development Area to avoid habitat features;
- Localised reduction of the width of the Proposed Working Area where required to avoid features;
- Habitat protection and reinstatement following the construction phase; and
- Avoidance of harm to nesting birds and protected species though adopting specific working practices, including the timing of the work to avoid sensitive periods.

190. An overarching Ecological Action Plan (EAP), incorporating all necessary mitigation measures and management plans for habitats and species, will sit underneath the Construction Environmental Management Plan (CEMP) (**Document MOR/RHDHV/DOC/0073, Outline CEMP**) (**Section 19.6.4**). This will be submitted for review to NRW and IOACC for agreement prior to construction.

19.6.3.1. Embedded Mitigation

191. The Project has undergone an extensive site selection process which has involved incorporating ecological considerations into the identification of the proposed onshore inshore infrastructure locations. The site selection process is provided in full in **Chapter 3, Site Selection and Consideration of Alternatives**. The following section describes the ecological constraints which have fed into this site selection process and have as a consequence avoided potential impacts upon selected ecological receptors.

19.6.3.1.1. Designated Sites

192. Constraints mapping was undertaken for landfall, cable routing and grid connection. This constraints mapping exercise was used to determine the route options for the onshore

infrastructure for the Project. The following ecological receptors were considered and avoided where possible as part of the constraints mapping process:

- International designated sites for nature conservation (SAC, SPA, Ramsar sites);
- National designated site for nature conservation (SSSI, LWS, RSPB Reserve and Country Park); and
- Ancient woodland.

19.6.3.1.2. Route Refinement

193. The onshore infrastructure has undergone continuous refinement since the publication of the three Morlais Scoping Reports (Royal HaskoningDHV, 2015; Royal HaskoningDHV, 2017; Royal HaskoningDHV, 2018). Refinements have included consideration of more detailed ecological constraints. The following principles have been applied when refining the onshore infrastructure into that presented in **Chapter 4, Project Description**:

- Ancient woodland – following the Forestry Commission’s Standing Advice on Ancient Woodland and Veteran Trees, a buffer of 15 m around all ancient woodlands will be used (Forestry Commission, 2014);
- Woodland – areas of woodland have been avoided where possible (including root protection zone of max radius of 15 m where possible) during the route selection process;
- Habitat – standing water bodies, watercourses, trees, and agricultural ditches have been avoided where possible; and
- Hedgerows and Cloddeau – the number of hedgerow and Cloddeau crossings has been minimised as far as possible, taking other fixed constraints into account. When crossing hedgerows, the width of the cable easement will be reduced to the running track and cable trenches only to minimise the amount of hedgerow removal. A root protection zone will also be included (max radius of 15 m where possible).

19.6.3.1.3. Engineering Design

194. Consideration is made to the use of HDD at the landfall location, which will avoid disturbance of the coastal fringe habitats. The use of HDD is not confirmed and may not be possible for other reasons, see **Chapter 4, Project Description** for further details).

19.6.3.1.4. Replanting

195. A commitment of intention has been made by the Project to reinstate any habitat that has been removed using native species of local provenance matching the existing habitats as soon as practicably possible, with consideration of additional species to enhance diversity as appropriate. The maximum size of the hedgerow gap created has been minimised within the project design as far as possible.

19.6.3.1.5. Seasonal Constraints

196. Any hedgerow and tree removal will be undertaken outside of the bird nesting season. As a guide, the bird nesting season is between February and August inclusive; dates vary by species

and can be affected by prevailing weather conditions. The majority of species do not start nesting until March and April.

197. Where possible, construction in reptile habitat will take place within the reptile active season (March to October inclusive).

19.6.4. Mitigation Measures through Best Practice and Policy

19.6.4.1. Standard Best Practice

198. A commitment is made for all construction, operation and decommissioning activities to follow standard best practice guidance, including:
- Guidance for Pollution Prevention GPP5: Works in, near or over watercourses;
 - Pollution Prevention Guidelines PPG6: Working at construction and demolition sites;
 - Construction Industry Research and Information Association (CIRIA) C648 (2006) Control of water pollution from linear construction projects; and
 - CIRIA Guidance note C692 Environmental Good Practice on Site Guide (3rd Edition).

19.6.4.2. Ecological Action Plan

199. All mitigation measures proposed in relation to the impacts identified for each receptor below will be incorporated and detailed in an overarching EAP. Where mitigation or management plans are mentioned in the mitigation sections below, these will be incorporated into the EAP also.
200. The EAP will form part of the Code of Construction Practice (CoCP) and will cover the ecological requirements of the pre, during and post-construction stages of the project. The EAP will be a live document and will be updated throughout each of these phases. The EAP will take into account any planning obligations and conditions attached to the Project should consent be granted. The EAP will be submitted to and agreed with the IoACC, NRW and other stakeholders, where appropriate, based upon the final design option chosen. The EAP will include the principal requirements of mitigation, including:
- Pre-construction ecological surveys;
 - Habitats directly affected by the Project;
 - Method statements (where necessary);
 - Licensing requirements (where necessary);
 - Habitat re-instatement plan;
 - Habitat creation and management plan (if necessary); and
 - Overall strategy for delivery of the mitigation proposed in this EclA; including
 - Programme for delivery of mitigation; and
 - Responsibilities attributed to the relevant parties to deliver the plan.
201. An Ecological Clerk of Works (ECoW) will audit the implementation of the EAP. This would be a desk-based and site-based role. It should be noted that the mitigation measures presented

below are based on the individual receptor, therefore in some cases there may be a conflict between the requirements of one receptor over another (or indeed with other priorities, e.g. tourism and recreation). The ECoW will have suitable expertise to develop and find pragmatic solutions to any potential conflicts in consultation with the relevant consultees.

19.6.5. Potential Impacts During Construction

19.6.5.1. Construction Impact 1: habitat loss and disturbance of features of Statutory Designated Nature Conservation Sites

202. This section considered impacts to statutory designated nature conservation sites. Sites designated for marine and coastal birds are considered within **Chapter 11, Offshore Ornithology**. Those considered for marine mammals are considered in **Chapter 12, Marine Mammals**. Those considered for marine or intertidal features are considered in **Chapter 9, Benthic and Intertidal Ecology**.

19.6.5.1.1. Glannau Ynys Gybi / Holy Island Coast SSSI/SPA/SAC and Tre Wilmot SSSI

203. Potential impacts of habitat loss and disturbance during construction on the SPA qualifying species chough are considered in **Section 19.6.5.11.2**. Overall, following mitigation that no construction works will take place within 500 m of an active chough nest during the breeding season, impacts to chough are not anticipated to be greater than **minor adverse** in significance.

204. Holy Island has hard rock acidic cliffs and supports important examples of coastal cliff heathland vegetation. Extensive areas of heathland are present in the western part of the island, these occur primarily within the Glannau Ynys Gybi / Holy Island Coast SSSI/SAC and Tre Wilmot SSSI. Small areas of coastal heath occur on the various small headlands between South Stack and Trearddur Bay, in amongst areas of maritime grassland. These areas of heathland are dominated by heather *Calluna vulgaris* and western gorse *Ulex gallii* with occasional cross-leaved heath *Erica tetralix*, bilberry *Vaccinium myrtillus*, purple moor-grass, spring squill, and deer grass *Trichophorum cespitosum*.

205. 'Vegetated sea cliffs of the Atlantic and Baltic Coasts' and 'European dry heath' are Annex 1 habitats that are both primary reasons for the site's designation as a SAC. 'Northern Atlantic wet heaths with *Erica tetralix*' is also an Annex 1 habitat qualifying feature. The SAC is the most important site in North Wales for maritime forms of European dry heath and RSPB have requested during consultation (Project Meeting Minutes, RSPB South Stack Reserve, 24/01/2018) that the Project avoids impact to the heath habitat entirely due to its importance for breeding / foraging chough. Following the site selection process to define the working footprint of the Project, neither wet or dry heath have been recorded during the EP1HS within the Onshore Development Area and are therefore absent from the locations where the landfall activities will be undertaken. As shown in **Figure 19.6 (Volume II)** this area of the designated land is characterised by improved grassland and poor semi improved grassland, with a strip of unimproved neutral grassland (4,200 m²) and maritime cliff and slope (9,850 m²) adjacent to the bay where landfall will occur, which fall within the interests of the 'Vegetated sea cliffs of the Atlantic and Baltic Coasts' designated feature. Spotted rock rose is recorded at numerous locations around the coastline (**Figure 19.10, Volume II**), but this plant is associated with heath

habitat and no records coincide with the Onshore Development Area. Other notable plant species are discussed in **Section 19.6.5.13** below.

206. Conservation Objectives for the SAC include for the vegetated coastal cliffs to remain largely undisturbed and support the endemic South Stack fleawort and other notable plants. Also, that 70% of the site should be characterised by good quality lowland and coastal heath and that in some areas where there are rocky outcrops in heathland, the habitat should be favourable for the spotted rock rose which occurs in the thin crusts of soil with lichens and mosses and short grasses. Areas of herb rich neutral grassland may be maintained for their floristic, invertebrate and chough feeding value.
207. A water resources assessment has been undertaken and is presented in **Chapter 17, Water Resources and Flood Risk**. The assessment concluded no significant impacts. There is no hydrological connection to the protected sites in terms of surface water, and the excavations are shallow enough to have no significant impact on groundwater flow. As such, there is not anticipated to be any hydrological impacts which may affect the habitats, species or designated features of the designated sites.
208. Air quality impacts on designated ecological sites are considered in **Chapter 22, Air Quality**. Impacts on designated sites relating to construction phase dust and particulate matter emissions were considered. Risk of dust impacts to ecological receptors, including the designated sites, were assessed to be high during earthworks, low during construction activities and medium from trackout from Heavy Goods Vehicles (HGV) movements. With the implementation of the recommended mitigation measures, i.e. adherence to best practice dust minimisation and suppression methods as recommended by the Institute of Air Quality Management (IAQM), including creation of a Dust Management Plan (DMP), impacts to ecological receptors are considered to be not significant. There are not anticipated to be any significant impacts on designated sites associated with road traffic emissions due to the expected low number of vehicle movements in the construction, operational and decommissioning phases.
209. Noise and vibration assessments are undertaken in **Chapter 21, Noise and Vibration**, and are discussed in detail in **Section 19.6.5.11.2** below regarding impacts to the chough population at the SPA. Following mitigation, there is not anticipated to be a significant noise impact on any designated sites or their features.
210. The preferred option of transporting the cables ashore at landfall is to use HDD (see **Chapter 4, Project Description**). This will avoid any interaction with the intertidal environment, vegetated sea cliffs and coastal fringe habitat, utilising the grasslands set further back from the coast (**Figure 19.6, Volume II**). Entry and Exit pits will be set back a minimum 10 m from sensitive coastal habitats. Should HDD be used as the landfall methodology, the designated site and its qualifying features will be avoided entirely, as will the habitat and species for which it is afforded protection, and consequently there will be **no impact** on Holy Island SSSI, SPA, SAC.
211. Under a worst-case scenario where HDD at landfall is not possible for technical / engineering reasons, landfall activities will involve trenching the cabling through a narrow coastal strip of the Holy Island SSSI, SPA, SAC designation. This will involve disturbance and temporary habitat loss of up to 31,700 m² of the designated site, which covers an area of 43,600,000 m² – Therefore a disturbance of a total percentage of up to 0.07 % of the entire designated site. A

maximum 14050 m² (0.032 % of the entire designated site) of the Onshore Development Area is within the neutral grassland and maritime cliff and slope habitat which contributes to the 'Vegetated sea cliffs of the Atlantic and Baltic Coasts' feature. In reality, the percentage of this feature disturbed during construction activities is likely to be less, as the full footprint of the Onshore Development Area is unlikely to be required for construction. Up to nine trenches will be placed 0.5 m wide and 0.6 m apart, or a single trench of 10 m wide with a working area buffer of up to 30 m each side will be required, equalling a corridor of 70 m wide across the grassland habitat. J-tubes will be grouped in a corridor approximately 30 m wide down the cliffs with a construction footprint of 30 m either side, equalling 90 m corridor. This corridor equates to 5300 m² (0.012 % of the entire designated site) of which 1,400 m² is in the neutral grassland habitat and 1,770 m² is in the maritime cliff and slope habitat.

212. Temporary habitat loss will still occur within the designated site in this 70 m wide corridor in the grassland habitat and the temporary 30 m construction footprint either side of the J-tubes, including across vegetated cliff and slope habitat and neutral grassland, which falls within the Annex 1 feature. Some permanent habitat loss may occur on the cliff face where cables are pinned in shallow slots, in a corridor of up to 30m wide however, expected that they would be removed upon decommissioning. This would be of medium magnitude on the designated site as it will be potentially affecting designated features, although the percentage area of this habitat is very small, and all important wet and dry heath habitat has been avoided. The impact of trenching (and possible pinning of cables) through the SAC/SPA/SSSI is considered to be **major adverse** in significance, however the majority of the disturbance will be temporary and the amount of potential permanent habitat loss on the cliff face would be 1,770 m² (0.004%) of the entire designated site and is considered to be *de minimis*, with no impact on the site integrity.
213. As no heath habitat is present within this location, there will be **no impact** to the wet heath or dry heath designated features.
214. Tre Wilmot SSSI is located north of the landfall and cable route and is also part of the Glannau Ynys Gybi / Holy Island Coast SAC / SPA. Tre Wilmot SSSI contains open water, peatland and wet heath habitat. This site has been avoided during the site selection process and furthermore there is no hydrological pathway between this site and the works associated with the construction of the proposed development. There is not anticipated to be any pathway for impacts to the Tre Wilmot SSSI and as such **no impact** is anticipated.

19.6.5.1.2. Beddmanarch-Cymryan SSSI

215. Beddmanarch-Cymryan SSSI is coastal, flanking the coastline of Holy Island and Anglesey. As a SSSI, it is considered to be of high value. It is located 59 m (at its closest point) from the Grid Connection Substation footprint. Direct impacts to the features of the SSSI have been avoided through the project design process, as the Grid Connection Substation will be constructed within the old aluminium works, therefore avoiding crossing this stretch of water and in turns its habitats for which is known to support, namely salt marsh vegetation and coastal dune heath, and intertidal mud and sand habitats.
216. Indirect impacts have potential to occur through uncontrolled pollution events during construction activities including spillages from construction vehicles or plant draining into the SSSI. As part of the embedded mitigation, pollution prevention best practice guidelines will be

adhered to throughout construction. As such, the construction of the Grid Connection Substation (and all other elements of the project) are not expected to affect to SSSI and the magnitude is assessed to be low. As such, the potential impact to the Beddmanarch-Cymryan SSSI is assessed to be **minor adverse**.

19.6.5.1.3. Mitigation

217. The following mitigation measures will be taken to reduce the potential impact to statutory designated nature conservation sites. Mitigation specific to chough is discussed in **Section 19.6.5.11**.
218. Should HDD not be possible, trenching is required, there will be temporary disturbance across the maritime cliff and slope habitat and neutral grassland and temporary pinning of cables on the cliff habitat. Temporary habitat lost or disturbed will be reinstated. This will be detailed in the EAP.
219. Turf removed within the SAC will be carefully managed to allow for reinstatement upon completion of the works. This will include the following measures:
- Stripped turfs will be stored at the edges of the construction corridor 'vegetation or turf side up' with adequate growing conditions e.g. water, light and temperature;
 - Turves will not be stored on good quality habitat;
 - Turves will be re-used in areas with similar vegetation and hydrology;
 - Turves should be replaced as soon as possible after the initial cut, however can be stored up to two months under the right conditions during March/September (the growing season);
 - Turf transfer will not be undertaken in periods of hot and dry conditions or sub-zero conditions to avoid desiccation or frost damage; and
 - Turves will be monitored and watered during dry spells to ensure they remain viable and do not desiccate.
220. The turf management proposed will ensure that the trenched habitat within the SAC will recover quickly following completion of the works, and will be included within a habitat management plan, undertaken in consultation with the IoACC and NRW. The habitat creation and management plan will include:
- A defined area which will be subject to the plan;
 - A plan for any pre-construction surveys;
 - Details of suitable planting and ground preparation and planting methodology;
 - Details of any post-creation monitoring surveys, reporting and reviewing required;
 - A schedule/programme for delivery of the plan;
 - Responsibilities attributed to the relevant parties to deliver the plan; including creation, maintenance and monitoring of the new habitat; and

- Consideration of the future of the new habitat following decommissioning of the Landfall Substation site.
221. This plan will be developed with the relevant stakeholders and should be complimentary to other proposed mitigation measures.
222. In addition, the following will also take place to minimise the impacts associated with the proposed development:
- Toolbox talks will be delivered to all construction personnel detailing the importance of the protection of the designated sites.
 - A strict construction working footprint will be maintained;
 - Temporary fencing will be installed to physically delineate the rest of the designated site from the construction footprint;
 - Materials and plant will be stored within the construction footprint;
 - Habitats affected within and outwith the designated site will be combined within the habitat reinstatement plan; and
 - A habitat re-instatement plan will be implemented upon completion of the works.
223. Although long term impacts are considered to be *de minimis*, it is recognised that the project will involve (under the worst case) works within an SAC, a site protected under European Law. As such, as additional management, compensation habitat is also proposed for within the onshore site, or enhancement will take place at nearby adjacent cliff and slope habitat of poorer quality than that which is being temporarily lost.
224. The compensatory/enhancement habitat will aim to maintain the functionality of the small amount of cliff habitat that is temporarily lost. The area of compensatory/enhancement habitat will be as a minimum the same area of cliff habitat that is lost. Compensatory/enhancement habitat will be subject to a habitat creation and management plan, undertaken in consultation with the IoACC and NRW.

19.6.5.1.4. Residual Impacts

225. Following the implementation of mitigation including appropriate storage of turf and associated habitat reinstatement, the temporarily disturbed grassland habitats will recover quickly (one to three years). Vegetation on the cliff habitats, where storage of the temporarily disturbed habitat is unlikely, is expected to recover over a number of seasons (approximately five to ten years, Natural England, 2007) and will be monitored through post construction surveys with consultation with NRW of results. Longer term habitat loss will remain in the 30m wide corridor where the J-tubes are pinned to the cliff, until the removal of those tubes at the end of the Project. Therefore, the impact to the Glannau Ynys Gybi / Holy Island Coast SSSI/SPA/SAC is assessed to be reduced to **moderate adverse** in significance should the cables be trenched at landfall. Compensation or enhancement habitat is proposed in recognition of working in a site of European importance. If HDD technology is used, there will be **no impact** to the Glannau Ynys Gybi / Holy Island Coast SPA/SAC/SSSI. The assessed impacts at all other sites remain the same.

19.6.5.2. Construction Impact 2: Habitat loss and disturbance of features of Non-Statutory Designated Nature Conservation Sites

226. This section discusses impacts to non-statutory designated nature conservation sites. Sites designated for marine birds are considered within **Chapter 11, Offshore Ornithology**.

19.6.5.2.1. Ancient Woodlands

227. Following the Forestry Commission's guidance on assessing the impacts of development (Forestry Commission, 2014), the following potential effects on ancient woodland from development on adjacent land have been considered:

- Fragmentation and loss of ecological connections with surrounding woodland/ veteran trees and the wider natural landscape;
- Reduction in the area of other semi-natural habitats adjoining ancient woodland;
- Increased deposition of dust, particularly from quarries, resulting in physical and/or chemical effects;
- Impacts on local hydrology through drainage or water table levels changing;
- Change to the landscape context for ancient woods and veteran trees; and
- Change to light pollution at night (if development includes street lighting).

228. As detailed in embedded mitigation (**Section 19.6.3**), woodlands AWS 43665 and 26066 will be avoided during construction and protected by a 15 m fenced buffer. Potential effects arising from changes in local hydrology, dust emissions, noise, light levels, landscape context are discussed in **Chapter 17, Water Resources and Flood Risk, Chapter 21, Noise and Vibration, Chapter 22, Air Quality** and **Chapter 24, Seascape, Landscape and Visual Impact Assessment**.

229. Scrub and species poor hedgerow is present in the vicinity of the ancient woodlands, along with planted broadleaf and coniferous woodland, which may provide ecological linkage habitat. All woodland will be avoided and impacts to hedgerow and scrub will be limited in footprint and temporary in nature.

230. A water resources assessment has been undertaken and is presented in **Chapter 17, Water Resources and Flood Risk**. The assessment concluded no significant impacts throughout. There is no hydrological connection to the ancient woodlands in terms of surface water, and the excavations are shallow enough to have no significant impact on groundwater flow. As such, there is not anticipated to be any hydrological impacts which may affect the ancient woodlands.

231. Air quality impacts on designated ecological sites are considered in **Chapter 22, Air Quality**. Impacts on designated sites relating to construction phase dust and particulate matter emissions were considered. Risk of dust impacts to ecological receptors, including the designated sites, were assessed to be high during earthworks, low during construction activities and medium from trackout from HGV movements. With the implementation of the recommended mitigation measures, i.e. adherence to best practice dust minimisation and suppression methods as recommended by the IAQM, including creation of a DMP, impacts to ecological receptors are considered to be not significant. There are not anticipated to be any significant impacts on

designated sites associated with road traffic emissions due to the expected low number of vehicle movements in the construction, operational and decommissioning phases.

232. Noise and vibration assessments are undertaken in **Chapter 21, Noise and Vibration**, and are discussed in detail in **Section 19.6.5.11** below, regarding impacts to the chough population at the SPA. Following mitigation, there is not anticipated to be a significant noise impact on any designated sites or their features.
233. Ancient woodlands are considered to be of medium value. Given they will be avoided to mitigate against direct impacts, removal of other woodland will be avoided, and general pollution best practice measures will be followed throughout construction, and indirect impacts are not anticipated, the magnitude of effect is assessed to be **negligible** and the anticipated impact to ancient woodlands is assessed to be **negligible**.

19.6.5.2.2. South Stacks Cliffs RSPB Reserve

234. South Stacks Cliffs RSPB reserve is located adjacent to the Onshore Development Area at the landfall end. The boundary of the reserve extends up to the road where the cables are proposed to be constructed, and consequently the working buffer of the construction works overlaps into the reserve by 32,800 m² along the length of the road (**Figure 19-3, Volume II**). This includes overlap into the fields which are used by chough (See **Section 19.6.5.11.2** for details on chough). It is estimated that a working area of 30m width would suffice for installation in a single lane road and as a worst case this working width may overlap in to the reserve for a portion/all of the extend of the overlap. Due to the known sensitivity of the local botany, pre-construction surveys are proposed to inform the micro siting of the Onshore Cable Route to avoid sensitive/rare/protected plant species.
235. Indirect impacts have potential to temporarily arise during the construction phase from dust, noise, temporary lighting and changes in the local hydrology regime.
236. A water resources assessment has been undertaken and is presented in **Chapter 17, Water Resources and Flood Risk**. The assessment concluded no significant impacts throughout. There is no hydrological connection to the protected sites in terms of surface water, and the excavations are shallow enough to have no significant impact on groundwater flow. As such, there is not anticipated to be any hydrological impacts which may affect the habitats, species or features of the RSPB reserve.
237. Air quality impacts on designated ecological sites are considered in **Chapter 22, Air Quality**. Impacts on designated sites relating to construction phase dust and particulate matter emissions were considered. Risk of dust impacts to ecological receptors, including the designated sites, were assessed to be high during earthworks, low during construction activities and medium from trackout from HGV movements. With the implementation of the recommended mitigation measures, i.e. adherence to best practice dust minimisation and suppression methods as recommended by the IAQM, including creation of a DMP, impacts to ecological receptors are considered to be not significant. There are not anticipated to be any significant impacts on designated sites associated with road traffic emissions due to the expected low number of vehicle movements in the construction, operational and decommissioning phases.

238. Noise and vibration assessments are undertaken in **Chapter 21, Noise and Vibration**, and are discussed in detail in **Section 19.6.5.11** below, regarding impacts to the chough population at the SPA. Following mitigation, there is not anticipated to be a significant noise impact on any designated sites or their features.
239. No significant impacts have been identified within **Chapter 22, Air Quality, Chapter 21, Noise and Vibration** and **Chapter 17, Water Resources and Flood Risk**.
240. Indirect impacts may occur through temporary loss of foraging habitat of raptor species such as barn owl and peregrine falcon during construction. These are discussed in **Section 19.6.5.11** Impacts to Birds, under raptors. Overall a **minor adverse** impact is anticipated to barn owl and peregrine falcon during short term habitat loss.
241. Potential impacts of construction on chough, a species for which the reserve and adjacent areas are managed, are considered in **Section 19.6.5.11**. Overall, following mitigation, impacts to chough are assessed to be no greater than **minor adverse** in significance.
242. The RSPB reserve is considered to be of medium importance and magnitude of impact is considered to be low. A **minor adverse impact** to the RSPB reserve is anticipated.

19.6.5.2.3. Breakwater Country Park

243. Breakwater Country Park is located 1.27 km to the north of the Onshore Development Area and no direct impacts are anticipated due to the distance from the Onshore Development Area, however indirect impacts may occur through loss of foraging habitat of raptor species who breed in the park, such as barn owl and peregrine falcon. These are discussed in **Section 19.6.5.11**, under raptors. Overall a **minor adverse** impact is anticipated to barn owl and peregrine falcon during short term habitat loss.

19.6.5.2.4. Mitigation

244. The following mitigation measures will be taken to reduce the potential impact to Non-Statutory Nature Conservation Designated Sites:
- Pre-construction surveys are proposed to inform the micro siting of the Onshore Cable Route to avoid sensitive/rare/protected plant species;
 - A habitats reinstatement plan will be implemented, including replacement of linkage habitat in the vicinity of the ancient woodlands;
 - Toolbox talks will be delivered to all construction personnel detailing the importance of the protection of the designated sites;
 - A strict construction working footprint will be maintained;
 - Temporary fencing will be installed to physically delineate the rest of the designated site from the construction footprint;
 - Materials and plant will be stored within the construction footprint;
 - A habitat re-instatement plan will be implemented upon completion of the works.

- It is recommended that prior to construction, further detailed botanical survey work is undertaken to ensure the risk of impacts to spatulate (South Stack) fleawort, golden-hair lichen and spotted rock-rose (and other areas of botanically rich vegetation) can be avoided. Such survey work should be carried out in May or June when fleawort is in flower. This survey work will support the decision of where the Onshore Cable Route is micro-sited to, enabling the footprint of overlap into the RSPB reserve to be minimised; and
- Consultation with NRW and RSPB will be undertaken to agree the final micro-siting of the Onshore Cable Route.

19.6.5.2.5. Residual Impact

245. Following the instigation of mitigation, the impacts to non-statutory designated sites will be **negligible**, with a **minor adverse impact** anticipated should there be an overlap into the RSPB reserve.

19.6.5.3. Construction Impact 3: Habitat Loss

246. Permanent habitat and temporary loss in low ecology value habitat is identified in **Table 19-21** based upon the worst case parameters outlined in **Section 19.6.2**.

Table 19-21 Permanent and temporary habitat loss

Project component	Permanent habitat loss (m ²)	Temporary works area (m ²)
Landfall HDD (Option 1)	-	8,400
Landfall trench/surface laying option (Option 2)	Worst case cables on cliff face in j-tubes in corridor up to 30 m wide	16,500
Landfall Substation	6400	3,500
Onshore Cable Route (based on worst case of 30 m corridor, however realistically this will be less in much of the route)	-	243,000
Draw Pits (42)	1,120	-
HDD crossings	-	1,200
Joint Boxes (20)	25	2,800
Grid Connection Substation	6,448	5,000
Switchgear Building	38	-
Total Option 1	15,231	263,900
Total Option 2	15,231 plus j-tubes on cliffs	272,000

19.6.5.3.1. Grasslands

247. Impacts to maritime grassland unimproved neutral grassland are discussed in **Section 19.6.5.1** and are not repeated here.
248. 1,525,000 m² of grassland is located within the boundary of the Onshore Development Area. The majority of the works (1,510,000 m²) will be undertaken in improved and poor semi improved grassland, including the works at landfall and along the Onshore Cable Route, where works will be micro-sited to low ecology value habitat wherever possible. Works at the Grid Connection Substation and Switchgear Building will be on existing areas of industry, poor semi improved grassland and scrub where possible. These habitats are of low ecological value and although habitat loss will be permanent it will not alter the function of the surrounding habitat and is assessed to be medium magnitude. The impact of permanent habitat loss of grassland habitat is therefore assessed to be **minor adverse** in significance. Temporary habitat loss of up to 272,000m² will occur to grassland habitat used as laydown areas around the two substation locations and Switchgear Building, and with the buffer zone either side of the Onshore Cable Route including joint boxes, draw pits and HDD, however it is anticipated that impacts will be short – medium term and this habitat will recover quickly. Temporary habitat loss of grassland is also considered to be **minor adverse** in significance.

19.6.5.3.2. Hedgerows and Trees

249. Woodland will be avoided through embedded mitigation (Section 19.6.3), however there remains potential for impacts to hedgerows and trees. Despite being species poor and often defunct, the hedgerows are considered to have a low level of ecological value locally as linking networks for a number of species and potentially local navigation features for bats and are considered to be of medium value. Much of the Onshore Development Area is exposed, and trees are limited. Disturbance of the hedgerows and trees may be avoided through micro-siting activities at landfall and throughout the Onshore Development Area, however as a worst-case scenario there is anticipated to be potential temporary impacts to small sections of up to 18 hedgerows, constituting an impact of medium magnitude. A root protection zone of max 15m radius will be used to protect trees and hedgerow wherever possible. No trees are anticipated to be removed during construction. The impact to hedgerows is considered to be **moderately adverse** in significance as a worst-case scenario.

19.6.5.3.3. Lowland Fen and Reedbed

250. At a number of locations along the onshore cable corridor, marshy grassland is present in fields adjacent to the road. It should be possible to using areas of wetland for lay down of plant and materials; however, as a worst-case scenario there may be trenching works within these pockets of wetland habitat.
251. An area of lowland fen and reedbed is located west of the leisure centre. The boundary of the onshore cable corridor has been widened at this location to enable an opportunity to microsite around this wetland area if possible. Under a worst-case scenario, if avoidance is not possible, there will be trenching works across this wetland area. The wetland habitat is considered to be of medium ecological value for its species diversity, provision of habitat for insects and breeding birds, and trenching through this habitat is anticipated to be of medium magnitude. If this area

of fen and reedbed cannot be avoided, there will be a **moderately adverse** impact to lowland fen and reedbed. If it is possible to microsite around this habitat onto the surrounding grassland of low ecological value, the impacts of the proposed development on this habitat is considered to be **negligible**.

19.6.5.3.4. Maritime Cliff and Slope:

252. Impacts to maritime cliff and slope include impacts across the SAC designated land. This is discussed in **Section 19.6.5.1** and are not repeated here.

19.6.5.3.5. Open Mosaic Habitat

253. Open mosaic habitat (OMH) is present in the vicinity of the Grid Connection Substation and may be subject to temporary or permanent habitat loss should (as a worst case), although the majority of the habitat is located outwith the Onshore Development Area. The habitat is currently being encroached by scrub habitat and is considered to be of low value. Disturbance of this habitat is considered to be low magnitude at a worst case, resulting in a **minor adverse** impact.

19.6.5.3.6. Cloddiau

254. In addition to the habitats of principal importance described above, Cloddiau and scrub (primarily gorse scrub in this area of Anglesey) are habitats referred to in the Anglesey BAP (Cloddiau is referred to in the section relating to ancient hedgerows).

255. Where the route runs in fields adjacent to existing roads and need to cross field boundaries, it is possible that Cloddiau will be affected. Cloddiau are considered to be of medium value.

256. A number of Cloddiau networks are present leading up to the south side of the road along the cable route immediately south of the landfall area. Under a worst case scenario, these features may be disturbed or removed for the cables to be installed. Three sections of Cloddiau are located within the area for landfall. Under a worst-case scenario, the cables will be trenched at landfall, requiring the removal of these features. This would constitute an impact of high magnitude on the Cloddiau features which may be removed, and as such, the impact to these three Cloddiau is anticipated to be long term **major adverse**. Mitigation for the removal of Cloddiau is described below.

257. If cables are installed by HDD, it is likely the cables will also extend under the two coastal Cloddiau and therefore impacts to these features will be avoided.

19.6.5.3.7. Mitigation

258. The following mitigation will be implemented to minimise the impact to Habitats of Principal Importance:

- Toolbox talks will be presented to all contractors to inform of the Habitats of Principle Importance present in the area. Microsite to avoid hedgerow, marshy grassland, fen and open mosaic habitat where possible;
- A strict construction working footprint will be maintained;

- Temporary fencing will be installed to physically delineate the rest of the habitats of principal importance from the construction footprint;
- Materials and plant will be stored within the construction footprint;
- Habitats affected within and outwith the designated site will be combined within the habitat reinstatement plan;
- A habitat re-instatement plan will be instigated upon completion of the works;
- Root protection areas will be fenced off during construction;
- Turf management (as described in Section 19.6.5.1.3) will be undertaken in area where Habitats of Principle Importance are present to allow for effective reinstatement upon completion of the works;
- A pre-construction assessment of all trees to be removed will be undertaken by a suitably qualified arboriculturist;
- Where hedgerows are disturbed, they will be replaced following completion of construction activities to the same quality or better, with native species of local provenance. The replanting plan will be detailed in the EAP;
- To mitigate impacts to the OMH at the aluminium works, habitat reinstatement will be undertaken upon completion of the construction phase. This would involve the reinstatement of excavated material in a way that would provide low nutrient substrate suitable for ephemeral vegetation. The replanting plan will be detailed in the EAP. Since this area is subject to scrub encroachment it is possible that some localised disturbance will be beneficial (to reduce scrub and maintain patches of open habitat); and
- If trenching is required at landfall through the designated land, further consultation will be undertaken with NRW and RSPB to determine full mitigation, methodology and to obtain any necessary consents.

259. To minimise impacts to Cloddiau, all Cloddiau to be left in situ will be clearly marked by a one metre buffer fence. A tool box talk will be presented by the ECoW to all construction personnel to ensure the importance of these features is understood.

260. Where Cloddiau cannot be avoided by going around or underneath, the walls will be carefully dismantled by an appropriately trained professional and stored within a marked fenced area during construction. As soon as possible upon completion of construction activities, the stone walls will be rebuilt in a traditional style, reusing the original materials. The CoCP will provide details of storage methods and locations of the vegetated stones.

19.6.5.3.8. Residual Impact

261. Following the implementation of the mitigation, the impacts to hedgerows, trees, woodland, lowland fen and reedbed is considered to be **minor adverse** in significance, with impacts to OMH being **minor beneficial** in significance.

262. Upon implementation of the mitigation, the impact to Cloddiau is anticipated to be reduced to worst case low magnitude and **minor adverse** in significance in the medium-term for removal, storage and reconstruction activities and re-establishment of vegetation.

19.6.5.4. Construction Impact 4: habitat loss, disturbance or killing of otter

263. Given that the proposed route will not affect any significant watercourses, there is limited opportunity for impacts on otter or important otter habitat; however, three otter records have been made within or close to the Onshore Study Area and are therefore there is potential for the animals to be in the vicinity. There is also potential for otter to coastally commute around the Glannau Ynys Gybi / Holy Island coast. Although, as an EPS, otters are considered to be of **high value**, the habitat is considered to be of **low importance** for otter. As part of the embedded mitigation (Section 19.6.3), pollution prevention best practice will be adhered to throughout all phases of the project. There is limited habitat potential for otter across the Onshore Study Area and habitat fragmentation is not anticipated to occur. There are no freshwater watercourses at landfall to provide habitat for otters to clean their fur or shelter. Therefore, the magnitude of the impact is anticipated to be **low**. As such, the impact is assessment to be of **minor adverse** significance.

19.6.5.4.1. Mitigation

264. The following mitigation will be included in the EAP:

- As otter is a mobile species, a pre-construction survey for otter will be undertaken in all potential habitat prior to construction to confirm no otters have entered the project area since the 2018 surveys. This includes any watercourses, ditches or areas which may provide suitable resting sites. Should evidence of otter be found, further consultation with Natural Resources Wales will be conducted as ascertain the most appropriate procedures to follow;
- During construction activities, precautionary methods will be implemented to ensure risk of killing or injuring are minimised, such as including exit ramps on excavations; and
- Prior to construction, a tool box talk on otter will be delivered to all relevant parties by the ECoW.

19.6.5.4.2. Residual Impact

265. Following mitigation, impacts to otter will be **negligible**.

19.6.5.5. Construction Impact 5: habitat loss, disturbance or killing of water vole

266. A historic record of water vole was provided by Cofnod from a ditch in the former aluminium works (**Figure 19.8, Volume II**), however no evidence of water vole was found in this area during the 2018 ecology surveys, and very limited suitable water vole habitat was recorded throughout the Onshore Study Area. A number of ditches are present along the Onshore Cable Route which may be temporary impacted during construction, but these were not noted in the surveys to be suitable for water vole. More suitable habitat was recorded in the land surrounding Valley, which is now outwith the Onshore Study Area and will not be disturbed by the Project. As part of the embedded mitigation (**Section 19.6.3**), pollution prevention best practice will be adhered to throughout all phases of the project. Water vole habitat is of **low importance** within the Onshore Study Area and the magnitude of impact is anticipated to be **low**. As such, the impact is assessed to be **minor adverse** in significance.

19.6.5.5.1. Mitigation

267. The following mitigation will be included in the EAP:

- As water vole is a mobile species, a pre-construction survey for water vole will be undertaken in all potential habitat (i.e. ditches) prior to construction to confirm no water vole have entered the project area since the 2018 surveys. This includes any watercourses or ditches whether water vole were previously suitable or not. Should evidence of water vole be found, further consultation with NRW will be conducted to ascertain the most appropriate procedures to follow (such as micro siting, water vole method statement or displacement under licence (trapping is not anticipated to be necessary)); and
- Prior to construction, a tool box talk on water vole will be delivered to all relevant parties by the ECoW.

19.6.5.5.2. Residual Impact

268. Following mitigation, impacts to water vole will be **negligible**.

19.6.5.6. Construction Impact 6: habitat loss, disturbance or killing of red squirrel

269. There are no records for red squirrel within the study area however some of the woodland on the southside of the A55 offer suitable habitat. This habitat is considered to be of **medium importance** for red squirrel.

270. As part of the embedded mitigation (**Section 19.6.3**), micro-siting will occur during construction to avoid disturbance of this area of woodland habitat and potential red squirrel habitat. Sufficient space is available within the aluminium works and the cable will be located under the A55 and railway line via HDD. Given that the woodland habitats will be avoided, an impact on red squirrel is unlikely to occur as a result of the proposed work, therefore the magnitude of the impact is assessed to be **negligible**. As such, the impact to red squirrels is assessed to be **minor adverse** in significance in the vicinity of the old aluminium works and Grid Connection Substation.

19.6.5.6.1. Mitigation

271. As red squirrel habitat will be avoided, no further surveys are required.

272. Prior to construction, a tool box talk on red squirrel will be delivered to all relevant parties by the ECoW.

19.6.5.6.2. Residual Impact

273. Following mitigation, impacts to red squirrel are assessed to be **negligible**.

19.6.5.7. Construction Impact 7: habitat loss, disturbance or killing of badger

274. Impacts to badgers are discussed in **Confidential Appendix 19.3 (Volume III)**. However, and to summarise, prior to the implementation of mitigation, the worst case impact of **major adverse** significance is anticipated on the population of badgers using a badger sett in the vicinity of the onshore works. Following the implementation of the described mitigation (which includes a

licence to disturb badgers for works within 30m of an active sett, temporarily or permanently excluding a main sett under licence with provision of a nearby replacement sett if avoidance is not possible along with best practice precautionary methods including exit ramps in trenches and covering trenches greater than 1 m in depth, regular monitoring and toolbox talks) this impact is reduced to **minor adverse** in significance.

19.6.5.8. Construction Impact 8: Impacts to bats

19.6.5.8.1. Roosting bats

275. The proposed work is considered unlikely to give rise to a significant impact on bats, as existing buildings are limited within the Onshore Study Area and none are to be affected or removed, and that the work does not require the removal of trees or woodland.

276. No known bat roosts are present within the Onshore Development Area however at least one single common pipistrelle bat roost is located 27 m from the boundary of the Onshore Development Area at landfall. There will be no disturbance of this bat roost or the buildings it/they are located within as part of the proposed Project. In addition, the Project works closest to this roost will be limited to trenching activities (Option 2). This roost is considered to be of medium value, and any impact is anticipated to be short term and low magnitude due to the distance from the Onshore Development Area, the limited amount of worst case activity (trenching). No sudden noises are anticipated in the vicinity of the roost although there may be construction lighting. HDD works under Option 1 may require 24 hour working. There will be one transition pit, up to 15 m x 85 m x 1.5 m deep, equating to a footprint of 1,275 m², excavated volume 1,912.5 m³ in addition to trenching excavation or HDD cutting volumes. As such, a **minor adverse impact** to roosting bats is anticipated.

19.6.5.8.2. Foraging and commuting bats

277. Potential impacts to foraging and commuting bats could result from night-time working or night-time lighting of the onshore site. Night-time lighting will disrupt bat foraging and commuting routes which may cross the Onshore Development Area. This has the potential to disturb the species by impairing their ability to survive. This would occur if bats have to avoid lit areas and thus travel further to reach the same areas for roosting or foraging; or else have to forage in poorer quality areas. There is limited foraging potential for bats within the Onshore Development Area, due to the lack of woodland and exposed nature of the island, however a number of records for bats have been made, including a common pipistrelle close to the Onshore Development Area at the landfall location, and several records in woodland outside the Onshore Development Area in the vicinity of the aluminium works. Leading lines in the landscape such as hedgerows and Cloddiau will have medium value for navigation. The local bat population is considered to be of medium value.

278. The potential impact to foraging and commuting bats is considered to be negative, temporary and of short duration. The magnitude of the impact is assessed to be low due to the exposure, limited habitat potential and low activity of bat species. A **minor adverse impact** is predicted.

19.6.5.8.3. Mitigation

279. The following mitigation will be included under the EAP:

- Night-time lighting of construction sites should be avoided where possible;
- If night-time working is necessary, then lighting will be designed in accordance with Bats and artificial Lighting in the UK (BCT, ILE, 2018); and Guidance Notes for the Reduction of Obtrusive Light ILE (2011). This is likely to require:
 - No direct lighting of the woodland edges, scrub and hedgerow habitats, or historic roost site and use of dark buffer zones; and
 - Consideration of appropriate luminaire specifications, sensitive light configuration, screening, glazing, dimming and part-night lighting to minimise impacts;
- A toolbox talk by a suitably qualified ecologist will be undertaken as part of the induction of all construction staff;
- Should a bat be encountered on site during the works, works will cease in that area and the advice of an experienced bat ecologist sought prior to re-commencing;
- A survey will be undertaken to confirm the presence or absence of the historic bat roost record. If present, a buffer of 30 m will be placed around the bat roost and works will not take place within this zone to avoid disturbance to this feature.
- Building, tree or woodland removal is not anticipated. If it is required it is recommended that further survey and assessment is carried out, in consultation with NRW, to confirm that potential roost features are not present; and
- Hedgerow will be replanted following completion of construction works.

19.6.5.8.4. Residual Impact

280. Following mitigation, impacts to roosting and commuting / foraging bats are considered to be **negligible**.

19.6.5.9. Construction Impact 9: habitat loss, disturbance or killing of reptiles

281. There is an abundance of suitable reptile habitat within the Onshore Study Area. The heathland within Glannau Ynys Gybi / Holy Island Coast SSSI and Tre Wilmot SSSI is assessed to be a key area for reptiles and records for common lizard in this region extend into the Onshore Study Area. A record for common lizard is also provided in the vicinity of the aluminium works within the Onshore Study Area. Small pockets of taller grassland, scrub and wetland habitats provide further good habitats throughout the Onshore Study Area, often in close proximity to roads. Cloddiau which separate some of the fields also provide suitable habitats for common lizard and all of the above are considered to be of **medium value**. The pasture fields, with a short, grazed sward, without vegetation structure to provide cover, are likely to be of **low value** for reptiles.

282. Although the cable, permanent infrastructure and temporary storage compounds will be predominantly located in roads or within grazed improved or semi-improved grassland the risk of an impact on reptiles on reptiles may occur within suitable habitat in close proximity to the Onshore Development Area through construction activities or the movement of construction vehicles. As part of the embedded mitigation (**Section 19.6.3**), the habitats that are more suitable for use by reptiles (scrub, wetland, Cloddiau and heathland) will be avoided through micro-siting where possible.

283. If suitable habitats are to be affected, an impact on reptiles is possible, although the significance of this is likely to be limited, due to the limited working area and temporary nature of the proposed work. Impacts are considered to be of medium magnitude, being short term and temporary in nature, with vegetation re-establishing quickly once the construction period is complete. Overall, potential impacts to reptiles during construction are considered to be **minor to moderate adverse**.

19.6.5.9.1. Mitigation

284. As reptiles are mobile, a pre-construction survey for reptiles will be undertaken in all potential habitat prior to construction.

285. Precautionary methods of working will be utilised, including clearance of vegetation under supervision of an ECoW. The precautionary methods of working will be detailed in the CoCP and submitted to IoACC in advance of the works. The details will be dependent on the timings of the work, and may include the following:

- Where possible, vegetation clearance will be timed within the reptile active season (March to October inclusive);
- A mitigation strategy for reptiles will be informed by the pre-construction survey and will be produced prior to construction and submitted to the LPA, including:
 - Trapping and translocation, if required;
 - Details of appropriate habitat improvement works to receptor sites for displaced reptiles;
 - Post construction monitoring
 - Details of the temporary fencing (including type, location and maintenance methodology) to be used to prevent reptiles from re-entering the site;
 - Details of ecological supervision during construction including a toolbox talk; and
 - Reptile welfare (including handling methodology); and
- Following construction, habitat will be reinstated as a minimum to the same value as before, using native species of local provenance.

19.6.5.9.2. Residual Impact

286. Following the implementation of the mitigation, impacts to reptiles are considered to be **minor adverse**.

19.6.5.10. Construction Impact 10: habitat loss, disturbance or killing of great crested newt

287. The eDNA survey results provided negative results for all the ponds surveyed in 2018 and there are no previous records of this species within the 250 m buffer GCN Study Area. The Onshore Development Area does not fragment pond habitat where previous records of GCN exist.

288. From the results of the assessment it is concluded that GCN is likely to be absent from the majority of the GCN Study Area. Although there are previous records near Holyhead, the proposed route is not close to these areas, located 356 m at the closest point. There is no

evidence to indicate that GCN is present in any of the ponds within the proposed Landfall Substation area or close to the various proposed cabling routes on Holy Island. Although a number of ponds are present within the Onshore Study Area which provide good or average habitat suitability for GCN, the absence of any records or eDNA data suggests the habitat is of low value for GCN. The population of GCN is considered to be of medium value.

289. The construction work will be short term and temporary, with no ponds will be lost. As part of embedded mitigation, pollution prevention best practice guidelines will be adhered to avoid any damage or pollution to the pond habitats. No habitat fragmentation is anticipated to occur between known populations of GCN. Consequently, the magnitude of impact to GCN is anticipated to be low. Overall, an impact significance of **minor adverse** to GCN is anticipated.

19.6.5.10.1. Mitigation

- 19.6.5.10.2. Although no ponds will be lost and there is a lack of evidence of GCN within the GCN Study Area, suitable pond habitat does exist, and historic records have been made on the island. It is therefore appropriate to undertake pre-construction HSI and eDNA surveys (methodology to be agreed with IoACC in advance of surveys) to confirm the absence of GCN in the area and include a method statement within the CoCP for what to do in the unlikely event an GCN is encountered on site. In addition, a toolbox talk by a suitably qualified ecologist will be undertaken as part of the induction of all construction staff.

19.6.5.10.3. Residual Impact

290. Following mitigation, impacts to GCN will be reduced to **negligible** in significance.

19.6.5.11. Construction Impact 11: habitat loss, disturbance or killing of birds

19.6.5.11.1. Seabirds

291. Impacts on seabirds, including cliff nesting species are discussed fully in **Chapter 11, Offshore Ornithology**.

19.6.5.11.2. Chough

292. In relation to chough, the assessment considers construction at the cable landfall and the western section of onshore cable route, where it runs through habitats occupied by this species. Construction activities at the cable landfall and the onshore cable route will generate noise and visual disturbance due to the presence of plant, vehicles and staff (see **Chapter 4, Project Description**). The installation of cables will involve temporary excavation and reinstatement of vegetation. At the landfall a substation will be constructed, and, if HDD is not used to install cables at the landfall point, cables will be trenched through the coastal cliff habitats. These activities may displace chough from nesting, foraging and roosting areas.
293. Chough occupy traditional nest and roost sites (i.e. the same sites are used over many years). The nearest roost site to the Onshore Development Area is approximately 500 m from the cable landfall (**Figure A19.2-3 in Confidential Appendix 19.2, Volume III**). At this distance, the risk of disturbance to birds using the roost is considered negligible.

294. The cable landfall is approximately 120 m at the nearest point from a regularly used chough nest site in sea cliffs (nest A25, **Figure A19.2-3 in Confidential Appendix 19.2, Volume III**). Construction works at the landfall during the breeding season may cause disturbance to this nest. No specific information on chough responses to disturbance at the nest has been found in the published scientific literature. Adrienne Stratford of the Cross and Stratford Chough Project indicated in telephone discussions on 13 March 2019 that responses to disturbance at the nest were likely to vary between pairs and sites; she suggested that disturbance at distances beyond 100 m might not adversely affect a breeding attempt, unless there was a significant increase in disturbance to a nest around the time when eggs are being laid. She noted that choughs may nest close to areas with regular human disturbance (for example cliff nest sites overlooking beaches).
295. The onshore cable corridor passes through fields used by chough for foraging throughout the year. There is therefore potential for construction works to disturb and displace foraging chough, including foraging areas used by nesting birds. This includes foraging areas used by chough occupying the nest within 120 m of the landfall site (nest A25, **Figure A19.2-3 in Confidential Appendix 19.2, Volume III**), and 19 other chough nests further south, located on the coast to the north and south of the Onshore Development Area (**Figure A19.2-3 in Confidential Appendix 19.2, Volume III**).
296. Chough are most constrained in their foraging distances during the breeding season. Bullock et al. (1983) reported that choughs tend to feed very close to their nest sites, citing an average distance of 0.7 km between nest sites and feeding areas for 58 coastal nest sites in Britain and Ireland, with 88 % of pairs feeding within 1 km of the nest, although some might fly up to 2 km.
297. In Wales, choughs were found to forage in land compartments a mean of 289-607 m from their nests (Whitehead et al. 2005) and on the Scottish Hebrides, a mean of 270-432 m and a maximum of 610-1,200 m from their nests (Bignal et al. 1996). On the French island of Ouessant, the foraging areas of breeding pairs varied from 3,587 to 67,388 m²; 59 % of observations of breeding chough were within 300 m, and less than 1 % were further than 1,800 m from the nest (Kerbiriou et al. 2006). Fledging success was related positively to the amount of feeding habitat, and negatively to the distance between foraging habitats and the nest. One consequence of adults foraging further from the nest was increased vulnerability of the nest to predation. As well as the location of the nest site, chough territories were also constrained by the presence of neighbouring pairs of choughs, if a breeding pair disappeared then part or all of their territory might be incorporated in that of adjacent pair(s) (Kerbiriou et al. 2006).
298. A study of chough disturbance by visitors to the French Island of Ouessant found that the presence of tourists during peak season resulted in a severe reduction in the available foraging area and reduced foraging time; in August (the peak month for tourism) the survival of juveniles was negatively correlated with the number of visitors (Kerbiriou et al. 2009). Flocks of chough without juvenile birds flushed at an average of 75 ± 9 m from disturbance by people, significantly less than the average of 147 ± 23 m for flocks with juveniles. Combining the average flush distance and the spatial distribution of paths on the coastline, it was estimated that 97 % of the main feeding habitat of chough on the island was potentially affected by human disturbance during the peak tourist season.

299. During construction, disturbance will be temporary and localised as it is anticipated that works will not be ongoing simultaneously along the whole of the Onshore Cable Route, but that different areas will be the focus of activity at different times throughout the construction period. It is noted also that beyond the landfall area, the Onshore Cable Route follows existing roads and chough may not use foraging habitats immediately adjacent to roads.
300. Considering the chough nest A25 within 120 m of the landfall area, assuming a circular home range and maximum regular foraging range of 1 km from the nest would give a total potential foraging area on land of 209.87 ha (**Table 19.2 in Confidential Appendix 19.2, Volume III**). This foraging area would overlap completely with the cable landfall site (comprising the HDD / trenched cabling area, the transition pit area, the Landfall Substation area, and part of the onshore cable route (**Figure A19.2-6 in Confidential Appendix 19.2, Volume III**)). Assuming a worst-case scenario where construction activity is ongoing simultaneously throughout the entire cable landfall area where it overlaps with this foraging range (32.11 ha, **Table A19.2-2 in Confidential Appendix 19.2, Volume III**) and chough are excluded from this area, this would represent a 15 % reduction in the available foraging area for chough at this nest site. In reality, construction activity will not be ongoing in all areas of the cable landfall area simultaneously so the reduction in chough foraging habitat would be less. However, it is also possible that chough may avoid foraging in areas outside but close to active works areas within the landfall construction area (for example if they avoid areas within distances similar to the flush distances from human activity cited in Paragraph 298 above).
301. Although this would be a temporary loss of feeding habitats, if exclusion from these areas occurs during the chough breeding season there is potential for an adverse effect on the breeding pair at nest A25, for example reduced fledging success or even nest failure.
302. In practice, the foraging range of chough from nest A25 is unlikely to be circular. Foraging transect data provided by RSPB gives an indication the relative use of fields in the vicinity of the landfall and nest A25 by chough (**Figure A19.2-6 in Confidential Appendix 19.2, Volume III**). This indicates that the landfall construction area overlaps with areas of moderate use by chough (based on the total numbers of birds recorded during the survey period January 2013 to May 2017), but that choughs use areas immediately to the east of the landfall site and cable route more intensively and these are likely to be preferred feeding areas for birds nesting at A25. This suggests that while there may be less than 15 % (323,298 m²) temporary loss of preferred feeding areas for nest A25 during construction, there could still be an adverse effect on the breeding success of chough at this nest.
303. There is potentially also overlap between foraging areas for pairs for chough breeding at nests A23, A13 and A12 and nests B1-13 (**Figure A19.2-6 in Confidential Appendix 19.2, Volume III**) using these nests and the Onshore Development Area. Assuming maximum 1 km foraging ranges and exclusion from the onshore cable construction area only, the potential temporary loss of foraging area as a proportion of the foraging range would be 8 % combined for all nest sites (609,141 m²).
304. Outside the breeding season, choughs are not so constrained in their foraging behaviour. Breeding pairs may move to communal roosts with fledged young to join immature / unpaired birds. Studies in Wales have demonstrated that non-breeding chough can forage up to 25 km from roost sites, but that 95 % of all observations of flocks of chough which contained colour-

ringed individuals were within 6 km of the roost (Cross & Stratford 2015). Outside the breeding season birds which may be temporarily displaced from foraging areas overlapping with or close to onshore construction works would be able to find alternative habitats elsewhere. No adverse effects on the survival or condition of individuals would be predicted.

305. Noise modelling has been undertaken for the onshore construction works to predict noise levels in surrounding area. This can be used to assess the likelihood that noise levels would be so high as to be potentially disturbing to birds including chough. Much of the work undertaken on bird responses to airborne noise disturbance in the UK has focussed on wintering estuarine waterbirds (Cutts et al. 2013, Wright et al. 2010). These studies tend to suggest that bird response to noise disturbance is likely to be minor at levels of 60 dBA and lower (note that A refers to A-weighting which approximates the frequency response of the human ear). A distinction may be made between 'average' noise levels (L_{Aeq}) and maximum (impulsive) noise levels (L_{Amax}) (**Chapter 21, Noise and Vibration**). Sudden impulsive noises (for example a gun shot or an explosion) are potentially most likely to cause disturbance reactions. Bird responses to noise may include increased vigilance, suspension of feeding behaviour and flushing, where birds walk, swim or fly away from a noise source. The findings from studies on wintering waterbirds can only be regarded as providing general context to the current assessment as they apply to different species during the non-breeding season (when behavioural responses may differ).
306. At the cable landfall, the worst-case scenario in terms of noise emissions would be HDD. Modelled noise levels (L_{Aeq}) during daytime and night time are shown in **Figures A19.2.9 and A19.2.10 (Volume II)** and are highest during the day. Daytime predictions indicate that levels in excess of 60dBLAeq, which might potentially cause chough to avoid these areas, are only predicted over small areas, mostly within the development footprint. These predictions indicate that noise associated with the works at the cable landfall is not likely to increase the areas from which birds are likely to be excluded due to the presence of construction plant and personnel, as discussed above. Predicted noise levels in the vicinity of the closest nest site to the landfall, A25, about 120 m from the landfall site, are less than 30 dBA and would not be expected to cause disturbance to birds at the nest.
307. As detailed in **Chapter 21, Noise and Vibration**, the impacts of the alternative open cut trenching construction method are expected to be no greater at the nearest sensitive receptors at the landfall location, than the HDD at the landfall.
308. For works associated with the installation of the onshore cable, running initially south and then southeast and east from the landfall site, noise modelling indicates that predicted noise levels reduce to 60 dB L_{Aeq} at a maximum of 147 m from the outer boundary, without mitigation, and 83 m from the boundary with best practical mitigation measures in place. If chough avoid areas where sound levels are in excess of 60 dBA, then, with mitigation in place, they would potentially be displaced around 83 m from the onshore cable working areas. However, given that the noise sources are machinery and likely to be regular/continuous over the period that plant/vehicles are operation, rather than sudden or irregular and impulsive noise, birds may habituate to noise and displacement distances may decrease.
309. Noise and visual disturbance in the eastern part of the Onshore Development Area, associated with HDD for road and rail crossing, and works at the grid connection point (**Figure 19.1, Volume**

II) are not considered in relation to disturbance to chough, as these areas are more than 2 km from any chough nest sites.

310. Chough is a receptor of high importance (**Table 19-6**) and construction disturbance (noise and visual) is considered an impact of low adverse magnitude, due to the potential displacement of nesting pairs from foraging areas close to nest sites during the breeding season (in particular nest site A25 closest to the landfall). The impact is considered to be **moderate adverse** and ecologically significant.

19.6.5.11.3. Mitigation

311. To avoid adverse effects of construction activities at the landfall and the onshore cable route on breeding chough, no construction works (including any potential works in the intertidal area) will take place within 500 m of an active chough nest during the breeding season. The distance of 500m is selected to include the core foraging ranges of chough, based on the foraging distances from empirical studies described in paragraph 297 above. For the purposes of this project, the breeding season is defined as the period from the beginning of April until the end of July (to cover the period immediately before egg laying and the four stages of breeding identified for choughs in Wales by Whitehead et al. (2005): incubation (mid-April to early May), early chick rearing (early May to mid-May), late chick rearing (mid-May to early June), and post-fledging (early June to end of July).

19.6.5.11.4. Residual Impact

312. With this mitigation in place, the impact of construction disturbance on chough would be reduced to negligible and assessed as a **minor adverse** impact on a receptor of high importance.
313. Raptors
314. Peregrine falcons are present in the Onshore Study Area and known to be associated with the mountainous terrain of the Breakwater Country Park and the RSPB reserve and other cliff nesting sites. Peregrines tend to occupy traditional nest sites, with the same eyries being used over successive years, although a pair may have several nest sites within a territory which are used in different years. Records of peregrine falcon sourced during the desk study are shown on **Figure A19.2.7** in confidential **Appendix 19.2, Annex 19.2-2m (Volume III)**.
315. Tawny owls are associated with woodland habitats which have been avoided through the site selection process.
316. Barn owls are present in the Onshore Study Area. The 2007-2011 atlas of breeding and wintering birds (Balmer et al. 2013) indicates that barns owls breed throughout Holy Island. Records of barn owl sourced during the desk study are included in **Confidential Appendix A19.2**, and **Figure A19-2-8 (Volume III)**; these records are mainly for the eastern part of the Study Area.
317. Barn owls nest mainly in agricultural buildings, as well as natural cavities in trees or rock faces and nest boxes (where available). They are associated with rough grassland such as wet meadow habitat where there is an abundance of voles. Most wet meadow habitat has also been

avoided by the site selection process, although under a worst-case scenario there may be some works within the wetland habitat west of the leisure centre.

318. Peregrines and barn owls would be most susceptible to disturbance if construction works within the Onshore Study Area take place close to active nest sites. As the onshore cable route beyond the landfall site follows existing roads, and the Grid Connection Substation is also adjacent to a major road, most of the Onshore Development Area is already subject to existing disturbance from human activity. The main potential for disturbance is therefore considered to be at the cable landfall site.
319. As they often nest near human dwellings, barn owls are considered to be generally tolerant of human activity, although disturbance close to a nest, particularly during the pre-laying and egg-laying periods, can cause nest failure (Ruddock and Whitfield 2007). A survey of expert opinion suggested that disturbance could occur from human activity within 50-100 m from a nest site, although many considered that human approach within 10 m of a nest would not cause disturbance (Ruddock and Whitfield 2007).
320. For peregrine, a survey of expert opinion suggested that nest sites might be disturbed by human activity within 500-750 m; although it was noted that this species may nest in active quarries and on buildings in urban centres, indicating the potential for tolerance / habituation to human activity (Ruddock and Whitfield 2007). Experts have reported that barn owl and peregrine can be conditioned over time (sometimes just a few days) to accept quite high levels of close human activity close to nests that they would not initially tolerate, although the responses of individual pairs may vary widely (Ruddock and Whitfield 2007).
321. Data gathered during the desk study include records of peregrine nest sites for the RSPB South Stack Reserve, which includes coastal and adjacent inland areas within about 500 m north west and about 750 km southeast of the cable landfall area. This information (**Confidential Appendix 19.2, Annex 19.2, Volume III**) indicates that all peregrine nest sites in this area are on coastal cliffs and the closest nest site to the cable landfall site is approximately 1km away, and thus beyond disturbance distance.
322. During the desk study it was not possible to source data on the location of barn owl nest sites, if any, close to the cable landfall site. Information from local sources (Adrienne Stratford, Cross and Stratford Chough Project, and Laura Kudelska, RSPB South Stack Reserve, pers. comm.) indicates that the species does nest in the vicinity of the cable landfall site, but it is not known at the time of writing if anyone undertakes regular monitoring of barn owl nest locations in this area.
323. The opportunity for a direct impact pathway with foraging raptors is very limited, and, although there will be permanent foraging habitat loss where permanent infrastructure is built above ground and temporary habitat loss where buried infrastructure will be located the areas of permanent loss are very small and habitat within the footprint of the Onshore Development Area is considered to be of lower importance for raptors than much of the other habitat on Holy Island. Beyond the cable landfall, the Onshore Cable Route will be located in the local road network as much as possible, which will be subject to ongoing disturbance.
324. Overall raptors are considered to be of medium importance. The magnitude of any indirect impact of disturbance / temporary or permanent habitat loss is considered to be low. Overall,

the risk of impact to raptors is assessed to be **minor adverse** in significance. As a precautionary measure, in case barn owls are found to be nesting close to the cable landfall or other areas of the Onshore Development Area, mitigation is proposed in the form of pre-construction checks for nest sites and consideration of the requirement for a works exclusion buffer (see paragraph 330 below).

19.6.5.11.5. Passerines and Other Species

325. Although the onshore cable route will be installed within the road network as much as possible, there will be requirement for it to extend into the neighbouring habitat which includes breeding habitat for passerines and other species. Suitable habitat for breeding birds within the Onshore Development Area includes hedgerow, scrub, reedbed and marshy grassland, cliff areas and woodland habitat. Woodland habitat will be avoided as part of embedded mitigation, however there is potential for pockets of scrub, hedgerow and marshy grassland habitat to be temporarily disturbed throughout the Onshore Development Area and, under a worst-case scenario, trenching at landfall will take place across a small section of maritime cliff and slope habitat.
326. As detailed in the embedded mitigation (**Section 19.6.3**), vegetation removal will be undertaken outwith the bird breeding season. Breeding birds are considered to be of medium value and under the embedded mitigation, habitat removal works will be undertaken outwith the breeding bird season. The majority of the habitats within the Onshore Development Area will be subject to short term and temporary loss with disturbance associated with the works including duct, noise and human presence. If birds are discouraged from breeding within this footprint (i.e. through the initiation of construction outwith the breeding season) the impact to passerines and other species is anticipated to be low in magnitude, leading to a **minor adverse** impact overall.

19.6.5.11.6. Mitigation

327. In addition to the mitigation described above for chough, the following would apply.
328. A toolbox talk by the ECoW or a suitably qualified ecologist with ornithological expertise will be undertaken as part of the induction of all construction staff.
329. Vegetation removal will be carried out outside the breeding season for birds as far as possible. If vegetation removal is required within the bird breeding period, checks for nesting birds will be carried out by an ecologist; if nests are present the work will be delayed until young have fledged. This mitigation is not practical for large scale development and therefore should only be used if vegetation removal cannot be undertaken outside the bird breeding season in small parcels of land (for example where land access has been a constraint).
330. Pre-construction checks for potential barn owl nesting sites (focusing on agricultural buildings) will be undertaken, in case there are any nests within potential disturbance distance of onshore works. Should any active nests be found, works in the vicinity of the nest will stop pending advice by the ECoW or a suitably qualified ecologist with ornithological expertise on the requirement for a works exclusion buffer around the nest until breeding activity is completed (chicks have fledged, or a nesting attempt has failed).

331. Scrub, hedgerow, marshy grassland and maritime cliff and slope habitat that cannot be avoided will be subject to pre-construction walkover habitat survey in advance of construction commencing to inform the habitat reinstatement plans.
332. Habitat reinstatement will be undertaken following completion of construction, using native species of local provenance. Landscaping plans will take into consideration of creation of breeding bird habitat.

19.6.5.11.7. Residual Impact

333. Following mitigation, impacts to breeding birds are considered to be **negligible to minor adverse**.

19.6.5.12. Construction Impact 12: habitat loss, disturbance or killing of Invertebrates

334. The majority of key habitats for invertebrate species identified during the EP1HS are within the SSSI habitats and have been avoided as part of the route selection process. As the work will be short term and temporary, followed by habitat reinstatement of habitat with native species of local provenance, the impacts to invertebrates are considered to be of low magnitude on low value habitat within the Onshore Development Area, and are therefore assessed to be of **negligible** adverse significance.

19.6.5.12.1. Mitigation

335. No further recommendations or mitigation are made in relation to invertebrates.

19.6.5.12.2. Residual Impact

336. Impact remains as **negligible adverse** significance.

19.6.5.13. Construction Impact 13: Damage to Notable Plant Species

337. The majority of key habitats for notable plant species identified during the EP1HS or from the desk study are within the SSSI areas and cliff top vegetation and have been avoided during the site selection process. Nevertheless, wild leek, spatulate fleawort, spotted rock rose, sea lavender and golden hair lichen have all been recorded within the vicinity of the Onshore Study Area. The wild leek *Allium ampeloprasum* was recorded in the road verge and field edge at Ty Mawr, South Stack Road (see **Figure 19.10, Volume II**), and is potentially at risk of disturbance or removal if work is required to create a new or wider road access point at the entrance to the existing track to Ty Mawr or if other cabling infrastructure is required in this area. Small flowered catchfly has been recorded in a grass verge along the onshore cable corridor. There is potential for damage or removal of these plants during construction activities.
338. These plants are considered to be of medium value and the magnitude of effect is anticipated to be high as wild leek and small flowered catchfly are located within the Onshore Study Area. In addition, further plants of this or other important species may have established within the footprint in the time between survey and construction, any of which would be at risk of damage or destruction during construction. The impact is therefore considered to be **major adverse**.

19.6.5.13.1. Mitigation

339. The location of the wild leek and small flowered catchfly will be clearly marked and identified with 5 m buffer fencing, and this area will be avoided during any construction work. This may require a bypass section of track to be temporarily constructed.
340. Several other notable plants are known to be present in the area surrounding the landfall and Landfall Substation. It is recommended that prior to construction, further detailed botanical survey work is undertaken to ensure the risk of impacts to spatulate (South Stack) fleawort, golden-hair lichen and spotted rock-rose (and other areas of botanically rich vegetation) can be avoided. Such survey work should be carried out in May or June when fleawort is in flower and morning time when spotted rock rose is more likely to flower.
341. If, under a worst-case scenario, the cables are trenched at landfall, further consultation will be undertaken with NRW and RSPB to determine appropriate methods, mitigation and any appropriate consents to undertake the work. This would include any habitat reinstatement and planting schemes which will be detailed in the EAP, along with frequency of any required monitoring programme.
342. A toolbox talk detailing the importance of these plant species will be delivered by the ECoW to all personnel working on site.

19.6.5.13.2. Residual Impact

343. Following the mitigation, the locations of plants will be known and avoided. As a worst case, habitat loss of neutral grassland and maritime cliff and slope will be temporary in the footprint of the landfall cable trenching and onshore cable corridor, with permanent habitat loss within the improved grassland fields for the permanent infrastructure and the magnitude of impact would be reduced to low and therefore the residual impact to notable plant species is assessed to be **minor adverse**.

19.6.5.14. Construction Impact 14: Spread of Non-Native Invasive Species

344. **Table 19-15** shows that Japanese knotweed was identified in four locations on Holy Island during the Extended Phase 1 Habitat Survey, two of which are within the Onshore Development Area. As the construction works will involve bringing in plant and equipment to the Onshore Study Area, including plant which will be used in other areas of the onshore infrastructure where presence of invasive species is known to occur, there is a risk of releasing non-native species into the study area during the construction phase. The risk of introducing non-native species over the long term is anticipated to have an effect of medium magnitude on a medium importance receptor, and results in an impact of at worst **moderate adverse** significance.
345. Location b is in a small walled field just to the south of Ty Mawr at the landfall location. It is recommended that this area is avoided, since roots can extend 7 m laterally (Welsh Government, 2011) a buffer of at least 10 m from the plant is recommended. If work is required in this part of the Onshore Development Area advice from a specialist contractor is recommended.

346. Location c is in the grass verge on the north side of the road adjacent to the onshore cable corridor. This is a small stand of Japanese knotweed and therefore unlikely to have an extensive underground root system; however, the excavation of soil in close proximity to this plant may have potential to spread root material, by disturbing rhizomes of the plant.
347. Since this plant occurs in various locations in the local area, as good practice it is recommended that contractors on the project are made aware of the presence of this species and the correct course of action to be followed if they encounter it (i.e. avoid, stop work in this area and seek further advice).

19.6.5.14.1. Mitigation

348. Mitigation measures to minimise risks will include the following:
- A pre-construction survey will be undertaken to ascertain up-to-date locations of any non-native invasive species within the Study Area;
 - An Invasive Species Management Plan (specific to Japanese knotweed) will be included in the CoCP; and
 - A toolbox talk will be delivered by the ECoW to all personnel working on site.
349. A buffer of 10 m will be placed around the known strands. If work is required in close proximity to the plants (e.g. within 7 m), advice from a specialist contractor is recommended to determine how any spoil generated from the work should be dealt with (for example, any possibly contaminated spoil may need to be disposed of at waste facility that is licenced to accept controlled waste), and to agree an appropriate working method in this area. Treatment of strands of Japanese knotweed may be required if avoidance is not possible.

19.6.5.14.2. Residual Impact

350. Following mitigation, the potential impact of risk of spread of non-native invasive species is reduced to **minor adverse** significance.

19.6.6. Potential Impacts During Operation

351. Potential operational impacts include noise associated with the transformers, cooling systems within the Landfall Substation, Grid Connection Substation and Switchgear Building, and occasional staff / tenant vehicle movements during site visits (see also **Chapter 22, Noise and Vibration**). Planned maintenance visits would be undertaken in the daytime. Unplanned maintenance could (if an emergency) potentially be undertaken at night but would be very rare.
352. Due to the very low presence of vehicles and staff anticipated for operation and maintenance of the onshore infrastructure (See **Chapter 4, Project Description** for details), negligible disturbance impacts are predicted for all ecological receptors identified at the construction phase, with the exception of bats.

19.6.6.1. Operational Impact 1: Disturbance to Foraging and Commuting Routes for Bats

353. Any lighting of the permanent buildings will have the potential to affect foraging and commuting bats using the woodland edges in the surrounding area. As mentioned under **Section 19.6.5.8**,

this may require bats to change their foraging and commuting route, thus expending more energy.

354. The potential impact is considered to be negative, probable, permanent and of long-term duration (37 years). The magnitude of the impact is considered to be low due to the limited habitat potential and exposure of the island for foraging and commuting with low activity of bat species. Overall, a **minor adverse** impact is predicted at the local level.

19.6.6.1.1. Mitigation

355. Lighting will be designed in accordance with Bats and artificial Lighting in the UK (BCT, ILE, 2018); and Guidance Notes for the Reduction of Obtrusive Light ILE (2011). This is likely to require:
- No direct lighting of the woodland edges, scrub and hedgerow habitats, and use of dark buffer zones;
 - Consideration of appropriate luminaire specifications, sensitive light configuration, screening, glazing, dimming and part-night lighting to minimise impacts;

19.6.6.1.2. Residual impact

356. Following the implementation of the mitigation proposed above, a **negligible** adverse impacted is predicted.

19.6.7. Potential Impacts During Decommissioning

357. The onshore cable will remain in situ where buried either under the road or verge but removed where laid on surface at landfall. If any portion of cable is buried the ends would be terminated and it left in situ. The worst case for the decommissioning phase would be the complete removal of the Landfall Substation, the Grid Connection Substation, the Switchgear Building. In this case, decommissioning is expected to give rise to similar impacts as those described for the construction phase. However, as certain activities would not be undertaken (e.g. HDD) the magnitude of any impact will be lower.
358. As mentioned in **Chapter 4, Project Description**, a detailed decommissioning plan will be submitted for approval by the regulatory authorities prior to construction.

19.6.8. Cumulative Impacts

359. This section describes the CIA for terrestrial ecology, taking into consideration other plans, projects and activities. This has been undertaken as a two-stage process, with the first stage comprising assessing all the impacts from the previous sections for the potential to act cumulatively with other projects. This summary assessment is set out in **Table 19-22** below.

Table 19-22 Potential Cumulative Impacts

Impact	Potential for Cumulative Impact	Data Confidence	Rationale
Construction			
Impact 1: habitat loss or disturbance of features of statutory designated nature conservation sites	Yes	Medium	Impacts to interest features of designated sites may be exacerbated by other projects
Impact 2: habitat loss or disturbance of features of non-statutory designated nature conservation sites	Yes	Medium	Impacts to interest features of designated sites may be exacerbated by other projects
Impact 3: habitat loss (grasslands, wetland habitat, hedgerow)	Yes	Medium	Loss of habitat due to other projects may increase the cumulative loss of habitat within the county
Impact 4: habitat loss, disturbance or killing of otter	Yes	Medium	Impact to species due to other projects may increase the cumulative impacts to species within the county
Impact 5: habitat loss, disturbance or killing of water vole	Yes	Medium	Impact to species due to other projects may increase the cumulative impacts to species within the county
Impact 6: habitat loss, disturbance or killing of red squirrel	Yes	Medium	Impact to species due to other projects may increase the cumulative impacts to species within the county
Impact 7: habitat loss, disturbance or killing of badger	Yes	Medium	Impact to species due to other projects may increase the cumulative impacts to species within the county
Impact 8: habitat loss, disturbance or killing of bats	Yes	Medium	Impact to species due to other projects may increase the cumulative impacts to species within the county
Impact 9: habitat loss, disturbance or killing of reptiles	Yes	Medium	Impact to species due to other projects may increase the cumulative impacts to species within the county
Impacts 10: habitat loss, disturbance or killing of GCN	Yes	Medium	Impact to species due to other projects may increase the cumulative impacts to species within the county
Impacts 11: habitat loss, disturbance or killing of birds	Yes	Medium	Impact to species due to other projects may increase the cumulative impacts to species within the county
Impact 12: habitat loss, disturbance or killing of invertebrates	Yes	Medium	Impact to species due to other projects may increase the cumulative impacts to species within the county

Impact	Potential for Cumulative Impact	Data Confidence	Rationale
Impact 13: damage to notable plants	Yes	Medium	Impact to species due to other projects may increase the cumulative impacts to species within the county
Impact 14: Spread of non-native invasive species	Yes	Medium	Other projects may exacerbate the risk from invasive species within the county
Operation			
Impact 1: Disturbance to foraging and commuting routes for bats	Yes	Medium	Impact to species due to other projects may increase the cumulative impacts to species within the county
Decommissioning			
Contractual details relating to decommissioning are yet to be finalised, however the ultimate responsibility for the decommissioning of the general onshore electrical infrastructure will lie with Menter Môn. At this stage, this is expected to consist primarily of removal of the Landfall Substation, the Grid Connection Substation, the Switchgear Building.			

360. The second stage of the CIA is an assessment of whether there is spatial or temporal overlap between the extent of potential effects of the onshore project area, and the extent of potential effects of other projects scoped into the CIA on the same receptors. To identify whether this may happen, the potential nature and extent of effects arising from all projects scoped into the CIA have been identified and any overlaps between these and the effects identified above. Where there is an overlap, an assessment of the cumulative magnitude of effect is provided.
361. Projects taking place in the marine areas surrounding Holy Island and Anglesey have been scoped out of this chapter due to the limited potential for impacts to act cumulatively between marine and terrestrial ecology. Marine impacts are covered within **Chapter 9, Benthic and Intertidal Ecology**. In addition, due to the small-scale nature of the onshore project area and its island location in respect of terrestrial ecology receptors, those projects at a greater distance than 10 km away have also been scoped out.
362. **Table 19-23** summarises those projects which have been scoped into the CIA due to their temporal or spatial overlap with the potential effects arising from the project. The remainder of the section details the nature of cumulative impacts against all those receptors scoped in for cumulative assessment.
363. The assessment set out in **Table 19-23** demonstrates that there is no potential for cumulative impacts arising between the proposed onshore elements of the Project and other proposed onshore developments in the study area for onshore ecology.

**Table 19-23 Summary of Projects Considered for the CIA in relation to onshore ecology**

Project	Status	Distance from the Project (km)	Project data status	Included in CIA	Rationale
Reclamation adjacent to Terminal 4 of the Port of Holyhead	Scoping Report submitted 28/04/17	2	Medium	No	This project is unlikely to have an impact on the same onshore ecology receptors as the proposed Morlais project due to its distance from the designated sites and habitats considered as part of the Morlais onshore ecology assessment. There is not anticipated to be an interaction or cumulative impact on onshore ecology receptors between these two projects and therefore it has been scoped out of further assessment.
Holyhead Waterfront Redevelopment	Pre-application	2	Medium	No	This project is unlikely to have an impact on the same onshore ecology receptors as the proposed Morlais project due to its distance from the designated sites and habitats considered as part of the Morlais onshore ecology assessment. There is not anticipated to be an interaction or cumulative impact on onshore ecology receptors between these two projects and therefore it has been scoped out of further assessment.
Holy Island Resort	Planning permission granted.	2.5	Medium	No	Project components located close to the Holy Island Resort proposed project area are being constructed on land that formed part of the demolished aluminium works near the location of the proposed Morlais Grid Connection Substation and are therefore potential to impact on OMH and other habitats at this location. The Morlais project will avoid sensitive habitats such as woodland and marshy land, and there is anticipated to be minor beneficial impacts to OMH due to removal of scrub habitat. There is not anticipated to be a significant impact to ecological connectivity at this site and therefore there is not anticipated to be a cumulative impact between these two projects and therefore it has been scoped out of further assessment.
Sirius SBC	Pre-application	4	Medium	No	This project is unlikely to have an impact on the same onshore ecology receptors as the proposed Morlais project due to its distance from the designated sites and habitats considered as part of the Morlais onshore ecology assessment. There is not anticipated to be an interaction or cumulative impact on onshore ecology receptors between these two projects and therefore it has been scoped out of further assessment.



Project	Status	Distance from the Project (km)	Project data status	Included in CIA	Rationale
Anglesey Eco Park Power Station	Outline planning permission is in place. A full planning application for the development is expected to have an accompanying Environmental Statement, but this is not yet available.	5	Medium	No	This project is unlikely to have an impact on the same onshore ecology receptors as the proposed Morlais project due to its distance from the designated sites and habitats considered as part of the Morlais onshore ecology assessment. There is not anticipated to be an interaction or cumulative impact on onshore ecology receptors between these two projects and therefore it has been scoped out of further assessment.

19.6.9. Inter-relationships

364. **Table 19-24** lists out the inter-relationships between other chapters within the ES.

Table 19-24 Inter-topic relationships

Topic	Related Chapter	Where addressed in this Chapter	Rationale
Marine Ornithology	Chapter 11	Section 19.6.5 (Impacts 1,2 and 11)	Both chapters consider the potential effects of the project on birds and the designated sites which create their habitat, however Chapter 11, Marine Ornithology looks at sea birds (including cliff nesting) and the Onshore Ecology chapter considers terrestrial species.
Benthic and Intertidal Ecology	Chapter 9	Section 19.6.5 (Impact 1)	Both chapters consider the potential effects of the project on designated sites
Water Resources and Flood Risk	Chapter 17	Section 19.6.5 (Impacts 1 and 2)	The Onshore Ecology chapter takes account of the assessments made in Chapter 17, Water Resources and Flood Risk which consider potential impacts to groundwater to assess any associated impacts to designated sites and habitats.
Noise and Vibration	Chapter 21	Section 19.6.5 (all impacts).	The Onshore Ecology chapter takes account of the assessments made in Chapter 21, Noise and Vibration for considering potential impacts of noise and vibration to designated sites and species.
Air Quality	Chapter 22	Section 19.6.5 (all impacts)	The Onshore Ecology chapter takes account of the assessments made in Chapter 22, Air Quality for considering potential impacts of air quality to designated sites, habitats and species.
Seascape, Landscape and Visual Impact Assessment (SLVIA)	Chapter 24	Section 19.6.5 (Impacts 1,2 and 3)	Both chapters consider the potential effects of hedgerow and tree removals, the LVIA considering the impact on hedgerows and trees as landscape elements (Chapter 25, SLVIA) and the Onshore Ecology assessment considering the impact on hedgerows and trees as important ecological assets. Both chapters consider the mitigation of hedgerow and tree loss in respect of proposals to replant. The OLEMS (document reference 8.7) sets out the approach to replanting.

19.6.10. Interactions

365. The impacts identified and assessed in this chapter have the potential to interact with each other, which could give rise to synergistic impacts as a result of that interaction. The worst case impacts assessed within the chapter take these interactions into account and for the impact assessments are considered conservative and robust. For clarity the areas of interaction between impacts are presented in **Table 19-25**, along with an indication as to whether the interaction may give rise to synergistic impacts.

366. The table shows potential interactions during construction. As only one potential impact is anticipated during operation, there are not predicated to be interactions between impacts during the operation phase.



Table 19-25 Potential interactions

Potential interaction between impacts														
Impact	1: Statutory designated nature conservation designated sites	2: Non-statutory designated nature conservation designated sites	3: Habitat loss and fragmentation	4 habitat loss, disturbance or killing of otter	5 habitat loss, disturbance or killing of water vole	6 habitat loss, disturbance or killing of red squirrel	7 habitat loss, disturbance or killing of badger	8 habitat loss, disturbance or killing of bats	9 habitat loss, disturbance or killing of reptiles	10 habitat loss, disturbance or killing of GCN	11: habitat loss, disturbance or killing of birds	12: habitat loss, disturbance or killing of invertebrates	13: damage to notable plant species	14: Spread of non-native invasive species
Construction														
1: Statutory designated nature conservation designated sites	-	Yes	Yes	Yes	No	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes
2: Non-statutory designated nature conservation designated sites	Yes	-	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3: Habitat loss and fragmentation	Yes	Yes	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

Potential interaction between impacts														
Impact	1: Statutory designated nature conservation designated sites	2: Non-statutory designated nature conservation designated sites	3: Habitat loss and fragmentation	4 habitat loss, disturbance or killing of otter	5 habitat loss, disturbance or killing of water vole	6 habitat loss, disturbance or killing of red squirrel	7 habitat loss, disturbance or killing of badger	8 habitat loss, disturbance or killing of bats	9 habitat loss, disturbance or killing of reptiles	10 habitat loss, disturbance or killing of GCN	11: habitat loss, disturbance or killing of birds	12: habitat loss, disturbance or killing of invertebrates	13: damage to notable plant species	14: Spread of non-native invasive species
Construction														
4 habitat loss, disturbance or killing of otter	Yes	Yes	Yes	-	No	No	No	No	No	No	No	No	No	No
5 habitat loss, disturbance or killing of water vole	No	Yes	Yes	No	-	No	No	No	No	No	No	No	No	No
6 habitat loss, disturbance or killing of red squirrel	No	Yes	Yes	No	No	-	No	No	No	No	No	No	No	No
7 habitat loss, disturbance or killing of badger	No	Yes	Yes	No	No	No	-	No	No	No	No	No	No	No

Potential interaction between impacts														
Impact	1: Statutory designated nature conservation designated sites	2: Non-statutory designated nature conservation designated sites	3: Habitat loss and fragmentation	4 habitat loss, disturbance or killing of otter	5 habitat loss, disturbance or killing of water vole	6 habitat loss, disturbance or killing of red squirrel	7 habitat loss, disturbance or killing of badger	8 habitat loss, disturbance or killing of bats	9 habitat loss, disturbance or killing of reptiles	10 habitat loss, disturbance or killing of GCN	11: habitat loss, disturbance or killing of birds	12: habitat loss, disturbance or killing of invertebrates	13: damage to notable plant species	14: Spread of non-native invasive species
Construction														
8 habitat loss, disturbance or killing of bats	No	Yes	Yes	No	No	No	No	-	No	No	No	No	No	No
9 habitat loss, disturbance or killing of reptiles	Yes	Yes	Yes	No	No	No	No	No	-	No	No	No	No	No
10 habitat loss, disturbance or killing of GCN	No	Yes	Yes	No	No	No	No	No	No	-	No	No	No	No
11: habitat loss, disturbance or killing of birds	Yes	Yes	Yes	No	No	No	No	No	No	No	-	No	No	No



Potential interaction between impacts														
Impact	1: Statutory designated nature conservation designated sites	2: Non-statutory designated nature conservation designated sites	3: Habitat loss and fragmentation	4 habitat loss, disturbance or killing of otter	5 habitat loss, disturbance or killing of water vole	6 habitat loss, disturbance or killing of red squirrel	7 habitat loss, disturbance or killing of badger	8 habitat loss, disturbance or killing of bats	9 habitat loss, disturbance or killing of reptiles	10 habitat loss, disturbance or killing of GCN	11: habitat loss, disturbance or killing of birds	12: habitat loss, disturbance or killing of invertebrates	13: damage to notable plant species	14: Spread of non-native invasive species
Construction														
12: habitat loss, disturbance or killing of invertebrates	Yes	Yes	Yes	No	No	No	No	No	No	No	No	-	No	No
13: damage to notable plant species	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	-	No
14: Spread of non-native invasive species	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	-

19.7. SUMMARY

367. The main potential impacts of the Project on terrestrial ecological receptors have been identified. These have included impacts to statutory and non-statutory designated sites, temporary habitat loss, and potential injury or killing of protected and notable species during the construction phase of the project.
368. Potential impacts during the construction phase, without mitigation, were considered to range from **negligible** to **major adverse** significance.
369. Following the adoption of the recommended best practice guidance and mitigation measures, the residual impacts to the majority of ecological receptors from construction of Morlais will be of **negligible to minor adverse significance** in the short to medium term whilst disturbed habitats re-establish following habitat reinstatement.
370. The preference for bringing the cables ashore at landfall is to use HDD technology. Under this scenario, there will be no impact to the Glannau Ynys Gybi / Holy Island Coast SSSI/SPA/SAC or its designated / notified species or habitats. Should HDD not be possible, there will be impacts up to **moderate adverse** in significance to the vegetated sea cliffs of the Atlantic Coast habitat feature. There will be temporary habitat loss in the 70m corridor of cable trenching and 60 m of construction footprint on the cliff face during construction and recovery of this vegetation type. All structures laid upon the cliff face and foreshore will be removed upon decommissioning, any buried cables will remain *in situ*.
371. Although the project will impact on the designated habitat, the percentage of the designated site affected is assessed to be *de minimis* with permanent impacts affecting 0.004% of the designated site, and no impact to site integrity is anticipated.
372. A summary of the potential impacts identified is provided in **Table 19-26** below.

**Table 19-26 Potential Impacts Identified for Onshore Ecology**

Potential Impact	Receptor	Value	Magnitude	Significance	Additional Mitigation Measures	Residual Impact
Construction						
Impact 1: Statutory designated nature conservation designated sites	Glannau Ynys Gybi / Holy Island Coast SSSI/SPA/SAC and Tre Wilmot SSSI	Worst case High	Medium	Worst case Major adverse	Habitat management plan, in consultation with IOACC and NRW, appropriate turf storage for habitat reinstatement.	Worst case Moderate adverse
	Beddmanarch-Cymryan SSSI	High	Low	Minor adverse		Negligible
Impact 2: Non-statutory designated nature conservation designated sites	Local Wildlife Sites	Medium	No impact	No impact	Habitat reinstatement plan	Minor adverse
	Ancient woodlands	Medium	Negligible	Negligible		Negligible
	South stacks RSPB Reserve	Medium	Low	Minor adverse		Negligible
	Breakwater Country Park	Medium	low	Minor adverse		Negligible -
Impact 3: Habitat loss and fragmentation	Grasslands	Low	Medium	Minor adverse	Micro-siting, management of construction boundaries tool box talks, habitat reinstatement	Minor adverse
	Hedgerows and trees	Medium	medium	Moderate adverse		Minor adverse
	Lowland fen and reedbed	Medium	Medium	Moderate adverse		Minor adverse
	Open mosaic habitat	Low	Low	Minor adverse		Minor beneficial
	Cloddiau	Medium	Low - high	Minor adverse – major adverse		Minor adverse
Impact 4 habitat loss, disturbance or killing of otter	Otter	Low	Low	Minor adverse	Pre- construction survey, tool box talks, use of exit ramps	Negligible
Impact 5 habitat loss, disturbance	Water vole	Low	Low	Minor adverse	Pre- construction survey, tool box talks	Negligible



Potential Impact	Receptor	Value	Magnitude	Significance	Additional Mitigation Measures	Residual Impact
or killing of water vole						
Impact 6 habitat loss, disturbance or killing of red squirrel	Red squirrel	Medium	Negligible	Minor adverse	Pre- construction survey, tool box talks	Negligible
Impact 7 habitat loss, disturbance or killing of badger	Badger	Medium	High	Moderate adverse	Preconstruction survey, tool box talks, licence for works within 30m of active sett, monitoring, potential sett exclusion under licence and creation of replacement set, exit ramps	Minor adverse
Impact 8 habitat loss, disturbance or killing of bats	Roosting bats	Medium	Low	Minor adverse	Sensitive lighting regime, toolbox talks, bat survey of historic roost, buffers	Negligible
	Foraging and commuting bats	Low	Low	Minor adverse		
Impact 9 habitat loss, disturbance or killing of reptiles	Reptiles	Low - Medium	Medium	Minor - moderate	Pres construction survey, precautionary methods of vegetation clearance, mitigation strategy, toolbox talks	Minor adverse
Impacts 10 habitat loss, disturbance or killing of GCN	GCN	Low	Low	Minor adverse	Pre- construction eDNA survey, toolbox talk	Negligible
Impacts 11: habitat loss, disturbance or killing of birds	Seabirds	See Chapter 11, Offshore Ornithology				
	Chough	High	Low	Moderately adverse	no construction works will take place within 500m of an active chough nest during the breeding season	Minor adverse
	Raptors	Medium	Low	Minor adverse	Toolbox talks, pre-construction surveys for barn owls in any agricultural buildings within the Onshore Study Area	Negligible - Minor adverse



Potential Impact	Receptor	Value	Magnitude	Significance	Additional Mitigation Measures	Residual Impact
	Passerines and other species	Medium	Low	Minor adverse	Commence work outwith the breeding bird season, toolbox talks, micro-siting, habitat reinstatement	Negligible – minor adverse
Impact 12: habitat loss, disturbance or killing of invertebrates	Invertebrates	Low	Low	Negligible	None	negligible
Impact 13: damage to notable plant species	Notable plants	Medium	High	Major adverse	Pre construction surveys, protective buffers, habitat reinstatement, toolbox talks	Minor adverse
Impact 14: Spread of non-native invasive species	Japanese knotweed	Medium	Medium	Moderate adverse	Pre construction survey, invasive species management plan, toolbox talks	Minor adverse
Operation						
Impact 1: Disturbance to foraging and commuting routes for bats	Bats	Low	Low	Minor adverse	Sensitive lighting regime, toolbox talks	Negligible
Contractual details relating to decommissioning are yet to be finalised, however the ultimate responsibility for the decommissioning of the general onshore electrical infrastructure will lie with Menter Môn. At this stage, this is expected to consist primarily of removal of the Landfall Substation, the Grid Connection Substation, the Switchgear Building.						

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